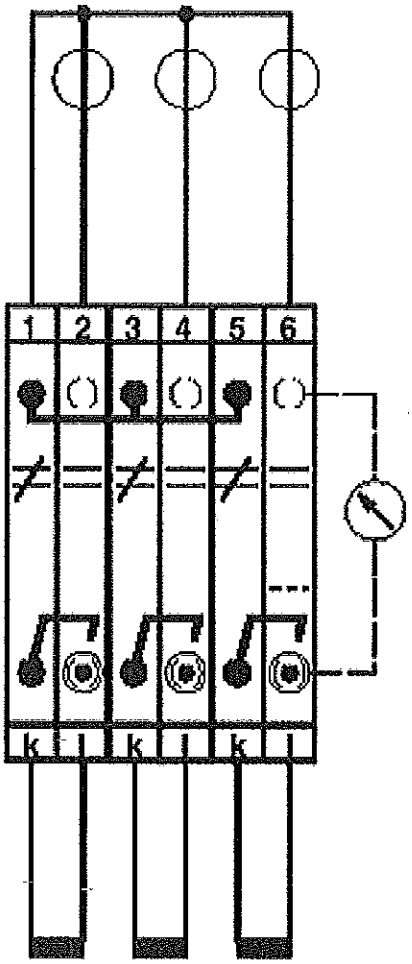
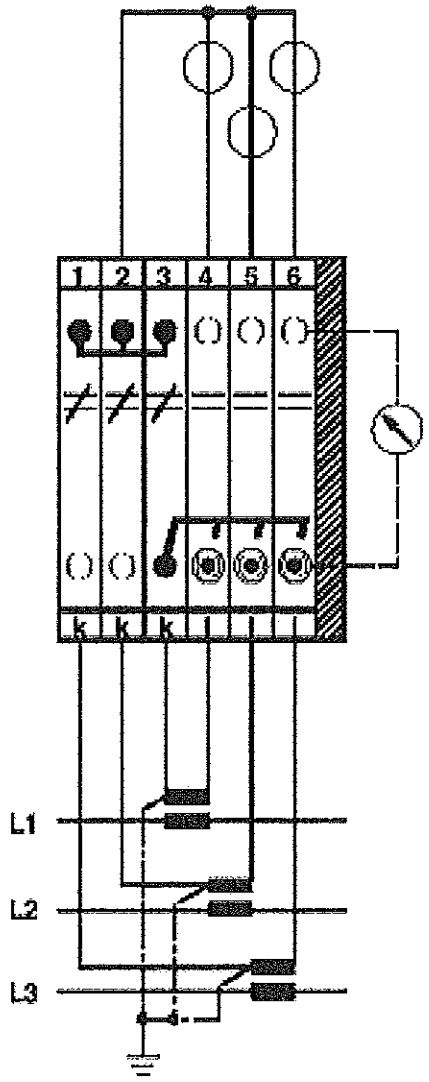
155

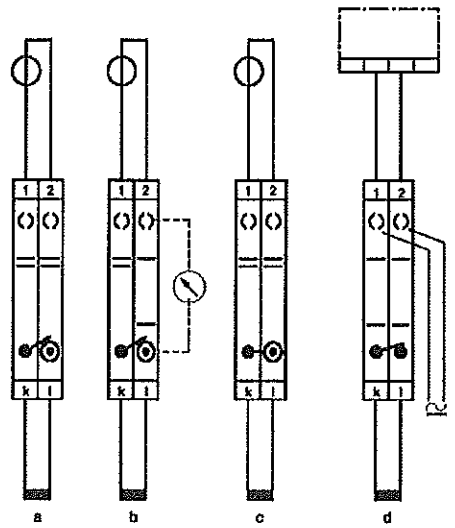
Schematic diagram



Three-phase transducer test set



Three-phase linked transducer test set



Simple current transformer test circuit
a = normal operation
b = measured value testing
c = transformer short-circuit
d = relay testing

Address

PHOENIX CONTACT GmbH & Co. KG
Flachsmarktstr. 8
32825 Blomberg,Germany
Phone +49 5235 3 00
Fax +49 5235 3 41200
http://www.phoenixcontact.com

DET NORSKE VERITAS

TYPE APPROVAL CERTIFICATE

CERTIFICATE NO. E-9230
This Certificate consists of 6 pages

This is to certify that the
Terminal Block
with type designation(s)
MBKKB, MT, MTTB, UK, UKKB, ZFK;MBK, UHSK, UKH, UK, PIK, UKKB, UKK, MTK, UDK, URTK; URELG, UVKB.;USLKG

Holder of certificate
Phoenix Contact GmbH & Co. KG
BLOMBERG LIPPE, Germany

is found to comply with
Det Norske Veritas' Rules for Classification of Ships, High Speed & Light Craft and Det Norske Veritas' Offshore Standards

Application
Modular through terminal blocks. Protective ground terminal blocks. For use in Marine and Offshore Applications

Place and date
Høvik, 2009-02-10
for DET NORSKE VERITAS AS

Marit Laumann
Head of Section

Local Office
DNV Essen

This Certificate is valid until
2012-12-31

Ivar Bull
Surveyor

Notice: This Certificate is subject to terms and conditions overleaf. Any significant change in design or construction may render this Certificate invalid. The validity date relates to the Type Approval Certificate and not to the approval of equipment/systems installed.

Cert. No.: E-9230
File No.: 828.30
Job Id.: 2621-000839-3

Name & Place of Manufacturer

for Phoenix Contact Type approved products:

Phoenix Contact GmbH & Co. KG
Flachsmarktstr. 8
32825 Blomberg
Germany

Phoenix Feinbau GmbH & Co. KG
Gustavstr. 3
58511 Lüdenscheid
Germany

Elektrotechnik Crottendorf (ETC)
Am Gewerbgebiet 5
09474 Crottendorf
Germany

Phoenix Contact Wielkopolska Spolka z.o.o.
Ul. Celna 5
64-300 Nowy Tomysl
Poland

Eviop Tempo S.A.
Leoforos Kymis 212
340 02 Vasilikon
Greece

Phoenix Contact Asia-Pacific (Nanjing) Co. Ltd.
36 Phoenix Road
Jiangning Nanjing
211100 Nanjing
Peoples Republic of China

Product description

Modular straight through terminal blocks with srew connection according to the following type designations:

Type designation	Cross-section [mm²]	Rated Current [A]	Rated Insulation Voltage [V]	Cat. No.
MBKKB 2,5	2,5/4	24	500	1414064
MT 1,5	1,5	17,5	400	3100305
MT 1,5-PE	1,5		-	3100318
MT 1,5-TWIN	1,5	17,5	400	3001682
MT 1,5-TWIN-PE	1,5		-	3001705
MT 1,5-QUATTRO	1,5	16	400	3001679
MT 1,5-QUATTRO-PE	1,5		-	3001695
MTTB 1,5	1,5	17,5	400	1414129
UK 1,5 N	1,5	17,5	500	3005837
UK 2,5 N	2,5	24	800	3003347
UK 3 N	2,5/4	24/32	800	3001501

Cert. No.: E-9230
File No.: 828.30
Job Id.: 262.1-000839-1

Type designation	Cross-section [mm²]	Rated Current [A]	Rated Insulation Voltage [V]	Cat. No.
UK 5 N	4/6	32/41	800	3004362
UK 6 N	6/10	41/57	800	3004524
UK 10 N	10/16	57/76	800	3005073
UK 16 N	16	76	800	3006043
UK 5 RETURN	4/6	32/41	500	3002597
UK 5 RETURN-PE	4/6		-	3002584
UK 5 RETURN-PE-1	4/6		-	3002636
UKKB 5	4/4	32	500	2771146
UKKB 5-PE	4/4		-	3007123

Polyamide terminal blocks

Type designation	Cross-section [mm²]	Rated Current [A]	Rated Insulation Voltage [V]	Ins. Material	Cat.No
MBK	1,5	18	500	PA	1401019
MBK 5/E	4	34	500	PA	1415076
UK 3	2,5	26	750	PA	3002018
UKKB 3	2,5	26	500	PA	2771010
UK 4	2,5	26	750	PA	3003017
UDK 4	2,5	26	750	PA	2775016
UDK 4-MTK	2,5	15	750	PA	2775265
UVKB 4-FS	2,5(4)	40	500(2)	PA	1954016
UVKB 4-FS/FS	2,5(4)	40	500(2)	PA	1953017
PIK 4-PE/L/L	4	26	380	PA	2714022
PIK 4-L/L	4	26	380	PA	2714035
PIK 4-L	4	26	380	PA	2714048
UK 5	4	34	750	PA	3004016
UK 5-MTK	4	15	750	PA	3004032
UKK 5	4	34	500	PA	2774017
UKK 5-DIO	4	34/1(3)	500	PA	2791016
UK 10	6	44	750	PA	3005015
URTK/S	10	61	380	PA	0311087
URTK/S-BEN	10	61	500	PA	0309086
UK 16	10	61	750	PA	3006014
UHSK/S 2000	10	61	2000	PA	0704076
UKH 25	25	108	1000	PA	3009011
UKH 50	50	168	1000	PA	3009178
UKH 95	95	250	1000	PA	3010013
UKH 150	150	335	1000	PA	3010110

Cert. No.: E-9230
File No.: 828.30
Job Id.: 262.1-006839-3

Type designation	Cross-section [mm²]	Rated Current [A]	Rated Insulation Voltage [V]	Ins. Material	Cat.No
UKH 240	240	453	1000	PA	3010217
MTK	2,5	15	380	PA	3101016
MTK-P/P	2,5	15	380	PA	3104013
UK4-T-P/P	2,5	16	500	PA	3042010
URELG 3	2,5	4)	250	PA	2820136
URELG 4	2,5	4)	250	PA	2820149
URELG 7	2,5	4)	250	PA	2820178
URELG 3-PMTK	4	10(4)	250	PA	2820709
URELG 4-PMTK	4	10(4)	250	PA	2820712
URELG 7-PMTK	4	10(4)	250	PA	2820725

1) Insulating material Polyamid 6.6
2) The rated voltage is of value for full insulated tabs.
3) Continous/limit current of the diode.
4) The current limit is determined by the relay.

End cover, partition plate and separating plate to be used according to the Phoenix catalogue.

Protective ground terminal block with screw terminal connection according to the following type designations:

Type designation	Cross-section [mm²]	Ins. Material	Cat.no.
USLKG 1,5 N	1,5	PA	3005853
USLKG 2,5 N	2,5	PA	0441119
USLKG 6 N	6	PA	0442079
USLKG 10 N	10	PA	3003923
USLKG 16 N	16	PA	0443023
USLKG 3	2,5	PA	0441083
USLKG 4	4	PA	0441012
USLKG 5	4	PA	0441504
USLKG 10	10	PA	0442011
USLKG 16	16	PA	0443010
USLKG 35	35	PA	0444019
USLKG 50	50	PA	0443049

1) Insulating material Polyamid 6.6

End cover, partition plate and separating plate to be used according to Phoenix catalogue.

Cert. No.: E-9230
File No.: 828.30
Job Id.: 262.1-000839-3

Application/Limitation

End cover, partition plate and separating plate to be used according to Phoenix catalogue. As to the workmanlike mounting, the accessories indicated in the Phoenix-catalogue shall be taken into consideration.

Type Approval documentation

Type designation	Data sheet	Dated	DS-No
MBKKB 2,5	EV-FEA/Ni/Schu	95.05.03	1239 Rev. 03
MT 1,5	EV-FEA/Krö/Schu	97.05.20 .	0415 Rev. 01
MT 1,5-PE	EV-FEA/Krö/Schu	97.05.20	0662 Rev. 01
MT 1,5-TWIN	EV-FEA/Krö/Schu	97.05.20	0425 Rev. 01
MT 1,5-TWIN-PE	EV-FEA/Krö/Schu	97.05.20	0663 Rev. 01
MT 1,5-QUATTRO	EV-FEA/Krö/Schu	97.05.20	0421 Rev. 02
MT 1,5-QUATTRO-PE	EV-FEA/Krö/Schu	97.05.15	0664 Rev. 01
MTTB 1,5	EV-FEA/Krö/Schu	97.05.15	0417 Rev. 01
UK 1,5 N	EV-FEA/Krö/Schu	97.11.05	0042 Rev. 06
UK 2,5 N	EV-FEA/Ni/Schu	97.11.05	0808 Rev. 00
UK 5 N	FEAL/Ni/Schu	94.07.26	0647 Rev. 05
UK 16 N	EV-FEA/Krö/Schu	98.02.19	0272 Rev. 05
UK 5-RETURN	FEAL/Ni/Schu	94.08.19	0376 Rev. 01
UK 5-RETURN-PE	FEAL/Ni/Schu	94.12.20	0430 Rev. 01
UK 5-RETURN-PE-I	FEAL/Ni/Schu	94.12.20	0980 Rev. 00
ZFK 4-TG	EV-FEA/Töb/Schu	95.07.04	0356 Rev. 00

Phoenix contact test report no	3.01-3.15	26.10.-16.12.1983
Phoenix contact test report no	3.01.-3.13	06.01.1984
Phoenix contact test report no	DS-No. 1163 FEAL/Ni/Schu rev. 7	20.05.1994

VDE Prüfbericht 4596-9000-4006/A2 Dr. Dg-th-me
Bundesanstalt für Materialprüfung 3.2/3376/84

Phoenix contact test report 3.01.-3.15
Phoenix contact test report no. 3.0-3.13
Verband Deutcher Elektrotechniker (VDE) Prüfbericht 4596-9000-4006/A2 Dr. Dg-th-me
Bundesanstalt für Materialprüfung 3.2/3376/84

Type designation	Data sheet	Dated	DS-No	Test-Nos. f)
USLKG 1,5 N	EV-FEA/Krö/Schu	97.11.05	0807 Rev. 00	[illegible]
USLKG 2,5 N	EV-FEA/Ni/Schu	97.06.20	0467 Rev. 05	2[illegible]
USLKG 6 N	EV-FEA/Krö/Schu	98.03.31	0416 Rev. 02	[illegible]

Cert. No.: E-9230
File No.: 828 60
Job Id.: 262.1-000839-3

USLKG 10 N	EV-FEA/Krö/Schu	98.04.28	0492 Rev. 02	1)
USLKG 16 N	EV-FEA/Ni/Schu	95.06.12	1081 Rev. 04	2) & 3)
USLKG 3	EV-FEA/Ni/Schu	97.06.24	0468 Rev. 05	2) & 3)
USLKG 5	EV-FEA/Ni/Schu	97.04.18	0279 Rev. 06	2) & 3)
USLKG 50	EV-FEA/Ni/Schu	95.08.18	0573 Rev. 04	2) & 3)

*) For description of tests carried out on the specific product, please see the section below.

Tests carried out

IEC 60947-7-1 (2002), IEC 60947-7-2 (2002)

1) IEC 947-7-2 (2002)
2) DIN VDE 0611-3 (1989-11)
3) IEC 17B (Sec) 446 (1992) (partly)

Marking of product

Phoenix Contact - Type designation - Main data.
All type designation may be followed by suffix such as color or packaging options.

Certificate retention survey

The scope of the retention/renewal survey is to verify that the conditions stipulated for the Type approval is complied with and that no alterations are made to the product design or choice of materials.

The main elements of the survey are:

- Inspection on factory samples, selected at random from the production line (where practicable)
- Results from Production Sample Tests (PST) and Routines (RT) checked (if not available tests according to PST and RT to be carried out)
- Review of type approval documentation
- Review of possible change in design, materials and performance
- Ensuring traceability between manufacturer's product type marking and Type Approval Certificate.

Survey to be performed at least every second year.

END OF CERTIFICATE

PHOENIX CONTACT LAPPKABEL Klauke

SGS UKAS Wisomatic ELECTRICAL DISTRIBUTION & CONTROL

ДЕКЛАРАЦИЯ ЗА СЪОТВЕТСТВИЕ

Долуподписаният Владимир Лазаров,

Управител на фирма "ВиВ Изоматик" ООД, София, ул. Пирин 40А

Декларирам, че продуктът:

Продукт: Измервателен клеморед:

URTK/S

за който се отнася тази декларация, при условие, че е инсталиран, обслужван и използван за приложения, за които е предназначен, е в съответствие със следните стандарти, технически одобрения или други нормативни актове:

БДС EN 60947-7-1
БДС EN 60947-3

ВИВ ИЗОМАТИК ООД София

София, 30.07.2014

.....

Владимир Лазаров, управител
ВиВ Изоматик ООД

165

PHOENIX CONTACT GmbH & Co. KG
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32825 Blomberg, Germany
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Telefax: +49 5235 3-41200
Internet: http://www.phoenixcontact.com
USt-Id-Nr.: DE124613250
WEEE-Reg.-Nr.: DE50738265

PHOENIX CONTACT GmbH & Co. KG · 32823 Blomberg

TO WHOM IT MAY CONCERN

Development Quality Laboratory
Business Unit
Industrial Connection Technology

Phone: ++49 / (0) 52 35/34 20 71
Fax: ++49 / (0) 52 35/341 2 06

04st of Decembre 2009

Confirmation

Dear Sir or Madam,

We hereby confirm that the universal test disconnect terminal block URTK/S (0311087) is applicable at the rated insulation voltage up to 500 V in accordance to IEC 60947-7-1:2002-07 (partly)

Yours sincerely

PHOENIX CONTACT GmbH & Co. KG
Flachsmarktstraße 8
32825 Blomberg, Germany
Development Quality Laboratory
Business Unit
Industrial Connection Technology

PHOENIX CONTACT GmbH & Co. KG

i.V. Dipl.-Phys. Ing. Alessandro Alberani

i.V. Dipl.-Phys. Ing. Alessandro Alberani
Head of Development
Quality Laboratory
Business Unit ICT

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Internet: http://www.phoenixcontact.com
USt-Id-Nr.: DE124613250

PHOENIX CONTACT GmbH & Co. KG · 32823 Blomberg

TO WHOM IT MAY CONCERN

Development Quality Laboratory
Business Unit
Industrial Connection Technology

Telefon: ++49 / (0) 52 35/34 20 71
++49 / (0) 52 35/34 10 97
Telefax: ++49 / (0) 52 35/34 12 06

04st of Decembre 2009

Certification regarding the static use of modular terminal blocks in the temperature range from -60°C to +120°C

Dear Sir or Madam,

Based on the available documentation of our plastic suppliers, we herewith certify for the non-reinforced polyamide plastics used in the area of CLIPLINE (Industrial Connection Technology) as follows:

Considering self-heating, articles made of the above materials can be used in static operation from -60°C to +120°C.

Best regards

PHOENIX CONTACT GmbH & Co. KG

PHOENIX CONTACT GmbH & Co. KG
Flachsmarktstraße 8
32825 Blomberg, Germany
Development Quality Laboratory
Business Unit
Industrial Connection Technology

i.V. Dipl.-Phys. Ing. Alessandro Alberani
Head of Development
Quality Laboratory
Business Unit ICT

i.V. Dipl.-Phys. Ing. Alessandro Alberani

i.A. Dipl.-Chem. Ing. J. Jacke

ТЕХНИЧЕСКИ ХАРАКТЕРИСТИКИ НА КЛЕМИ

Предлаганите клеми са производство на фирма Phoenix Contact – Германия. Фирмата е сертифицирана по ISO 9001. Клемите са тествани и са в съответствие с IEC 60 947-7-1, IEC 60947-1, IEC 60695-2-2, EN 50019, а също така притежават и други сертификати, които са дадени за всяка клема в каталога.
Клемите на Phoenix Contact са с универсална основа за закрепване както към симетрична шина NS 35/7,5, NS 35/15, така и към несиметрична - NS 32. Кабелните входове на клемата са затворени фунии, което улеснява въвеждането на проводника. Всички клеми имат гнезда за индивидуално и рационално маркиране.
Предлаганите от на клеми имат следните характеристики
Работно напрежение Ue 500V
Работрн ток In 57A
Сравнителен показател срещу пропълзяващи токове CTI 600
Работен температурен диапазон минус 60 до + 120 °C
Категория на горимост V-0
Степен на замъряване III
Надморска височина до 3000м
Предлаганите клеми, производство на Phoenix Contact притежават следните по-важни качества:

- **всички метални части са устойчиви на електролитна корозия и ръжда**

Всички метални елементи на клемите са изработени от медна сплав, с високо съдържание на мед, като напълно се избягва използването на стомана. Това елиминира две възможни причини за корозия: Едната е електролитна корозия, която възниква между медния проводник и стоманата, при наличие на влага. Втората е ръждата и последиците от нея – ненадежден електрически контакт, блокирани винтчета. Използването само на медна сплав има и допълнителни предимства като: 1) ниско температурно повишение, поради високата електрическа проводимост и 2) по-малко вероятно е разхлабване на винтчетата, тъй като практически няма относително термично разширение между проводника и притискащата част.
Повърхността на металните части е защитена с калаено или никелово галванично покритие.

- **блокиране на винтчетата срещу саморазвиване**

Phoenix Contact притежава патент, наречен "Reakdyn principle" за предпазване на винтчетата от саморазвиване. Конструкцията на притискащата част е на приципа на движеща се клетка. При завъртане на винта, той натиска тоководещата част и издърпва проводника в клетката към тоководещата част. Поради високата притискаща сила проводника се интегрира в мекото калаено покритие на тоководещата част. Така се постига контактно съпротивление което превишава изискванията на IEC 60 947-7-1, като за клема 4 mm^2 то е 0,3mΩ.
Поради специалната си форма при затягане на винтчето горната част на клетката се деформира еластично и предизвиква нарастваща триеща сила в главата на винтчето, която не му позволява да се саморазвие.

- **надежна механична и електрическа връзка, съгласно IEC 60 947-7-1**

Конструкцията на притискащата част на клемата не само удовлетворява тези изсквания, но дори ги надвишава, поради следните качества: 1) Равната основа на притискащата част гарантира, че дори и най тънкия проводник ще бъде стегнат както трябва., 2) напречните жлебове на тоководещата част гарантират нарушаване оксидацията по проводника, без да го извиват и така осигуряват добър контакт, 3) стабилната конструкция на притискащите части, заедно с високата точност при изработка, осигуряват връзка, недопускаща проникването на газ, както и голяма сила на притискане. Това означава, че условията за контакт могат да се поддържат стабилни за дълъг период от време, дори в агресивна атмосфера.

- **качества на изолационния материал**

Изолационния материал на клемите, които са предмет на настоящия търг е Полиамид 6.6. Този материал е одобрен от всички оторизирани лаборатории като CSA, NEMKO, KEMA, VDE и др. Той има отлични електрически, механични, химически и други качества, дори при високи температури. Позволени са кратковременно температури до 200° C. Полиамида абсорбира вода до 2,8%, но тази влага не е във формата на кристализирана вода в пластмасата, а е химически свързана в молекулната структура. Това прави пластмасата гъвкава и нечуплива, дори при ниски температури от -40° C. Полиамида има клас на негоримост V0, съгласно UL 94.

Максималния допустим ток на клемите зависи от максимално допустимото сечение на проводника и е в съответствие с IEC 60947-7-1.

Съответствие на техническите изисквания

Съгласно горното, предлаганите клеми притежават следните характеристики в съответствие с техническите изисквания:

1. Проводниците се присъединяват към клемите чрез винтова връзка, осигуряваща необслабваща електическа връка при вибрации и стареене;
2. Проводимите и притискащи части са устойчиви срещу електролитна корозия и ръжда. Гарантиран клас на негоримост – V0 съгласно UL 94;
3. Повишена механична устойчивост;
4. Изолационният материал не абсорбира влага;
5. Клемите са с гнезда за поставяне на етикети от двете страни;
6. Клемите се монтират върху универсална монтажна рейка. Възможен е монтаж както както към симетрична шина NS 35/7,5, NS 35/15, така и към несиметрична - NS 32
7. Токови клеми:
   - Пофазно шунтиране на токовите вериги към ТТ с подвижни (фиксирани към клемата) или преносими изолирани мостове, съгласно приложената схема;
   - Видимо разкъсване на токовите вериги след шунтиране;
   - Включване на товарно устройство за тестване – монтирана или с възможност за монтаж на тест букса с диаметър 4mm;
   - Видимо разделяне на токовите вериги по предназначение (ядра);
8. Напреженови вериги:
   - Видимо разкъсване ;

- Включване на товарно устройство за тестване – монтирана или с възможност за монтаж на тест букса с диаметър 4mm;
- Възможност за видимо разделяне на напреженовите вериги по фази и предназначение;
- Възможност за включване на измервателни уреди от двете страни на клемата;

Кратко описание на предложените клеми и аксесоари към тях

1. URTK/S

Клеми с винтова връзка за присъединяване на кръгъл твърд проводник до 10mm^2 или гъвкав проводник с/без накрайник до 6mm^2 . Клемата е с възможност за фиксирано разкъсване на връзката, с гнезда за присъединяване на тестови проводници или за поставяне на шунтиращи мостчета от двете страни на клемата - щифт 4mm. Тази клема е универсална и удовлетворява всички изисквания за яснота на веригата, удобства за превключване. Клемата предлага няколко типа на замостване: чрез конектори с изолирана ръкохватка (2, 4 поз.), превключващи мостове (2, 4 поз.) за окъсяване на трансформаторни вериги, фиксиран мост – 10 позиционен, делим, окомплектован с винтове. Гнездата за тестови проводник или шунтиращ конектор всяка страна са независими от винта за присъдиняване на проводника.

2. D-URTK

Крайна капачка за клема URTK/S.

3. Разделителна пластина ATP-URTK/SP.

Секционна разделителна пластина за визуално и електрическо разделяне на клемни групи за директен монтаж на DIN шина. Дебелина: 2 мм.

Подходяща за използване с всички токови и напреженови клеми.

4. Шунтиращ мост SB 2-RTK/S.

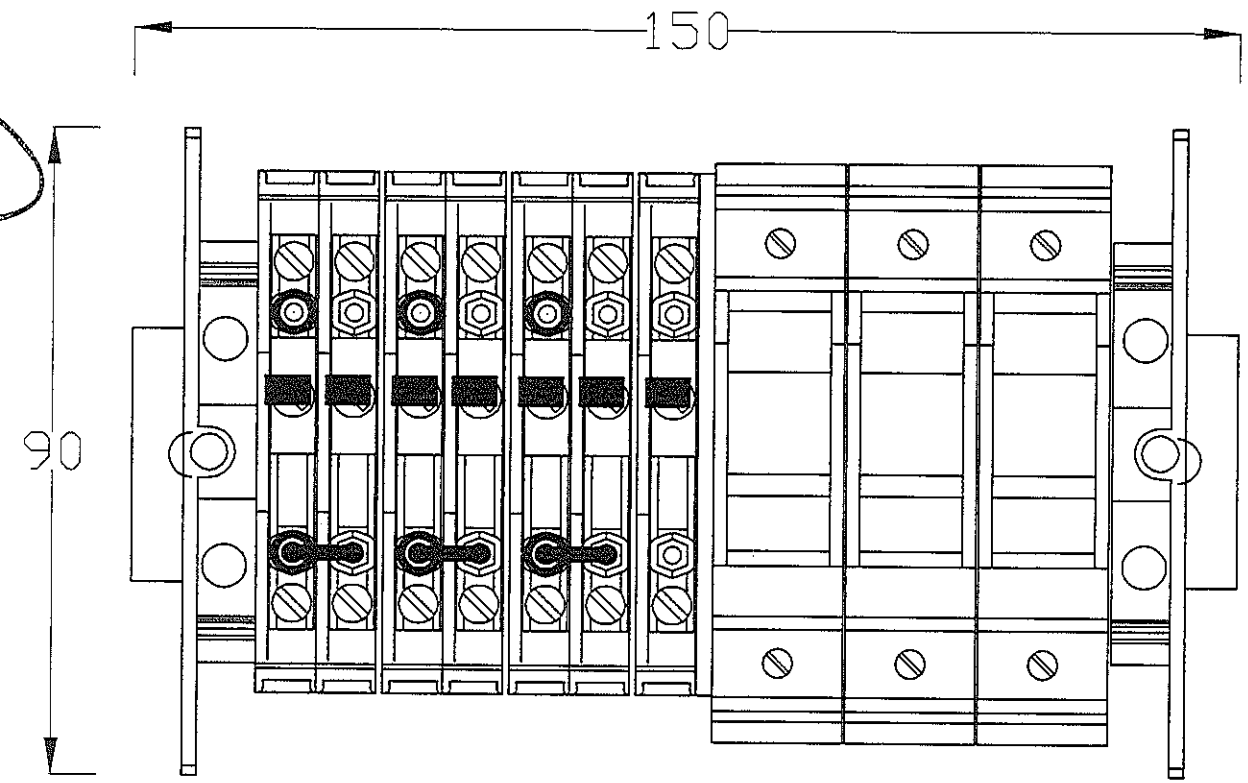
Двупозиционен подвижен, шунтиращ мост за клеми URTK/S.

5. Шунтиращ мост SB 2-URTK/SP.

Двупозиционен изолиран, подвижен, шунтиращ мост за клеми URTK/SP.

7. Фиксатор за клемен пакет CLIPFIX 35.

Фиксатор със защипване за симетрични шини 35/7,5 мм, 35/15 мм.
Ширина: 9,5 мм. Материал: полиамид.
Клас на запалимост: V0. Цвят: сив.
Може да се маркира със стантартни клемни маркировки ZB, маркировки: KEM, KLM 2.



ВиВ Изоматик ООД
1680 София, ул. "Пирин" No40А
тел. 02 958 63 40, 958 63 44, 958 31 11, факс 958 22 70

ОБЕКТ: Измервателен клеморед ЧЕЗ

СЪГЛАСУВАЛИ:

част:	лист No: 1/ 1
фаза: РП	мащаб: –

ВЪЗЛОЖИТЕЛ:

Чертал:

Р-л фирма: инж. Вл. Лазаров

Инструкция за транспорт, съхранение, монтаж и експлоатация на клемореди за вторични вериги за измервателни групи на ниво средно напрежение

1. Транспорт

Клеморедите трябва да се транспортират опаковани в оригиналната опаковка.

Няма специфични изисквания към начина на транспорт.

2. Съхранение

Клемите и аксесоарите към тях трябва да се съхраняват в сухи, закрити помещения опаковани в оригиналната опаковка.

Температура на съхранение: от -25 до +55 °C.

Няма специфични изисквания към начина на съхранение.

3. Монтаж и експлоатация

Монтажа и експлоатационната поддръжка на клемореда е необходимо да се извърва от правоспособен ел.монтьор с минимум III та квалификационна група.
Необходимо е да се спазват следните изисквания.
Да се изполва изолирана отверка от т.н тип Philips с дебелина 1мм и широчина 4мм
Да не се прави опит да се монтира проводник, ако клемата не е отворена достатъчно
Да не се прави опит да се монрира проводник с по-голямо сечение от 6мм2, същия трябва да бъде с отстранена изолация 13мм
Да не се прилагат ток и напрежение по-големи от указаните.
Да се спазват въртящите моменти за затягане на жилата от минимум 1,2Nm и максимум 1,5Nm.
Периодично (веднъж месечно) да се прави проверка за замърсяване и ако е необходимо, клемореда да се почисти, като се спазват инструкциите за безопасна работа.
Клемореда да не се мокри или подлага на атака от химически реагенти.
Да не се прилагат механични удари.

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KEMA
REGISTERED QUALITY

KEMA KEUR

CERTIFICATE

KEMA No. 97.4117.13

Issued to:
Applicant:
Phoenix Contact GmbH & Co.
Flachsmarktstrasse 8-28
BLOMBERG, Germany

Manufacturer/Licensee:
Phoenix Contact GmbH & Co.
Flachsmarktstrasse 8-28
BLOMBERG, Germany

Product : terminal blocks

Trade name : PHOENIX CONTACT
Types/models : URTK/S-BEN BU, URTK/S-BEN, URTK/S, URTK/SP, USLKG 10, USLKG 6N

The product and any acceptable variation thereto is specified in the Annex to this certificate and the documents therein referred to.

KEMA hereby declares that the above-mentioned product has been certified on the basis of:
- a type test according to the standard EN 60947-7-1:1991,EN 60947-7-2:1995
- an inspection of the production location according to CCA Group Operational Document CCA 204
- a certification agreement with the number 900469

KEMA hereby grants the right to use the KEMA certification mark

KEMA KEUR

The KEMA-KEUR certification mark may be applied to the product as specified in this certificate for the duration of the KEMA-KEUR certification agreement and under the conditions of the KEMA-KEUR certification agreement.

This certificate is issued on: August 6, 1999

C.M. Boschloo
Certification Manager

Integral publication of this certificate is allowed

N.V. KEMA
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Telephone +31 26 3 56 28 50, Telefax +31 26 3 51 49 22

ACCREDITED BY
THE DUTCH COUNCIL
FOR ACCREDITATION

KEMA

ANNEX TO KEMA-KEUR CERTIFICATE 97.4117.13

SPECIFICATION OF THE CERTIFIED PRODUCT

Product data

product	:	terminal blocks
trade name	:	PHOENIX CONTACT
types	:	URTK/S-BEN BU, URTK/S-BEN, URTK/S, URTK/SP, USLKG 10, USLKG 6N
material	:	thermoplastic material
mounting	:	top hat rail 35 mm (EN 50022) and G-profile rail 32 mm (EN 50035)

Additional information

Markings

Trademark, type designation, rated connection capacity and rated insulation voltage are indented in the insulation material.

Product data – type USLKG 6N

rated connection capacity	:	6 mm²
connectable conductors	:	one conductor 0,2 - 10 mm² solid 0,2 - 6 mm² flexible without ferrule 0,25 - 6 mm² flexible with ferrule two conductors 0,2 - 2,5 mm² solid 0,2 - 2,5 mm² flexible without ferrule 0,25 - 1,5 mm² flexible with ferrule
description	:	protective conductor terminal block with 2 screw-type clamping units, 1-pole

Product data – type URTK/S

rated voltage	:	400 V
rated connection capacity	:	6 mm²
connectable conductors	:	one conductor 0,5 - 10 mm² solid 0,5 - 6 mm² flexible without ferrule 0,5 - 10 mm² flexible with ferrule two conductors 0,5 - 2,5 mm² solid 0,5 - 6 mm² flexible without ferrule 0,5 - 4 mm² flexible with ferrule
rated impulse withstand voltage	:	6 kV
description	:	disconnect terminal block with 2 screw-type clamping units, 1-pole

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Product data – type USLKG 10

rated connection capacity	:	6 mm²
connectable conductors	:	one conductor 0,5 - 10 mm² solid 0,5 - 6 mm² flexible without ferrule 0,5 - 6 mm² flexible with ferrule two conductors 0,5 - 2,5 mm² solid 0,5 - 2,5 mm² flexible without ferrule 0,5 - 2,5 mm² flexible with ferrule
description	:	protective conductor terminal block with 2 screw-type clamping units, 1-pole

Product data – type URTK/S-BEN

rated voltage	:	500 V
rated connection capacity	:	6 mm²
connectable conductors	:	one conductor 0,5 - 10 mm² solid 0,5 - 6 mm² flexible without ferrule 0,5 - 10 mm² flexible with ferrule two conductors 0,5 - 2,5 mm² solid 0,5 - 6 mm² flexible without ferrule 0,5 - 4 mm² flexible with ferrule
rated impulse withstand voltage	:	6 kV
description	:	disconnect terminal block with 2 screw-type clamping units, 1-pole

Product data – type URTK/S-BEN BU

rated voltage	:	500 V
rated connection capacity	:	6 mm²
connectable conductors	:	one conductor 0,5 - 10 mm² solid 0,5 - 6 mm² flexible without ferrule 0,5 - 10 mm² flexible with ferrule two conductors 0,5 - 2,5 mm² solid 0,5 - 6 mm² flexible without ferrule 0,5 - 4 mm² flexible with ferrule
rated impulse withstand voltage	:	6 kV
description	:	disconnect terminal block with 2 screw-type clamping units, 1-pole

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ANNEX TO KEMA-KEUR CERTIFICATE 97.4117.13

Product data – type URTK/SP

rated voltage	:	500 V
rated connection capacity	:	6 mm²
connectable conductors	:	one conductor 0,5 - 10 mm² solid 0,5 - 6 mm² flexible without ferrule 0,5 - 6 mm² flexible with ferrule two conductors 0,5 - 2,5 mm² solid 0,5 - 4 mm² flexible without ferrule 0,5 - 2,5 mm² flexible with ferrule
rated impulse withstand voltage	:	6 kV
description	:	disconnect terminal block with 2 screw-type clamping units, 1-pole

TESTS

Test requirements

EN 60947-7-1:1991 + C:1997-06 + A11:1997
EN 60947-7-2:1995 + C:1996-01

Test results
The test results are laid down in KEMA test file 97.4117.13.

Conclusion
The examination proved that all test requirements were met.

Tested by : H.L. Schendstok

Checked by : L.J.W. van Megen b.a.

FACTORY-LOCATION(S)

Phoenix Contact GmbH & Co.
Flachsmarktstrasse 8-28, BLOMBERG, Germany

N.V. KEMA
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Annex to ISO/IEC 17025 declaration of accreditation
for registration number: **K 006**

of **KEMA Nederland B.V.**
Calibration & Metering
Arnhem

This annex is valid from: **30-03-2010** to **01-03-2014**

Replaces annex dated: **30-06-2009**

Premises: **n.a.**

HCS code	Measured quantity, Range	Frequency	Best measurement capabilities (k=2)	Remarks
LF 0 0	DC/LF Quantities			
LF 1 0	DC Voltage			
	Standard cells		3 µV	
	Up to 1 mV		0,4 µV	
	1 mV to 10 mV		$3 \cdot 10^{-4} \cdot U$	
	10 mV to 100 mV		$3 \cdot 10^{-5} \cdot U$	
	100 mV to 10 V		$5 \cdot 10^{-6} \cdot U$	
	10 V to 100 V		$1 \cdot 10^{-5} \cdot U$	
	100 V to 1100 V		$2 \cdot 10^{-5} \cdot U$	
	Zener Reference Standards			
	1 V and 1,018 V		3 µV	
	10 V		20 µV	
	High Voltage			Measuring
	1 kV to 6 kV		$2 \cdot 10^{-3} \cdot U$	
LF 2 0	DC Current			
	10 µA to 3 A		$2 \cdot 10^{-5} \cdot I$	
	3 A to 10 A		$2{,}5 \cdot 10^{-5} \cdot I$	
	10 A to 20 A		$6 \cdot 10^{-5} \cdot I$	

This annex has been approved by:

Ir. J.C. van der Poel
Chief Executive

Annex to ISO/IEC 17025 declaration of accreditation
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Arnhem

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HCS code	Measured quantity, Range	Frequency	Best measurement capabilities (k=2)	Remarks
	20 A to 100 A		$1 \cdot 10^{-4} \cdot I$	
LF 3 1	AC Voltage			
	60 mV to 1000 V	40 Hz to 20 kHz	$2 \cdot 10^{-4} \cdot U$	
	60 mV to 1000 V	20 kHz to 50 kHz	$3 \cdot 10^{-4} \cdot U$	
	60 mV to 220 V	20 kHz to 50 kHz 50 kHz to 100 kHz	$4 \cdot 10^{-4} \cdot U$	
	220 V to 1000 V	50 kHz to 100 kHz	$4 \cdot 10^{-4} \cdot U$	
	220 V to 1000 V	50 kHz to 100 kHz	$2 \cdot 10^{-3} \cdot U$	
	High Voltage			Measuring
	1 kV tot 6 kV	50 Hz	$2 \cdot 10^{-3} \cdot U$	
LF 3 2	AC Voltage Ratio			
	(instrument transformers)			
	Primary: (10-600)V Secondary: (0,1-240)V	50 Hz and 60 Hz	$3 \cdot 10^{-5} \cdot U_{uit}/U_{in}$ and 90 µrad	
LF 3 3	AC Current			
	0,1 mA to 300 mA	40 Hz to 5 kHz	$3 \cdot 10^{-4} \cdot I$	
	300 mA to 20 A	40 Hz to 1 kHz	$3 \cdot 10^{-4} \cdot I$	
	20 A to 50 A	40 Hz to 1 kHz	$6 \cdot 10^{-4} \cdot I$	
LF 4 2	AC Current Ratio			ambient temp. 23 ± 2 °C
	(instrument transformers)	50 Hz and 60 Hz	$3 \cdot 10^{-5} \cdot I_{uit}/I_{in}$ and 90 µrad	Measuring

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HCS code	Measured quantity, Range	Frequency	Best measurement capabilities (k=2)	Remarks
	Primary: 5 A to 6000 A Secondary: 1A or 5A			
LF 4 3	High Current			
	10 A to 6000 A	50 Hz, 60 Hz	$3 \cdot 10^{-4} \cdot I$	
LF 5 0	Power and Energy			10 mV to 1100 V,
	Power			10 µA to 100 A
	0,1 µW to 1 µW		$1 \cdot 10^{-4} \cdot P$	
	1 µW to 1 kW		$5 \cdot 10^{-5} \cdot P$	
	1 kW tot 10 kW		$1 \cdot 10^{-4} \cdot P$	
	10 kW tot 110 kW		$2 \cdot 10^{-4} \cdot P$	
	3 W to 57,6 kW	50 Hz and 60 Hz	$\frac{3 \cdot 10^{-4}}{\cos\varphi} \cdot P$	on site to be performed at ambient temperature; voltage and current as mentioned above
	3 W to 2,9 MW	50 Hz and 60 Hz	$\frac{2 \cdot 10^{-4}}{\cos\varphi} \cdot P$	measuring 20 V to 1100 V 100 mA to 6000A cos φ = 0 to 1
	Reactive Power (P_r) 6 var to 1,8 Mvar	50 Hz and 60 Hz	$\frac{5 \cdot 10^{-4}}{\sin\varphi} \cdot P_r$	60 V to 300 V 100 mA to 6000 A
	Electrical (reactive-) energy			see (reactive-) power and time
LF 5 1	Power Factor cos φ : 0 to 1	40 Hz to 100 Hz	$\frac{2 \cdot 10^{-3}}{\cos\varphi} \cdot \mathrm{PF}$	

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HCS code	Measured quantity, Range	Frequency	Best measurement capabilities (k=2)	Remarks
LF 6	Impedance (DC/LF)			
LF 6 2	DC Resistance			Non-decadic values
	20 μΩ to 50 μΩ		$3 \cdot 10^{-4} . R$	
	50 μΩ to 100 μΩ		$1 \cdot 10^{-4} . R$	
	100 μΩ to 20 kΩ		$1{,}2 \cdot 10^{-5} . R$	
	1 mΩ to 10 mΩ		$6\ 5 \cdot 10^{-6} \cdot R$	
	10 mΩ to 1000 mΩ		$7 . 10^{-6} . R$	
	1 Ω to 10 kΩ		$5 \cdot 10^{-6} \cdot R$	
	10 kΩ to 1 MΩ		$1 \cdot 10^{-5} \cdot R$	
	1 MΩ to 10 MΩ		$1{,}2 \cdot 10^{-5} \cdot R$	
	10 MΩ to 100 MΩ		$3 . 10^{-5} . R$	
	100 μΩ to 10 kΩ		$6 . 10^{-6} . R$	Decadic Values
LF 6 4	Capacitance			
	LF Capacitance			accuracy depends on dissipation factor at 1 kHz
	10 pF to 100 pF	100 Hz, 1 kHz, 10 kHz	$1 \cdot 10^{-3} \cdot C$	
	1 μF	50 Hz, 200 Hz, 1 kHz	$1 \cdot 10^{-3} \cdot C$	
LF 6 7	Inductance			
	1 mH to 10 mH	1 kHz, (400-1692)Hz	$1 \cdot 10^{-3} \cdot L$	
	100 mH	100 Hz, 1 kHz 1,592 kHz	$1 \cdot 10^{-3} \cdot L$	
	1 H	100 Hz, 200 Hz, 400 Hz and 1 kHz	$1 \cdot 10^{-3} \cdot L$	
RF 0 0	RF Quantities			
RF 3 0	RF Power			
	- 9 dBm to +30 dBm	0,1 MHz to 4200 MHz	0,5 dB	Measuring:
	+30 dBm to +57 dBm	0,1 MHz to 500 MHz	0,6 dB	50 ohm coaxial VSWR
	-60 dBm to –10 dBm	10 MHz to 10000 MHz	0,5 dB	

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HCS code	Measured quantity, Range	Frequency	Best measurement capabilities (k=2)	Remarks
	-80 dBm to –10 dBm	0,1 MHz to 2700 MHz	1,1 dB	source < 2 Generating: (0,09 - 3200) MHz
RF 5 0	Rise time (10% to 90%) 1 ns to 1 ms		$2 \cdot 10^{-2} \cdot \tau$ +200 ps	10 mV/div to 1 kV/div
TF 0 0	TIME and FREQUENCY			
TF2 1	Frequency	1 Hz to 1,2 GHz	$5 \cdot 10^{-10} \cdot f$	
TF 2 2	Time interval	1 µs to ∞	$5 \cdot 10^{-10} \cdot t$ + 100 ns	
TF 3 2	Harmonic Distortion			(1)
	< 0,1 %	20 Hz to 2,5 kHz	$3 \cdot 10^{-4}$	
	0,1 % to 1 %	20 Hz to 2,5 kHz	$1 \cdot 10^{-3}$	
	1 % to 10 %	20 Hz to 2,5 kHz	$3 \cdot 10^{-3}$	
	10 % to 30 %	20 Hz to 2,5 kHz	$1 \cdot 10^{-2}$	
	30 % to 100 %	20 Hz to 2,5 kHz	$3 \cdot 10^{-2}$	

Part II, Mechanical quantities and Temperature

Measured quantity, Instrument, Gauge		Range	Best measurement capabilities (k=2)	Remarks
PV 1 0	Pressure			(2)
	Relative Pressure	(-10 to 10) kPa	$3 \cdot 10^{-4} \cdot p_e$ + 4 Pa	medium: air
		(-98 to 100) kPa	$3 \cdot 10^{-4} \cdot p_e$ + 5 Pa	medium: nitrogen
		100 kPa to 10 MPa	$3 \cdot 10^{-4} \cdot p_e$	medium: nitrogen
		(10 to 70) MPa	$3 \cdot 10^{-4} \cdot p_e$	medium: oil

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HCS code	Measured quantity, Range	Frequency	Best measurement capabilities (k=2)	Remarks
	Absolute Pressure	(80 to 110) kPa	$3 \cdot 10^{-4} \cdot p$	medium: air
		(2 to 200) kPa	$3 \cdot 10^{-4} \cdot p$ + 5 Pa	medium: nitrogen
		200 kPa to 10 MPa	$3 \cdot 10^{-4} \cdot p$	medium: nitrogen
		(10 to 70) MPa	$3 \cdot 10^{-4} \cdot p$	medium: oil
TE 0 0	TEMPERATURE, HUMIDITY AND THERMOPHYSICAL PROPERTIES			
TE 1 0	Resistance thermometers	-50 °C to 20 °C	0,02 K	
		20 °C to 50 °C	0,05 K	
		50 °C to 300 °C	0,05 K	
		300 °C to 550 °C	0,16 K	
		550 °C to 650 °C	0,50 K	
TE 3 0	Thermocouples	-50 °C to 20 °C	0,16 K	Including C.J. references
		20 °C to 50 °C	0,16 K	
		50 °C to 300 °C	0,16 K	
		300 °C to 550 °C	0,21 K	
		550 °C to 650 °C	0,6 K	
		650 °C to 1000 °C	1,6 K	
TE 4 0	Liquid-in-glass thermometers	-50 °C to 50 °C	0,02 K	
		20 °C to 50 °C	0,04 K	
		50 °C to 300 °C	0,02 K	
	Differential Temperature	-50 °C to 200 °C	0,05 K	t_{min} = -50 °C t_{max} = 200 °C
TE 4 1	Self indicating thermometers			

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HCS code	Measured quantity, Range	Frequency	Best measurement capabilities (k=2)	Remarks
	Dry Block Calibrators	-20 °C to 650 °C	$(8 \cdot 10^{-4} \cdot t_{90} + 0{,}06)$ K	
	Writing thermometers	15 °C to 50 °C	0,5 K	
	Digital thermometers	-50 °C to 20 °C	0,02 K	including C.J. references
		20 °C to 50 °C	0,05 K	resolution 1 digit
		50 °C to 300 °C	0,05 K	
		300 °C to 550 °C	0,16 K	
		550 °C to 630 °C	0,50 K	
		630 °C to 1000 °C	1,5 K	

Remarks:

The ambient temperature during calibration is, unless specified otherwise, for:
LF measurements @ (23 ± 1)°C
TF measurements @ (23 ± 1)°C
Pressure measurements @ (23 ± 2)°C
Temperature measurements @ (23 ± 2)°C

(1) The stated best measurement capabilities are based on the fundamental frequency of the input signal. If desired the distortion can be specified as a rang number of the harmonics.

(2) $p_e = p - p_{amb}$; p_e is the relative pressure, p_{amb} is the local air pressure, p is the absolute pressure.

The best measurement capability is the highest achievable accuracy for a given measuring value or measuring range, expressed as the total positive and negative measurement uncertainty.

The uncertainty is calculated according to EA-4/02 "Expression of the Uncertainty of Measurement in Calibration".

Calibrations are performed inside the laboratory, unless specified otherwise.

PHOENIX CONTACT LAPP KABEL Klauke

SGS UKAS

WisoMatic ELECTRICAL DISTRIBUTION & CONTROL

ДЕКЛАРАЦИЯ

За възможността за рециклиране на употребените материали или за начина им на ликвидиране

С настоящето декларираме, че предлаганите от нас „комплект измервателен клемен блок с клеми за медни проводници от проходен тип“ не могат да бъдат рециклирани. Същите могат да бъдат депонирани за обезвреждане и/или бракуване при оторизираните за целта фирми.

София, 28.10.2013

.....
Владимир Лазаров, управител
ВиВ Изоматик ЕООД

ДЕКЛАРАЦИЯ

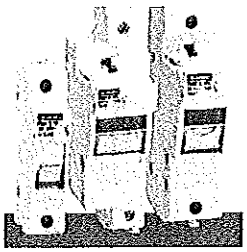
За потенциалната заплаха и увеличаване рисковете от замърсяване на околната среда и класификация на отпадъците съгласно Наредба No3/2004.

С настоящето декларираме, че предлаганите от нас „комплект измервателен клемен блок с клеми за медни проводници от проходен тип“, в процеса на използване и последващо обезвреждане и/или бракуване не представляват потенциална опасност за увеличаване на количествата или опасността на отпадъците и рисковете от замърсяване с тях.

София, 28.10.2013

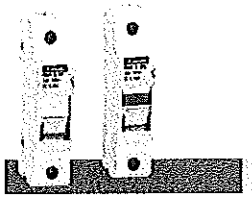
.....
Владимир Лазаров, управител
ВиВ Изоматик ЕООД

№ 3



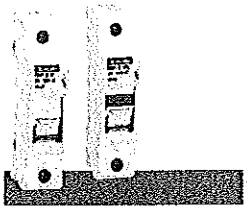
Page 12-2

AC FUSE HOLDERS
- Version without indicator: 1P, 1P+N, 2P, 3P, 3P+N
- Version with indicator: 1P
- For fuses 10x38, 14x51 and 22x58mm IEC class gG or aM.
- IEC rated current: 32A, 50A, 125A
- IEC rated voltage: 690VAC.



Page 12-2

AC FUSE HOLDERS CLASS CC FOR NORTH AMERICAN MARKET
- Version without indicator: 1P, 2P, 3P
- Version with indicator: 1P
- For 10x38mm UL/CSA class CC fuses
- IEC rated current: 30A
- IEC rated voltage: 600VAC.



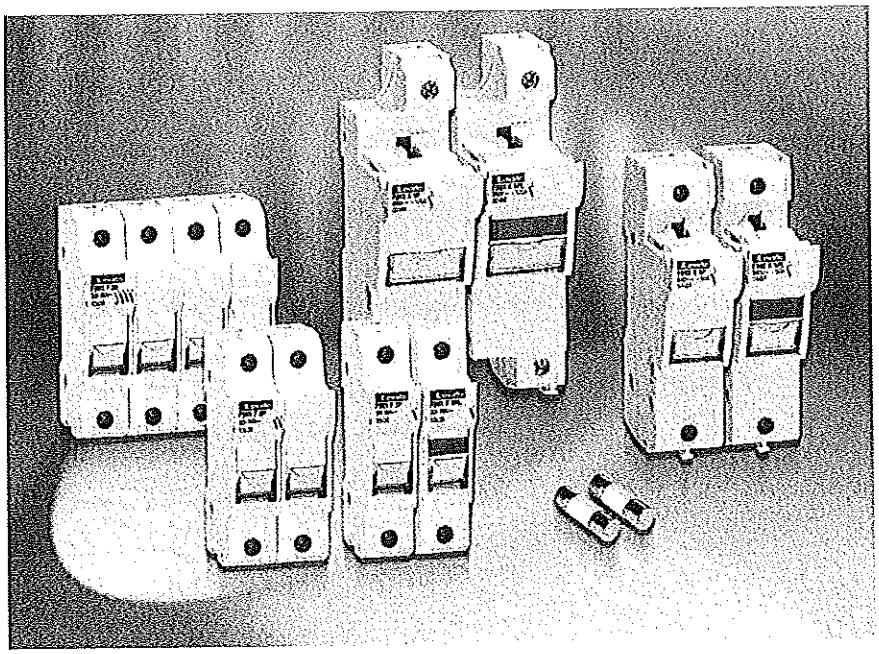
Page 12-3

DC FUSE HOLDERS FOR PHOTOVOLTAIC APPLICATIONS
- Version without indicator: 1P, 2P
- Version with indicator: 1P, 2P
- For 10x38mm IEC class gPV fuses
- IEC rated current: 32A
- IEC rated voltage: 1000VDC
- IEC utilisation category: DC20B.

Page 12-3

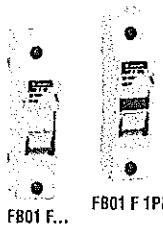
DC FUSES FOR PHOTOVOLTAIC APPLICATIONS
- 10x38mm, IEC class gPV
- Rated current: 20A
- Rated voltage: 1000VDC.

FUSE HOLDERS

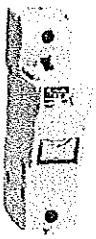


- Modular size for 10x38, 14x51 and 22x58mm fuses
- Finger safe - IEC IP20 degree of protection against accidental contact with live parts and with sealable cover for operators' safety
- Version with status indicator to quickly determine if the fuse is still operative or needs to be replaced
- UL and CSA certified versions.

Fuse holders UL Recognized and CSA certified


FB01 F...

FB01 F 1PL


FB02 A...


FB02 A 1PL


FB03 A...


FB03 A 1PL

Order code	Pole arrange-ment	Status indicator	DIN size	Qty per pkg	Wt
			n°	n°	[kg]
For 10x38mm fuses. IEC 32A rated current at 690VAC.					
FB01 F 1P	1P	—	1	12	0.066
FB01 F 1PL	1P	YES	1	12	0.065
FB01 A 1M	1P+N	—	1	12	0.062
FB01 F 1N	1P+N	—	2	6	0.134
FB01 F 2P	2P	—	2	6	0.132
FB01 F 3P	3P	—	3	4	0.188
FB01 F 3N	3P+N	—	4	3	0.260
For 14x51mm fuses. IEC 50A rated current at 690VAC.					
FB02 A 1P	1P	—	1	12	0.113
FB02 A 1PL	1P	YES	1	12	0.114
FB02 A 1N	1P+N	—	2	6	0.237
FB02 A 2P	2P	—	2	6	0.224
FB02 A 3P	3P	—	3	4	0.335
FB02 A 3N	3P+N	—	4	3	0.460
For 22x58mm fuses. IEC 125A rated current at 690VAC❶.					
FB03 A 1P	1P	—	1	12	0.167
FB03 A 1PL	1P	YES	1	12	0.167
FB03 A 1N	1P+N	—	2	6	0.354
FB03 A 2P	2P	—	2	6	0.334
FB03 A 3P	3P	—	3	4	0.500
FB03 A 3N	3P+N	—	4	3	0.720

❶ Use with gG/aM class 125A fuses, not dissipating more than 12W power.

NOTE:
For FB01 F type: UL Recognized as "Fuseholders - Component". Current rating: 30A. Voltage rating: 750V max. CSA certified as "Fuseholder Assemblies". Current rating: 30A. Voltage rating: 600V max.
For FB02 A type: UL Recognized as "Fuseholders - Component". Current rating: 50A. Voltage rating: 750V max.
For FB03 A type: UL Recognized as "Fuseholders - Component". Current rating: 100A. Voltage rating: 750V max.

Operational characteristics
- IEC rated voltage Ue:
  - 690VAC (FB01 A 1M excluded)
  - 400VAC (FB01 A 1M only)
- IEC rated current Ie:
  - FB01 A 1M: 32A
  - FB01 F: 32A
  - FB02 A: 50A
  - FB03 A: 125A
- IEC utilisation category:
  - FB01 A 1M: AC22B 400V
  - FB01 F: AC22B 500V, AC21B 690V
  - FB02 A: AC22B 500V, AC21B 690V
  - FB03 A: AC21B 690V
- Suitable for IEC fuse class: gG and aM
- IEC degree of protection: IP20.

Certifications and compliance
Certifications obtained:

Type	CSA certified (File 252040 class 6255)	UL Recognized for USA and Canada (cULus - File E343395)
FB01 F...	●	●
FB02 A...	—	●
FB03 A...	—	●

● Certification obtained.

"UL Recognized": Products having this type of marking are intended for use as components of complete workshop-assembled equipment.

Compliant with standards: IEC/EN 60269-1, IEC/EN 60269-2, IEC/EN 60947-1, IEC/EN 60947-3, UL 4248-1, UL 4248-4, CSA C22.2 n°4248.1, CSA C22.2 n°4248.4.

Fuse holders


FB01 B...


FB01 B 1PL

Order code	Pole arrange-ment	Status indicator	DIN size	Qty per pkg	Wt
			n°	n°	[kg]
For 10x38mm fuses. IEC 32A rated current at 690VAC.					
FB01 B 1P	1P	—	1	12	0.062
FB01 B 1PL	1P	YES	1	12	0.064
FB01 B 1N	1P+N	—	2	6	0.127
FB01 B 2P	2P	—	2	6	0.128
FB01 B 3P	3P	—	3	4	0.185
FB01 B 3N	3P+N	—	4	3	0.247

Operational characteristics
- IEC rated voltage Ue: 690VAC
- IEC rated current Ie: 32A
- IEC utilisation category: AC22B 500V, AC21B 690V
- Suitable for IEC fuse class: gG and aM
- IEC degree of protection IP20.

Reference standards
Compliant with standards: IEC/EN 60947-1, IEC/EN 60947-3, IEC/EN 60269-1, IEC/EN 60269-2.

Fuse holders UL Listed and CSA certified for class CC fuses for North American market


FB01 G...


FB01 G 1PL

Order code	Pole arrange-ment	Status indicator	DIN size	Qty per pkg	Wt
			n°	n°	[kg]
For 10x38mm fuses. IEC 30A rated current at 600VAC.					
FB01 G 1P	1P	—	1	12	0.070
FB01 G 1PL	1P	YES	1	12	0.072
FB01 G 2P	2P	—	2	6	0.140
FB01 G 3P	3P	—	3	4	0.210

NOTE: UL Listed and CSA certified as "Fuseholders, Cartridge Fuse" for use with Class CC fuses. Interrupting rating 200,000 Amps rms symmetrical. Voltage rating 600V. Current rating 30A.

Operational characteristics
- IEC rated voltage Ue: 600VAC
- IEC rated current Ie: 30A
- IEC utilisation category: AC22B 500V, AC21B 690V
- Suitable for UL/CSA fuse class: CC
- IEC degree of protection IP20.

Certifications and compliance
Certifications obtained: UL Listed for USA (UL - File E343395) and CSA certified for Canada only (File 252040 class 6225).
Compliant with standards: IEC/EN 60269-1, IEC/EN 60269-2, IEC/EN 60947-1, IEC/EN 60947-3, UL 4248-1, UL 4248-4, CSA C22.2 n°4248.1, CSA C22.2 n°4248.4.

Fuse holders for photovoltaic applications
UL Listed / CSA certified


FB01 D...


FB01 D 1PL

Order code	Pole arrangement	Status Indicator	DIN size	Qty per pkg	Wt
			n°	n°	[kg]
For 10x38mm fuses. IEC 32A rated current at 1000VDC.					
FB01 D 1P	1P	—	1	12	0.064
FB01 D 1PL	1P	YES	1	12	0.065
FB01 D 2P	2P	—	2	6	0.127
FB01 D 2PL	2P	YES	2	6	0.130

NOTE: UL Listed and CSA certified as "Photovoltaic fuseholders" for use with Photovoltaic Fuses. Interrupting rating 30,000 DC Amps. Voltage rating 1000V. Current rating 30A.

Operational characteristics
- IEC rated voltage Ue: 1000VDC
- IEC rated current Ie: 32A
- IEC utilisation category: DC20B 1000VDC
- Suitable for IEC fuse class: gPV.
- IEC degree of protection: IP20.

Certifications and compliance
Certifications obtained: UL Listed for USA, cUL - File E366062 and CSA certified for Canada (file ref. not available at time of catalogue printing).
Compliant with standards: IEC/EN 60269-1, IEC/EN 60269-2, IEC/EN 60947-1, IEC/EN 60947-3, UL 4248-1, UL4248-18, CSA C22.2 n° 4248-1, CSA C22.2 n° 4248-18.

Fuses for photovoltaic applications


FE01 D...

Order code	Rated current In	Qty per pkg	Wt
	[A]	n°	[kg]
For 10x38mm fuses. IEC 30kA breaking capacity at 1000VDC.			
FE01 D 00200	2	10	0.008
FE01 D 00400	4	10	0.008
FE01 D 00600	6	10	0.008
FE01 D 00800	8	10	0.008
FE01 D 01000	10	10	0.008
FE01 D 01200	12	10	0.008
FE01 D 01600	16	10	0.008
FE01 D 02000	20	10	0.008

Operational characteristics
- IEC rated voltage Ue: 1000VDC
- IEC rated current Ie: 2-20A
- IEC fuse class: gPV.

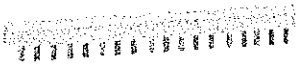
Reference standards
Compliant with standards: IEC/EN 60269-6.

Accessories


FBX 00


FBX 01
FBX 03


FBX 02


P1X 90 33


P1X 92 01


P1X 92 02

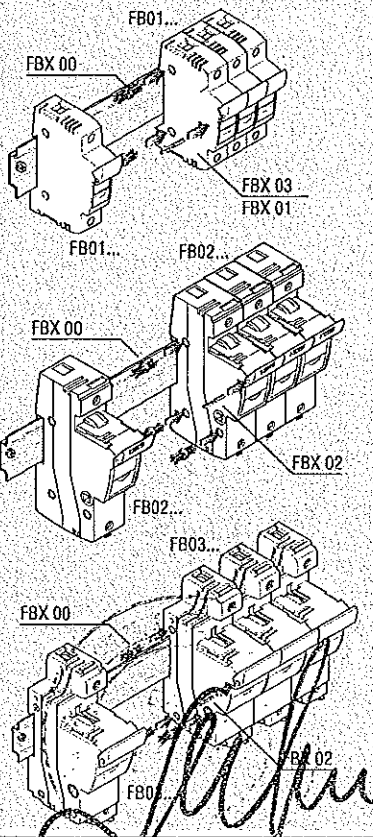

P1X 91 33

Order code	Description	Qty per pkg	Wt
	[A]	n°	[kg]
FBX 00	Coupling clip for 10x38, 14x51 and 22x58mm sizes	100	0.003
FBX 01	Coupling pin for 10x38mm size type FB01 A1M, FB01 B1P and FB01 B1PL only	100	0.005
FBX 02	Coupling pin for 14x51 and 22x58mm sizes	100	0.008
FBX 03	Coupling pin for 10x38mm size types FB01 F, FB01 G, FB01 D only	1	0.005
For FB01 F, FB01 A1M, FB01 B and FB01 G types, AC duty.			
P1X 90 31	1-phase connection busbar for 57 modules in total, 996mm/39.2" long	10	0.240
P1X 90 33	3-phase connection busbar for 60 modules in total, 1060mm/41.7" long	10	0.474
P1X 91 30	Kit of 5 isolating covers for unused busbar terminals	10	0.030
P1X 91 31	End cap for 1-phase P1X9031 busbar	50	0.001
P1X 91 33	End cap for 3-phase P1X9033 busbar	50	0.001
P1X 92 01	1-pole terminal for busbar supply, 25mm²max conductor	25	0.011
P1X 92 02	1-pole terminal for busbar supply, 50mm²max conductor	25	0.022

General and operational characteristics
SUPPLY CONNECTION BUSBARS
- Central point of power supply: 100A max❶
- Side point of power supply: 63A max❶
- Pitch: 18mm/0.7"
- Busbar section: 10mm²
- For paralleling connection
- Length can be cut in shorter sections.

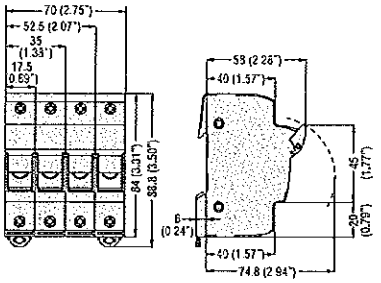
❶ See technical characteristics under derating factor of FB01 type for operating conditions.

Fuse holder combinations

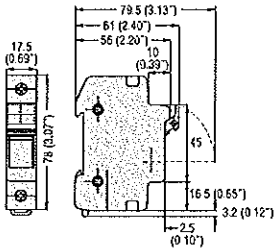


Fuse holders
Dimensions [mm (in)]

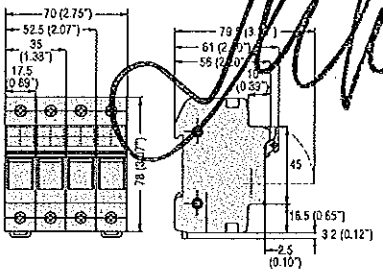
FB01 F... FB01 G... FB01 D...



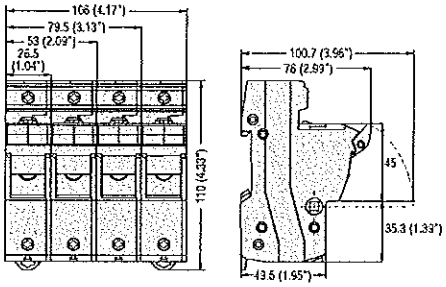
FB01 A1M



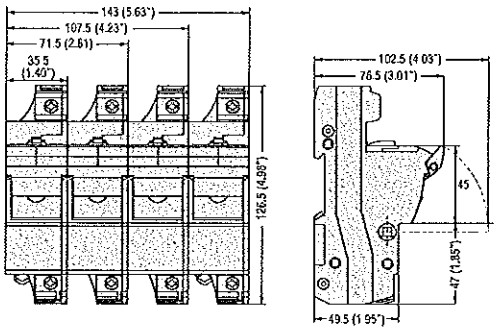
FB01 B...



FB02 A...

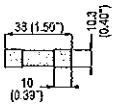


FB03 A...

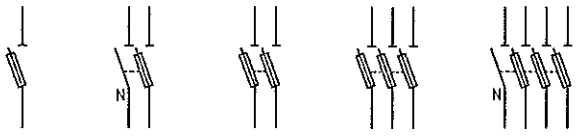


FUSES

FE01 D 0...



Wiring diagrams



1P 1P+N 2P 3P 3P+N

Fuse holders
Technical characteristics

TYPE		FB01 A...	FB01 B...	FB02 A...	FB03 A...	FB01 C...	FB01 D...
Range		AC				Class CC (AC)	DC
IEC maximum rated current In		32A		50A	125A ❷	30A	32A
IEC maximum rated voltage Un		690VAC; 400VAC ❶	690VAC			600VAC	1000VDC
IEC utilisation category		AC22B 500V; AC21B 690V; AC22B 400V ❶			AC21B 690V	AC22B 500V; AC21B 690V	DC20B 1000VDC
Maximum power dissipation		3W		5W	9.5W	3W	4W
Derating factor of current In for different ambient temperatures	20°C	1					
	30°C	0.95					
	40°C	0.9					
	50°C	0.8					
	60°C	0.7					
	70°C	0.5					
Derating factor of current In for side-by-side fuse holders - number of poles	1-4	1					
	5-6	0.8					
	7-9	0.7					
	≥10	0.6					
Voltage for status indicator		120...690VAC		230...690VAC		120...600VAC	350...1000VDC
CONNECTIONS							
Maximum tightening torque		2.5Nm; 2Nm ❶ / 22lbin		3Nm / 26lbin	4Nm / 35lbin	2.5Nm / 22lbin	
Maximum conductor cross section	flexible/stranded	1x16mm²; 1-16mm² ❶ / 8AWG		1x25mm² / 6AWG	1x35mm² / 2AWG	1x16mm² / 8AWG	1x16mm² / 6AWG
	rigid/solid	1x25mm²; 1-10mm² ❶ / 8AWG		1x35mm² / 8AWG	1x50mm² / 1AWG	1x25mm² / 10AWG	1x25mm² / 4AWG
AMBIENT CONDITIONS							
Operating temperature		-20...+70°C					
Storage temperature		-40...+80°C					
Maximum altitude		3,000m					
Operation position		Any					
Fixing		On 35mm DIN rail (IEC/EN 60715)					

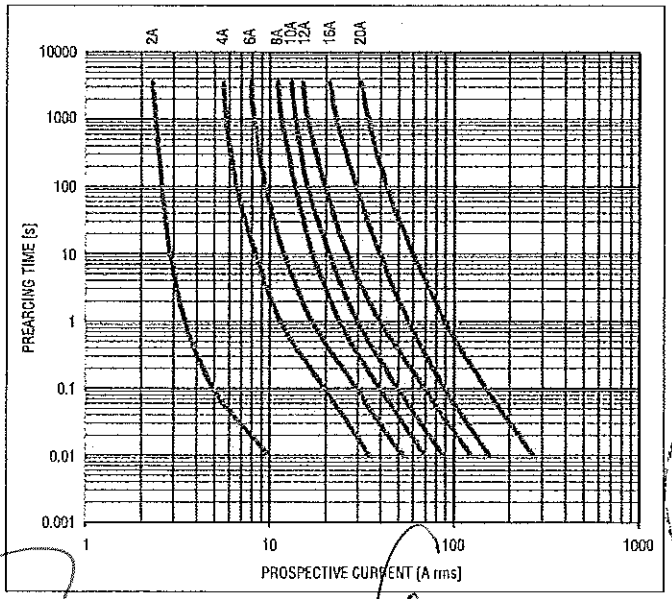
❶ Values valid only for FB01 A 1M type.

❷ Use with gG/aM class 125A fuses, not dissipating more than 12W power.

TECHNICAL CHARACTERISTICS FOR FE01 D... FUSES

TYPE	Rated current [A]	Power consumption at 0.7 In [W]	Power consumption at In [W]	Prearcing I²t [A²s]	Total I²t at 1000VDC [A²s]
FE01 D 00200	2	0.78	1.45	0.62	1
FE01 D 00400	4	0.64	1.57	6.9	11
FE01 D 00600	6	0.76	1.84	24	38
FE01 D 00800	8	0.8	1.92	62	99
FE01 D 01000	10	0.94	2.2	10	48
FE01 D 01200	12	0.98	2.4	18	94
FE01 D 01600	16	1.1	2.7	46	110
FE01 D 02000	20	1.2	2.9	118	282

TIME-CURRENT CHARACTERISTICS FOR FE01 D... FUSES



PHOENIX CONTACT LAPPKABEL Klauke

ДЕКЛАРАЦИЯ ЗА СЪОТВЕТСТВИЕ

Долуподписаният Владимир Лазаров,

Управител на фирма "ВиВ Изоматик" ООД, София, ул.Пирин 40А

В качеството си на търговски представители на Lovato Electric.

Декларираме, че продуктът:

Марка:	Lovato Electric
Продукт:	Основа за стопяем предпазител 10x38мм
Серия:	FB01 B 1P, FB01 B 1PL, FB01 B 1N, FB01 B 2P, FB01 B 3P, FB01 B 3N

За който се отнася тази декларация, при условие, че е инсталиран, обслужван и използван за приложения, за които е предназначен, е в съответствие със следните стандарти, технически одобрения или други нормативни актове:

IEC/EN 60947 – 1
IEC/EN 60947 – 3
IEC/EN 60269 – 1
IEC/EN 60269 – 2

ВИВ ИЗОМАТИК ООД София

София, 30.07.2014

.....
Владимир Лазаров, управител
ВиВ Изоматик ООД

LOVATO ELECTRIC S.P.A.
Via Don E. Mazza, 12
24020 Gorle (BG) Italy
Tel: +39 035 4282111
Fax (National) +39 0354282200
Fax (International) +39 0354282400
E-mail: Info@LovatoElectric.com
VAT ID No. IT 0192130016477

DICHIARAZIONE DI CONFORMITA'
DECLARATION OF CONFORMITY

Noi (denominazione del fornitore) **LOVATO ELECTRIC S.p.A.**
We (supplier's name)

(indirizzo) Via Don E. Mazza, 12 - 24020 Gorle - Bergamo - ITALY
(address)

dichiariamo sotto la nostra esclusiva responsabilità che i prodotti
declare under our sole responsibility that the products

Portafusibili **FB..**

Fuseholders

(nome, tipo o modello, lotto o numero di serie, possibilmente l'origine e la quantità)
(name, type or model, batch or serial number, possibility sources and number of items

sono conformi alle seguenti direttive
are in conformity with the following directives

Direttiva Bassa Tensione nr.2006/95/CE
Low Voltage Directive no.2006/95/EC

Direttiva Compatibilità Elettromagnetica nr.2004/108/CE
Electromagnetic Compatibility Directive no.2004/108/EC

Questo è documentato dalla conformità alle norme
This is documented by the conformity with the following standards

EN 60269-1

(Titolo e/o numero e data di pubblicazione della norma o di altri documenti normativi)
(Title and /or number and date of issue of the standard or other normative documents)

Questa dichiarazione è conforme alla Norma Europea EN45014 "Criteri generali del fonitore".
Le basi per tali criteri sono documenti internazionali ed in particolare la Guida ISO/IEC 22 "Information on manufacture's declaration of conformity with standards or other technical specifications"

This declaration of conformity is in compliance with the European Standard EN 45014 "General criteria for supplier's declaration of conformity".
The basis for the criteria has been found in international documentation, particularly in: ISO/IEC Guide 22 "Information on manufacture's declaration of conformity with standards or other technical specifications"

Revisione:
Revision

Gorle, 04/03/2011
(luogo e data)
(place and data of issue)

Ing. D. Perani Product Manager

(Nome e firma della persona autorizzata)
(Name and signature of authorized person)

LOVATO ELECTRIC S.p.A.

PHOENIX CONTACT LAPPKABEL Klauke

SGS UKAS WisoMatic ELECTRICAL DISTRIBUTION & CONTROL

ТЕХНИЧЕСКИ ХАРАКТЕРИСТИКИ

за предпазител разединители и стопяеми предпазители

Предлаганите от нас еднополюсни прекъсвач разединители за стопяеми предпазители CH10/38 са тествани и са в съответствие със следните стандарти : IEC/EN 60269-1, IEC/EN 60269-2, IEC/EN 60947-1, IEC/EN 60947-3, UL 4248-1, UL 4248-4

Прекъсвач разединителите са от модулен тип със широчина 18 мм.
Предназначени са за монтаж на ДИН шина и да работят с предпазители CH 10/38 до 32A.
Номиналното работно напрежение е Ue 690 V
Напрежение на изолацията Ui 750 V
Категория на приложение AC21B
Категория по пренапрежение III
Издържано импулсно напрежение Uimp 6 kV
Условен ток на късо съединение 100kA
Степен на защита IP 20
Надморска височина до 3000м
Комутационни цикли
Механични 2000
Елекртрически 300
Температура на околната среда от минус 20 до + 70°C
Предназначени са подсъединяване на медни и алуминиеви проводници до 25мм2

Предлаганите от нас стопяеми предпазители тип CH10 са цилиндрични с размер 10/38мм и керамично тяло.
Предпазителите са тествани и отговарят на следните стандарти:
IEC 60269-1 Ed.4.0:2006 and EN 60269-1:2007
IEC 60269-2 Ed.3.0:2006 and HD 60269-2:2007
Номиналния ток е 4A
Условния ток на късо съединение 100кA
Разсейвана мощност 3W

Инструкция за транспорт, съхранение, монтаж и експлоатация на и еднополюсни стопяем цилиндричен предпазител-прекъсвач-разединители, размер 10х38 mm

1. Транспорт

Прекъсвач-разединителите трябва да се транспортират опаковани в оригиналната опаковка.

Няма специфични изисквания към начина на транспорт.

2. Съхранение

Прекъсвач-разединителите трябва да се съхраняват в сухи, закрити помещения опаковани в оригиналната опаковка.
Температура на съхранение: от -25 до +55 °C.

Няма специфични изисквания към начина на съхранение.

3. Монтаж и експлоатация

Монтажа и експлоатационната поддръжка е необходимо да се извърва от правоспособен ел.монтьор с минимум III та квалификационна група.
Необходимо е да се спазват следните изисквания.
Да не се прави опит да се монтира проводник, ако клемата не е отворена достатъчно
Да не се прави опит да се монрира проводник с по-голямо сечение от 25мм2. Да не се прилагат ток и напрежение по-големи от указаните.
Да се спазват въртящите моменти за затягане на жилата от 2,5 Nm за предпазител-прекъсвач разединителите.

Когато на клемния блок има присъединен разединител предпазител за стопяеми предпазители, то е необходимо да се ползват само калибрирани предпазители с за ток не по-голям от 32А при напрежение 400V. Предпазителите да са с размер 10/38мм. Към разединител предпазителите може да се присъединява проводник не по-голям от 25мм2 и да се притяга с въртящ момент 2,5 Nm

Прекъсвач-разединителите не трябва да се мокри или подлага на атака от химически реагенти.
Да не се прилагат механични удари.
При механична неизправност или намокряне съществува вероятност от попадене под напрежение за персонала.

DEVICE UNDER TEST..... **Fuse holder *FB01B types***

MANUFACTURER..... Lovato Electric S.p.A.

TYPE OF TEST..... **Temperature rise test on FB01B fuse holders**

DATE OF DEVICE RECEIPT..... 27/04/2011

START / END TESTING..... 29/04/2011 – 13/05/2011

SAMPLES STORING..... ☒ Eliminated / returned to customer ☐ Storage :

INDEX.....

ISSUE..... 16/05/2011

COMPILED..... STAFF LPR

APPROVED..... RESP. LPR

1. PURPOPSE OF TESTING

Requested test (according to the customer specification):
Temperature rise at 690V – 32A on FB01B fuse holders

Test purpose:
"Verify the good function of FB01B fuse holders ."

Test target:
Pass the test.

2. TEST SAMPLES

N. 1 FB01B1P fuse holder - 32A (10 x 38 mm), batch production number ...[1]
N. 1 FB01B2P fuse holder - 32A (10 x 38 mm), batch production number ...[1]
N. 1 FB01B3P fuse holder - 32A (10 X 38 mm), batch production number ...[1]

3. TEST METHOD

IEC 60947-3 (2008-08) Ed. 3.0 + IEC 60947-1 Ed. 5.1 (2011-03)
Temperature rise (§ 8.3.3.1)

4. TEST PROCEDURES

Temperature rise..... Test instruction LPR 051-1, rev. 4, dated 11/10/2010.

[1] not available
[1] not available
[1] not available

5. TEST RESULTS

5.1 TEMPERATURE RISE

5.1.1 WITH LEGRAND FUSE 32 A gG 400 V

Sample under test.....N. 1 FB01B1P - 32A
N. 1 FB01B2P - 32A
N. 1 FB01B3P - 32A

Test conditions

Ambient temperature.....21 °C
Relative humidity.....46 %
Installation.....in vertical way, on DIN RAIL 35mm

Data sheet fusible used:
- Supplier.....Legrand
- Code.....cod. 133 32

Test parameters

Wiring of the main circuit
- cables section / length.....6,0 mm^2 / 1,0 m
- screws tightening nominal torque.....2,0 ÷ 2,5 N.m
- screws applied tightening torque.....2,0 N·m

Supply of the main circuit
- rated current.....Ith = 25 - 32 A
- test current.....I = 32 A
- supply frequency.....50 Hz

Test results

See next page.

Temperature rise main circuit

	[K]			Standard limit EN60947-1 tab. 2
	One pole fuse holder FB01B1P	2 pole fuse holder FB01B2P	3 pole fuse holder FB01B3P	
Terminal L1	43	54	57	65
Terminal T1	39	51	52	65
Terminal L2	-	55	61	65
Terminal T2	-	49	58	65
Terminal L3	-	-	57	65
Terminal T3	-	-	50	65
Note .....:	Silver plated-brass terminal			

Temperature rise for accessibile parts

	[K]			Standard limit EN60947-1 tab. 3
	One pole fuse holder FB01B1P	2 pole fuse holder FB01B2P	3 pole fuse holder FB01B3P	
Line side	14	24	29	40
Load side	10	19	21	40
Left side	24	30	32	40
Right side	22	30	31	40
On front	18	24	29	40
Lever	9	16	17	40

6. TEST EQUIPMENT AND INSTRUMENTS

6.1. TEST EQUIPMENT

Description	Used for	Full scale	Code
Current supply station	Power supply main circuit	20V – 50A	LPRA 065

6.2. MEASURING INSTRUMENTS

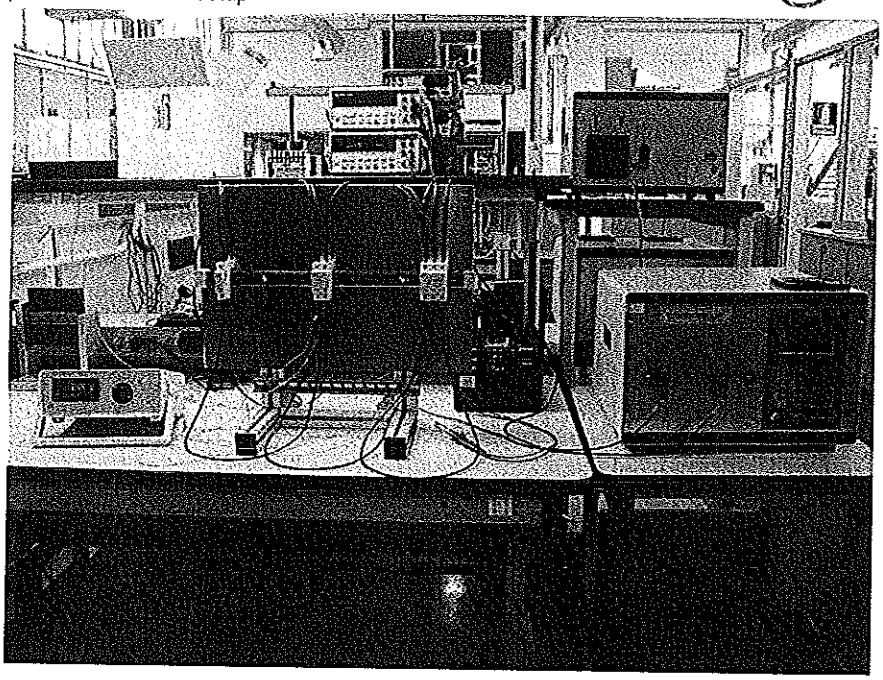
Description	Used to measure	Full scale	Code	Calibration expiration date
Thermohygrometer	Ambient temperature	-5 ÷ 50 °C	LPR 1 65	27/10/2011
Thermohygrometer	Relative humidity	10 ÷ 90%	LPR 165	27/10/2011
Termometric instrument	Temperature rise	-30 ÷ +200 °C	LPR 201	10/01/2012
Termocouple T type	Temperature rise	-30 ÷ +200 °C	L PR 201	10/01/2012
Termocouple T type	Temperature rise	-30 ÷ +200 °C	L PR 201.13	10/01/2012
Current transformer	Main circuit current	1.004/50 A	LPR 155	11/05/2014
Digital multimeter	Main circuit current	10 A	LPR 55	11/05/2012
Digital multimeter	Drop voltage	mV - Autom.	LPR 125	11/05/2012
Dynamometric screw driver	Main terminal screw tightening	6,0 Nm	LPR 231	07/01/2012

7. REMARKS & ANALYS

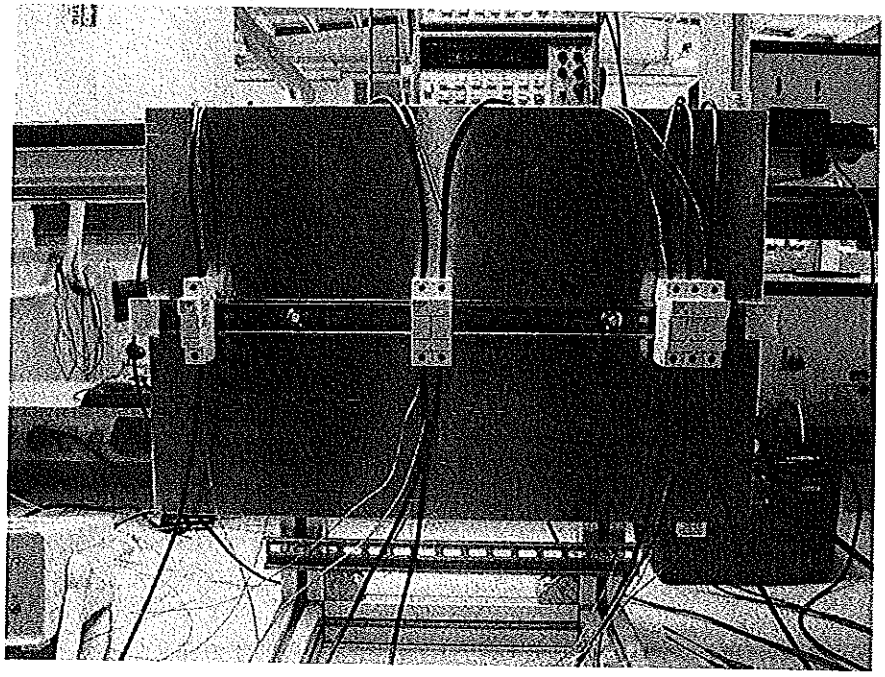
Temperature rise test 690V – 32A: test passed

8. ANNEX

Picture 1: Temperature rise – test setup



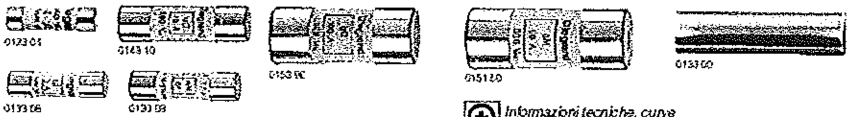
Picture 1a: Temperature rise – test setup



Picture 2: Catalogue Legrand fuses

legrand

fusibili cilindrici



Informazioni tecniche, curve e quote (p. 122)

Tipo "gG"

B.C.R. (Bassa Capacità di Rottura)
Rispondenti alle norme CEI 32-1, CEI 32-5, EN 60 269-1, EN 60 269-3

Imballo	Articoli Senza segnalatore	Articoli Con segnalatore	I nominale (A)	Tensione (V~)	Potere interruzione (kA)
			8,5 x 23 mm		
10	(1) 0113 02	0114 02 (1)	2		
10	(1) 0113 04	0114 04 (1)	4	250	6
10	(1) 0113 06	0114 06 (1)	6		
100	0113 10	0114 10	10		
			8,5 x 31,5 mm		
10	0123 01		1		
10	0123 02	0124 02	2		
10	0123 04	0124 04	4		
10	0123 06	0124 06	6		
10	0123 08		8	400	20
10	0123 10	0124 10	10		
10	0123 12		12		
100	0123 16	0124 16	16		
100	0123 20	0124 20	20		
			10,3 x 38 mm		
100/10	0123 32	0124 32	32	400	20

A.C.R. (Alta Capacità di Rottura)
Conformi alle norme CEI 32-1 e 32-4 - IEC 60 269.1.2 e 2,1 - EN 60 269.1
Approvazioni Bureau Veritas

Imballo	Senza segnalatore	Con segnalatore	I nominale (A)	Tensione (V~)	Potere interruzione (kA)
			10,3 x 38 mm		
10	0133 94		0,5		
10	0133 01		1		
10	0133 02	0134 02	2		
10	0133 04	0134 04	4		
10	0133 06	0134 06	6	500	100
10	0133 08	0134 08	8		
10	0133 10	0134 10	10		
10	0133 12	0134 12	12		
10	0133 16	0134 16	16		
10	0133 20	0134 20	20		
10	0133 25	0134 25	25		
	Senza percussore	Con percussore	**14 x 51 mm**		
10	0143 02		2		
10	0143 04	0145 04	4		
10	0143 06	0145 06	6		
10	0143 10	0145 10	10		
10	0143 16	0145 16	16	500	100
10	0143 20	0145 20	20		
10	0143 25	0145 25	25		
10	0143 32	0145 32	32		
10	0143 40	0145 40	40		
10	0143 50	0145 50	50	400	
			22 x 58 mm		
10	0153 10	0155 10	10		
10	0153 16	0155 16	16		
10	0153 20	0155 20	20		
10	0153 25	0155 25	25	500	100
10	0153 32	0155 32	32		
10	0153 40	0155 40	40		
10	0153 50	0155 50	50		
10	0153 63	0155 63	63		
10	0153 80	0155 80	80		
10	0153 96	0155 96	100		
10	0153 97	0155 97	125	400	

(1) Tipo g

Tipo "aM"

Rispondenti alla norma IEC EN 60269-1
Approvazione Bureau Veritas

Imballo	Articoli Senza percussore	Articoli Con percussore	I nominale (A)	Tensione (V~)	Potere interruzione (kA)
			8,5 x 31,5 mm		
10	0120 01		1		
10	0120 02		2		
10	0120 04		4		
10	0120 06		6	400	20
10	0120 08		8		
10	0120 10		10		

A.C.R. (Alta Capacità di Rottura)
Conformi alle norme IEC 60269-1,2 e 2-1; EN 60269-1; CEI 32.1 e 32.4
Approvazioni Bureau Veritas

Imballo	Senza percussore	Con percussore	I nominale (A)	Tensione (V~)	Potere interruzione (kA)
			10,3 x 38 mm		
10	0130 92		0,25		
10	0130 95		0,50		
10	0130 01		1		
10	0130 02		2		
10	0130 04		4		
10	0130 06		6 500	100	
10	0130 08		8		
10	(1) 0130 10		10		
10	(1) 0130 12		12		
10	0130 16		16		
10	0130 20		20	400	
10	0130 25		25	400	
			14 x 51 mm		
10	0140 02	0141 02	2		
10	0140 04	0141 04	4		
10	0140 06	0141 06	6		
10	0140 08	0141 08	8		
10	0140 10	0141 10	10		
10	0140 12	0141 12	12	500	100
10	0140 16	0141 16	16		
10	0140 20	0141 20	20		
10	0140 25	0141 25	25		
10	0140 32	0141 32	32		
10	0140 40	0141 40	40		
10	0140 45	0141 45	45		
10	0140 50		50	400	
			22 x 58 mm		
10	0150 16	0151 16	16		
10	0150 20	0151 20	20		
10	0150 25	0151 25	25		
10	0150 32	0151 32	32		
10	0150 40	0151 40	40	500	100
10	0150 50	0151 50	50		
10	0150 63	0151 63	63		
10	0150 80	0151 80	80		
10	0150 96	0151 95	100		
10	0150 97	0151 97	125	400	

Neutri

Imballo	Articoli	
10	0123 00	8,5 x 31,5
10	0133 00	10,3 x 38
10	0143 00	14 x 51
10	0153 00	22 x 58

(1) calibro non normalizzato

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Cod. Fisc. e Part. IVA n. 01921300164
VAT ID. NO. IT 01921300164
Sede Legale Bergamo
Via Borfuro, 1
Cap. Soc. Vers. € 3.108.199

REA n. 247920 della C.C.I.A.A. di BG
Posizione Meccanografica 008442
Ufficio del Registro delle Imprese
Trib. di BG n. 35786 - 34835 vol.

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LOVATO ELECTRIC S.P.A.
VIA DON E. MAZZA, 12
24020 Gorle (Bergamo) Italia

DICHIARAZIONE DI CONFORMITA'

Tipologia di Apparecchiatura

COSTRUTTORE	**Lovato Electric S.p.A.** via don E.Mazza, 12 – 24020 Gorle (BG)
TIPO APPARECCHIATURA	Sistema di protezione di interfaccia
MODELLO	PMVF 30
VERSIONE FIRMWARE	WM300B0208
NUMERO DI FASI	3
POTENZA NOMINALE	Non Applicabile

Riferimenti del laboratorio che ha eseguito le prove e dei relativi fascicoli di prova

LABORATORIO	**Eurofins – Modulo Uno S.p.A.** Strada Savonesa, 9 – 15050 Rivalta Scrivia (AL)
ACCREDITAMENTO RICONOSCIUTO EA	ACCREDIA n.0085 (UNI EN ISO/IEC 17025)
FASCICOLI DI PROVA n°	M1.13.NRG.0007/49523 emesso il 18/01/2013 M1.13.EMC.0008/49523 emesso il 18/01/2013

Dichiarazione di conformità alle prescrizioni CEI 0-16:2012-12

Con la presente dichiarazione, resa ai sensi degli artt. 46 e 47 DPR 28 dicembre 2000, n. 445, consapevole delle responsabilità e delle sanzioni penali previste dall'art. 76 del citato DPR per false attestazioni e dichiarazioni mendaci, il sottoscritto MASSIMILIANO CACCIAVILLANI, codice fiscale CCMSM72B22B393U residente in via Zavaritt 210 nel Comune di GORLE provincia di BERGAMO, in qualità di rappresentante legale della società LOVATO ELECTRIC SPA con sede legale in Bergamo, via Borfuro 1, codice fiscale 01921300164, P.IVA 01921300164, iscritta al registro delle Imprese della Camera di Commercio Industria Artigianato Agricoltura (CCIAA) di Bergamo, sezione ordinaria R.E.A. 247920,

DICHIARA

che l'apparecchiatura in oggetto è conforme alla norma CEI 0-16 "Regola tecnica di riferimento per la connessione di utenti attivi e passivi alle reti AT ed MT delle imprese distributrici di energia elettrica" edizione dicembre 2012.

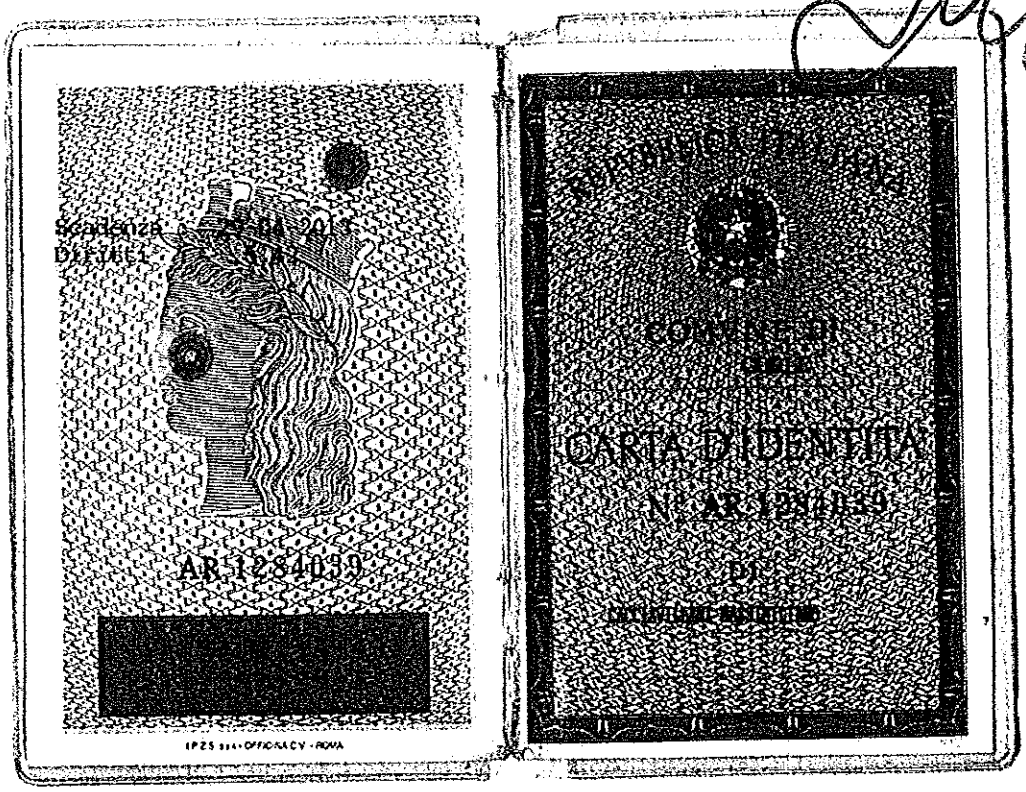
GORLE (BERGAMO) 18 GENNAIO 2013

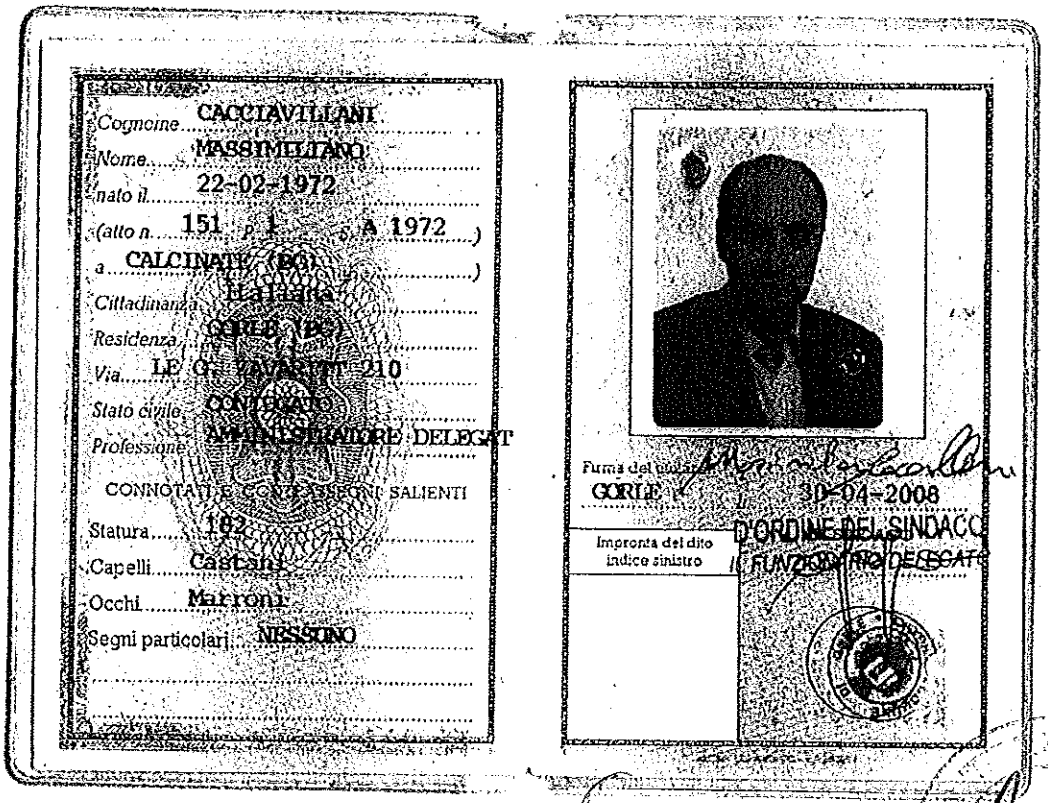
Massimiliano Cacciavillani
(Amministratore Delegato)

Informativa ai sensi dell'art.13 D. Lgs. 196/2003: i dati sopra riportati sono previsti dalle disposizioni vigenti ai fini del procedimento amministrativo per il quale sono richiesti e verranno utilizzati solo per tale scopo.

Si allega fotocopia di un documento di identità in corso di validità.

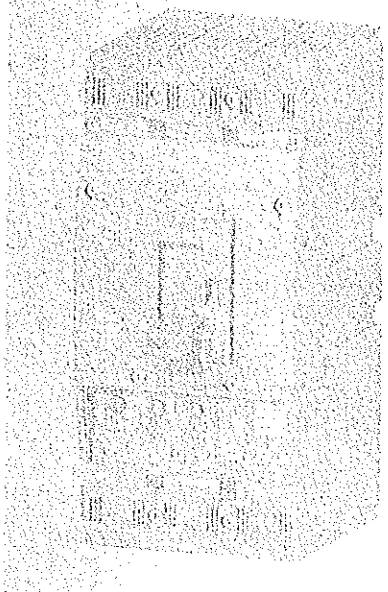
Esente da imposta di bollo ai sensi dell'art.37, comma 1, del DPR 445/2000


Scadenza
AR1284039
CARTA D'IDENTITÀ
N° AR1284039


Cognome CACCIAVILLANI
Nome MASSIMILIANO
nato il 22-02-1972
(atto n. 151 P. I S. A 1972)
a CALCINATE (BG)
Cittadinanza Italiana
Residenza GORLE (BG)
Via LE G. GAVAZZENI 210
Stato civile CONIUGATO
Professione AMMINISTRATORE DELEGAT
CONNOTATI E CONTRASSEGNI SALIENTI
Statura 182
Capelli Castani
Occhi Marroni
Segni particolari NESSUNO
Firma del titolare
GORLE 30-04-2008
Impronta del dito indice sinistro
D'ORDINE DEL SINDACO
IL FUNZIONARIO DELEGAT

Modeion

MOULDED CASE CIRCUIT BREAKERS BD250N, BD250S



E

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COMMERCIAL INFORMATION

3P 4P

TECHNICAL INFORMATION

SUMMARY OF MODELS AND ACCESSORIES

3P 4P

CONNECTING SETS

Clamp terminals — CS-BD-T011
Block terminals — CS-BD-B011
Block terminals — CS-BD-B012
Double block terminals — CS-BD-B021, CS-BD-B022
Block terminals — CS-BD-B014
Rear connection — CS-BD-A021
Front connection — CS-BD-A011
Potential terminals — CS-BD-PS01

HAND DRIVES

RP-BD-CK..
RP-BHD-CP..
RP-BHD-CH..
RP-BHD-CH..

Mechanical parallel switching
RP-BHD-CD10

Mechanical interlocking
RP-BHD-CB10

Mechanical blocking with Bowden cable
MB-BD-PV05
MB-BHD-PV03

MOTOR DRIVES MP-BD-X...
OD-BHD-KA02
OD-BHD-PP01

SWITCHING UNIT
BD250SE30S
BD250NE30S

PLUG-IN DEVICE
ZO-BD-0250-300

WITHDRAWABLE DEVICE
ZV-BD-0250-300

SWITCHES PS-BHD-...
Simple — Double — Make-and-break — Early

SHUNT TRIP SV-BHD-X...

UNDERVOLTAGE RELEASE SP-BHD-X...

OVERCURRENT RELEASES
SE-BD-...L001
SE-BD-...DTV3
SE-BD-...MTV8
SE-BD-...MTV9

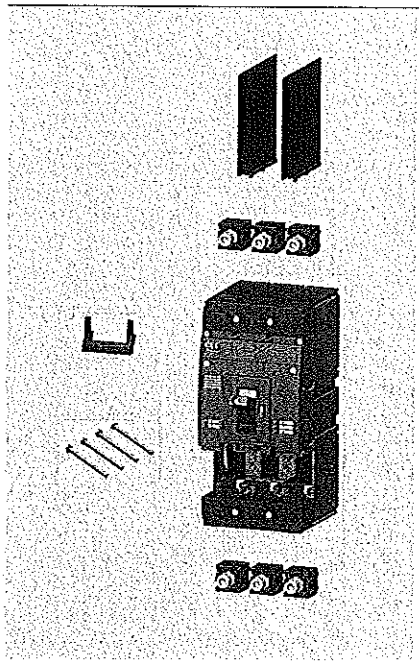
SWITCH-DISCONNECTOR UNIT
SE-BD-0250-V001
SE-BD-...4D01

ACCESSORIES TO ZO... AND ZV...
Connecting cable
OD-BHD-KA01
Signalling of position
SO-BHD-0010

ACCESSORIES
Lever with locking — OD-BD-UP01
Sealing insert — OD-BD-VP01
Additional cover for overcurrent release — OD-BD-VP02
Terminal cover — OD-BD-KS03
Insulating barriers — OD-BHD-KS02
Keying set
OD-BD-KK01

SWITCHING UNITS

3P



Type	Product code	I_n [A]	I_m [A]	Weight [kg]	Package [pc]
BD250NE30S	14414	250	36	2.84	1
BD250SE30S	14415	250	65	2.84	1

- TECHNICAL INFORMATION, see page E15
- the method of power circuit connection must observe recommendations, see page E18 as well as deionization space, see page E23

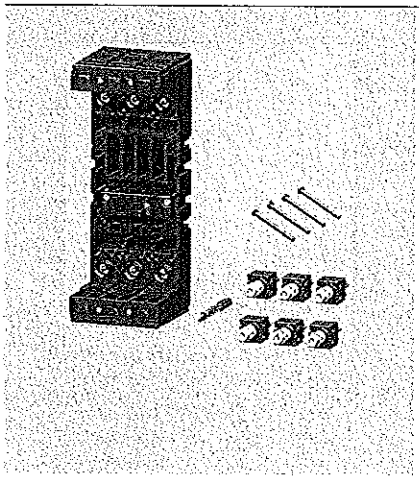
Switching unit: includes
- 2 CS-BD-A011 connecting sets - for connecting busbars or cable lugs [1]
- insulating barriers OD-BHD-KS02
- mounting bolts set OD-BD-MS01 (4x M4x35)
- conductor holder OD-BD-DV01

must be fitted with - by overcurrent release SE-BD-... (circuit breaker) or switch-disconnector unit SE-BD-0250-V001 (switch-disconnector)

[1] - for connecting in another way, it is necessary to use CS-BD-... connecting sets, see page E8

PLUG-IN DEVICE

3P



Type	Product code	Name	Weight [kg]	Package [pc]
ZO-BD-0250-300	14558	Plug-in device	1.593	1

- TECHNICAL INFORMATION, see page page E50

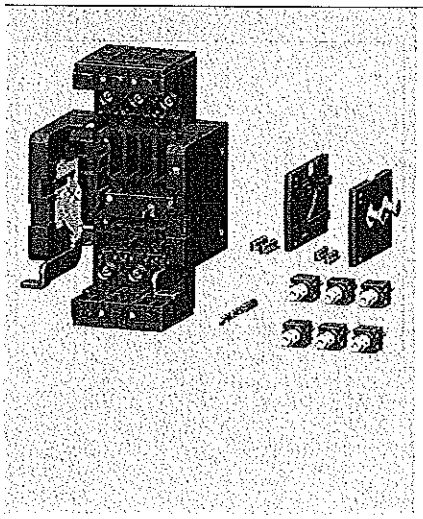
Plug-in device: includes
- complete accessories for assembly circuit breakers/switch-disconnectors in plug-in design
- mounting bolts set (4x M4x40) - for affixing switching unit to plug-in device

must be fitted with - switching unit BD250..305

- for connecting plug-in device with busbars or cable lugs, connecting sets CS-BD-A011 can be used, that are included in the package of the BD250..305 switching unit - for connecting in another way, it is necessary to use CS-BD-... connecting sets, see page E8

WITHDRAWABLE DEVICE

3P



Type	Product code	Name	Weight [kg]	Package [pc]
ZV-BD-0250-300	14557	Withdrawable device	2.692	1

- TECHNICAL INFORMATION, see page E52

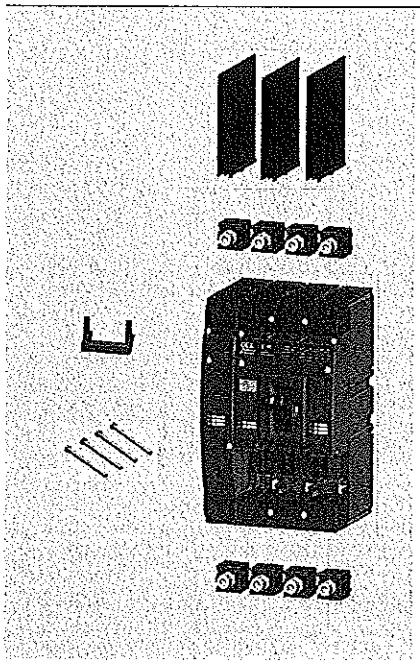
- Withdrawable device: includes
- complete accessories for assembly circuit breakers/switch-disconnectors in withdrawable design

must be fitted with - switching unit BD250..305

- for connecting withdrawable device with busbars or cable lugs, connecting sets CS-BD-A011 can be used, that are included with the BD250..305 switching unit - for connecting in another way, it is necessary to use CS-BD-... connecting sets, see page E8

SWITCHING UNITS

4P



Type	Product code	I [A]	I_{cs} [kA]		Weight [kg]	Package [pc]
BD250NE405	19571	250	36	3P + N-conductor switching	3.7	1
BD250SE405	19573	250	65	3P + N-conductor switching	3.7	1
BD250NE406	19572	250	36	4P-conductor protection	3.9	1
BD250SE406	19574	250	65	4P-conductor protection	3.9	1

- TECHNICAL INFORMATION, see page E15
- the method of power circuit connection must observe recommendations, see page E18 as well as delonization space, see page E23

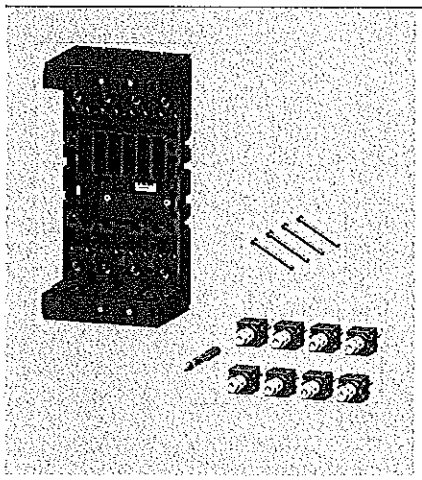
Switching unit: includes
- 2 connecting sets - for connecting busbars or cable lugs [1]
- insulating barriers
- mounting bolts set OD-BD-MS01 (4x M4x35)
- conductor holder OD-BD-DV01

must be fitted with - by overcurrent release SE-BD-..., (circuit breaker) or switch-disconnector unit SE-BD-0250-V001 (switch-disconnector)

[1] - for connecting in another way, it is necessary to use CS-BD-... connecting sets, see page E8

PLUG-IN DEVICE

4P



Type	Product code	Name	Weight [kg]	Package [pc]
ZO-BD-0250-400	20651	Plug-in device	2.1	1

- TECHNICAL INFORMATION, see page E50

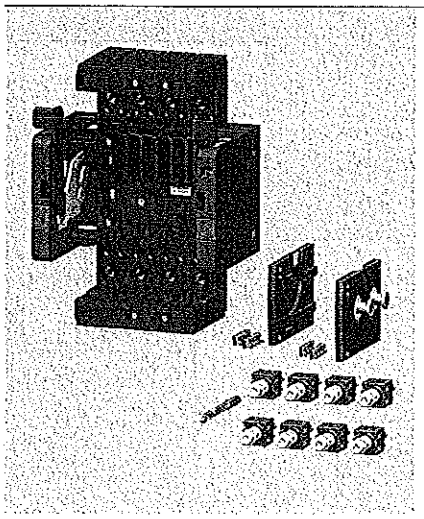
Plug-in device: includes
- complete accessories for assembly circuit breakers/switch-disconnectors in plug-in design
- mounting bolts set (4x M4x40) - for affixing switching unit to plug-in device

must be fitted with - switching unit BD250..405 or BD250..406

- for connecting plug-in device with busbars or cable lugs, connecting sets can be used, that are included in the package of the BD250..40.. switching unit - for connecting in another way, it is necessary to use CS-BD-... connecting sets, see page E8

WITHDRAWABLE DEVICE

4P



Type	Product code	Name	Weight [kg]	Package [pc]
ZV-BD-0250-400	20652	Withdrawable device	3.2	1

- TECHNICAL INFORMATION, see page E52

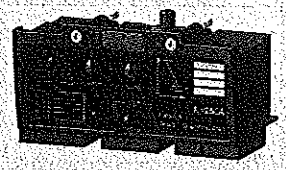
Withdrawable device: includes
- complete accessories for assembling breaker/switch-disconnector in withdrawable design

must be fitted with - switching unit BD250..405 or BD250..406

- for connecting withdrawable device with busbars or cable lugs, connecting sets can be used, that are included with the BD250..40.. switching unit - for connecting in another way, it is necessary to use CS-BD-... connecting sets, see page E8

OVERCURRENT RELEASES

3P 4P

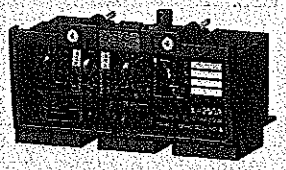


DTV3 - characteristic D - distribution

- protection lines and transformers

I_n [A]	Type	Product code	Description	Weight [kg]	Package [pc]
100	SE-BD-0100-DTV3	24300	I_n setting = 40 ÷ 100 A	0.317	1
160	SE-BD-0160-DTV3	24200	I_n setting = 63 ÷ 160 A	0.317	1
250	SE-BD-0250-DTV3	24100	I_n setting = 100 ÷ 250 A	0.317	1

- TECHNICAL INFORMATION, see page E54

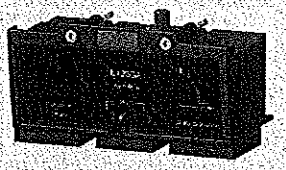


MTV8 - characteristic M - motor

- direct protection for motors and generators
- suitable also for protection lines and transformers

I_n [A]	Type	Product code	Description	Weight [kg]	Package [pc]
100	SE-BD-0100-MTV8	24310	I_n setting = 40 ÷ 100 A	0.317	1
160	SE-BD-0160-MTV8	24210	I_n setting = 63 ÷ 160 A	0.317	1
250	SE-BD-0250-MTV8	24110	I_n setting = 100 ÷ 250 A	0.317	1

- TECHNICAL INFORMATION, see page E55

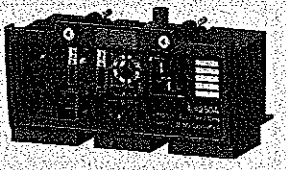


L001 - characteristic L - lines

- protection lines with low starting currents
- without I_n setting

I_n [A]	Type	Product code	Description	Weight [kg]	Package [pc]
160	SE-BD-0160-L001	20612	Without I_n setting	0.317	1
200	SE-BD-0200-L001	20666	Without I_n setting	0.317	1
250	SE-BD-0250-L001	20613	Without I_n setting	0.317	1

- TECHNICAL INFORMATION, see page E57



MTV9 - characteristic M - motor with adjustable timing selectivity

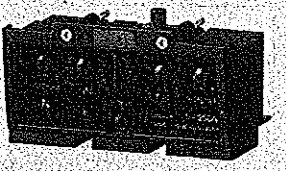
- direct protection for motors and generators
- suitable also for protection lines and transformers
- enables setting delay of independent release to 0, 100, 200 or 300 ms

I_n [A]	Type	Product code	Description	Weight [kg]	Package [pc]
100	SE-BD-0100-MTV9	17304	I_n setting = 40 ÷ 100 A	0.317	1
160	SE-BD-0160-MTV9	19569	I_n setting = 63 ÷ 160 A	0.317	1
250	SE-BD-0250-MTV9	19570	I_n setting = 100 ÷ 250 A	0.317	1

- TECHNICAL INFORMATION, see page E58

OVERCURRENT RELEASES

4P



4D01 - characteristic D - distribution with N-pole protection

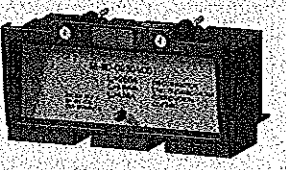
- protection lines and transformers in TN-C-S and TN-S networks

I_n [A]	Type	Product code	Description	Weight [kg]	Package [pc]
100	SE-BD-0100-4D01	33423	I_n setting = 40 ÷ 100 A	0.327	1
160	SE-BD-0160-4D01	33424	I_n setting = 63 ÷ 160 A	0.327	1
250	SE-BD-0250-4D01	33425	I_n setting = 100 ÷ 250 A	0.327	1

- TECHNICAL INFORMATION, see page E60
- intended for BD250..406 switching unit

SWITCH-DISCONNECTOR UNIT

3P 4P



I_n [A]	Type	Product code	Name	Weight [kg]	Package [pc]
250	SE-BD-0250-V001	24120	Switch-disconnector unit	0.267	1

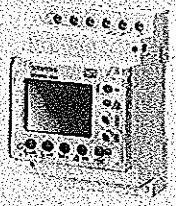
- TECHNICAL INFORMATION, see page E15

RESIDUAL CURRENT MONITOR

3P 4P

Type	Product code	Description	Weight [kg]	Package [set]
5SV8000-6KK	42658	Analogue design, $I_{\Delta n}$ and $t_{\Delta n}$ setting	0.18	1

- TECHNICAL INFORMATION, see page P4



Type	Product code	Description	Weight [kg]	Package [set]
5SV8001-6KK	42659	Digital design, $I_{\Delta n}$ and $t_{\Delta n}$ setting	0.26	1
5SV8200-6KK	42660	Digital design, $I_{\Delta n}$ and $t_{\Delta n}$ setting, 4 channels	0.26	1

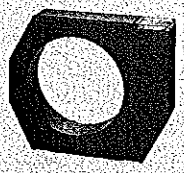
- TECHNICAL INFORMATION, see page P4

CURRENT TRANSFORMERS FOR RESIDUAL CURRENT MONITOR

3P 4P

Type	Product code	Description	Weight [kg]	Package [set]
5SV8700-0KK	42661	Internal diameter 20 mm, including holder on „U" rail according to EN 60715 wide 35 mm	0.09	1
5SV8701-0KK	42662	Internal diameter 30 mm, including holder on „U" rail according to EN 60715 wide 35 mm	0.11	1

- TECHNICAL INFORMATION, see page P4



Type	Product code	Description	Weight [kg]	Package [set]
5SV8702-0KK	42663	Internal diameter 35 mm, including holder on the panel	0.2	1
5SV8703-0KK	42664	Internal diameter 70 mm, including holder on the panel	0.31	1
5SV8704-0KK	42665	Internal diameter 105 mm, including holder on the panel	0.6	1
5SV8705-0KK	42666	Internal diameter 140 mm, including holder on the panel	1.35	1
5SV8706-0KK	42667	Internal diameter 210 mm, including holder on the panel	1.25	1

- TECHNICAL INFORMATION, see page P4

Type	Product code	Description	Weight [kg]	Package [set]
5SV8 900-1KK	42668	Holder on „U" rail according to EN 60715 wide 35 mm for current transformers with internal diameter up to and including 105 mm	0.01	2

- TECHNICAL INFORMATION, see page P4

CONNECTING SETS

3 terminals

Type	Product code	Description	S [mm²]	Method of connection	Weight [kg]	Package [set]
CS-BD-T011	24810	Clamp terminals	16 ÷ 150	Cu cables, flexibars	0.24	1

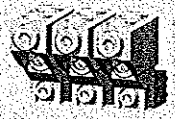
- TECHNICAL INFORMATION, see page E19

CS-BD-B011	24751	Block terminals	25 ÷ 150	Cu/Al cables	0.21	1

- TECHNICAL INFORMATION, see page E19

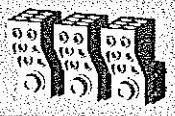
CS-BD-B012	17534	Block terminals	150 ÷ 240	Cu/Al cables	0.2	1

- TECHNICAL INFORMATION, see page E19
- using the OD-BD-KS03 cover the degree of protection IP20 is fulfilled



CS-BD-B021	24752	Double block terminals	2x (25 ÷ 150)	Cu/Al cables	0.51	1
CS-BD-B022	13808	Double block terminals	2x (150 ÷ 240)	Cu/Al cables	0.62	1

- TECHNICAL INFORMATION, see page E19
- using the OD-BD-KS03 cover the degree of protection IP20 is fulfilled



CS-BD-B014	20119	Block terminals - for 6 cables	6x (6 ÷ 35)	Cu/Al cables	0.3	1

- TECHNICAL INFORMATION, see page E19
- using the OD-BD-KS03 cover the degree of protection IP20 is fulfilled

CS-BD-A021	24770	Rear connection		Cu/Al busbars, cable lugs	0.237	1

- TECHNICAL INFORMATION, see page E19

CS-BD-PS01	13682	Potential terminals	1.5 ÷ 2.5; 4 ÷ 6	Cu flexible conductor	0.017	1

- TECHNICAL INFORMATION, see page E19

CS-BD-A011	24750	Front connection		Cu/Al busbars, cable lugs, flexibars	0.12	1

- TECHNICAL INFORMATION, see page E19
- included in every supply of switching units

1 terminal

Type	Product code	Description	S [mm²]	Method of connection	Weight [kg]	Package [set]
CS-BD-T411	19578	Clamp terminal	16 ÷ 150	Cu cables, flexibars	0.08	1

- TECHNICAL INFORMATION, see page E19

CS-BD-B411	19582	Block terminal	25 ÷ 150	Cu/Al cables	0.07	1

- TECHNICAL INFORMATION, see page E19

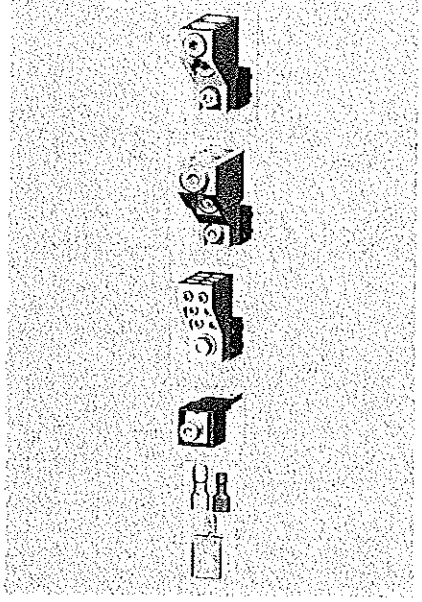
CS-BD-B412	19577	Block terminal	150 ÷ 240	Cu/Al cables	0.07	1

- TECHNICAL INFORMATION, see page E19

[1] - set includes three terminals

CONNECTING SETS

3P 4P



1 terminal

Type	Product code	Description	S [mm²]	Method of connection	Weight [kg]	Package [pc]
CS-BD-B421	19579	Double block terminal	2x (25÷150)	Cu/Al cables	0.17	1

- TECHNICAL INFORMATION, see page E19

CS-BD-B422	19580	Double block terminal	2x (150÷240)	Cu/Al cables	0.21	1

- TECHNICAL INFORMATION, see page E19

CS-BD-B414	21170	Block terminal - for 6 cables	6x (6÷35)	Cu/Al cables	0.1	1

- TECHNICAL INFORMATION, see page E19

CS-BD-A421	19581	Rear connection		Cu/Al busbars, cable lugs	0.08	1

- TECHNICAL INFORMATION, see page E19

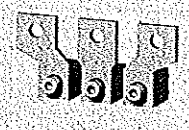
CS-BD-PS41	36031	Potential terminal	1.5÷2.5/4÷6		0.005	1

- TECHNICAL INFORMATION, see page E19

CONNECTING SETS

3P

RETROFIT

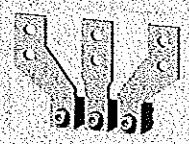


3 terminals

Type	Product code	Description	Method of connection	Weight [kg]	Package [pc]
CS-BD-A037	24772	Reduction for BA...*37-50 - front connection	Cu/Al busbars, cable lugs, flexibars	0.3	1

- TECHNICAL INFORMATION, see page E19

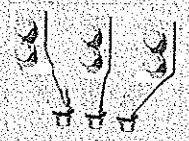
RETROFIT



CS-BD-A039	24771	Reduction for BA...*39-50 a J2UX50 - front connection	Cu/Al busbars, cable lugs, flexibars	0.447	1

- TECHNICAL INFORMATION, see page E19
- for total replacement of BA ...*39-50 or J2UX50 circuit breaker with front connection OD-BHD-MS39 connecting set is necessary

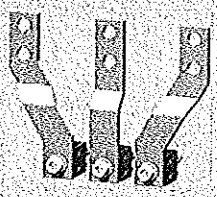
RETROFIT



CS-BD-Z039	18201	Reduction for BA...*39 a J2UX - rear connection	Cu/Al busbars, cable lugs, flexibars	0.739	1

- TECHNICAL INFORMATION, see page E19
- for total replacement of BA...*39 or J2UX circuit breaker with rear connection OD-BD-MZ39 and CS-BD-A021 connecting sets are necessary

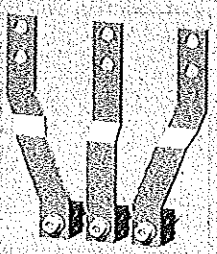
RETROFIT



CS-BD-JX75	18023	Reduction for BA...*39-75 and J2UX75 - front connection, withdrawable design	Cu/Al busbars, cable lugs, flexibars	0.558	1

- TECHNICAL INFORMATION, see page E19
- for total replacement of BA...*39-75 or J2UX75T circuit breakers with front connection in withdrawable design OD-BHD-MS75 connecting set and ZO-BD-0250-300 plug-in device or ZV-BD-0250-300 withdrawable device are necessary

RETROFIT

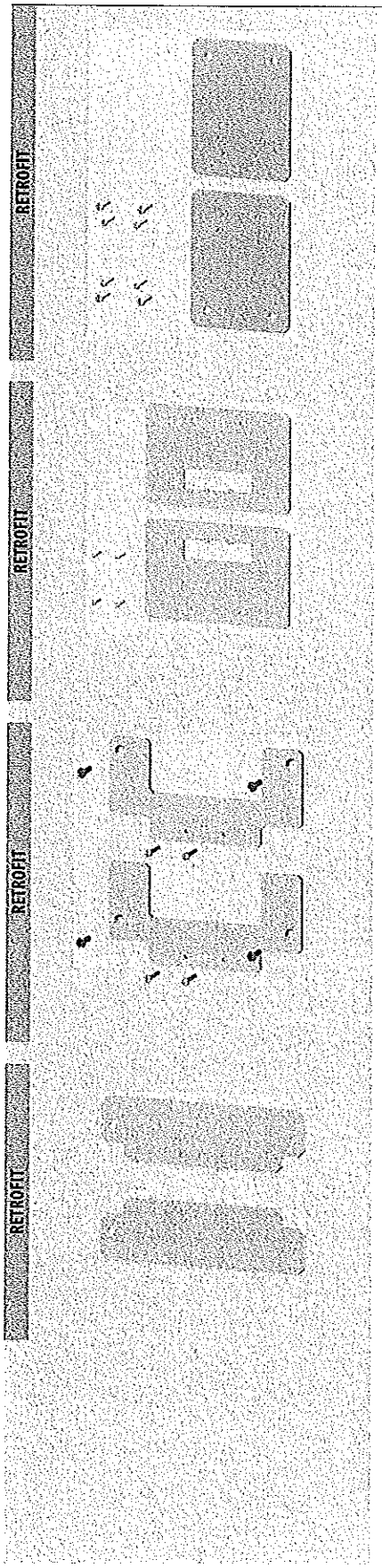


CS-BD-JT75	18024	Reduction for J2UX75T - front connection, withdrawable design	Cu/Al busbars, cable lugs, flexibars	0.711	1

- TECHNICAL INFORMATION, see page E19
- for total replacement of J2UX75T circuit breaker with front connection in withdrawable design OD-BHD-MS75 connecting set and ZO-BD-0250-300 plug-in device or ZV-BD-0250-300 withdrawable device are necessary

RETROFIT - sets, which enable replacement of older circuit breakers by a new circuit breakers without switchboard reconstruction

MOUNTING SETS



3P

Type	Product code	Description	Weight [kg]	Package [set][1]
OD-BHD-MS39	24741	Reduction for BA...*39-50 and J2UX50 - front connection	0.7	1

- DIMENSIONS see page E28
- for total replacement of BA ...*39-50 or J2UX50 circuit breaker with front connection 2 connecting sets CS-BD-A039 are necessary

OD-BD-MZ39	18203	Reduction for BA...*39 and J2UX - rear connection	1.255	1

-DIMENSIONS see page E28
- for total replacement of BA...*39 or J2UX circuit breaker with rear connection 2 connecting sets CS-BD-Z039 and CS-BD-A021 are necessary

OD-BD-MT75	33330	Reduction for J2UX75T - front connection, withdrawable design	1

- DIMENSIONS see page E34, E38
- for total replacement of J2UX75T circuit breaker with front connection in withdrawable design 2 connecting sets CS-BD-JT75 and ZO-BD-0250-300 plug-in device or ZV-BD-0250-300 withdrawable device are necessary

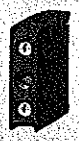
OD-BHD-MS75	14563	Reduction for BA...*39-75 and J2UX75 - front connection, withdrawable design	0.446	1

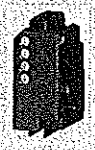
- DIMENSIONS see page E34, E37
- for total replacement of BA...*39-75 or J2UX75 circuit breaker with front connection in withdrawable design 2 connecting sets CS-BD-JX75 and ZO-BD-0250-300 plug-in device or ZV-BD-0250-300 withdrawable device are necessary

[1] - one set provides for replacing one circuit breaker (set includes coupling elements necessary to assemble circuit breaker and mounting set)

RETROFIT - sets, which enable replacement of older circuit breakers by a new circuit breakers without switchboard reconstruction

SWITCHES

Single make contacts

3P 4P

Type	Product code	Operating voltage	Contacts	Weight [kg]	Package [pc]
PS-BHD-1000	24700	60 ÷ 500 V a.c./d.c.		0.012	1
PS-BHD-1000-Au	24702	5 ÷ 60 V a.c./d.c.		0.012	1

Single break contacts

Type	Product code	Operating voltage	Contacts	Weight [kg]	Package [pc]
PS-BHD-0100	24701	60 ÷ 500 V a.c./d.c.		0.013	1
PS-BHD-0100-Au	24703	5 ÷ 60 V a.c./d.c.		0.013	1

Double

Type	Product code	Operating voltage	Contacts	Weight [kg]	Package [pc]
PS-BHD-0200	13690	60 ÷ 500 V a.c./d.c.		0.026	1
PS-BHD-0200-Au	13693	5 ÷ 60 V a.c./d.c.		0.026	1
PS-BHD-1100	13691	60 ÷ 500 V a.c./d.c.		0.025	1
PS-BHD-1100-Au	13694	5 ÷ 60 V a.c./d.c.		0.025	1
PS-BHD-2000	13689	60 ÷ 500 V a.c./d.c.		0.024	1
PS-BHD-2000-Au	13692	5 ÷ 60 V a.c./d.c.		0.024	1

Make-and-break

Type	Product code	Operating voltage	Contacts	Weight [kg]	Package [pc]
PS-BHD-0010	18021	60 ÷ 250 V a.c./d.c.		0.013	1
PS-BHD-0010-Au	18022	5 ÷ 60 V a.c./d.c.		0.013	1
PS-BHD-0020	35 893	60 ÷ 250 V a.c./d.c.		0.026	1
PS-BHD-0020-Au	37467	5 ÷ 60 V a.c./d.c.		0.026	1

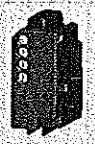
Early

Type	Product code	Description	Contacts	Weight [kg]	Package [pc]
SP-BHD-0002	16169	Early contact		0.045	1

- TECHNICAL INFORMATION for all switch, see page E61

SHUNT TRIPS

3P 4P

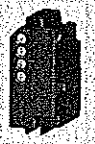


Type	Product code	Operating voltage	Weight [kg]	Package [pc]
SV-BHD-X024	24650	24, 40, 48 V a.c./d.c.	0.14	1
SV-BHD-X110	24630	110 V a.c./d.c.	0.14	1
SV-BHD-X230	24620	230, 400, 500 V a.c./ 220 V d.c.	0.14	1

- TECHNICAL INFORMATION, see page E62

UNDERVOLTAGE RELEASES

3P 4P



Type	Product code	Operating voltage	Description	Weight [kg]	Package [pc]
SP-BHD-X024	24450	24, 40, 48 V a.c./d.c.		0.11	1
SP-BHD-X110	24430	110 V a.c./d.c.		0.11	1
SP-BHD-X230	24420	230, 400, 500 V a.c./ 220 V d.c.		0.11	1
SP-BHD-X024-0001[1]	24550	24, 40, 48 V a.c./d.c.	early contact	0.12	1
SP-BHD-X110-0001[1]	24530	110 V a.c./d.c.	early contact	0.12	1
SP-BHD-X230-0001[1]	24520	230, 400, 500 V a.c./ 220 V d.c.	early contact	0.12	1

- TECHNICAL INFORMATION, see page E64
[1] - cannot be used in combination with motor drive MP-BD-X...

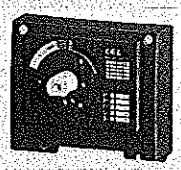
DELAY UNIT

Type	Product code	Description	Weight [kg]	Package [pc]
BZ-BX-X230-A	36696	- enables to delay the undervoltage release tripping of circuit breakers Modeion	0.12	1

- TECHNICAL INFORMATION, see page P2

HAND DRIVES

3P 4P



Type	Product code	Name - description		Weight [kg]	Packaging [pcs]
RP-BD-CK10	13651	Hand drive unit	- without locking	0.223	1
RP-BD-CK20	13652	Hand drive unit	- with locking	0.223	1

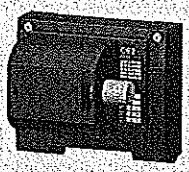
- TECHNICAL INFORMATION, see page E66

Hand drive unit must be fitted with:
- for controlling on switch unit - with the black hand drive lever RP-BHD-CP10 or RP-BHD-CP20
- for controlling through the switchboard door - with the extension shaft RP-BHD-CH..
  - with the hand drive bearing RP-BHD-CN..
  - with the hand drive lever RP-BHD-CP..

RP-BD-CK21	13684	Hand drive unit - yellow label	- with locking	0.223	1

- TECHNICAL INFORMATION, see page E66

Hand drive unit must be fitted with:
- for controlling on switch unit - with the red hand drive lever RP-BHD-CP21
- for controlling through the switchboard door - with the extension shaft RP-BHD-CH..
  - with the hand drive bearing RP-BHD-CN..
  - with the hand drive lever RP-BHD-CP..



RP-BD-CK30	37250	Hand drive unit for right side control	0.484	1
RP-BD-CK31	37251	Hand drive unit left side control	0.484	1

- TECHNICAL INFORMATION, see page E66

RP-BHD-CP10	13655	Hand drive lever - black	- without locking	0.075	1
RP-BHD-CP20	13656	Hand drive lever - black	- with locking	0.075	1

- TECHNICAL INFORMATION, see page E66

RP-BHD-CP21	13657	Hand drive lever - red	- with locking	0.075	1

- TECHNICAL INFORMATION, see page E66

RP-BHD-CN40	37246	Hand drive bearing	- degree of protection IP40	0.14	1

- TECHNICAL INFORMATION, see page E66
- is used in combination with the black lever of RP-BHD-CP10, RP-BHD-CP20 hand drives

RP-BHD-CN41	37247	Hand drive bearing - yellow label	- degree of protection IP40	0.14	1

- TECHNICAL INFORMATION, see page E66
- is used in combination with the red lever of RP-BHD-CP21 hand drive

RP-BHD-CN60	37248	Hand drive bearing	- degree of protection IP66	0.14	1

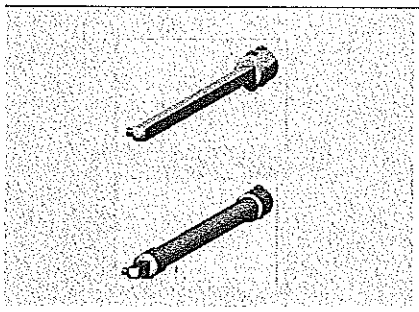
- TECHNICAL INFORMATION, see page E66
- is used in combination with the black lever of RP-BHD-CP10, RP-BHD-CP20 hand drives

RP-BHD-CN61	37249	Hand drive bearing - yellow label - degree of protection IP66	degree of protection IP66	0.14	1

- TECHNICAL INFORMATION, see page E66
- is used in combination with the red lever of RP-BHD-CP21 hand drive

HAND DRIVES

3P 4P



Type	Product code	Name - description	Weight [kg]	Package [pc]
RP-BHD-CH10	13658	Extension shaft - length 365 mm, can be shortened	0.205	1

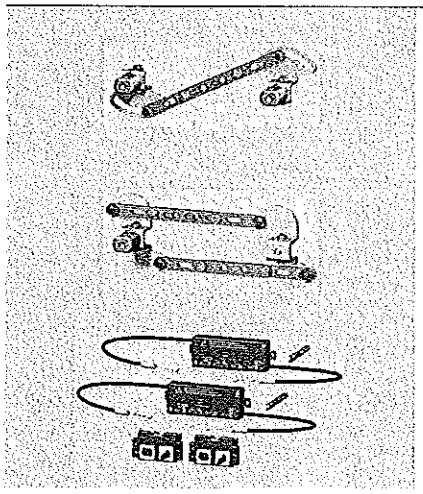
- TECHNICAL INFORMATION, see page E66

RP-BHD-CH20	13659	Extension shaft - telescopic, length 245 ÷ 410 mm	0.255	1

- TECHNICAL INFORMATION, see page E66

MECHANICAL INTERLOCKING AND PARALLEL SWITCHING

3P 4P



Type	Product code	Name - description	Weight [kg]	Package [pc]
RP-BHD-CB10	18290	Mechanical interlocking - for fixed design	0.16	1

- TECHNICAL INFORMATION, see page E67
- mechanical interlocking must be fitted with: 2 hand drive units RP-BD-CK.., 2 hand drive levers RP-BHD-CP..

RP-BHD-CD10	18289	Mechanical parallel switching - for fixed design	0.23	1

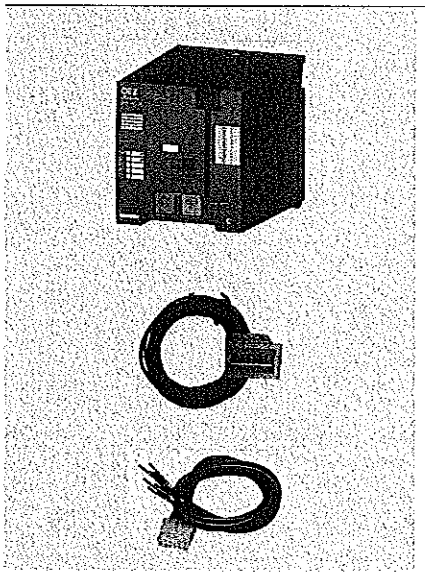
- TECHNICAL INFORMATION, see page E67
- mechanical parallel switching must be fitted with: 2 hand drive units RP-BD-CK.., the hand drive lever RP-BHD-CP..

MB-BD-PV05	19612	Mechanical interlocking - for two circuit breakers BD250	0.448	1
MB-BHD-PV03	19613	Mechanical interlocking - for one BD250 and one BH630 circuit breaker	0.448	1

- TECHNICAL INFORMATION, see page E67
- mechanical blocking with Bowden cable is intended for fixed, plug-in and withdrawable design

MOTOR DRIVES

3P 4P



Type	Product code	Name - description	Operating voltage	Weight [kg]	Package [pc]
MP-BD-X024[1]	21216	Motor drive	24 V a.c./d.c.	1.529	1
MP-BD-X048[1]	19790	Motor drive	48 V a.c./d.c.	1.529	1
MP-BD-X110	13537	Motor drive	110 V a.c./d.c.	1.529	1
MP-BD-X230	13535	Motor drive	230 V a.c./220 V d.c.	1.529	1
MP-BD-X024-P[1]	20592	Motor drive - with counter of cycles	24 V a.c./d.c.	1.546	1
MP-BD-X048-P[1]	19791	Motor drive - with counter of cycles	48 V a.c./d.c.	1.546	1
MP-BD-X110-P	13686	Motor drive - with counter of cycles	110 V a.c./d.c.	1.546	1
MP-BD-X230-P	13538	Motor drive - with counter of cycles	230 V a.c./220 V d.c.	1.546	1

- TECHNICAL INFORMATION, see page E69
- motor drive cannot be used in combination with SP-BHD-X...-0001

[1] - custom production

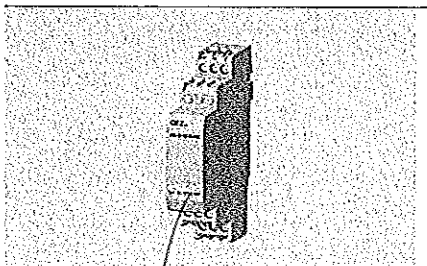
OD-BHD-PP01	13688	Counter of cycles - cable length 1.1 m	0.08	1

- DIMENSIONS see page E30
- upon agreement with the manufacturer, different conductor lengths can be supplied

OD-BHD-KA02	13809	Extension cable - to motor drive 12 wires, length 0.6 m	0.1	1

- TECHNICAL INFORMATION, see page E69
- upon agreement with the manufacturer, different conductor lengths can be supplied

CONTROL RELAY



Type	Product code	Specifications	Weight [kg]	Package [pc]
OD-BHD-RX01	37425	24 V a.c./d.c.	0.06	1
OD-BHD-RX02	37426	48 V a.c./d.c.	0.06	1
OD-BHD-RA03	37427	110 ÷ 230 V a.c.	0.06	1
OD-BHD-RD04	37428	110 V d.c.	0.06	1

- TECHNICAL INFORMATION, see page P3

ACCESSORIES

Type	Product code	Name - description	Weight [kg]	Package [pc]	3P	4P
OD-BHD-KS02	24740	Insulating barriers - set (two pieces), for 3P and 4P design	0.077	1		
OD-BHD-KS42	19575	Insulating barrier - one piece, for 4P design	0.039	1		

- included with each switching unit order
- in case circuit breaker/switch-disconnector connection is reversed (supply to terminals 2, 4, 6) it is necessary in most cases to install these barriers also on the lower side
- for more detailed information see page E22

OD-BD-KS03	13534	Terminal cover - degree of protection IP20, for 3P design	0.098	1		
OD-BD-KS43	19576	Terminal cover - degree of protection IP20, for 4P design	0.141	1		

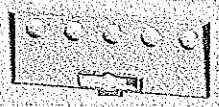
- increases degree of protection of connection point to IP20 when using CS-BD-B012, B021, B022 and B014 block type terminals
- intended for fixed, plug-in and withdrawable design

OD-BD-UP01	13533	Lever with locking	0.009	1		

- enables to lock the circuit breaker in „switched off manually" position (loaded)
- locking is possible using padlock with shank diameter 4 ÷ 6 mm

OD-BD-VP01	15328	Bolt sealing insert	0.001	2		

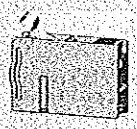
- enables sealing for:
  - cover of cavities
  - terminal cover
  - overcurrent release
  - hand drive unit
  - motor drive



OD-BD-VP02	18215	Additional cover for overcurrent release	0.08	1		

- enables sealing for overcurrent releases such as circuit breakers in the main meter switchboard

OD-BHD-KA01	14555	Connecting cable - to connect the circuit breaker/ /switch-disconnector accessories in the plug-in/ /withdrawable design - 15 wires (it is possible for plug-in design and fixed design)	0.12	1		

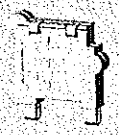


SO-BHD-0010	14560	Signalling of position - signals circuit breaker position in the plug-in or withdrawable device	0.018	1		

- TECHNICAL INFORMATION, see page ES0, ES2

OD-BD-KK01	14559	Keying set - prevents inserting in the plug-in or withdrawable devices beyond the switching unit	0.002	1		

- TECHNICAL INFORMATION, see page ES0, ES2

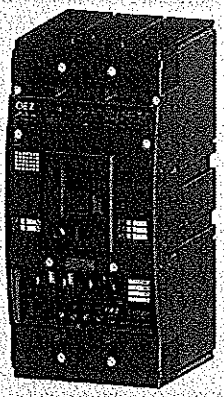


OD-BHD-KT01	14642	Cover of switch on button - for motor drive, cover can be sealed	0.002	1		

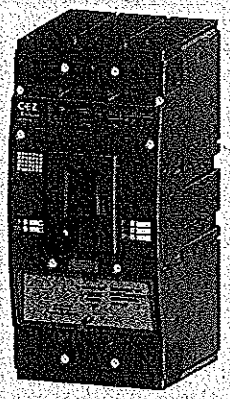
- TECHNICAL INFORMATION, see page E69

CIRCUIT BREAKERS, SWITCH-DISCONNECTORS

3P, 4P



Circuit breaker



Switch-disconnector

Specifications

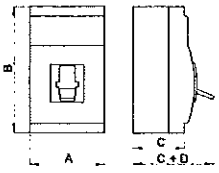
		CIRCUIT BREAKER	SWITCH-DISCONNECTOR
Type		BD250N, BD250S	
Dimensions A x B x C + D (3P/4P design)		105/140 x 225 x 105 + 43 mm	105/140 x 225 x 105 + 43 mm
Weight (3P/4P design)		3 kg/4 kg	3 kg/4 kg
Standards		EN 60947-2, IEC 60947-2	EN 60947-3, IEC 60947-3
Approval marks		CE EAC PCT UA	
Number of poles		3, 4	3, 4
Rated current	I_n	100, 160, 200, 250 A	-
Rated normal current	I_n	250 A	250 A
Rated operating current	I_e	-	250 A
Rated operating voltage	U_e	max. 690 V a.c. -	max. 690 V a.c. max. 440 V d.c.
Rated frequency	f_n	50/60 Hz	50/60 Hz
Rated impulse withstand voltage	U_{imp}	8 kV	8 kV
Rated insulation voltage	U_i	690 V	690 V
Utilization category (selectivity)	690 V a.c.	A	-
Utilization category (switching mode)	690 V a.c. 440 V d.c.	-	AC-23B DC-23B
Rated short-time withstand current at U_e = 690 V a.c.	I_{cw}/t	2.5 kA/1 s	3 kA/5 s

Series		NORMAL BD250N	SUPERIOR BD250S	U_e	
Rated short-circuit ultimate breaking capacity (rms) [1]	I_{cu}	60 kA	100 kA	230 V a.c.	-
		36 kA	65 kA	415 V a.c.	
		16 kA	25 kA	500 V a.c.	
		10 kA	13 kA	690 V a.c.	
Rated short-circuit service breaking capacity (rms)	I_{cs}	30 kA	50 kA	230 V a.c.	-
		18 kA	36 kA	415 V a.c.	
		8 kA	13 kA	500 V a.c.	
		5 kA	8 kA	690 V a.c.	
Rated short-circuit making capacity (peak value)	I_{cm}/U_e	75 kA	140 kA	415 V a.c.	4 kA/415 V a.c. 4 kA/440 V d.c.
		-	-	-	
Switching off time at I_{cu}		10 ms			-
Losses per 1 pole fixed/withdrawable design		18 W/25 W			18 W/25 W
Mechanical endurance		30 000 cycles			30 000 cycles
Electrical endurance		3 000 cycles			3 000 cycles
Switching frequency		120 cycles/hr			120 cycles/hr
Control force		80 N			80 N
Degree of protection from front side of the device		IP40			IP40
Degree of protection of terminals		IP20			IP20
Operating conditions					
Reference ambient temperature		40 °C			40 °C
Ambient temperature range		-40 °C ÷ +55 °C			-40 °C ÷ +55 °C
Working environment		dry and tropical climate			dry and tropical climate
Climatic resistance		EN 60068			EN 60068
Pollution degree		3			3
Max. sea level		2 000 m			2 000 m
Seismic resistance		3g (8 ÷ 50) Hz			3g (8 ÷ 50) Hz
Design modifications					
Front/rear connection		•/•			•/•
Plug-in design 3P/4P		•/•			•/•
Withdrawable design 3P/4P		•/•			•/•
Accessories					
Switches - auxiliary/relative/signal/early		•/•/•/•			•/•/•/•
Shunt trip		•			•
Undervoltage release/with early switch		•/•			•/•
Front hand drive/with adjustable lever		•/•			•/•
Mechanical interlocking-with Bowden cable/for hand drive		•/•			•/•
Motor drive/with counter of cycles		•/•			•/•
Lever with locking		•			•
Bolt sealing insert/additional cover for overcurrent release		•/•			•/•

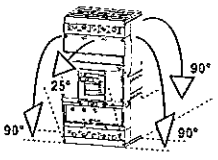
• available, – unavailable, + being prepared

[1] - in case circuit breaker connection is reversed (input terminals 2, 4, 6, output terminals 1, 3, 5) I_{cu} does not change

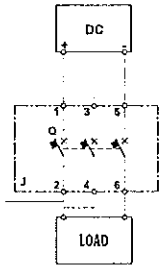
- protection of Modeion switch-disconnectors, see page R



Dimensions



Installation positions - fixed, plug-in and withdrawable design

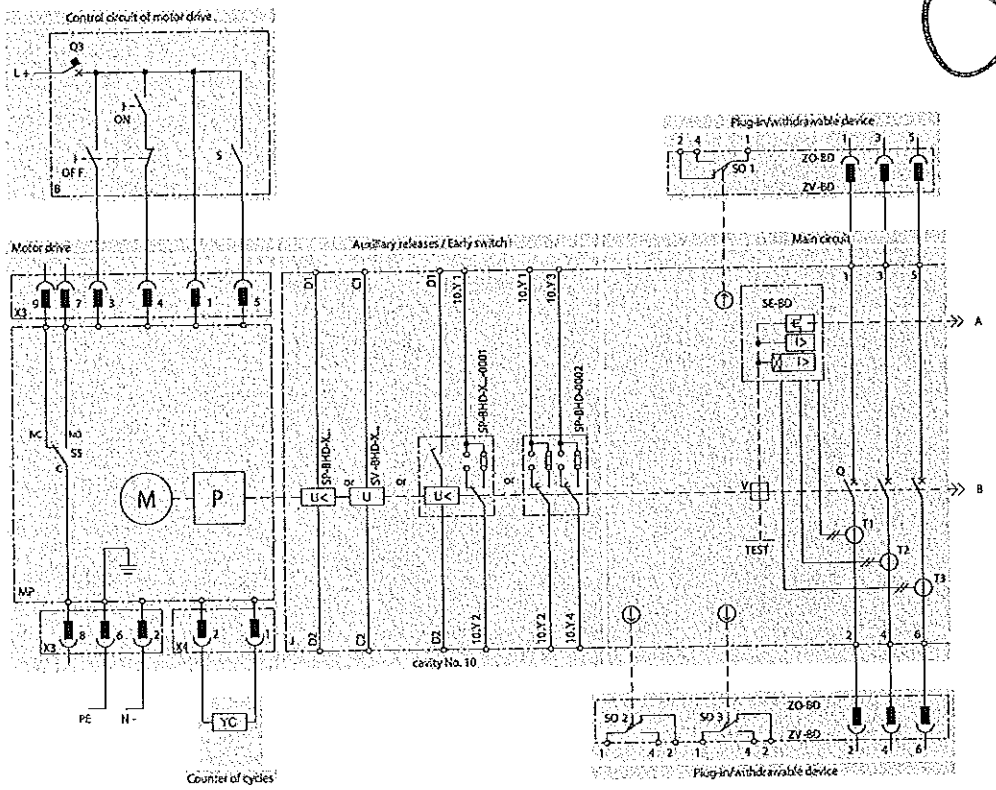


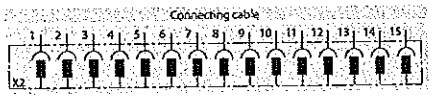
Connection of switch-disconnector for DC circuits

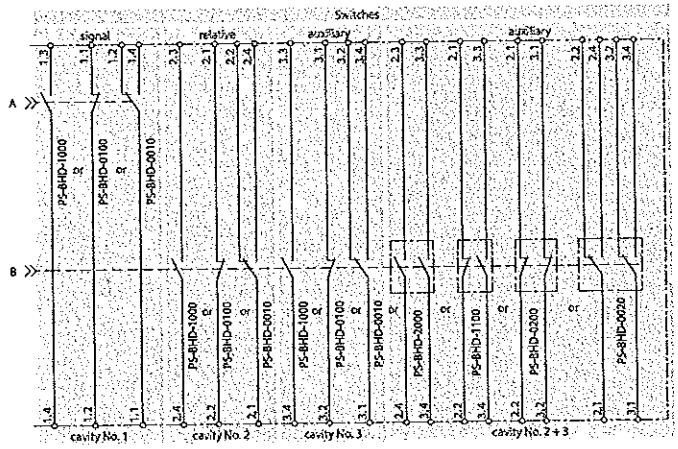
CIRCUIT BREAKERS, SWITCH-DISCONNECTORS

Diagram

Circuit breaker with accessories (3-pole design)







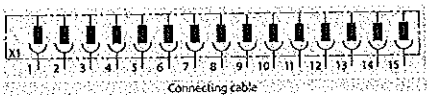


Diagram description (3P and 4P design)

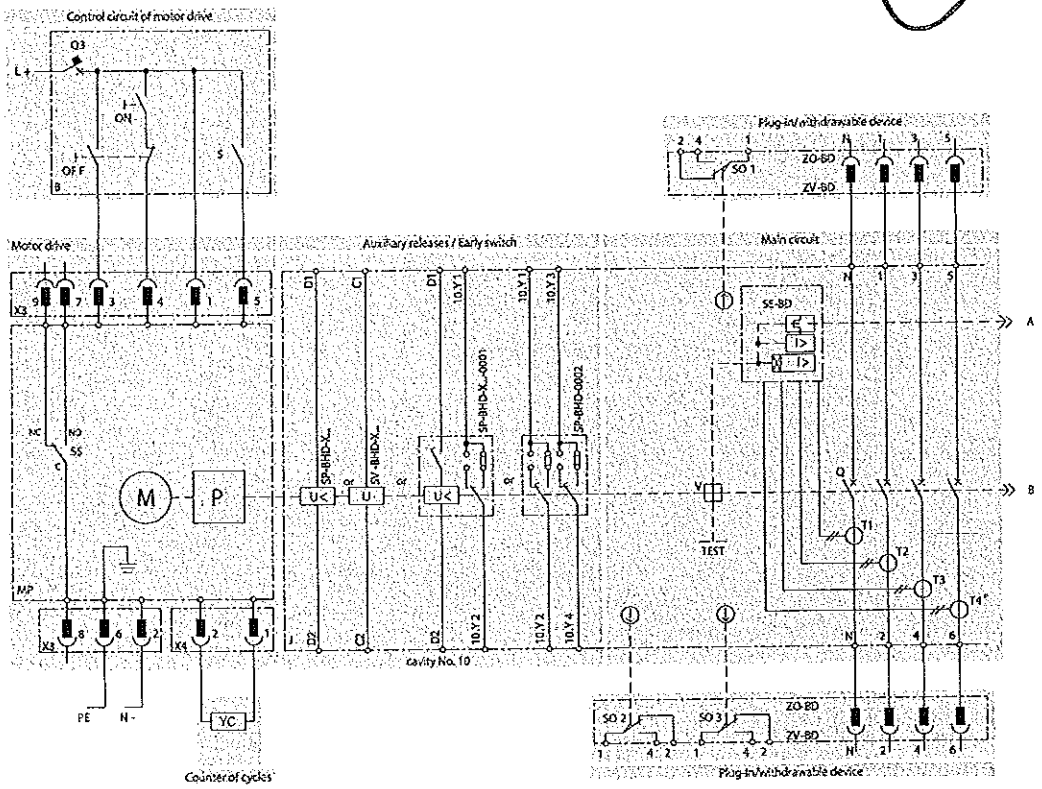
MP	motor drive - MP-BD-X...
M	motor
P	storage device
X3	connector for connection of control circuits
X4	connector for external counter of cycles
SS	switch to indicate AUTO (NO-C) / MANUAL (NC-C) modes
YC	external counter of cycles - OD-BHD-PP01
B	recommended wiring of the control circuits - it is not a part of motor drive
ON	switch on button
OFF	switch off button
S	switch for energy storage (switched on = automatic storage, switch may be continuously switched on)
Q3	motor drive circuit breaker - see page E69
J	switching unit - BD250..305
Q	main contacts
T1, T2, T3, T4[1]	current transformers
V	trip-free mechanism
SE-BD	circuit breaker - overcurrent release - SE-BD-....., switch-disconnector - switch-disconnector unit - SE-BD-0250-V001
TEST	push button to test release
ZO-BD	plug-in device - ZO-BD-0250-300
ZV-BD	withdrawable device - ZV-BD-0250-300
X1, X2	connecting cable - OD-BHD-KA01
SO1, SO2, SO3	contacts signalling circuit breaker/switch-disconnector position in plug-in or withdrawable device SO-BHD-0010 - for more detailed information see page E50, E52
SP-BHD-X...	undervoltage release
SV-BHD-X...	shunt trip
SP-BHD-X...-0001	undervoltage release with early contact
SP-BHD-0002	early contact

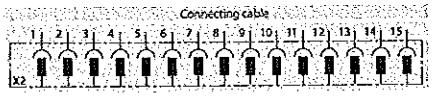
[1] - only for 4-pole design of BD250..406 switching unit

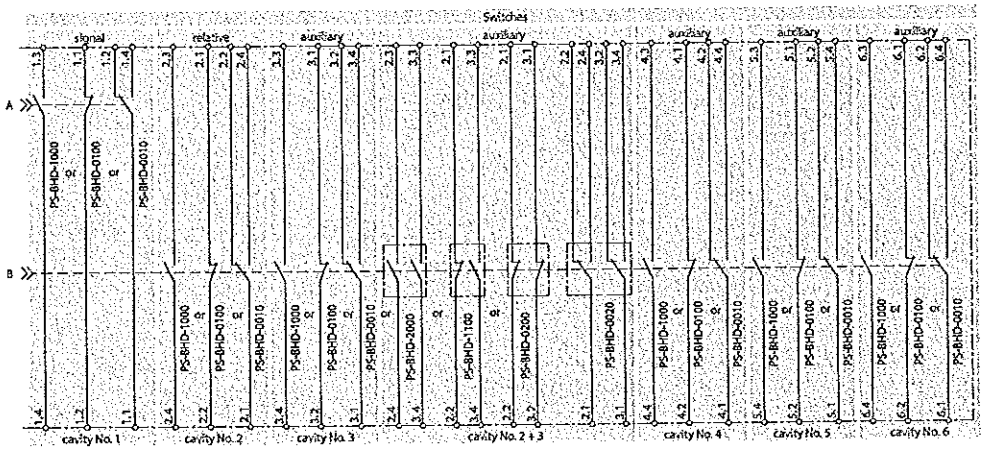
CIRCUIT BREAKERS, SWITCH-DISCONNECTORS

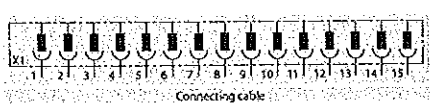
Diagram

Circuit breaker with accessories (4-pole design)









CIRCUIT BREAKERS, SWITCH-DISCONNECTORS

3P 4P

Connecting and installation

Power circuit

- connected with Cu/Al busbars or cables and possibly cables with cable lugs
- connection sets are produced to provide greater connecting options, see page E8
- generally, conductors from the supply are connected to input terminals 1, 3, 5 and conductors from the load to terminals 2, 4, 6; however, it is possible to reverse the connection (exchanging input and output terminals without limiting rated short-circuit ultimate breaking capacity I_{cu})
- **in case of reversed connection, in the majority of cases, circuit breaker/switch-disconnector must be fitted with OD-BHD-KS02 insulating barriers also on the side of terminals 2, 4, 6, for more detailed information see page E22**
- we recommend painting the connecting busbars
- **input and output conductors/busbars must be mechanically reinforced in order to avoid transferring electrodynamic forces to the circuit breaker/ /switch-disconnector during short-circuiting**
- **the method of connecting the power circuit must observe the deionization space of the circuit breaker/ /switch-disconnector, see page E23**

Auxiliary circuits

- switches, shunt trips or undervoltage releases are connected using flexible Cu conductors with cross-section 0.5 ÷ 1 mm² directly to terminals on these devices
- motor drive and auxiliary circuits of the plug-in or withdrawable design are connected using a connector

Recommended min. cross-sections of cables, busbars and flexibars for fixed, plug-in and withdrawable designs

I_n (40 °C) [A]	Cables S [mm²]		Busbars W x H [mm]	
	Cu	Al	Cu	Al
40	10	16	-	-
50	10	16	-	-
63	16	25	-	-
80	25	35	-	-
100	35	50	20 x 2	25 x 2
125	50	70	25 x 2	25 x 3
160	70	95	25 x 3	25 x 4
200	95	120	25 x 4	25 x 5
250	120	150	25 x 5	25 x 6

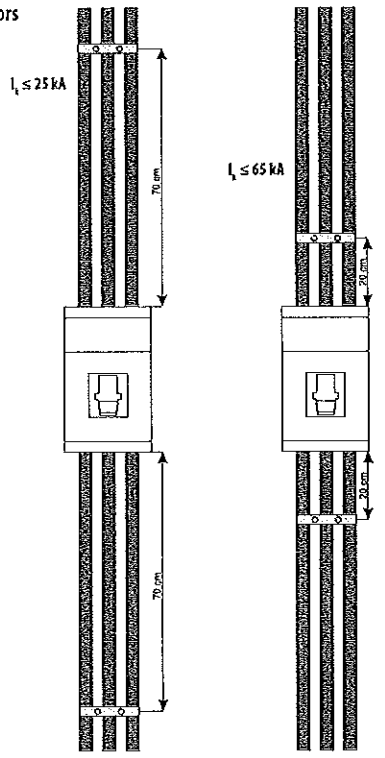
- it is necessary to follow the relevant valid standards when cables are designed

Maximum circuit breaker/switch-disconnector loads in accordance with ambient temperature

Circuit breaker/switch-disconnector BD250 - connection by Cu cable 1x 120 mm² per pole

50 °C	55 °C	60 °C	65 °C	70 °C
250 A	250 A	250 A	250 A	250 A

Mechanical reinforcement of conductors for BD250



CIRCUIT BREAKERS, SWITCH-DISCONNECTORS

3P 4P

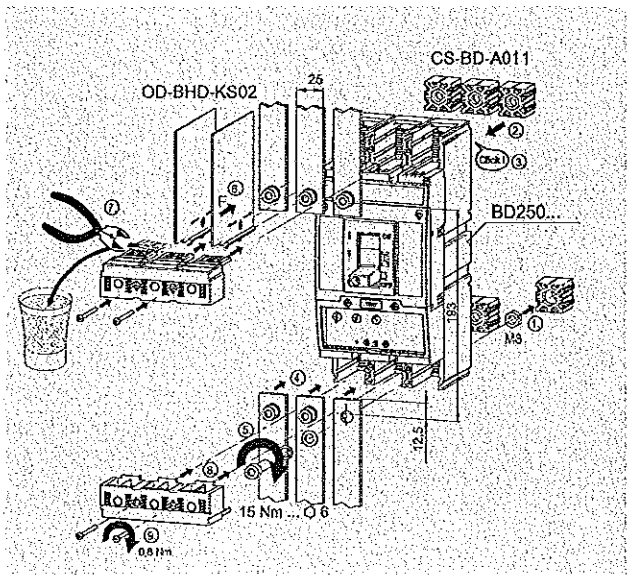
Connecting and installation

Connecting set specifications

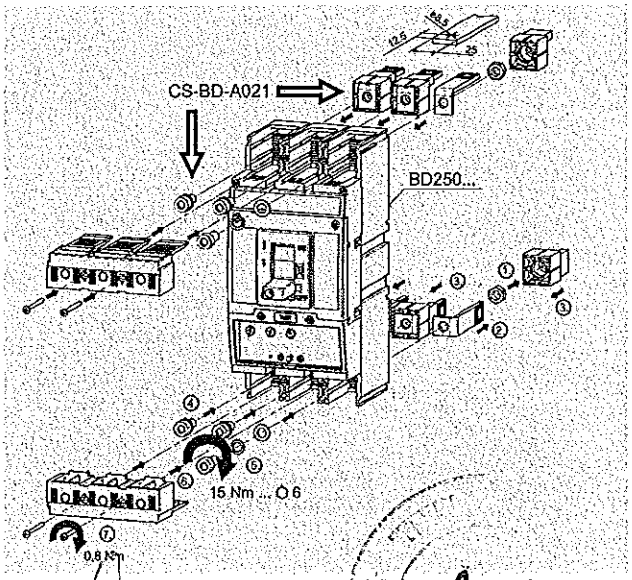
Type	I_{cs} [A]	Cable - ranges of connection cross-sections S (mm²)					
		type of cable: sector stranded	sector solid	round stranded	round solid	Busbars and cable lugs W x H (mm)	Dimensional drawing 3P/4P
CS-BD-A011	250					25 x ...	
CS-BD-A021 CS-BD-B421	250					25 x ...	page E27, E41
CS-BD-T011 CS-BD-T411	250	16 ÷ 150 Cu	10 ÷ 150 Cu	16 ÷ 150 Cu	10 ÷ 150 Cu		
CS-BD-B011 CS-BD-B411	250	25 ÷ 150 Cu/Al	16 ÷ 150 Cu/Al	25 ÷ 150 Cu/Al	16 ÷ 150 Cu/Al		
CS-BD-B012 CS-BD-B412	250	150 ÷ 240 Cu/Al	120 ÷ 240 Cu/Al	150 ÷ 240 Cu/Al	120 ÷ 240 Cu/Al		page E24, E39
CS-BD-B021 CS-BD-B421	250	2x (25 ÷ 150) Cu/Al	2x (16 ÷ 150) Cu/Al	2x (25 ÷ 150) Cu/Al	2x (16 ÷ 150) Cu/Al		page E24, E39
CS-BD-B022 CS-BD-B422	250	2x (150 ÷ 240) Cu/Al	2x (120 ÷ 240) Cu/Al	2x (150 ÷ 240) Cu/Al	2x (120 ÷ 240) Cu/Al		page E25, E40
CS-BD-B014 CS-BD-B414	250	6x (6 ÷ 35) Cu/Al	6x (6 ÷ 35) Cu/Al	6x (6 ÷ 35) Cu/Al	6x (6 ÷ 35) Cu/Al		page E26, E40
CS-BD-A037	250	RETROFIT - reduction for circuit breaker BA...*37 with front connection					page E26, E41
CS-BD-A039	250	RETROFIT - reduction for circuit breaker BA...*39 and J2UX with front connection					page E27
CS-BD-Z039	250	RETROFIT - reduction for circuit breaker BA...*39 and J2UX with rear connection					page E28
CS-BD-JX75	250	RETROFIT - reduction for circuit breaker BA...39-75 and J2UX75 with front connection in plug-in or withdrawable device					page E28
CS-BD-JT75	250	RETROFIT - reduction for circuit breaker J2UX75T with front connection in plug-in or withdrawable device					page E34, E38
CS-BD-PS01	10/16	1.5÷2.5/4÷6 Cu flexible conductor					
CS-BD-PS41	10/16	1.5÷2.5/4÷6 Cu flexible conductor					

RETROFIT - sets, which enable replacement of older circuit breakers by a new circuit breakers without switchboard reconstruction

Front connection - Cu/Al busbars



Rear connection - Cu/Al busbars

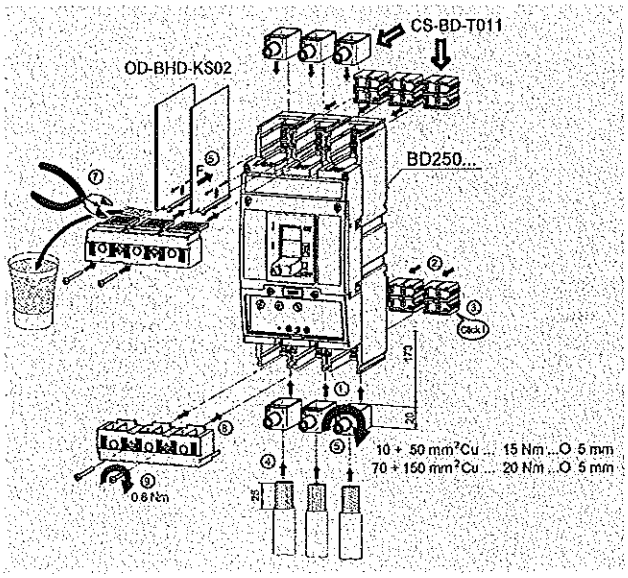


CIRCUIT BREAKERS, SWITCH-DISCONNECTORS

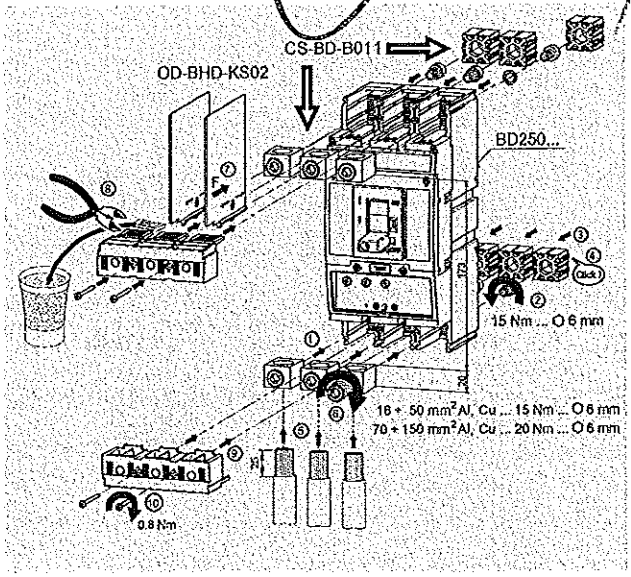
3P 4P

Connecting and installation

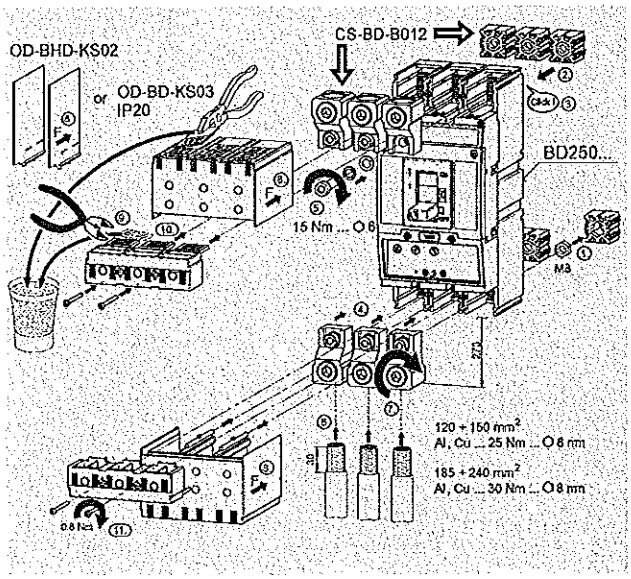
Front connection - Cu cables



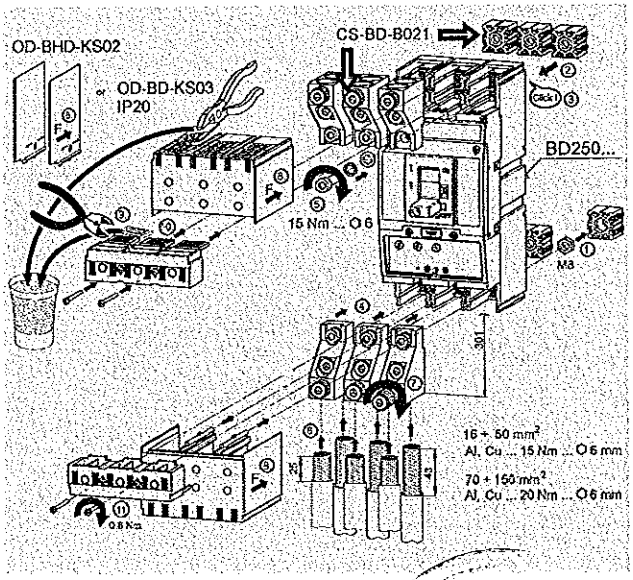
Front connection - Cu/Al cables cables up to 150 mm²



Front connection - Cu/Al cables up to 240 mm²



Front connection - 2 Cu/Al cables

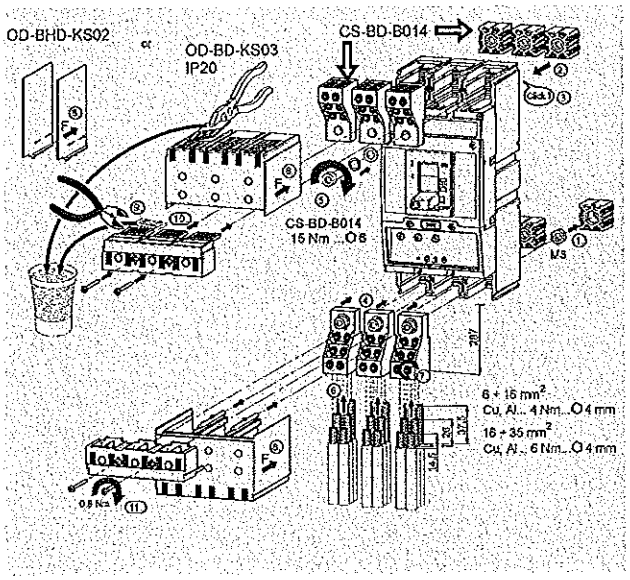


CIRCUIT BREAKERS, SWITCH-DISCONNECTORS

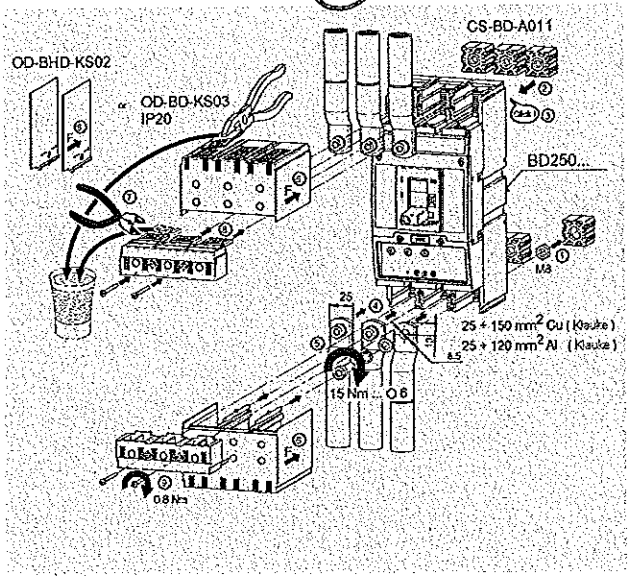
3P 4P

Connecting and installation

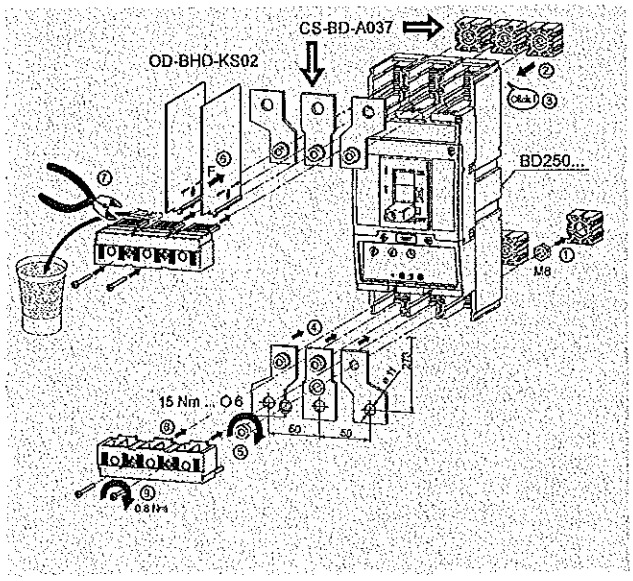
Front connection - 6 Cu/Al cables



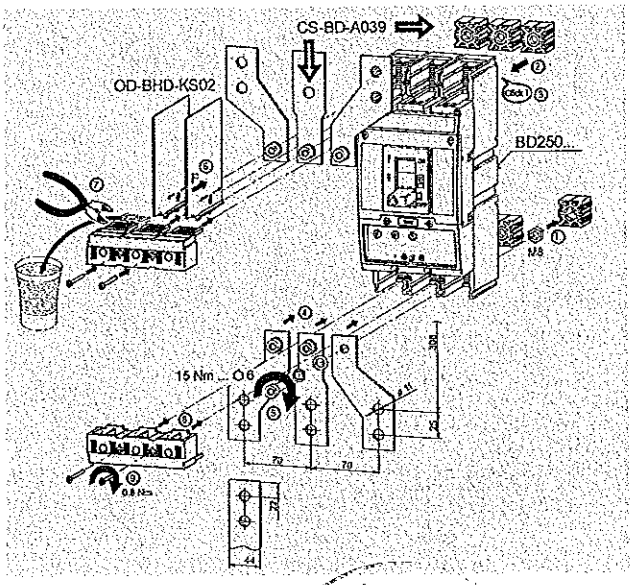
Front connection - cable lugs



Front connection - reduction BD to BA...*37



Front connection - reduction BD to BA...*39 and J2UX

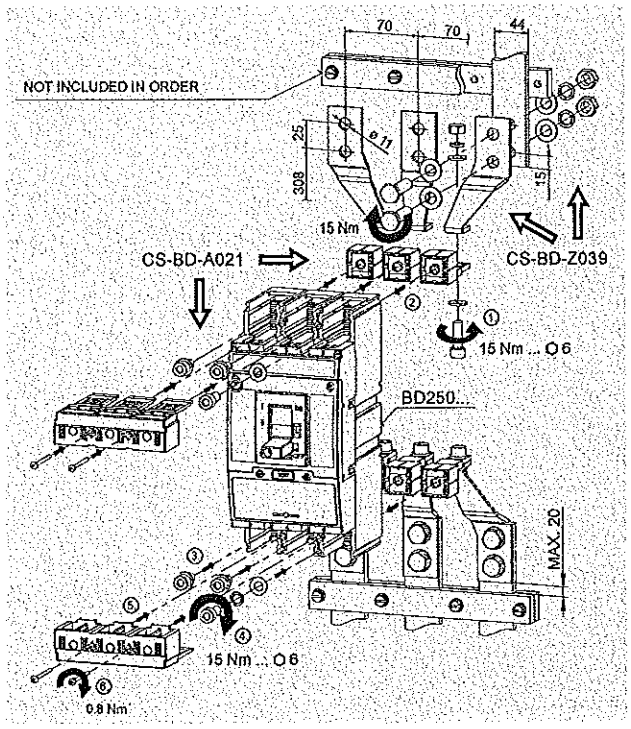


CIRCUIT BREAKERS, SWITCH-DISCONNECTORS

3P 4P

Connecting and installation

Rear connection – reduction BD to BA ...*39 and J2UX with rear connection



Deionization spaces

USE OF INSULATING BARRIERS AND TERMINAL COVERS WITH CIRCUIT BREAKERS AND SWITCH-DISCONNECTORS

■ FIXED DESIGN

- front connection

- terminals 1, 3, 5 (upper side)

a) if $U_e \geq 415$ V a.c., it is necessary to use OD-BHD-KS02 insulating barriers or a OD-BHD-KS03 terminal cover

b) if insulated conductors are not used for connecting power circuit to terminals 1, 3, 5, flexibars or rear connection, it is necessary to use OD-BHD-KS02 insulating barriers or a OD-BHD-KS03 terminal cover

- terminals 2, 4, 6 (lower side)

only in case that circuit breaker/switch-disconnector is connected to the source using terminals 2, 4, 6 and furthermore:

a) if $U_e \geq 415$ V a.c., it is necessary to use OD-BHD-KS02 insulating barriers or a OD-BHD-KS03 terminal cover

b) if insulated conductors are not used for connecting power circuit to terminals 2, 4, 6, flexibars or rear connection, it is necessary to use OD-BHD-KS02 insulating barriers or a OD-BHD-KS03 terminal cover

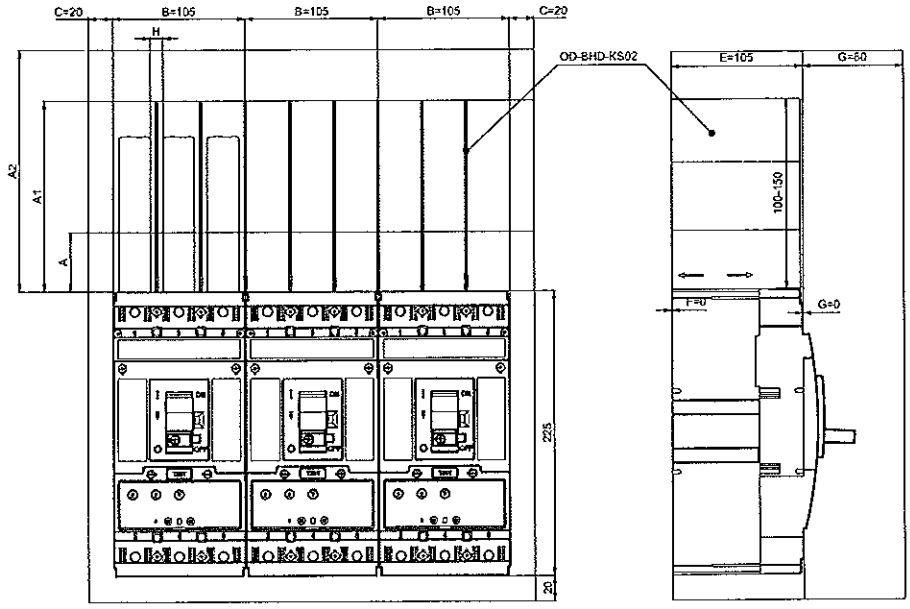
- rear connection - insulating barriers and terminal covers need not be used

■ PLUG-IN AND WITHDRAWABLE DEVICE - insulating barriers and terminal covers need not be used

CIRCUIT BREAKERS, SWITCH-DISCONNECTORS

3P 4P

Deionization spaces



A...minimum distance between the circuit breaker/switch-disconnector and uninsulated earthed wall (applicable for connection using insulated conductors, cables, flexibars or with rear connection)

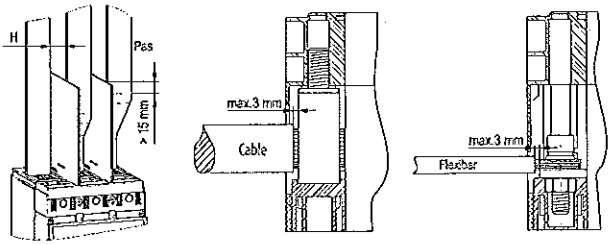
A1...minimum insulation length of bare conductors (using OD-BHD-KS02 insulating barriers from 100 mm to max. 150 mm, or by adding additional insulation for the conductors with barriers to obtain at least A1 value)

A2...minimum distance:
- between the circuit breaker/switch-disconnector and uninsulated earthed wall (applicable for uninsulated conductors and busbars)
- between the circuit breaker/switch-disconnector and busbar
- between two circuit breakers/switch-disconnectors situated vertically above one another
- between uninsulated connections of two circuit breakers/switch-disconnectors above one another

C, D, E, F, G...minimum distance between the circuit breaker/switch-disconnector and uninsulated earthed wall

H...minimum distance between uninsulated conductors

■ minimum distance of circuit breakers without using of uninsulated barriers is 50 mm



When insulating conductors, cables, flexibars or rear connection are used up to U <= 415 V a.c., it is not necessary to use OD-BHD-KS02 insulating barriers.

		U	[V]	≤ 230	≤ 415	≤ 500	≤ 690
BD250S wired with I_k''			[kA]	≤ 100	≤ 36 ≤ 65	≤ 36	≤ 25	≤ 13
BD250N wired with I_k''			[kA]	≤ 60		≤ 36	≤ 16	≤ 10
G [mm]	H [mm]							
		A	[mm]	50	50	50	50	50
	≥ 10	A1	[mm]	100	150	100	150	150
< 80		A2	[mm]	200	250	200	250	250
		A	[mm]	50	50	50	50	50
	≥ 30	A1	[mm]	100	150	100	150	150
		A2	[mm]	150	200	150	200	200
		A	[mm]	50	50	50	50	50
≥ 80	≥ 10	A1	[mm]	100	150	100	150	150
		A2	[mm]	150	200	150	200	200

pozn.: I_k'' - max. short-circuit current in the protected circuit (rms)

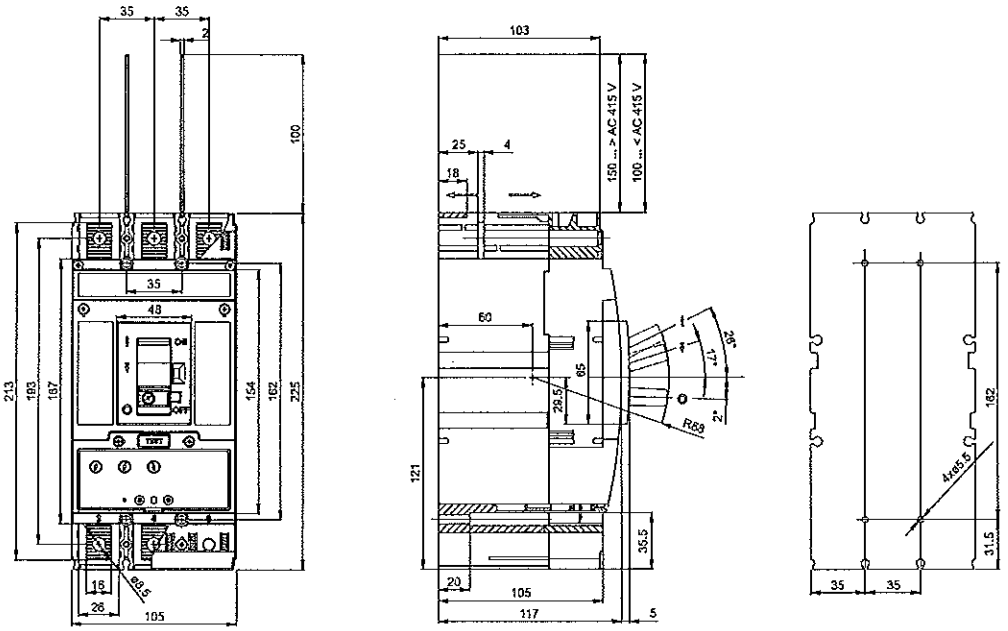
CIRCUIT BREAKERS, SWITCH-DISCONNECTORS

3P

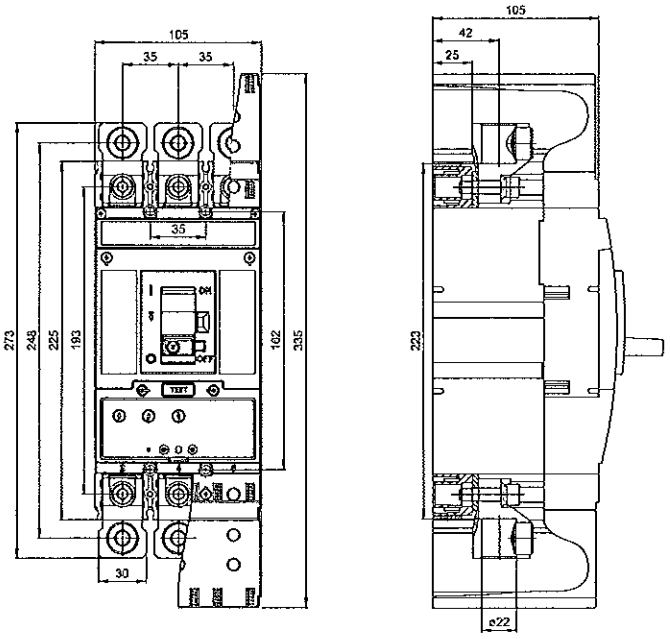
Dimensions

Fixed design, front connection

Drilling diagram



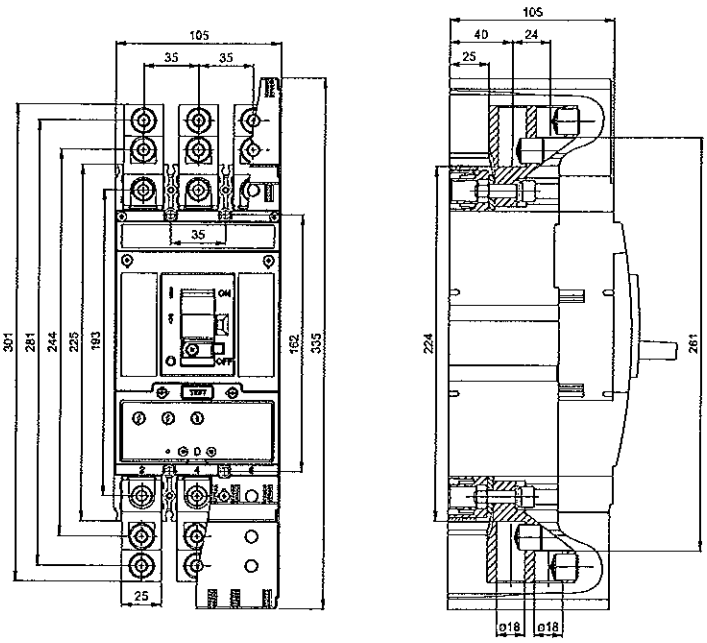
Fixed design, front connection (CS-BD-B012 connecting set)



CIRCUIT BREAKERS, SWITCH-DISCONNECTORS

Dimensions

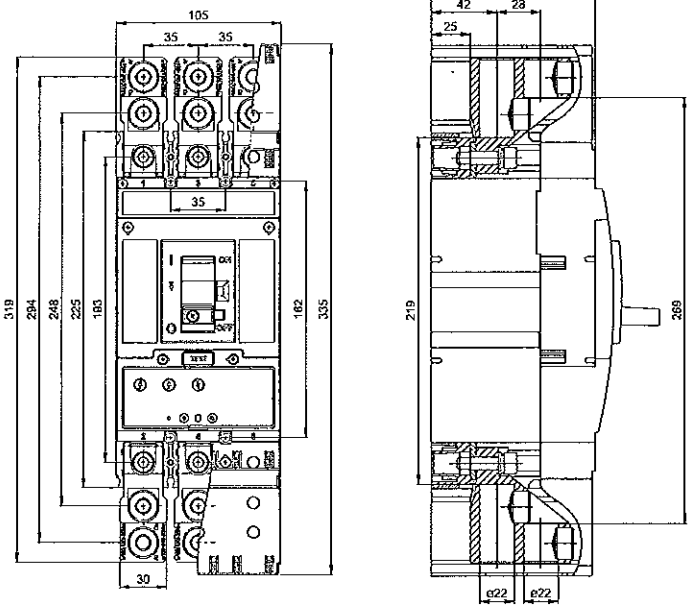
Fixed design, front connection (CS-BD-B021 connecting set)



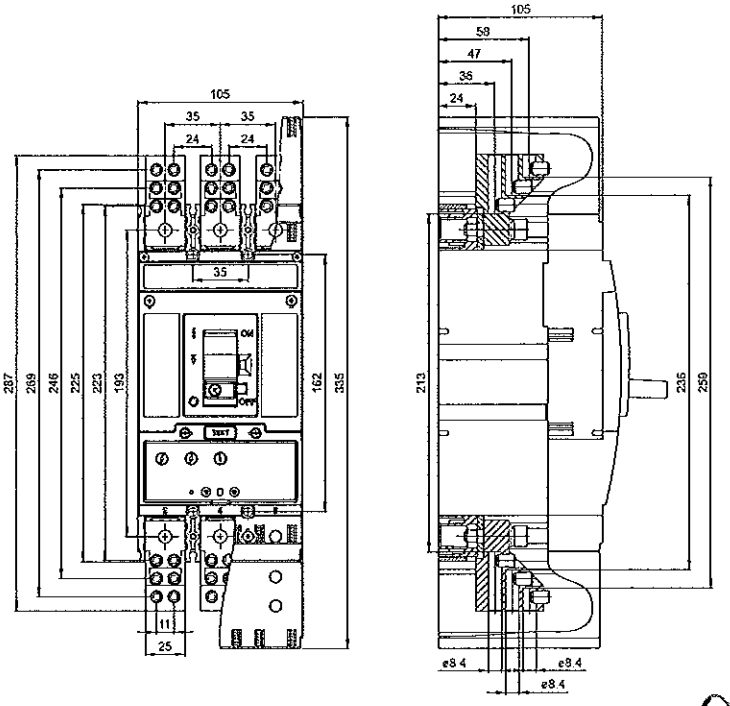
CIRCUIT BREAKERS, SWITCH-DISCONNECTORS

Dimensions

Fixed design, front connection (CS-BD-B022 connecting set)



Fixed design, front connection (CS-BD-B014 connecting set)

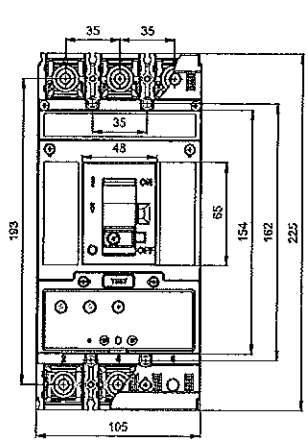


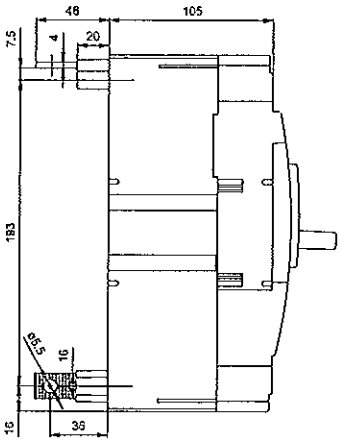
CIRCUIT BREAKERS, SWITCH-DISCONNECTORS

3P

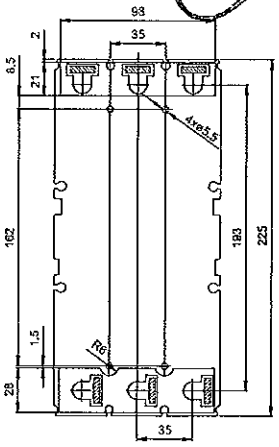
Dimensions

Fixed design, rear connection (CS-BD-A021 connecting set)



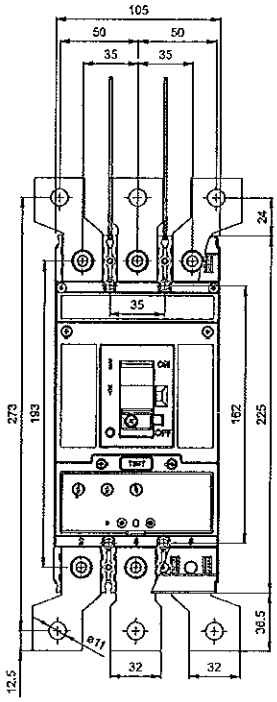


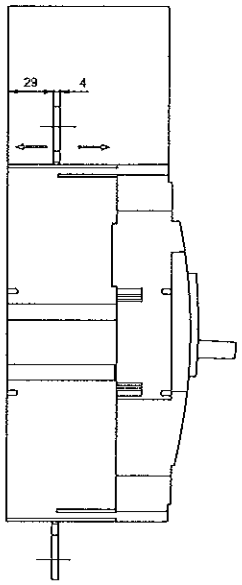
Drilling diagram



Fixed design, front connection (CS-BD-A037 connecting set)

RETROFIT



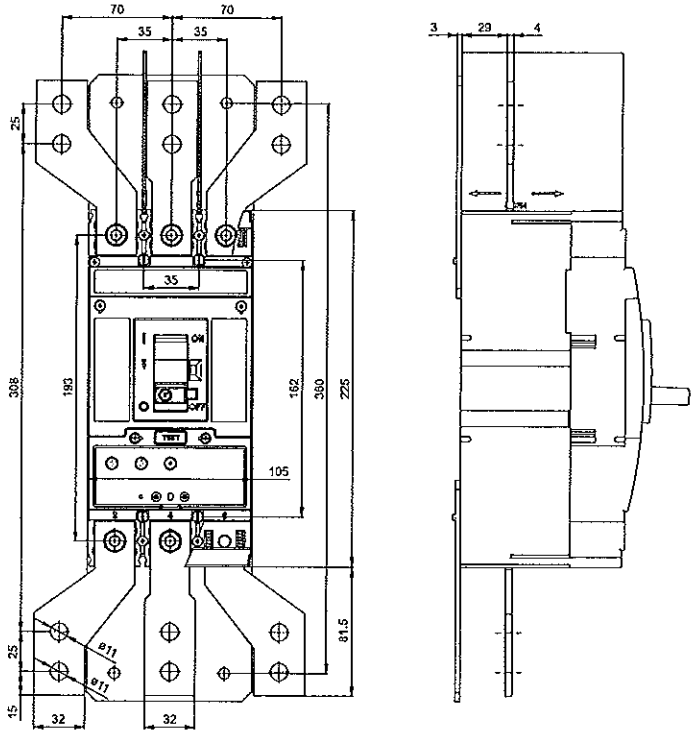


CIRCUIT BREAKERS, SWITCH-DISCONNECTORS

Dimensions

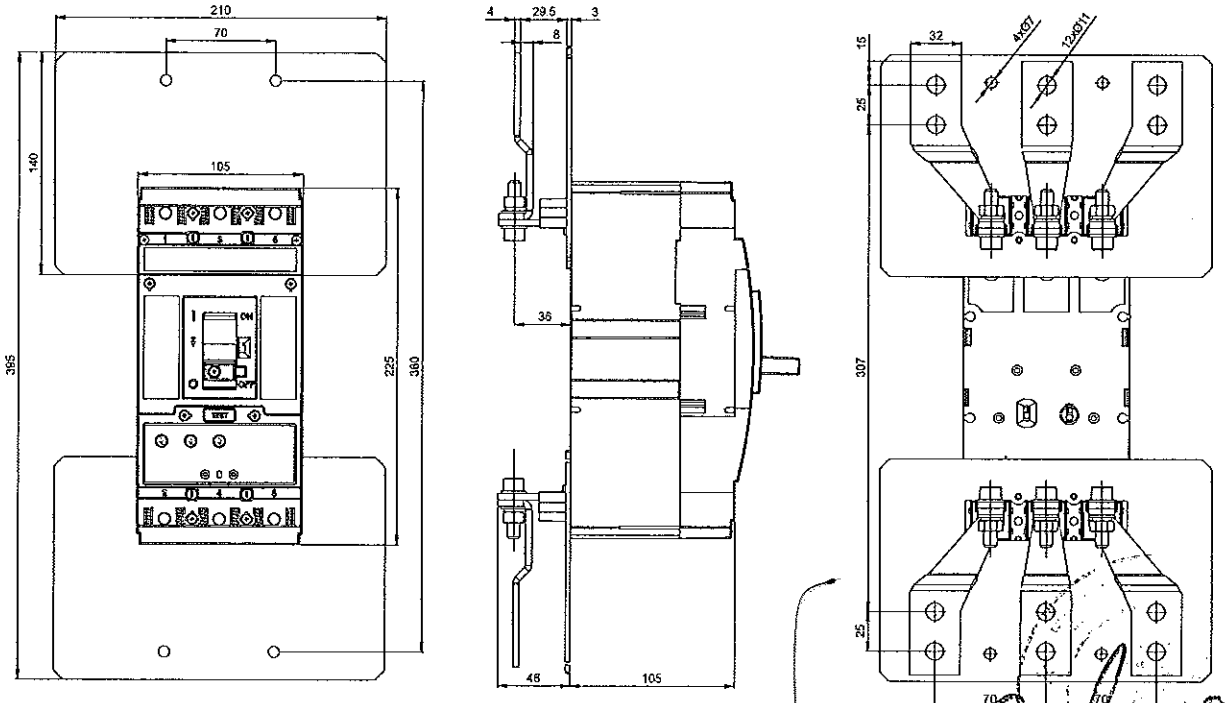
Fixed design, front connection (CS-BD-A039 connecting set, OD-BHD-MS39 mounting set)

RETROFIT



Fixed design, rear connection (CS-BD-Z039 connecting set, OD-BD-MZ39 mounting set)

RETROFIT

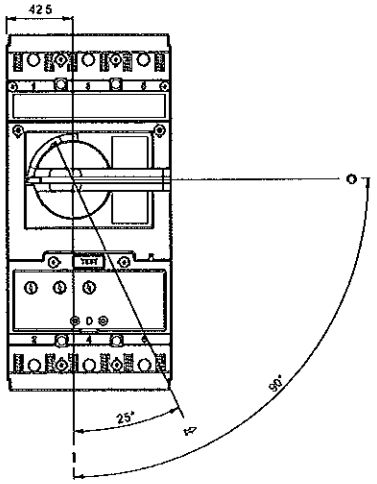


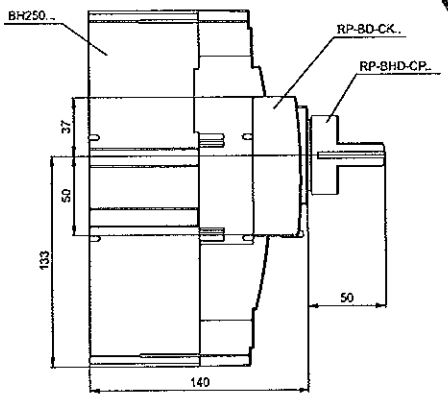
CIRCUIT BREAKERS, SWITCH-DISCONNECTORS

3P

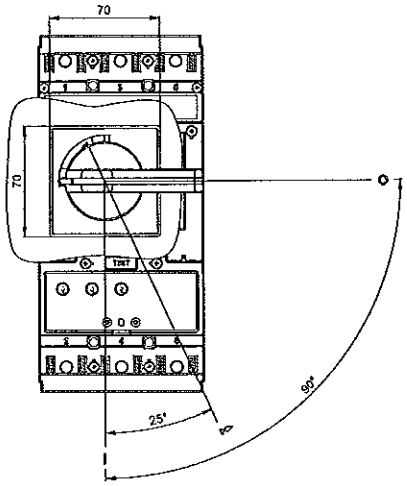
Dimensions

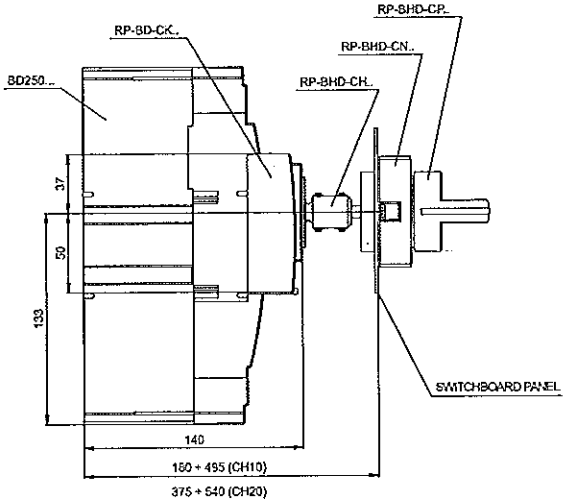
Fixed design, hand drive



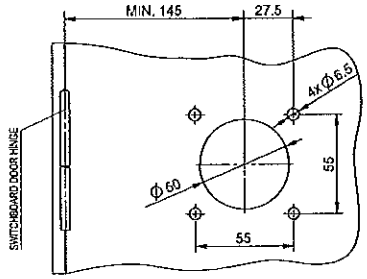


Fixed design, hand drive - front, with adjustable lever





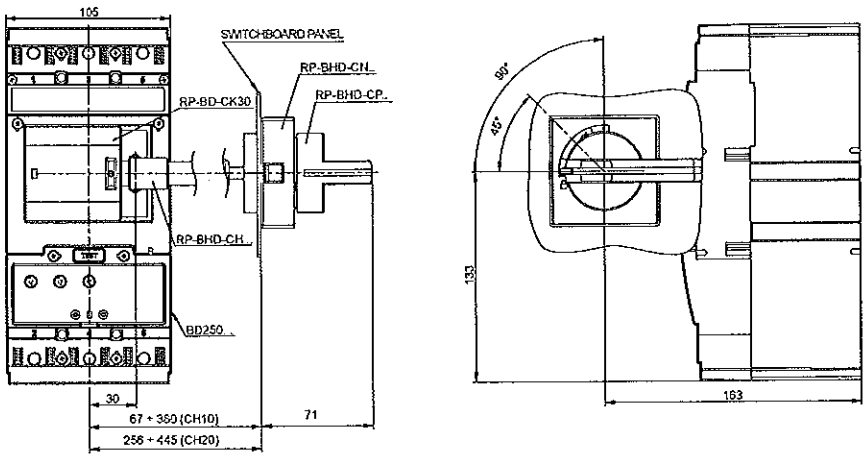
Switchboard door modification



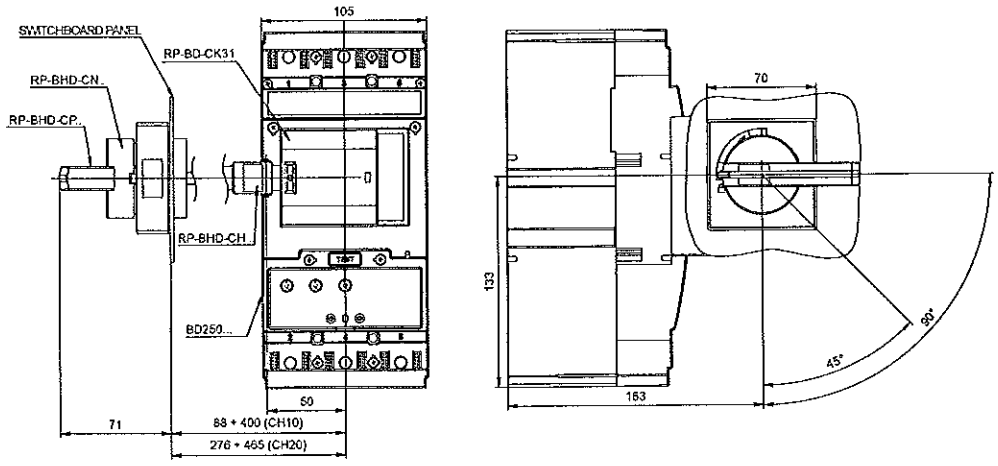
CIRCUIT BREAKERS, SWITCH-DISCONNECTORS

Dimensions

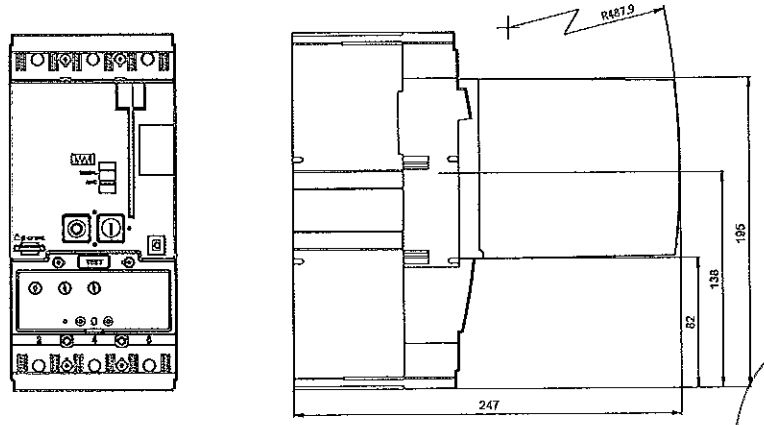
Fixed design, hand drive - control on right side, with adjustable lever



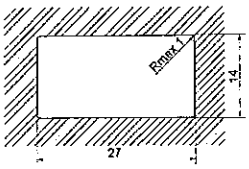
Fixed design, hand drive - control on left side, with adjustable lever



Fixed design, MP-BD-X... motor drive



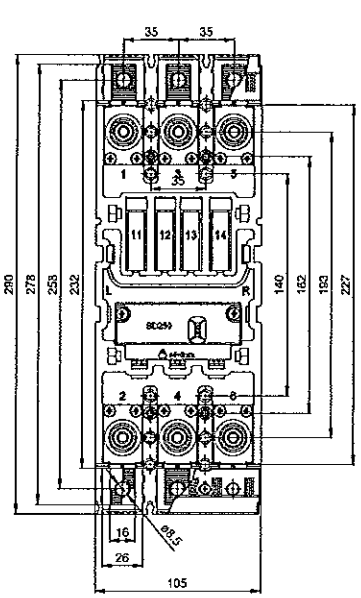
Opening dimensions in switchboard door for external counter of cycles

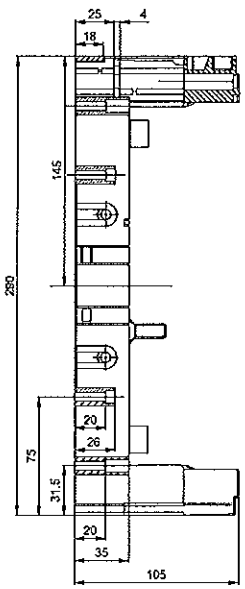


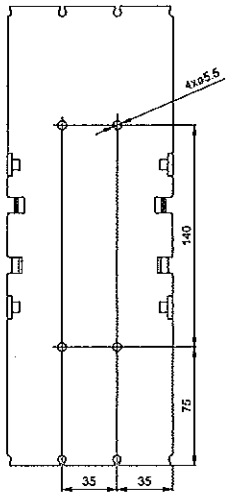
CIRCUIT BREAKERS, SWITCH-DISCONNECTORS

Dimensions

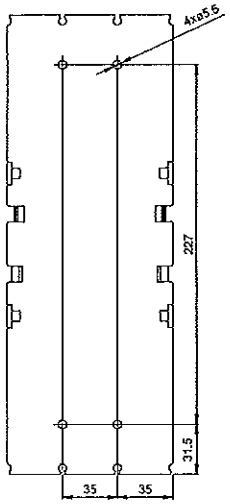
Plug-in device



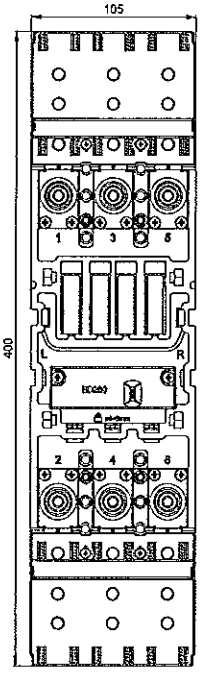


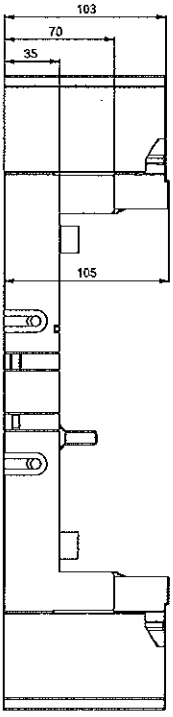


Drilling diagram



Plug-in device, OD-BD-KS03 terminal cover





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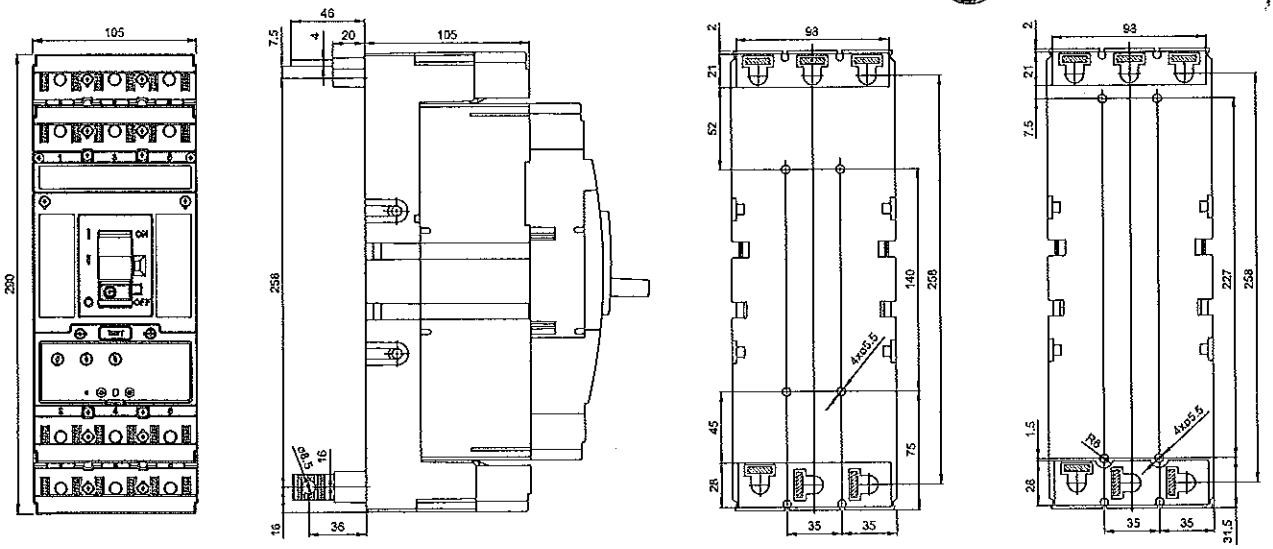
CIRCUIT BREAKERS, SWITCH-DISCONNECTORS

Dimensions

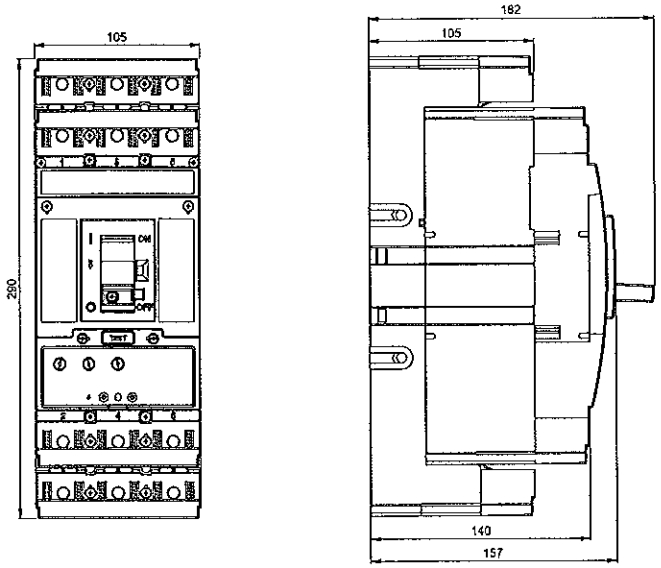
Plug-in design



Drilling diagram

8P

Plug-in design

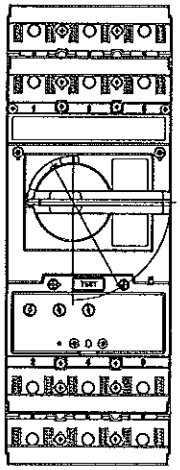


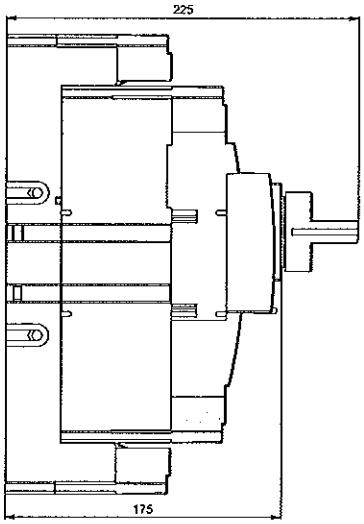
CIRCUIT BREAKERS, SWITCH-DISCONNECTORS

3P

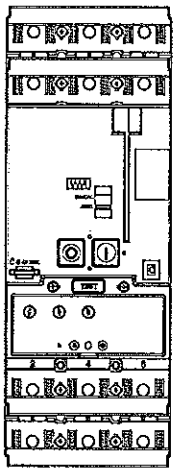
Dimensions

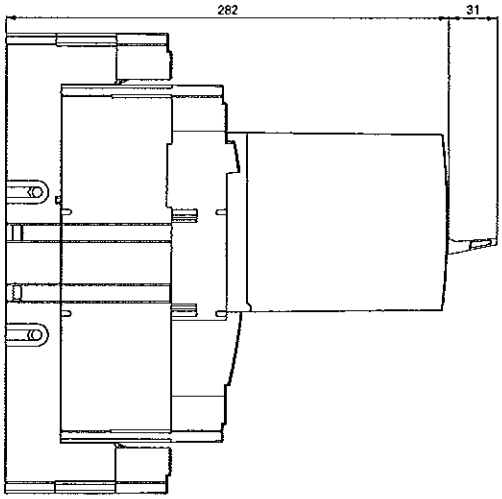
Plug-in design, hand drive





Plug-in design, motor drive





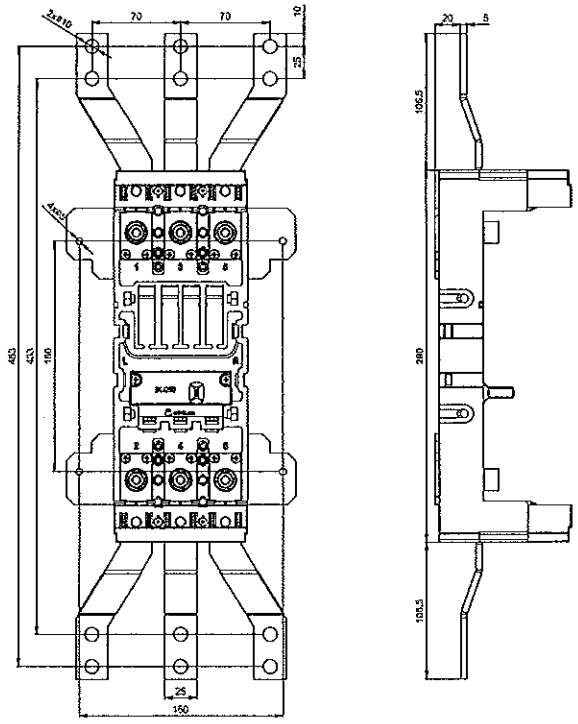
CIRCUIT BREAKERS, SWITCH-DISCONNECTORS

3P

Dimensions

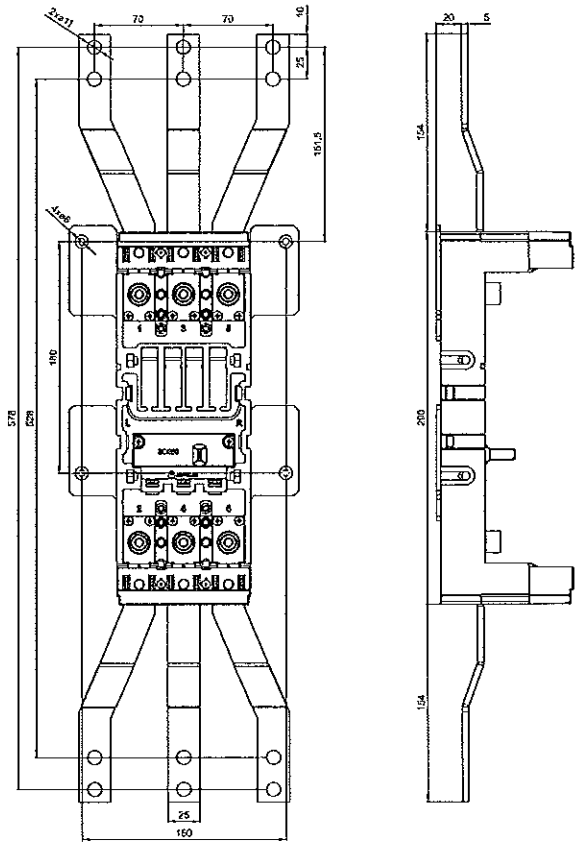
Plug-in device (CS-BD-JX75 connecting set, OD-BHD-MS75 mounting set)

RETROFIT



Plug-in device (CS-BD-JT75 connecting set, OD-BD-MT75 mounting set)

RETROFIT

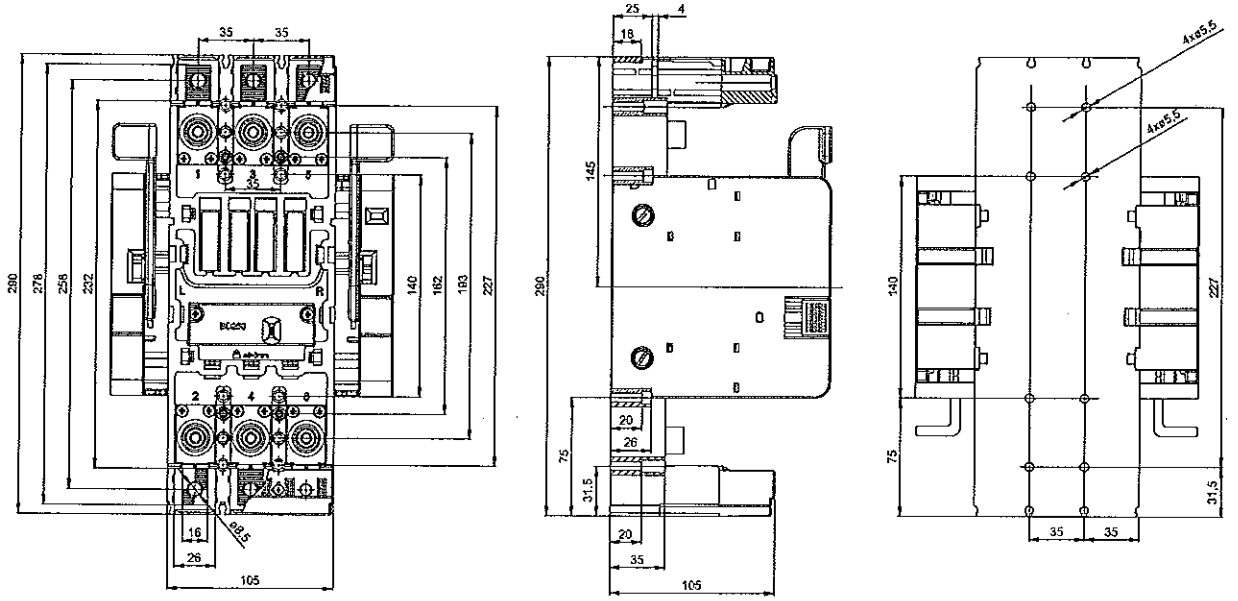


CIRCUIT BREAKERS, SWITCH-DISCONNECTORS

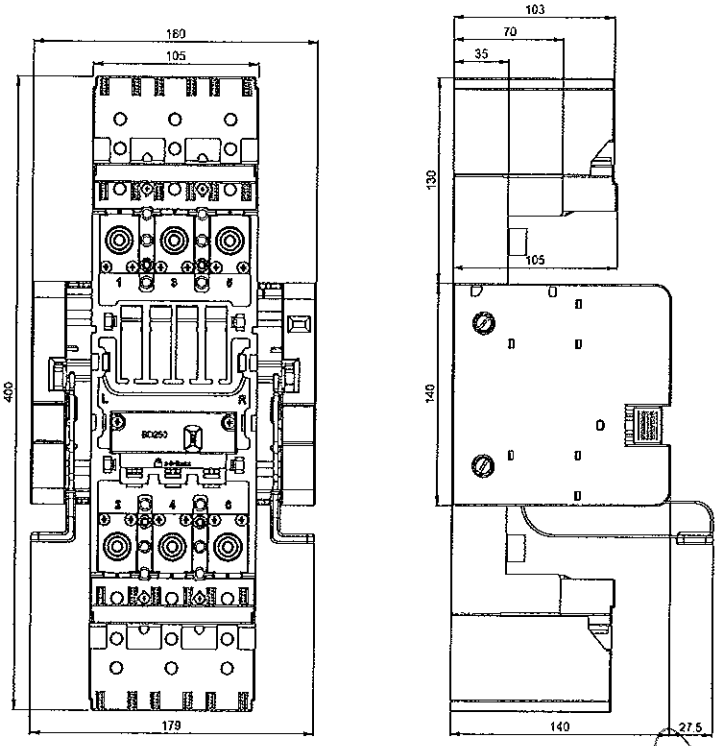
Dimensions

Withdrawable device

Drilling diagram



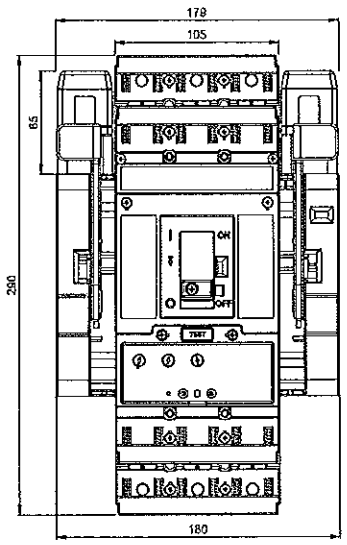
Withdrawable device, OD-BD-KS03 terminal cover



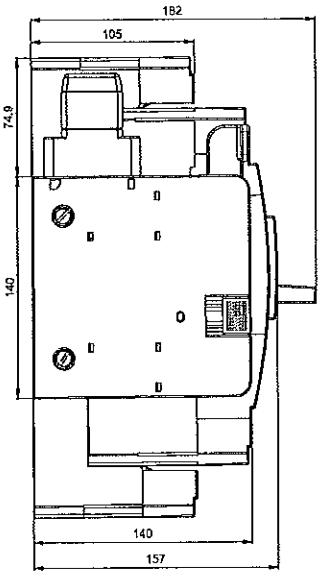
CIRCUIT BREAKERS, SWITCH-DISCONNECTORS

Dimensions

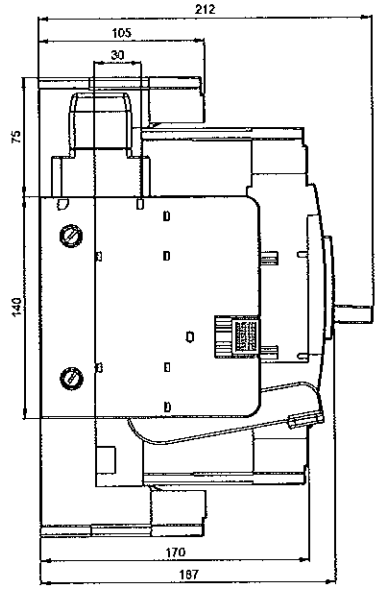
Withdrawable design



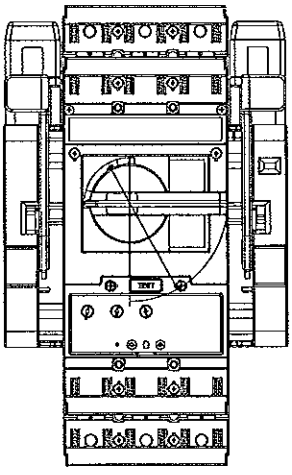
Working position



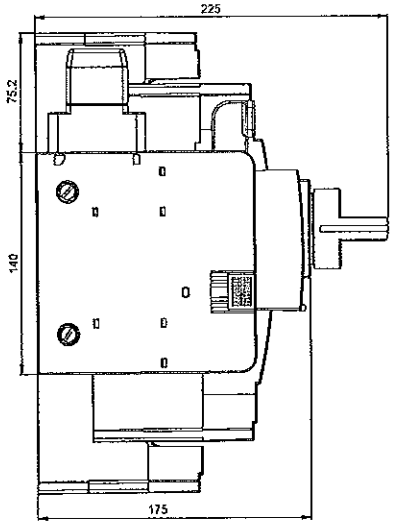
Inspection position



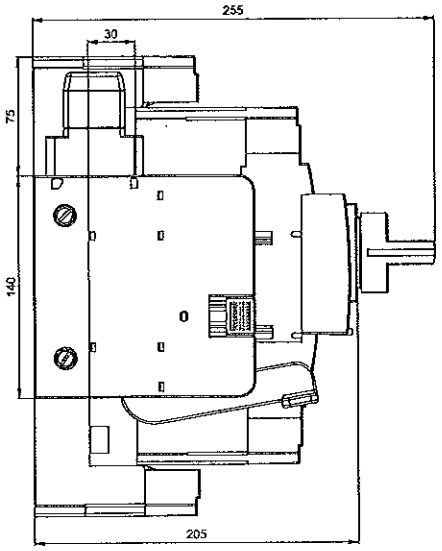
Withdrawable design, hand drive



Working position



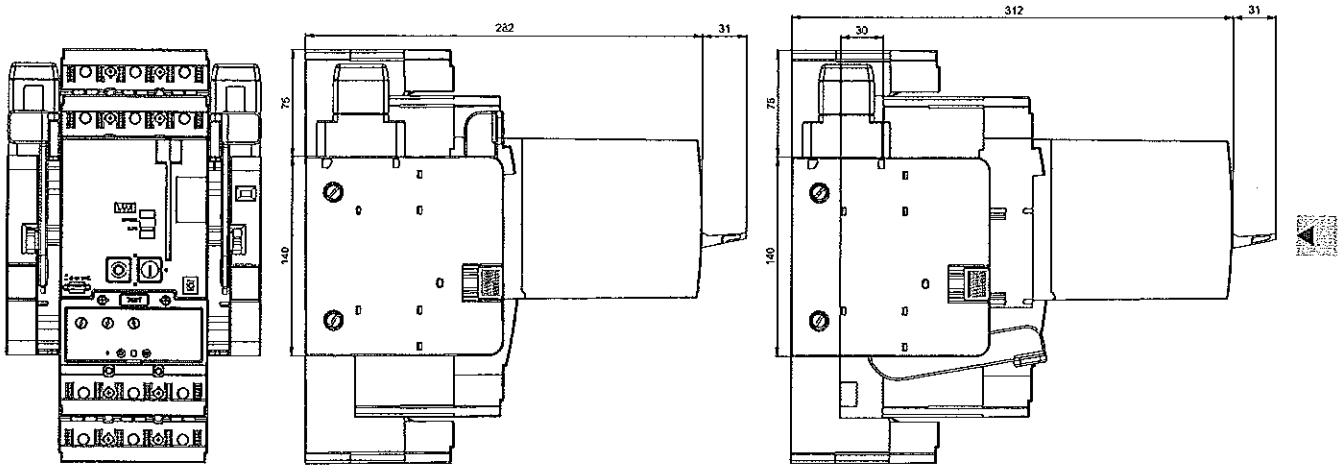
Inspection position



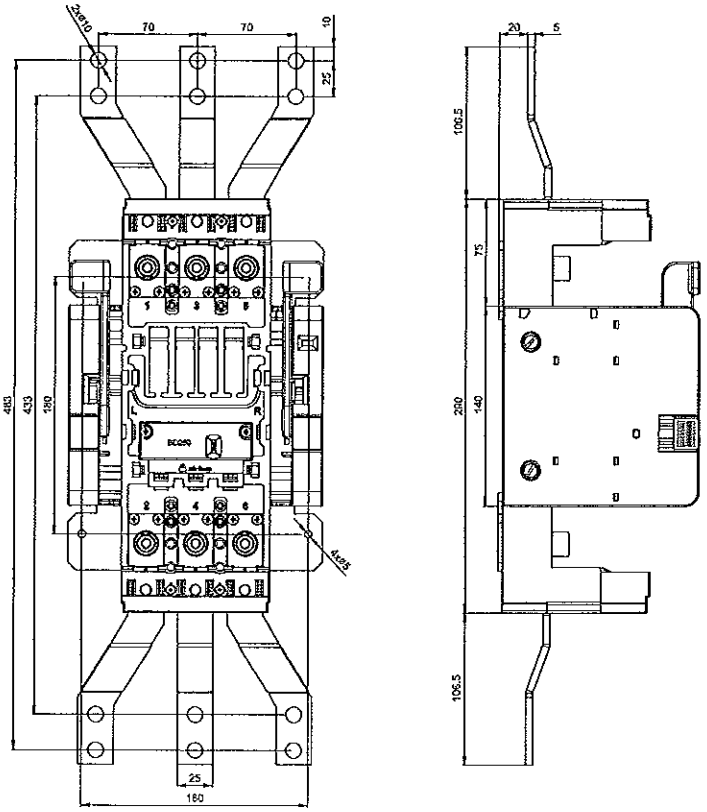
CIRCUIT BREAKERS, SWITCH-DISCONNECTORS

Dimensions

Withdrawable design, motor drive Working position Inspection position



Withdrawable device (CS-BD-JX75 connecting set, OD-BHO-MS75 mounting set) RETROFIT



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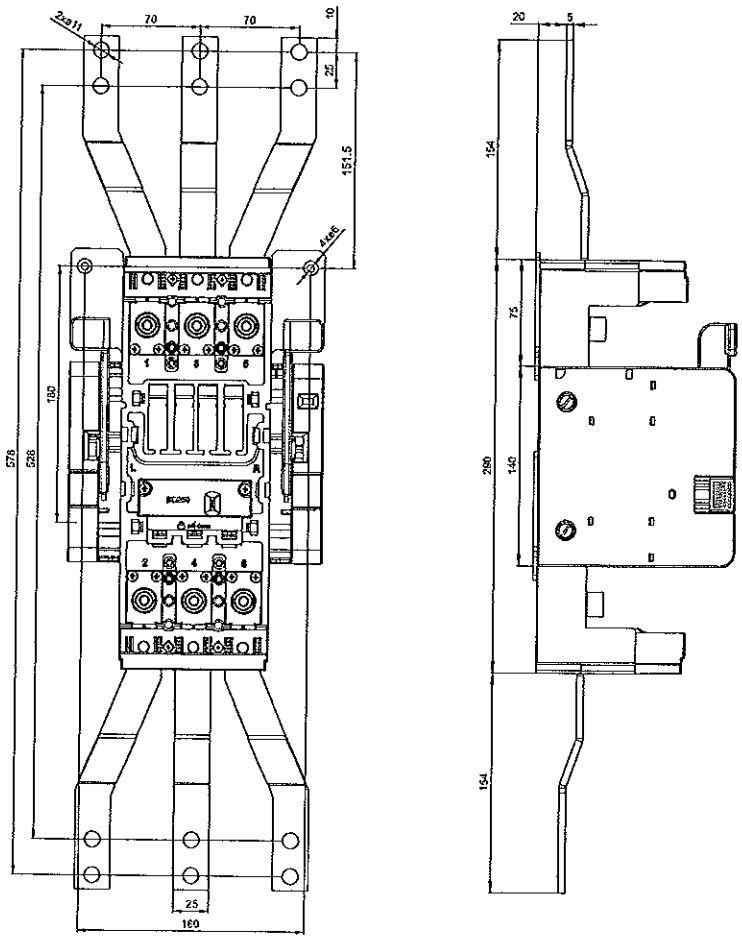
CIRCUIT BREAKERS, SWITCH-DISCONNECTORS

3P

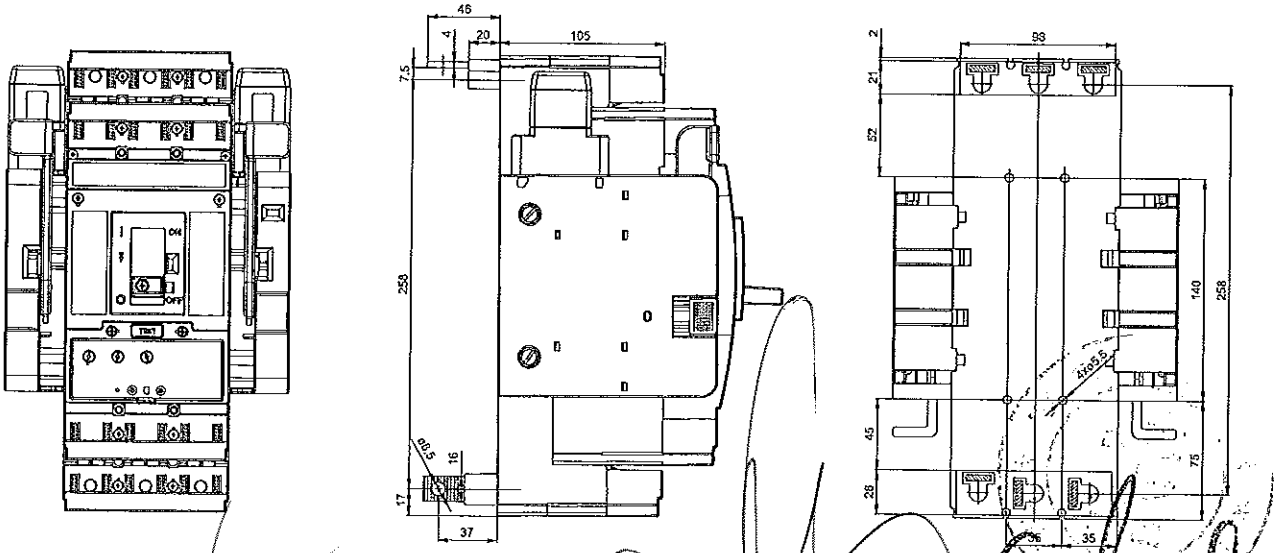
Dimensions

Withdrawable device (CS-BD-JT75 connecting set, OD-BD-MT75 mounting set)

RETROFIT



Withdrawable device, rear connection (CS-BD-A021 connecting set)

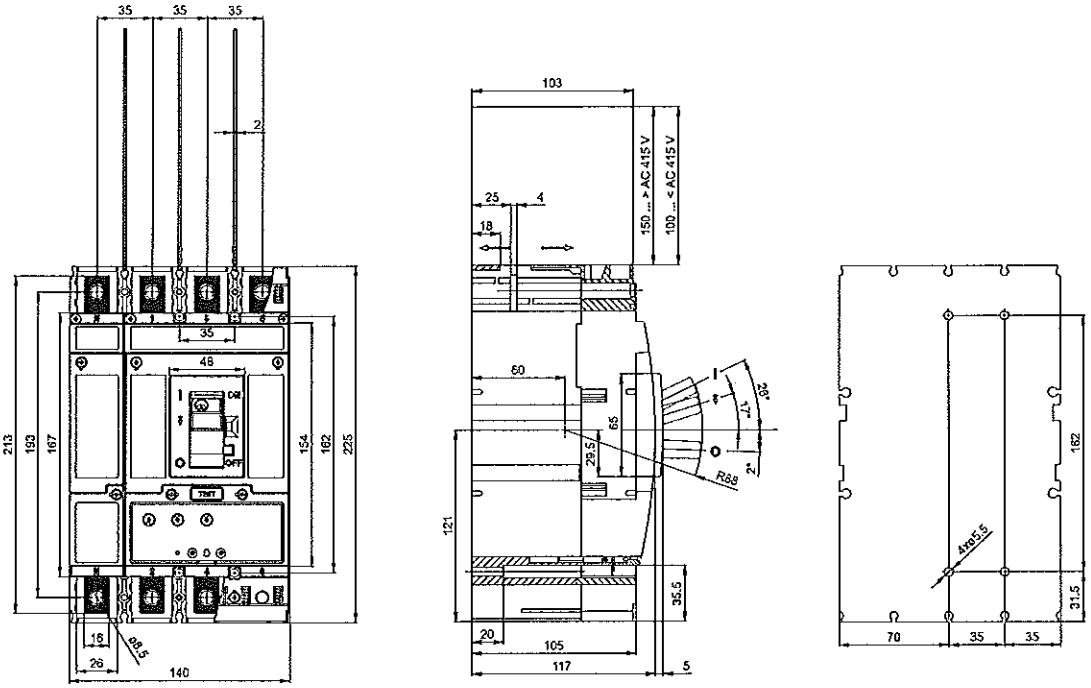


CIRCUIT BREAKERS, SWITCH-DISCONNECTORS

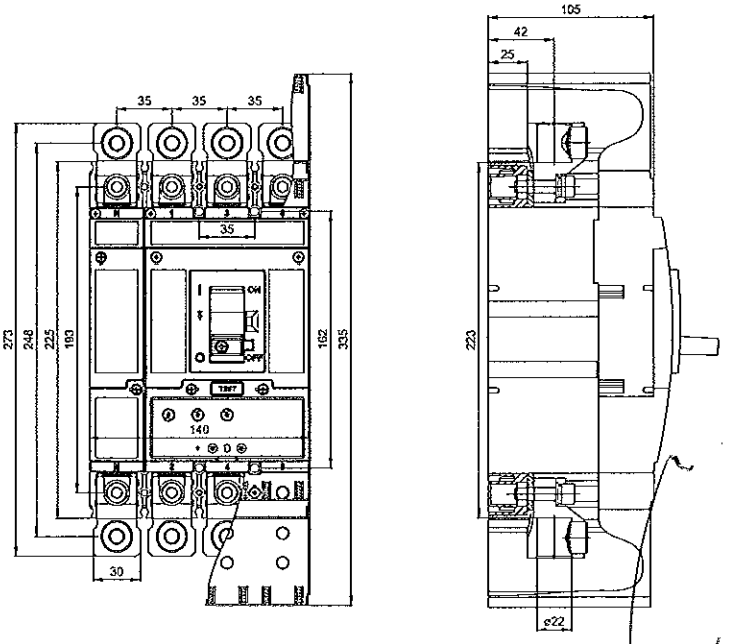
Dimensions

Fixed design, front connection

Drilling diagram



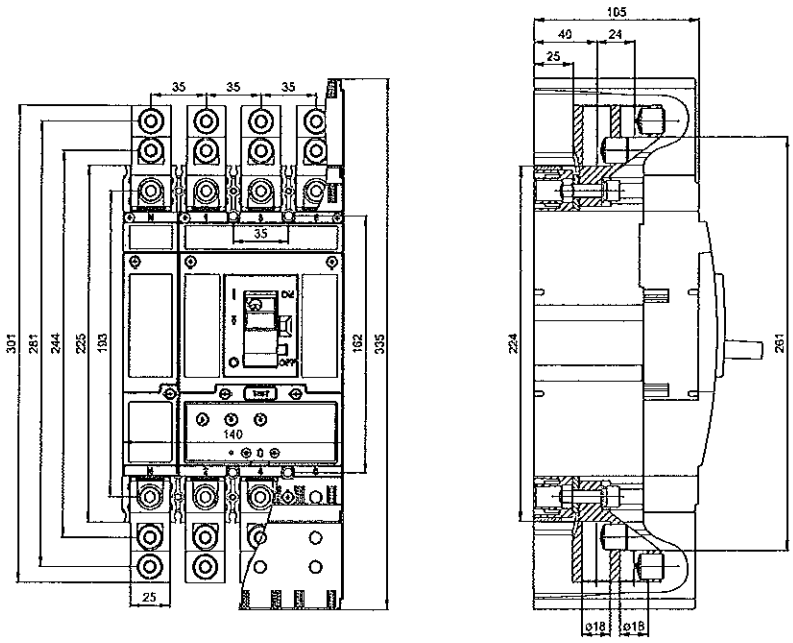
Fixed design, front connection (CS-BD-B012 + CS-BD-B412 connecting sets)



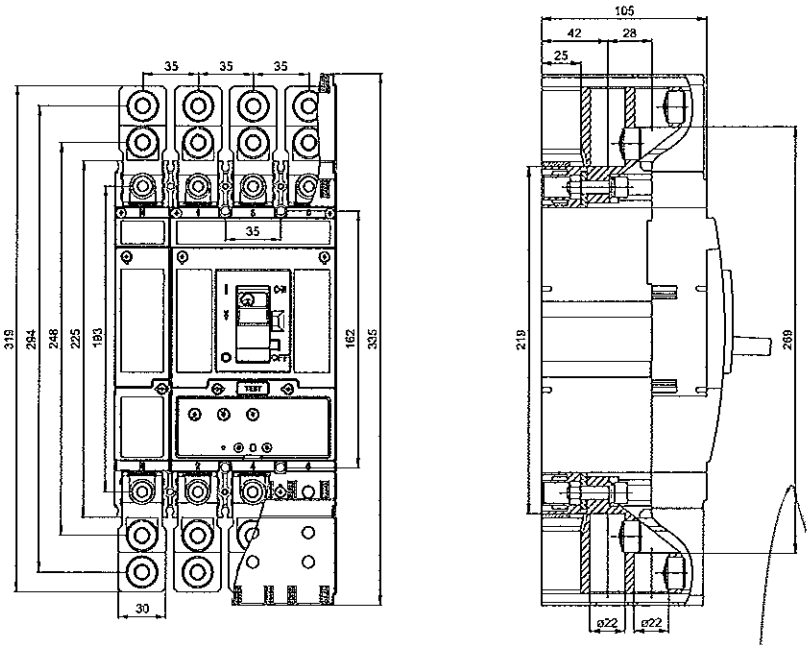
CIRCUIT BREAKERS, SWITCH-DISCONNECTORS

Dimensions

Fixed design, front connection (CS-BD-B021 + CS-BD-B421 connecting sets)



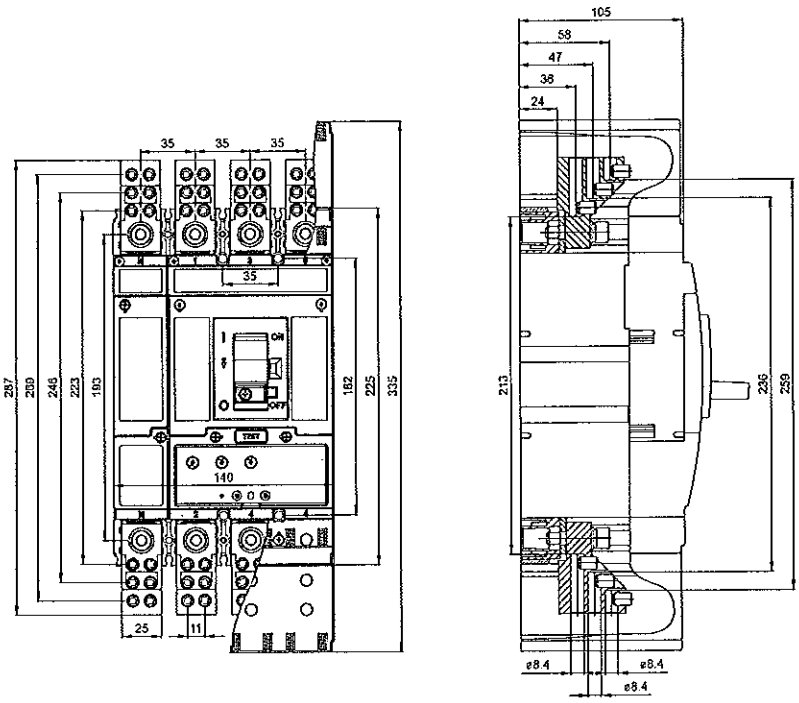
Fixed design, front connection (CS-BD-B022 + CS-BD-B422 connecting sets)



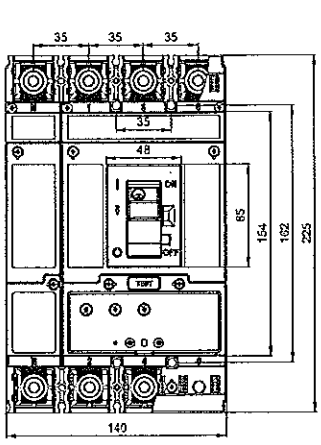
CIRCUIT BREAKERS, SWITCH-DISCONNECTORS

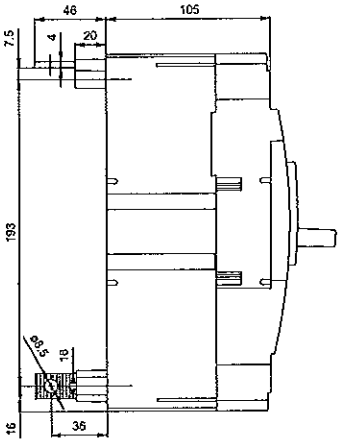
Dimensions

Fixed design, front connection (CS-BD-B014 + CS-BD-B414 connecting sets)

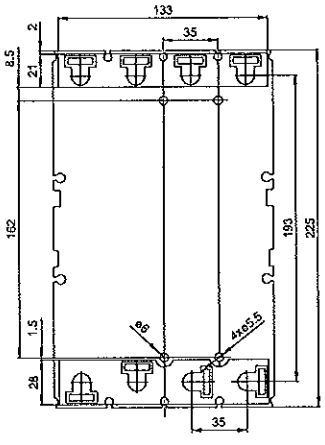


Fixed design, rear connection (CS-BD-A021 + CS-BD-A421 connecting sets)





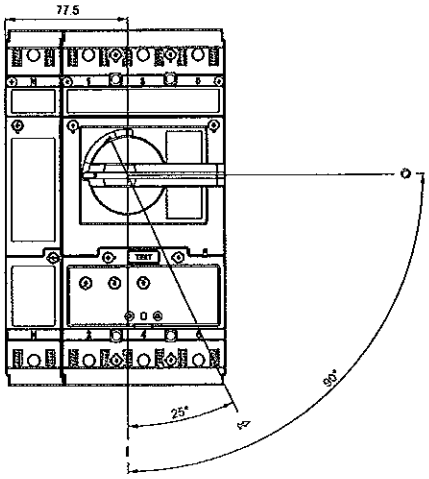
Drilling diagram

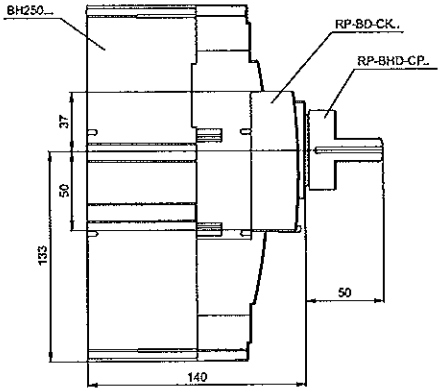


CIRCUIT BREAKERS, SWITCH-DISCONNECTORS

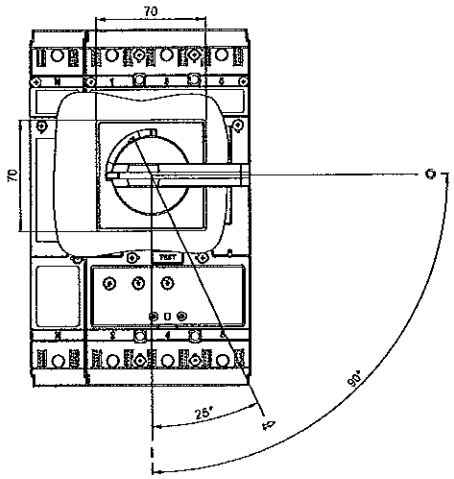
Dimensions

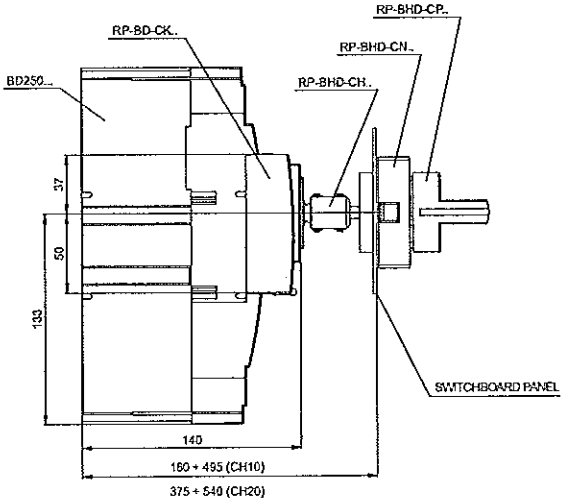
Fixed design, hand drive



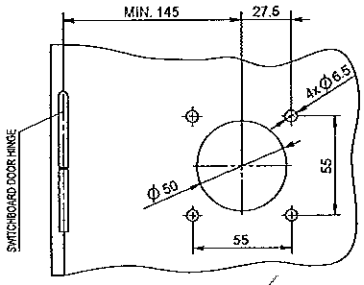


Fixed design, hand drive - front, with adjustable lever





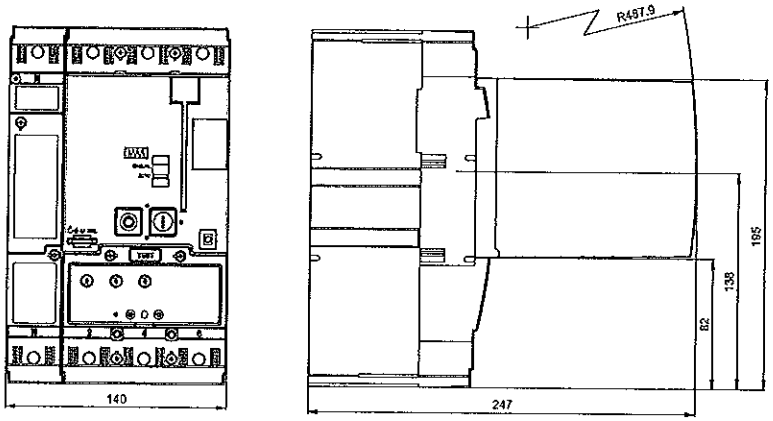
Switchboard door modification



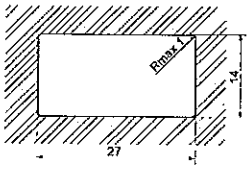
CIRCUIT BREAKERS, SWITCH-DISCONNECTORS

Dimensions

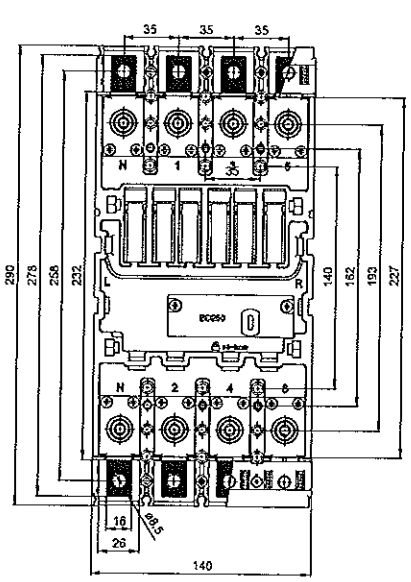
Fixed design, motor drive

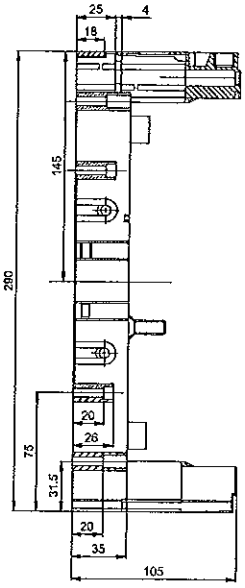


Opening dimensions in switchboard door for external counter of cycles

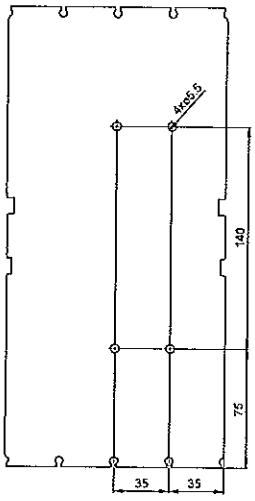


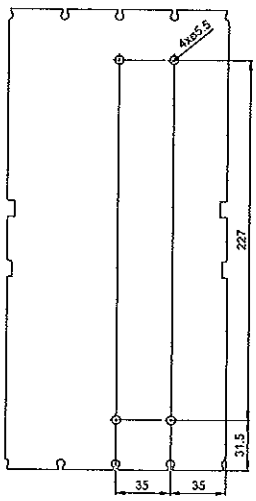
Plug-in device





Drilling diagram

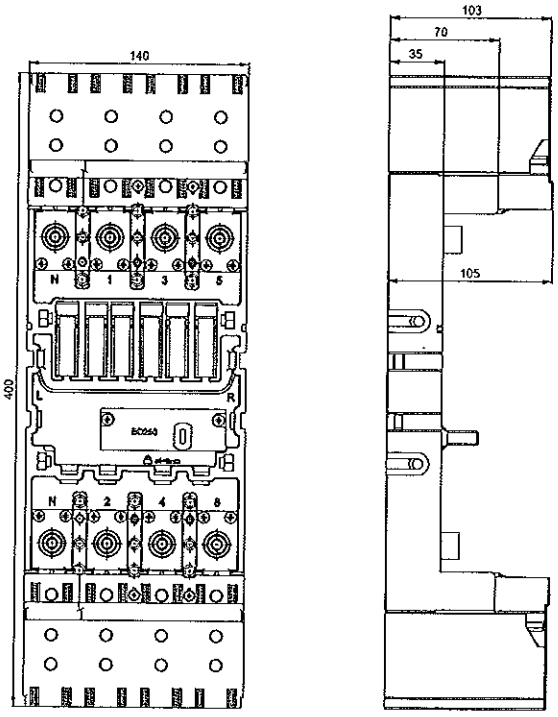




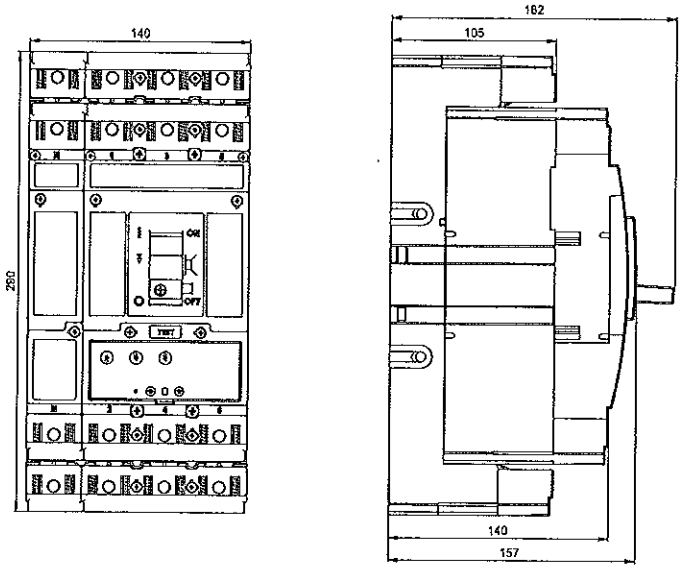
CIRCUIT BREAKERS, SWITCH-DISCONNECTORS

Dimensions

Plug-in device, OD-BD-KS43 terminal cover



Plug-in design

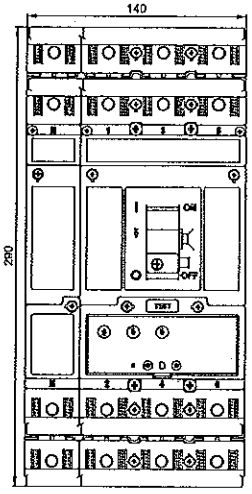


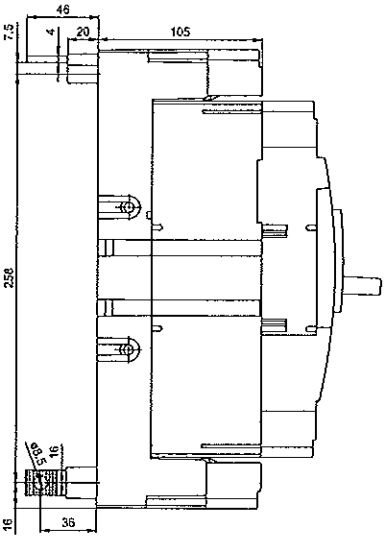
CIRCUIT BREAKERS, SWITCH-DISCONNECTORS

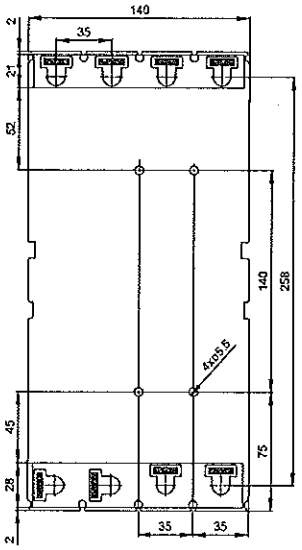
Dimensions

Plug-in design, rear connection (CS-BD-A021 + CS-BD-A421 connecting sets)

Drilling diagram



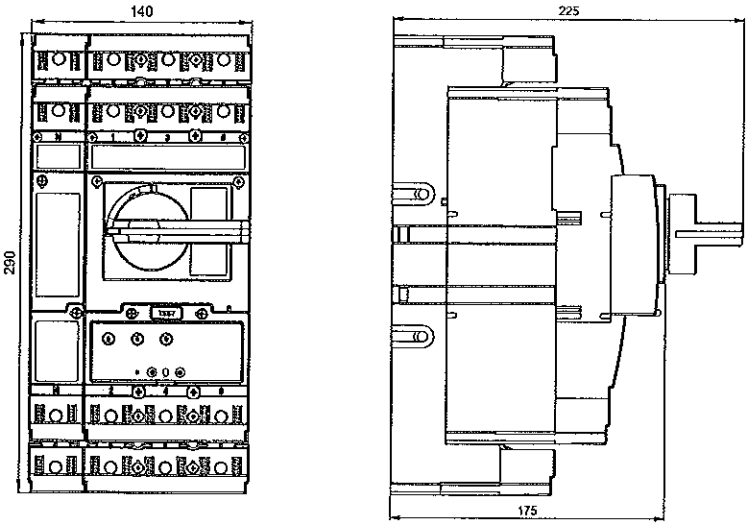




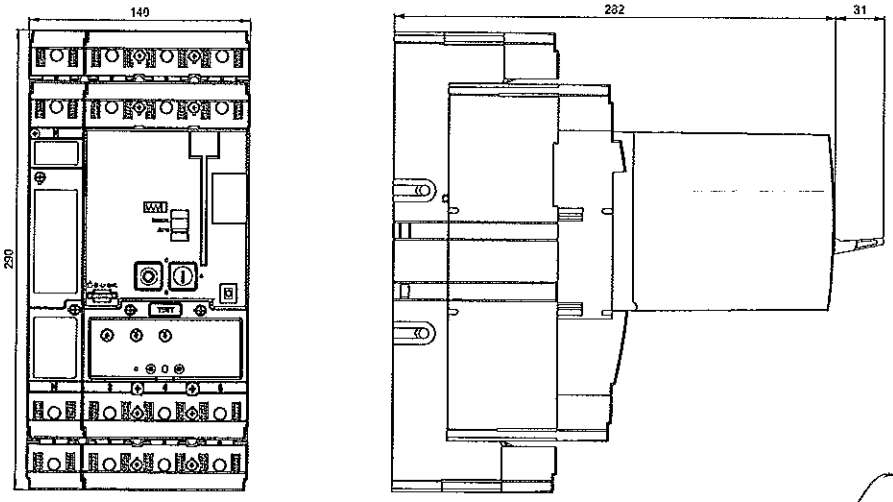
CIRCUIT BREAKERS, SWITCH-DISCONNECTORS

Dimensions

Plug-in design, hand drive



Plug-in design, motor drive



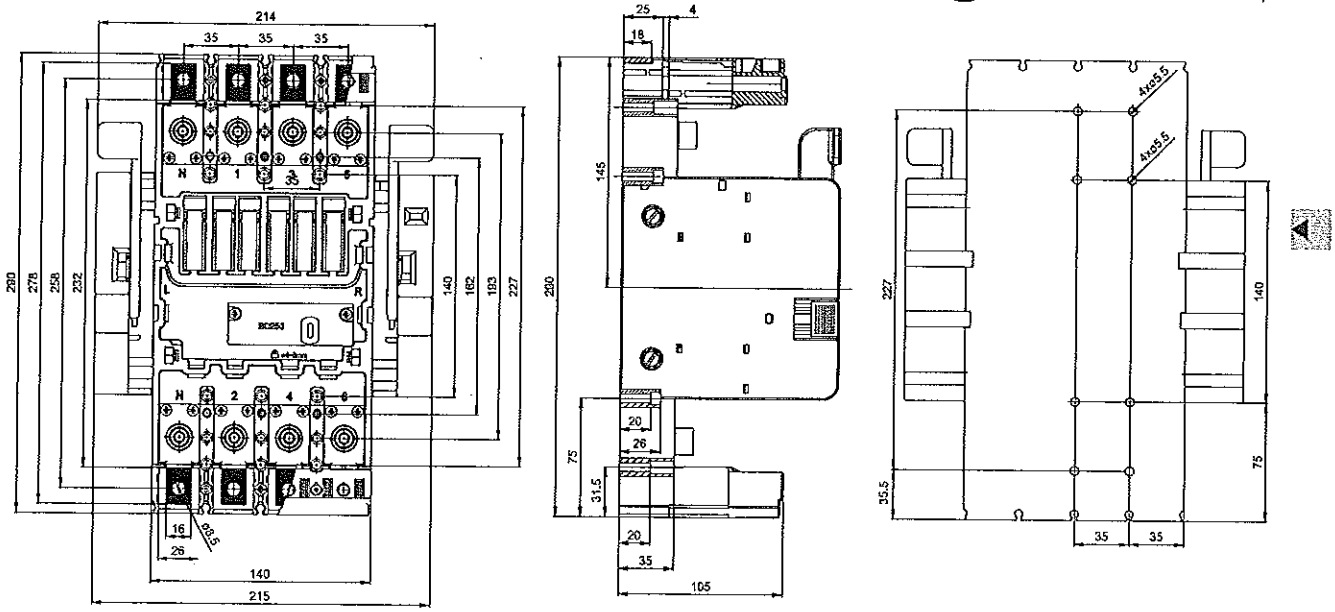
CIRCUIT BREAKERS, SWITCH-DISCONNECTORS

4P

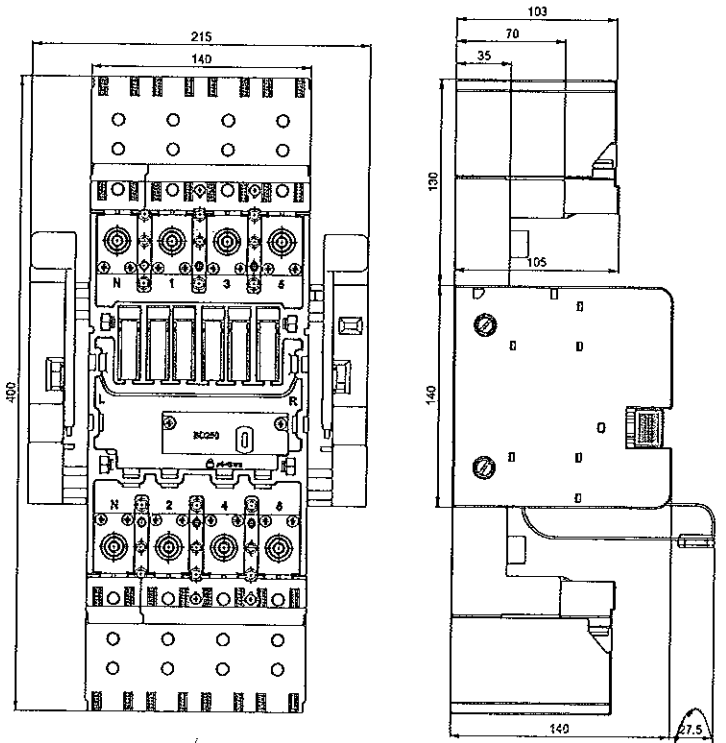
Dimensions

Withdrawable device

Drilling diagram



Withdrawable device, OD-BD-KS43 terminal cover



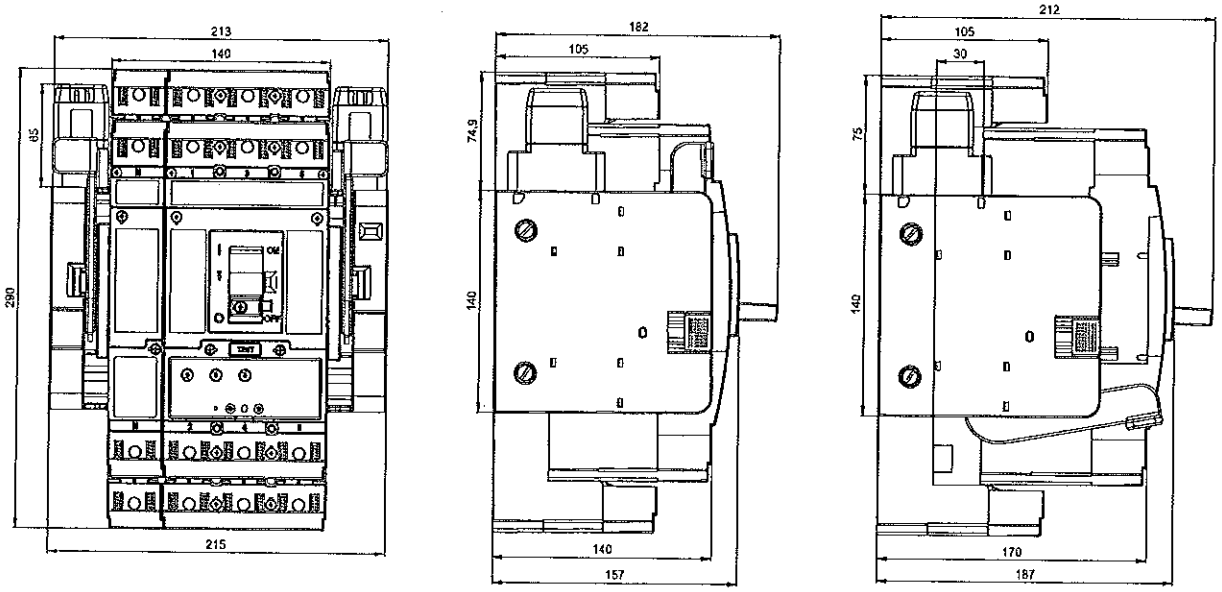
CIRCUIT BREAKERS, SWITCH-DISCONNECTORS

Dimensions

Withdrawable design

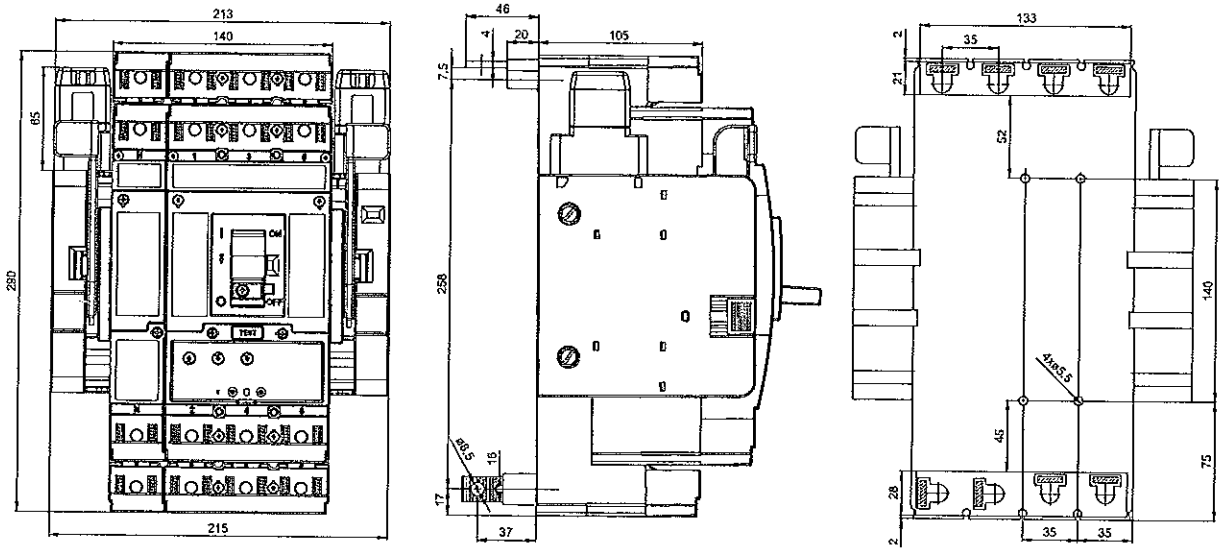
Working position

Inspection position



Withdrawable design, rear connection (CS-BD-A021 + CS-BD-A421 connecting sets)

Drilling diagram

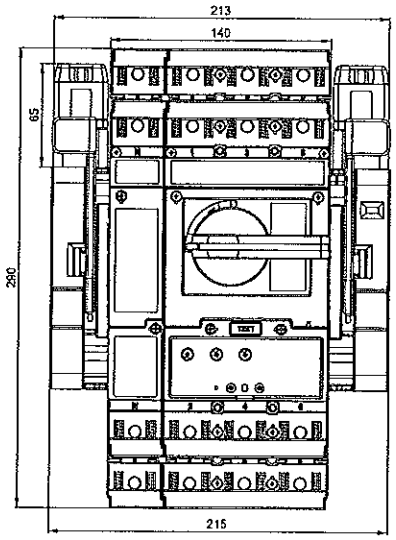


CIRCUIT BREAKERS, SWITCH-DISCONNECTORS

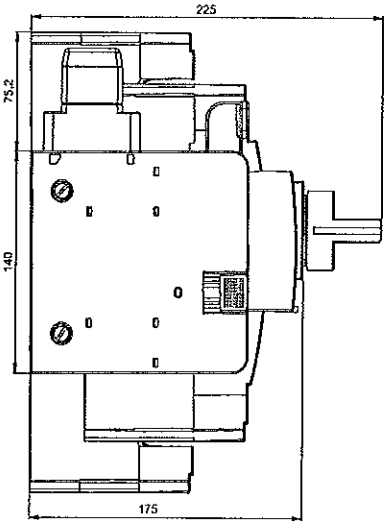
4P

Dimensions

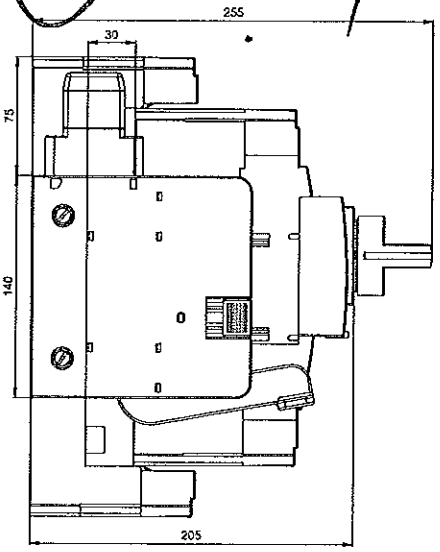
Withdrawable design, hand drive



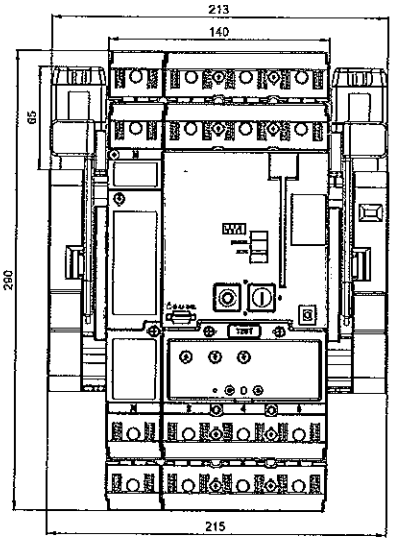
Working position



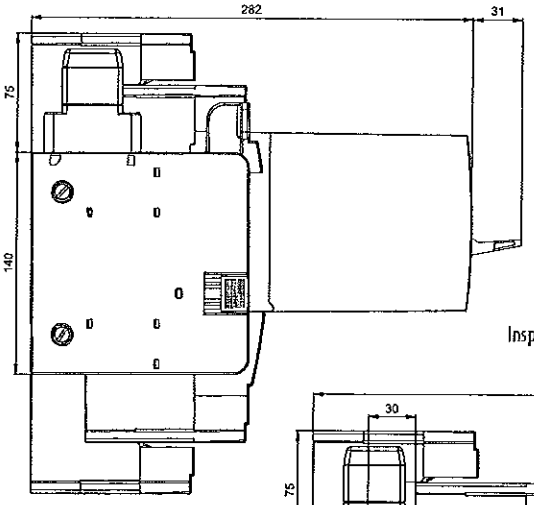
Inspection position



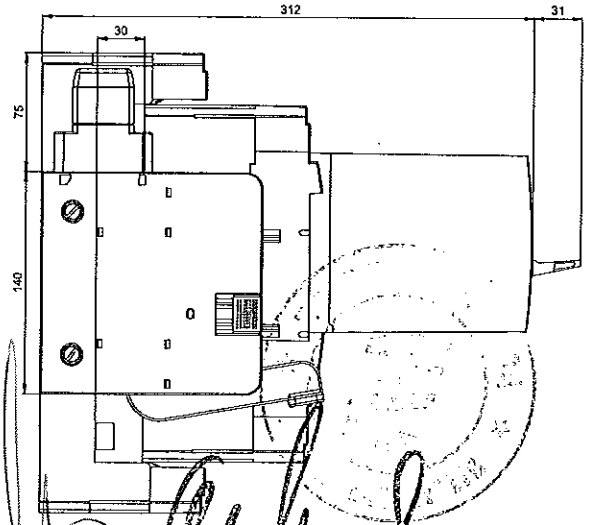
Withdrawable design, motor drive



Working position

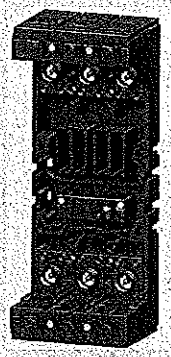


Inspection position

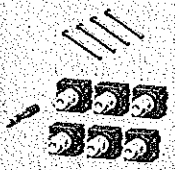


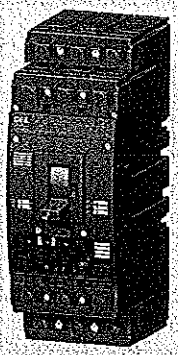
PLUG-IN DEVICE

3P 4P

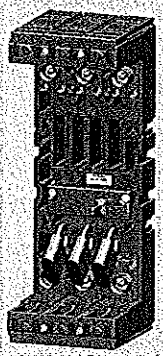


Plug-in device

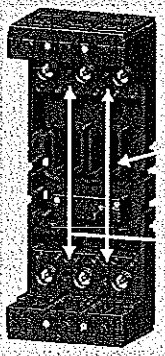




Circuit breaker in plug-in design



Locking plug-in device against inserting circuit breaker



Position of cavities for switch SO-BHD-0010 in plug-in device

11, 12, 13, 14

Keying set OD-BD-KK01

Description

Plug-in design of the circuit breaker/switch-disconnector is intended for demanding industrial applications where rapid exchange of the circuit breaker along with both visual and conductive disconnection of the circuit are needed.

- plug-in device includes complete accessories for assembling circuit breaker/switch-disconnector in plug-in design from the originally fixed design
- components of the plug-in device are:
  - base of the plug-in device
  - 2 connecting sets (total of 6 terminals) - for fitting onto the switching unit
  - interlocking connecting rod (ensures automatic switching off of the circuit breaker for handling – inserting and removal)
  - set of mounting bolts - for affixing circuit breaker to plug-in device (set of mounting bolts is used to fasten the plug-in device into the switchboard, that is included in delivery of switching unit)

Circuit breaker positions

Circuit breaker in plug-in design has two positions:
1. inserted (working position)
2. removed

Power circuit

- connecting set CS-BD-A011 is used for connecting with busbars or cable lugs, that is included in delivery of BD250... switching unit
- for connecting in another way, it is necessary to use connecting sets, see page E8
- connection must comply with our recommendations, see page E18

Auxiliary circuits

These are connected using 15-wire cable **OD-BHD-KA01.**

States of switches SO-BHD-0010 in plug-in device according to circuit breaker position

Cavity	11, 12, 13, 14 (19, 20)[1]
Circuit breaker position	
Inserted	0 1
Removed	1 0

note: 0 - contact open, 1 - contact closed
[1] - cavities 19 and 20 are only for 4-pole design

Signalling of position SO-BHD-0010

Plug-in device may be fitted with a maximum of four switches (for 4-pole design, max. 6 switches) for signalling the inserted/removed position.

Keying set OD-BD-KK01

Plug-in device and circuit breaker can be fitted with keying set, which prevents inserting any other circuit breaker into the plug-in device.

Circuit breaker accessories in plug-in design

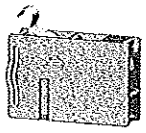
Circuit breaker in plug-in design has the same accessories as the fixed circuit breaker.

Advantages and enhanced safety for operator:

- unambiguous remote signalling of the circuit breaker position
- option to lock plug-in device with padlocks to prevent inserting of circuit breaker
- visible and conductive disconnection of the power circuit
- easy exchange of circuit breakers in case of failure
- IP20 degree of protection of all termination points
- plug-in device does not need earthing

Keying set OD-BD-KK01

Connecting cable OD-BHD-KA01



Signalling of position SO-BHD-0010

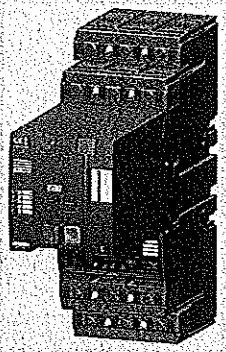
Specifications SO-BHD-0010

Type		SO-BHD-0010
Rated operating voltage	U_e	400 V a.c. 220 V d.c.
Rated insulation voltage	U_i	500 V a.c.
Rated frequency	f_e	50/60 Hz
Rated operating current	I_e / U_e AC-13	3 A / 400 V a.c.
	I_e / U_e DC-1S	3.5 A / 24 V d.c., 1 A / 48 V d.c., 0.3 A / 110 V d.c., 0.15 A / 220 V d.c.
Thermal current	I_{th}	6 A
Arrangement of contacts		1001
Connection cross-section	S	0.5 ÷ 1 mm²
Degree of protection of terminals (connected switch)		IP20

For wiring diagram of circuit breaker in plug-in device with accessories see page E16.

PLUG-IN DEVICE

3P 4P



Circuit breaker in plug-in design with motor drive

Recommended circuit breaker manipulation

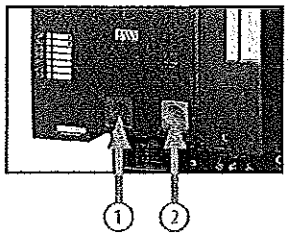
During the manipulation with circuit breaker in plug-in design with motor drive, the circuit breaker may reach the state, in which the first attempt at switching on by motor drive is unsuccessful. Switching on is executed after repeated make impulse. To avoid this effect, some of the following steps may be done:

1) To keep the process of manipulation with the circuit breaker, see „Recommended circuit breaker manipulation" below
2) To connect OD-BHD-R... control relay into the motor drive circuit according to wiring diagram, see page E73

Recommended process of manipulation

After every manipulation with circuit breaker in plug-in design is necessary to accomplish the operations in following sequence, after repeated insertion into the plug-in device:

1) press the switch off button (red) on the motor drive, see fig.
2) press the switch on button (green) on the motor drive, see fig.



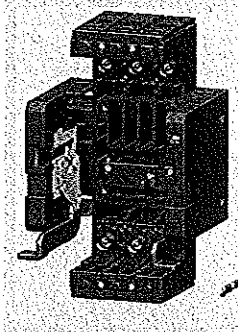
Changes in states of switches in cavities of switching unit when removing circuit breaker

State of circuit breaker before removing			State of switches before removing - inserted position →						State of switches after removing - withdrawn position					
			Cavity 1		2		3 (4, 5, 6)[1]		1		2		3 (4, 5, 6)[1]	
	Circuit breaker lever position	State of the main contacts	PS-BHD-1000	PS-BHD-0100	PS-BHD-1000	PS-BHD-0100	PS-BHD-1000	PS-BHD-0100	PS-BHD-1000	PS-BHD-0100	PS-BHD-1000	PS-BHD-0100	PS-BHD-1000	PS-BHD-0100
Switched on		1	1	0	0	1	1	0	1	0	1	0	0	1
Switched off manually or by motor drive electrically (loaded state)		0	1	0	0	1	0	1	1	0	1	0	0	1
Switched off by overcurrent release		0	0	1	1	0	0	1	0	1	1	0	0	1
Switched off from switched on state: by auxiliary release, or by TEST push button or by the switch off button on the motor drive		0	1	0	1	0	0	1	1	0	1	0	0	1

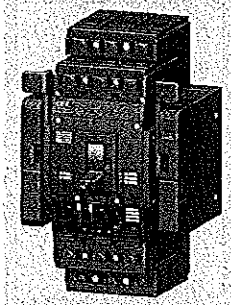
note: 0 - contact open, 1 - contact closed
[1] - cavities 4, 5, 6 are only for 4-pole design

WITHDRAWABLE DEVICE

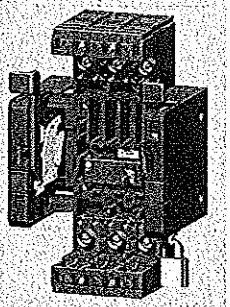
3P 4P



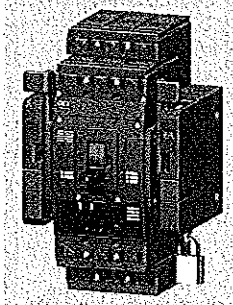
Withdrawable device



Circuit breaker in withdrawable design

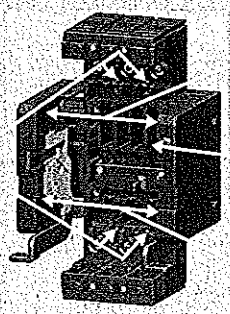


Locking withdrawable device against inserting circuit breaker



Locking withdrawable circuit breaker against tampering

Position of cavities for switch SO-BHD-0010 in withdrawable device



15, 17

11, 12, 13, 14

16, 18

Keying set OD-BD-KK01

Description

Withdrawable design of the circuit breaker/switch-disconnector is intended for demanding industrial applications where rapid exchange of the circuit breaker, frequent checking and both visual and conductive disconnection of the circuit are needed.

- withdrawable device includes complete accessories for assembling circuit breaker/switch-disconnector in withdrawable design from the originally fixed design
- components of the withdrawable device are:
  - base of the withdrawable device
  - 2 movable side plates
  - 2 connecting sets (total of 6 terminals) - for fitting onto the switching unit
  - interlocking connecting rod (ensures automatic switching off of the circuit breaker for handling – inserting and withdrawing)
  - set of mounting bolts is used to fasten the withdrawable device into the switchboard, that is included in delivery of switching unit

Circuit breaker positions

Circuit breaker in withdrawable design has three positions:
1. inserted (working position)
2. withdrawn (inspection position)
3. removed

Keying set OD-BD-KK01

Withdrawable device and circuit breaker can be fitted with keying set, which prevents inserting any other circuit breaker into the withdrawable device.

States of switches SO-BHD-0010 in withdrawable device according to circuit breaker and arrestment positions

Cavity	11, 12, 13, 14 (19, 20)[1]		15, 17 (19, 20)[1]		16, 18	
Circuit breaker and arrestment position	10 / 20	04	10 / 20	04	10 / 20	04
Inserted and not arrested	0	1	1	0	0	1
Inserted and arrested	0	1	1	0	1	0
Withdrawn and not arrested	1	0	0	1	0	1
Withdrawn and arrested	1	0	0	1	1	0
Removed and not arrested	1	0	1	0	0	1
Removed and arrested	1	0	1	0	1	0

note: 0 - contact open, 1 - contact closed
- operating state is always in arrested position
- in arrested position it is possible to lock the withdrawable device (for more information see „Advantages and enhanced safety for operator")

[1] - cavities 19 and 20 are only for 4-pole design

Signalling of position SO-BHD-0010

Withdrawable device can be fitted with the switches for signalling the position of the circuit breaker inserted/withdrawn/removed.

Power circuit

- connecting set CS-BD-A011 is used for connecting with busbars or cable lugs, that is included in delivery of BD250.. switching unit
- for connecting in another way, it is necessary to use connecting sets, see page E8
- connection must comply with our recommendations, see page E18

Auxiliary circuits

These are connected using 15-wire cable **OD-BHD-KA01.**

Circuit breaker accessories in withdrawable design

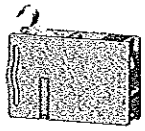
Circuit breaker in withdrawable design has the same accessories as fixed circuit breaker.

Advantages and enhanced safety for operator:

- unambiguous remote and local signalling of the circuit breaker and arrestment positions
- checking of circuit breaker and accessories function in the inspection position
- locking withdrawable device against inserting circuit breaker, locking of circuit breaker in inserted (operating) position, locking of circuit breaker in withdrawn (checking) position - locking by means of padlocks
- visible and conductive disconnection of the power circuit
- easy exchange of circuit breakers in case of failure
- IP20 degree of protection of all termination points
- withdrawable device does not need earthing

Keying set OD-BD-KK01

Connecting cable OD-BHD-KA01



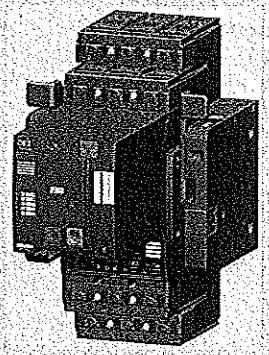
Signalling of position SO-BHD-0010

Specifications SO-BHD-0010

Type		SO-BHD-0010
Rated operating voltage	U_e	400 V a.c. 220 V d.c.
Rated insulation voltage	U_i	500 V a.c.
Rated frequency	f_n	50/60 Hz
Rated operating current	I_e/U_e AC-13	3 A/400 V a.c.
	I_e/U_e DC-15	3.5 A/24 V d.c., 1 A/48 V d.c., 0.3 A/110 V d.c., 0.15 A/220 V d.c.
Thermal current	I_{th}	6 A
Arrangement of contacts		001
Connection cross-section	S	0.5 ÷ 1 mm²
Degree of protection of terminals (connected switch)		IP20

For wiring diagram of circuit breaker in withdrawable device with accessories see page E16.

WITHDRAWABLE DEVICE



Circuit breaker in withdrawable design with motor drive

Recommended circuit breaker manipulation

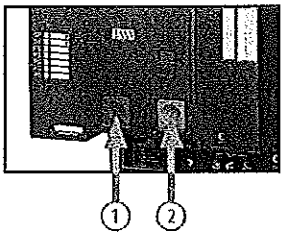
During the manipulation with circuit breaker in withdrawable design with motor drive, the circuit breaker may reach the state, in which the first attempt at switching on by motor drive is unsuccessful. Switching on is executed after repeated make impulse. To avoid this effect, some of the following steps may be done:

1) To keep the process of manipulation with the circuit breaker, see „Recommended circuit breaker manipulation" below
2) To connect OD-BHD-R... control relay into the motor drive circuit according to wiring diagram, see page E73

Recommended process of manipulation

After every manipulation with circuit breaker in withdrawable design is necessary to accomplish the operations in following sequence, after repeated insertion into the plug-in device:

1) press the switch off button (red) on the motor drive, see fig.
2) press the switch on button (green) on the motor drive, see fig.



Changes in states of switches in cavities of switching unit when inserting and withdrawing circuit breaker

State before insertion/withdrawal			State after insertion/withdrawal									
State of circuit breaker before insertion			State of switches before insertion - withdrawn position →						State of switches after insertion - inserted position			
State of circuit breaker before withdrawal			State of switches before withdrawal - inserted position →						State of switches after withdrawal - withdrawn position			
			Cavity	1		2		3 (4, 5, 6)[1]		1		2		3 (4, 5, 6)[1]	
	Circuit breaker lever position	State of the main contacts	PS-BHD-1000	PS-BHD-0100	PS-BHD-1000	PS-BHD-0100	PS-BHD-1000	PS-BHD-0100		PS-BHD-1000	PS-BHD-0100	PS-BHD-1000	PS-BHD-0100	PS-BHD-1000	PS-BHD-0100
Switched on		1	1	0	0	1	1	0		1	0	1	0	0	1
Switched off manually or by motor drive electrically (loaded state)		0	1	0	0	1	0	1		1	0	1	0	0	1
Switched off by overcurrent release		0	0	1	1	0	0	1		0	1	1	0	0	1
Switched off from switched on state: by auxiliary release, or by TEST push button or by the switch off button on the motor drive		0	1	0	1	0	0	1		1	0	1	0	0	1

note: 0 - contact open, 1 - contact closed
[1] - cavities 4, 5, 6 are only for 4-pole design

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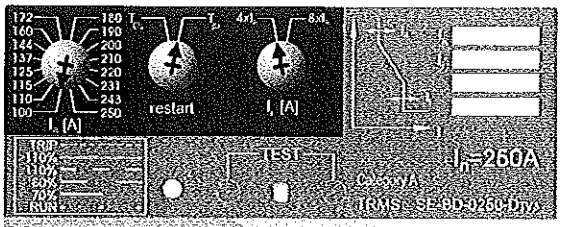
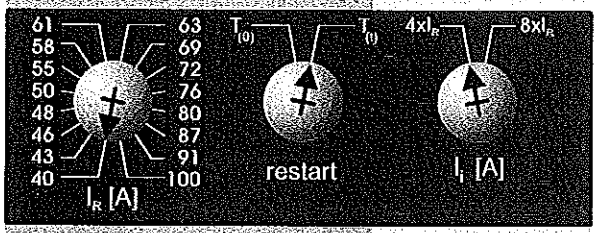
OVERCURRENT RELEASES - DTV3

3P 4P

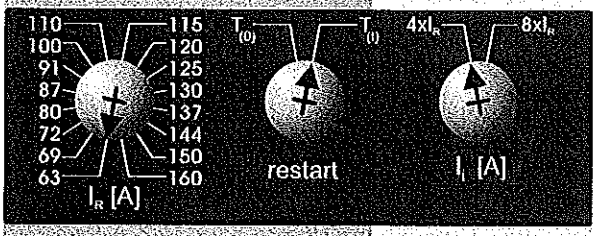


Reduced current | Thermal memory | Short-circuit release

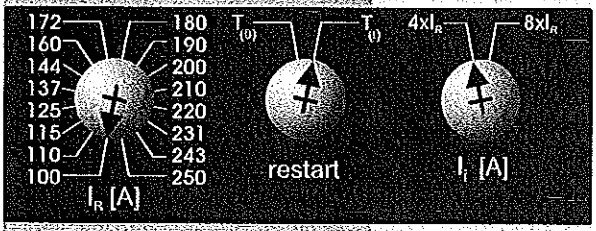
I_n = 100 A
SE-BD-0100-DTV3



I_n = 160 A
SE-BD-0160-DTV3



I_n = 250 A
SE-BD-0250-DTV3

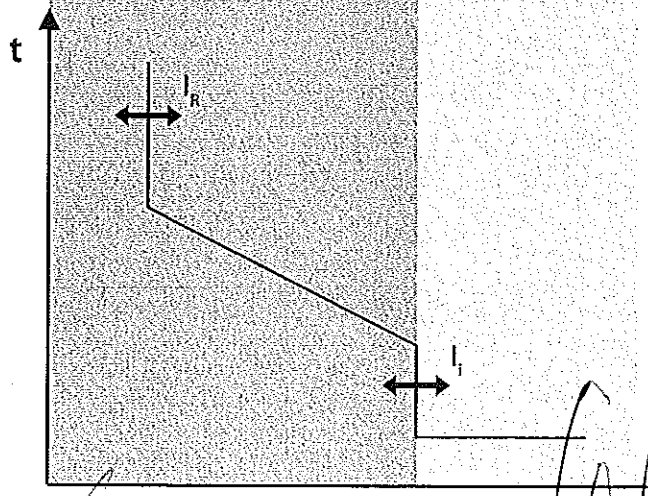


Properties

- suitable for protection of lines and distribution transformers
- protects against both overcurrent and short circuit
- reduced current setting $I_R = 0.4 \div 1\ I_n$
- thermal memory can be switched on/off (ON = $T_{(I)}$, OFF = $T_{(0)}$)
- setting of the value of the short-circuit release I_i in two steps, 4 I_R or 8 I_R
- setting of I_R and I_i by means of the rotary switches is stepwise
- the overcurrent release indicates operating state and the value of the passing current by means of LED
- the values of parameters of the overcurrent release are set by the manufacturer to minimum

Data for the project

Switching unit		BD250...
Overcurrent release		SE-BD-...
Overcurrent release setting		
Reduced current	I_R	... A
Thermal memory	T	.....
Short-circuit release current	I_i	... A (... x I_n)

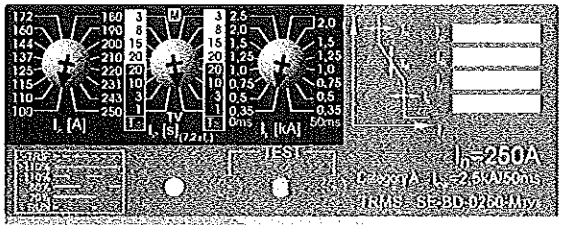


IMPORTANT

- thermal memory must be switched on in protection of transformers and lines - thus the transformer or the line will be protected against repeated overload

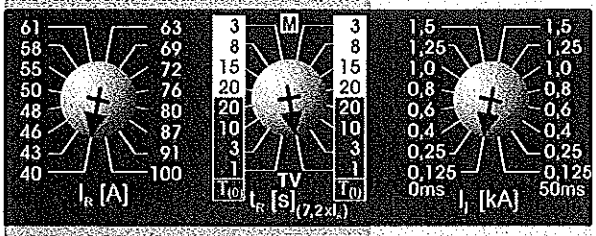
OVERCURRENT RELEASES - MTV8, TV mode

3P 4P

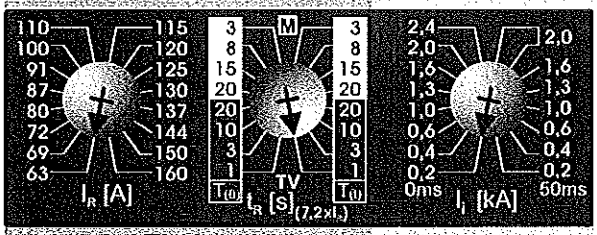


Reduced current | Thermal release delay | Short-circuit release

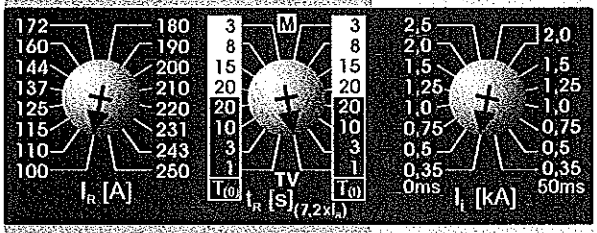
I_n = 100 A
SE-BD-0100-MTV8

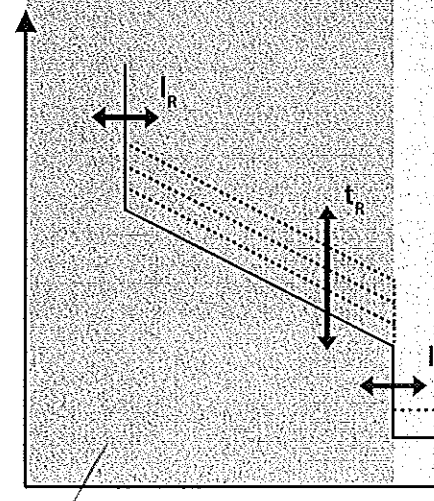


I_n = 160 A
SE-BD-0160-MTV8



I_n = 250 A
SE-BD-0250-MTV8





Properties

- TV mode - suitable for protection of lines, distribution transformers and generators
- protects against both overcurrent and short circuit
- reduced current setting $I_R = 0.4 \div 1\, I_n$
- thermal memory can be switched on/off (ON = T_{ON}, OFF = T_{OFF})
- in TV mode the undercurrent release is inactive
- setting of delay of the thermal release t_R 1 s, 3 s, 10 s and 20 s
- setting of the value of short-circuit release I_I in 8 steps and possibility of switching the short-circuit release off with a delay of 50 ms
- setting of I_R, t_R and I_I by means of the rotary switches is stepwise
- the overcurrent release indicates operating state and the value of the passing current by means of LED
- the values of parameters of the overcurrent release are set by the manufacturer to minimum

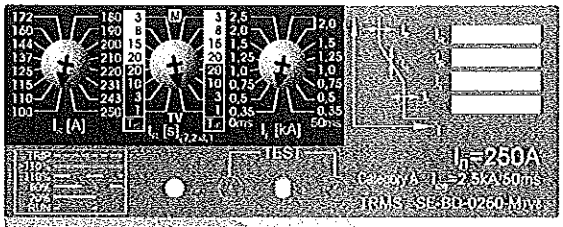
Data for the project

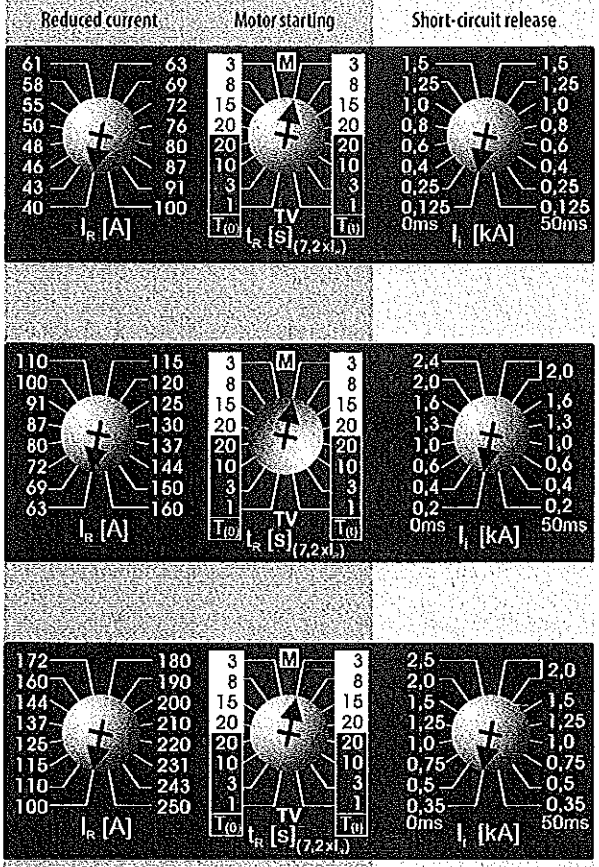
Switching unit		BD250...
Overcurrent release		SE-BD-...
Overcurrent release setting		
Reduced current	I_R	... A
Mode		TV
Thermal memory	T	....
Thermal release delay	t_R	... s
Short-circuit release current	I_I	.... A
Setting of short-circuit release		... ms

IMPORTANT

- the set value of current of the short-circuit release must correspond to the impedance loop - conditions must be fulfilled for automatic disconnection from power supply in case of failure

OVERCURRENT RELEASES - MTV8, M mode



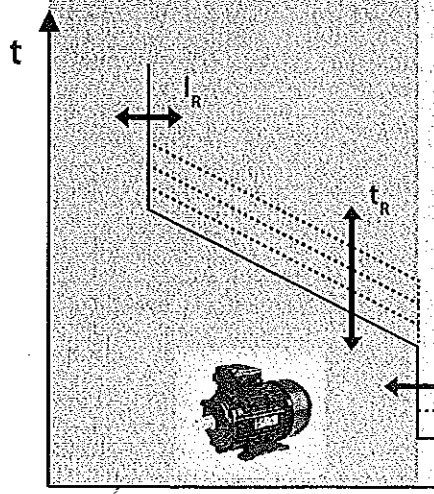


Properties

- M mode - suitable for protection of motors
- protects against both overcurrent and short circuit
- reduced current setting $I_R = 0.4 \div 1\ I_n$
- thermal memory can be switched on/off (ON = $T_{(t)}$, OFF = $T_{(\infty)}$)
- in M mode the undercurrent release is active
- setting of delay of the thermal release t_R 3 s, 8 s, 15 s and 20 s according to the motor starting class
- setting of the value of short-circuit release I_i in 8 steps and possibility of switching the short-circuit release off with a delay of 50 ms
- setting of I_R, t_R and I_i by means of the rotary switches is stepwise
- the overcurrent release indicates operating state and the value of the passing current by means of LED
- the values of parameters of the overcurrent release are set by the manufacturer to minimum

Data for the project

Switching unit		BD250...
Overcurrent release		SE-BD-...
Overcurrent release setting		
Reduced current	I_R	....A
Mode		M
Thermal memory	T	...
Thermal release delay	t_R	....s
Short-circuit release current	I_i	....A
Setting of short-circuit release		....ms



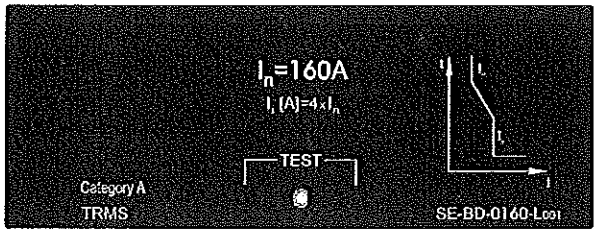
IMPORTANT

- M mode must be selected in protection of motors - the motor will be protected in phase failure
- thermal release delay t_R must correspond to the motor starting class
- In protection of motors it is suitable to set the delay of the short-circuit release at 50 ms

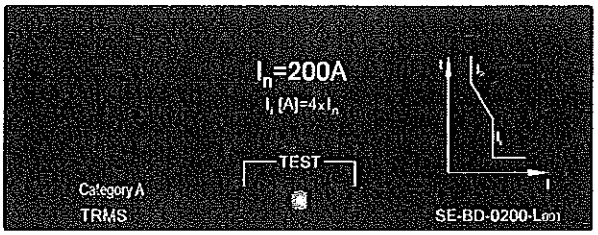
OVERCURRENT RELEASES - L001

3P 4P

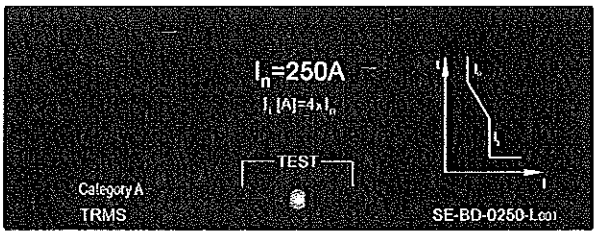
I_n = 160 A
SE-BD-0160-L001



I_n = 200 A
SE-BD-0200-L001



I_n = 250 A
SE-BD-0250-L001

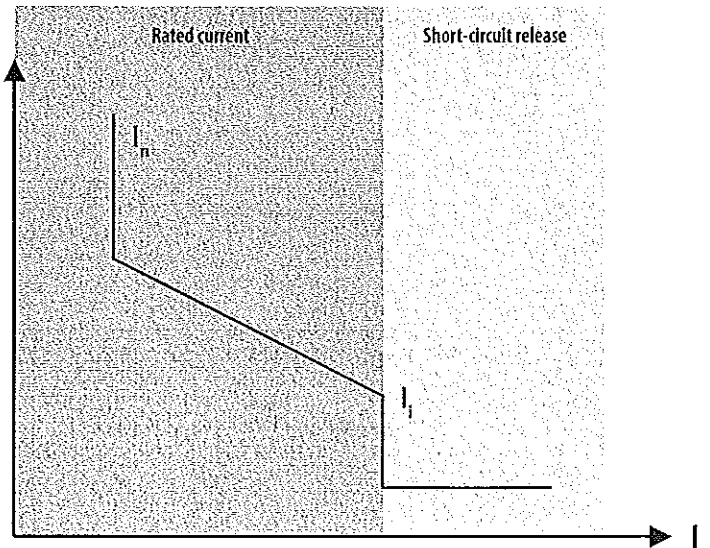


Properties

- suitable for protection of lines with low impulse currents
- protects against both overcurrent and short circuit
- reduced current cannot be set
- thermal release cannot be switched off
- short-circuit release is fixed at 4 I_n

Data for the project

Switching unit		BD250...
Overcurrent release		SE-BD-...
Overcurrent release values		
Rated current	I_n	... A
Short-circuit release current	I_i	... A (4 x I_n)

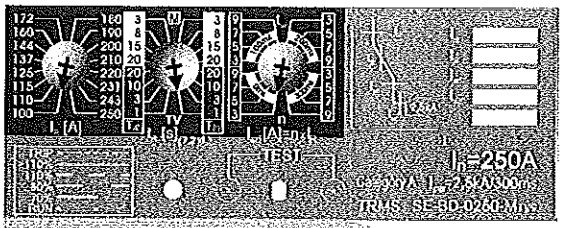


IMPORTANT

- high impulse current must not be in the circuit - undesirable breaking would take place, because the current of the short-circuit release is fixed at 4 I_n

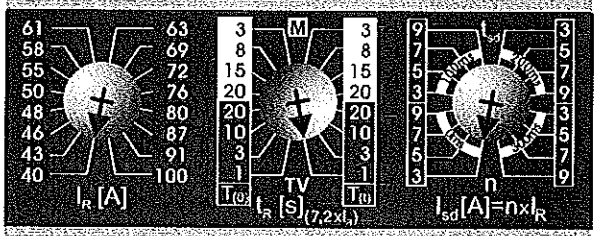
OVERCURRENT RELEASES - MTV9, TV mode

3P 4P

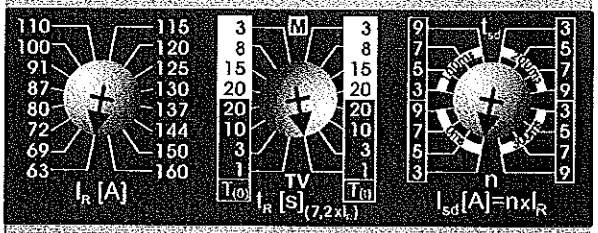


Rated current | Motor starting | Selective release

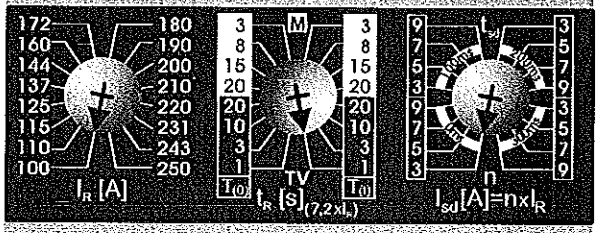
I_n = 100 A
SE-BD-0100-MTV9

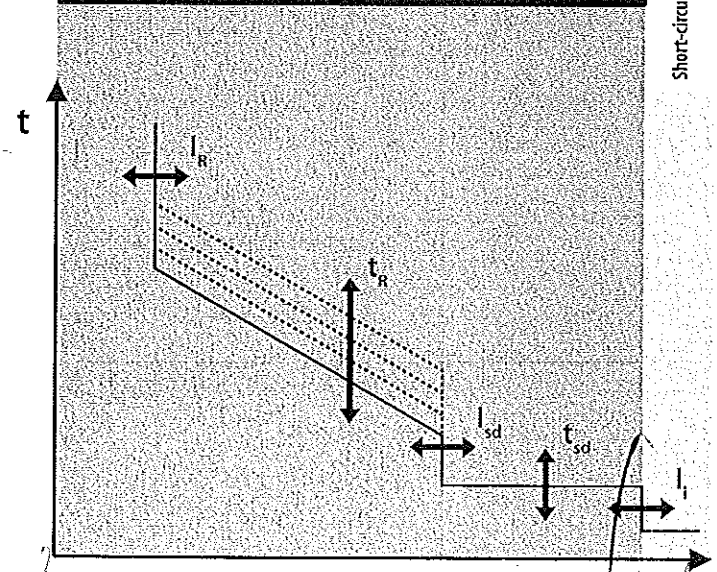


I_n = 160 A
SE-BD-0160-MTV9



I_n = 250 A
SE-BD-0250-MTV9





Properties

- TV mode suitable for protection of lines, distribution transformers and generators – enables setting of time selectivity
- protects against both overcurrent and short circuit
- reduced current setting $I_R = 0.4 \div 1\ I_n$
- thermal memory can be switched on/off (ON = $T_{(t)}$, OFF = $T_{(I)}$)
- in TV mode the undercurrent release is inactive
- setting of delay of the thermal release t_R 1 s, 3 s, 10 s and 20 s
- setting of the value of selective release I_{sd} in 4 steps (independent time-delayed release)
- setting of delay of the selective release t_{sd} 0 ms, 100 ms, 200 ms or 300 ms
- setting of I_R, t_R, I_{sd} and t_{sd} by means of rotary switches is stepwise
- the overcurrent release indicates operating state and the value of the passing current by means of LED
- the values of parameters of the overcurrent release are set by the manufacturer to minimum

Data for the project

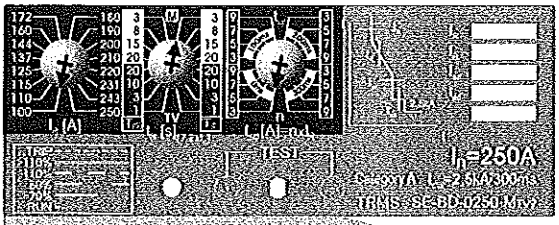
Switching unit		BD250...
Overcurrent release		SE-BD-...
Overcurrent release setting		
Reduced current	I_R	....A
Mode		TV
Thermal memory	T	....
Thermal release delay	t_R	.... s
Selective release value	I_{sd}	.... A (...xI_R)
Selective release delay	t_{sd}	.... ms

IMPORTANT

- the set value of current of the short-circuit release must correspond to the impedance loop - conditions must be fulfilled for automatic disconnection from power supply in case of failure

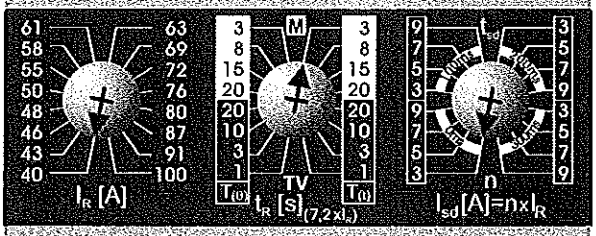
OVERCURRENT RELEASES - MTV9, M mode

3P 4P

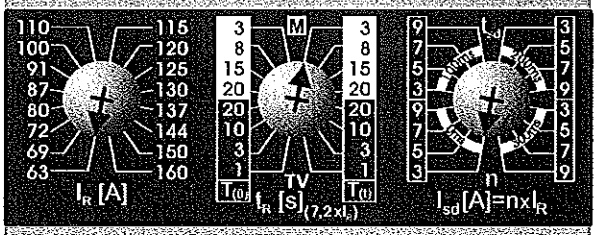


Rated current | Motor starting | Selective release

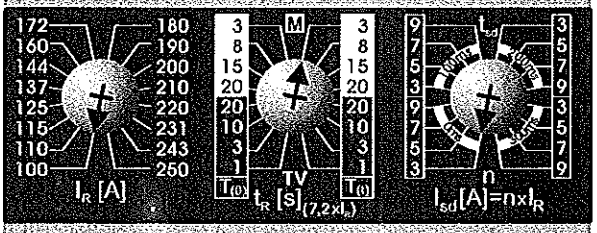
I_n = 100 A
SE-BD-0100-MTV9

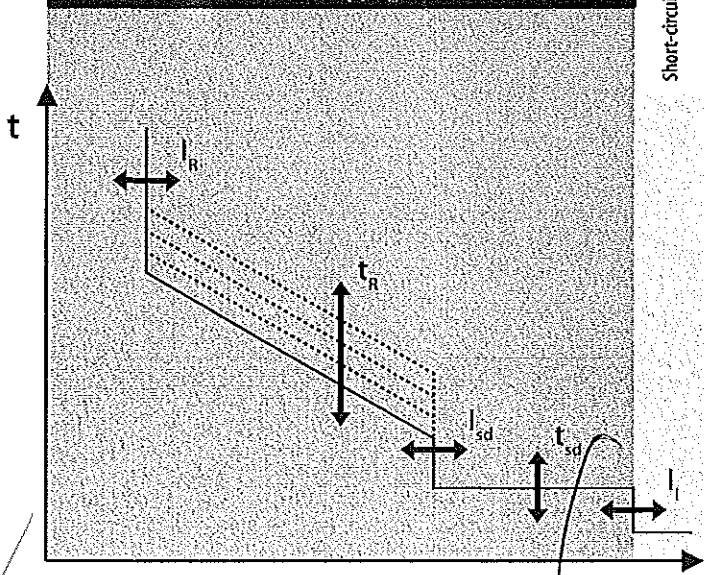


I_n = 160 A
SE-BD-0160-MTV9



I_n = 250 A
SE-BD-0250-MTV9





Properties

- M mode suitable for protection of motors – enables setting of time selectivity
- protects against both overcurrent and short circuit
- reduced current setting $I_R = 0.4 \div 1\ I_n$
- thermal memory can be switched on/off (ON = $T_{(I)}$, OFF = $T_{(0)}$)
- in M mode the undercurrent release is active
- setting of delay of the thermal release t_R 3 s, 8 s, 15 s and 20 s according to the motor starting class
- setting of the value of selective release I_{sd} in 4 steps (independent time-delayed release)
- setting of delay of the selective release t_{sd} 0 ms, 100 ms, 200 ms or 300 ms
- setting of I_R, t_R, I_{sd} and t_{sd} by means of rotary switches is stepwise
- the overcurrent release indicates operating state and the value of the passing current by means of LED
- the values of parameters of the overcurrent release are set by the manufacturer to minimum

Data for the project

Switching unit		BD250...
Overcurrent release		SE-BD-...
Overcurrent release setting		
Reduced current	I_R	....A
Mode		M
Thermal memory	T	....
Thermal release delay	t_R	....s
Selective release value	I_{sd}	....A (..xI_R)
Selective release delay	t_{sd}	....ms

IMPORTANT

- M mode must be selected in protection of motors - the motor will be protected in phase
- failure thermal release delay t_R must correspond to the motor starting class

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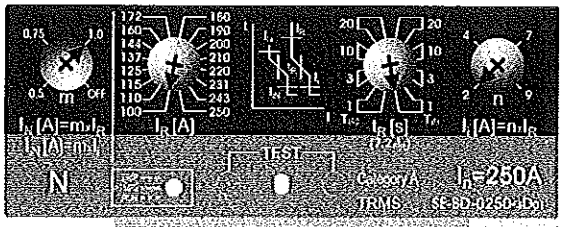
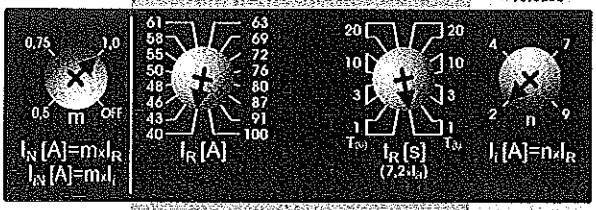
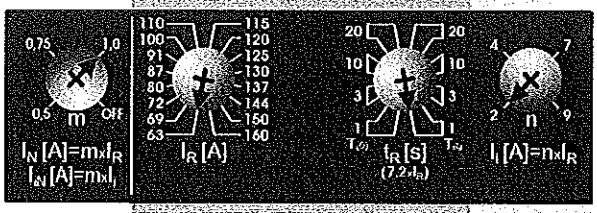
OVERCURRENT RELEASES - 4D01



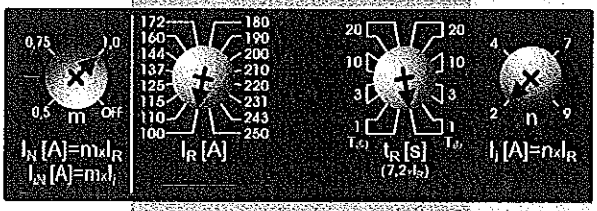
I_n = 100 A
SE-BD-0100-4D01



I_n = 160 A
SE-BD-0160-4D01



I_n = 250 A
SE-BD-0250-4D01

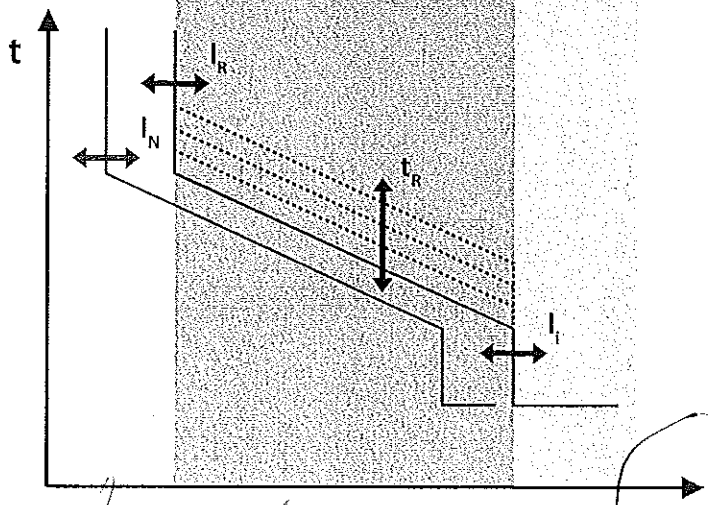


Properties

- it is appropriate for protection of lines and distribution transformers with protected „N" conductor in TN-C-S and TN-S networks
- protects against both overcurrent and short circuit
- reduced current setting $I_R = 0.4 \div 1\ I_n$
- thermal memory can be switched on/off (ON = $T_{(i)}$, OFF = $T_{(\infty)}$)
- setting of delay of the thermal release t_R 1 s, 3 s, 10 s and 20 s
- setting of the value of the short-circuit release I_i in 4 steps $(2 \div 9)\ I_R$
- setting of the value of reduced current I_N and short-circuit current $I_{\Delta N}$ in the 4th pole
- setting of I_R, t_R, I_N and $I_{\Delta N}$ by means of rotary switches is stepwise
- the overcurrent release indicates operating state and the value of the passing current by means of LED
- the values of parameters of the overcurrent release are set by the manufacturer to minimum

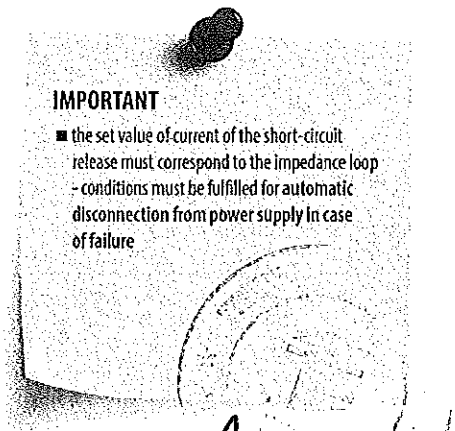
Data for the project

Switching unit		BD250...
Overcurrent release		SE-BD-...
Overcurrent release setting		
Reduced current	I_R	....A
Thermal memory	T	...
Thermal release delay	t_R	....s
Level of reduced current in the 4th pole	I_N	.... A (...xI_R)
Level of reduced current in the 4th pole	$I_{\Delta N}$	... A (...xI_Δ)

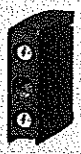


IMPORTANT

- the set value of current of the short-circuit release must correspond to the impedance loop - conditions must be fulfilled for automatic disconnection from power supply in case of failure

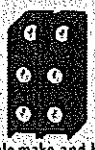


SWITCHES

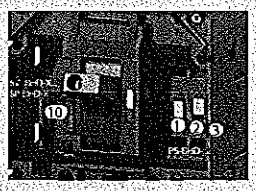

Simple


Double


Make-and-break


Double make-and-break


Early


Cavities in BD250... switching unit

Specification

Type		PS-BHD-..00	PS-BHD-..00-Au[1]
Rated operating voltage	U_e	60 ÷ 500 V a.c. 60 ÷ 500 V d.c.	5 ÷ 60 V a.c. 5 ÷ 60 V d.c.
Rated insulation voltage	U_i	500 V	500 V
Rated frequency	f_n	50/60 Hz	50/60 Hz
Rated operating current	I_e/U_e AC-15 I_e/U_e DC-13	6 A/240 V, 4 A/400 V, 2 A/500 V 0.4 A/240 V, 0.3 A/400 V, 0.2 A/500 V	AC-12, DC-12 0.004 ÷ 0.5 A/5 V, 0.004 ÷ 0.01/60 V
Thermal current	I_{th}	10 A	0,5 A
Arrangement of contacts		01, 10, 02, 11, 20	01, 10, 02, 11, 20
Connection cross-section	S	0.5 ÷ 1 mm²	0.5 ÷ 1 mm²
Degree of protection of terminals (connected switch)		IP20	IP20

Type		SP-BHD-0002	PS-BHD-0010/0020	PS-BHD-0010-Au/0020-Au[1]
Rated operating voltage	U_e	250 V a.c. -	60 ÷ 250 V a.c. 60 ÷ 250 V d.c.	5 ÷ 60 V a.c. 5 ÷ 60 V d.c.
Rated insulation voltage	U_i	250 V	250 V	250 V
Rated frequency	f_n	50/60 Hz	50/60 Hz	50/60 Hz
Rated operating current	I_e/U_e I_e/U_e	1 A/250 V a.c. -	AC-15 1.5 A/250 V a.c. DC-13 0.2 A/250 V d.c.	AC-12, DC-12 0.004 ÷ 0.5 A/5 V, 0.004 ÷ 0.01/60 V
Thermal current	I_{th}	-	6 A	0,5 A
Arrangement of contacts		02, 11, 20	001/002	001/002
Connection cross-section	S	0.5 ÷ 1 mm²	0.5 ÷ 1 mm²	0.5 ÷ 1 mm²
Degree of protection of terminals (connected switch)		IP20	IP20	IP20

[1] - PS-BHD-.....- Au is not suitable to control electromagnetic loads

Type designation, number and type of contacts according to contact arrangement

Arrangement of contacts	Type	Number of contacts	Contact types
01	PS-BHD-1000 (-Au)	1	make
20	PS-BHD-2000 (-Au)	2	make
01	PS-BHD-0100 (-Au)	1	break
02	PS-BHD-0200 (-Au)	2	break
11	PS-BHD-1100 (-Au)	1+1	break+make
001	PS-BHD-0010 (-Au)	1	make-and-break
002	PS-BHD-0020(-Au)	2	make-and-break

Function and names of switches according to their location in cavities

Position of switch	Switch name	Switch function
Cavity 1	Signal	signals tripping of circuit breaker by overcurrent release
Cavity 2	Relative	signals tripping of circuit breaker/switch-disconnector by releases, TEST push button or by the switch off button on the motor drive
Cavity 3 (4, 5, 6)[2]	Auxiliary	switch signals position of circuit breaker/switch-disconnector's main contacts
Cavity 10	Early	makes/breaks in advance before making the main contact of circuit breaker/switch-disconnector

[2] - cavities 4, 5, 6 are only for 4-pole design

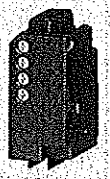
States of switches in the circuit breaker cavities

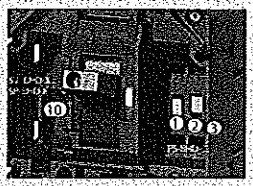
Cavity			1		2		3 (4, 5, 6)[2]		10	2 and 3	2 and 3	2 and 3	1	2	3
State of circuit breaker	Circuit breaker lever position	State of the main contacts	PS-BHD-1000	PS-BHD-0100	PS-BHD-1000	PS-BHD-0100	PS-BHD-1000	PS-BHD-0100	SP-BHD-0002 SP-BHD-...-0001	PS-BHD-2000	PS-BHD-1100	PS-BHD-0200	PS-BHD-0010	PS-BHD-0010	PS-BHD-0010
Switched on	I	1	1	0	0	1	1	0	1	0	1	1	0	1	0	0	1	0	0	1	1	0
Switched off manually or by motor drive electrically (loaded state)	O	0	1	0	0	1	0	1	0	1	0	0	1	0	1	1	1	0	0	1	0	1
Switched off by overcurrent release		0	0	1	1	0	0	1	0	1	0	0	1	0	1	1	0	1	1	0	0	1
Switched off from switched on state: by auxiliary release, or by TEST push button or by the switch off button on the motor drive		0	1	0	1	0	0	1	0	1	0	0	1	0	1	1	1	0	1	0	0	1

note: 0 - contact open, 1 - contact closed

[2] - cavities 4, 5, 6 are only for 4-pole design

SHUNT TRIPS





Cavities in BD250..., switching unit

Specifications

Type		SV-BHD-X...
Rated operating voltage	U_e	24, 40, 48, 110, 230, 400, 500 V a.c. 24, 40, 48, 110, 220 V d.c.
Rated frequency	f_e	50/60 Hz
Input power at 1.1 U_e	AC	< 3 VA
	DC	< 3 W
Characteristic		$U \geq 0.7\ U_e$ the circuit breaker must trip
Time to switching off		20 ms
Loading time		∞
Connection cross-section	S	0.5 ÷ 1 mm²
Degree of protection of terminals	(connected release)	IP20
Position in cavity No.		10

Type designation according to rated operating voltage

U_e	Type
24, 40, 48 V a.c./d.c.	SV-BHD-X024
110 V a.c./d.c.	SV-BHD-X110
230, 400, 500 V a.c. /220 V d.c.	SV-BHD-X230

The specific rated operating voltage of the release is set up by jumpers directly on the release. It is always set to the maximum value by default (see fig. 1).

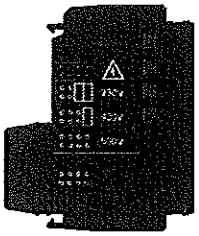
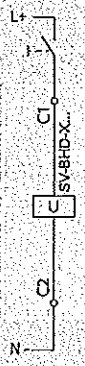
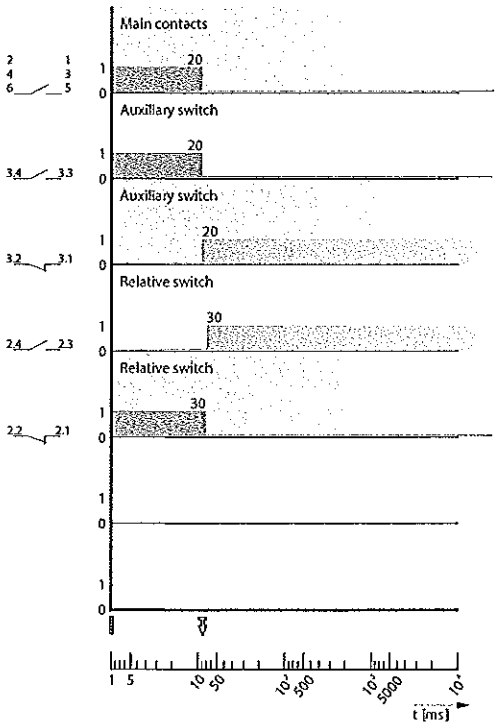


Fig. 1 - The rated operating voltage setting



Circuit breaker/switch-disconnector switching off by shunt trip



States and positions of circuit breaker/switch-disconnector lever

States of circuit breaker/switch-disconnector	Lever position of circuit breaker/switch-disconnector
Switched on	
Switched off by releases, TEST or by switch off button on the motor drive	
Switched off manually or by motor drive electrically (loaded state)	

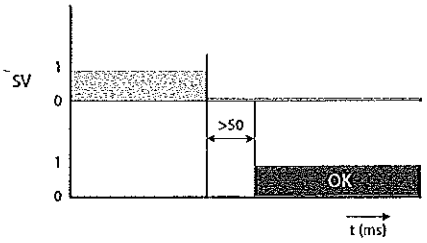
SHUNT TRIPS

3P 4P

Specifications

Reaction time of the auxiliary releases

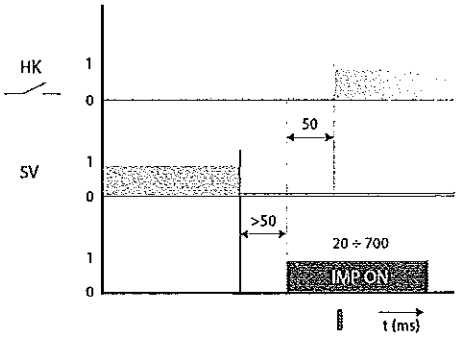
Shunt trip



Cooperation of motor drive and shunt trip

It is necessary to keep time delay when the control of the circuit breaker is done by motor drive and shunt trip or undervoltage release. The following time delays have to be kept between the disconnection of voltage from the shunt trip or bringing the voltage to the undervoltage release and the control impulse for switch on of the motor drive:

Shunt trip



States and positions of circuit breaker/switch-disconnector lever

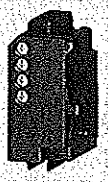
States of circuit breaker/switch-disconnector	Lever position of circuit breaker/switch-disconnector
Switched on	
Switched off by releases, TEST or by switch off button on the motor drive	
Switched off manually or by motor drive electrically (loaded state)	

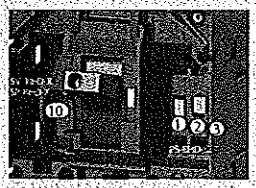
Description of graphs

Symbol	Description
HK	Main contacts
OK	Circuit breaker is ready for further handling
IMP ON	Make impulse for the motor drive
SV	Control voltage on the shunt trip
SP	Control voltage on the undervoltage release

UNDERVOLTAGE RELEASES

3P, 4P





Cavities in BD250... switching unit

Specifications

Type		SP-BHD-X...	SP-BHD-X...-0001 [2]
Rated operating voltage	U_e	24, 40, 48, 110, 230, 400, 500 V a.c. 24, 40, 48, 110, 220 V d.c.	24, 40, 48, 110, 230, 400, 500 V a.c. 24, 40, 48, 110, 220 V d.c.
Rated frequency	f_e	50/60 Hz	50/60 Hz
Input power at 1.1 U_e	AC	< 3 VA	< 3 VA
	DC	< 3 W	< 3 W
Characteristic [1]		$U \geq 0.85\,U_e$ - it is possible to switch on the circuit breaker $U \leq 0.35\,U_e$ - the circuit breaker must trip	
Time to switching off		20 ms	20 ms
Loading time		∞	∞
Connection cross-section	S	0.5 ÷ 1 mm²	0.5 ÷ 1 mm²
Degree of protection of terminals	(connected release)	IP20	IP20
Position in cavity No.		10	10
Early switch			
Rated operating voltage	U_e	-	250 V a.c.
Rated frequency	f_e	-	50/60 Hz
Rated operating current	I_e /U_e	-	1 A/250 V a.c.
Arrangement of contacts		-	10, 01
Connection cross-section	S	-	0.5 ÷ 1 mm²
Degree of protection of terminals	(connected release)	-	IP20

[1] - tripping of the undervoltage release can be delayed using the delay unit BZ-BX-X230-A, for more detailed information see page P2

[2] - cannot be used in combination with motor drive MP-BD-X....

Number and type of contacts according to contact arrangement

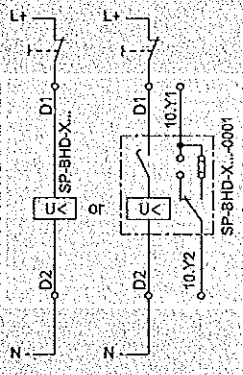
Arrangement of contacts	Number of contacts	Contact types
01	1	break
10	1	make

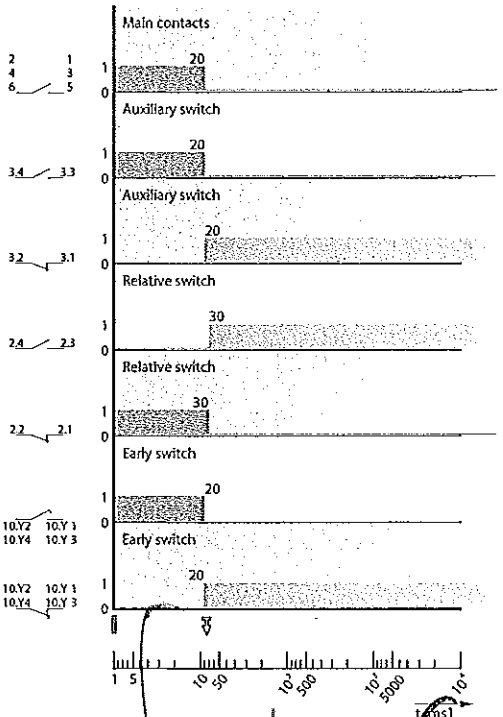
Type designation according to rated operating voltage

U_e	Type
24, 40, 48 V a.c.	SP-BHD-X024
110 V a.c./d.c.	SP-BHD-X110
230, 400, 500 a.c./220 V d.c.	SP-BHD-X230

The specific rated operating voltage of the release is set up by jumpers directly on the release. It is always set to the maximum value by default (see fig. 1).

Circuit breaker/switch-disconnector switching off by undervoltage release





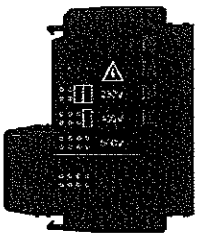


Fig. 1 - The rated operating voltage setting

States and positions of circuit breaker/ switch-disconnector lever

States of circuit breaker/switch-disconnector	Lever position of circuit breaker/ /switch-disconnector
Switched on	
Switched off by releases, TEST or by switch off button on the motor drive	
Switched off manually or by motor drive electrically (loaded state)	

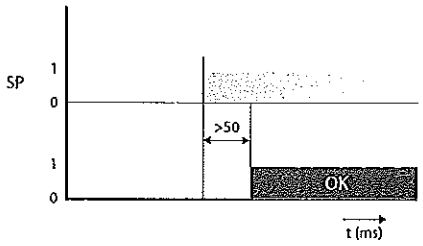
UNDERVOLTAGE RELEASES

3P 4P

Specifications

Reaction time of the auxiliary releases

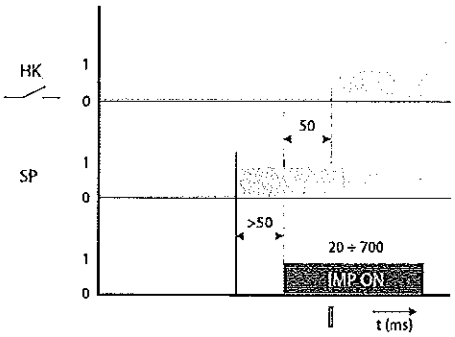
Undervoltage release



Cooperation of motor drive and undervoltage release

It is necessary to keep time delay when the control of the circuit breaker is done by motor drive and shunt trip or undervoltage release. The following time delays have to be kept between the disconnection of voltage from the shunt trip or bringing the voltage to the undervoltage release and the control impulse for switch on of the motor drive:

Undervoltage release



States and positions of circuit breaker/switch-disconnector lever

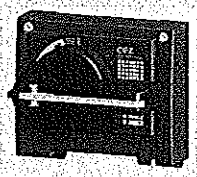
States of circuit breaker/switch-disconnector	Lever position of circuit breaker/switch-disconnector
Switched on	
Switched off by releases, TEST or by switch off button on the motor drive	
Switched off manually or by motor drive electrically (loaded state)	

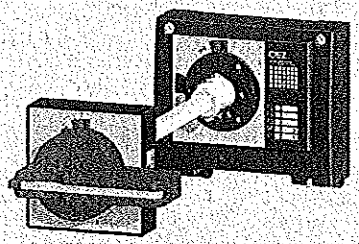
Description of graphs

Symbol	Description
HK	Main contacts
OK	Circuit breaker is ready for further handling
IMP ON	Make impulse for the motor drive
SV	Control voltage on the shunt trip
SP	Control voltage on the undervoltage release

HAND DRIVES

3P, 4P





Description

The hand drive permits controlling the circuit breaker/ /switch-disconnector by turning the lever, e.g. to switch machines on and off. Modular conception of the drives enables simple mounting on the switching unit (also additionally) after the cover of cavities is removed. The fixed drive can be sealed. The drive and its accessories are ordered separately according to your choice, see page E12.

- The hand drive makes possible to control the circuit breaker:
  - **a) from the front panel (fig. 1)**
    Hand drive unit RP-BD-CK..
    + Hand drive lever RP-BHD-CP..
  - **b) through the switchboard door (fig. 2)**
    Hand drive unit RP-BD-CK..
    + Extension shaft RP-BHD-CH..
    + Hand drive bearing PR-BHD-CN..
    + Hand drive lever + RP-BHD-CP..
- The hand drive unit is fixed directly to switching unit of the circuit breaker
- The hand drive bearing is fixed to the switchboard door and it provides degree of protection IP40 or IP66.
- Hand drive lever is fixed on the hand drive unit or on the hand drive bearing.
- The extension shaft is supplied in two options, standard (length 365 mm - can be shortened) and telescopic (adjustable length 245 ÷ 410 mm).

Enhanced safety for operator:

- The hand drive unit and hand drive lever are also supplied with the possibility to lock the circuit breaker in position „switched off manually". The unit and lever of the hand drive can be locked using three padlocks with shank diameter max. 6 mm.
- Each hand drive bearing prevents the door from opening when the circuit breaker is switched on or in a state of being switched off by releases and in the circuit breaker state „switched off manually" and hand drive lever is locked up.
- Two circuit breakers with hand drives can be fitted also with reciprocal mechanical interlocking or mechanical parallel switching, see page E67.

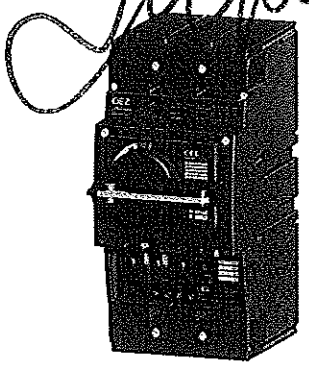


Fig. 1 - DIMENSIONS, see page E29

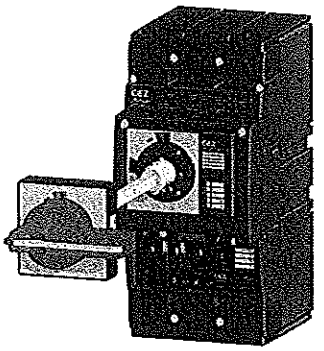
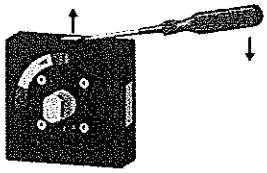


Fig. 2 - DIMENSIONS, see page E29

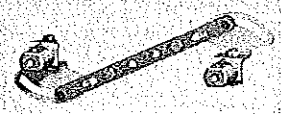
By a screwdriver it is possible to unlock the mechanism blocking the switchboard door opening with the circuit breaker switched on (for bearing RP-BHD-CN40 and RP-BHD-CN41).



Specification

Type	Description	Colour	Locking of the switchboard door opening in the circuit breaker state: Locking while the circuit breaker is in OFF state	Degree of protection	Switched on	„switched off manually" and locked	Switchboard door opening with the circuit breaker switched on	Length [mm]
RP-BD-CK10	Hand drive unit	blue	no	-	-	-	-	-
RP-BD-CK20	Hand drive unit	blue	yes	-	-	-	-	-
RP-BD-CK21	Hand drive unit	yellow	yes	-	-	-	-	-
RP-BD-CK30	Hand drive unit - right side	blue	-	-	-	-	-	-
RP-BD-CK31	Hand drive unit - left side	blue	-	-	-	-	-	-
RP-BHD-CP10	Hand drive lever	black	no	-	-	-	-	-
RP-BHD-CP20	Hand drive lever	black	yes	-	-	-	-	-
RP-BHD-CP21	Hand drive lever	red	yes	-	-	-	-	-
RP-BHD-CN40	Hand drive bearing	black	-	IP40	yes	yes	yes	-
RP-BHD-CN41	Hand drive bearing	yellow	-	IP40	yes	yes	yes	-
RP-BHD-CN60	Hand drive bearing	black	-	IP66	yes	yes	no	-
RP-BHD-CN61	Hand drive bearing	yellow	-	IP66	yes	yes	no	-
RP-BHD-CH10	Extension shaft	-	-	-	-	-	-	365 (can be shortened)
RP-BHD-CH20	Extension shaft - telescopic	-	-	-	-	-	-	245 ÷ 410

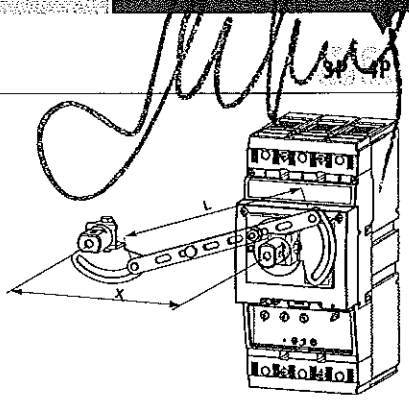
MECHANICAL INTERLOCKING AND PARALLEL SWITCHING



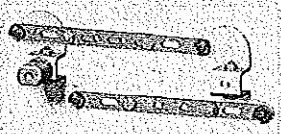
RP-BHD-CB10 Mechanical interlocking

Provides mechanical interlocking of two circuit breakers/ /switch-disconnectors so that they cannot both be tripped simultaneously, but only one of them at a time. Both circuit breakers may be switched off simultaneously. Interlocking can be used between two BD250 circuit breakers or between BD250 and BH630 circuit breakers. Both circuit breakers must be equipped with a hand drive (at least one with a hand drive unit and hand drive lever), see page E66.

In order to use the interlocking, it is absolutely necessary to comply with the dimensions that are shown in the figure and given in the table.



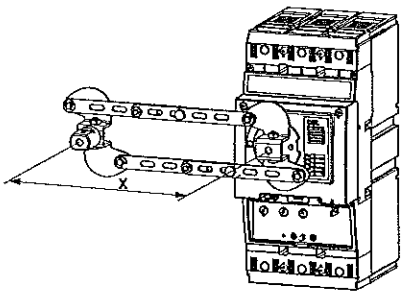
		Right switching unit							
		BD250..3..		BD250..4..		BH630..3..		BH630..4..	
	Dimension [mm]	X	L	X	L	X	L	X	L
Left switching unit	BD250..3..	105	112	140	145.5	122.5	128.5	181	185.5
	BD250..4..	105	112	140	145.5	122.5	128.5	181	185.5
	BH630..3..	122.5	128.5	157.5	162.5	140	145.5	185	189
	BH630..4..	122.5	128.5	157.5	162.5	140	145.5	185	189



RP-BHD-CD10 Mechanical parallel switching

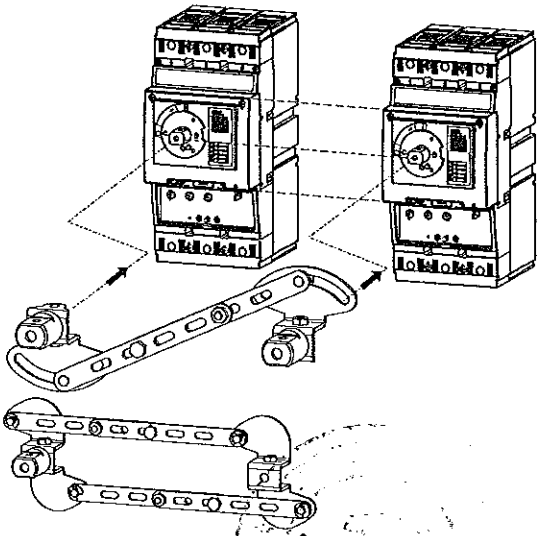
Enables for simultaneous switching of two circuit breakers/switch-disconnectors. Parallel switching can be used between two BD250 circuit breakers or between BD250 and BH630 circuit breakers. Both circuit breakers must be equipped with a hand drive unit and at least one with a hand drive lever, see page E66.

In order to use parallel switching, it is absolutely necessary to comply with the dimensions that are shown in the figure and given in the table.

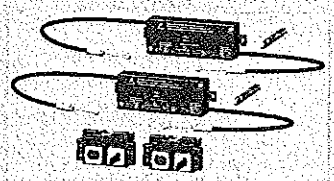


		Right switching unit							
		BD250..3..		BD250..4..		BH630..3..		BH630..4.. [1]	
	Dimension [mm]	$X^{(a)}$	$X^{(a)}$	$X^{(a)}$	$X^{(a)}$	$X^{(a)}$	$X^{(a)}$	$X^{(a)}$	$X^{(a)}$
Left switching unit	BD250..3..	105^{+7}	164.5^{-7}	122.5^{+7}	164.5^{-7}	122.5^{+7}	164.5^{-7}	x	x
	BD250..4..	105^{+7}	164.5^{-7}	122.5^{+7}	164.5^{-7}	122.5^{+7}	164.5^{-7}	x	x
	BH630..3..	122.5^{+7}	164.5^{-7}	140^{+7}	164.5^{-7}	140^{+7}	164.5^{-7}	x	x
	BH630..4..	122.5^{+7}	164.5^{-7}	140^{+7}	164.5^{-7}	140^{+7}	164.5^{-7}	x	x

[1] - Switching unit BH630..4.. (4-pole design) can only be on the left side



MECHANICAL INTERLOCKING

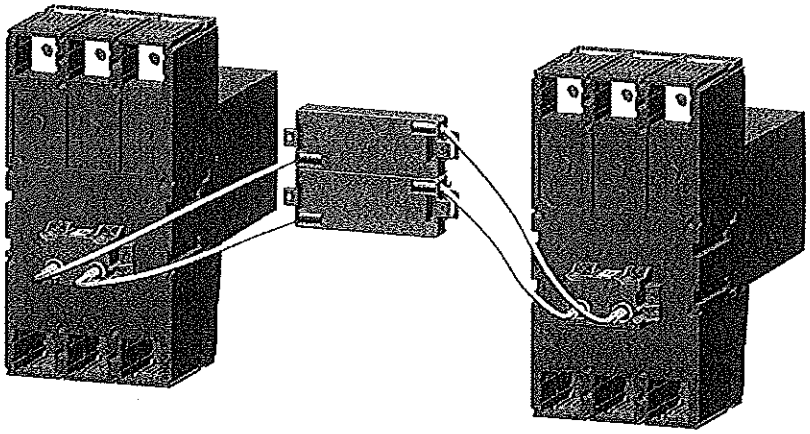


Mechanical interlocking
MB-BD-PV05
MB-BHD-PV03

3P 4P

- Provides mechanical interlocking of two circuit breakers/ /switch-disconnectors so that they cannot both be tripped simultaneously, but only one of them at a time. Both circuit breakers may be switched off simultaneously.
- Mechanical interlocking MB-BD-PV05 is intended for two BD250 circuit breakers. Interlocking MB-BHD-PV03 is intended for one BD250 circuit breaker and one BH630.
- Circuit breakers may be in fixed, plug-in and withdrawable designs.

Type of circuit breakers	BD250 BD250	BD250 BH630
Type of mechanical interlocking	MB-BD-PV05	MB-BHD-PV03



Circuit breaker placement in switchboard
Detailed information can be found in the instructions for use, which you may download from our website www.oez.com.

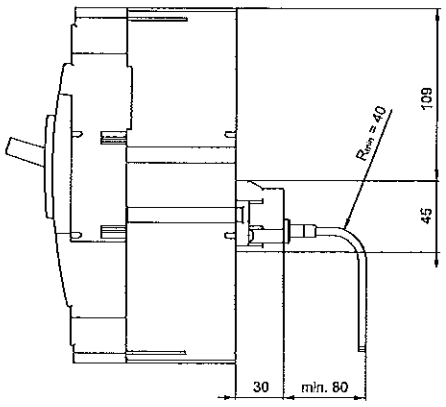
Recommended circuit breaker manipulation

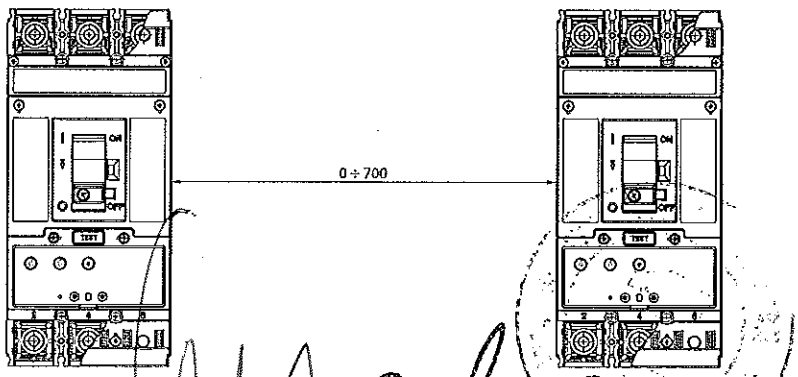
During the manipulation with circuit breaker with mechanical interlocking and motor drive, the circuit breaker may reach the state, in which the first attempt at switching on by motor drive is unsuccessful. Switching on is executed after repeated make impulse. To avoid this effect, some of the following steps may be done:

1) To keep the process of manipulation with the circuit breaker, see „Recommended circuit breaker manipulation" below
2) To connect OD-BHD-R... control relay into the motor drive circuit according to wiring diagram, see page E74

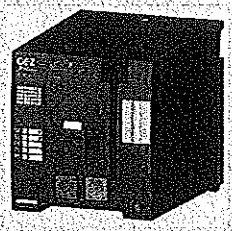
Recommended process of manipulation

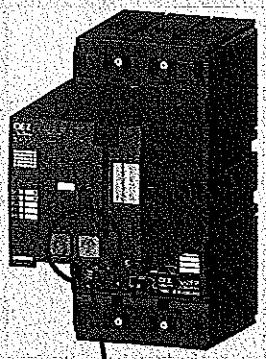
1) Shunt trip/undervoltage release must be used to switch off the circuit breaker. Circuit breaker switching off cannot be made by motor drive
2) Circuit breaker can be stored and switched on only if the second circuit breaker is in switch-off mode. Circuit breaker status indicator on motor drive is in „0" position. Between storing and switching on the circuit breaker, it is necessary to keep the time interval min. 100 ms. Switch „S" must be disconnected.
3) In case of infringement of these principles, the first switching on of circuit breaker is unsuccessful.



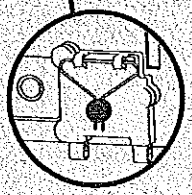


MOTOR DRIVES

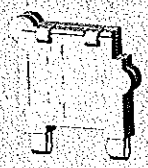




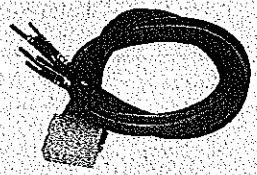
DIMENSIONS, see page E30



Cover of switch on button OD-BHD-KT01



Connecting cable OD-BHD-KA02



Description

- It is used for remote control of the circuit breaker (switch OFF/ON).
- Simple mounting on the circuit breaker after the circuit breaker cover of cavities is removed.
- Usage in industrial applications e.g. switching of stand by units etc. or wherever the automatic operation of electric devices is needed.
- In order to speed up the circuit breaker's switch off (e.g. safety STOP button) the undervoltage release or shunt trip can be used.
- On the motor drive front panel there is a change-over switch to select the drive modes AUTO/MANUAL:
  - AUTO mode – remote control. The circuit breaker is controlled by buttons for remote switch off/on, furthermore in this position mechanical control can be used on the front panel of the motor drive
  - MANUAL mode – manual control. Control voltage is not needed. The circuit breaker can be switched on using the green switch on button and switched off using the red switch off button on the front part of the drive cover. Electric switch on is blocked. Electric switch off is functional. The accumulation of energy can be done by means of hinged lever.
- Possibility to indicate remotely the state of the AUTO/MANUAL switch.
- Switch S (external switch – has to be bought separately) enables the choice of automatic accumulation of energy (circuit breaker loading).
  - automatic accumulation of energy is on (S switch switched on): after tripping of the circuit breaker by the overcurrent release, by auxiliary release, or by TEST push button or by the switch off button on the motor drive motor drive immediately accumulates energy (circuit breaker loading), motor drive is then ready to switch on the circuit breaker
  - automatic accumulation of energy is switched off (S switch open): after tripping of the circuit breaker by the overcurrent release, by auxiliary release, or by TEST push button or by the switch off button on the motor drive both motor drive and circuit breaker stay in position „ switched off by releases". In this position motor drive waits for the impulse from switch S. When the impulse is brought in the motor drive accumulates energy (turn on the circuit breaker) and after this loading the motor drive is ready to switch on the circuit breaker. It is not possible to switch on the circuit breaker when motor drive is not loaded.
- Front panel state indicating device of the stored energy signals the state of motor drive storage devices. The state can be signalled from a distance.
- The drive may be furnished with an electromechanical counter of cycles.
  - internal design on the motor drive cover
  - external design OD-BHD-PP01 for mounting on the switchboard's door or inside the switchboard by means of metal holder, that is part of the delivery
- Motor drive can be sealed by means of bolt sealing insert (OD-BD-VP01).
- Drive can be locked in off position by up to three padlocks (shank diameter max. 4.3 mm).
- Switch on button can be covered and sealed (OD-BHD-KT01).
- Drive is connected by multi-pole connector with cavities (in order to connect cables special tongs have to be used).
- Drive can be furnished with cable (OD-BHD-KA02), that has on one side connector to the motor drive and on the other side free terminals for connection to etc. switchboard's terminal block.

Specifications

Type		MP-BD-X...; MP-BD-X...P
Operating voltage	U_e	24, 48, 110, 230 V a.c. 24, 48, 110, 220 V d.c.
Rated frequency	f_n	50 / 60 Hz
Control impulse length for storage		400 ms ÷ ∞ [1]
Control impulse length for switching on for switching off		20 ms ÷ 700 ms [1] 400 ms ÷ ∞ [1]
Time to switching on		< 50 ms
Time to switching off		800 ms
Frequency of cycles ON/OFF		3 cycles/min
Frequency of cycles - instant successive ON/OFF		10 cycles
Mechanical endurance		30 000 cycles
Input power	AC DC	100 VA 100 W
Protection	24, 48, 110 V a.c.; 230 V a.c. 24, 48, 110 V d.c.; 220 V d.c.	LPN-4C-1; LPN-2C-1 LPN-DC-4C-1; LPN-DC-2C-1
Rated operating current of the change-over switch AUTO/MANUAL	I_e / U_e	5 A/250 V a.c. 0.5 A/250 V d.c.

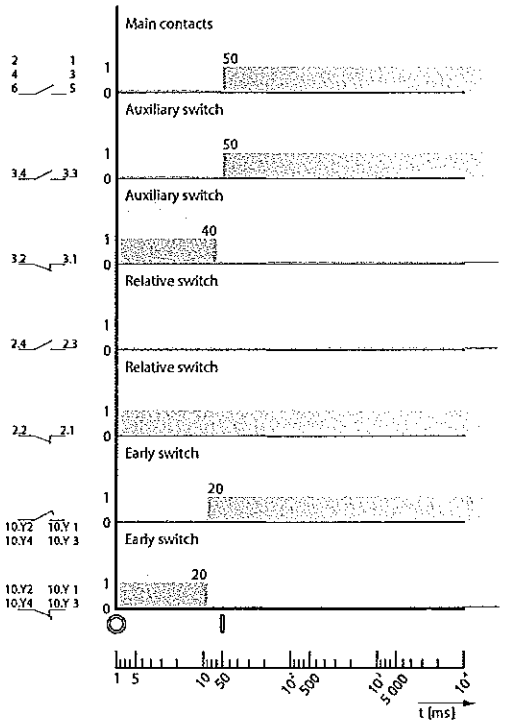
Type		OD-BHD-KA02-x1
Number of conductors		12
Conductor cross-section	S	0.35 mm²
Conductor lengths		0.6 m

[1] - for sequence of control impulses see page E72

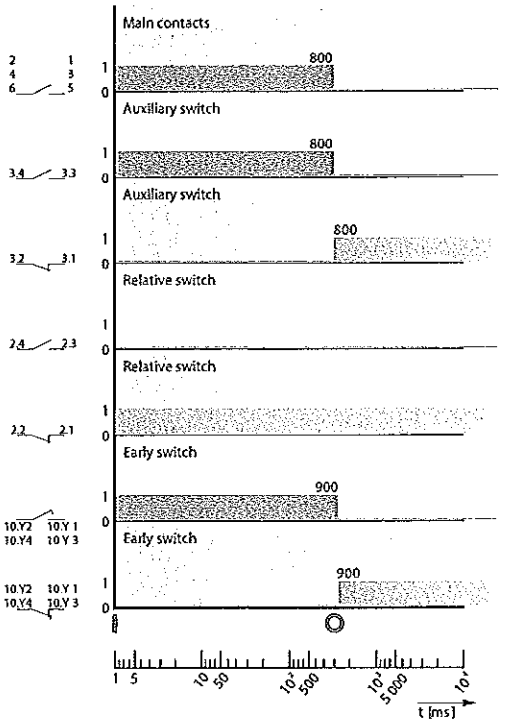
MOTOR DRIVES

Specifications

Circuit breaker switching on by motor drive - electrically by ON push button

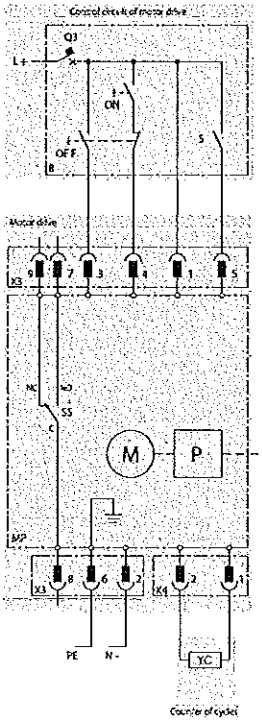


Circuit breaker switching off by motor drive - electrically by OFF push button



Diagram

Circuit breaker switching on and off by motor drive - electrically by ON and OFF push button



States and positions of circuit breaker/switch-disconnector lever

States of circuit breaker/switch-disconnector	Lever position of circuit breaker/switch-disconnector
Switched on	
Switched off by releases, TEST or by switch off button on the motor drive	
Switched off manually or by motor drive electrically (loaded state)	

Wiring diagram description

Symbol	Description
MP	motor drive MP-BD-X...
M	motor
P	storage device
X3	connector for connection of control circuits
X4	connector for external counter of cycles
SS*)	switch to indicate AUTO (NO-C)/MANUAL (NC-C) modes
YC	external counter of cycles OD-BHD-PP01
B	recommended wiring of the control circuits (not included in motor drive order)
ON	switch off button
OFF	switch off button
S	switch for energy storage (switched on = automatic storage, may be continuously switched on)
Q3	motor drive circuit breaker - see page E68

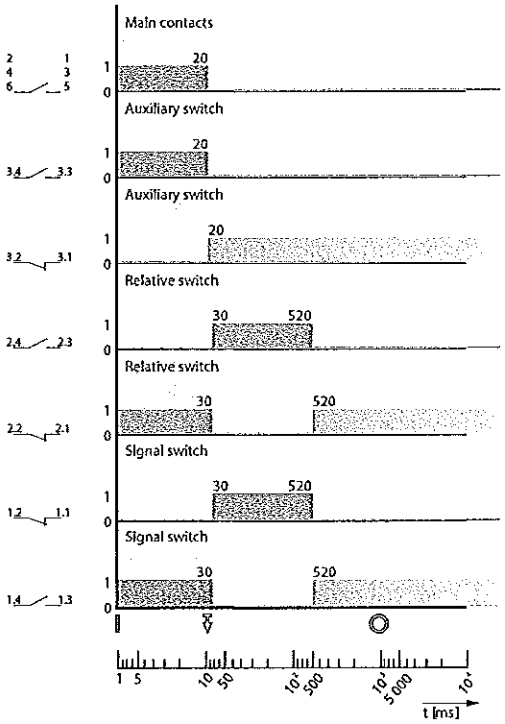
*) For custom production it is possible to make the design with signalling of storage device state

MOTOR DRIVES

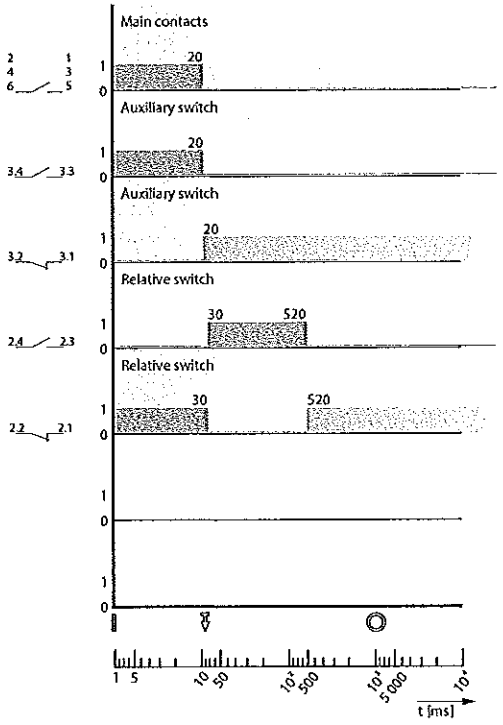
3P 4P

Specifications

Switching off of the circuit breaker with motor drive by overcurrent release (S switch in switched on state-automatic storage)

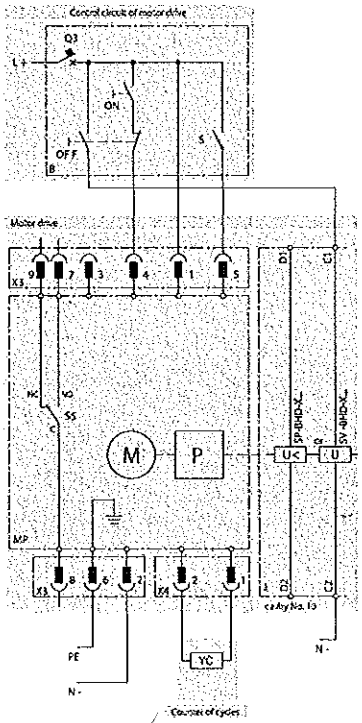


Switching off of the circuit breaker with motor drive by shunt trip or undervoltage release (switch s in switched on state-automatic storage)

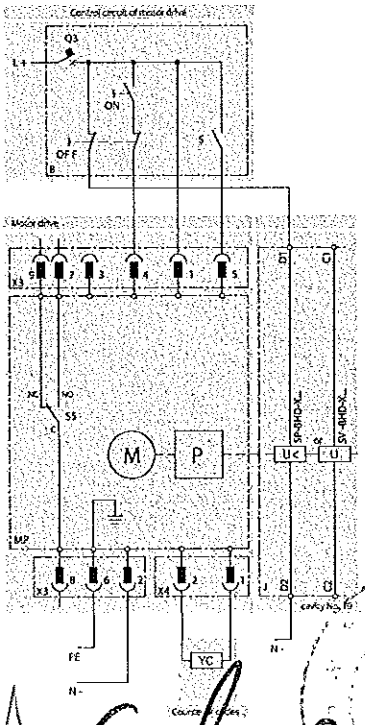


Diagram

Circuit breaker switching on by motor drive (electrically by ON push button) and tripping by shunt trip



Circuit breaker switching on by motor drive (electrically by ON push button) and tripping by undervoltage release



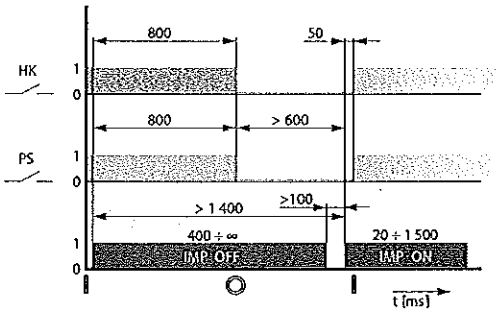
MOTOR DRIVES

3P 4P

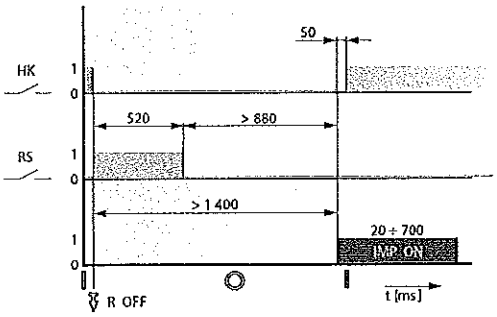
Specifications

Recommended control impulses

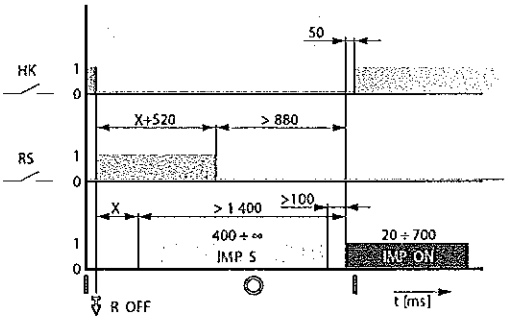
Circuit breaker switching on and off by motor drive
- S switch permanently switched on (automatic storage) or open



Circuit breaker switching off by overcurrent or auxiliary release and switching on by motor drive - S switch permanently switched on (automatic storage)



Circuit breaker switching off by overcurrent or auxiliary release and switching on by motor drive - S switch switched on only for storing up



Description of graphs

Symbol	Description
HK	main contacts
PS	auxiliary switch
RS	relative switch
R OFF	circuit breaker closing instant by release of circuit breaker
IMP S	impulse to store up motor drive energy (generated by S switch)
IMP ON	make impulse for the motor drive
IMP OFF	break impulse for the motor drive
X	random segment of time

States and positions of circuit breaker/switch-disconnector lever

States of circuit breaker/switch-disconnector	Lever position of circuit breaker/switch-disconnector
Switched on	
Switched off by releases, TEST or by switch off button on the motor drive	
Switched off manually or by motor drive electrically (loaded state)	

MOTOR DRIVES

Diagram

Recommended wiring diagram of connecting the circuit breaker control circuits in withdrawable/plug-in design with motor drive

- connecting with control relays
- operating voltage U_e 24 V a.c./d.c., 48 V a.c./d.c., 110 ÷ 230 V a.c., 110 V d.c.

Switching off by motor drive

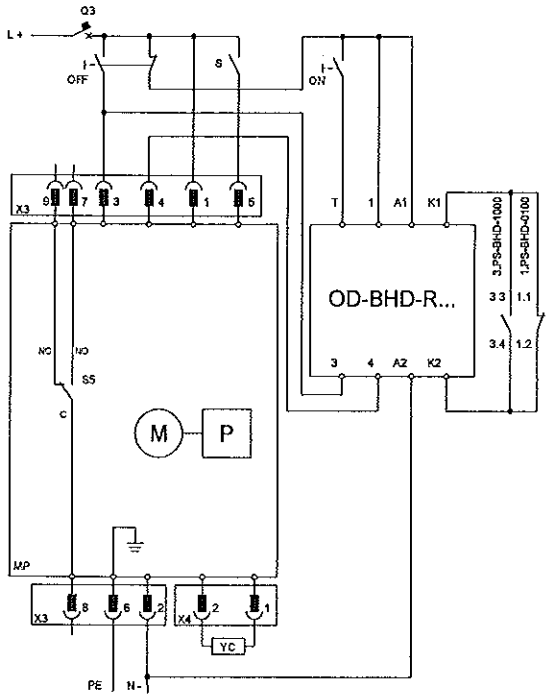


Diagram description

Symbol	Description
MP	motor drive - U_e of drive must be the same as Ue of control relay
M	motor
P	storage device
X3	connector for connection of control circuits
X4	connector for external counter of cycles
S5	switch to indicate AUTO (NO-C) / MANUAL (NC-C) modes
YC	external counter of cycles OD-BHD-PP01 (not included in motor drive order)
OFF	switch off button
S	switch for energy storage
Q3	motor drive circuit breaker for 24 V a.c. LPN-4C-1 for 48 V a.c. LPN-4C-1 for 110 V a.c. LPN-4C-1 for 230 V a.c. LPN-2C-1 for 24 V d.c. LPN-DC-4C-1 for 48 V d.c. LPN-DC-4C-1 for 110 V d.c. LPN-DC-4C-1 for 220 V d.c. LPN-DC-2C-1
OD-BHD-R...	control relay for 24 V a.c./d.c. OD-BHD-RX01 for 48 V a.c./d.c. OD-BHD-RX02 for 110 ÷ 230 V a.c. OD-BHD-RA03 for 110 V d.c. OD-BHD-RD04
3.PS-BHD-1000	auxiliary switch
1.PS-BHD-0100	signal switch

- impulse on T terminal reacts to trailing edge

MOTOR DRIVES

3P 4P

Diagram

Recommended wiring diagram of connecting the circuit breakers control circuits with mechanical interlocking and motor drive (applicable for any circuit breaker)

- connecting with control relays
- operating voltage U_e 24 V a.c./d.c., 48 V a.c./d.c., 110 ÷ 230 V a.c., 110 V d.c.

Switching off is possible only by undervoltage release or shunt trip

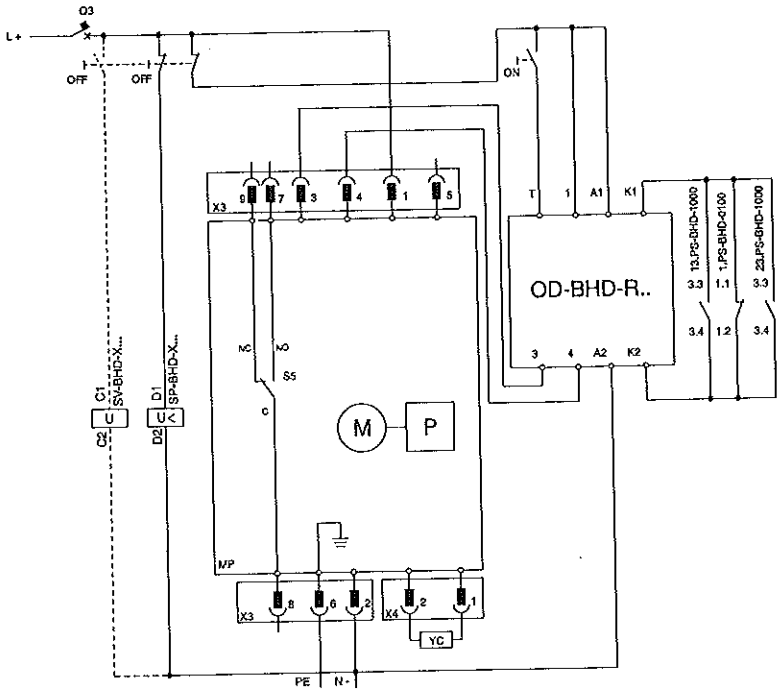
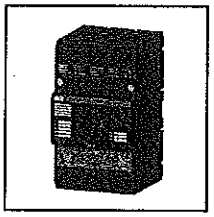


Diagram description

Symbol	Description
MP	motor drive - U_e of drive must be the same as Ue of control relay
M	motor
P	storage device
X3	connector for connection of control circuits
X4	connector for external counter of cycles
SS	switch to indicate AUTO (NO-C) / MANUAL (NC-C) modes
YC	external counter of cycles OD-BHD-PP01
OFF	switch off button
Q3	motor drive circuit breaker for 24 V a.c. LPN-4C-1 for 48 V a.c. LPN-4C-1 for 110 V a.c. LPN-4C-11 for 230 V a.c. LPN-2C-1 for 24 V d.c. LPN-DC-4C-1 for 48 V d.c. LPN-DC-4C-1 for 110 V d.c. LPN-DC-4C-1 for 220 V d.c. LPN-DC-2C-1
OD-BHD-R...	control relay for 24 V a.c./d.c. OD-BHD-RX01 for 48 V a.c./d.c. OD-BHD-RX02 for 110 ÷ 230 V a.c. OD-BHD-RA03 for 110 V d.c. OD-BHD-RD04
1.PS-BHD-0100	signal switch
13.PS-BHD-1000	switch inserted in cavity 3 (first circuit breaker) - auxiliary switch
23.PS-BHD-1000	switch inserted in cavity 3 (second circuit breaker) - auxiliary switch
SP-BHD-X...	undervoltage release - U_e of release must be the same as U_e of control relay
SV-BHD-X...	shunt trip - U_e of release must be the same as U_e of control relay

- impulse on T terminal reacts to trailing edge

OTHER ACCESSORIES OF MOULDED CASE CIRCUIT BREAKERS



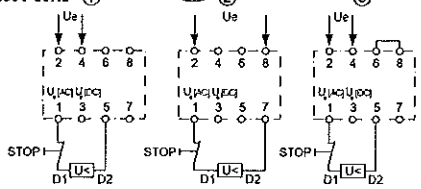
DELAY UNIT

Type	Product code	Description	Weight [kg]	Package [pc]
BZ-BX-X230-A	36696	enables to delay the undervoltage release tripping of circuit breakers	0.2	1

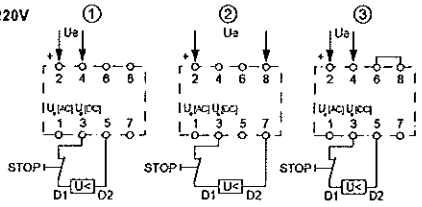
- the delay can be set up at three levels (according to wiring)

Circuit breaker	Delay [s]		
	1st level	2nd level	3rd level
BC160	1.0	2.0	3.2
BD250, BH630	0.6	1.2	1.9
BL1000, BL1600	0.5	1.0	1.5

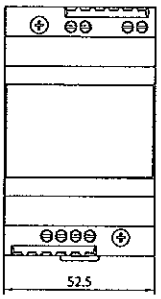
AC 230V 50Hz

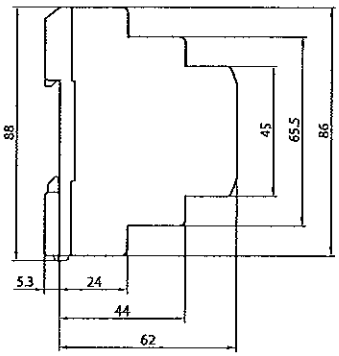


DC 220V

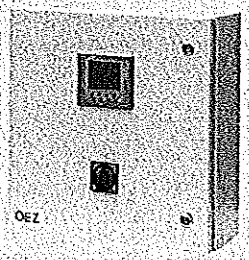


BZ-BX-X230-A





AUTOMATIC STANDBY UNIT MODI



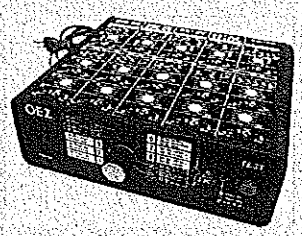
Type	Description	Weight [kg]	Package [pc]
MODI ZA...	- enables safe control of switching of two power supplies to one or two loads with exclusion of parallel operation of the power supplies - enables various adaptations according to the customer's requirements - for backup operation with a transformer or generator - from 16 to 6 300 A	10	1

- for circuit breakers and switch-disconnectors Modeion and Arion WL
- for detail information see catalogue Automatic standby unit MODI ZA

Type	Description	Weight [kg]	Package [pc]
MODI ZB...	- enables safe control of two power supplies to one load with exclusion of parallel operation of the power supplies - for backup operation, in particular with a generator - from 40 to 630 A	10	1

- for Modeion circuit breakers
- for detail information see catalogue Automatic standby unit MODI ZB

TESTER OF OVERCURRENT RELEASES OF CIRCUIT BREAKERS



Type	Product code	Description	Weight [kg]	Package [pc]
ZES4	17273	Tester of overcurrent releases of circuit breakers BD250..., BH630..., BL1000S and BL1600S	3.75	1

- service device for checking the functionality of electronic overcurrent releases and switching units for Modeion circuit breakers
- tests: - overcurrent releases
  - functionality of switching unit tripping mechanism
  - current transformers
- tests overcurrent releases: L001, DTV3, MTV8, MTV9, U001
- tests switching units for circuit breakers: BD250N, BD250S, BH630N, BH630S, BL1000S, BL1600S

Tester must be connected to an external power supply. Power supply voltage of tester is 230 V a.c.

For more detailed information and documentation contact our technical support No.: +420 465 672 191 or visit our websites www.oez.com

CONTROL RELAYS FOR BD250 AND BH630

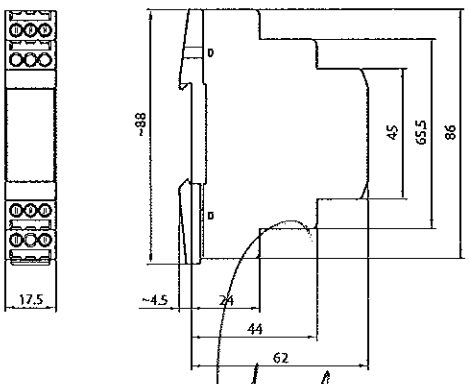
Type	Product code	Specification	Weight [kg]	Package [pc]
OD-BHD-RX01	37425	24 V a.c./d.c.	0.06	1
OD-BHD-RX02	37426	48 V a.c./d.c.	0.06	1
OD-BHD-RA03	37427	110 ÷ 230 V a.c.	0.06	1
OD-BHD-RD04	37428	110 V d.c.	0.06	1

- control relay is suitable for control of the circuit breaker with motor drive in withdrawable/plug-in device or in combination with mechanical interlocking by Bowden, see page E72, E73, F70, F71

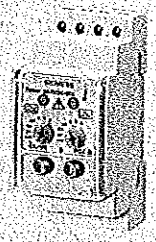
Specifications

Type:		OD-BHD-R...
Standards		EN 61812-1
Approval marks		CE
Control circuit		
Rated operating voltage	U_e	24 V a.c./d.c., 48 V a.c./d.c., 110 ÷ 230 V a.c./d.c., 110 V d.c.
Rated frequency		50 Hz
Consumption at U_e	at 24 ÷ 230 V a.c. at 24 ÷ 220 V d.c.	1.2 VA ÷ 2.6 VA 1.4 W ÷ 1.7 W
Mechanical endurance		30 000 cycles
Electrical endurance		30 000 cycles
Connection		0.2 ÷ 2.5 mm²
Torque		0.5 Nm
Control impulse		
Min. excitation time		15 ms
Max. excitation time		unlimited
Other data		
Mounting on „U" rail according to EN 60715 - type		TH 35
Degree of protection		IP20
Ambient temperature		-20 ÷ +50 °C
Working position		arbitrary
Seismic resistance		3g / 8 ÷ 50 Hz

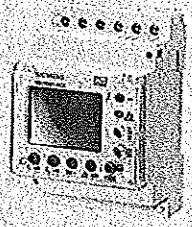
OD-BHD-R...



RESIDUAL CURRENT MONITOR



5SV8000-6KK



5SV8001-6KK, 5SV8200-6KK

Specifications

Type designation	5SV8 000-6KK	5SV8 001-6KK	5SV8 200-6KK
Dimensions - number of modules	2	3	3
Weight	0.17 kg	0.24 kg	0.24 kg
Standards	EN 62020 IEC 62020	EN 62020 IEC 62020	EN 62020 IEC 62020
Approval marks	CE	CE	CE
Number of independent circuits	1	1	4
Rated residual current	0.03 ÷ 5 A	0.03 ÷ 30 A	0.03 ÷ 30 A
Maximum inactivity time	0.02 ÷ 5 s	0.02 ÷ 10 s	0.02 ÷ 10 s
Type	A (up to $I_{\Delta n}$ = 3 A) AC ($I_{\Delta n}$ from 3 to 5 A)	A (up to $I_{\Delta n}$ = 3 A) AC ($I_{\Delta n}$ from 3 to 30 A)	A (up to $I_{\Delta n}$ = 3 A) AC ($I_{\Delta n}$ from 3 to 30 A)
Rated voltage	230 V a.c.	230 V a.c.	230 V a.c.
Rated operating voltage	164 ÷ 284 V a.c.	164 ÷ 284 V a.c.	164 ÷ 284 V a.c.
Rated frequency	50 Hz	50 Hz	50 Hz
Electrical endurance	10 x 10^6 cycles	10 x 10^6 cycles	10 x 10^6 cycles
Degree of protection from front side of the device	IP41	IP41	IP41
Degree of protection of terminals	IP20	IP20	IP20
Method of mounting	„U" rail 35 mm	„U" rail 35 mm	„U" rail 35 mm
Ambient temperature range	-10 ÷ 50 °C	-10 ÷ 50 °C	-10 ÷ 50 °C
Max. sea level	2 000 m	2 000 m	2 000 m
Relative humidity	5 ÷ 95 %	5 ÷ 95 %	5 ÷ 95 %
Connection cross-section	0.2 ÷ 2 mm²	0.2 ÷ 2 mm²	0.2 ÷ 2 mm²
External remote trip/reset	–/•	•/•	•/•
Internal diameter of the transformer	30 ÷ 210 mm	30 ÷ 210 mm	30 ÷ 210 mm
Local signalling of reach of relative low value of $I_{\Delta n}$ (ALARM)	•	•	•
Remote signalling of reach of relative low value of $I_{\Delta n}$ (ALARM)	–	•	•
Local signalling of power supply/ALARM/failure/value of $I_{\Delta n}$	•/•/•/•	•/•/•/•	•/•/•/•
Display	–	•	•
Sealing of setting/control panel	•	•	•
Control circuit - outputs			
Rated operating voltage	230 V a.c.	230 V a.c.	230 V a.c.
Rated current	6 A	6 A	6 A
Max. switched power - AC1	2 500 VA	2 500 VA	2 500 VA
Rated frequency	50 Hz	50 Hz	50 Hz
Number of control contacts	1 CO	2 CO	4 NO
Control circuit - inputs			
Rated voltage	–	110 ÷ 230 V a.c./d.c.	230 V a.c.
Rated operating voltage	–	110 ÷ 284 V a.c./d.c.	230 ÷ 284 V a.c.
Input power	–	0.7 W	0.7 W

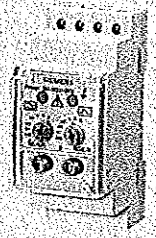
• available, – unavailable, + being prepared

Total max. switching off time

	Maximum inactivity time - adjusted value							
	20 ms	100 ms	200 ms	300 ms	400 ms	500 ms	750 ms	1000 ms
1x $I_{\Delta n}$	< 80 ms	< 135 ms	< 240 ms	< 340 ms	< 440 ms	< 540 ms	< 790 ms	< 1 050 ms
2x $I_{\Delta n}$	< 60 ms	< 130 ms	< 230 ms	< 330 ms	< 435 ms	< 540 ms	< 780 ms	< 1 040 ms

▶ P4

RESIDUAL CURRENT MONITOR – ANALOG



SSV8000-6KK

Description

- designed for monitoring of leakage current (residual/ /fault current) and protection against fire e.g. due to worsened insulation or sneak currents
- possibility of setting of residual current $I_{\Delta n}$ and setting of limit time of inactivity of I_{Δ} (see parameters) by means of rotary switches
- mounting on „U" rail
- measurement by means of external summation current transformer
- circuit breaker switching off by means of shunt trip or undervoltage release

Local signalling

- first LED signals functionality of the relay and current transformer:
  LED is lighting - the relay is in order
  LED does not light - the relay is not supplied
  LED is flashing - interrupted connection between the relay and the transformer, or broken secondary winding
- the second LED signals value of the passing current:
  LED is lighting - signalling reach of 100 % residual current
  LED is flashing - flashing period increases with increasing residual current

Remote signalling:

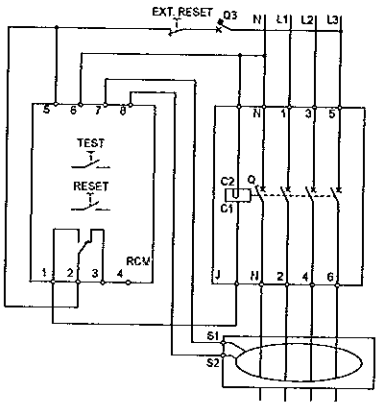
- by means of make-and-break contact (CO)
- serves for signalling of reach of the set value of $I_{\Delta n}$ and/or for circuit breaker switching off via undervoltage release or shunt trip

Control

- the TEST push-button serves for testing of the function of both the relay and circuit breaker - disconnects the circuit
- if the relay trips (switches the circuit breaker off) it is necessary to reset it by the „RESET" push-button, or interrupt its supply and thus perform the remote reset
- setting can be sealed

Wiring diagram

Wiring diagram with shunt trip



Wiring diagram with undervoltage release

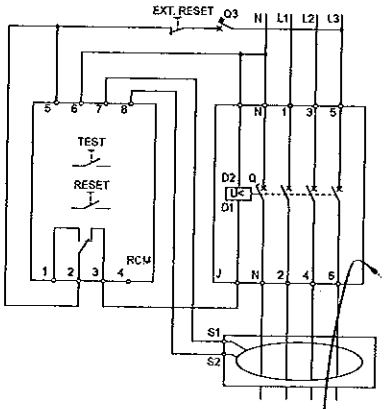
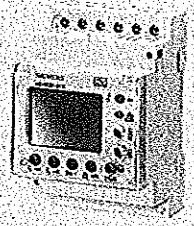


Diagram description

Symbol	Description
J	circuit breaker
RCM	residual current monitor
TEST	test push-button of the relay
RESET	local reset push-button
EXT. STOP/RESET	remote reset push-button or STOP push-button[1]
S1,S2	current transformer terminals
Q3	protection of relay LPN-2C-1

[1] only in combination with an undervoltage release

RESIDUAL CURRENT MONITOR - DIGITAL



5SV8001-6KK

Description

- designed for monitoring of leakage current (residual// fault current) and protection against fire e.g. due to worsened insulation or sneak currents
- possibility of setting of residual current $I_{\Delta n}$ and setting of maximum inactivity time I_M by means of push-buttons and the display (see table)
- presentation of cause of trip and of current value of residual current on the display
- mounting on „U" rail
- measurement by means of external transformer
- circuit breaker switching off by means of shunt trip or undervoltage release
- possibility of setting of characteristic S - selective

Local signalling

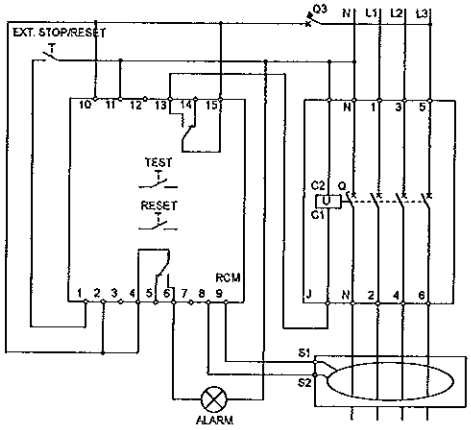
- the first LED signals functionality of the relay and trip In reach of the set residual current:
  LED gives a green light - the relay is supplied
  LED gives a red light - signalling of reach of 100 % residual current
- the second LED signals reach of relative low set value:
  LED gives a yellow light - signalling of reach of the set value

Remote signalling

- by means of make-and-break contact (CO)
- serves for signalling of reach of the set value of $I_{\Delta n}$ and/or for circuit breaker switching off via undervoltage release or shunt trip
- possibility of remote switching off by applying voltage 110 ÷ 230 V a.c./d.c. on potential free terminals number 1 and 2
- the TEST push-button serves for testing of the function of both the relay and circuit breaker - disconnects the circuit
- if the relay trips (switches the circuit breaker off) it is necessary to reset it by the "RESET" push-button, or interrupt its supply and thus perform the remote reset
- setting can be sealed

Wiring diagram

Wiring diagram with shunt trip



Wiring diagram with undervoltage release

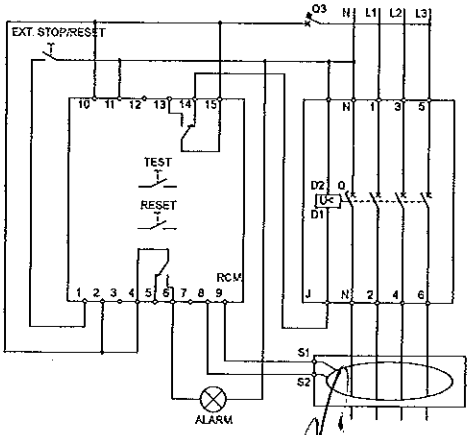
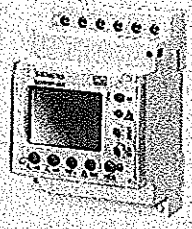


Diagram description

Symbol	Description
J	circuit breaker
RCM	residual current monitor
TEST	test push-button of the relay
RESET	local reset push-button
EXT. STOP/RESET	remote reset push-button or STOP push-button
S1, S2	current transformer terminals
ALARM	signalling of reach of the set value of $I_{\Delta n}$
Q3	protection of relay LPN-2C-1

RESIDUAL CURRENT MONITOR - DIGITAL, 4-CHANNEL



SSV8200-6KK

Description

- designed for monitoring of leakage current (residual/fault current) and protection against fire e.g. due to worsened insulation or sneak currents
- possibility of setting of residual current $I_{\Delta n}$ and setting of maximum inactivity time $I_{\Delta t}$ by means of push-buttons and the display (see table)
- presentation of cause of trip and of current value of residual current on the display
- mounting on TH rail
- measurement by means of an external transformer; it is possible to connect up to 4 transformers
- circuit breaker switching off by shunt trip
- possibility of setting of characteristic S – selective

Local signalling

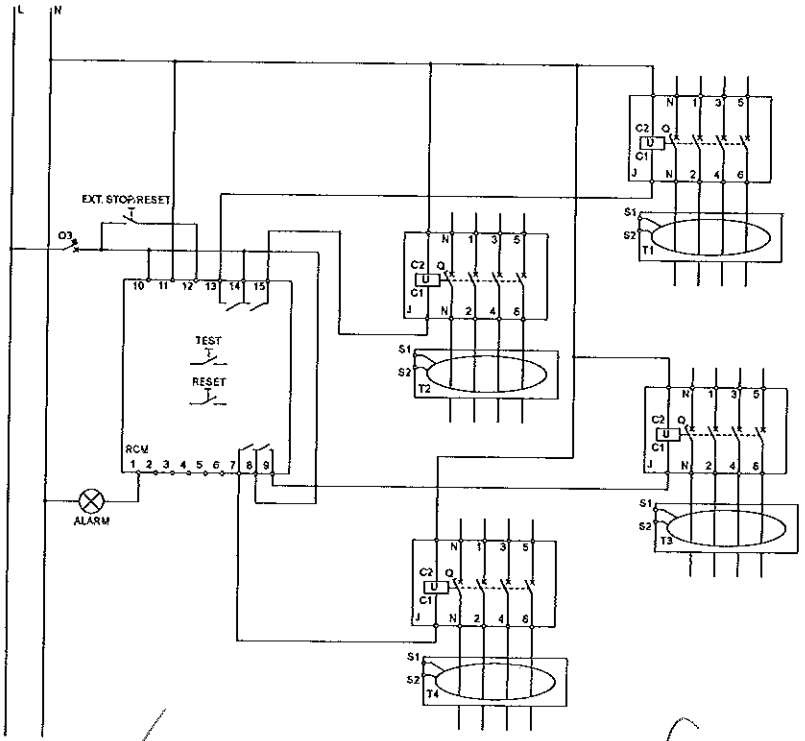
- the first LED signals functionality of the relay and trip in reach of the set residual current:
  LED gives a green light - the relay is supplied
  LED gives a red light - signalling of reach of 100 % residual current
- the second LED signals reach of relative low set value:
  LED gives a yellow light - signalling of reach of the set value

Remote signalling

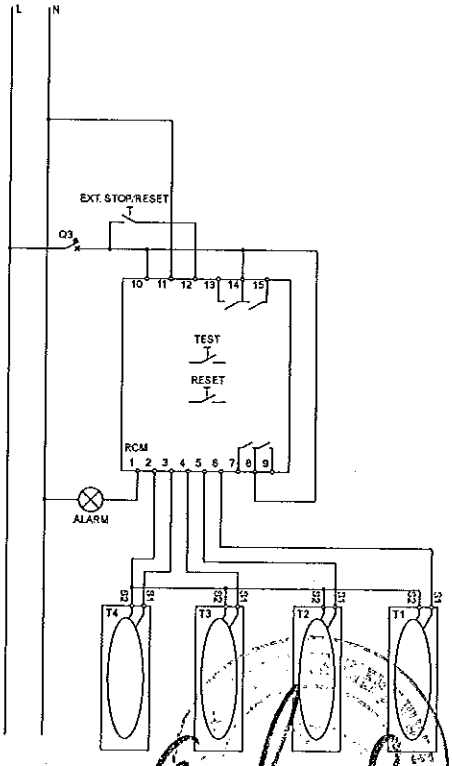
- by means of make-and-break contact (CO)
- serves for signalling of reach of the set value of $I_{\Delta n}$ and/or for circuit breaker switching off via undervoltage release or shunt trip
- possibility of remote switching off by applying voltage 110 ÷ 230 V a.c./d.c. on potential free terminal number 12
- the TEST push-button serves for testing of the function of both the relay and circuit breaker - disconnects the circuit
- if the relay trips (switches the circuit breaker off) it is necessary to reset it by the „RESET" push-button, or interrupt its supply and thus perform the remote reset
- setting can be sealed

Wiring diagram

Wiring diagram with shunt trip - connecting of circuit breakers



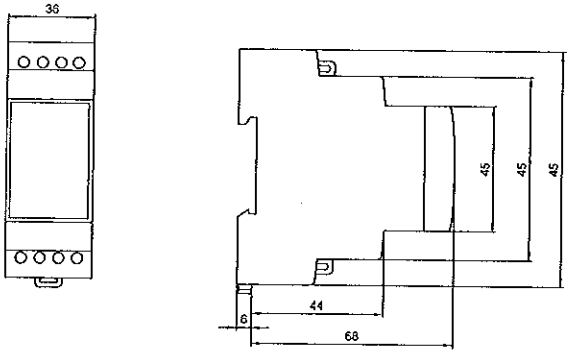
- connecting of current transformers



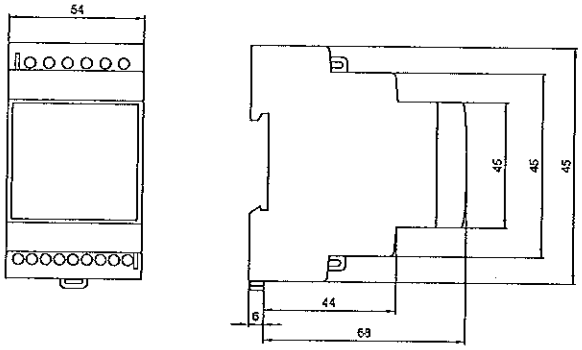
RESIDUAL CURRENT MONITOR

Dimensions

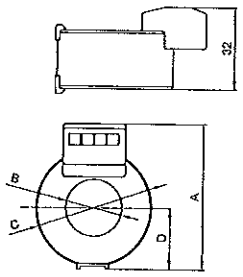
Residual current monitor 5SV8000-6KK



Residual current monitor 5SV8001-6KK, 5SV8200-6KK

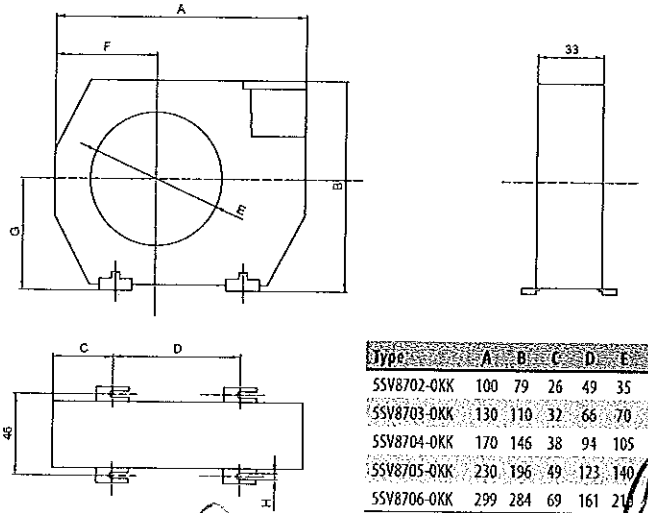


Measuring current transformers 5SV8700-0KK, 5SV8701-0KK



Type	A	B	C	D
5SV8700-0KK	60	20	46	24
5SV8701-0KK	70	30	59	30

Measuring current transformers 5SV87...-0KK



Type	A	B	C	D	E	F	G	H
5SV8702-0KK	100	79	26	49	35	35	43	6.5
5SV8703-0KK	130	110	32	66	70	52	57	6.5
5SV8704-0KK	170	146	38	94	105	72	73	6.5
5SV8705-0KK	230	196	49	123	140	97	98	6.5
5SV8706-0KK	299	284	69	161	210	141	142	6.5

▶P8

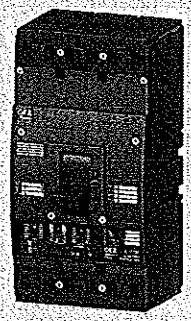
SPARE PARTS OF CIRCUIT BREAKERS AND SWITCH-DISCONNECTORS MODEION

Spare parts for BC160N

Type	Product code	Name - description	Weight [kg]	Package
OD-BC-SP01	34456	Control lever	0.002	
OD-BC-DV01	20606	Conductor holder	0.001	1
OD-BC-MS01	20607	Set of screws M3x30, 2 pcs	0.005	1
CS-BC-T411	33656	Connecting terminal	0.094	1
CS-BC-T412	33657	Connecting terminal	0.095	1
OD-BC-KS01	20624	Terminal cover, upper or lower terminals, 3P design, 1 pc	0.01	1
OD-BC-KS41	33659	Terminal cover, upper or lower terminals, 4P design, 1 pc	0.015	1
OD-BC-KON2	37798	Connector and sockets for MP-BC-X...-B	0.02	1

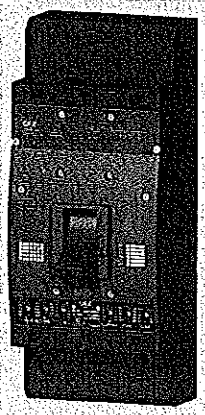
Spare parts for BD250N, BD250S

Type	Product code	Name - description	Weight [kg]	Package
OD-BD-SP01	34457	Control lever	0.007	1
OD-BD-DV01	15329	Conductor holder	0.002	1
OD-BD-MS01	14419	Set of screws M4x35, 4 pcs	0.018	1
OD-BD-KS01	24720	Terminal cover, upper or lower terminals, 3P design, 4 pc	0.1	1
OD-BD-KS44	35896	Terminal cover, lower terminals, 4P design, 1 pc	0.1	1
OD-BD-KS45	35897	Terminal cover, upper terminals, 4P design, 1 pc	0.1	1
OD-BHD-JUMP	34460	Jumper for auxiliary releases	0.001	1
OD-BHD-KON2	34461	Connector and sockets for MP-BD, BH	0.004	1
OD-BX-KON1	34462	Connector and sockets for OD-xx-KA01	0.017	1



Spare parts for BH630N, BH630S

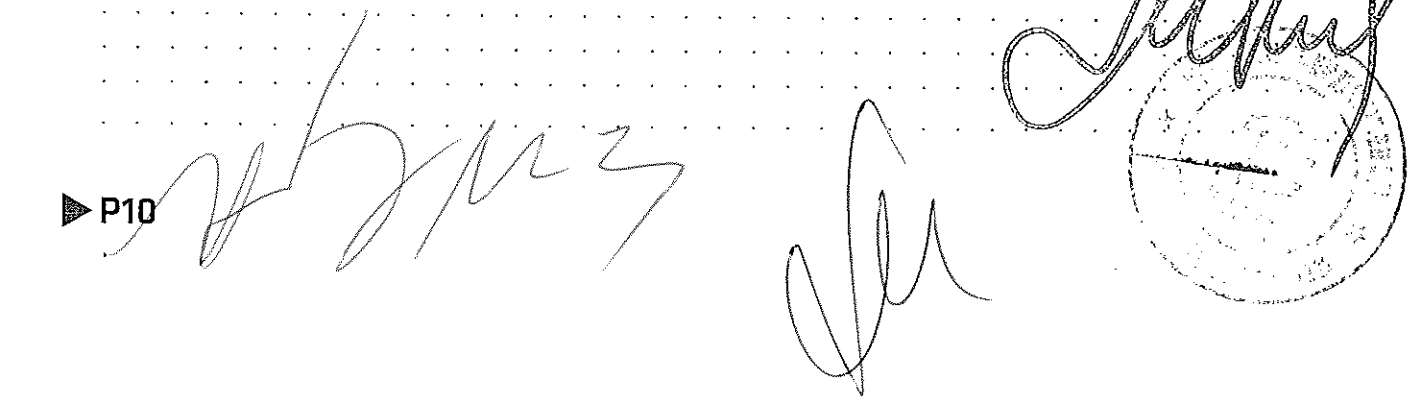
Type	Product code	Name - description	Weight [kg]	Package
OD-BH-SP01	34458	Control lever	0.012	1
OD-BH-DV01	15331	Conductor holder	0.002	1
OD-BH-MS01	14420	Set of screws M5x25, 4 pcs	0.03	1
OD-BH-KS01	24730	Terminal cover, upper or lower terminals, 3P design, 1 pc	0.15	1
OD-BH-KS44	35894	Terminal cover, lower terminals, 4P design, 1 pc	0.2	1
OD-BH-KS45	35895	Terminal cover, upper terminals, 4P design, 1 pc	0.2	1
OD-BHD-JUMP	34460	Jumper for auxiliary releases	0.001	1
OD-BHD-KON2	34461	Connector and sockets for MP-BD,BH	0.004	1
OD-BX-KON1	34462	Connector and sockets for OD-xx-KA01	0.017	1



Spare parts for BL1000S, BL1600S

Type	Product code	Name - description	Weight [kg]	Package
OD-BL-SP01	34459	Control lever	0.03	1
OD-BL-MS01	14854	Set of screws M8x80, 4 pcs	0.144	1
OD-BL-KON2	34463	Connector and sockets for MP-BL-X...	0.004	1
OD-BX-KON1	34462	Connector and sockets for OD-xx-KA01	0.017	1

NOTES



THE USAGE OF SWITCH-DISCONNECTORS AT GIVEN OVERCURRENT PROTECTION

Particular designs of Modeion switch-disconnectors can be used together with the assigned device (circuit breaker, fuse-link) at the spot of electrical circuit where the value of initial peak short-circuit current I_k'' is lower or max equal to the related value from the table:

Backup protective device	Type of Modeion switch-disconnector I_k'' (kA)/400 V a.c.				
	BC	BD	BH	BL1000	BL1600
BC160 (all overcurrent releases types)	25	25	25	25	25
BD250 (all overcurrent releases types)	18	18	36[1], 65[2]	36[1], 65[2]	36[1], 65[2]
BH630 (all overcurrent releases types)	–	–	36[1], 65[2]	36[1], 65[2]	36[1], 65[2]
BL1000 (all overcurrent releases types)	–	–	–	50	50
BL1600 (all overcurrent releases types)	–	–	–	–	50
PN, PLN, PHN gG max. I_e = 125 A[3]	100	•[1]	•[1]	•[1]	•[1]
PN, PLN, PHN gG max. I_e = 224 A[3]	–	65	•[1]	•[1]	•[1]
PN, PHN gG max. I_e = 500 A[3]	–	–	65	•[1]	•[1]
PN, PHN gG max. I_e = 630 A[3]	–	–	–	65	65

Notes:

[1] Additional values in table 1) are related to the back-up circuit breaker of design N.

[2] Additional values in table 2) are related to the back-up circuit breaker of design S.

[3] Max value of initial peak short-circuit current that enables the usage of switch-disconnector with backup fuse-links of lower rated currents (see [3]) is determined on the basis of equality of their limited current i_c.

- I_e rated current of backup fuse-link has to be min by one degree lower than I_e rated current of the switch-disconnector.
- Given values are valid for voltage 400 V a.c.

NOTES

GLOSSARY OF TERMS

Note: Precise wording of definitions and texts relating to a given term are detailed in the respective standards, see Name.

Name	Symbol	Explanation
Rated operating voltage EN 60947-1; 4.3.1.1	U_e	Voltage fixed by the manufacturer. Several pertinent tests relate to its determination, as may also the utilization category. Along with the rated (operating) current, it determines the device's utilization. The highest value of rated operating voltage may in no case be greater than the value of the rate insulation voltage U_i.
Rated insulation voltage EN 60947-1; 4.3.1.2	U_i	Voltage measure to which are related tests of dielectric strength and creepage distance.
Rated current EN 60947-2; 4.3.2.3	I_n	Current value of particular circuit breaker that can be handled uninterruptedly. The highest current valued tripping the circuit breaker in conformity with a specifically stated tripping characteristic.
Reduced rated current	I_R	Specifically established, reduced value of I_n current for a regulated time-dependent (thermal) release and that the circuit breaker can handle continuously. Maximum setting is at value equal to I_n. Changing I_R moves the release's tripping characteristic along the current axis. $I_r = k \times I_n$ holds where $k \leq 1$
Tripping time at a given I_r multiple	t_R	Time after which circuit breaker will trip, if a current flows through it that is equal to the given multiple of I_R. Changing t_R moves the tripping characteristic along the time axis.
Release current of independent instantaneous (selective) release	I_{sd}	Minimum current value that causes tripping of the time-independent delayed release.
Delay of time-independent delayed release	t_{sd}	If a current flows through the circuit breaker equal to at least I_{sd} but not reaching I_{sd} the circuit breaker will trip with time delay t_{sd}. Total switching off time is influenced by the tripping of the circuit breaker itself and is about 10 ÷ 20 ms longer.
Release current of independent instantaneous (short-circuit) release	I_i	Minimum current value that causes tripping of the time-independent instantaneous release.
Rated operating current EN 60947-1; 4.3.2.3	I_e	Rated operating current of device (switch-disconnector) is fixed by the manufacturer with consideration for the rated operating voltage, rated frequency, rated operation, utilization category and type of protective cover, if that comes into consideration.
Rated normal current EN 60947-1; 4.3.2.4	I_u	Current value set by the manufacturer and which the device can handle in continuous operation, i.e. during a period longer than 8 hours (weeks, months, or longer).
Rated short-circuit ultimate breaking capacity EN 60947-2; 2.15.1; 4.3.5.2.1	I_{cu}	Value of ultimate short-circuit breaking capacity expressed as the rms value of the alternating component of the assumed short-circuit current that the circuit breaker must be able to manage in the mode: 1x switching off of the short-circuit and a following 1x make-break sequence. After testing, the circuit breaker need not be able to conduct the rated current uninterruptedly. I_{cu} is set for the rated operating voltage at the rated frequency and at the established power factor for alternating current or at the time constant for direct current. Must fulfil the condition: $I_{cu} \geq I_k''$
Rated short-circuit service breaking capacity EN 60947-2; 2.15.2; 4.3.5.2.2	I_{cs}	Value of the operating short-circuit breaking capacity expressed as the rms value of the alternating component of the assumed short-circuit current that the circuit breaker must be able to manage in the mode: 1x switching off of the short-circuit and a following 2x make-break sequence. May also be expressed as a percentage of I_{cu}. After testing, the circuit breaker must be able uninterruptedly to conduct the rated current and to switch off the overcurrent. Temperature increase of the main terminals may be greater. I_{cs} is set for the rated operating voltage at the rated frequency and at the established power factor for alternating current or at the time constant for direct current. Permitted: $I_{cs} \geq I_k''$
Rated short-time withstand current EN 60947-1; 4.3.6.1 EN 60947-2; 4.3.5.4 EN 60947-3; 4.3.6.1	I_{cw}	Value of short-time withstand current specified by the manufacturer that the device is able to handle without damage during a designated time period (short-time delay). In case of alternating current, it is the rms value of the alternating component of the assumed short-circuit current I_k''.

GLOSSARY OF TERMS

Note: Precise wording of definitions and texts relating to a given term are detailed in the respective standards, see Name.

Name	Symbol	Explanation
Rated short-circuit making capacity EN 60947-1; 4.3.6.2 EN 60947-2; 4.3.5.1 EN 60947-3; 4.3.6.2	I_{cm}	Value of short-circuit making capacity specified by the manufacturer for the rated operating voltage at the rated frequency and at the established power factor for alternating current or at the time constant for direct current. It is expressed as the maximum assumed peak current. Must fulfil the condition: $I_{cm} \geq i_p$
Initial peak short-circuit current EN 60909-0; 1.3.5	I_k''	Short-circuit current value at the moment of its arising at a given point in the electrical distribution expressed as the rms value of the alternating symmetrical component of the assumed short-circuit current.
Surge short-circuit current EN 60909-0; 1.3.8	i_p	Maximum possible momentary value of the assumed short-circuit current. (Corresponds to the moment the short arises, as a result of which there occurs the peak value of the short-circuit current.)
Prospective short-circuit current EN 60947-1; 2.5.5 EN 60909-0; 1.3.3	I_p	Short-circuit current value, which would flow through the circuit if the protection device were replaced and a short-circuit were experienced by conductors with negligible impedance. (In a three-phase distribution, it is assumed that the short-circuit is simultaneous in all phases.)
Rated impulse withstand voltage EN 60947-1; 4.3.1.3	U_{imp}	Peak value of the voltage impulse of the prescribed form and polarity which the device is able to withstand without failure at the established conditions and pertinent to which is the value of the separating air distance. U_{imp} of the device must be equal to or higher than the value established for momentary overvoltage at the point in the circuit (overvoltage category) where the device is used.
Overvoltage category EN 60947-1; 2.5.60		Numerically defined level of momentary overvoltage, i.e. overvoltage having its origin in atmospheric or switching. Standard EN 60664-1 establishes for electrical equipment the overvoltage categories: **Overvoltage category IV** - service entrance, outside lead **Overvoltage category III** - fixed wiring **Overvoltage category II** - appliances **Overvoltage category I** - light-current appliances
Rated frequency EN 60947-1; 4.3.3	f_n	Frequency of the supply network for which the device is proposed and that corresponds to its other characteristics values.
Utilization category (circuit breakers – time selectivity) EN 60947-2; 4.4		Utilization category of circuit breaker establishes whether or not the circuit breaker specifically is intended for providing selectivity by means of intentional time delay (timing selectivity) with other protective devices connected in series on the load side in short-circuiting conditions. **Utilization category:** **A** - circuit breakers are not specifically intended for providing timing selectivity **B** - circuit breakers are specifically intended for providing timing selectivity
Utilization category (switch-disconnectors – switching mode) EN 60947-3; 4.4		Utilization category defines the assumed use of switch devices (switch-disconnectors). Characterized by values of current and voltage, expressed as multiples of rated operating current and rated operating voltage, and further by power factors or time constants of the circuit. **Utilization category:** **AC-21B (DC-21B)** - infrequent switching of resistive loads, including moderate overloading **AC-22B (DC-21B)** - infrequent switching of mixed resistive and inductive loads, including moderate overloading **AC-23B (DC-23B)** - infrequent switching of motor loads or other highly inductive loads
Pollution degree EN 60947-1; 2.5.58; 6.1.3.2		Pollution degree relates to the conditions of the surrounding environment for which the device is intended. **Pollution degree:** **1** - No contamination will occur, or only dry, non-conducting contamination. **2** - Normally occurs only non-conducting contamination, but sometimes there may occur temporary conductibility due to condensation. **3** - There occurs conductive contamination or dry non-conducting contamination that with the effect of condensation will become conductive. **4** - Contamination generates continuous conductibility, by means of, for example, conductive dust, rain or snow.

ELEKTROTECHNICKÝ ZKUŠEBNÍ ÚSTAV

ELECTROTECHNICAL TESTING INSTITUTE - CZECH REPUBLIC
ELEKTROTECHNISCHE PRÜFANSTALT - TSCHECHISCHE REPUBLIK
INSTITUT ELECTROTECHNIQUE D'ESSAIS - RÉPUBLIQUE TCHÈQUE
ЭЛЕКТРОТЕХНИЧЕСКИЙ ИСПЫТАТЕЛЬНЫЙ ИНСТИТУТ - ЧЕШСКАЯ РЕСПУБЛИКА

Pod Lisem 129, 171 02 Praha 8 - Troja

CERTIFIKÁT

č.: 1140352

Výrobek: Jističe

Typ: BD 250N, BD 250S (v odnímatelném a výsuvném provedení)

Jmenovité hodnoty: Ue = 690 V, Iu = 250 A, 50/60 Hz, Ics = 8 kA

Objednavatel: OEZ s. r. o.
Šedivská 339, 561 51 Letohrad, Česká republika

Výrobce: OEZ s. r. o.
Šedivská 339, 561 51 Letohrad, Česká republika

Obchodní značka:

Výsledky zkoušek jsou uvedeny v protokolu č.: 400658-01/01 ze dne: 28.04.2014

Vzorek zkoušeného výrobku je ve shodě s požadavky:
ČSN EN 60947-1ed.4:08+A1:11, ČSN EN 60947-2 ed.3:07+1:07+A1:10+A2:13

Certifikát byl vydán na základě splnění požadavků certifikačního schématu „EZÚ certifikát" a na základě smlouvy č. 400658 mezi objednavatelem a Elektrotechnickým zkušebním ústavem.

Shoda výrobku s uvedenými normami a předpisy zajišťuje shodu výrobku se základními požadavky nařízení vlády č. 17/2003 Sb. (2006/95/EC) v platném znění a certifikát může být použit jako podklad pro Prohlášení o shodě podle zákona č. 22/97 Sb. o technických požadavcích na výrobky, v platném znění.

Platnost certifikátu je omezena do: 30.4.2017

28.4.2014

V Praze dne

Mgr. Miroslav Sedláček
Vedoucí certifikačního orgánu

razítko

OEZ

Declaration of country of origin

I, the undersigned, declare that the goods described in the attached annex originate in the country given in the field „Country of origin".

This declaration is effective till 31.12.2014

30.7.2014	Letohrad
Date	Place
Hricinová Marta	Export control and customs
Name	Position

OEZ s. r. o.
Šedivská 339, Letohrad 561 51
Česká republika
IČO: 49810146, DIČ: CZ49810146

6

new order code order code	Category ENG	Product identification ENG	Country of origin
OEZ:11899	Fuse switch-disconnector	FH000-1A/T	CZ
OEZ:14000	Fuse switch-disconnector	FH000-1S/T	CZ
OEZ:13696	Fuse switch-disconnector	FH000-1A/N	CZ
OEZ:13697	Fuse switch-disconnector	FH000-1S/N	CZ
OEZ:12362	Fuse switch-disconnector	FH000-3A/T	CZ
OEZ:11901	Fuse switch-disconnector	FH000-3S/T	CZ
OEZ:13695	Fuse switch-disconnector	FH000-3SB/T	CZ
OEZ:13698	Fuse switch-disconnector	FH000-3A/N	CZ
OEZ:13699	Fuse switch-disconnector	FH000-3S/N	CZ
OEZ:20768	Fuse switch-disconnector	FH000-3L/T	CZ
OEZ:14378	Terminal extension	CS-FH000-1NP95	CZ
OEZ:13740	Terminal extensions	CS-FH000-3NP95	CZ
OEZ:13742	Terminal extensions	CS-FH000-3NV95	CZ
OEZ:15589	Terminal extensions	CS-FH000-3ND95	CZ
OEZ:14127	Terminal extensions	N3x10-FH000	CZ
OEZ:34315	Interconnecting busbar	CS-FH000-3L2	DE
OEZ:34316	Interconnecting busbar	CS-FH000-3L3	DE
OEZ:34317	Interconnecting busbar	CS-FH000-3L4	DE
OEZ:34318	Interconnecting busbar	CS-FH000-3L5	DE
OEZ:18643	Adapter for busbar system	OD-FH000-AL60	CZ
OEZ:18652	Connecting space cover for adapter	OD-FH000-KPA	CZ
OEZ:38427	Locking insert	VU-LSN	CZ
OEZ:14136	Assembly kit	OD-FH000-SS24	CZ
OEZ:15185	Barrier	OD-FH000-Z1	CZ
OEZ:15186	Barrier	OD-FH000-Z3	CZ
OEZ:12928	Front shield	OD-FH000-KR	CZ
OEZ:33730	Cover without internals	OD-FH000-VN1	CZ
OEZ:33729	Cover without internals	OD-FH000-VN3	CZ
OEZ:40477	Fuse-link	PNA000 6A gG	GR
OEZ:40478	Fuse-link	PNA000 10A gG	GR
OEZ:40479	Fuse-link	PNA000 16A gG	GR
OEZ:40480	Fuse-link	PNA000 20A gG	GR
OEZ:40481	Fuse-link	PNA000 25A gG	GR
OEZ:40482	Fuse-link	PNA000 32A gG	GR
OEZ:40483	Fuse-link	PNA000 35A gG	GR
OEZ:40484	Fuse-link	PNA000 40A gG	GR
OEZ:40485	Fuse-link	PNA000 50A gG	GR
OEZ:40486	Fuse-link	PNA000 63A gG	GR
OEZ:40487	Fuse-link	PNA000 80A gG	GR
OEZ:40488	Fuse-link	PNA000 100A gG	GR
OEZ:40489	Fuse-link	PNA000 125A gG	GR
OEZ:40490	Fuse-link	PNA000 160A gG	GR
OEZ:40491	Fuse-link	PNA000 6A aM	GR
OEZ:40492	Fuse-link	PNA000 10A aM	GR
OEZ:40493	Fuse-link	PNA000 12A aM	GR
OEZ:40494	Fuse-link	PNA000 16A aM	GR
OEZ:40495	Fuse-link	PNA000 20A aM	GR
OEZ:40496	Fuse-link	PNA000 25A aM	GR
OEZ:40497	Fuse-link	PNA000 32A aM	GR
OEZ:40498	Fuse-link	PNA000 40A aM	GR
OEZ:40499	Fuse-link	PNA000 50A aM	GR
OEZ:40500	Fuse-link	PNA000 63A aM	GR

OEZ:40501	Fuse-link	PNA000 80A aM	GR
OEZ:40502	Fuse-link	PNA000 100A aM	GR
OEZ:14414	Switching unit	BD250NE305	CZ
OEZ:14415	Switching unit	BD250SE305	CZ
OEZ:19571	Switching unit	BD250NE405	CZ
OEZ:19573	Switching unit	BD250SE405	CZ
OEZ:19572	Switching unit	BD250NE406	CZ
OEZ:19574	Switching unit	BD250SE406	CZ
OEZ:14558	Plug-in device	ZO-BD-0250-300	CZ
OEZ:20651	Plug-in device	ZO-BD-0250-400	CZ
OEZ:14557	Withdrawable device	ZV-BD-0250-300	CZ
OEZ:20652	Withdrawable device	ZV-BD-0250-400	CZ
OEZ:20612	Overcurrent release	SE-BD-0160-L001	CZ
OEZ:20666	Overcurrent release	SE-BD-0200-L001	CZ
OEZ:20613	Overcurrent release	SE-BD-0250-L001	CZ
OEZ:24300	Overcurrent release	SE-BD-0100-DTV3	CZ
OEZ:24200	Overcurrent release	SE-BD-0160-DTV3	CZ
OEZ:24100	Overcurrent release	SE-BD-0250-DTV3	CZ
OEZ:24310	Overcurrent release	SE-BD-0100-MTV8	CZ
OEZ:24210	Overcurrent release	SE-BD-0160-MTV8	CZ
OEZ:24110	Overcurrent release	SE-BD-0250-MTV8	CZ
OEZ:17304	Overcurrent release	SE-BD-0100-MTV9	CZ
OEZ:19569	Overcurrent release	SE-BD-0160-MTV9	CZ
OEZ:19570	Overcurrent release	SE-BD-0250-MTV9	CZ
OEZ:33423	Overcurrent release	SE-BD-0100-4D01	CZ
OEZ:33424	Overcurrent release	SE-BD-0160-4D01	CZ
OEZ:33425	Overcurrent release	SE-BD-0250-4D01	CZ
OEZ:24120	Switch-disconnector unit	SE-BD-0250-V001	CZ
OEZ:24810	Connecting set	CS-BD-T011	CZ
OEZ:24751	Connecting set	CS-BD-B011	CZ
OEZ:17534	Connecting set	CS-BD-B012	CZ
OEZ:24752	Connecting set	CS-BD-B021	CZ
OEZ:13808	Connecting set	CS-BD-B022	CZ
OEZ:20119	Connecting set	CS-BD-B014	CZ
OEZ:24770	Connecting set	CS-BD-A021	CZ
OEZ:13682	Connecting set	CS-BD-PS01	CZ
OEZ:24750	Connecting set	CS-BD-A011	CZ
OEZ:19578	Connecting set	CS-BD-T411	CZ
OEZ:19582	Connecting set	CS-BD-B411	CZ
OEZ:19577	Connecting set	CS-BD-B412	CZ
OEZ:19579	Connecting set	CS-BD-B421	CZ
OEZ:19580	Connecting set	CS-BD-B422	CZ
OEZ:21170	Connecting set	CS-BD-B414	CZ
OEZ:19581	Connecting set	CS-BD-A421	CZ
OEZ:24772	Connecting set	CS-BD-A037	CZ
OEZ:24771	Connecting set	CS-BD-A039	CZ
OEZ:18201	Connecting set	CS-BD-Z039	CZ
OEZ:18023	Connecting set	CS-BD-JX75	CZ
OEZ:18024	Connecting set	CS-BD-JT75	CZ
OEZ:36031	Connecting set	CS-BD-PS41	CZ
OEZ:18203	Mounting set	OD-BD-MZ39	CZ
OEZ:33330	Mounting set	OD-BD-MT75	CZ
OEZ:13651	Hand drive unit	RP-BD-CK10	CZ
OEZ:13652	Hand drive unit	RP-BD-CK20	CZ

OEZ:13684	Hand drive unit	RP-BD-CK21	CZ
OEZ:37250	Hand drive unit	RP-BD-CK30	CZ
OEZ:37251	Hand drive unit	RP-BD-CK31	CZ
OEZ:19612	Mechanical interlocking	MB-BD-PV05	CZ
OEZ:36884	Motor drive	MP-BD-X024	CZ
OEZ:19790	Motor drive	MP-BD-X048	CZ
OEZ:13537	Motor drive	MP-BD-X110	CZ
OEZ:13535	Motor drive	MP-BD-X230	CZ
OEZ:19791	Motor drive	MP-BD-X048-P	CZ
OEZ:13686	Motor drive	MP-BD-X110-P	CZ
OEZ:13538	Motor drive	MP-BD-X230-P	CZ
OEZ:13534	Terminal cover	OD-BD-KS03	CZ
OEZ:19576	Terminal cover	OD-BD-KS43	CZ
OEZ:13533	Lockable lever	OD-BD-UP01	CZ
OEZ:15328	Bolt sealing insert	OD-BD-VP01	CZ
OEZ:18215	Additional cover for overcurrent release	OD-BD-VP02	CZ
OEZ:14559	Keying set	OD-BD-KK01	CZ
OEZ:34457	Spare part	OD-BD-SP01	CZ
OEZ:16329	Spare part	OD-BD-DV01	CZ
OEZ:14419	Spare part	OD-BD-MS01	CZ
OEZ:24720	Spare part	OD-BD-KS01	CZ
OEZ:35896	Spare part	OD-BD-KS44	CZ
OEZ:35897	Spare part	OD-BD-KS45	CZ
OEZ:35881	Circuit breaker	BD250NE305-250-MTV8	CZ
OEZ:19512	Circuit breaker	BD40NE305-32-UA01	CZ
OEZ:19511	Circuit breaker	BD40NE305-40-UA01	CZ
OEZ:18486	Circuit breaker	BD40NE305-40-MTV9	CZ
OEZ:33692	Circuit breaker	BD40NE305-40-MTV8	CZ
OEZ:38910	Switch-disconnector	BD250NE305-250-V	CZ
OEZ:38912	Switch-disconnector	BD250NE405-250-V	CZ
OEZ:14412	Switching unit	BH630NE305	CZ
OEZ:14413	Switching unit	BH630SE305	CZ
OEZ:19583	Switching unit	BH630NE405	CZ
OEZ:19585	Switching unit	BH630SE405	CZ
OEZ:19584	Switching unit	BH630NE406	CZ
OEZ:19586	Switching unit	BH630SE406	CZ
OEZ:14556	Plug-in device	ZO-BH-0630-300	CZ
OEZ:20649	Plug-in device	ZO-BH-0630-400	CZ
OEZ:14553	Withdrawable device	ZV-BH-0630-300	CZ
OEZ:20650	Withdrawable device	ZV-BH-0630-400	CZ
OEZ:20614	Overcurrent release	SE-BH-0250-L001	CZ
OEZ:20615	Overcurrent release	SE-BH-0315-L001	CZ
OEZ:20616	Overcurrent release	SE-BH-0400-L001	CZ
OEZ:20617	Overcurrent release	SE-BH-0500-L001	CZ
OEZ:20618	Overcurrent release	SE-BH-0630-L001	CZ
OEZ:25300	Overcurrent release	SE-BH-0250-DTV3	CZ
OEZ:25200	Overcurrent release	SE-BH-0400-DTV3	CZ
OEZ:25100	Overcurrent release	SE-BH-0630-DTV3	CZ
OEZ:25310	Overcurrent release	SE-BH-0250-MTV8	CZ
OEZ:25210	Overcurrent release	SE-BH-0400-MTV8	CZ
OEZ:25110	Overcurrent release	SE-BH-0630-MTV8	CZ
OEZ:19566	Overcurrent release	SE-BH-0250-MTV9	CZ
OEZ:19567	Overcurrent release	SE-BH-0400-MTV9	CZ
OEZ:19568	Overcurrent release	SE-BH-0630-MTV9	CZ

OEZ:33426	Overcurrent release	SE-BH-0250-4D01	CZ
OEZ:33427	Overcurrent release	SE-BH-0400-4D01	CZ
OEZ:33428	Overcurrent release	SE-BH-0630-4D01	CZ
OEZ:25120	Switch-disconnector unit	SE-BH-0630-V001	CZ
OEZ:24820	Connecting set	CS-BH-T011	CZ
OEZ:24761	Connecting set	CS-BH-B011	CZ
OEZ:24762	Connecting set	CS-BH-B012	CZ
OEZ:24781	Connecting set	CS-BH-B021	CZ
OEZ:16816	Connecting set	CS-BH-B022	CZ
OEZ:36604	Connecting set	CS-BH-B031	CZ
OEZ:42691	Connecting set	CS-BH-B032	CZ
OEZ:24780	Connecting set	CS-BH-A021	CZ
OEZ:20121	Connecting set	CS-BH-B014	CZ
OEZ:24760	Connecting set	CS-BH-A011	CZ
OEZ:13683	Connecting set	CS-BH-PS01	CZ
OEZ:19589	Connecting set	CS-BH-T411	CZ
OEZ:19593	Connecting set	CS-BH-B411	CZ
OEZ:19588	Connecting set	CS-BH-B412	CZ
OEZ:19590	Connecting set	CS-BH-B421	CZ
OEZ:19591	Connecting set	CS-BH-B422	CZ
OEZ:36605	Connecting set	CS-BH-B431	CZ
OEZ:42692	Connecting set	CS-BH-B432	CZ
OEZ:21169	Connecting set	CS-BH-B414	CZ
OEZ:19592	Connecting set	CS-BH-A421	CZ
OEZ:24783	Connecting set	CS-BH-A037	CZ
OEZ:24782	Connecting set	CS-BH-A039	CZ
OEZ:18202	Connecting set	CS-BH-Z039	CZ
OEZ:14562	Connecting set	CS-BH-JX75	CZ
OEZ:14561	Connecting set	CS-BH-JT75	CZ
OEZ:36032	Connecting set	CS-BH-PS41	CZ
OEZ:18204	Mounting set	OD-BH-MZ39	CZ
OEZ:33331	Mounting set	OD-BH-MT75	CZ
OEZ:24741	Mounting set	OD-BHD-MS39	CZ
OEZ:14563	Mounting set	OD-BHD-MS75	CZ
OEZ:24700CZ	Switch	PS-BHD-1000	CZ
OEZ:24702	Switch	PS-BHD-1000-Au	CZ
OEZ:24701	Switch	PS-BHD-0100	CZ
OEZ:24703	Switch	PS-BHD-0100-Au	CZ
OEZ:13690	Switch	PS-BHD-0200	CZ
OEZ:13693	Switch	PS-BHD-0200-Au	CZ
OEZ:13691	Switch	PS-BHD-1100	CZ
OEZ:13694	Switch	PS-BHD-1100-Au	CZ
OEZ:13689	Switch	PS-BHD-2000	CZ
OEZ:13692	Switch	PS-BHD-2000-Au	CZ
OEZ:18021	Switch	PS-BHD-0010	CZ
OEZ:18022	Switch	PS-BHD-0010-Au	CZ
OEZ:16169	Switch	SP-BHD-0002	CZ
OEZ:35893	Switch	PS-BHD-0020	CZ
OEZ:37487	Switch	PS-BHD-0020-Au	CZ
OEZ:24650	Shunt trip	SV-BHD-X024	CZ
OEZ:24630	Shunt trip	SV-BHD-X110	CZ
OEZ:24620	Shunt trip	SV-BHD-X230	CZ
OEZ:24450	Undervoltage release	SP-BHD-X024	CZ
OEZ:24430	Undervoltage release	SP-BHD-X110	CZ

OEZ:24420	Undervoltage release	SP-BHD-X230	CZ
OEZ:24550	Undervoltage release	SP-BHD-X024-0001	CZ
OEZ:24530	Undervoltage release	SP-BHD-X110-0001	CZ
OEZ:24520	Undervoltage release	SP-BHD-X230-0001	CZ
OEZ:13653	Hand drive unit	RP-BH-CK10	CZ
OEZ:13654	Hand drive unit	RP-BH-CK20	CZ
OEZ:13655	Hand drive unit	RP-BH-CK21	CZ
OEZ:37252	Hand drive unit	RP-BH-CK30	CZ
OEZ:37253	Hand drive unit	RP-BH-CK31	CZ
OEZ:13655	Hand drive lever	RP-BHD-CP10	CZ
OEZ:13656	Hand drive lever	RP-BHD-CP20	CZ
OEZ:13657	Hand drive lever	RP-BHD-CP21	CZ
OEZ:13658	Extension shaft	RP-BHD-CH10	CZ
OEZ:13659	Extension shaft	RP-BHD-CH20	CZ
OEZ:37246	Hand drive bearing	RP-BHD-CN40	CZ
OEZ:37247	Hand drive bearing	RP-BHD-CN41	CZ
OEZ:37248	Hand drive bearing	RP-BHD-CN60	CZ
OEZ:37249	Hand drive bearing	RP-BHD-CN61	CZ
OEZ:18290	Mechanical interlocking	RP-BHD-CB10	CZ
OEZ:18289	Mechanical parallel switching	RP-BHD-CD10	CZ
OEZ:19811	Mechanical interlocking	MB-BH-PV04	CZ
OEZ:19813	Mechanical interlocking	MB-BHD-PV03	CZ
OEZ:20590	Motor drive	MP-BH-X024	CZ
OEZ:19792	Motor drive	MP-BH-X048	CZ
OEZ:13539	Motor drive	MP-BH-X110	CZ
OEZ:13536	Motor drive	MP-BH-X230	CZ
OEZ:20591	Motor drive	MP-BH-X024-P	CZ
OEZ:19793	Motor drive	MP-BH-X048-P	CZ
OEZ:13687	Motor drive	MP-BH-X110-P	CZ
OEZ:13540	Motor drive	MP-BH-X230-P	CZ
OEZ:13531	Terminal cover	OD-BH-KS03	CZ
OEZ:19587	Terminal cover	OD-BH-KS43	CZ
OEZ:13532	Lockable lever	OD-BH-UP01	CZ
OEZ:16330	Bolt sealing insert	OD-BH-VP01	CZ
OEZ:18216	Additional cover for overcurrent release	OD-BH-VP02	CZ
OEZ:14554	Keying set	OD-BH-KK01	CZ
OEZ:13688	Counter of cycles	OD-BHD-PP01	CZ
OEZ:13809	Extension cable	OD-BHD-KA02	CZ
OEZ:24740	Insulating barriers	OD-BHD-KS02	CZ
OEZ:19575	Insulating barriers	OD-BHD-KS42	CZ
OEZ:14555	Connecting cable	OD-BHD-KA01	CZ
OEZ:14642	Cover of switch on push-button	OD-BHD-KT01	CZ
OEZ:37425	Control relay	OD-BHD-RX01	CZ
OEZ:37426	Control relay	OD-BHD-RX02	CZ
OEZ:37427	Control relay	OD-BHD-RA03	CZ
OEZ:37428	Control relay	OD-BHD-RD04	CZ
OEZ:14560	Signalling of position	SO-BHD-0010	CZ
OEZ:34458	Spare part	OD-BH-SP01	CZ
OEZ:16331	Spare part	OD-BH-DV01	CZ
OEZ:14420	Spare part	OD-BH-MS01	CZ
OEZ:24730	Spare part	OD-BH-KS01	CZ
OEZ:35894	Spare part	OD-BH-KS44	CZ
OEZ:35895	Spare part	OD-BH-KS45	CZ
OEZ:34460	Spare part	OD-BHD-JUMP	CZ

OEZ:34461	Spare part	OD-BHD-KON2	CZ
OEZ:19510	Circuit breaker	BH100NE305-100-UA01	CZ
OEZ:18467	Circuit breaker	BH100NE305-100-MTV9	CZ
OEZ:18463	Circuit breaker	BH100NE305-100-MTV8	CZ
OEZ:18464	Circuit breaker	BH40NE305-40-MTV8	CZ
OEZ:18465	Circuit breaker	BH40NE305-40-MTV9	CZ
OEZ:35880	Circuit breaker	BH630NE305-400-MTV8	CZ
OEZ:34846	Circuit breaker	BH630NE305-630-MTV8	CZ
OEZ:38914	Switch-disconnector	BH630NE305-630-V	CZ
OEZ:38916	Switch-disconnector	BH630NE405-630-V	CZ

OEZ

ES PROHLÁŠENÍ O SHODĚ / *CE DECLARATION OF CONFORMITY*

Číslo / *No.* : 205608/1405

My / *We*, **OEZ s.r.o.**
Šedivská 339, 561 51 Letohrad, Česká republika

prohlašujeme na svou výlučnou odpovědnost, že
declare on our own responsibility that

Výrobek: Jističe
Product: Moulded case circuit breakers

Typ / *Type*: BD250

Příslušenství / *Accessory*:
BD250SE.05, BD250NE.05, SE-BD-., SP-BHD-X, SV-BHD-X, ZO-BD-0250-, ZV-BD-0250-, PS-BHD-, MB-BD-, MB-BHD-, RP-, MP-BD-X, CS-BD-..., OD-BD-, OD-BHD-, SO-BHD-, BD250NE405,BD250NE406

je ve shodě s následujícími normami:
complies with the following standards:

České normy / *Czech standards*	**Evropské normy** / *European standards*
ČSN EN 60947-1:08ed.4+A1:11	EN 60947-1:07
ČSN EN 60947-2:07ed.3+1:07+A1:10+A2:13	EN 60947-2:06
	EN 61000-4-2:09
	EN 61000-4-3:06
	EN 61000-4-5:06

a následujícími nařízeními vlády, ve znění pozdějších předpisů (NV)
and the following government regulations (NV), as amended

NV 17/2003 Sb. v platném znění	2006/95/ES - including amendments
NV 616/2006 Sb. v platném znění	2004/108/ES - including amendments

Elektrotechnický zkušební ústav, Pod Lisem 129, 171 02 Praha 71, Česká republika
zkoušel / certifikoval daný výrobek a vydal:
tested / certified the product and issued:

EZU Certifikát / *EZU Certificate*: 1140352 ze dne 28.04.2014
EZÚ zkušební protokol / *EZU test report*: 400658-01/01 ze dne 28.04.2014

Poslední dvojčíslí roku, v němž bylo označení CE na výrobek umístěno: 14
Last two digits of the year in which the CE mark was placed on the product:

Místo vydání: **Letohrad**
Place of issue:

Datum vydání: **06.05.2014**
Date of issue:

Zástupce výrobce a podpis: **Ing. Roman Schiffer**
Manufacturer's representative and signature:

Funkce: **generální ředitel**
Position: *general director*

OEZ s. r. o.
Šedivská 339, Letohrad 561 51
Česká republika
IČO: 49610146, DIČ: CZ49610146

OPTIMA

OEZ

ES PROHLÁŠENÍ O SHODĚ / *CE DECLARATION OF CONFORMITY*

Číslo / *No.* : 20564751_08/1307

My / *We*, **OEZ s.r.o.**
Šedivská 339, 561 51 Letohrad, Česká republika

prohlašujeme na svou výlučnou odpovědnost, že
declare on our own responsibility that

Výrobek: Odpínače
Product: Switch-disconnectors

Typ / *Type*: BD250NE...-250-V

Příslušenství / *Accessory*:

je ve shodě s následujícími normami:
complies with the following standards:

České normy / *Czech standards*	**Evropské normy** / *European standards*
ČSN EN 60947-3:10 ed3+A1:12 ČSN EN 60947-1:08ed4+A1:11	EN 60947-3:09 EN 60947-1:07

a následujícími nařízeními vlády, ve znění pozdějších předpisů (NV)
and the following government regulations (NV), as amended

NV 17/2003 Sb. v platném znění Low Voltage Directive NV 616/2006 Sb. v platném znění EMC Directive	2006/95/ES - including amendments 2004/108/ES-including amendments

Elektrotechnický zkušební ústav, Pod Lisem 129, 171 02 Praha 71, Česká republika
zkoušel / certifikoval daný výrobek a vydal:
tested / certified the product and issued:

EZU Certifikát / *EZU Certificate*: 1130271 ze dne 19.04.2013
EZÚ zkušební protokol / *EZU test report*: 301531-01/01 ze dne 10.04.2013

Poslední dvojčíslí roku, v němž bylo označení CE na výrobek umístěno: 13
Last two digits of the year in which the CE mark was placed on the product:

Místo vydání: **Letohrad**
Place of issue:

Datum vydání: **16.07.2013**
Date of issue:

Zástupce výrobce a podpis: **Ing. Roman Schiffer**
Manufacturer's representative and signature:

Funkce: **generální ředitel**
Position: *general director*

OEZ s. r. o.
Šedivská 339, Letohrad 561 51
Česká republika
IČO: 49810146, DIČ: CZ49810146

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OEZ

Declaration of country of origin

I, the undersigned, declare that the goods described in the attached annex originate in the country given in the field „Country of origin".

This declaration is effective till 31.12.2014

30.7.2014 Letohrad

Date Place

Hricinová Marta Export control and customs

Name Position

OEZ s. r. o.
Šedivská 339, Letohrad 561 51
Česká republika
IČO: 49810146, DIČ: CZ49810146

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OEZ s.r.o.
Šedivská 339, 561 61 Letohrad
T +420 465 672 111
F +420 465 672 151
E-mail: oez.cz@oez.com
www.oez.cz

Bankovní spoj.: UniCredit Bank Czech Republic, a.s.,
Hradec Králové, č.ú.: 522133003/2700
DIČ: CZ49810146, IČO: 49810146,
Firma zapsaná v obch. . rejstříku KS v Hradci Králové,
oddíl C, vložka 4649

new order code order code	Category ENG	Product identification ENG	Country of origin
OEZ:11899	Fuse switch-disconnector	FH000-1A/T	CZ
OEZ:14000	Fuse switch-disconnector	FH000-1S/T	CZ
OEZ:13696	Fuse switch-disconnector	FH000-1A/N	CZ
OEZ:13697	Fuse switch-disconnector	FH000-1S/N	CZ
OEZ:12362	Fuse switch-disconnector	FH000-3A/T	CZ
OEZ:11901	Fuse switch-disconnector	FH000-3S/T	CZ
OEZ:13695	Fuse switch-disconnector	FH000-3SB/T	CZ
OEZ:13698	Fuse switch-disconnector	FH000-3A/N	CZ
OEZ:13699	Fuse switch-disconnector	FH000-3S/N	CZ
OEZ:20766	Fuse switch-disconnector	FH000-3L/T	CZ
OEZ:14378	Terminal extension	CS-FH000-1NP95	CZ
OEZ:13740	Terminal extensions	CS-FH000-3NP95	CZ
OEZ:13742	Terminal extensions	CS-FH000-3NV95	CZ
OEZ:15589	Terminal extensions	CS-FH000-3ND95	CZ
OEZ:14127	Terminal extensions	N3x10-FH000	CZ
OEZ:34315	Interconnecting busbar	CS-FH000-3L2	DE
OEZ:34316	Interconnecting busbar	CS-FH000-3L3	DE
OEZ:34317	Interconnecting busbar	CS-FH000-3L4	DE
OEZ:34318	Interconnecting busbar	CS-FH000-3L5	DE
OEZ:18643	Adapter for busbar system	OD-FH000-AL60	CZ
OEZ:18652	Connecting space cover for adapter	OD-FH000-KPA	CZ
OEZ:38427	Locking insert	VU-LSN	CZ
OEZ:14136	Assembly kit	OD-FH000-SS24	CZ
OEZ:15185	Barrier	OD-FH000-Z1	CZ
OEZ:15186	Barrier	OD-FH000-Z3	CZ
OEZ:12928	Front shield	OD-FH000-KR	CZ
OEZ:33730	Cover without internals	OD-FH000-VN1	CZ
OEZ:33729	Cover without internals	OD-FH000-VN3	CZ
OEZ:40477	Fuse-link	PNA000 6A gG	GR
OEZ:40478	Fuse-link	PNA000 10A gG	GR
OEZ:40479	Fuse-link	PNA000 16A gG	GR
OEZ:40480	Fuse-link	PNA000 20A gG	GR
OEZ:40481	Fuse-link	PNA000 25A gG	GR
OEZ:40482	Fuse-link	PNA000 32A gG	GR
OEZ:40483	Fuse-link	PNA000 35A gG	GR
OEZ:40484	Fuse-link	PNA000 40A gG	GR
OEZ:40485	Fuse-link	PNA000 50A gG	GR
OEZ:40486	Fuse-link	PNA000 63A gG	GR
OEZ:40487	Fuse-link	PNA000 80A gG	GR
OEZ:40488	Fuse-link	PNA000 100A gG	GR
OEZ:40489	Fuse-link	PNA000 125A gG	GR
OEZ:40490	Fuse-link	PNA000 160A gG	GR
OEZ:40491	Fuse-link	PNA000 6A aM	GR
OEZ:40492	Fuse-link	PNA000 10A aM	GR
OEZ:40493	Fuse-link	PNA000 12A aM	GR
OEZ:40494	Fuse-link	PNA000 16A aM	GR
OEZ:40495	Fuse-link	PNA000 20A aM	GR
OEZ:40496	Fuse-link	PNA000 25A aM	GR
OEZ:40497	Fuse-link	PNA000 32A aM	GR
OEZ:40498	Fuse-link	PNA000 40A aM	GR
OEZ:40499	Fuse-link	PNA000 50A aM	GR
OEZ:40500	Fuse-link	PNA000 63A aM	GR

OEZ:40501	Fuse-link	PNA000 80A aM	GR
OEZ:40502	Fuse-link	PNA000 100A aM	GR
OEZ:14414	Switching unit	BD250NE305	CZ
OEZ:14415	Switching unit	BD250SE305	CZ
OEZ:19571	Switching unit	BD250NE405	CZ
OEZ:19573	Switching unit	BD250SE405	CZ
OEZ:19572	Switching unit	BD250NE406	CZ
OEZ:19574	Switching unit	BD250SE406	CZ
OEZ:14558	Plug-in device	ZO-BD-0250-300	CZ
OEZ:20651	Plug-in device	ZO-BD-0250-400	CZ
OEZ:14557	Withdrawable device	ZV-BD-0250-300	CZ
OEZ:20652	Withdrawable device	ZV-BD-0250-400	CZ
OEZ:20612	Overcurrent release	SE-BD-0160-L001	CZ
OEZ:20666	Overcurrent release	SE-BD-0200-L001	CZ
OEZ:20613	Overcurrent release	SE-BD-0250-L001	CZ
OEZ:24300	Overcurrent release	SE-BD-0100-DTV3	CZ
OEZ:24200	Overcurrent release	SE-BD-0160-DTV3	CZ
OEZ:24100	Overcurrent release	SE-BD-0250-DTV3	CZ
OEZ:24310	Overcurrent release	SE-BD-0100-MTV8	CZ
OEZ:24210	Overcurrent release	SE-BD-0160-MTV8	CZ
OEZ:24110	Overcurrent release	SE-BD-0250-MTV8	CZ
OEZ:17304	Overcurrent release	SE-BD-0100-MTV9	CZ
OEZ:19569	Overcurrent release	SE-BD-0160-MTV9	CZ
OEZ:19570	Overcurrent release	SE-BD-0250-MTV9	CZ
OEZ:33423	Overcurrent release	SE-BD-0100-4D01	CZ
OEZ:33424	Overcurrent release	SE-BD-0160-4D01	CZ
OEZ:33425	Overcurrent release	SE-BD-0250-4D01	CZ
OEZ:24120	Switch-disconnector unit	SE-BD-0250-V001	CZ
OEZ:24810	Connecting set	CS-BD-T011	CZ
OEZ:24751	Connecting set	CS-BD-B011	CZ
OEZ:17534	Connecting set	CS-BD-B012	CZ
OEZ:24752	Connecting set	CS-BD-B021	CZ
OEZ:13808	Connecting set	CS-BD-B022	CZ
OEZ:20119	Connecting set	CS-BD-B014	CZ
OEZ:24770	Connecting set	CS-BD-A021	CZ
OEZ:13682	Connecting set	CS-BD-PS01	CZ
OEZ:24750	Connecting set	CS-BD-A011	CZ
OEZ:19578	Connecting set	CS-BD-T411	CZ
OEZ:19582	Connecting set	CS-BD-B411	CZ
OEZ:19577	Connecting set	CS-BD-B412	CZ
OEZ:19579	Connecting set	CS-BD-B421	CZ
OEZ:19580	Connecting set	CS-BD-B422	CZ
OEZ:21170	Connecting set	CS-BD-B414	CZ
OEZ:19581	Connecting set	CS-BD-A421	CZ
OEZ:24772	Connecting set	CS-BD-A037	CZ
OEZ:24771	Connecting set	CS-BD-A039	CZ
OEZ:18201	Connecting set	CS-BD-Z039	CZ
OEZ:18023	Connecting set	CS-BD-JX75	CZ
OEZ:18024	Connecting set	CS-BD-JT75	CZ
OEZ:36031	Connecting set	CS-BD-PS41	CZ
OEZ:18203	Mounting set	OD-BD-MZ39	CZ
OEZ:33330	Mounting set	OD-BD-MT75	CZ
OEZ:13651	Hand drive unit	RP-BD-CK10	CZ
OEZ:13652	Hand drive unit	RP-BD-CK20	CZ

OEZ:13684	Hand drive unit	RP-BD-CK21	CZ
OEZ:37250	Hand drive unit	RP-BD-CK30	CZ
OEZ:37251	Hand drive unit	RP-BD-CK31	CZ
OEZ:19612	Mechanical interlocking	MB-BD-PV05	CZ
OEZ:36884	Motor drive	MP-BD-X024	CZ
OEZ:19790	Motor drive	MP-BD-X048	CZ
OEZ:13537	Motor drive	MP-BD-X110	CZ
OEZ:13535	Motor drive	MP-BD-X230	CZ
OEZ:19791	Motor drive	MP-BD-X048-P	CZ
OEZ:13686	Motor drive	MP-BD-X110-P	CZ
OEZ:13538	Motor drive	MP-BD-X230-P	CZ
OEZ:13534	Terminal cover	OD-BD-KS03	CZ
OEZ:19576	Terminal cover	OD-BD-KS43	CZ
OEZ:13533	Lockable lever	OD-BD-UP01	CZ
OEZ:15328	Bolt sealing insert	OD-BD-VP01	CZ
OEZ:18215	Additional cover for overcurrent release	OD-BD-VP02	CZ
OEZ:14559	Keying set	OD-BD-KK01	CZ
OEZ:34457	Spare part	OD-BD-SP01	CZ
OEZ:15329	Spare part	OD-BD-DV01	CZ
OEZ:14419	Spare part	OD-BD-MS01	CZ
OEZ:24720	Spare part	OD-BD-KS01	CZ
OEZ:35896	Spare part	OD-BD-KS44	CZ
OEZ:35897	Spare part	OD-BD-KS45	CZ
OEZ:35881	Circuit breaker	BD250NE305-250-MTV8	CZ
OEZ:19512	Circuit breaker	BD40NE305-32-UA01	CZ
OEZ:19511	Circuit breaker	BD40NE305-40-UA01	CZ
OEZ:18466	Circuit breaker	BD40NE305-40-MTV9	CZ
OEZ:33692	Circuit breaker	BD40NE305-40-MTV8	CZ
OEZ:38910	Switch-disconnector	BD250NE305-250-V	CZ
OEZ:38912	Switch-disconnector	BD250NE405-250-V	CZ
OEZ:14412	Switching unit	BH630NE305	CZ
OEZ:14413	Switching unit	BH630SE305	CZ
OEZ:19583	Switching unit	BH630NE405	CZ
OEZ:19585	Switching unit	BH630SE405	CZ
OEZ:19584	Switching unit	BH630NE406	CZ
OEZ:19586	Switching unit	BH630SE406	CZ
OEZ:14556	Plug-in device	ZO-BH-0630-300	CZ
OEZ:20649	Plug-in device	ZO-BH-0630-400	CZ
OEZ:14553	Withdrawable device	ZV-BH-0630-300	CZ
OEZ:20650	Withdrawable device	ZV-BH-0630-400	CZ
OEZ:20614	Overcurrent release	SE-BH-0250-L001	CZ
OEZ:20615	Overcurrent release	SE-BH-0315-L001	CZ
OEZ:20616	Overcurrent release	SE-BH-0400-L001	CZ
OEZ:20617	Overcurrent release	SE-BH-0500-L001	CZ
OEZ:20618	Overcurrent release	SE-BH-0630-L001	CZ
OEZ:25300	Overcurrent release	SE-BH-0250-DTV3	CZ
OEZ:25200	Overcurrent release	SE-BH-0400-DTV3	CZ
OEZ:25100	Overcurrent release	SE-BH-0630-DTV3	CZ
OEZ:25310	Overcurrent release	SE-BH-0250-MTV8	CZ
OEZ:25210	Overcurrent release	SE-BH-0400-MTV8	CZ
OEZ:25110	Overcurrent release	SE-BH-0630-MTV8	CZ
OEZ:19566	Overcurrent release	SE-BH-0250-MTV9	CZ
OEZ:19567	Overcurrent release	SE-BH-0400-MTV9	CZ
OEZ:19568	Overcurrent release	SE-BH-0630-MTV9	CZ

OEZ:33426	Overcurrent release	SE-BH-0250-4D01	CZ
OEZ:33427	Overcurrent release	SE-BH-0400-4D01	CZ
OEZ:33428	Overcurrent release	SE-BH-0630-4D01	CZ
OEZ:25120	Switch-disconnector unit	SE-BH-0630-V001	CZ
OEZ:24820	Connecting set	CS-BH-T011	CZ
OEZ:24761	Connecting set	CS-BH-B011	CZ
OEZ:24762	Connecting set	CS-BH-B012	CZ
OEZ:24781	Connecting set	CS-BH-B021	CZ
OEZ:15816	Connecting set	CS-BH-B022	CZ
OEZ:36604	Connecting set	CS-BH-B031	CZ
OEZ:42691	Connecting set	CS-BH-B032	CZ
OEZ:24780	Connecting set	CS-BH-A021	CZ
OEZ:20121	Connecting set	CS-BH-B014	CZ
OEZ:24760	Connecting set	CS-BH-A011	CZ
OEZ:13683	Connecting set	CS-BH-PS01	CZ
OEZ:19589	Connecting set	CS-BH-T411	CZ
OEZ:19593	Connecting set	CS-BH-B411	CZ
OEZ:19588	Connecting set	CS-BH-B412	CZ
OEZ:19590	Connecting set	CS-BH-B421	CZ
OEZ:19591	Connecting set	CS-BH-B422	CZ
OEZ:36605	Connecting set	CS-BH-B431	CZ
OEZ:42692	Connecting set	CS-BH-B432	CZ
OEZ:21169	Connecting set	CS-BH-B414	CZ
OEZ:19592	Connecting set	CS-BH-A421	CZ
OEZ:24783	Connecting set	CS-BH-A037	CZ
OEZ:24782	Connecting set	CS-BH-A039	CZ
OEZ:18202	Connecting set	CS-BH-Z039	CZ
OEZ:14562	Connecting set	CS-BH-JX75	CZ
OEZ:14561	Connecting set	CS-BH-JT75	CZ
OEZ:36032	Connecting set	CS-BH-PS41	CZ
OEZ:18204	Mounting set	OD-BH-MZ39	CZ
OEZ:33331	Mounting set	OD-BH-MT75	CZ
OEZ:24741	Mounting set	OD-BHD-MS39	CZ
OEZ:14563	Mounting set	OD-BHD-MS75	CZ
OEZ:24700CZ	Switch	PS-BHD-1000	CZ
OEZ:24702	Switch	PS-BHD-1000-Au	CZ
OEZ:24701	Switch	PS-BHD-0100	CZ
OEZ:24703	Switch	PS-BHD-0100-Au	CZ
OEZ:13690	Switch	PS-BHD-0200	CZ
OEZ:13693	Switch	PS-BHD-0200-Au	CZ
OEZ:13691	Switch	PS-BHD-1100	CZ
OEZ:13694	Switch	PS-BHD-1100-Au	CZ
OEZ:13689	Switch	PS-BHD-2000	CZ
OEZ:13692	Switch	PS-BHD-2000-Au	CZ
OEZ:18021	Switch	PS-BHD-0010	CZ
OEZ:18022	Switch	PS-BHD-0010-Au	CZ
OEZ:16169	Switch	SP-BHD-0002	CZ
OEZ:35893	Switch	PS-BHD-0020	CZ
OEZ:37467	Switch	PS-BHD-0020-Au	CZ
OEZ:24650	Shunt trip	SV-BHD-X024	CZ
OEZ:24630	Shunt trip	SV-BHD-X110	CZ
OEZ:24620	Shunt trip	SV-BHD-X230	CZ
OEZ:24450	Undervoltage release	SP-BHD-X024	CZ
OEZ:24430	Undervoltage release	SP-BHD-X110	CZ

OEZ:24420	Undervoltage release	SP-BHD-X230	CZ
OEZ:24550	Undervoltage release	SP-BHD-X024-0001	CZ
OEZ:24530	Undervoltage release	SP-BHD-X110-0001	CZ
OEZ:24520	Undervoltage release	SP-BHD-X230-0001	CZ
OEZ:13653	Hand drive unit	RP-BH-CK10	CZ
OEZ:13654	Hand drive unit	RP-BH-CK20	CZ
OEZ:13685	Hand drive unit	RP-BH-CK21	CZ
OEZ:37252	Hand drive unit	RP-BH-CK30	CZ
OEZ:37253	Hand drive unit	RP-BH-CK31	CZ
OEZ:13655	Hand drive lever	RP-BHD-CP10	CZ
OEZ:13656	Hand drive lever	RP-BHD-CP20	CZ
OEZ:13657	Hand drive lever	RP-BHD-CP21	CZ
OEZ:13658	Extension shaft	RP-BHD-CH10	CZ
OEZ:13659	Extension shaft	RP-BHD-CH20	CZ
OEZ:37246	Hand drive bearing	RP-BHD-CN40	CZ
OEZ:37247	Hand drive bearing	RP-BHD-CN41	CZ
OEZ:37248	Hand drive bearing	RP-BHD-CN60	CZ
OEZ:37249	Hand drive bearing	RP-BHD-CN61	CZ
OEZ:18290	Mechanical interlocking	RP-BHD-CB10	CZ
OEZ:18289	Mechanical parallel switching	RP-BHD-CD10	CZ
OEZ:19611	Mechanical interlocking	MB-BH-PV04	CZ
OEZ:19613	Mechanical interlocking	MB-BHD-PV03	CZ
OEZ:20590	Motor drive	MP-BH-X024	CZ
OEZ:19792	Motor drive	MP-BH-X048	CZ
OEZ:13539	Motor drive	MP-BH-X110	CZ
OEZ:13536	Motor drive	MP-BH-X230	CZ
OEZ:20591	Motor drive	MP-BH-X024-P	CZ
OEZ:19793	Motor drive	MP-BH-X048-P	CZ
OEZ:13687	Motor drive	MP-BH-X110-P	CZ
OEZ:13540	Motor drive	MP-BH-X230-P	CZ
OEZ:13531	Terminal cover	OD-BH-KS03	CZ
OEZ:19587	Terminal cover	OD-BH-KS43	CZ
OEZ:13532	Lockable lever	OD-BH-UP01	CZ
OEZ:15330	Bolt sealing insert	OD-BH-VP01	CZ
OEZ:18216	Additional cover for overcurrent release	OD-BH-VP02	CZ
OEZ:14554	Keying set	OD-BH-KK01	CZ
OEZ:13688	Counter of cycles	OD-BHD-PP01	CZ
OEZ:13809	Extension cable	OD-BHD-KA02	CZ
OEZ:24740	Insulating barriers	OD-BHD-KS02	CZ
OEZ:19575	Insulating barriers	OD-BHD-KS42	CZ
OEZ:14555	Connecting cable	OD-BHD-KA01	CZ
OEZ:14642	Cover of switch on push-button	OD-BHD-KT01	CZ
OEZ:37425	Control relay	OD-BHD-RX01	CZ
OEZ:37426	Control relay	OD-BHD-RX02	CZ
OEZ:37427	Control relay	OD-BHD-RA03	CZ
OEZ:37428	Control relay	OD-BHD-RD04	CZ
OEZ:14560	Signalling of position	SO-BHD-0010	CZ
OEZ:34458	Spare part	OD-BH-SP01	CZ
OEZ:15331	Spare part	OD-BH-DV01	CZ
OEZ:14420	Spare part	OD-BH-MS01	CZ
OEZ:24730	Spare part	OD-BH-KS01	CZ
OEZ:35894	Spare part	OD-BH-KS44	CZ
OEZ:35895	Spare part	OD-BH-KS45	CZ
OEZ:34460	Spare part	OD-BHD-JUMP	CZ

OEZ:34461	Spare part	OD-BHD-KON2	CZ
OEZ:19510	Circuit breaker	BH100NE305-100-UA01	CZ
OEZ:18467	Circuit breaker	BH100NE305-100-MTV9	CZ
OEZ:18463	Circuit breaker	BH100NE305-100-MTV8	CZ
OEZ:18464	Circuit breaker	BH40NE305-40-MTV8	CZ
OEZ:18465	Circuit breaker	BH40NE305-40-MTV9	CZ
OEZ:35880	Circuit breaker	BH630NE305-400-MTV8	CZ
OEZ:34846	Circuit breaker	BH630NE305-630-MTV8	CZ
OEZ:38914	Switch-disconnector	BH630NE305-630-V	CZ
OEZ:38916	Switch-disconnector	BH630NE405-630-V	CZ

SUMMARY OF MODELS AND ACCESSORIES

3P 4P

CONNECTING SETS

Clamp terminals — CS-BD-T011

Block terminals — CS-BD-B011

Block terminals — CS-BD-B012

Double block terminals — CS-BD-B021, CS-BD-B022

Block terminals — CS-BD-B014

Rear connection — CS-BD-A021

Front connection — CS-BD-A011

Potential terminals — CS-BD-PS01

HAND DRIVES

RP-BD-CK..
RP-BHD-CP..

RP-BHD-CN..
RP-BHD-CH..

Mechanical parallel switching
RP-BHD-CD10

Mechanical interlocking
RP-BHD-CB10

Mechanical blocking with Bowden cable
MB-BD-PV05
MB-BHD-PV03

SWITCHING UNIT
BD250SE305
BD250NE305

PLUG-IN DEVICE
ZO-BD-0250-300

WITHDRAWABLE DEVICE
ZV-BD-0250-300

MOTOR DRIVES MP-BD-X...
OD-BHD-KA02
OD-BHD-PP01

SWITCHES PS-BHD-...
Simple
Double
Make-and-break
Early

SHUNT TRIP SV-BHD-X...

UNDERVOLTAGE RELEASE SP-BHD-X...

OVERCURRENT RELEASES

SE-BD...-L001

SE-BD...-DTV3

SE-BD...-MTV8

SE-BD...-MTV9

SWITCH-DISCONNECTOR UNIT

SE-BD-0250-V001

SE-BD...-4D01

ACCESSORIES TO ZO... AND ZV...
Connecting cable
OD-BHD-KA01

Signalling of position
SO-BHD-0010

ACCESSORIES

Lever with locking — OD-BD-UP01

Sealing insert — OD-BD-VP01

Additional cover for overcurrent release — OD-BD-VP02

Terminal cover — OD-BD-KS03

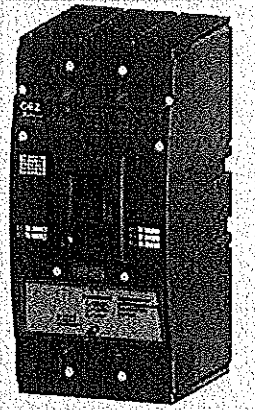
Insulating barriers — OD-BHD-KS02

Keying set
OD-BD-KK01

CIRCUIT BREAKERS, SWITCH-DISCONNECTORS

3P 4P

Circuit breaker



Switch-disconnector

Specifications

Type		CIRCUIT BREAKER BD250N, BD250S	SWITCH-DISCONNECTOR
Dimensions A x B x C + D (3P/4P design)		105/140 x 225 x 105 + 43 mm	105/140 x 225 x 105 + 43 mm
Weight (3P/4P design)		3 kg/4 kg	3 kg/4 kg
Standards		EN 60947-2, IEC 60947-2	EN 60947-3, IEC 60947-3
Approval marks		CE	
Number of poles		3, 4	3, 4
Rated current	I_n	100, 160, 200, 250 A	-
Rated normal current	I_u	250 A	250 A
Rated operating current	I_e	-	250 A
Rated operating voltage	U_e	max. 690 V a.c. -	max. 690 V a.c. max. 440 V d.c.
Rated frequency	f_n	50/60 Hz	50/60 Hz
Rated impulse withstand voltage	U_{imp}	8 kV	8 kV
Rated insulation voltage	U_i	690 V	690 V
Utilization category (selectivity)	690 V a.c.	A	-
Utilization category (switching mode)	690 V a.c. 440 V d.c.	- -	AC-23B DC-23B
Rated short-time withstand current at U_e = 690 V a.c.	I_{cw} / t	2.5 kA/1 s	3 kA/5 s

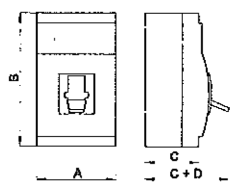
Series		NORMAL BD250N	SUPERIOR BD250S	U_e	-
Rated short-circuit ultimate breaking capacity (rms) [1]	I_{cu}	60 kA	100 kA	230 V a.c.	-
		36 kA	65 kA	415 V a.c.	
		16 kA	25 kA	500 V a.c.	
		10 kA	13 kA	690 V a.c.	
Rated short-circuit service breaking capacity (rms)	I_{cs}	30 kA	50 kA	230 V a.c.	-
		18 kA	36 kA	415 V a.c.	
		8 kA	13 kA	500 V a.c.	
		5 kA	8 kA	690 V a.c.	
Rated short-circuit making capacity (peak value)	I_{cm} / U_e	75 kA -	140 kA -	415 V a.c. -	4 kA/415 V a.c. 4 kA/440 V d.c.

		CIRCUIT BREAKER	SWITCH-DISCONNECTOR
Switching off time at I_{cu}		10 ms	-
Losses per 1 pole fixed/withdrawable design		18 W/25 W	18 W/25 W
Mechanical endurance		30 000 cycles	30 000 cycles
Electrical endurance		3 000 cycles	3 000 cycles
Switching frequency		120 cycles/hr	120 cycles/hr
Control force		80 N	80 N
Degree of protection from front side of the device		IP40	IP40
Degree of protection of terminals		IP20	IP20
Operating conditions			
Reference ambient temperature		40 °C	40 °C
Ambient temperature range		-40 °C ÷ +55 °C	-40 °C ÷ +55 °C
Working environment		dry and tropical climate	dry and tropical climate
Climatic resistance		EN 60068	EN 60068
Pollution degree		3	3
Max. sea level		2 000 m	2 000 m
Seismic resistance		3g (8 ÷ 50) Hz	3g (8 ÷ 50) Hz
Design modifications			
Front/rear connection		•/•	•/•
Plug-in design 3P/4P		•/•	•/•
Withdrawable design 3P/4P		•/•	•/•
Accessories			
Switches - auxiliary/relative/signal/early		•/•/•/•	•/•/•/•
Shunt trip		•	•
Undervoltage release/with early switch		•/•	•/•
Front hand drive/with adjustable lever		•/•	•/•
Mechanical interlocking-with Bowden cable/for hand drive		•/•	•/•
Motor drive/with counter of cycles		•/•	•/•
Lever with locking		•	•
Bolt sealing insert/additional cover for overcurrent release		•/•	•/•

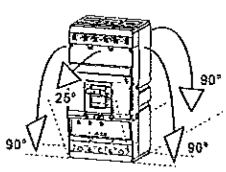
• available, – unavailable, + being prepared

[1] - in case circuit breaker connection is reversed (input terminals 2, 4, 6, output terminals 1, 3, 5) I_{cu} does not change

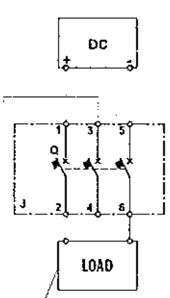
- protection of Modeion switch-disconnectors/see page R



Dimensions



Installation positions - fixed, plug-in and withdrawable design



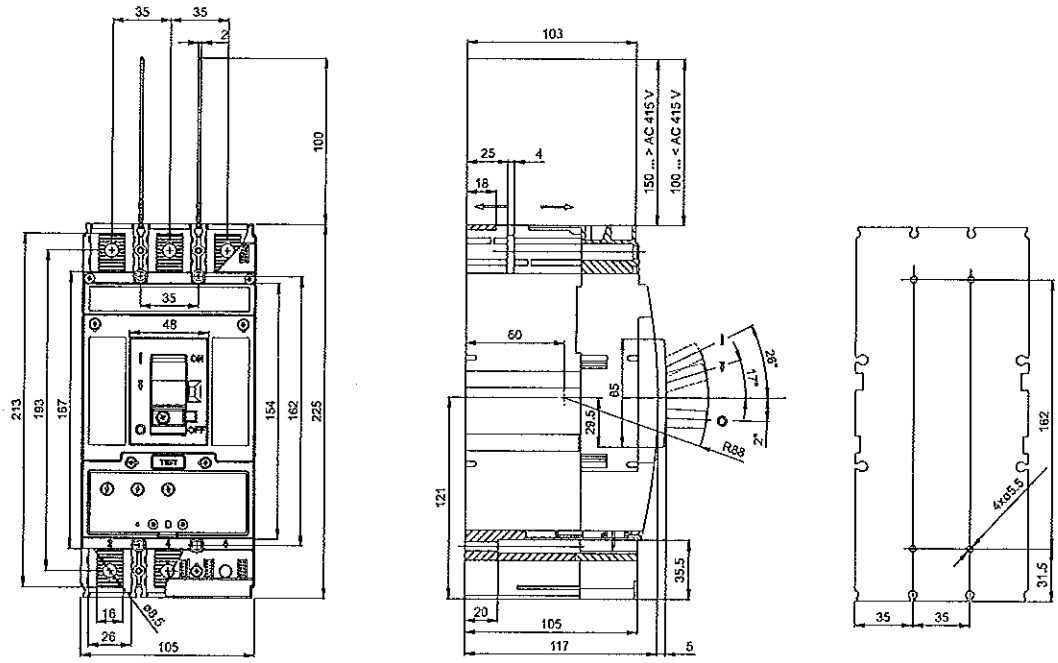
Connection of switch-disconnector for DC circuits

CIRCUIT BREAKERS, SWITCH-DISCONNECTORS

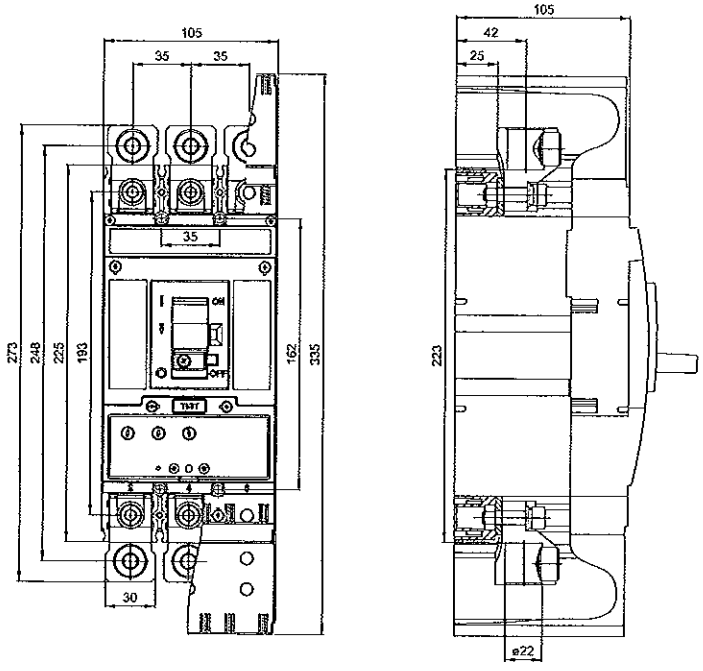
Dimensions

Fixed design, front connection

Drilling diagram



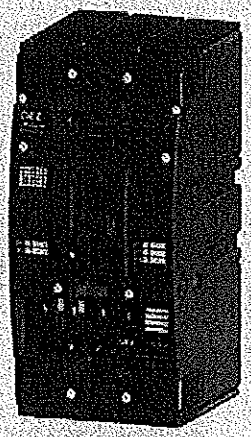
Fixed design, front connection (CS-BD-B012 connecting set)



Техническо описание - български език

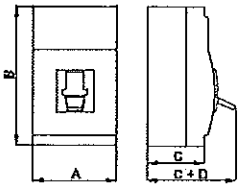
прекъсвачи, разединители

3P 4P

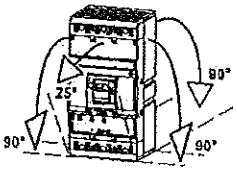


прекъсвач

разединител



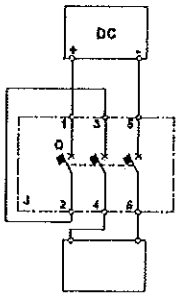
размери



Инсталационни позиции - фиксирана,плъгин,изтеглен дизайн

Спецификации

		Прекъсвач	Разединител
Вид		BD250N, BD250S	
Размери A x B x C + D (3P/4P дизайн)		105/140 x 225 x 105 + 43 mm	105/140 x 225 x 105 + 43 mm
Тегло (3P/4P дизайн)		3кг / 4кг	3 кг / 4 кг
Стандарти		EN 60947-2, IEC 60947-2	EN 60947-3, IEC 60947-3
Одобрена маркировка		CE	
Брой на полюсите		3, 4	3, 4
Номинален ток	I_n	100, 160, 200, 250 A	-
Нормален номинален ток	I_u	250 A	250 A
Работен номинален ток	I_e	-	250 A
Роботен номинален волтаж	U_e	max. 690 V a.c.	max. 690 V a.c. max. 440 V d.c.
Номинална честота	f_n	50/60 Hz	50/60 Hz
Номинално импулсно напрежение	U_{imp}	8 kV	8 kV
Номинално изолационно напрежение	U_i	690 V	690 V
Използваема категория (селективност)	690 V a.c.	A	-
Използваема категория (режим превключване)	690 V a.c.	-	AC-23B
	440 V d.c.	-	DC-23B
Номинален ток на късо съединение U_e = 690 V a.c.	I_{cw} / t	2.5 kA/1 s	3 kA/5 s
Серии		NORMAL BD250N	SUPERIOR BD250S
Номинална пределна отключваща способност на късо съединение (ефективна стойност (rms) [1])	I_{cu}	60 kA	100 kA 230 V a.c.
		36 kA	65 kA 415 V a.c.
		16 kA	25 kA 500 V a.c.
		10 kA	13 kA 690 V a.c.
Номинална работна отключваща способност на късо съединение (ефективна стойност (rms) [1])	I_{cs}	30 kA	50 kA 230 V a.c.
		18 kA	36 kA 415 V a.c.
		8 kA	13 kA 500 V a.c.
		5 kA	8 kA 690 V a.c.
Номинална работна отключваща способност (пикова стойност)	I_{cm} / U_e	75 kA	140 kA 415 V a.c.
		-	- - 4 kA/415 V a.c. 4 kA/440 V d.c.
Време на изключване при I_{cu}		10 ms	-
Загуби на един полюс /стационарен / изваден състояние		18 W/25 W	18 W/25 W
Механическа износоустойчивост		30 000 cycles	30 000 cycles
Електрическа износоустойчивост		3 000 cycles	3 000 cycles
Честота на прекъсване		120 cycles/hr	120 cycles/hr
Сила на управление		80 N	80 N
Степен на защита отпред		IP40	IP40
Степен на защита на терминалите		IP20	IP20
Работни условия			
Нормална температура на околната среда		40 °C	40 °C
Диапазон на температурата на околната среда		-40 °C ÷ +55 °C	-40 °C ÷ +55 °C
Работна среда		Сух и тропически климат	Сух и тропически климат
Климатична устойчивост		EN 60068	EN 60068
Степен на замърсяване		3	3
Максимална височина над морското равнище		2.000 m	2.000 m
Вибрационна устойчивост		3g (8 ÷ 150) Hz	3g (8 ÷ 150) Hz
Модификации на конструкцията			
Предна/задна връзка		•/•	•/•
Подвижно изпълнение		•/•	•/•
Изваждаемо изпълнение		•/•	•/•
Принадлежности			



Изключватели-спомагателни/относителни/сигнали/изпреварващи	•/•/•/•	•/•/•/•
Независим разединител	•	•
Разединител на минимално напрежение/с изпреварващо изключване	•/•	•/•
Ръчен преден привод с регулируем лост	•/•	•/•
Механична блокировка – с бронирано – за ръчно управление	•/•	•/•
Моторен привод с брояч на циклите	•/•	•/•
Лост с блокировка	•	•
Вкладк на винта за пломбиране/допълнително капаче на разединителя по максимален ток	•/•	•/•

• достъпен, – недостъпен, +в процес на подготовка

[1] - в случай, че връзката на прекъсвача е обратна (входни терминали 2, 4, 6, изходни терминали 1, 3, 5) I

Не се зарежда

- Защита на Modion разединители, вижте стр. R

OEZ

ENGLISH
ČESKY

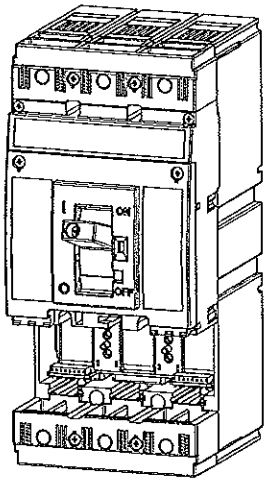
INSTRUCTIONS FOR USE, NÁVOD K POUŽITÍ

SWITCHING UNIT
SPÍNACÍ BLOK

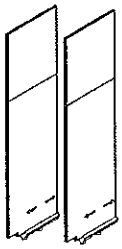
BD250NE305
BD250SE305

1

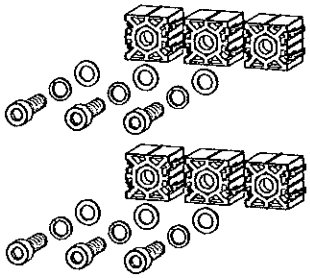
BD250NE305
BD250SE305



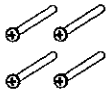
OD-BHD-KS02



2x CS-BD-A011



OD-BD-MS01

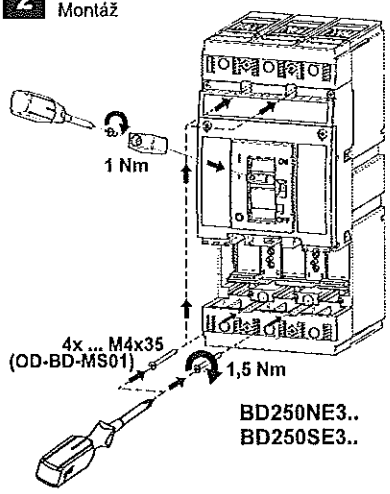


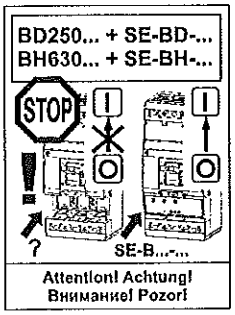
Installation, service and maintenance of the electrical equipment may be carried out by an authorized person only.

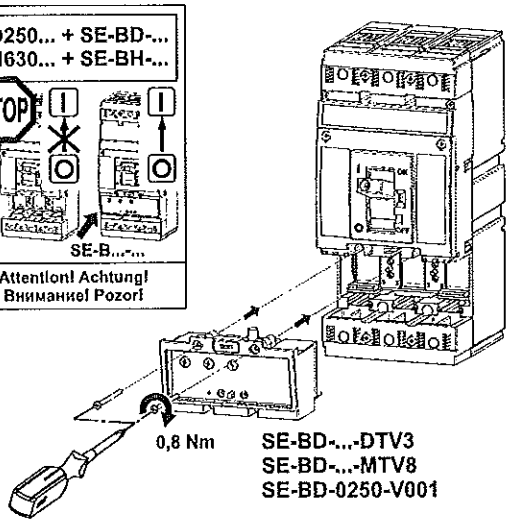
Montáž, obsluhu a údržbu smí provádět jen osoba s odpovídající elektrotechnickou kvalifikací.

990469g Z00

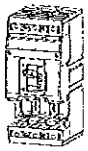
2 Mounting
Montáž





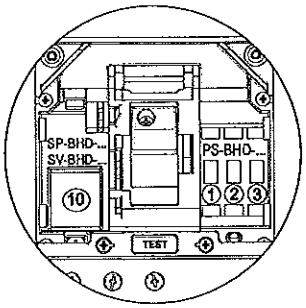


! Do not operate the switching block BD250... without overcurrent release or blinding block (SE-BD...) !!!
Spínací blok BD250... se nesmí provozovat bez nadproudové spouště nebo zaslepovacího bloku odpínače (SE-BD...) !!!



	SE-BD-...-L001 SE-BD-...-DTV3	SE-BD-...-MTV8 SE-BD-...-MTV9	SE-BD-0250-V001
BD250NE3..	●	●	●
BD250SE3..	●	●	●

Combination : ● ... Yes ; ▬ ... No
Kombinace : ● ... Ano ; ▬ ... Ne



3

1)* 1 = switched on sepnuto 0 = switched off rozepnuto	①			②			③			⑩	②③	②③	②③
	PS-BHD-1000	PS-BHD-0100	PS-BHD-0010	PS-BHD-1000	PS-BHD-0100	PS-BHD-0010	PS-BHD-1000	PS-BHD-0100	PS-BHD-0010	SP-BHD-0002	PS-BHD-2000	PS-BHD-1100	PS-BHD-0200
2)* State of circuit - breaker Stav jističe	.3 .1 .2 .4 .4 .2 .1-2 .1-4 .1			.3 .1 .2 .4 .4 .2 .1-2 .1-4 .1			.3 .1 .2 .4 .4 .2 .1-2 .1-4 .1				.3 .3 .4 .4	.1 .3 .2 .4	.1 .1 .2 .2
I	1	0	0 1	0	1	1 0	1	0	0 1	1 0	1 1	0 1	0 0
O	1	0	0 1	0	1	1 0	0	1	1 0	0 1	0 0	1 0	1 1
SE-B ...	0	1	1 0	1	0	0 1	0	1	1 0	0 1	0 0	1 0	1 1
MP-B ... TEST ... SP-B ... SV-B ...	1	0	0 1	1	0	0 1	0	1	1 0	0 1	0 0	1 0	1 1

③ **Auxiliary switch**
Pomocný spínač

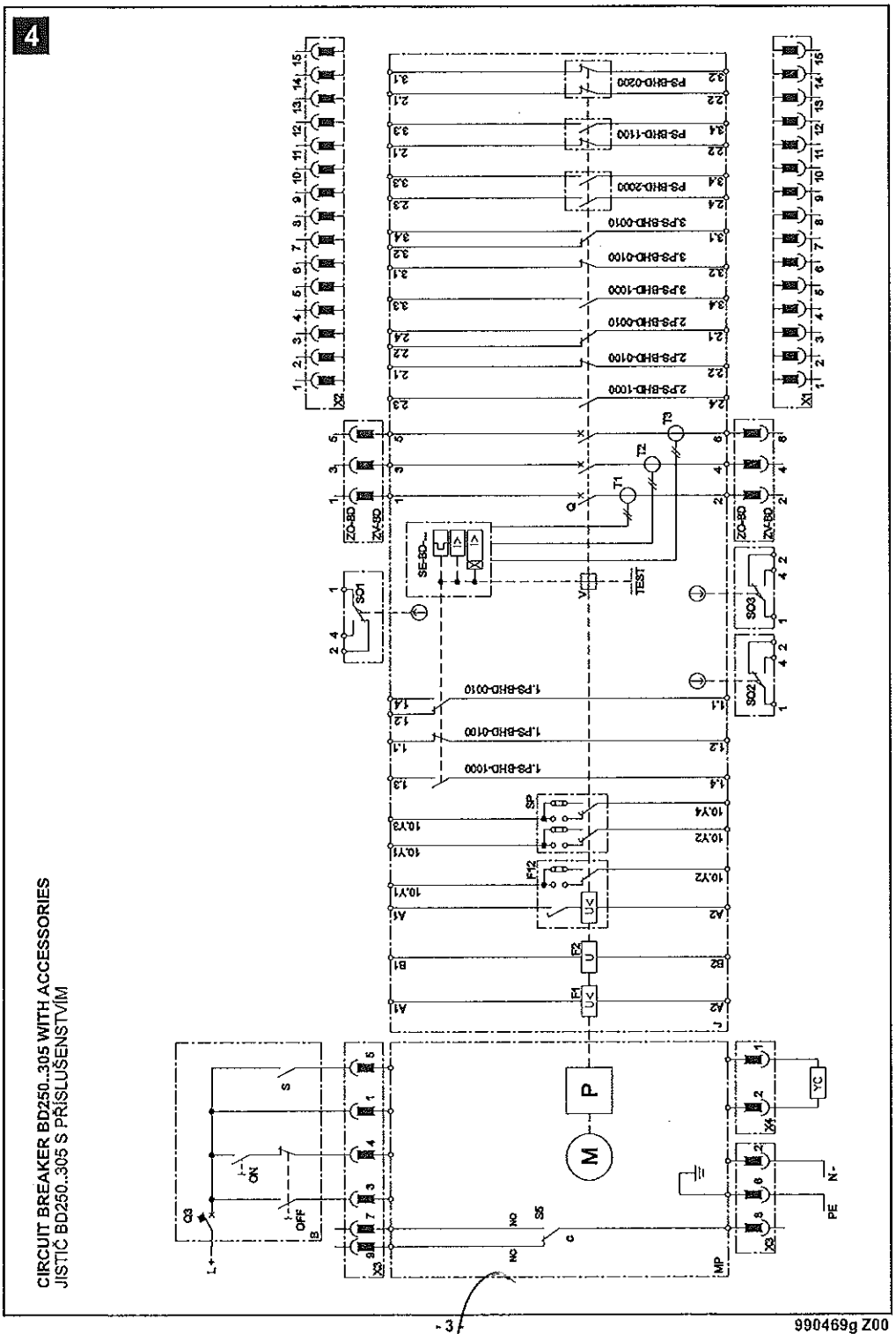
② **Relative switch**
Relativní spínač

① **Signal switch**
Návěstní spínač

⑩ **Auxiliary releases**
Pomocné spouště

990469g Z00

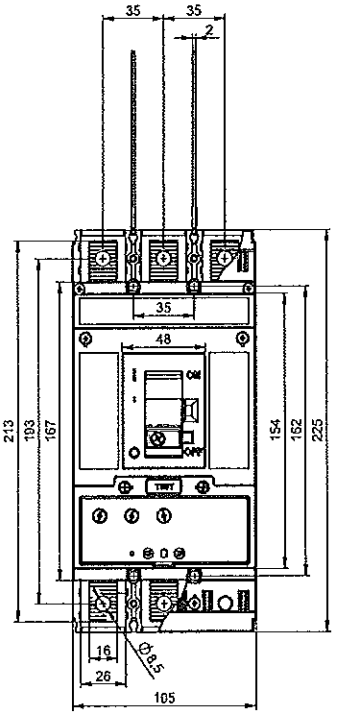
4

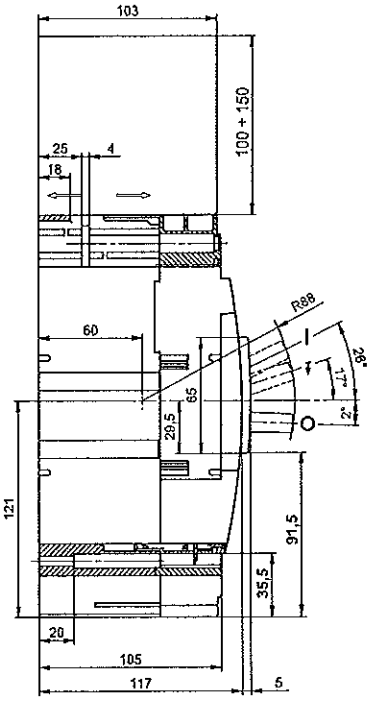


CIRCUIT BREAKER BD250..305 WITH ACCESSORIES
JISTIČ BD250..305 S PŘÍSLUŠENSTVÍM

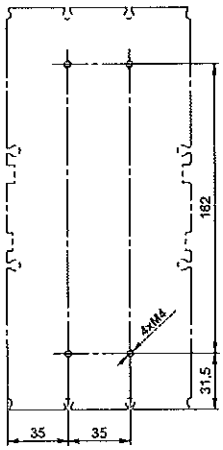
990469g Z00

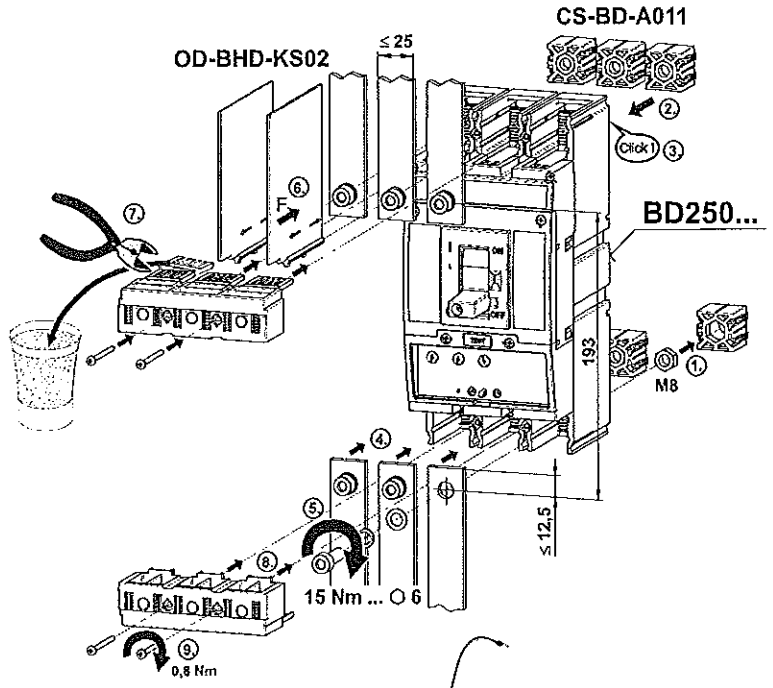
5 FIXED DESIGN, FRONT CONNECTION
PEVNÉ PROVEDENÍ, PŘEDNÍ PŘÍVOD





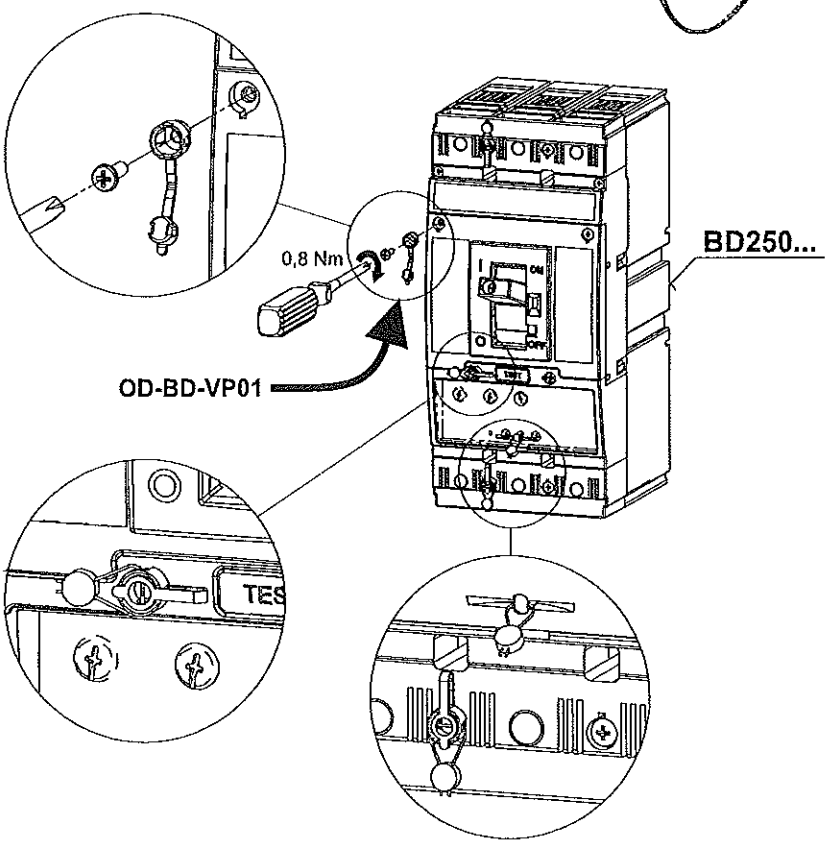
DRILLING DIAGRAM
VRTACÍ PLÁN



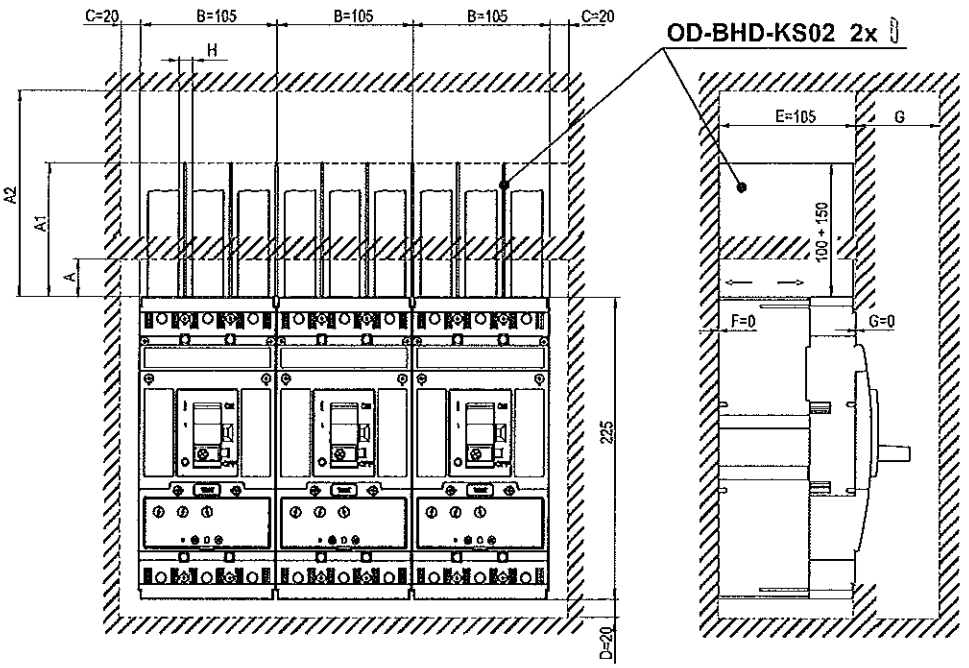


990469g Z00

6 Sealing
Plombování



7 MINIMUM DEIONIZATION SPACE WITHOUT EARTHED METALLIC CONSTRUCTIONS
MINIMÁLNÍ DEIONIZAČNÍ PROSTOR BEZ KOVOVÝCH UZEMNĚNÝCH KONSTRUKCÍ



A - minimum distance between the circuit breaker and bare wall (this is valid for insulated conductors, cables, flexi bars or rear connection)
- minimální vzdálenost mezi jističem a neizolovanou uzemněnou stěnou (platí pro izolované vodiče, kabely, flexibary nebo zadní přívod)

A1- minimum length of insulation of bare conductors (with use of insulating barriers OD-BHD-KS02 from 100 mm to max. 150 mm, possibly with additional insulation of conductors above the barriers to A1 level)
- minimální délka izolace holých vodičů (použitím izolačních přepážek OD-BHD-KS02 od 100 mm do max. 150 mm, případně doplňkovou izolací vodičů nad přepážkami minimálně na hodnotu A1)

A2- minimum distance between the circuit breaker and bare wall (this is valid for bare conductors and busbars), ... between the conductor and busbar, ... between two circuit breakers installed vertically above each other, ... between bare leads of two circuit breakers above each other
- minimální vzdálenost mezi jističem a neizolovanou uzemněnou stěnou (platí pro nelzolované vodiče a sběrnice), ... mezi jističem a sběrnicí, ... mezi dvěmi jističi umístěnými vertikálně nad sebou, ... mezi nelzolovanými přívody dvou jističů nad sebou

C, D, E, F, G - minimum distance between circuit breaker and bare earthed wall
- minimální vzdálenost mezi jističem a neizolovanou uzemněnou stěnou

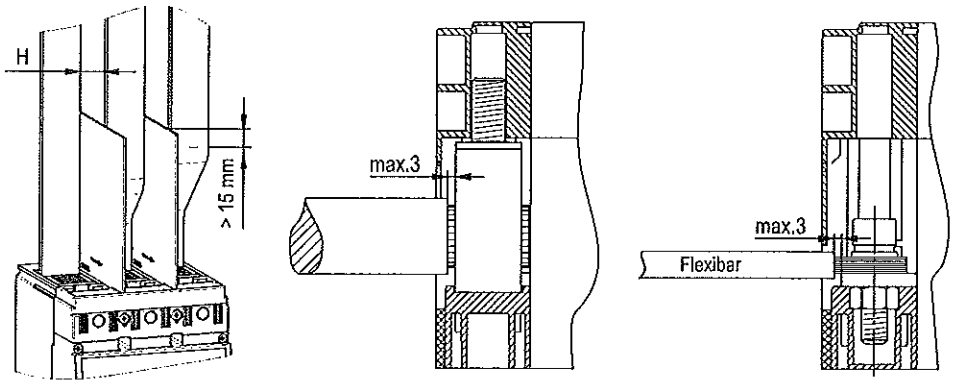
H - minimum distance between bare conductors
- minimální vzdálenost mezi nelzolovanými vodiči

BD250			U=230 V AC	U=230 V AC	U=415 V AC	U=415 V AC	U=500 V AC	U=500 V AC	U=690 V AC	U=690 V AC
G	H		Icu < 60 kA	Icu > 60 kA	Icu < 36 kA	Icu ≥ 36 kA	Icu < 16 kA	Icu ≥ 16 kA	Icu < 10 kA	Icu ≥ 10 kA
< 60 mm	≥ 10 mm	A	50 mm			50 mm				
		A1	100 mm			150 mm				
		A2	200 mm			250 mm				
	≥ 30 mm	A	50 mm			50 mm				
		A1	100 mm			150 mm				
		A2	150 mm			200 mm				
≥ 60 mm	≥ 10 mm	A	50 mm			50 mm				
		A1	100 mm			150 mm				
		A2	150 mm			200 mm				

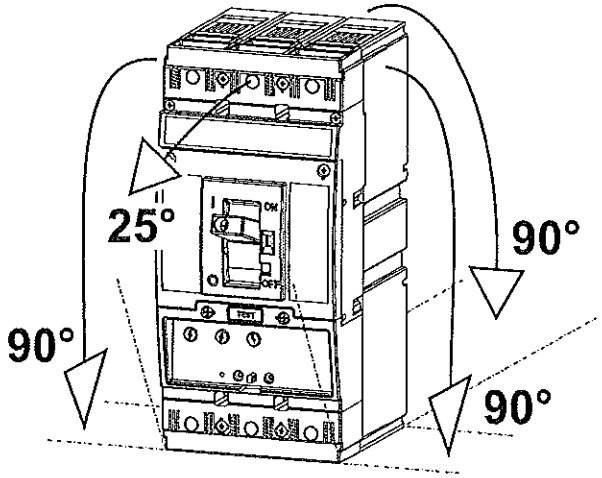
8

In use of insulated conductors, cables, flexi bars or rear connection, it is not necessary to use OD-BHD-KS02 insulating barriers for U ≤ 415V AC.

Při použití izolovaných vodičů, kabelů, flexibarů nebo zadního přívodu není nutné do U ≤ 415V AC použít izolační přepážky OD-BHD-KS02.



9 Operating positions
Pracovní polohy



10 **Only materials which have low adverse environmental impact and which do not contain dangerous substances as specified in ROHS directive have been used in the product.**

Ve výrobku jsou použity materiály s nízkým negativním dopadem na životní prostředí, které neobsahují zakázané nebezpečné látky dle ROHS.

Инструкция за експлоатация на български

Коммутационен блок - BD250NE305, BD250SE305

1 Монтаж, експлоатация и поддръжка може да се извършва само от лице с подходяща електротехническа квалификации

2 Монтаж

! Коммутационен блок BD250...забранява се използването му без разединител на максималния ток или блок разединител (SE-BD...)!!!

Комбинация:
o ... да
-... не

3	(1)	-PS-BHD-...	Сигнал включен
	(2)	-PS-BHD-...	Сигнал изключен
	(3)	-PS-BHD-...	Помощно изключване
	(10)	-SP-BHD-..., SV-BHD-...	Помощно освобождаване

1) 1= включен
0= изключен
2) * Състояние на автоматичния изключвател

4 Автоматичен разединител BD250..305 с аксесоари

5 Стационарно изпълнение
Предно подвеждане
План за рзапробиване

6 Пломбирование

7 Минимално. дейонизация пространство без заземени метални конструкции
A - Минималното разстояние между прекъсвача и неизолирани заземени стена (валиден за изолирани проводници, кабели, гъвкави ленти или задната връзка)
A1) минимална дължина на изолация на голи проводници (с използване на изолационни бариери OD-BHD-KS02 от 100 mm до макс. 150 mm, с възможност за допълнителна изолация на проводници над бариерите за ниво A1)
A2 - Минималното разстояние между прекъсвача и неизолирани заземени стена (валиден за неизолирани проводници и шини),
. между прекъсвача и шината
. между два прекъсвача, поставени вертикално един над друг
. между неизолирани входове между два прекъсвача един над друг
C, D, E, F, G - Минимално разстояние между автоматичен прекъсвач и неизолирана заземена стена
H - Минимално разстояние между голите проводници

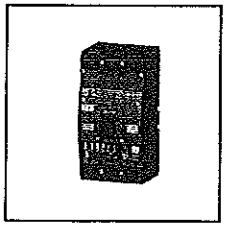
8 При июползване на изолирани проводници, кабели, гъвкави шини или заднен вход до U < 415 V променлив ток няма необходимост да се използват изолационни прегради OD-BHD-KS02 .

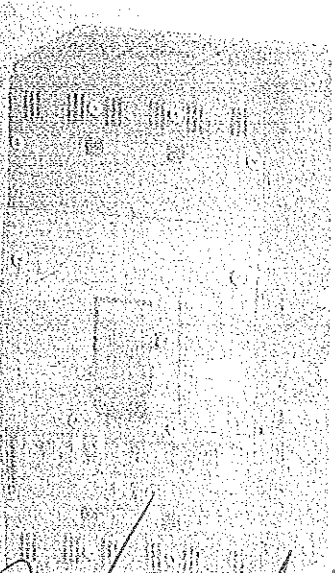
9 Работно положене

10 В изделията са използвани материали с малко негативно влияние на околната среда, които не съдържат забранени опасни вещества, указани в директива ROHS.

11 План за разпробиване

MOULDED CASE CIRCUIT BREAKERS BH630N, BH630S





COMMERCIAL INFORMATION

3P 4P

TECHNICAL INFORMATION

SUMMARY OF MODELS AND ACCESSORIES

3P 4P

CONNECTING SETS

Clamp terminals — CS-BH-T011

Block terminals — CS-BH-B011, CS-BH-B012

Double block terminals — CS-BH-B021, CS-BH-B022

Block terminals — CS-BH-B031, CS-BH-B032

Block terminals — CS-BH-B014

Rear connection — CS-BH-A021

Front connection — CS-BH-A011

Potential terminals — CS-BH-PS01

HAND DRIVES

RP-BH-CK..
RP-BHD-CP..

RP-BHD-CH..
RP-BHD-CN..

Mechanical parallel switching
RP-BHD-CD10

Mechanical interlocking
RP-BHD-CB10

Mechanical blocking with Bowden cable
MB-BH-PV04
MB-BHD-PV03

SWITCHING UNIT
BH630SE30S
BH630NE30S

PLUG-IN DEVICE
ZO-BH-0630-300

WITHDRAWABLE DEVICE
ZV-BH-0630-300

MOTOR DRIVES MP-BH-X...
OD-BHD-KA02
OD-BHD-PP01

SWITCHES PS-BHD-...
Simple
Double
Make-and-break
Early

SHUNT TRIP SV-BHD-X...

UNDERVOLTAGE RELEASE SP-BHD-X...

OVERCURRENT RELEASES

SE-BH-...L001
SE-BH-...DTV3
SE-BH-...MTV8
SE-BH-...MTV9

SWITCH-DISCONNECTOR UNIT

SE-BH-0630-V001
SE-BH-0630-4D01

ACCESSORIES TO ZO... AND ZV...
Connecting cable
OD-BHD-KA01

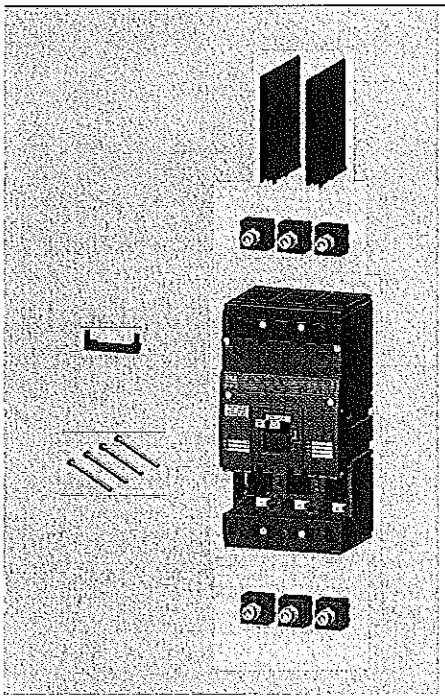
Signalling of position
SO-BHD-0010

Keying set
OD-BH-KK01

ACCESSORIES
Lever with locking — OD-BH-UP01
Sealing insert — OD-BH-VP01
Additional cover for overcurrent release — OD-BH-VP02
Terminal cover — OD-BH-KS03
Insulating barriers — OD-BHD-KS02

SWITCHING UNITS

3P



Type	Product code	I [A]	I [kA]	Weight [kg]	Package [pc]
BH630NE305	14412	630	36	5.3	1
BH630SE305	14413	630	65	5.3	1

- TECHNICAL INFORMATION, see page F15
- the method of power circuit connection must observe recommendations, see page F18 as well as deionization space, see page F22

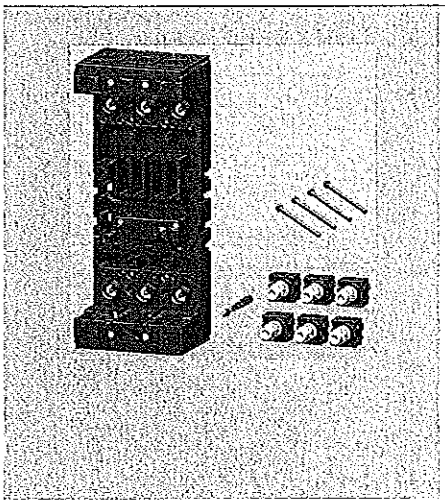
- Switching unit: includes - 2 CS-BH-A011 connecting sets - for connecting busbars or cable lugs [1]
  - insulating barriers OD-BHD-KS02
  - mounting bolts set OD-BH-MS01 (4x M5x35)
  - conductor holder OD-BH-DV01

must be fitted with - by overcurrent release SE-BH-....-.... (circuit breaker)
or switch-disconnector unit SE-BH-0630-V001 (switch-disconnector)

[1] - for connecting in another way, it is necessary to use CS-BH-... connecting sets, see page F8

PLUG-IN DEVICE

3P



Type	Product code	Name	Weight [kg]	Package [pc]
ZO-BH-0630-300	14556	Plug-in device	2.61	1

- TECHNICAL INFORMATION, see page F48

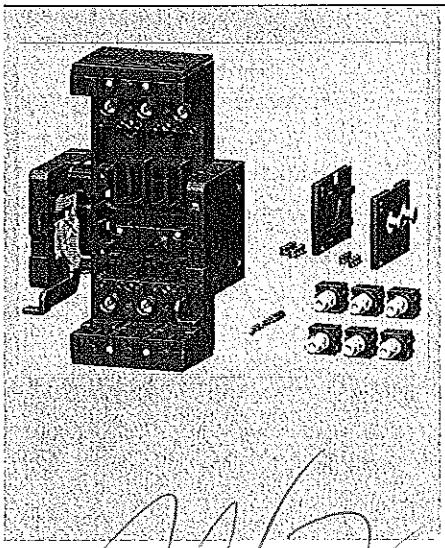
- Plug-in device: includes - complete accessories for assembly circuit breakers/switch-disconnectors in plug-in design
  - mounting bolts set (4x M5x45) for affixing switching unit to plug-in device

must be fitted with - switching unit BH630..305

- for connecting plug-in device with busbars or cable lugs, connecting sets CS-BH-A011 can be used, that are included in the package of the BH630..305 switching unit - for connecting in another way, it is necessary to use CS-BH-... connecting sets, see page F8

WITHDRAWABLE DEVICE

3P



Type	Product code	Name	Weight [kg]	Package [pc]
ZV-BH-0630-300	14553	Withdrawable device	3.664	1

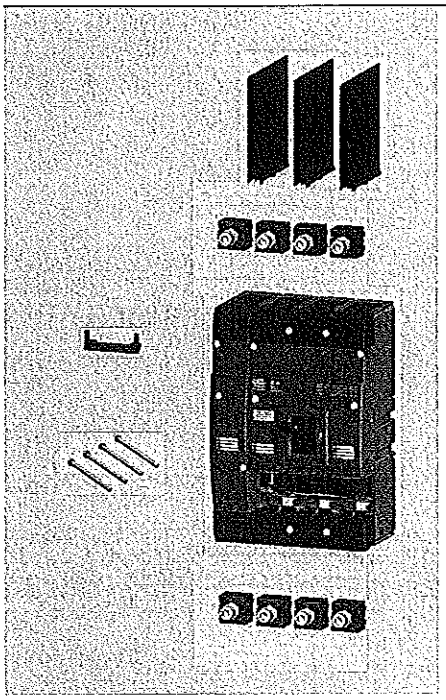
- TECHNICAL INFORMATION, see page F50

- Withdrawable device: includes - complete accessories for assembly circuit breakers/switch-disconnectors in withdrawable design

must be fitted with - switching unit BH630..305

- for connecting withdrawable device with busbars or cable lugs, connecting sets CS-BH-A011 can be used, that are included in the package of the BH630..305 switching unit - for connecting in another way, it is necessary to use CS-BH ... connecting sets, see page F8

SWITCHING UNITS



4P

Type	Product code	I [A]	I_cs [kA]		Weight [kg]	Package [pc]
BH630NE405	19583	630	36	3P + N - conductor switching	6.65	1
BH630SE405	19585	630	65	3P + N - conductor switching	6.65	1
BH630NE406	19584	630	36	4P - conductor protection	7	1
BH630SE406	19586	630	65	4P - conductor protection	7	1

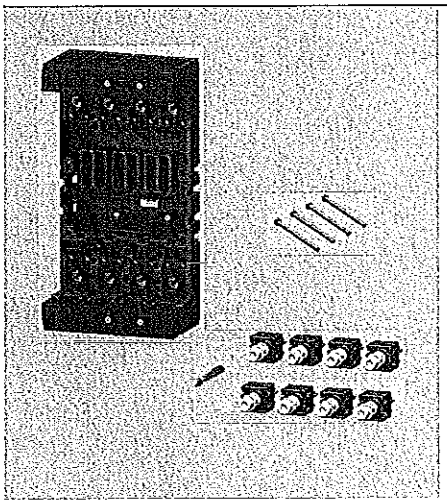
- TECHNICAL INFORMATION, see page F15
- the method of power circuit connection must observe recommendations, see page F18 as well as deionization space, see page F22

- Switching unit: includes - 2 connecting sets - for connecting busbars or cable lugs [1]
  - insulating barriers
  - mounting bolts set OD-BH-MS01 (4x M4x35)
  - conductor holder OD-BH-DV01

must be fitted with - by overcurrent release SE-BH-....-.... (circuit breaker)
or switch-disconnector unit SE-BH-0630-V001 (switch-disconnector)

[1] - for connecting in another way, it is necessary to use CS-BH-... connecting sets, see page F8

PLUG-IN DEVICE



4P

Type	Product code	Name	Weight [kg]	Package [pc]
ZO-BH-0630-400	20649	Plug-in device	3.4	1

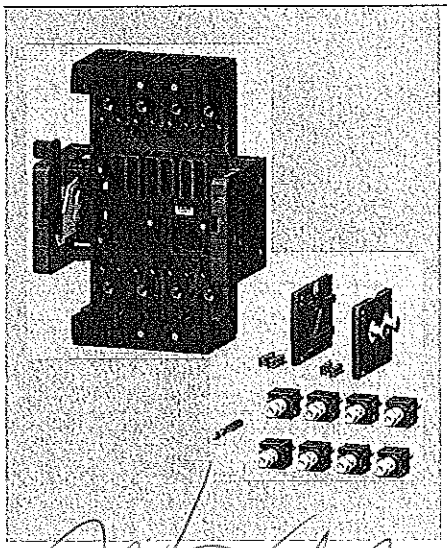
- TECHNICAL INFORMATION, see page F48

- Plug-in device: includes - complete accessories for assembly circuit breakers/switch-disconnectors in plug-in design
  - mounting bolts set (4x M4x45) - for affixing switching unit to plug-in device

must be fitted with - switching unit BH630..405 or BH630..406

- for connecting plug-in device with busbars or cable lugs, connecting sets can be used, that are included in the package of the BH630..40... switching unit - for connecting in another way, it is necessary to use CS-BH-... connecting sets, see page F8

WITHDRAWABLE DEVICE



4P

Type	Product code	Name	Weight [kg]	Package [pc]
ZV-BH-0630-400	20650	Withdrawable device	4.5	1

- TECHNICAL INFORMATION, see page F50

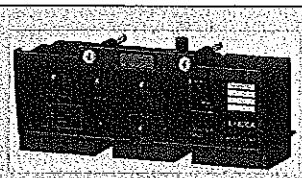
- Withdrawable device: includes - complete accessories for assembly circuit breakers/switch-disconnectors in withdrawable design

must be fitted with - switching unit BH630..405 or BH630..406

- for connecting withdrawable device with busbars or cable lugs, connecting sets can be used that are included with the BH630..40... switching unit - for connecting in another way, it is necessary to use CS-BH-... connecting sets, see page F8

OVERCURRENT RELEASES

3P 4P

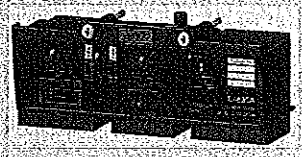


DTV3 - characteristic D - distribution

- protection lines and transformers

I_n [A]	Type	Product code	Description	Weight [kg]	Package [pc]
250	SE-BH-0250-DTV3	25300	I_n setting = 100 ÷ 250 A	0.345	1
400	SE-BH-0400-DTV3	25200	I_n setting = 160 ÷ 400 A	0.345	1
630	SE-BH-0630-DTV3	25100	I_n setting = 250 ÷ 630 A	0.345	1

- TECHNICAL INFORMATION, see page F52

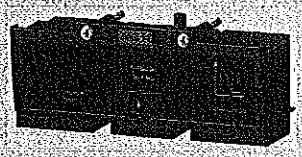


MTV8 - characteristic M - motor

- direct protection for motors and generators
- possibility of protection lines and transformers

I_n [A]	Type	Product code	Description	Weight [kg]	Package [pc]
250	SE-BH-0250-MTV8	25310	I_n setting = 100 ÷ 250 A	0.345	1
400	SE-BH-0400-MTV8	25210	I_n setting = 160 ÷ 400 A	0.345	1
630	SE-BH-0630-MTV8	25110	I_n setting = 250 ÷ 630 A	0.345	1

- TECHNICAL INFORMATION, see page F53

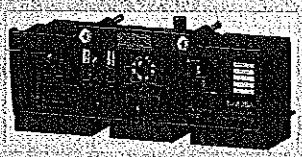


L001 - characteristic L - lines

- protection lines with low starting currents
- without I_n setting

I_n [A]	Type	Product code	Description	Weight [kg]	Package [pc]
250	SE-BH-0250-L001	20614	Without I_n setting	0.345	1
315	SE-BH-0315-L001	20615	Without I_n setting	0.345	1
400	SE-BH-0400-L001	20616	Without I_n setting	0.345	1
500	SE-BH-0500-L001	20617	Without I_n setting	0.345	1
630	SE-BH-0630-L001	20618	Without I_n setting	0.345	1

- TECHNICAL INFORMATION, see page F55



MTV9 - characteristic M - motor with adjustable timing selectivity

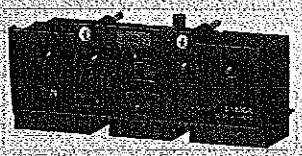
- direct protection for motors and generators
- possibility of protection lines and transformers
- enables setting delay of independent release to 0, 100, 200 or 300 ms

I_n [A]	Type	Product code	Description	Weight [kg]	Package [pc]
250	SE-BH-0250-MTV9	19566	I_n setting = 100 ÷ 250 A	0.345	1
400	SE-BH-0400-MTV9	19567	I_n setting = 160 ÷ 400 A	0.345	1
630	SE-BH-0630-MTV9	19568	I_n setting = 250 ÷ 630 A	0.345	1

- TECHNICAL INFORMATION, see page F56

OVERCURRENT RELEASES

4P



4D01 - characteristic D - distribution with N-pole protection

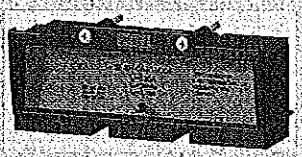
- protection lines and transformers in TN-C-S and TN-S networks

I_n [A]	Type	Product code	Description	Weight [kg]	Package [pc]
250	SE-BH-0250-4D01	33426	I_n setting = 100 ÷ 250 A	0.355	1
400	SE-BH-0400-4D01	33427	I_n setting = 160 ÷ 400 A	0.355	1
630	SE-BH-0630-4D01	33428	I_n setting = 250 ÷ 630 A	0.355	1

- TECHNICAL INFORMATION, see page F58
- intended for BH630..406 switching unit

SWITCH-DISCONNECTOR UNIT

3P 4P

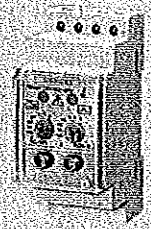


I_n [A]	Type	Product code	Description	Weight [kg]	Package [pc]
630	SE-BH-0630-V001	25110	Switch-disconnector unit	0.295	1

- TECHNICAL INFORMATION, see page F15

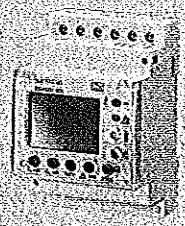
RESIDUAL CURRENT MONITOR

3P 4P



Type	Product code	Description	Weight [kg]	Package [set]
5SV8000-6KK	42658	Analogue design, $I_{\Delta n}$ and $t_{\Delta n}$ setting	0.18	1

- TECHNICAL INFORMATION, see page P4

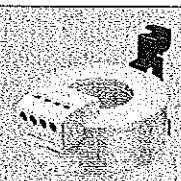


Type	Product code	Description	Weight [kg]	Package [set]
5SV8001-6KK	42659	Digital design, $I_{\Delta n}$ and $t_{\Delta n}$ setting	0.26	1
5SV8200-6KK	42660	Digital design, $I_{\Delta n}$ and $t_{\Delta n}$ setting, 4 channels	0.26	1

- TECHNICAL INFORMATION, see page P4

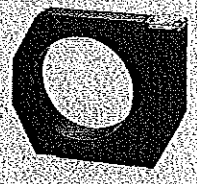
CURRENT TRANSFORMERS FOR RESIDUAL CURRENT MONITOR

3P 4P



Type	Product code	Description	Weight [kg]	Package [set]
5SV8700-0KK	42661	Internal diameter 20 mm, including holder on „U" rail according to EN 60715 wide 35 mm	0.09	1
5SV8701-0KK	42662	Internal diameter 30 mm, including holder on „U" rail according to EN 60715 wide 35 mm	0.11	1

- TECHNICAL INFORMATION, see page P4



Type	Product code	Description	Weight [kg]	Package [set]
5SV8702-0KK	42663	Internal diameter 35 mm, including holder on the panel	0.2	1
5SV8703-0KK	42664	Internal diameter 70 mm, including holder on the panel	0.31	1
5SV8704-0KK	42665	Internal diameter 105 mm, including holder on the panel	0.6	1
5SV8705-0KK	42666	Internal diameter 140 mm, including holder on the panel	1.35	1
5SV8706-0KK	42667	Internal diameter 210 mm, including holder on the panel	1.25	1

- TECHNICAL INFORMATION, see page P4

Type	Product code	Description	Weight [kg]	Package [set]
5SV8 900-1KK	42668	Holder on „U" rail according to EN 60715 wide 35 mm, for current transformers with internal diameter up to and including 105 mm	0.01	2

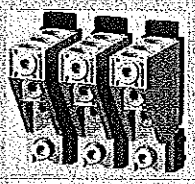
- TECHNICAL INFORMATION, see page P4

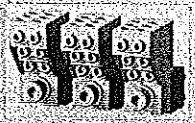
330

CONNECTING SETS

3P 4P






3 terminals

Type	Product code	Description	S [mm²]	Method of connection	Weight [kg]	Package [set]
CS-BH-T011	24820	Clamp terminals	35 ÷ 240	Cu cables, flexibars	0.433	1

- TECHNICAL INFORMATION, see page F19

CS-BH-B011	24761	Block terminals	150 ÷ 240	Cu/Al cables	0.279	1
CS-BH-B012	24762	Block terminals	25 ÷ 150	Cu/Al cables	0.302	1

- TECHNICAL INFORMATION, see page F19

CS-BH-B021	24781	Double block terminals	2x (150 ÷ 240)	Cu/Al cables	0.721	1
CS-BH-B022	15816	Double block terminals	2x (25 ÷ 150)	Cu/Al cables	0.750	1

- TECHNICAL INFORMATION, see page F19
- using the OD-BH-KS03 cover the degree of protection IP20 is fulfilled

CS-BH-B031	36604	Block terminals	3x (150 ÷ 240)	Cu/Al cables	0.9	1
CS-BH-B032	42691	Block terminals	3x (25 ÷ 150)	Cu/Al cables	0.9	1

- TECHNICAL INFORMATION, see page F19
- using the OD-BH-KS03 cover the degree of protection IP20 is fulfilled
- conductor cross-section for potential terminal is 1.5 ÷ 6 mm²

CS-BH-A021	24780	Rear connection		Cu/Al busbars, cable lugs	0.567	1

- TECHNICAL INFORMATION, see page F19

CS-BH-B014	20121	Block terminals - for 6 cables	6x (6 ÷ 35)	Cu/Al cables	0.3	1

- TECHNICAL INFORMATION, see page F19
- using the OD-BH-KS03 cover the degree of protection IP20 is fulfilled

CS-BH-A011	24760	Front connection		Cu/Al busbars, cable lugs, flexibars	0.186	1

- TECHNICAL INFORMATION, see page F19
- included in every supply of switching units

CS-BH-PS01	13683	Potential terminals	1.5÷25;4÷6	Cu flexible conductor	0.021	1

- TECHNICAL INFORMATION, see page F19

1 terminal

Type	Product code	Description	S [mm²]	Method of connection	Weight [kg]	Package [set]
CS-BH-T411	19589	Clamp terminal	35 ÷ 240	Cu cables, flexibars	0.148	1

- TECHNICAL INFORMATION, see page F19

CS-BH-B411	19593	Block terminal	150 ÷ 240	Cu/Al cables	0.093	1
CS-BH-B412	19588	Block terminal	25 ÷ 150	Cu/Al cables	0.101	1

- TECHNICAL INFORMATION, see page F19

CS-BH-B421	19590	Double block terminal	2x (150 ÷ 240)	Cu/Al cables	0.24	1
CS-BH-B422	19591	Double block terminal	2x (25 ÷ 150)	Cu/Al cables	0.25	1

- TECHNICAL INFORMATION, see page F19

1) set includes three terminals

331

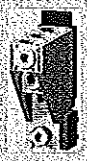
CONNECTING SETS

3P

1 terminal

Type	Product code	Description		Method of connection	Weight [kg]	Package [pc]
CS-BH-B431	36605	Block terminals	3x(150÷240)	Cu/Al cables	0.3	1
CS-BH-B432	42692	Block terminals	3x(25÷150)	Cu/Al cables	0.3	1

- TECHNICAL INFORMATION, see page F19
- conductor cross-section for potential terminal is 1.5 ÷ 6 mm²



Type	Product code	Description		Method of connection	Weight [kg]	Package [pc]
CS-BH-B414	21169	Block terminal - for 6 cables	6x(6÷35)	Cu/Al cables	0.1	1

- TECHNICAL INFORMATION, see page F19

Type	Product code	Description	Method of connection	Weight [kg]	Package [pc]
CS-BH-A421	19592	Rear connection	Cu/Al busbars, cable lugs	0.189	1

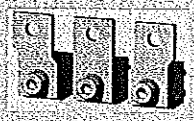
- TECHNICAL INFORMATION, see page F19

Type	Product code	Description		Method of connection	Weight [kg]	Package [pc]
CS-BH-PS41	36032	Potential terminal	1.5÷2.5/4÷6		0.005	1

- TECHNICAL INFORMATION, see page F19

3 terminals

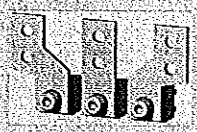
RETROFIT



Type	Product code	Description	Method of connection	Weight [kg]	Package [pc]
CS-BH-A037	24783	Reduction for BA...*37-50 - front connection	Cu/Al busbars, cable lugs, flexibars	0.47	1

- TECHNICAL INFORMATION, see page F19

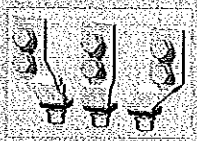
RETROFIT



Type	Product code	Description	Method of connection	Weight [kg]	Package [pc]
CS-BH-A039	24782	Reduction for BA...*39-50 and J2UX50 - front connection	Cu/Al busbars, cable lugs, flexibars	0.628	1

- TECHNICAL INFORMATION, see page F19
- for total replacement of BA ...*39-50 or J2UX50 circuit breaker with front connection OD-BHD-MS39 connecting set is necessary

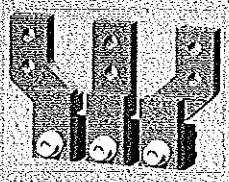
RETROFIT



Type	Product code	Description	Method of connection	Weight [kg]	Package [pc]
CS-BH-Z039	18202	Reduction for BA...*39 a J2UX - rear connection	Cu/Al busbars, cable lugs	0.954	1

- TECHNICAL INFORMATION, see page F19
- for total replacement of BA...*39 or J2UX circuit breaker with rear connection OD-BH-MZ39 and CS-BH-A021 connecting sets are necessary

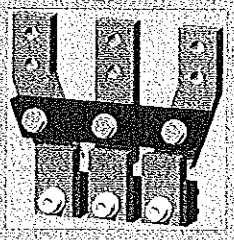
RETROFIT



Type	Product code	Description		Method of connection	Weight [kg]	Package [pc]
CS-BH-JX75	14562	Reduction for BA...*39-75 and J2UX75 - front connection, withdrawable design		Cu/Al busbars, flexibars, cable lugs	1.924	1

- TECHNICAL INFORMATION, see page F19
- for total replacement of BA...*39-75 or J2UX75T circuit breakers with front connection in withdrawable design OD-BHD-MS75 connecting set and ZO-BH-0630-300 plug-in device or ZV-BH-0630-300 withdrawable device are necessary

RETROFIT



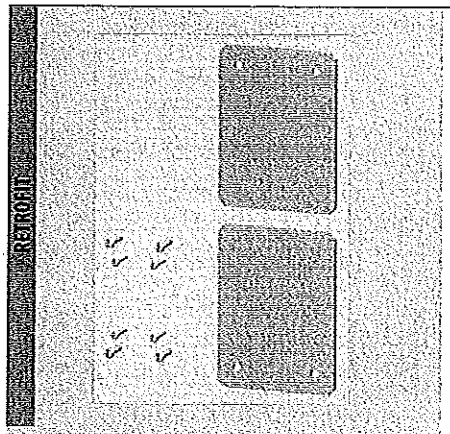
Type	Product code	Description		Method of connection	Weight [kg]	Package [pc]
CS-BH-JT75	14561	Reduction for J2UX75T - front connection, withdrawable design		Cu/Al busbars, flexibars, cable lugs	2.64	1

- TECHNICAL INFORMATION, see page F19
- for total replacement of J2UX75T circuit breaker with front connection in withdrawable design OD-BHD-MS75 connecting set and ZO-BH-0630-300 plug-in device or ZV-BH-0630-300 withdrawable device are necessary

RETROFIT - sets, which enable replacement of older circuit breakers by a new circuit breakers without switchboard reconstruction

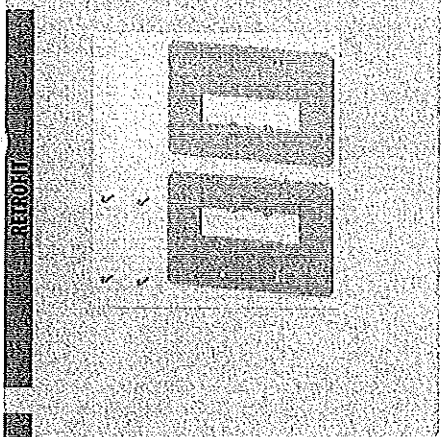
MOUNTING SETS

3P



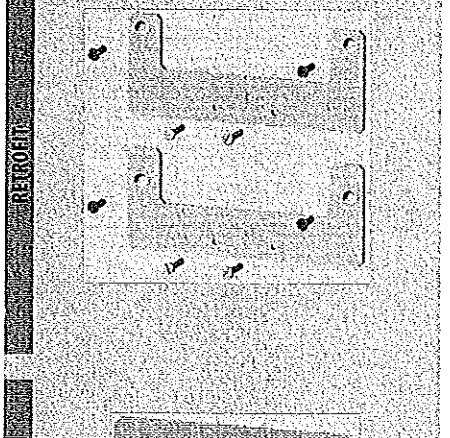
Type	Product code	Description	Weight [kg]	Package [pcs]
OD-BHD-MS39	24741	Reduction for BA...*39-50 and J2UX50 - front connection	0.7	1

- DIMENSIONS see page F27
- for total replacement of BA ...*39-50 or J2UX50 circuit breaker with front connection 2 connecting sets CS-BH-A039 are necessary



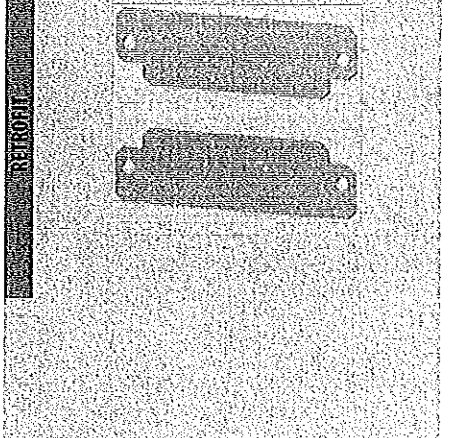
OD-BH-MZ39	18204	Reduction for BA...*39 and J2UX - rear connection	1.195	1

- DIMENSIONS see page F27
- for total replacement of BA...*39 or J2UX circuit breaker with rear connection also 2 connecting sets CS-BH-Z039 and CS-BH A021 are necessary



OD-BH-MT75	33331	Reduction for J2UX75T - front connection, withdrawable design		1

- DIMENSIONS see page F33, F37
- for total replacement of J2UX75T circuit breaker with front connection in withdrawable design 2 connecting sets CS-BH-JT75 and ZO-BH-0630-300 plug-in device or ZV-BH-0630-300 withdrawable device are necessary



OD-BHD-MS75	14563	Reduction for BA...*39-75 a J2UX75 - front connection, withdrawable design	0.446	1

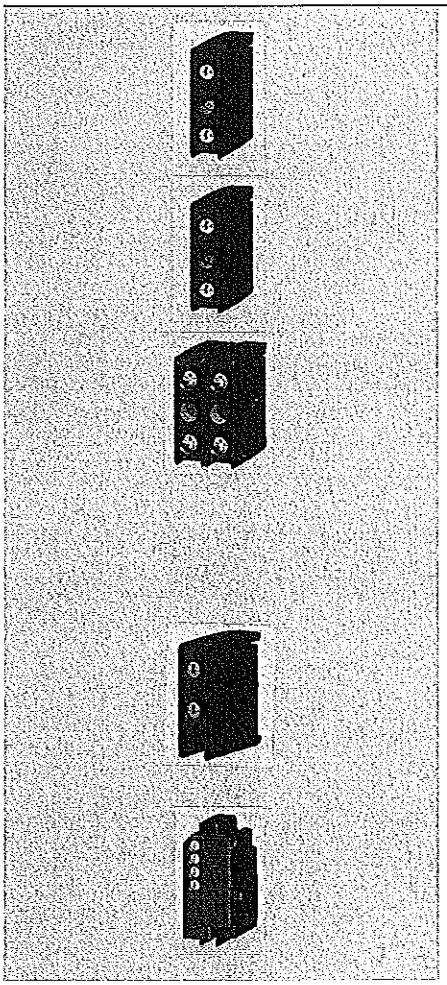
- DIMENSIONS see page F33, F37
- for total replacement of BA...*39-75 or J2UX75 circuit breaker with front connection in withdrawable design 2 connecting sets CS-BH-JT75 and ZO-BH-0630-300 plug-in device or ZV-BH-0630-300 withdrawable device are necessary

[1] - one set provides for replacing one circuit breaker (set includes coupling elements necessary to assemble circuit breaker and mounting set)

RETROFIT - sets, which enable replacement of older circuit breakers by a new circuit breakers without switchboard reconstruction

AUXILIARY SWITCHES

3P 4P



Single make contacts

Type	Product code	Operating voltage	Contacts	Weight [kg]	Package [pc]
PS-BHD-1000	24700	60 ÷ 500 V a.c./d.c.		0.013	1
PS-BHD-1000-Au	24702	5 ÷ 60 V a.c./d.c.		0.013	1

Single break contacts

Type	Product code	Operating voltage	Contacts	Weight [kg]	Package [pc]
PS-BHD-0100	24701	60 ÷ 500 V a.c./d.c.		0.013	1
PS-BHD-0100-Au	24703	5 ÷ 60 V a.c./d.c.		0.013	1

Double

Type	Product code	Operating voltage	Contacts	Weight [kg]	Package [pc]
PS-BHD-0200	13690	60 ÷ 500 V a.c./d.c.		0.026	1
PS-BHD-0200-Au	13693	5 ÷ 60 V a.c./d.c.		0.026	1
PS-BHD-1100	13691	60 ÷ 500 V a.c./d.c.		0.025	1
PS-BHD-1100-Au	13694	5 ÷ 60 V a.c./d.c.		0.025	1
PS-BHD-2000	13689	60 ÷ 500 V a.c./d.c.		0.024	1
PS-BHD-2000-Au	13692	5 ÷ 60 V a.c./d.c.		0.024	1

Make-and-break

Type	Product code	Operating voltage	Contacts	Weight [kg]	Package [pc]
PS-BHD-0010	18021	60 ÷ 250 V a.c./d.c.		0.013	1
PS-BHD-0010-Au	18022	5 ÷ 60 V a.c./d.c.		0.013	1
PS-BHD-0020	35 893	60 ÷ 250 V a.c./d.c.		0.026	1
PS-BHD-0020-Au	37467	5 ÷ 60 V a.c./d.c.		0.026	1

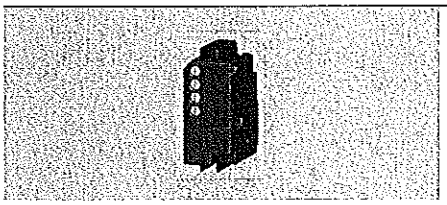
Early

Type	Product code	Description	Contacts	Weight [kg]	Package [pc]
SP-BHD-0002	16169	Early switch		0.045	1

- TECHNICAL INFORMATION for all switch, see page F59

SHUNT TRIPS

3P 4P

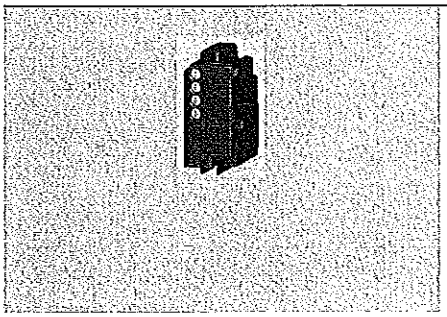


Type	Product code	Operating voltage	Weight [kg]	Package [pc]
SV-BHD-X024	24650	24, 40, 48 V a.c./d.c.	0.14	1
SV-BHD-X110	24630	110 V a.c./d.c.	0.14	1
SV-BHD-X230	24620	230, 400, 500 V a.c./220 V d.c.	0.14	1

- TECHNICAL INFORMATION, see page F60

UNDERVOLTAGE RELEASES

3P 4P

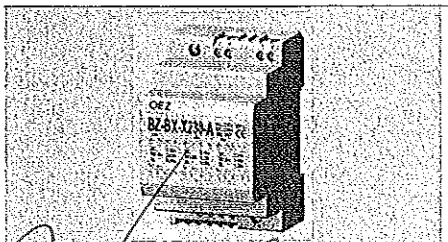


Type	Product code	Operating voltage	Description	Weight [kg]	Package [pc]
SP-BHD-X024	24450	24, 40, 48 V a.c./d.c.		0.11	1
SP-BHD-X110	24430	110 V a.c./d.c.		0.11	1
SP-BHD-X230	24420	230, 400, 500 V a.c./220 V d.c.		0.11	1
SP-BHD-X024-0001[1]	24550	24, 40, 48 V a.c./d.c.	- with early contact	0.12	1
SP-BHD-X110-0001[1]	24530	110 V a.c./d.c.	- with early contact	0.12	1
SP-BHD-X230-0001[1]	24520	230, 400, 500 V a.c./220 V d.c.	- with early contact	0.12	1

- TECHNICAL INFORMATION, see page F62

[1] - cannot be used in combination with motor drive MP-BH-X...

DELAY UNIT



Type	Product code	Description	Weight [kg]	Package [pc]
BZ-BX-X230-A	36696	- enables to delay the undervoltage release tripping of circuit breakers Modeion	0.12	1

- TECHNICAL INFORMATION, see page P2

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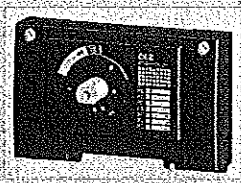
HAND DRIVES

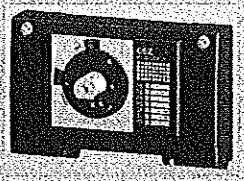
3P 4P



Type	Product code	Name - description		Weight (kg)	Package (pc)
RP-BH-CK10	13653	Hand drive unit	without locking	0.223	1
RP-BH-CK20	13654	Hand drive unit	- with locking	0.223	1

- TECHNICAL INFORMATION, see page F64

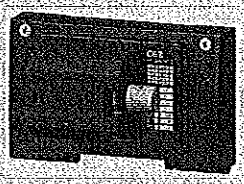
Hand drive unit must be fitted with: ■ for controlling on switch unit - with the black hand drive lever RP-BHD-CP10 or RP-BHD-CP20
■ for controlling through the switchboard door - with the extension shaft RP-BHD-CH..
- with the hand drive bearing RP-BHD-CN..
- with the hand drive lever RP-BHD-CP..



RP-BH-CK21	13685	Hand drive unit - yellow label	- with locking	0.223	1

- TECHNICAL INFORMATION, see page F64

Hand drive unit must be fitted with: ■ for controlling on switch unit - with the red hand drive lever RP-BHD-CP21
■ for controlling through the switchboard door - with the extension shaft RP-BHD-CH..
- with the hand drive bearing RP-BHD-CN..
- with the hand drive lever RP-BHD-CP..



RP-BH-CK30	37252	Hand drive unit for right side control		0.512	1
RP-BH-CK31	37253	Hand drive unit for left side control		0.512	1

- TECHNICAL INFORMATION, see page F64

RP-BHD-CP10	13655	Hand drive lever - black	- without locking	0.075	1
RP-BHD-CP20	13656	Hand drive lever - black	- with locking	0.075	1

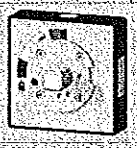
- TECHNICAL INFORMATION, see page F64

RP-BHD-CP21	13657	Hand drive lever - red	- with locking	0.075	1

- TECHNICAL INFORMATION, see page F64

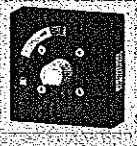
RP-BHD-CN40	37246	Hand drive bearing - degree of protection IP40		0.14	1

- TECHNICAL INFORMATION, see page F64
- is used in combination with the black lever of RP-BHD-CP10, RP-BHD-CP20 hand drives



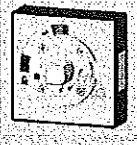
RP-BHD-CN41	37247	Hand drive bearing - yellow label - degree of protection IP40		0.14	1

- TECHNICAL INFORMATION, see page F64
- is used in combination with the red lever of RP-BHD-CP21 hand drive



RP-BHD-CN60	37248	Hand drive bearing - degree of protection IP66		0.14	1

- TECHNICAL INFORMATION, see page F64
- is used in combination with the black lever of RP-BHD-CP10, RP-BHD-CP20 hand drives

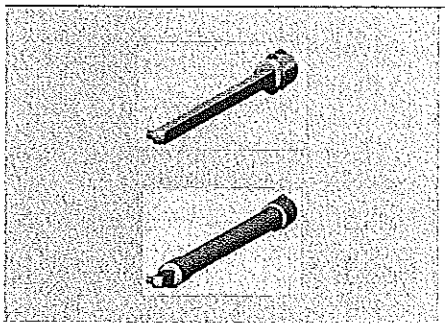


RP-BHD-CN61	37249	Hand drive bearing - yellow label - degree of protection IP66		0.14	1

- TECHNICAL INFORMATION, see page F64
- is used in combination with the red lever of RP-BHD-CP21 hand drive

HAND DRIVES

3P 4P



Type	Product code	Name - description	Weight [kg]	Package [pc]
RP-BHD-CH10	13658	Extension shaft - length 365 mm, can be shortened	0.205	1

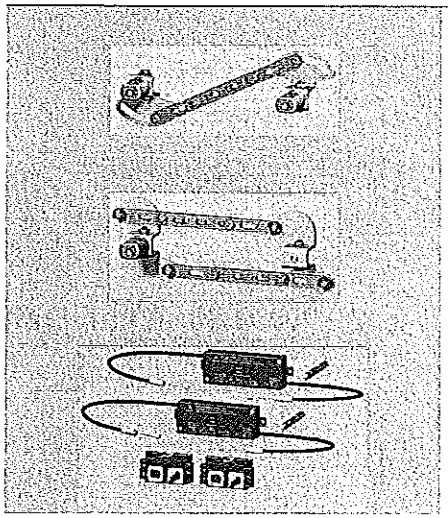
- TECHNICAL INFORMATION, see page F64

Type	Product code	Name - description	Weight [kg]	Package [pc]
RP-BHD-CH20	13659	Extension shaft - telescopic, length 245 ÷ 410 mm	0.255	1

- TECHNICAL INFORMATION, see page F64

MECHANICAL INTERLOCKING AND PARALLEL SWITCHING

3P 4P



Type	Product code	Name	Weight [kg]	Package [pc]
RP-BHD-CB10	18290	Mechanical interlocking - for fixed design	0.16	1

- TECHNICAL INFORMATION, see page F65
- mechanical interlocking must be fitted with: 2 hand drive units RP-BH-CK..
  2 hand drive levers RP-BHD-CP..

Type	Product code	Name	Weight [kg]	Package [pc]
RP-BHD-CD10	18289	Mechanical parallel switching - for fixed design	0.23	1

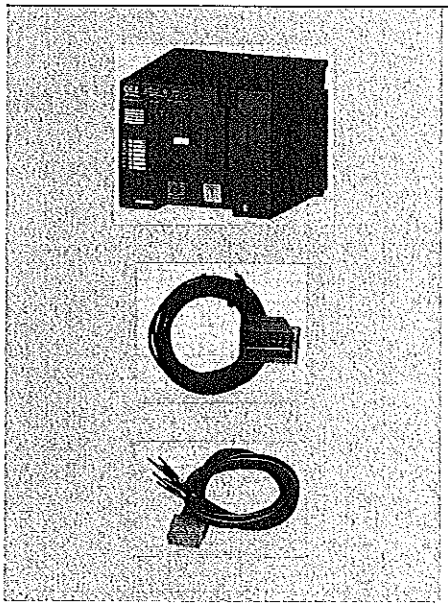
- TECHNICAL INFORMATION, see page F65
- mechanical parallel switching must be fitted with: 2 hand drive units RP-BH-CK..
  with the hand drive lever RP-BHD-CP..

Type	Product code	Name	Weight [kg]	Package [pc]
M8-BH-PV04	19611	Mechanical blocking with Bowden cable - for two circuit breakers BH630	0.448	1
M8-BHD-PV03	19613	Mechanical blocking with Bowden cable - for one BD250 and one BH630 circuit breaker	0.448	1

- TECHNICAL INFORMATION, see page F66
- mechanical blocking with Bowden cable is intended for fixed, plug-in and withdrawable design

MOTOR DRIVES

3P 4P



Type	Product code	Name - description	Operating voltage	Weight [kg]	Package [pc]
MP-BH-X024[1]	20590	Motor drive	24V a.c./d.c.	1.691	1
MP-BH-X048[1]	19792	Motor drive	48V a.c./d.c.	1.691	1
MP-BH-X110	13539	Motor drive	110V a.c./d.c.	1.691	1
MP-BH-X230	13536	Motor drive	230V a.c./220V d.c.	1.691	1
MP-BH-X024-P[1]	20591	Motor drive	24V a.c./d.c.	1.708	1
MP-BH-X048-P[1]	19793	Motor drive - with counter of cycles	48V a.c./d.c.	1.708	1
MP-BH-X110-P	13687	Motor drive - with counter of cycles	110V a.c./d.c.	1.708	1
MP-BH-X230-P	13540	Motor drive - with counter of cycles	230V a.c./220V d.c.	1.708	1

- TECHNICAL INFORMATION, see page F67
- motor drive cannot be used in combination with SP-BHD-X...-0001

[1] - custom production

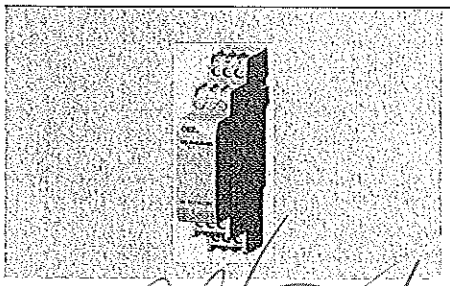
Type	Product code	Name - description	Weight [kg]	Package [pc]
OD-BHD-PP01	13688	Counter of cycles - cable length 1.1 m	0.08	1

- DIMENSIONS see page F67
- upon agreement with the manufacturer, different conductor lengths can be supplied

Type	Product code	Name - description	Weight [kg]	Package [pc]
OD-BHD-KA02	13809	Extension cable - to motor drive, 12 wires, length 0.6 m	0.1	1

- TECHNICAL INFORMATION, see page F67
- upon agreement with the manufacturer, different conductor lengths can be supplied

CONTROL RELAY



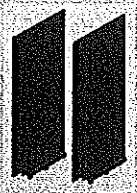
Type	Product code	Specifications	Weight [kg]	Package [pc]
OD-BHD-RX01	37425	24V a.c./d.c.	0.06	1
OD-BHD-RX02	37426	48V a.c./d.c.	0.06	1
OD-BHD-RA03	37427	110 ÷ 230V a.c.	0.06	1
OD-BHD-RD04	37428	110V d.c.	0.06	1

- TECHNICAL INFORMATION, see page P3

335

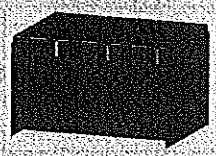
ACCESSORIES

3P 4P



Type	Product code	Name - description	Weight [kg]	Package [pc]
OD-BHD-KS02	24740	Insulating barriers - set (two pieces), for 3P and 4P design	0.077	1
OD-BHD-KS42	19575	Insulating barrier - one piece, for 4P design	0.039	1

- included with each switching unit order
- in case circuit breaker/switch-disconnector connection is reversed (supply to terminals 2, 4, 6) it is necessary in most cases to install these barriers also on the lower side
- for more detailed information see page F22



OD-BH-KS03	13531	Terminal cover - degree of protection IP20, for 3P design	0.144	1
OD-BH-KS43	19587	Terminal cover - degree of protection IP20, for 4P design	0.209	1

- increases degree of protection of connection point to IP20 when using B021, B022, B031, B032 a B014 block type terminals
- intended for fixed, plug-in and withdrawable design

OD-BH-UP01	13532	Lever with locking	0.013	1

- enables to lock the circuit breaker in „switched off manually" position (loaded)
- locking is possible using padlock with shank diameter 4 ÷ 6 mm

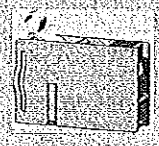
OD-BH-VP01	15330	Bolt sealing insert	0.001	2

- enables sealing for:
  - cover of cavities
  - terminal cover
  - overcurrent release
  - hand drive unit
  - motor drive

OD-BH-VP02	18216	Additional cover for overcurrent release	0.1	1

- enables sealing for overcurrent releases such as circuit breakers in the main meter switchboard

OD-BHD-KA01	14555	Connecting cable - to connect the circuit breaker/ /switch-disconnector accessories in the plug-in/ /withdrawable design - 15 wires (it is possible for plug-in design and fixed design)	0.12	1

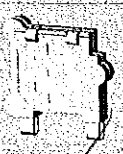


SO-BHD-0010	14560	Signalling of position - signals circuit breaker position in the plug-in or withdrawable device	0.018	1

- TECHNICAL INFORMATION, see page F48, F50

OD-BH-KK01	14554	Keying set - prevents inserting in the plug-in or withdrawable devices beyond the switching unit	0.005	

- TECHNICAL INFORMATION, see page F48, F50

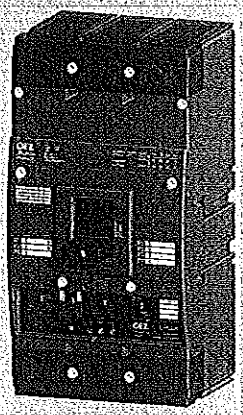


OD-BHD-KT01	14642	Cover of switch or button - for motor drive, cover can be sealed	0.002	1

- TECHNICAL INFORMATION, see page F67

CIRCUIT BREAKERS, SWITCH-DISCONNECTORS

3P 4P



Circuit breaker

Switch-disconnector

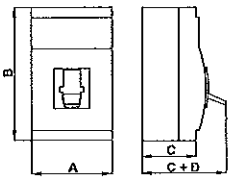
Specifications

Type		BH630N, BH630S	
		CIRCUIT BREAKER	SWITCH-DISCONNECTOR
Dimensions A x B x C + D (3P/4P design)		140/185 x 275 x 105 + 49 mm	140/185 x 275 x 105 + 49 mm
Weight (3P/4P design)		5.4/7.4 kg	5.4 kg
Standards		EN 60947-2 IEC 60947-2	EN 60947-3 IEC 60947-3
Approval marks		CE GL PG UA	
Number of poles		3, 4	3, 4
Rated current	I_n	250, 315, 400, 500, 630 A	-
Rated normal current	I_u	630 A	630 A
Rated operating current	I_e	-	630 A
Rated operating voltage	U_e	max. 690 V a.c. -	max. 690 V a.c. max. 440 V d.c.
Rated frequency	f_n	50/60 Hz	50/60 Hz
Rated impulse withstand voltage	U_{imp}	8 kV	8 kV
Rated insulation voltage	U_i	690 V	690 V
Utilization category (selectivity)	690 V a.c.	A	-
Utilization category (switching mode)	690 V a.c. 440 V d.c.	- -	AC-23B DC-23B
Rated short-time withstand current at U_e = 690 V a.c.	I_{cw} / t	8 kA/50 ms, 7 kA/300 ms, 6.5 kA/1 s	7.5 kA/5 s
Series		NORMAL BH630N / SUPERIOR BH630S	U_e
Rated short-circuit ultimate breaking capacity (rms) [1]	I_{cu}	60 kA / 100 kA	230 V a.c.
		36 kA / 65 kA	415 V a.c.
		20 kA / 35 kA	500 V a.c.
		15 kA / 20 kA	690 V a.c.
Rated short-circuit service breaking capacity (rms)	I_{cs}	40 kA / 75 kA	230 V a.c.
		18 kA / 36 kA	415 V a.c.
		10 kA / 20 kA	500 V a.c.
		8 kA / 15 kA	690 V a.c.
Rated short-circuit making capacity (peak value)	I_{cm} / U_e	75 kA -	140 kA 415 V a.c. -	14 kA/415 V a.c. 14 kA/440 V d.c.
Switching off time at I_{cu}		20 ms	-
Losses per 1 pole fixed/withdrawable design		75 W/85 W	75 W/85 W
Mechanical endurance		20 000 cycles	20 000 cycles
Electrical endurance		5 000 cycles	5 000 cycles
Switching frequency		120 cycles/hr	120 cycles/hr
Control force		110 N	110 N
Degree of protection from front side of the device		IP40	IP40
Degree of protection of terminals		IP20	IP20
Operating conditions			
Reference ambient temperature		40 °C	40 °C
Ambient temperature range		-40 ÷ +55 °C	-40 ÷ +55 °C
Working environment		dry and tropical climate	dry and tropical climate
Climatic resistance		EN 60068	EN 60068
Pollution degree		3	3
Max. sea level		2 000 m	2 000 m
Seismic resistance		3g (8 ÷ 50) Hz	3g (8 ÷ 50) Hz
Design modifications			
Front/rear connection		•/•	•/•
Plug-in design 3P/4P		•/•	•/•
Withdrawable design 3P/4P		•/•	•/•
Accessories			
Switches - auxiliary/relative/signal/early		•/•/•/•	•/•/•/•
Shunt trip		•	•
Undervoltage release/with early switch		•/•	•/•
Front hand drive/with adjustable lever		•/•	•/•
Mechanical interlocking-with Bowden cable/for hand drive		•/•	•/•
Motor drive/with counter of cycles		•/•	•/•
Lever with locking		•	•
Bolt sealing insert/additional cover for overcurrent release		•/•	•/•

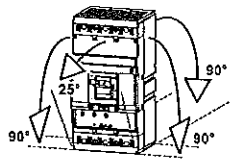
• available, – unavailable, + being prepared

[1] - in case circuit breaker connection is reversed (input terminals 2, 4, 6, output terminals 1, 3, 5) I_{cu} does not change

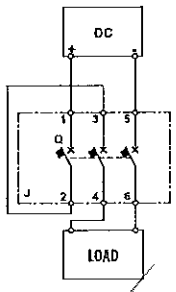
- protection of Modeion switch-disconnectors, see page R



Dimensions



Installation positions - fixed, plug-in and withdrawable design

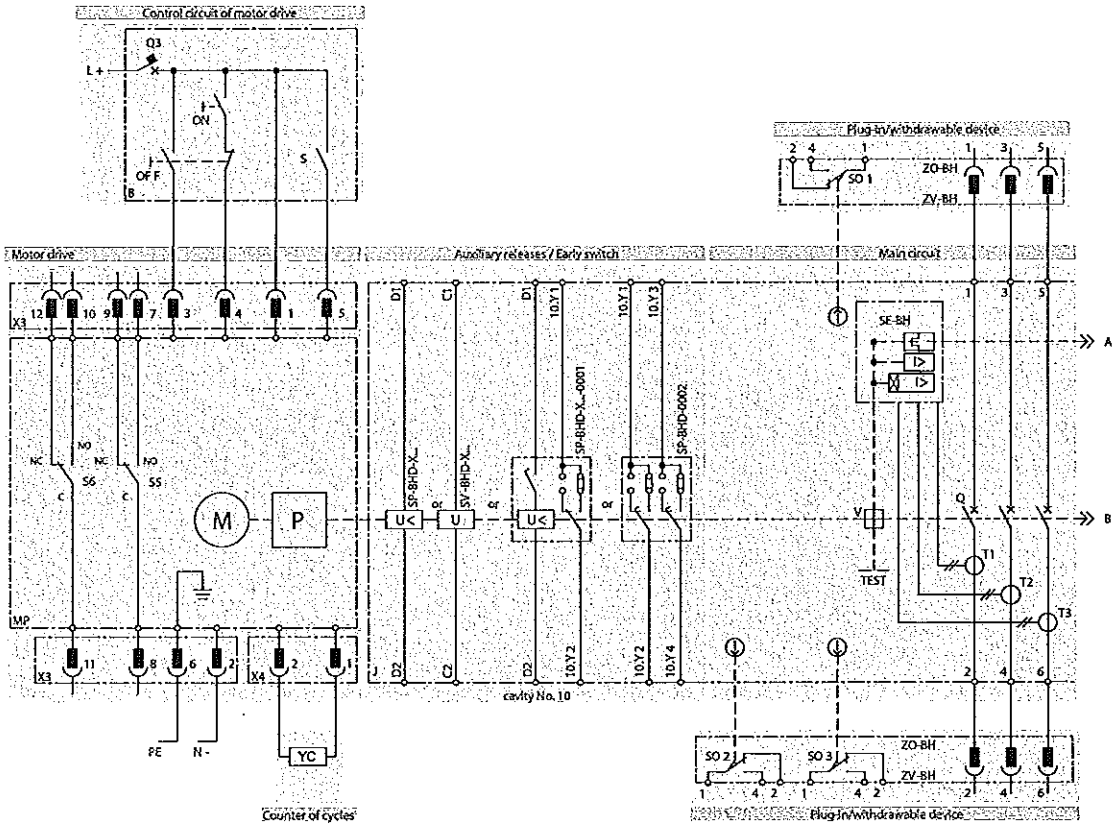


Connection of switch-disconnector for DC circuits

CIRCUIT BREAKERS, SWITCH-DISCONNECTORS

Diagram

Circuit breaker with accessories (3-pole design)



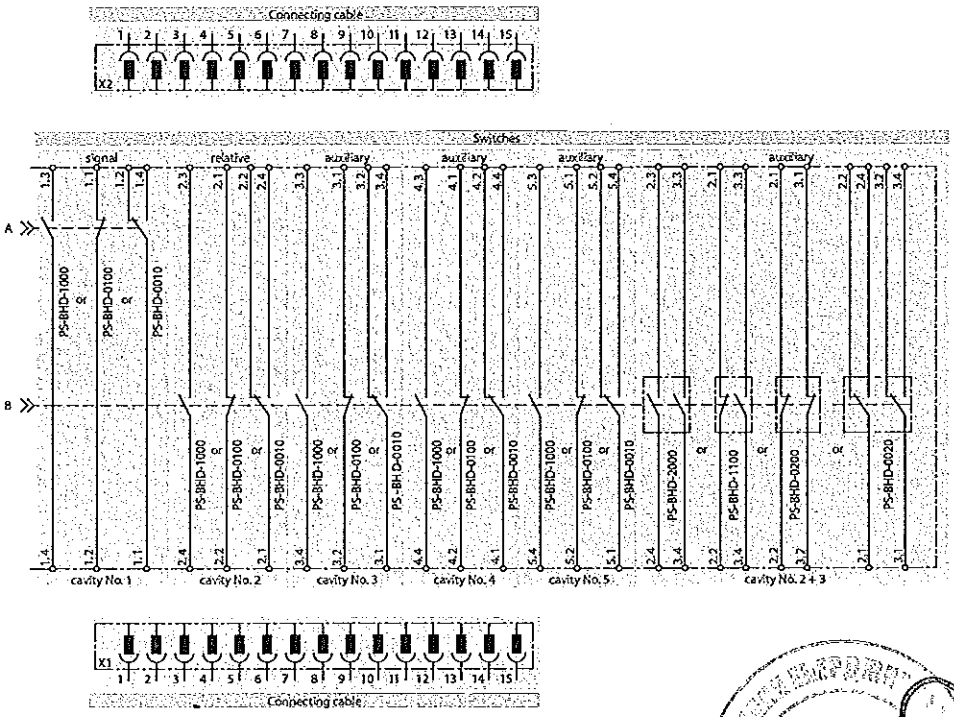


Diagram description (3P and 4P design)

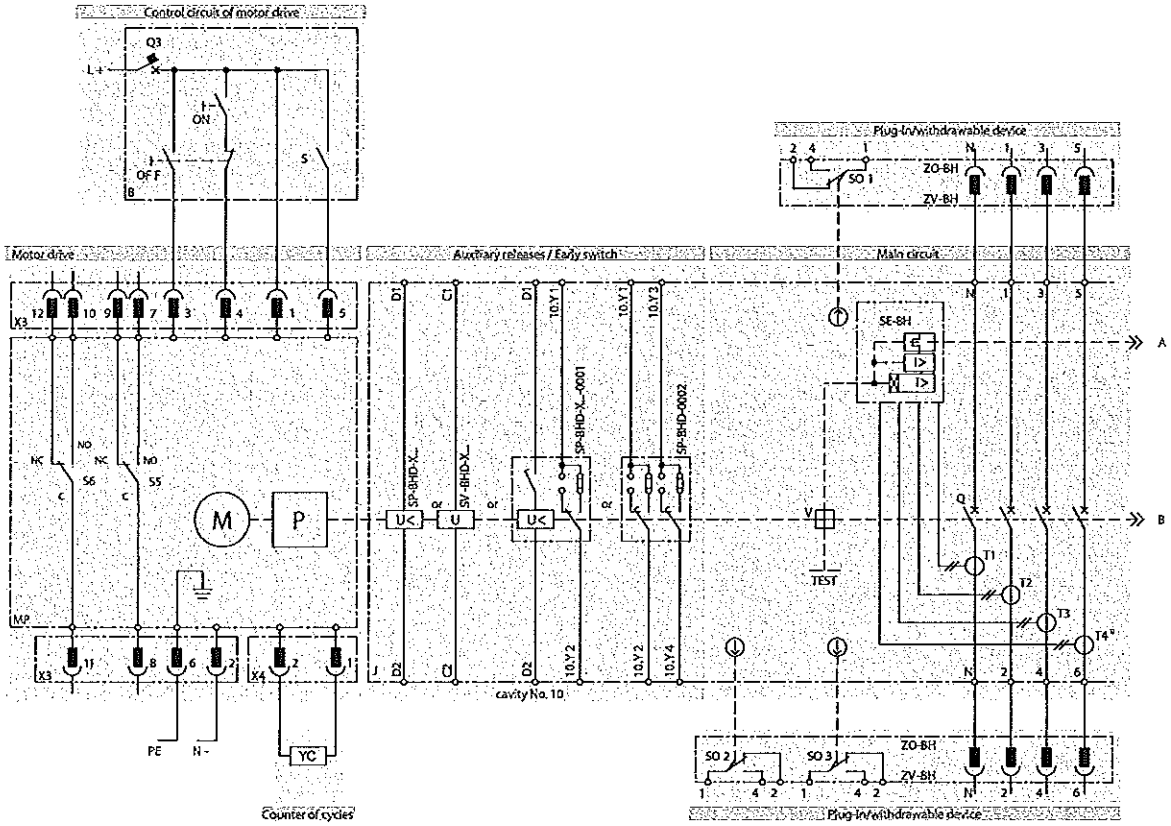
MP	motor drive - MP-BH-X...
M	motor
P	storage device
X3	connector for connection of control circuits
X4	connector for external counter of cycles
SS	switch to indicate AUTO AUTO (NO-C)/ /MANUAL (NC-C)
S6	switch to indicate full storage (ready to switch on: NO-C)
YC	external counter of cycles - OD-BHD-PP01
B	recommended wiring of the control circuits - it is not a part of motor drive
ON	switch on button
OFF	switch off button
S	switch for energy storage (switched on – automatic storage, switch may be continuously switched on)
Q3	motor drive circuit breaker - see page F67
J	switching unit - BH630...
Q	main contacts
T1, T2, T3, T4[1]	current transformers
V	trip-free mechanism
SE-BH	circuit breaker - overcurrent release - SE-BH-.... - switch-disconnector - switch-disconnector unit - SE-BH-4630-V001
TEST	push button to test release
ZO-BH	plug-in device - ZO-BH-0630...
ZV-BH	withdrawable device - ZV-BH-0630-...
X1, X2	connecting cable - OD-BHD-1A01
SO1, SO2, SO3	contacts signalling circuit breaker/ /switch-disconnector position in plug-in or withdrawable device SO-BHD-0010 - for more detailed information see page F48, F50
SP-BHD-X...	undervoltage release
SV-BHD-X...	shunt trip
SP-BHD-X...-0001	undervoltage release with early contact
SP-BHD-0002	early contact

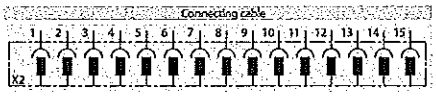
[1] - only for 4-pole design of BH630...40A switching unit

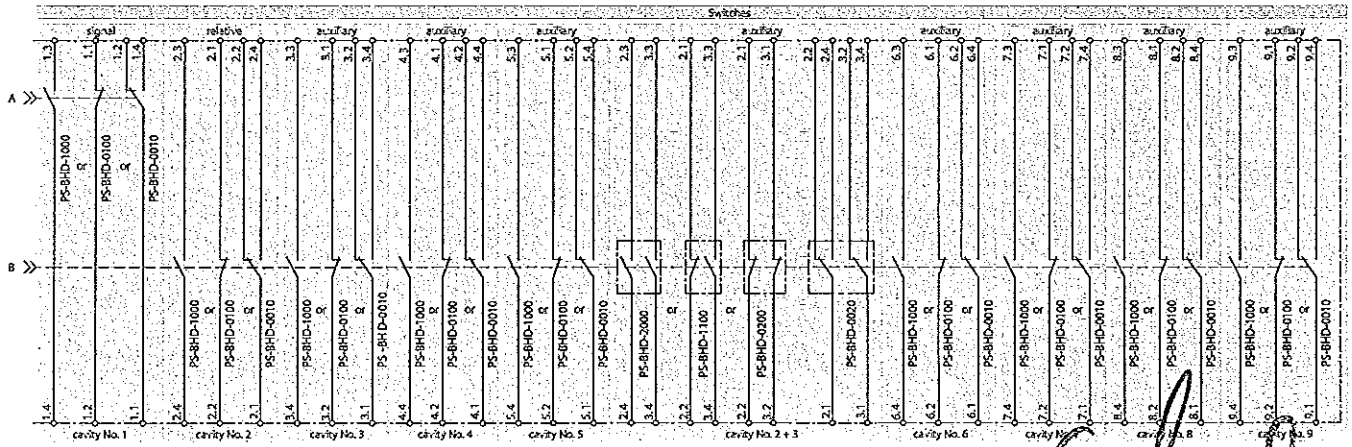
CIRCUIT BREAKERS, SWITCH-DISCONNECTORS

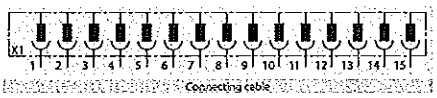
Diagram

Circuit breaker with accessories (4-pole design)









CIRCUIT BREAKERS, SWITCH-DISCONNECTORS

3P 4P

Connecting and installation

Power circuit

- connected with Cu/Al busbars or cables, and possibly cables with cable lugs
- connection sets are produced to provide greater connecting options, see page F7
- generally, conductors from the supply are connected to input terminals 1, 3, 5, (N) and conductors from the load to terminals 2, 4, 6, (N); however, it is possible to reverse the connection (exchanging input and output terminals without limiting rated short-circuit ultimate breaking capacity I_{cu})
- **in case of reversed connection, in the majority of cases, circuit breaker/switch-disconnector must be fitted with OD-BHD-KS02 insulating barriers also on the side of terminals 2, 4, 6, for more detailed information see page F22**
- we recommend painting the connecting busbars
- **input and output conductors/busbars must be mechanically reinforced in order to avoid transferring electrodynamic forces to the circuit breaker/switch-disconnector during short-circuiting**
- **the method of connecting the power circuit must observe the deionization space of the circuit breaker see page F23**

Auxiliary circuits

- switches, shunt trips or undervoltage releases are connected using flexible Cu conductors with cross-section 0.5 ÷ 1 mm² directly to terminals on these devices
- motor drive and auxiliary circuits of the plug-in or withdrawable design are connected using a connector

Recommended min. cross-sections of cables, busbars and flexibars for fixed, plug-in and withdrawable designs

I_n [A]	Cable cs [mm²]		Busbars W x H [mm]	
	Cu	Al	Cu	Al
100	35	50	20 x 2	25 x 2
125	50	70	25 x 2	25 x 3
160	70	95	25 x 3	32 x 3
200	95	120	25 x 4	25 x 5
250	120	150	25 x 5	32 x 5
315	150	185	32 x 5	32 x 6
400	185	240	32 x 6	32 x 8
500	2x 120	2x 185	32 x 8	32 x 12
630	2x 185 [1]	2x 240 [2]	32 x 12 [3]	32 x 16 [2]

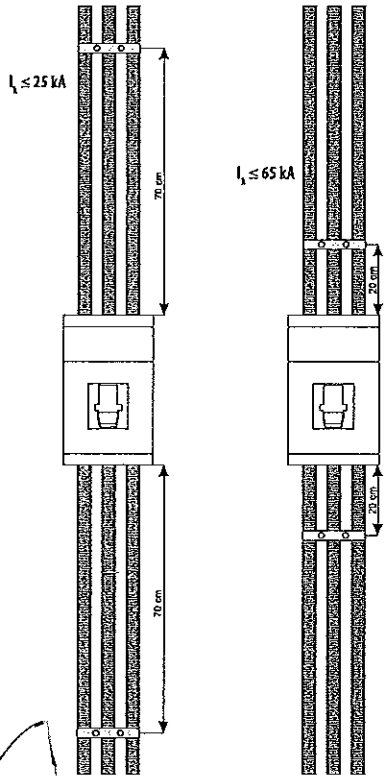
- it is necessary to follow the relevant valid standards when cables are designed
[1] connection of withdrawable and plug-in design by 2x 240 mm² Cu
[2] withdrawable and plug-in design can not be connected by Al
[3] connection of withdrawable and plug-in design by min. 32 x 16 Cu

Maximum circuit breaker/switch-disconnector loads in accordance with ambient temperature

Circuit breaker/switch-disconnector BH630 - connection by cu cable 2x 185 mm² per pole

50°C	55°C	60°C	65°C	70°C
630 A	620 A	580 A	540 A	500 A

Mechanical reinforcement of conductors for BH630



CIRCUIT BREAKERS, SWITCH-DISCONNECTORS

3P 4P

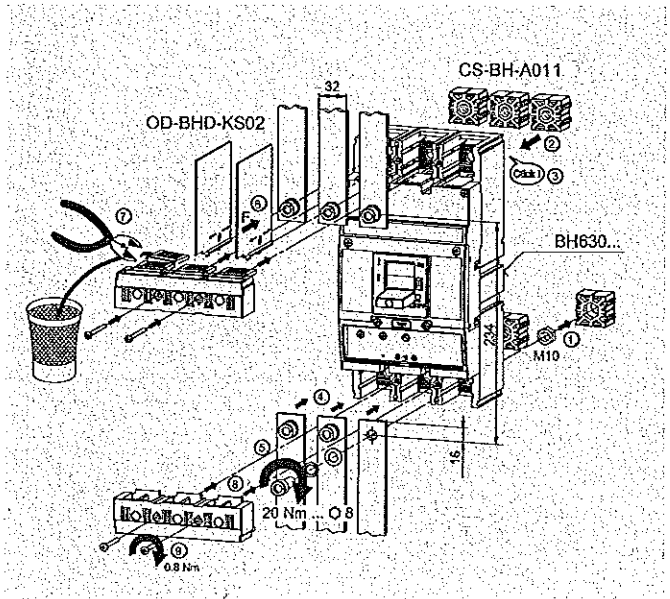
Connecting and installation

Connecting set specifications

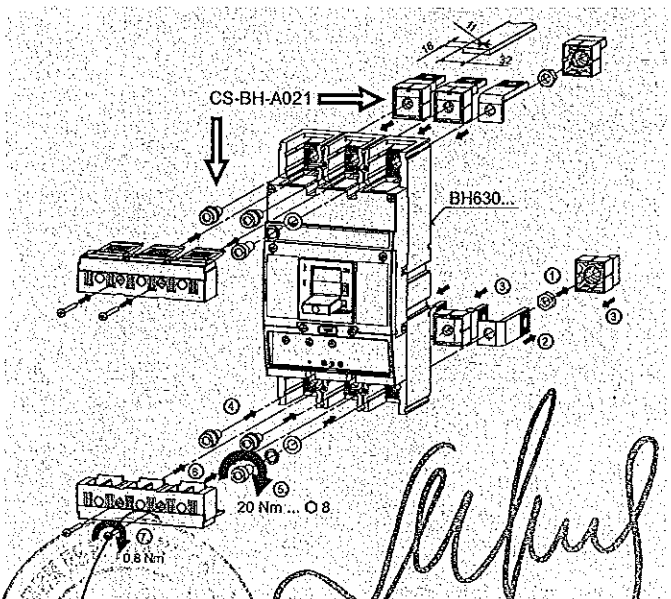
Type	I_n [A]	Cable - ranges of connection cross-sections S [mm²]				Busbars and cable - Dimensional drawing 3P/4P
		type of cable	sector stranded	sector solid	round stranded	round solid	busbars W x H [mm]	
CS-BH-A011 CS-BH-A411	630						32 x ...	
CS-BH-A021 CS-BH-A421	630						32 x ...	page F26/F40
CS-BH-T011 CS-BH-T411	400		35 ÷ 240 Cu	35 ÷ 240 Cu	35 ÷ 240 Cu	35 ÷ 240 Cu		
CS-BH-B011 CS-BH-B411	400		150 ÷ 240 Cu/Al	120 ÷ 240 Cu/Al	150 ÷ 240 Cu/Al	120 ÷ 240 Cu/Al		
CS-BH-B012 CS-BH-B412	315		25 ÷ 150 Cu/Al	16 ÷ 150 Cu/Al	25 ÷ 150 Cu/Al	16 ÷ 150 Cu/Al		
CS-BH-B021 CS-BH-B421	630		2x (150 ÷ 240) Cu/Al	2x (120 ÷ 240) Cu/Al	2x (150 ÷ 240) Cu/Al	2x (120 ÷ 240) Cu/Al		page F24/F38
CS-BH-B022 CS-BH-B422	500		2x (25 ÷ 150) Cu/Al	2x (16 ÷ 150) Cu/Al	2x (25 ÷ 150) Cu/Al	2x (16 ÷ 150) Cu/Al		page F24/F38
CS-BH-B014 CS-BH-B414	250		6x (6 ÷ 35) Cu/Al	6x (6 ÷ 35) Cu/Al	6x (6 ÷ 35) Cu/Al	6x (6 ÷ 35) Cu/Al		page F25/F39
CS-BH-B031 CS-BH-B431	630		3x (150 ÷ 240) Cu/Al	3x (120 ÷ 240) Cu/Al	3x (150 ÷ 240) Cu/Al	3x (120 ÷ 240) Cu/Al		page F25/F39
CS-BH-B032 CS-BH-B432	630		3x (25 ÷ 150) Cu/Al	3x (16 ÷ 150) Cu/Al	3x (25 ÷ 150) Cu/Al	3x (16 ÷ 150) Cu/Al		page F26/F40
CS-BH-A037	400	**RETROFIT** - reduction for circuit breaker BA...*37 with front connection page F27						page F27
CS-BH-A039	630	**RETROFIT** - reduction for circuit breaker BA...*39 with front connection page F27						page F27
CS-BH-Z039	630	**RETROFIT** - reduction for circuit breaker BA...*39 with rear connection page F27						page F27
CS-BH-JX75	630	**RETROFIT** - reduction for circuit breaker BA...39-75 a J2UX75 with front connection in withdrawable design page F33, F37						page F33, F37
CS-BH-JT75	630	**RETROFIT** - reduction for circuit breaker J2UX75T with front connection in withdrawable design page F33, F37						page F33, F37
CS-BH-PS01	10/16	1,5 ÷ 2,5/4 ÷ 6 Cu flexible conductor						
CS-BH-PS41	10/16	1,5 ÷ 2,5/4 ÷ 6 Cu flexible conductor						

RETROFIT - sets, which enable replacement of older circuit breakers by a new circuit breakers without switchboard reconstruction

Front connection - Cu/Al busbars



Rear connection - Cu/Al busbars

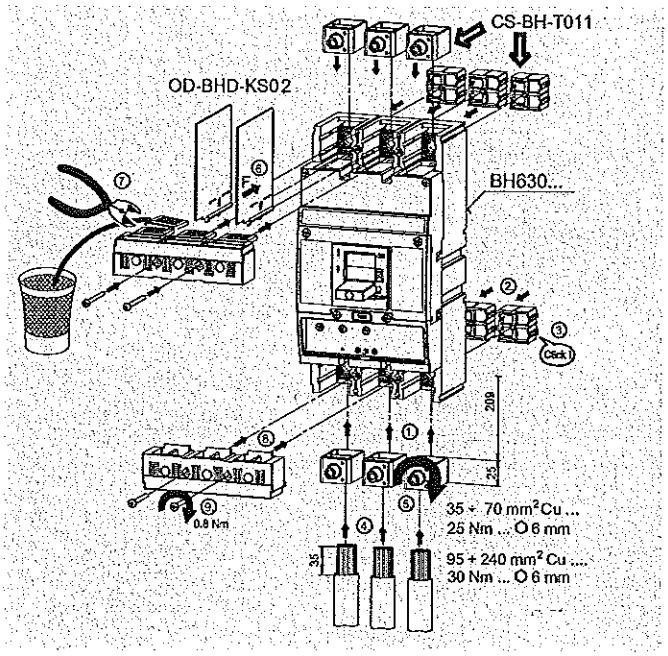


CIRCUIT BREAKERS, SWITCH-DISCONNECTORS

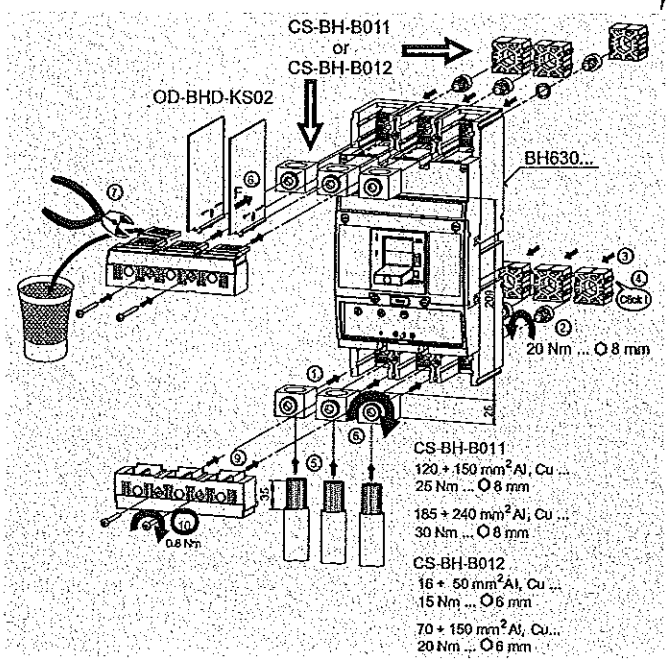
3P 4P

Connecting and installation

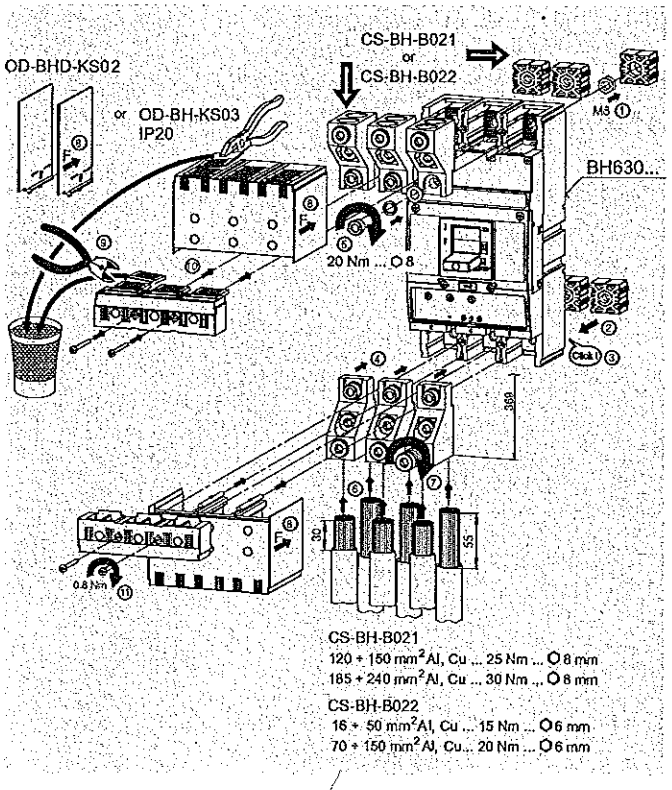
Front connection - Cu cables



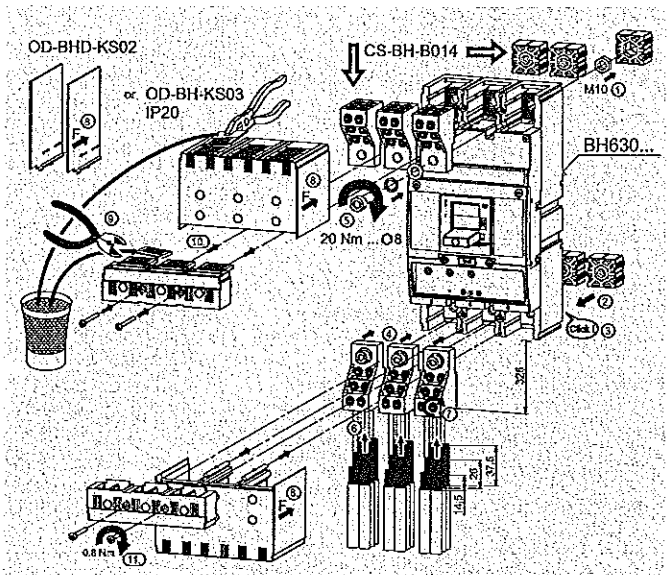
Front connection - Cu/Al cables



Front connection - 2 Cu/Al cables



Front connection - 6 Cu/Al cables

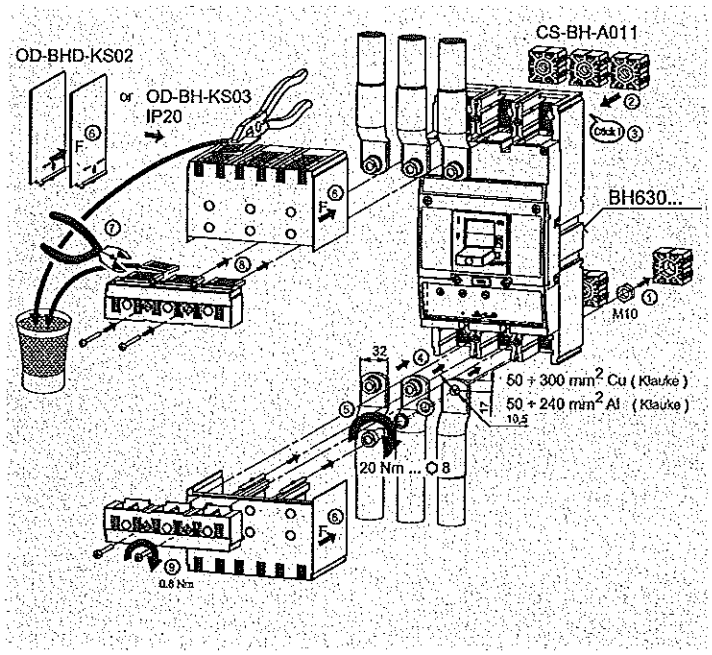


CIRCUIT BREAKERS, SWITCH-DISCONNECTORS

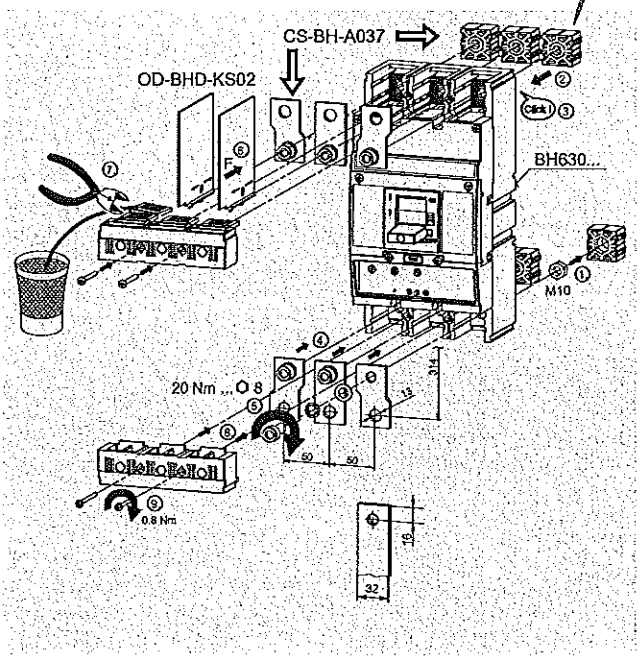
3P 4P

Connecting and installation

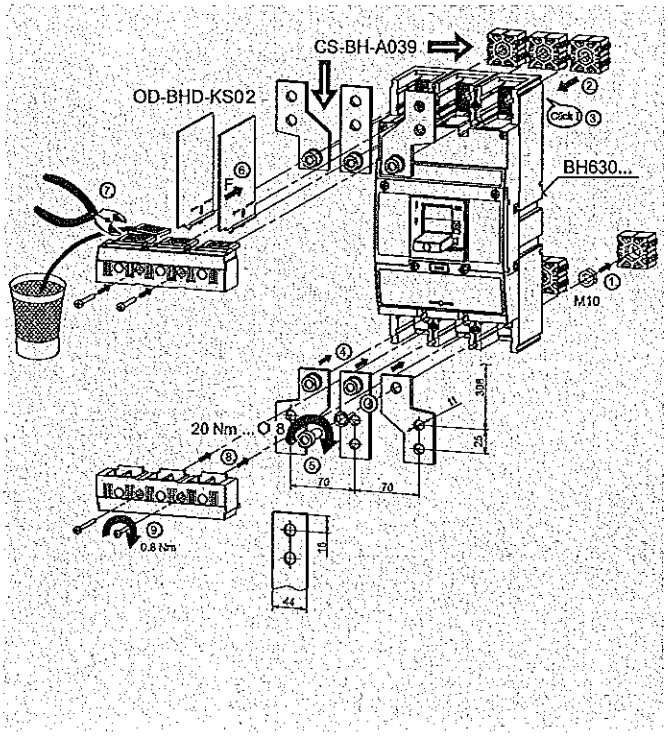
Front connection - cable lugs



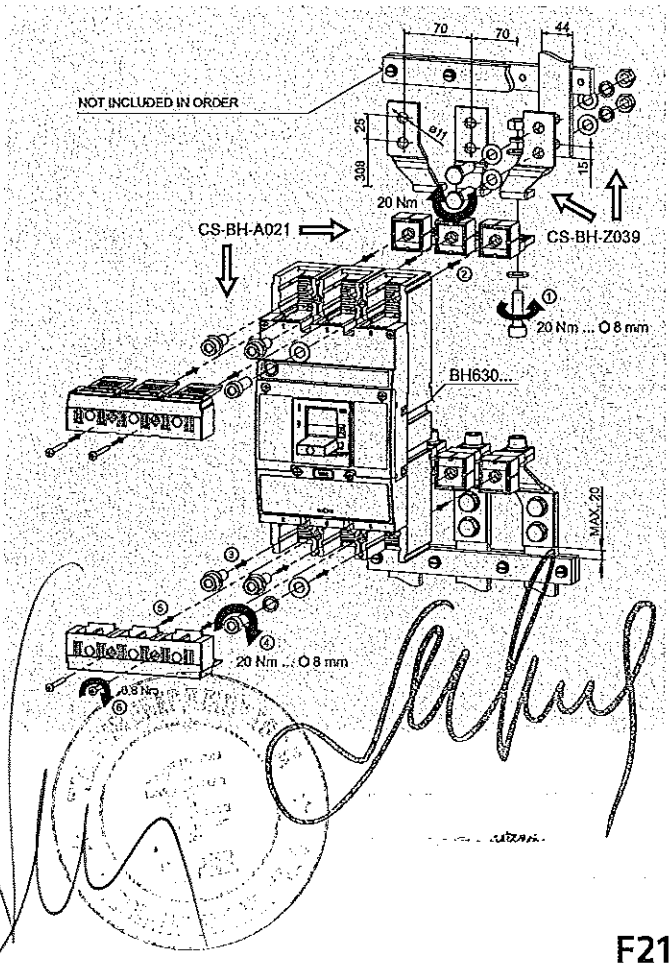
Front connection - reduction BH to BA...37



Front connection - reduction BH to J2UX and BA...39



Rear connection - reduction BH to J2UX and BA...39 with rear connection



CIRCUIT BREAKERS, SWITCH-DISCONNECTORS

3P 4P

Deionization spaces

USE OF INSULATING BARRIERS AND TERMINAL COVERS WITH CIRCUIT BREAKERS AND SWITCH-DISCONNECTORS

■ **FIXED DESIGN**

- front connection

- terminals 1, 3, 5 (upper side)

a) if Ue ≥ 415 V a.c., it is necessary to use OD-BHD-KS02 insulating barriers or a OD-BHD-KS03 terminal cover

b) if insulated conductors are not used for connecting power circuit to terminals 1, 3, 5, flexibars or rear connection, it is necessary to use OD-BHD-KS02 insulating barriers or a OD-BHD-KS03 terminal cover

- terminals 2, 4, 6 (lower side)

only in case that circuit breaker/switch-disconnector is connected to the source using terminals 2, 4, 6 and furthermore:

a) if $U_e \geq 415$ V a.c., it is necessary to use OD-BHD-KS02 insulating barriers or a OD-BHD-KS03 terminal cover

b) if insulated conductors are not used for connecting power circuit to terminals 2, 4, 6, flexibars or rear connection, it is necessary to use OD-BHD-KS02 insulating barriers or a OD-BHD-KS03 terminal cover

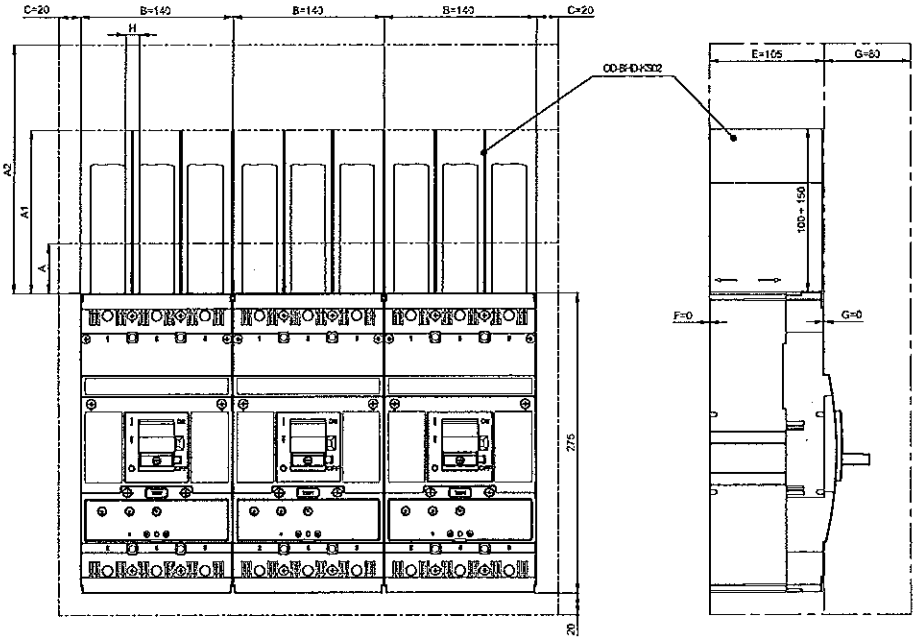
- rear connection - insulating barriers and terminal covers need not be used

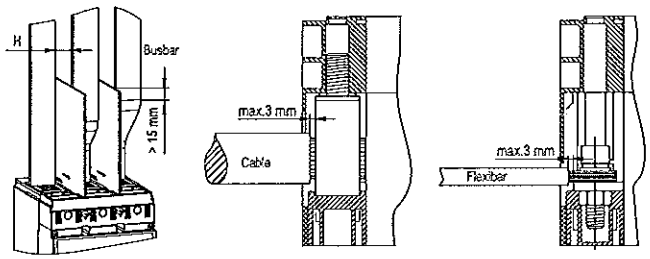
■ **PLUG-IN AND WITHDRAWABLE DEVICE** - insulating barriers and terminal covers need not be used

CIRCUIT BREAKERS, SWITCH-DISCONNECTORS

3P 4P

Deionization spaces





A...minimum distance between the circuit breaker/switch-disconnector and uninsulated earthed wall (applicable for connection using insulated conductors, cables, flexibars or with rear connection)

A1...minimum insulation length of bare conductors (using OD-BHD-KS02 insulating barriers from 100 mm to max. 150 mm, or by adding additional insulation for the conductors with barriers to obtain at least A1 value)

A2...minimum distance:
- between the circuit breaker/switch-disconnector and uninsulated earthed wall (applicable for uninsulated conductors and busbars)
- between the circuit breaker/switch-disconnector and busbar
- between two circuit breakers/switch-disconnectors situated vertically above one another
- between uninsulated connections of two circuit breakers/switch-disconnectors above one another

C, D, E, F, G...minimum distance between the circuit breaker/switch-disconnector and uninsulated earthed wall

H...minimum distance between uninsulated conductors

■ minimum distance of circuit breakers without using of uninsulated barriers is 50 mm

		AC U	[V] ~	230		415		500		690
		BH630S wired with 1	[kA]	≤100	≤36 ÷ 65	≤36	≤20 ÷ 35	≤20	≤15 ÷ 70	≤15
		BH630N wired with 1	[kA]	≤60		≤36		≤20		≤15
		G [mm]	[mm]	1						
< 80	≥ 13	A	[mm]	50	50	50	50	50	50	50
		A1	[mm]	150	200	100	200	150	250	150
		A2	[mm]	250	300	200	300	250	350	250
	≥ 38	A	[mm]	50	50	50	50	50	50	50
		A1	[mm]	100	150	100	150	150	150	150
		A2	[mm]	150	200	150	200	200	200	200
≥ 80	≥ 13	A	[mm]	50	50	50	50	50	50	50
		A1	[mm]	100	150	100	150	150	150	150
		A2	[mm]	150	200	150	200	200	200	200

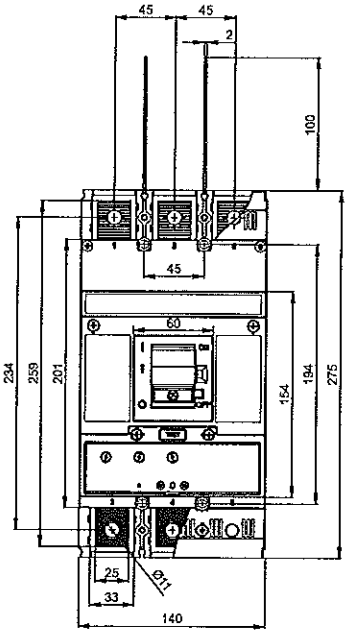
note: I_k'' - max. short-circuit current in the protected circuit (rms)

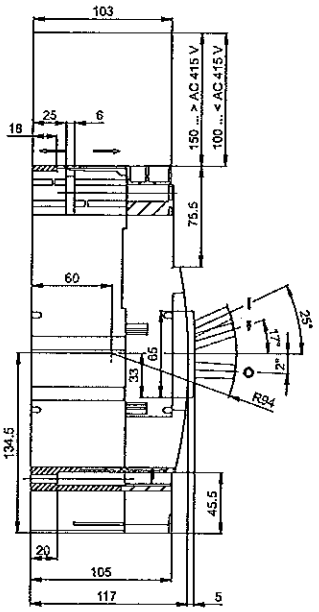
CIRCUIT BREAKERS, SWITCH-DISCONNECTORS

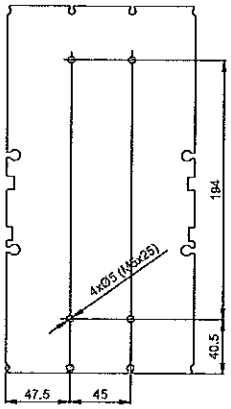
Dimensions

Fixed design, front connection

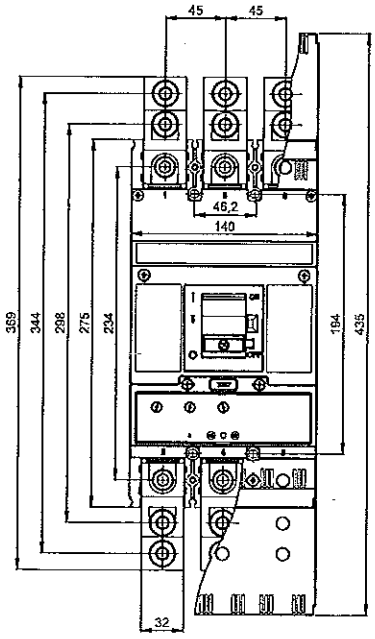
Drilling diagram

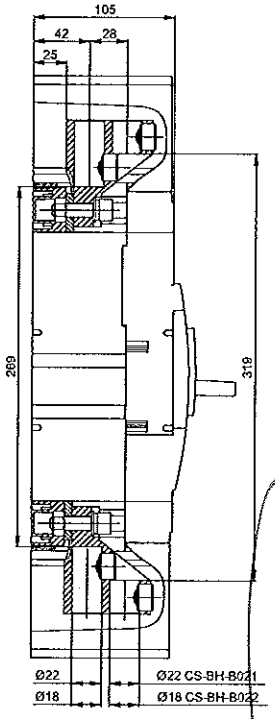






Fixed design, front connection (CS-BH-B021, CS-BH-B022 connecting sets)

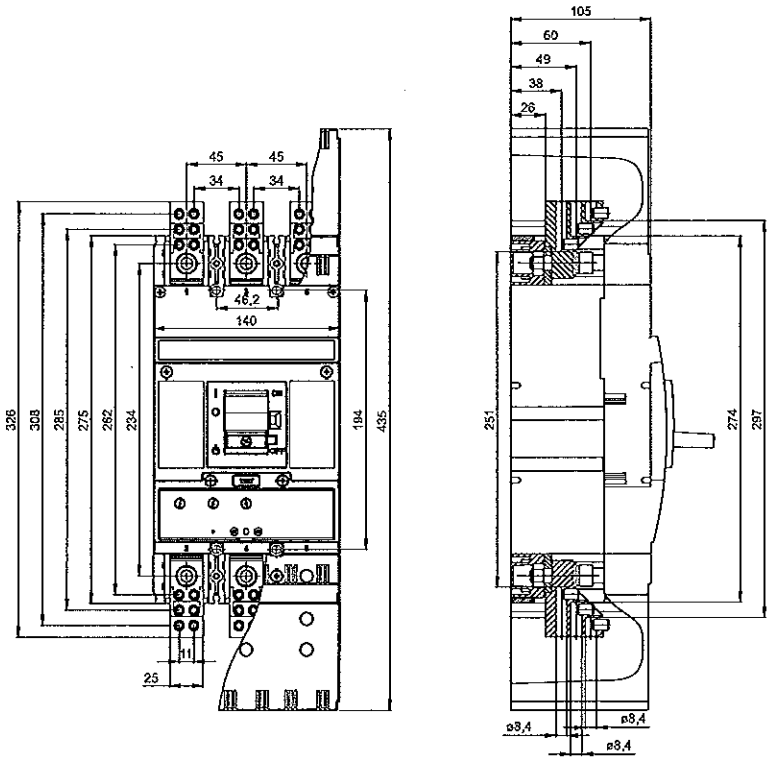




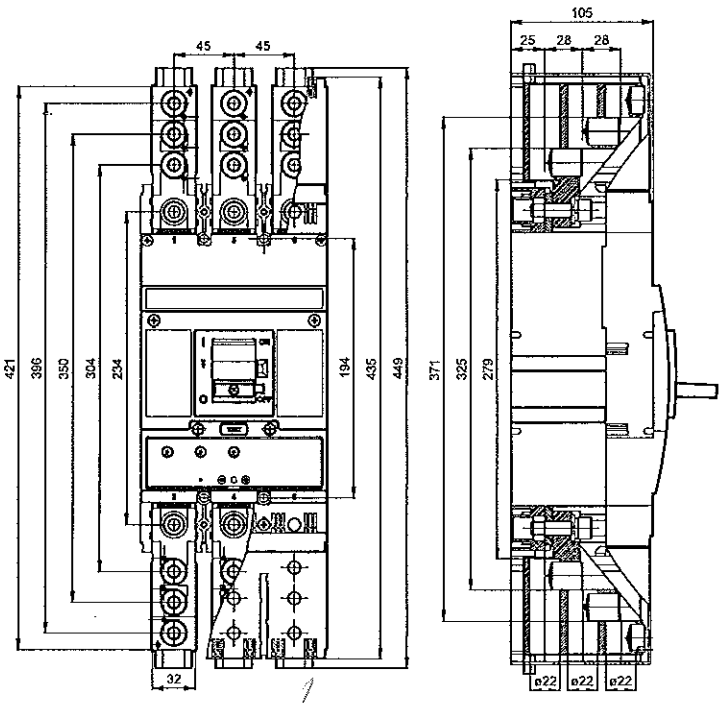
CIRCUIT BREAKERS, SWITCH-DISCONNECTORS

Dimensions

Fixed design, front connection (CS-BH-B014 connecting set)



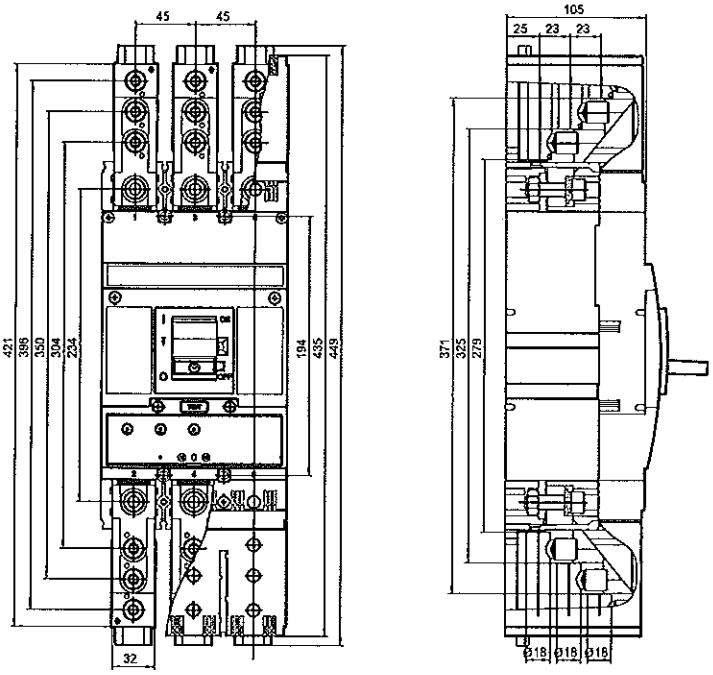
Fixed design, front connection (CS-BH-B031 connecting set)



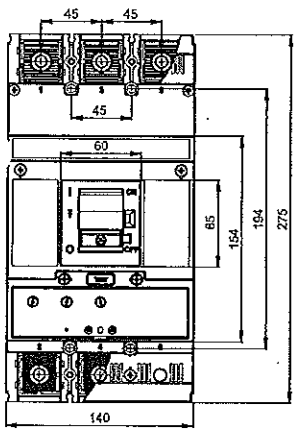
CIRCUIT BREAKERS, SWITCH-DISCONNECTORS

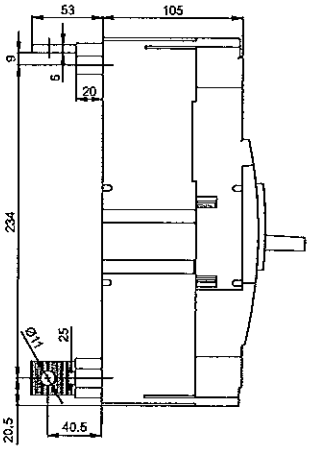
Dimensions

Fixed design, front connection (CS-BH-B032 connecting set)

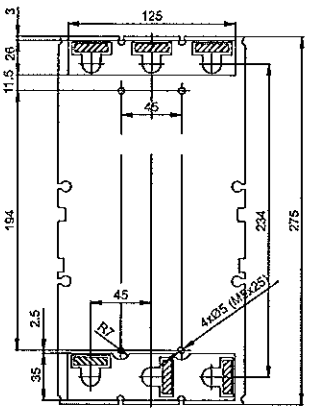


Fixed design, rear connection (CS-BH-A021 connecting set)





Drilling diagram



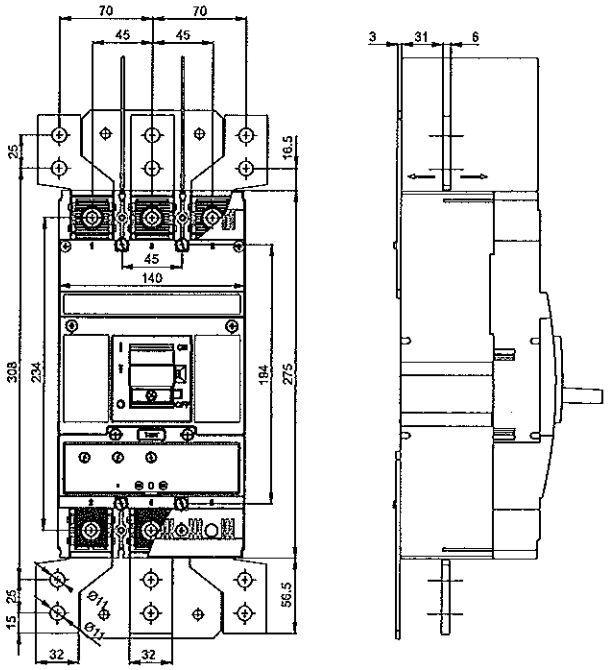
CIRCUIT BREAKERS, SWITCH-DISCONNECTORS

3P

Dimensions

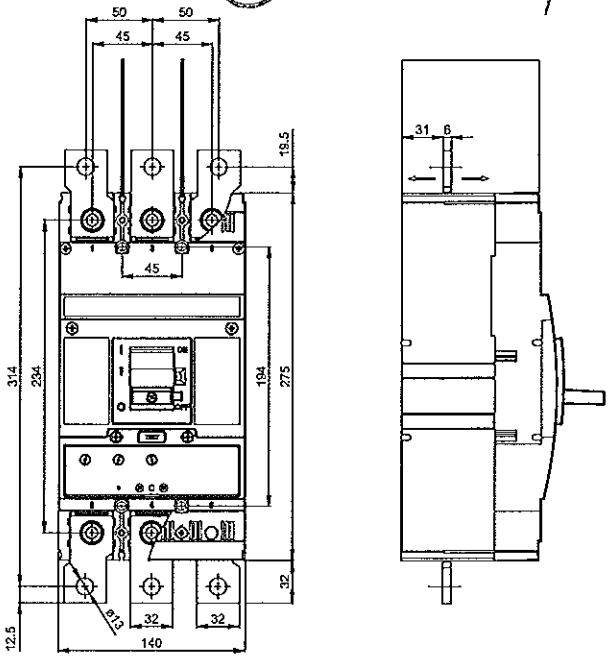
Fixed design, front connection
(CS-BH-A039 connecting set, OD-BHD-MS39 mounting set)

RETROFIT



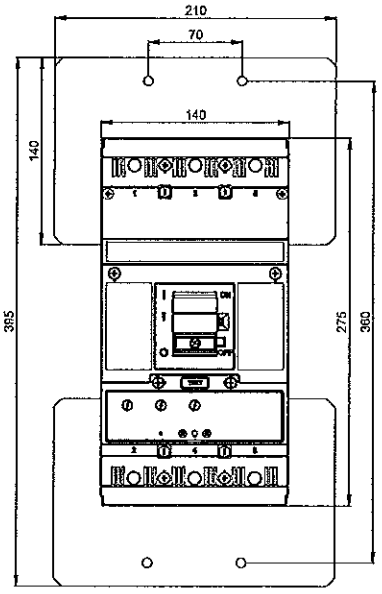
Fixed design, front connection
(CS-BH-A037 connecting set)

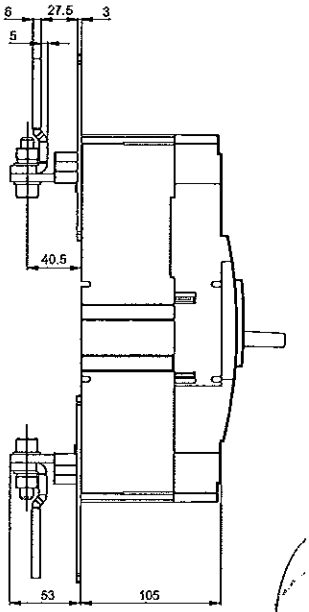
RETROFIT

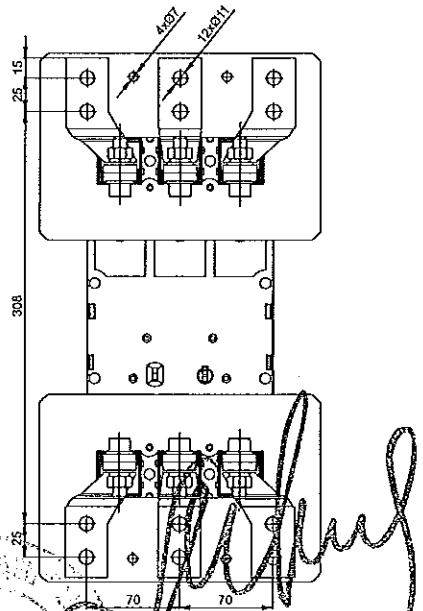


Fixed design, rear connection (CS-BH-Z039 connecting set, OD-BH-MZ39 mounting set)

RETROFIT





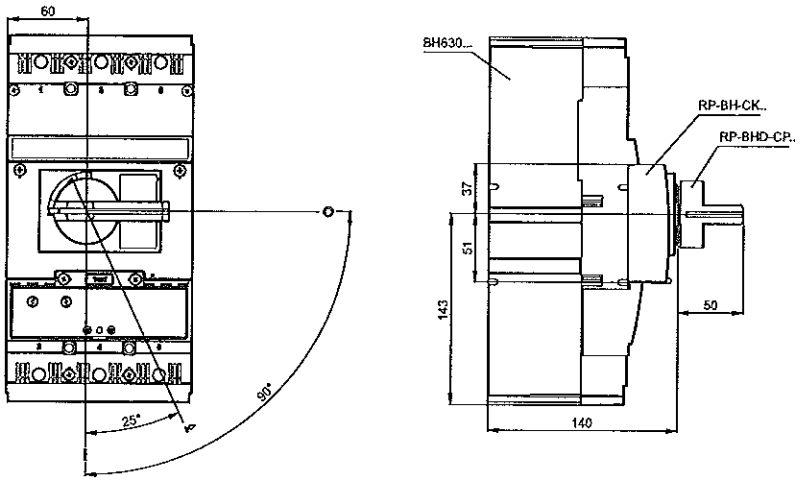


CIRCUIT BREAKERS, SWITCH-DISCONNECTORS

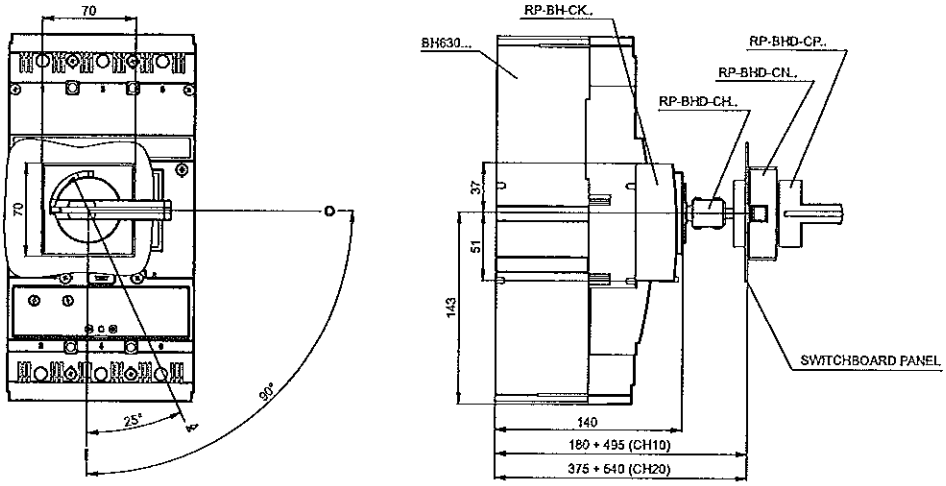
3P

Dimensions

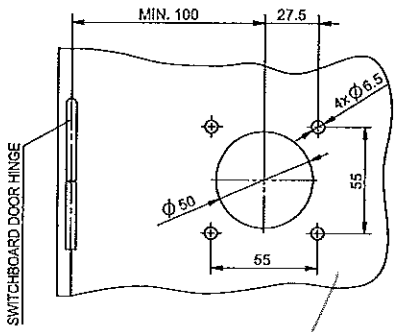
Fixed design, hand drive



Fixed design, hand drive - front, with adjustable lever



Switchboard door modification

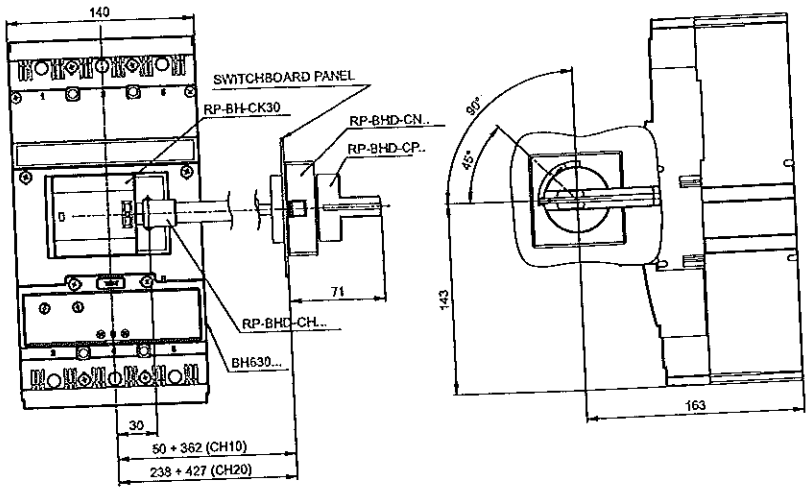


3P

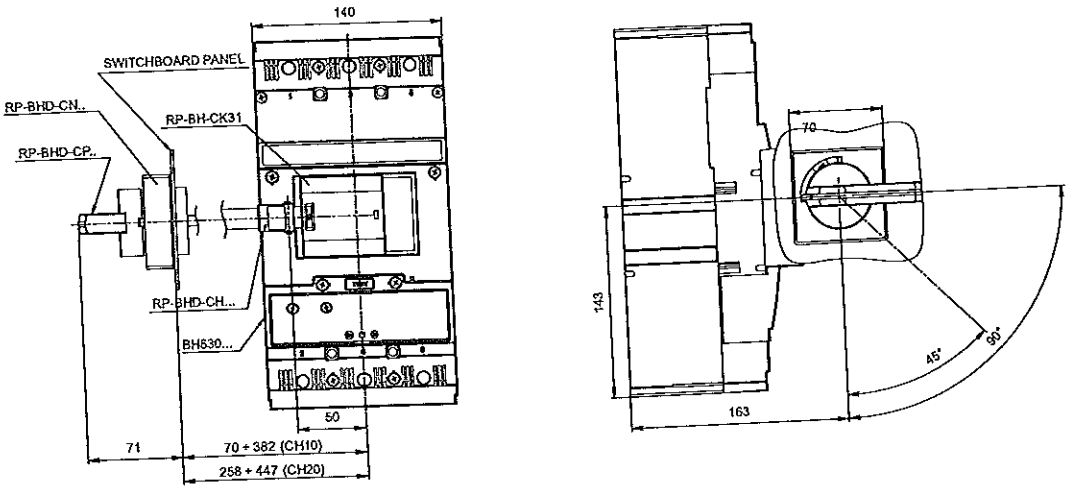
CIRCUIT BREAKERS, SWITCH-DISCONNECTORS

Dimensions

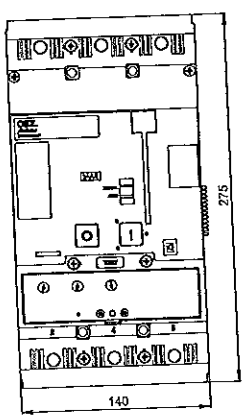
Fixed design, hand drive - control on right side, with adjustable lever

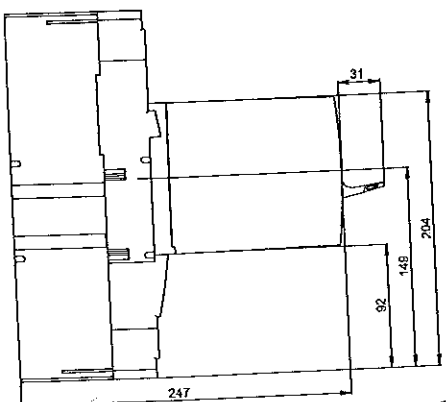


Fixed design, hand drive - control on left side, with adjustable lever

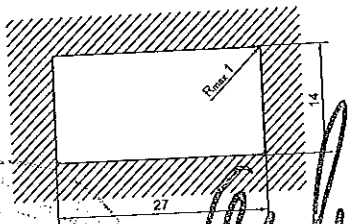


Fixed design, MP-BH-X... motor drive





Opening dimensions in switchboard door for external counter of cycles

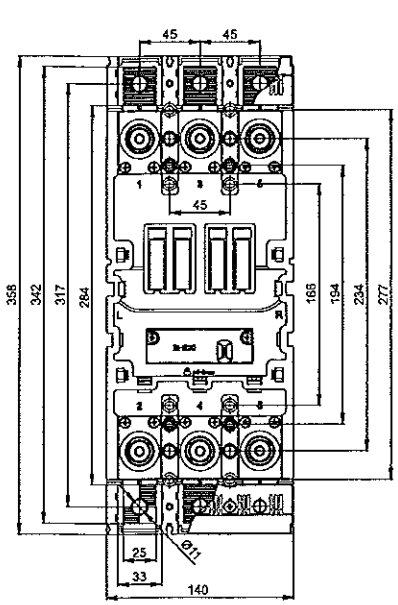


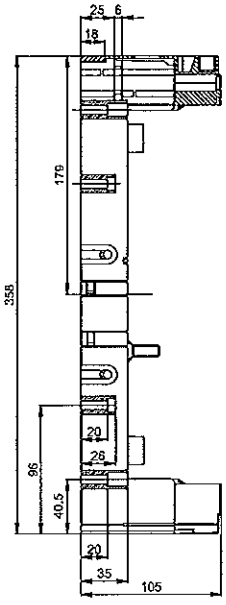
CIRCUIT BREAKERS, SWITCH-DISCONNECTORS

3P

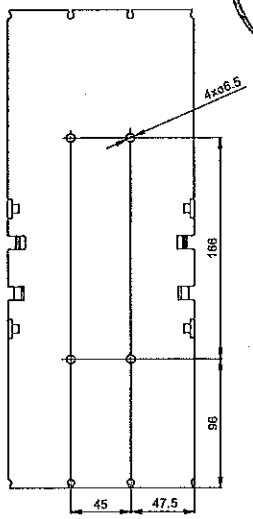
Dimensions

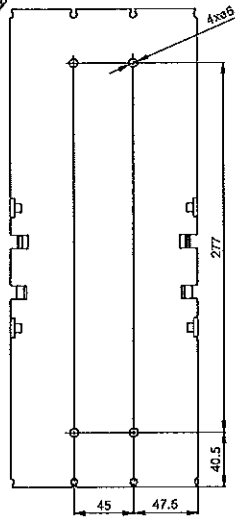
Plug-in device



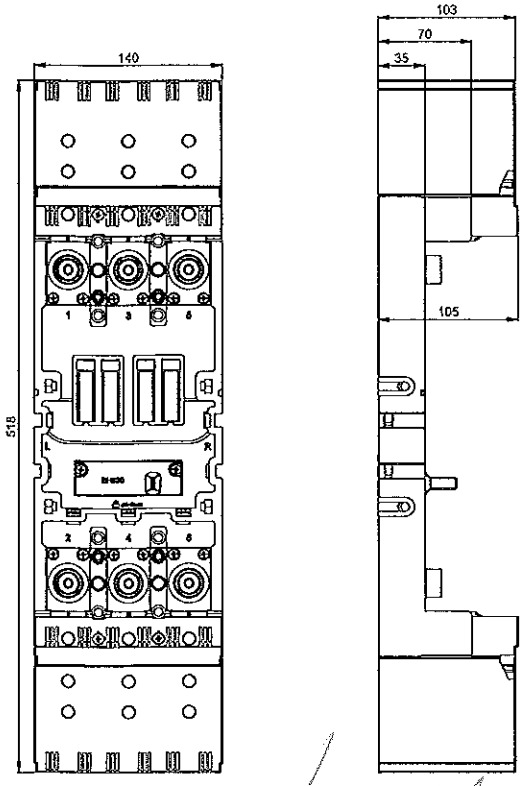


Drilling diagram





Plug-in device, OD-BH-KS03 terminal cover

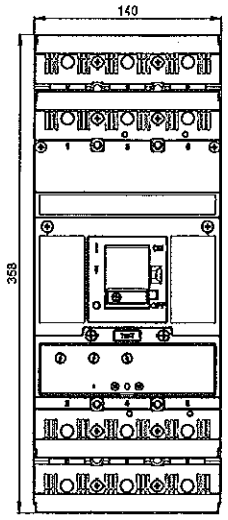


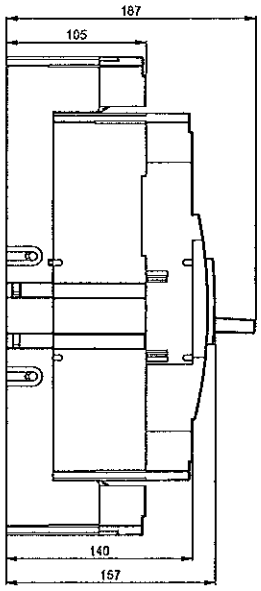
CIRCUIT BREAKERS, SWITCH-DISCONNECTORS

3P

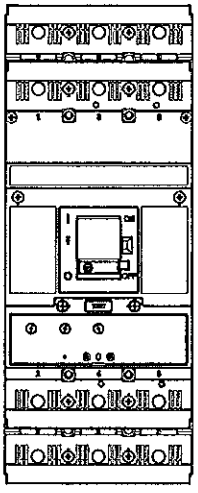
Dimensions

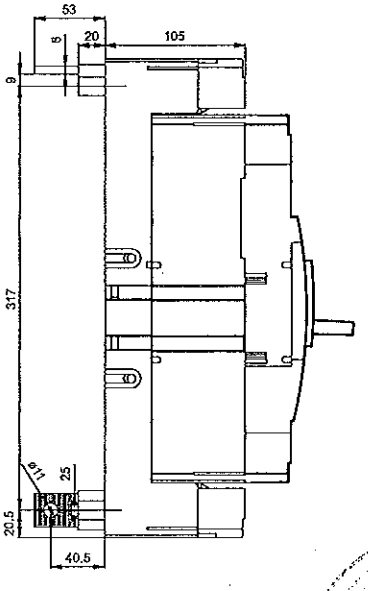
Plug-in design



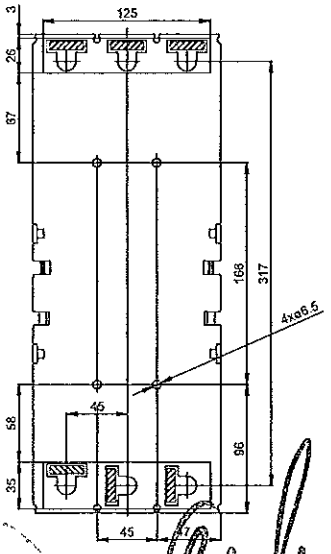


Plug-in design, rear connection (CS-BH-A021 connecting set)





Drilling diagram

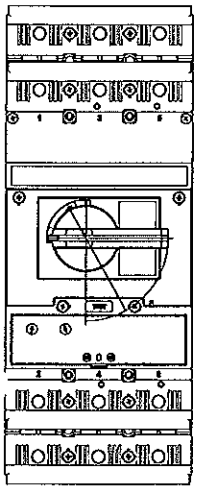


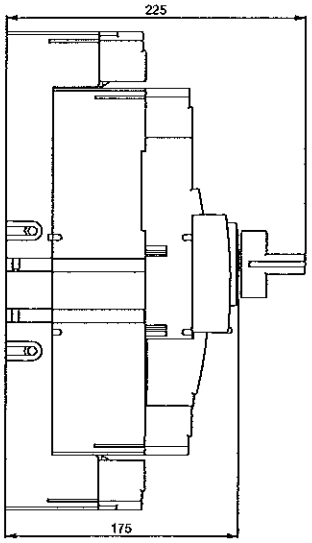
CIRCUIT BREAKERS, SWITCH-DISCONNECTORS

3P

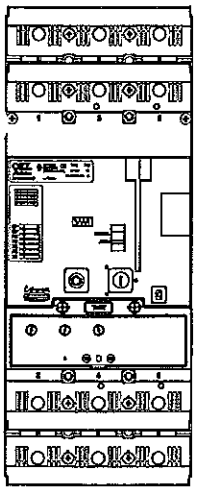
Dimensions

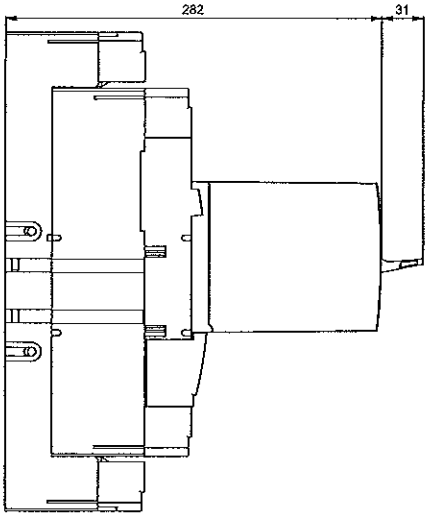
Plug-in design, hand drive





Plug-in design, motor drive





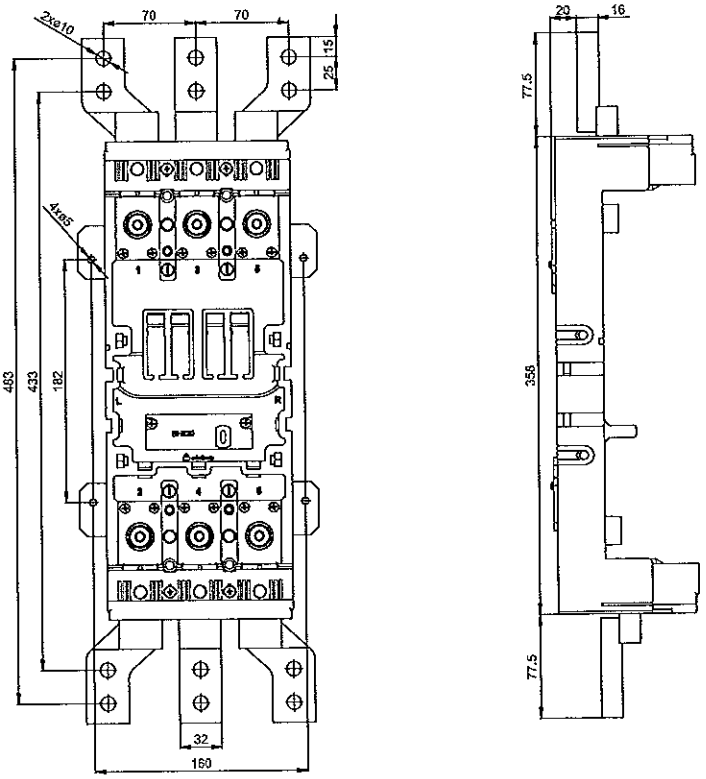
CIRCUIT BREAKERS, SWITCH-DISCONNECTORS

3P

Dimensions

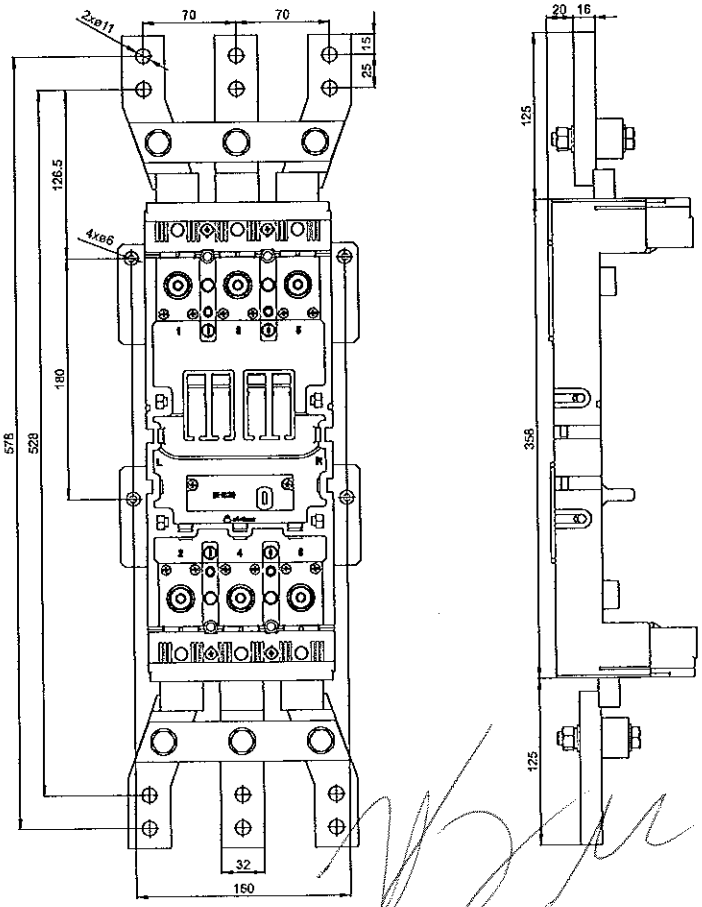
Plug-in device (CS-BH-JX75 connecting set, OD-BHD-MS75 connecting set)

RETROFIT



Plug-in device (CS-BH-JT75 connecting set, OD-BH-MT75 mounting set)

RETROFIT

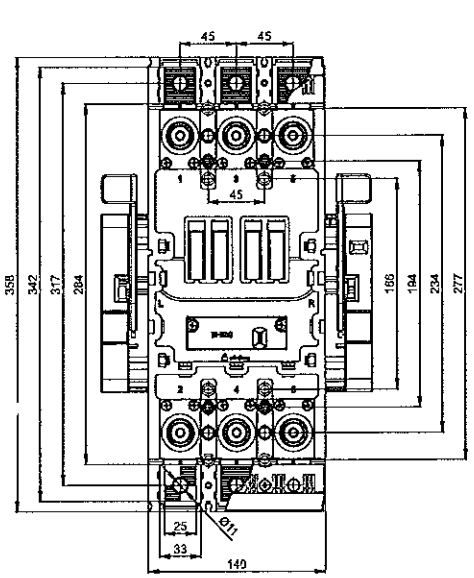


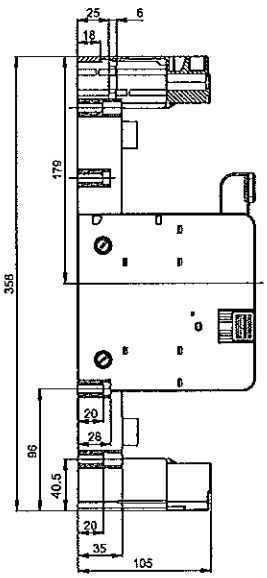
CIRCUIT BREAKERS, SWITCH-DISCONNECTORS

3P

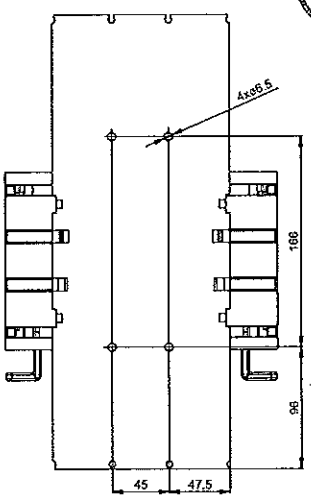
Dimensions

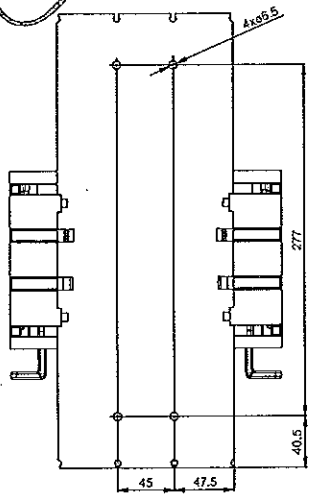
Withdrawable device



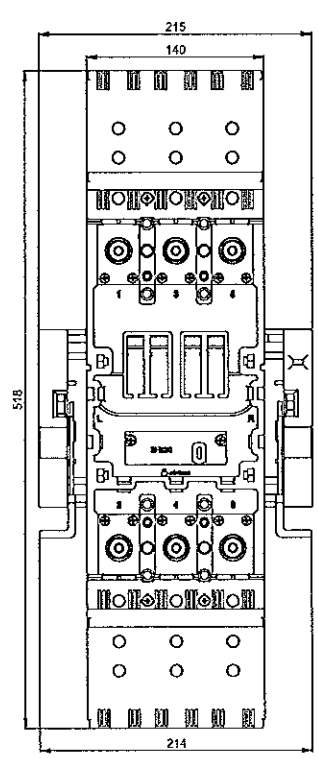


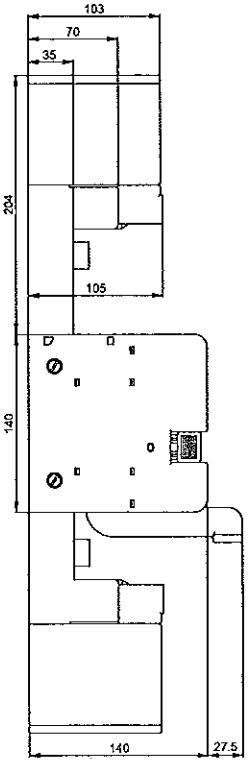
Drilling diagram





Withdrawable device, OD-BH-KS03 terminal cover



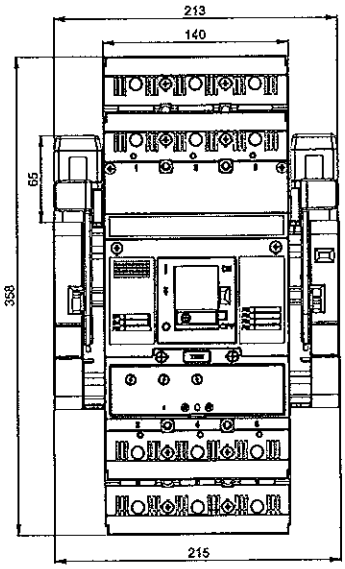


CIRCUIT BREAKERS, SWITCH-DISCONNECTORS

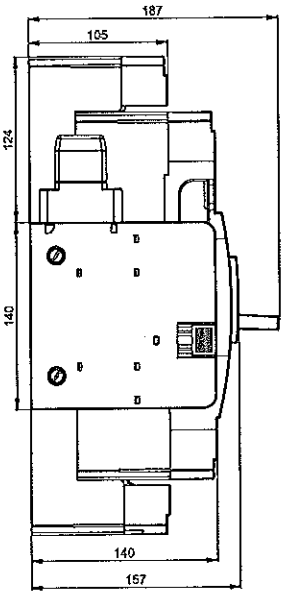
3P

Dimensions

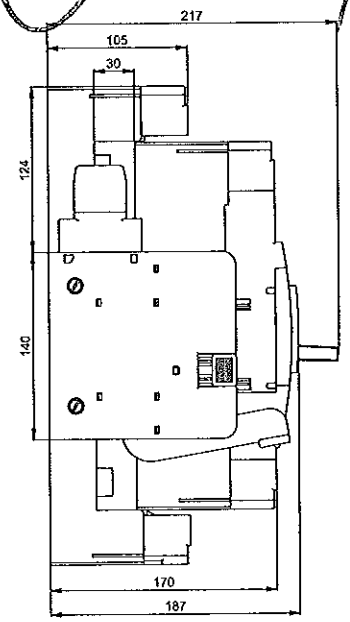
Withdrawable design



Working position



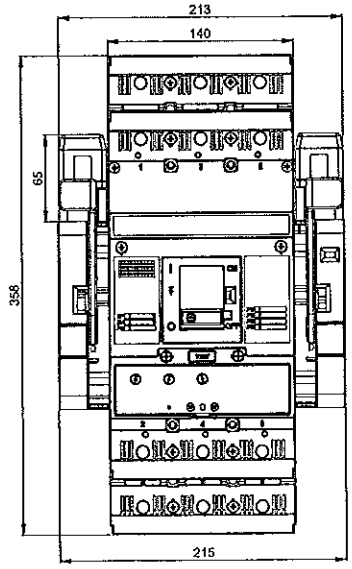
Inspection position

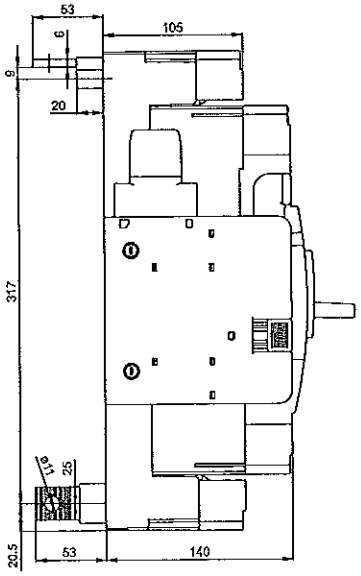


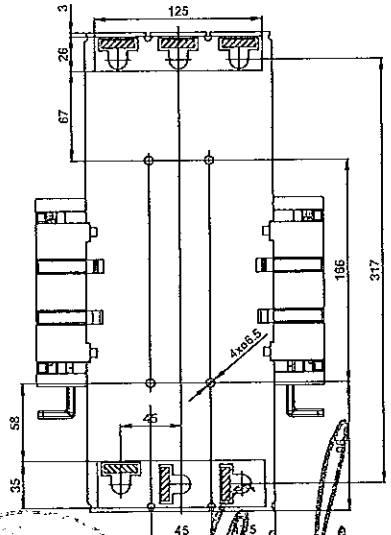
Withdrawable design, rear connection (CS-BH-A021 connecting set)

Working position

Inspection position





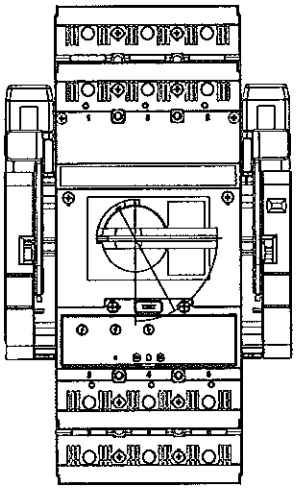


CIRCUIT BREAKERS, SWITCH-DISCONNECTORS

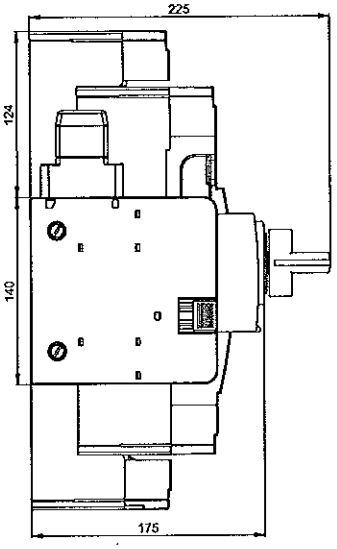
3P

Dimensions

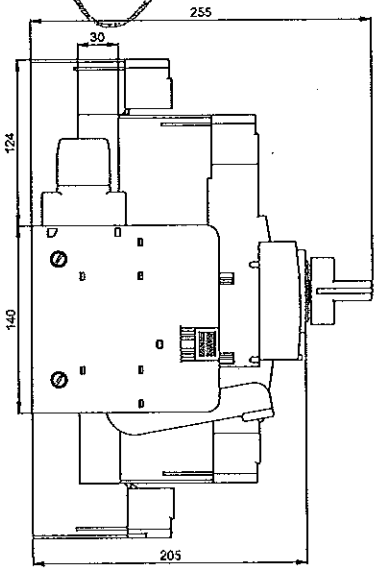
Withdrawable design, hand drive



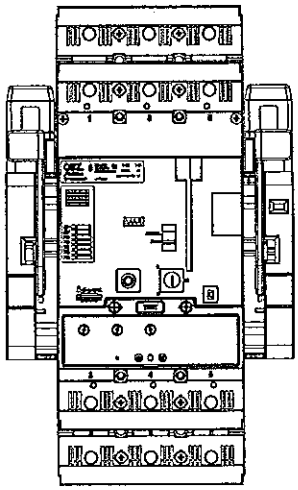
Working position



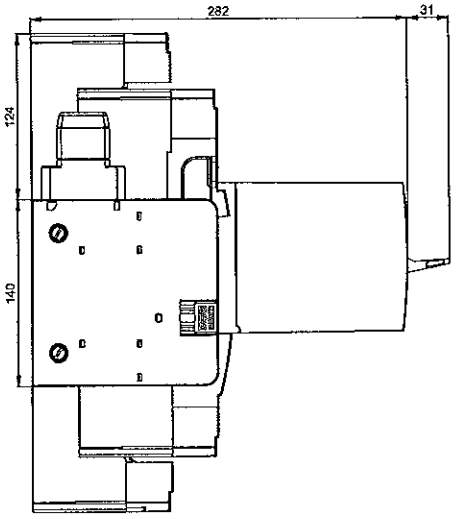
Inspection position



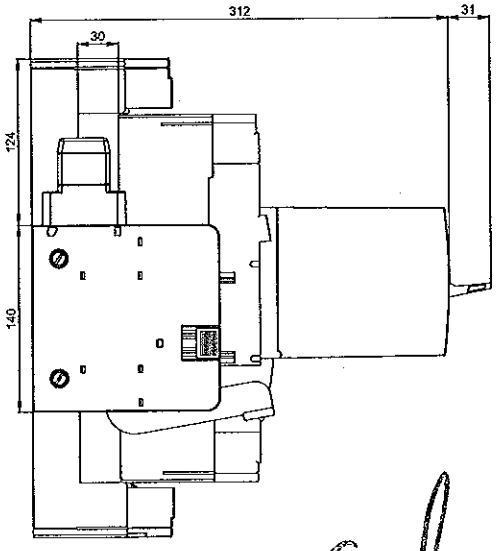
Withdrawable design, motor drive



Working position



Inspection position



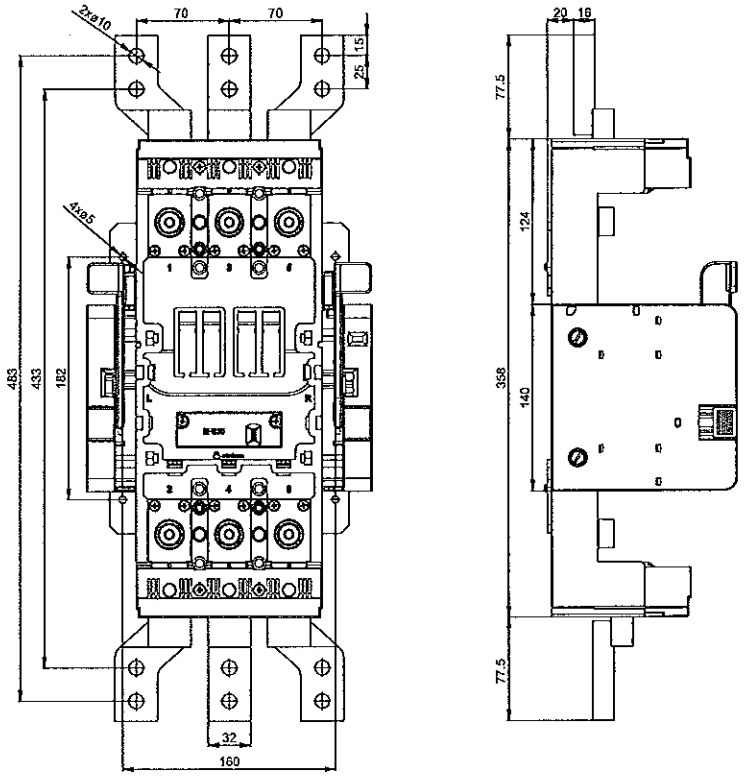
CIRCUIT BREAKERS, SWITCH-DISCONNECTORS

3P

Dimensions

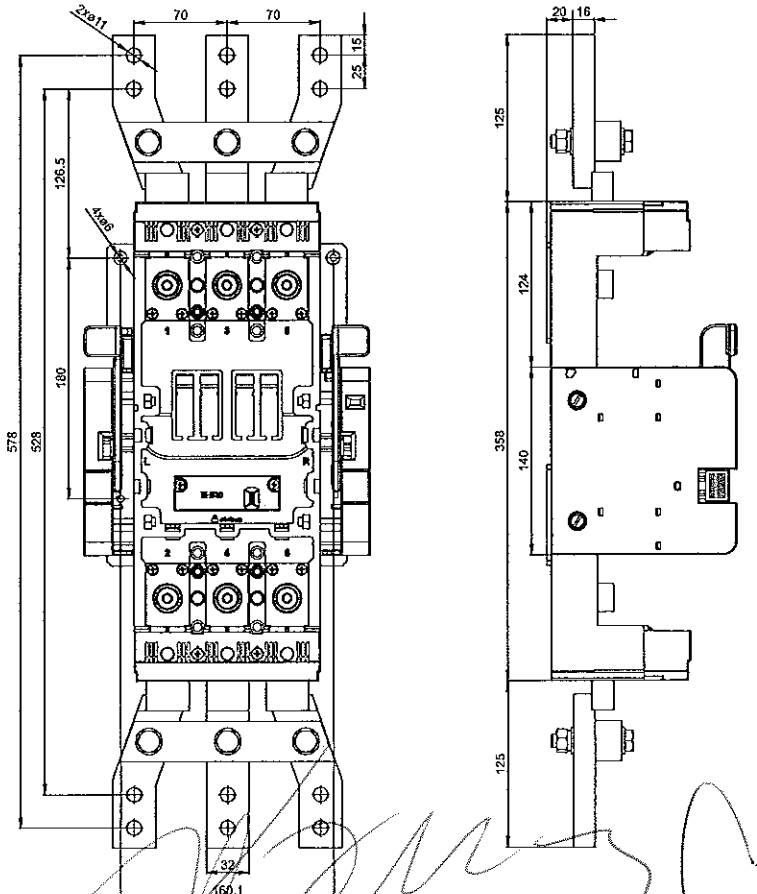
Withdrawable device (CS-BH-JT75 connecting set, OD-BH-MT75 mounting set)

RETROFIT



Withdrawable device (CS-BH-JX75 connecting set, OD-BHD-MS75 connecting set)

RETROFIT



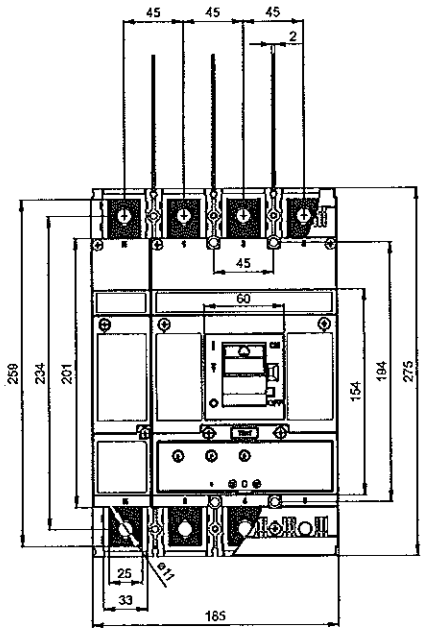
CIRCUIT BREAKERS, SWITCH-DISCONNECTORS

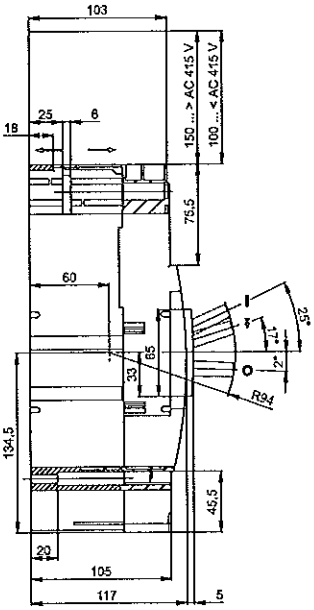
4P

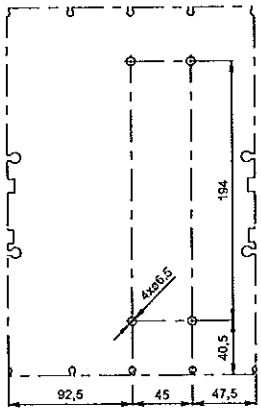
Dimensions

Fixed design, front connection

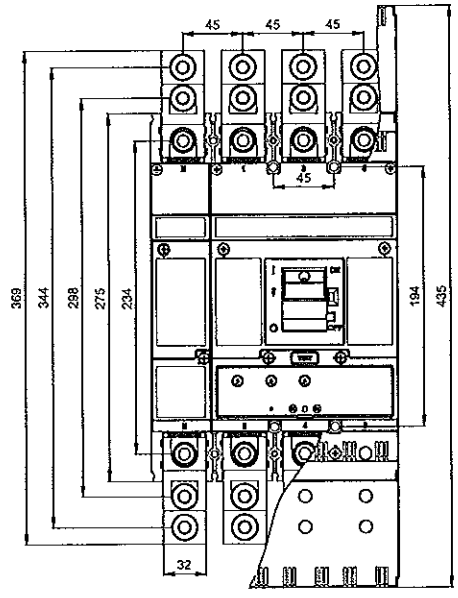
Drilling diagram

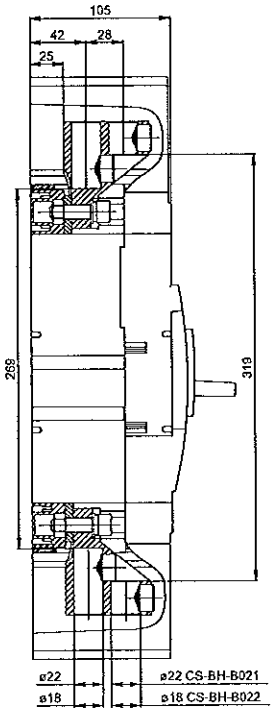






Fixed design, front connection (CS-BH-B021 + CS-BH-B421, CS-BH-B022 + CS-BH-B422 connecting sets)



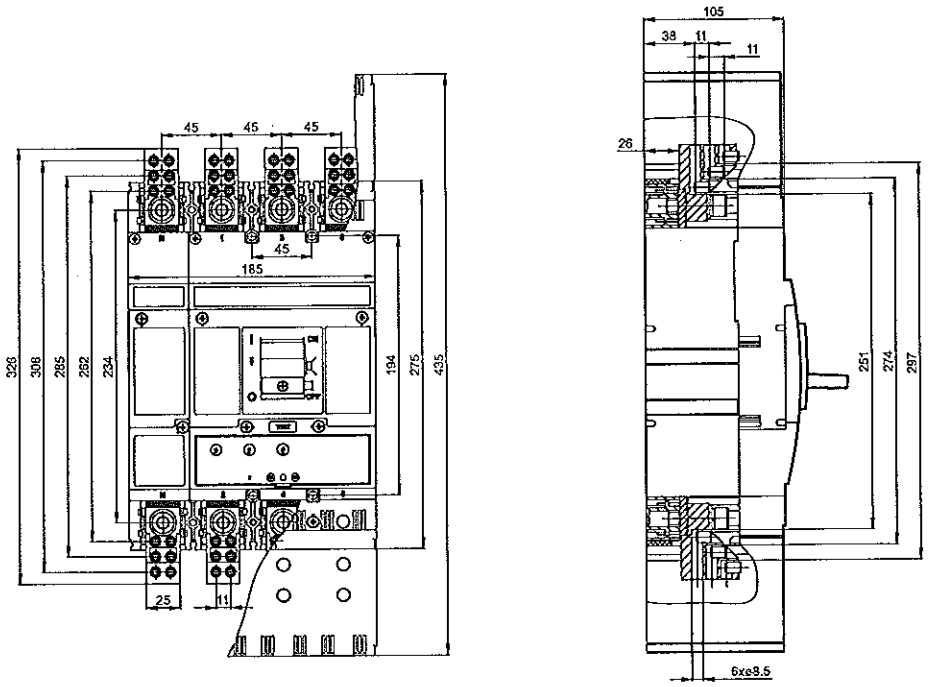


CIRCUIT BREAKERS, SWITCH-DISCONNECTORS

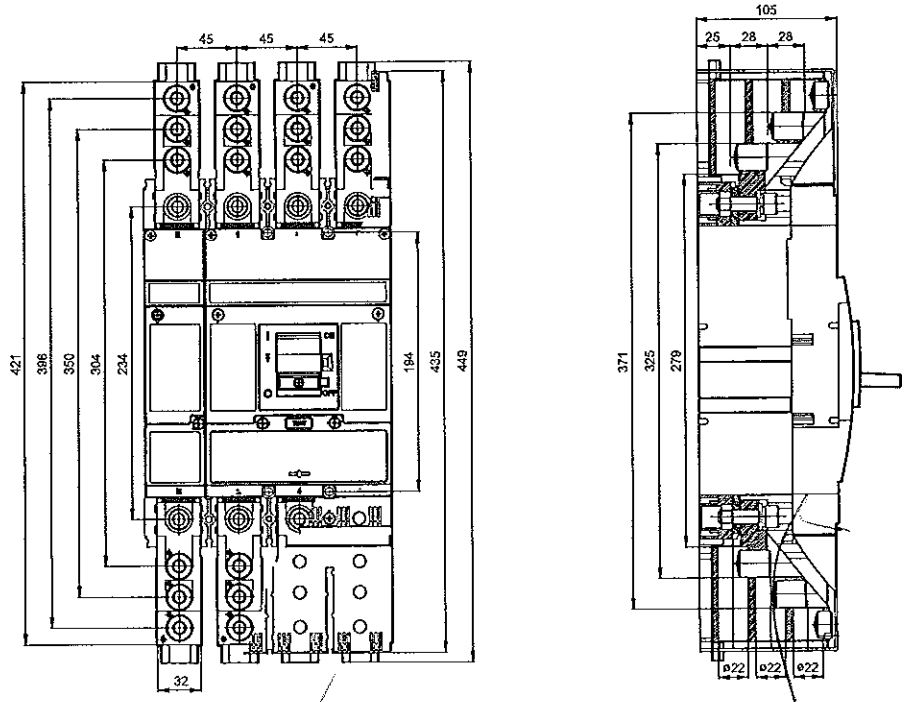
4P

Dimensions

Fixed design, front connection (CS-BH-B014 + CS-BH-B414 connecting sets)



Fixed design, front connection (CS-BH-B031 + CS-BH-B431 connecting sets)

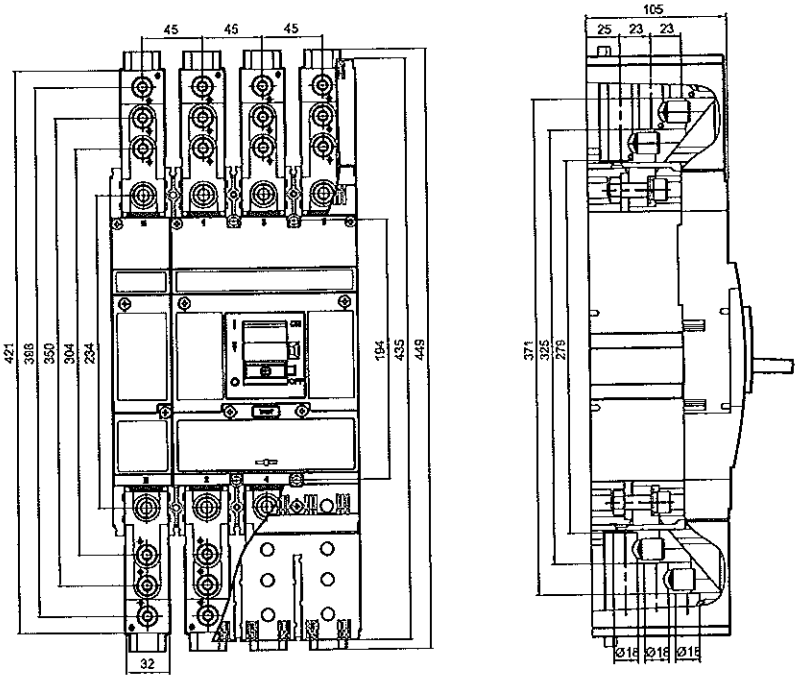


CIRCUIT BREAKERS, SWITCH-DISCONNECTORS

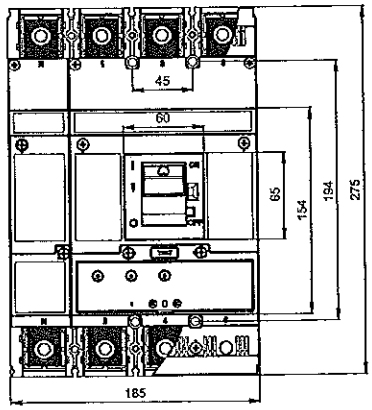
4P

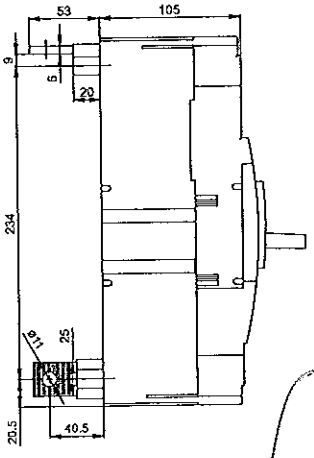
Dimensions

Fixed design, front connection (CS-BH-B032 + CS-BH-B432 connecting sets)

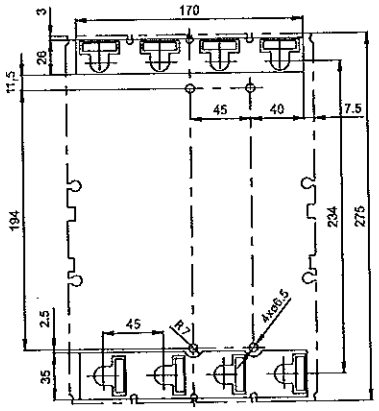


Fixed design, rear connection (CS-BH-A021 + CS-BH-A421 connecting sets)





Drilling diagram

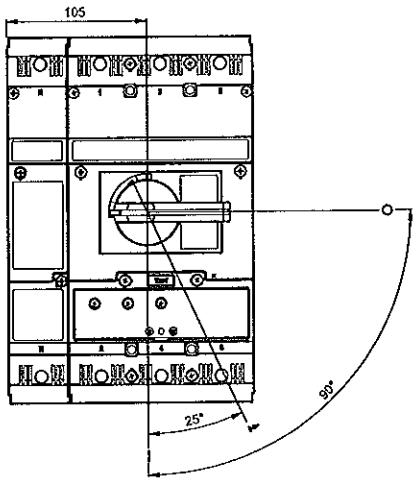


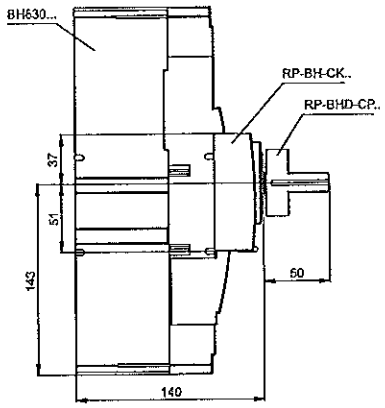
CIRCUIT BREAKERS, SWITCH-DISCONNECTORS

4P

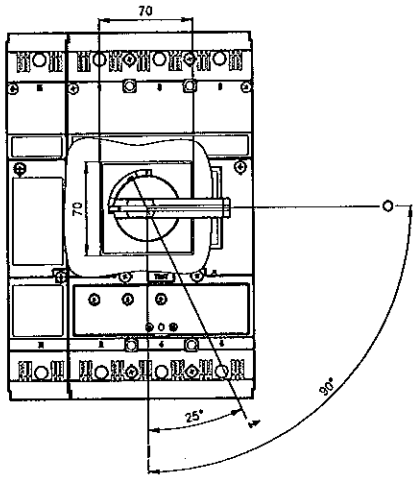
Dimensions

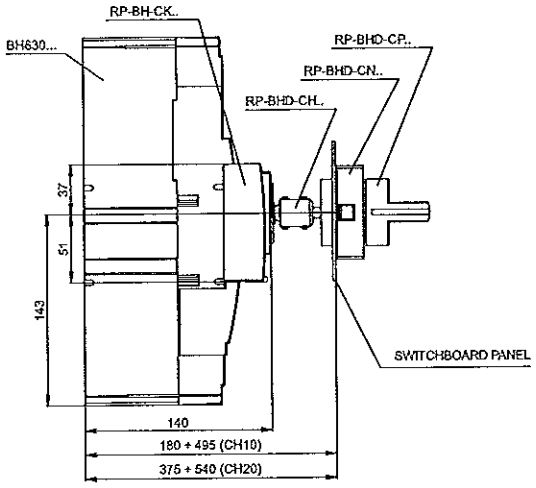
Fixed design, hand drive



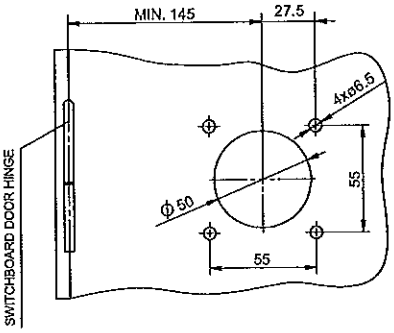


Fixed design, hand drive - front, with adjustable lever

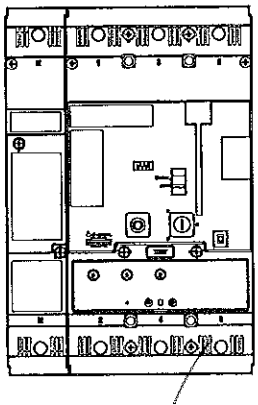


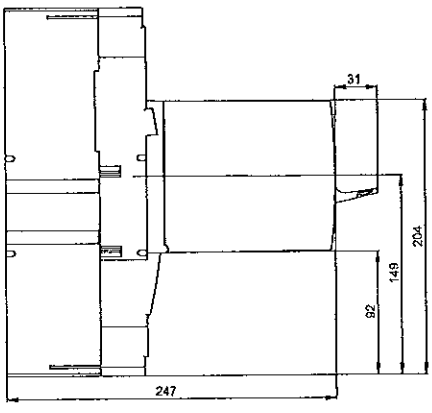


Switchboard door modification

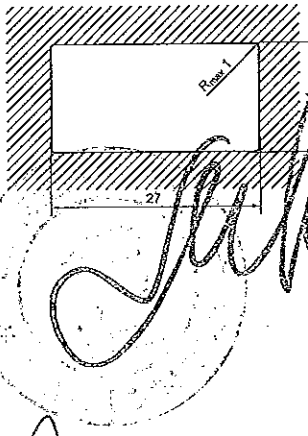


Fixed design, motor drive





Opening dimensions in switchboard door for external counter of cycles

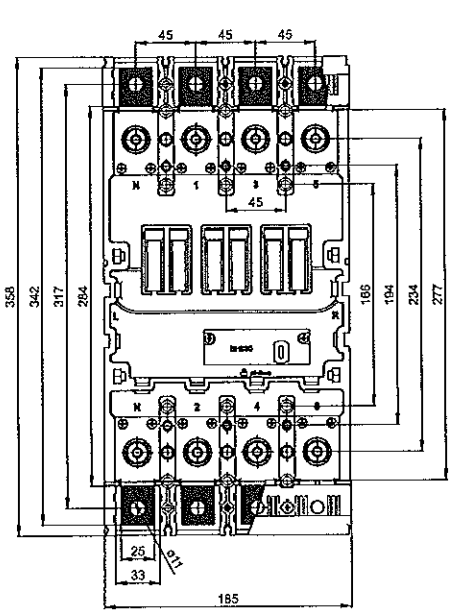


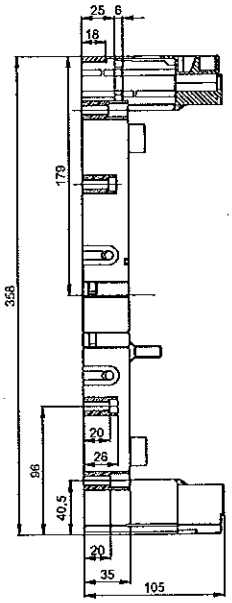
CIRCUIT BREAKERS, SWITCH-DISCONNECTORS

4P

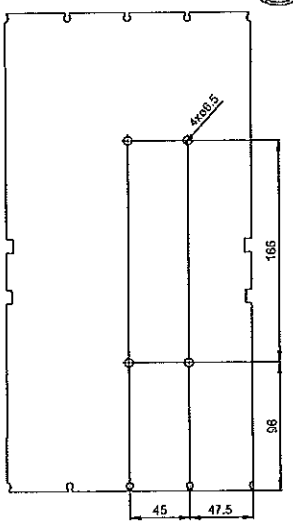
Dimensions

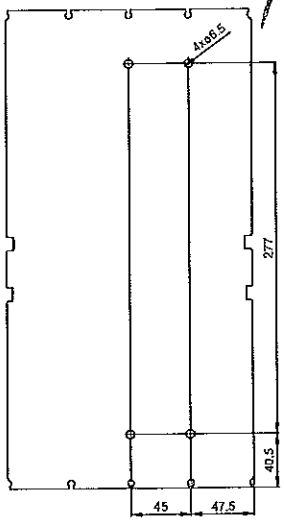
Plug-in device



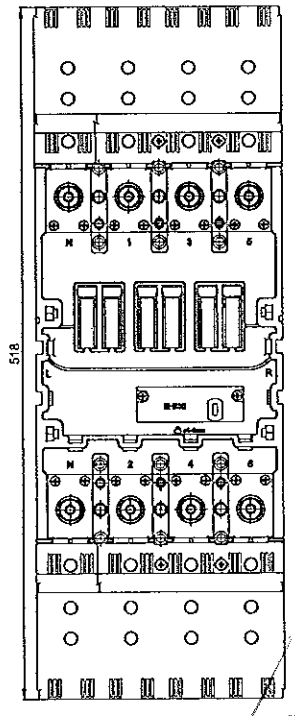


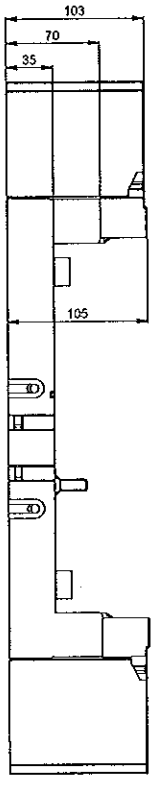
Drilling diagram





Plug-in device, OD-BH-KS43 terminal cover



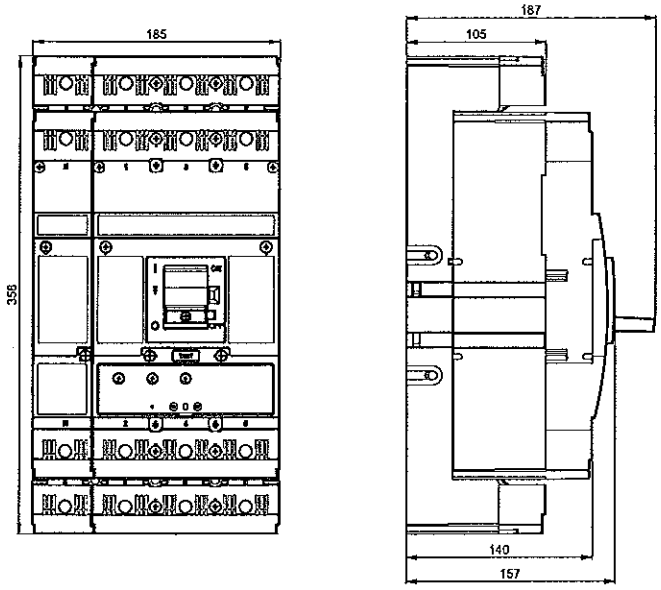


CIRCUIT BREAKERS, SWITCH-DISCONNECTORS

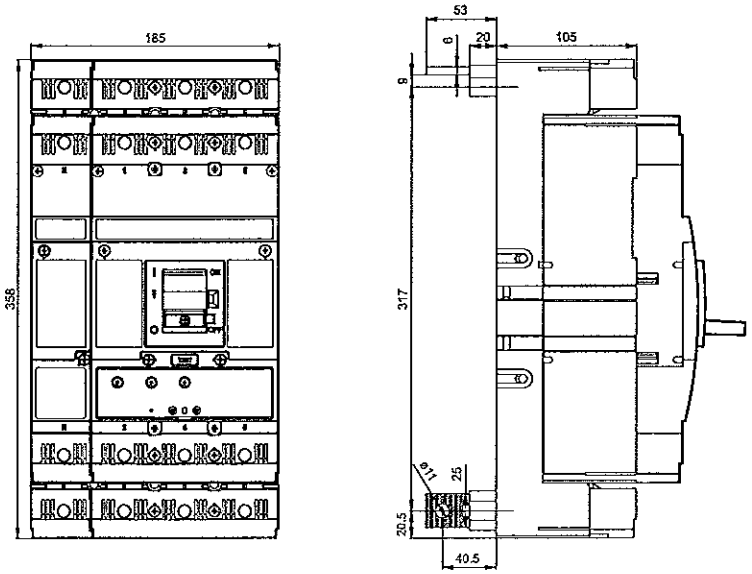
4P

Dimensions

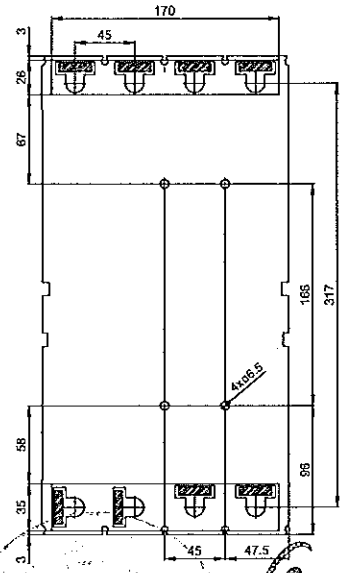
Plug-in design



Plug-in design, rear connection (CS-BH-A021 + CS-BH-A421 connecting sets)



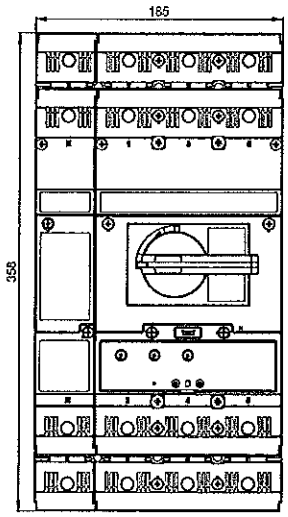
Drilling diagram

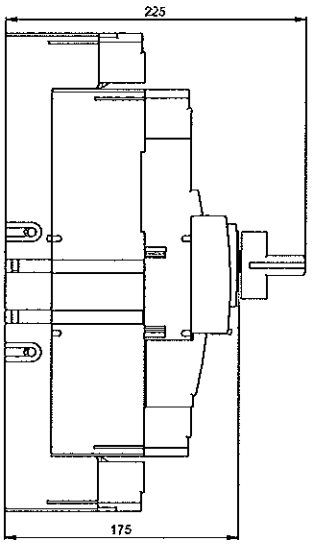


CIRCUIT BREAKERS, SWITCH-DISCONNECTORS

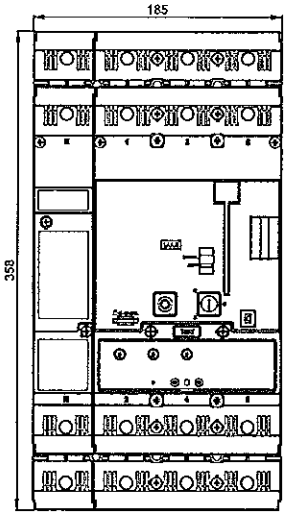
Dimensions

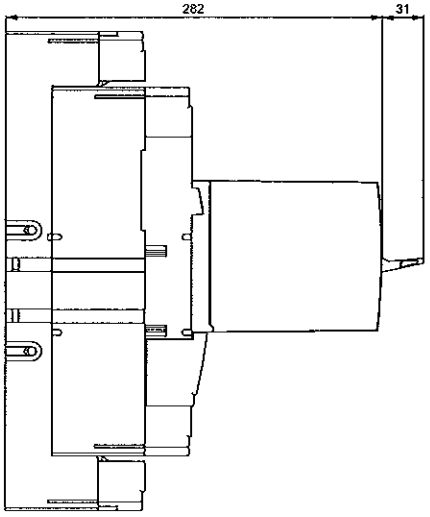
Plug-in design, hand drive





Plug-in design, motor drive





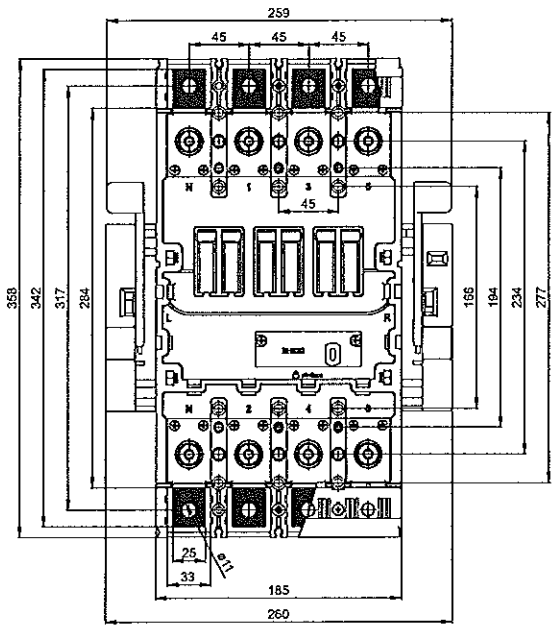
CIRCUIT BREAKERS, SWITCH-DISCONNECTORS

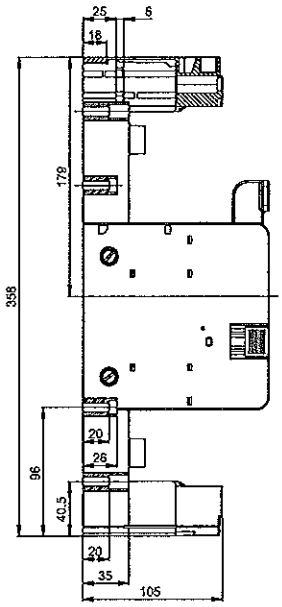
4P

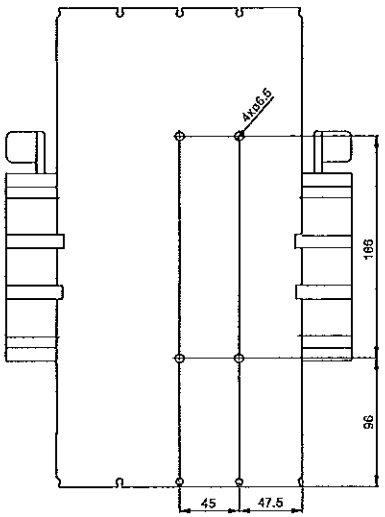
Dimensions

Withdrawable device

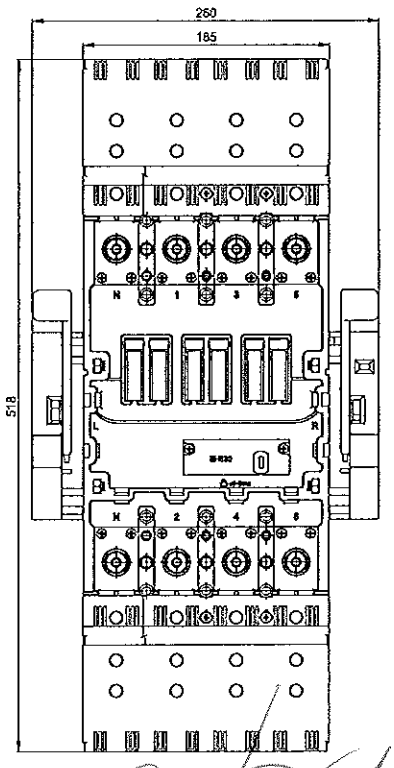
Drilling diagram

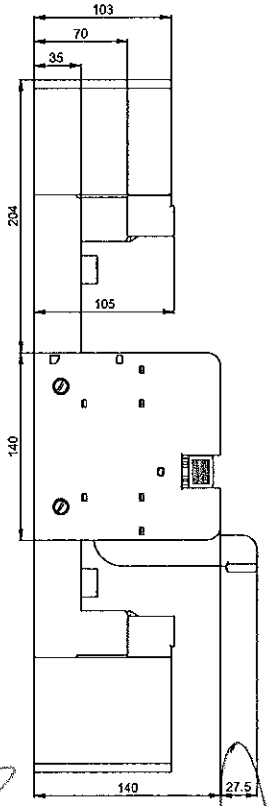






Withdrawable device, OD-BH-KS43 terminal cover



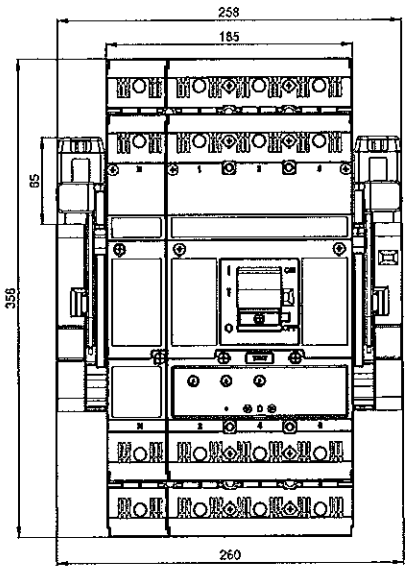


CIRCUIT BREAKERS, SWITCH-DISCONNECTORS

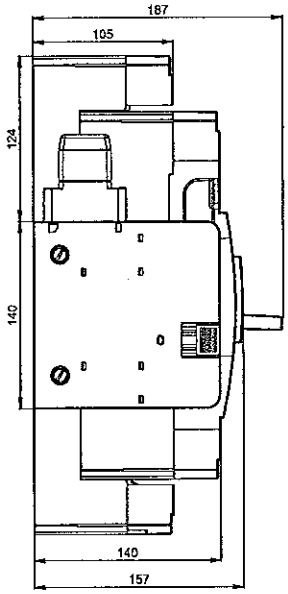
4P

Dimensions

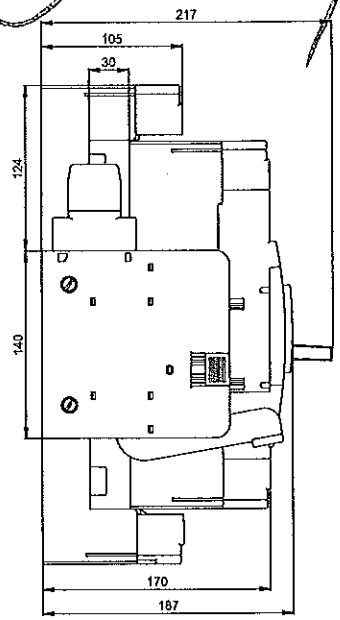
Withdrawable design



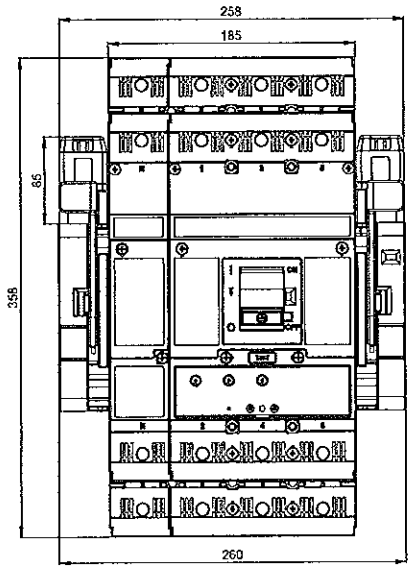
Working position

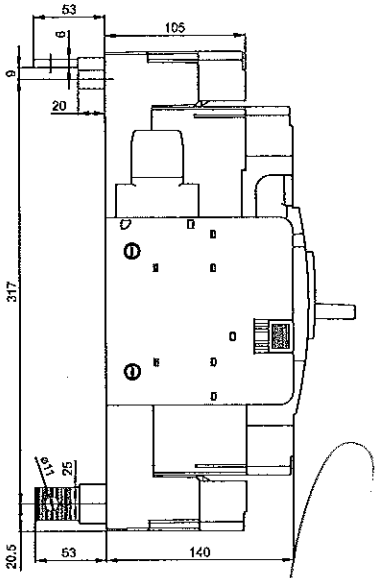


Inspection position

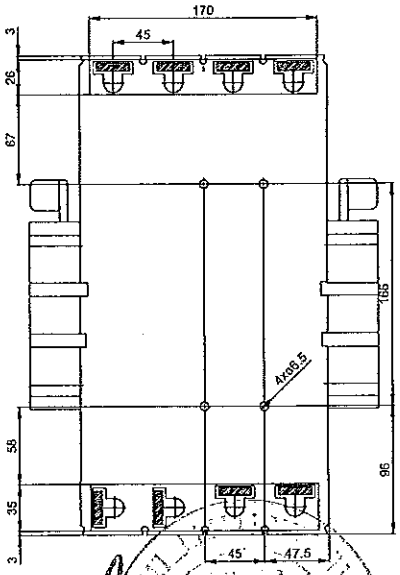


Withdrawable design, rear connection (CS-BH-A021 + CS-BH-A421 connecting sets)





Drilling diagram

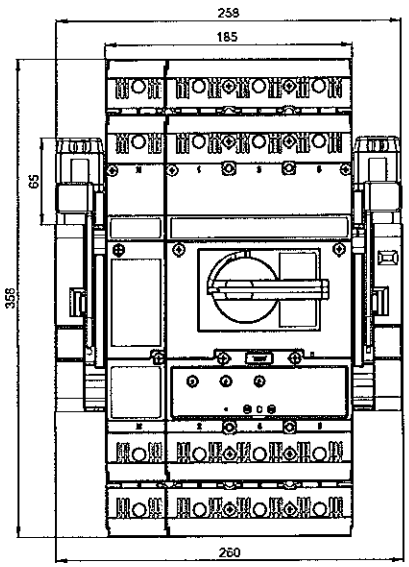


CIRCUIT BREAKERS, SWITCH-DISCONNECTORS

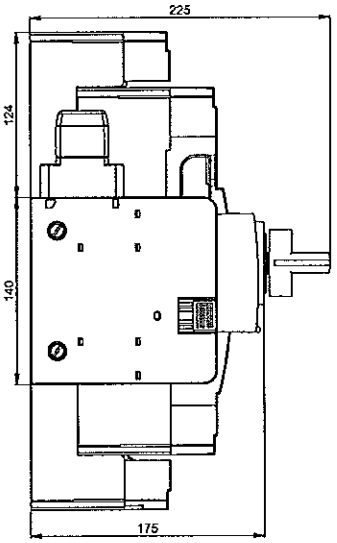
4P

Dimensions

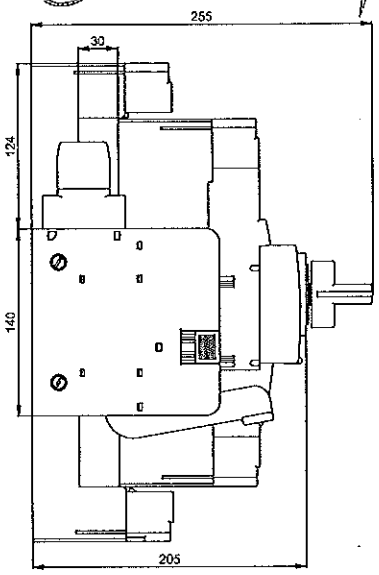
Withdrawable design, hand drive



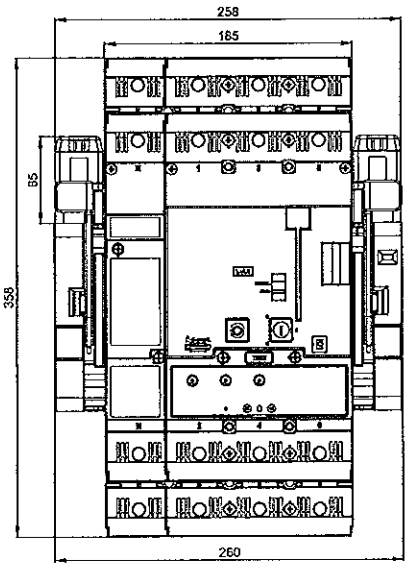
Working position



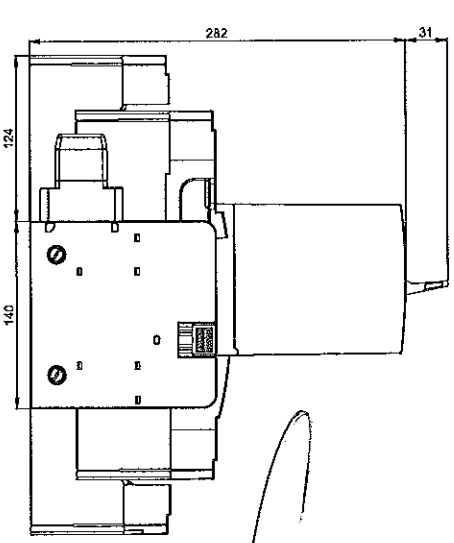
Inspection position



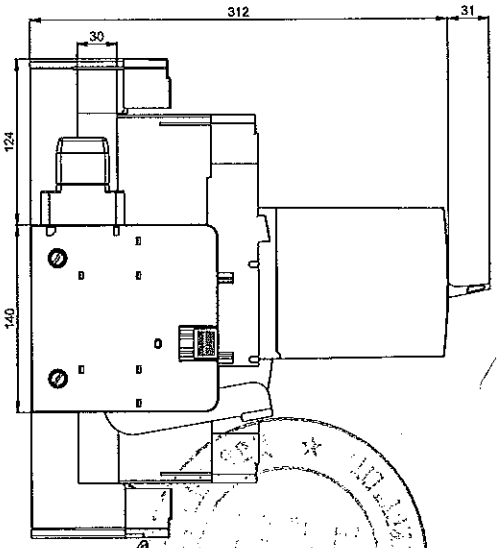
Withdrawable design, motor drive



Working position

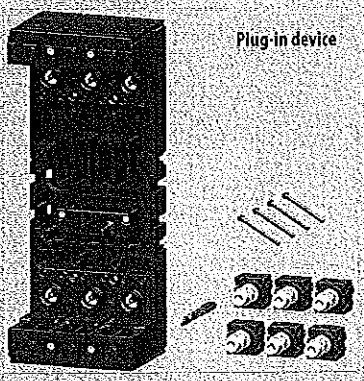


Inspection position



PLUG-IN DEVICE

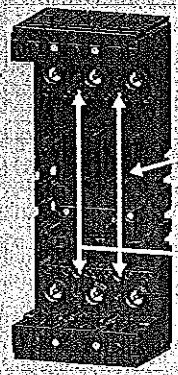
3P, 4P



Plug-in device

Circuit breaker in plug-in design

Locking plug-in device against inserting circuit breaker



Position of cavities for switch SO-BHD-0010 in plug-in device

11, 12, 13, 14

Keying set OD-BH-KK01

Description

Plug-in design of the circuit breaker/switch-disconnector is intended for demanding industrial applications where rapid exchange of the circuit breaker along with both visual and conductive disconnection of the circuit are needed.

- plug-in device includes complete accessories for assembling circuit breaker/switch-disconnector in plug-in design from the originally fixed design
- components of the plug-in device are:
  - base of the plug-in device
  - 2 connecting sets - for fitting onto the switching unit
  - interlocking connecting rod (ensures automatic switching off of the circuit breaker for handling – inserting and removal)
  - set of mounting bolts - for affixing circuit breaker to plug-in device (set of mounting bolts is used to fasten the plug-in device into the switchboard, that is included in delivery of switching unit)

Circuit breaker positions

Circuit breaker in plug-in design has two positions:
1. inserted (working position)
2. removed

Power circuit

- connecting set CS-BH-A011 is used for connecting with busbars or cable lugs, that is included in delivery of switching unit
- for connecting in another way, it is necessary to use connecting sets, see page F8
- connection must comply with our recommendations, see page F18

Auxiliary circuits

These are connected using 15-wire connecting cable **OD-BHD-KA01.**

States of switches SO-BHD-0010 in plug-in device according to circuit breaker position

Cavity	11 12 13 14 (19 20)[1]
Circuit breaker position	
Inserted	0 1
Removed	1 0

note: 0 - contact open, 1 - contact closed
[1] - cavities 19 and 20 are only for 4-pole design

Signalling of position SO-BHD-0010

Plug-in device may be fitted with a maximum of four switches (for 4-pole design, max. 6 switches) for signalling the inserted/removed position.

Keying set OD-BH-KK01

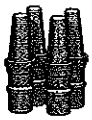
Plug-in device and circuit breaker can be fitted with keying set, which prevents inserting any other circuit breaker into the plug-in device.

Circuit breaker accessories in plug-in design

Circuit breaker in plug-in design has the same accessories as the fixed circuit breaker.

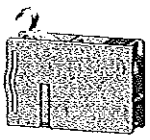
Advantages and enhanced safety for operator:

- unambiguous remote signalling of the circuit breaker position
- option to lock plug-in device with padlocks to prevent inserting of circuit breaker
- visible and conductive disconnection of the power circuit
- easy exchange of circuit breakers in case of failure
- IP20 degree of protection of all termination points
- plug-in device does not need earthing



Keying set OD-BH-KK01

Connecting cable OD-BHD-KA01



Signalling of position SO-BHD-0010

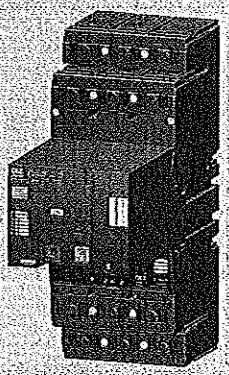
Specifications SO-BHD-0010

Type			SO-BHD-0010
Rated operating voltage	U_e		400 V a.c. 220 V d.c.
Rated insulation voltage	U_i		500 V a.c.
Rated frequency	f_n		50/60 Hz
Rated operating current	I_e/U_e	AC-13	3 A/400 V a.c.
	I_e/U_e	DC-15	3.5 A/24 V d.c., 1 A/48 V d.c., 0.3 A/110 V d.c., 0.15 A/220 V d.c.
Thermal current	I_{th}		6 A
Arrangement of contacts			001
Connection cross-section	S		0.5 ÷ 1 mm²
Degree of protection of terminals (connected switch)			IP20

For wiring diagram of circuit breaker in plug-in device with accessories see page F16.

PLUG-IN DEVICE

3P 4P



Circuit breaker in plug-in design with motor drive

Recommended circuit breaker manipulation

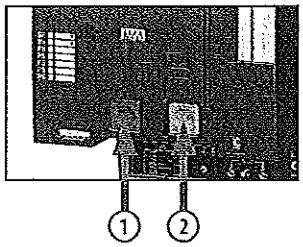
During the manipulation with circuit breaker in plug-in design with motor drive, the circuit breaker may reach the state, in which the first attempt at switching on by motor drive is unsuccessful. Switching on is executed after repeated make impulse. To avoid this effect, some of the following steps may be done:

1) To keep the process of manipulation with the circuit breaker, see „Recommended circuit breaker manipulation" below
2) To connect OD-BHD-R... control relay into the motor drive circuit according to wiring diagram, see page F71

Recommended process of manipulation

After every manipulation with circuit breaker in plug-in design is necessary to accomplish the operations in following sequence, after repeated insertion into the plug-in device:

1) press the switch off button (red) on the motor drive, see fig.
2) press the switch on button (green) on the motor drive, see fig.



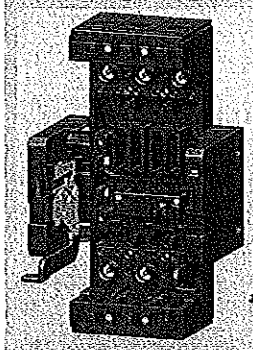
Changes in states of switches in cavities of switching unit when removing circuit breaker

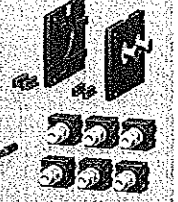
State of circuit breaker before removing			State of switches before removing, inserted position →						State of switches after removing, removed position					
			Cavity	1		2		3,4,5,(6,7,8,9)[1]		1		2		3,4,5,(6,7,8,9)[1]	
	Circuit breaker lever position	State of the main contacts		PS-BHD-1000	PS-BHD-0100	PS-BHD-1000	PS-BHD-0100	PS-BHD-1000	PS-BHD-0100	PS-BHD-1000	PS-BHD-0100	PS-BHD-1000	PS-BHD-0100	PS-BHD-1000	PS-BHD-0100
Switched on		1		1	0	0	1	1	0	1	0	1	0	1	0
Switched off manually or by motor drive electrically (loaded state)		0		1	0	0	1	0	1	1	0	1	0	0	1
Switched off by overcurrent release		0		0	1	1	0	0	1	0	1	1	0	0	1
Switched off from switched on state: by auxiliary release, or by TEST push button or by the switch off button on the motor drive		0		1	0	1	0	0	1	1	0	1	0	0	1

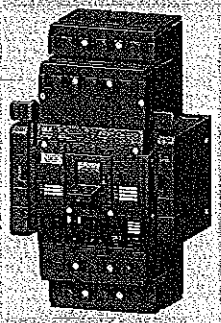
note: 0 - contact open, 1 - contact closed
[1] - cavities 6, 7, 8, 9 are only for 4-pole design

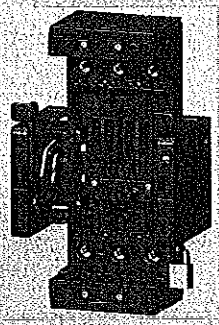
WITHDRAWABLE DEVICE

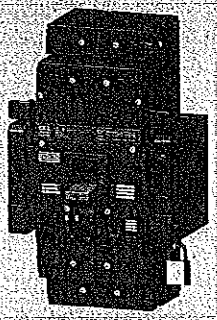
3P 4P


Withdrawable device

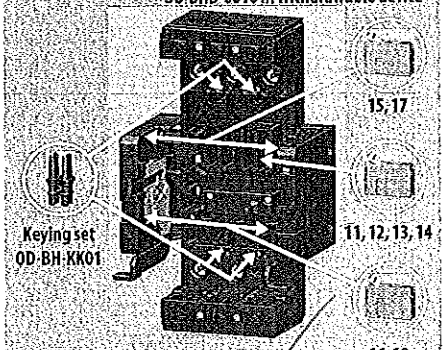



Circuit breaker in withdrawable design


Locking withdrawable device against inserting circuit breaker


Locking withdrawable circuit breaker against tampering

Position of cavities for switch SO-BHD-0010 in withdrawable device



Description

Withdrawable design of the circuit breaker/switch-disconnector is intended for demanding industrial applications where rapid exchange of the circuit breaker, frequent checking and both visual and conductive disconnection of the circuit are needed.

- withdrawable device includes complete accessories for assembling circuit breaker/switch-disconnector in withdrawable design from the originally fixed design
- components of the withdrawable device are:
  - base of the withdrawable device
  - 2 movable side plates
  - 2 connecting sets - for fitting onto the switching unit
  - interlocking connecting rod (ensures automatic switching off of the circuit breaker for handling – inserting and withdrawing)
  - set of mounting bolts is used to fasten the withdrawable device into the switchboard, that is included in delivery of switching unit

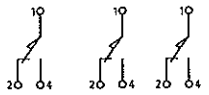
Circuit breaker positions

Circuit breaker in withdrawable design has three positions:
1. inserted (working position)
2. withdrawn (inspection position)
3. removed

Keying set OD-BH-KK01

Withdrawable device and circuit breaker can be fitted with keying set, which prevents inserting any other circuit breaker into the withdrawable device.

States of switches SO-BHD-0010 in withdrawable device according to circuit breaker and arrestment positions

Cavity	11, 12, 13, 14	15, 17	16, 18 (19, 20)[1]
Circuit breaker and arrestment position			
Inserted and not arrested	0 1	1 0	0 1
Inserted and arrested	0 1	1 0	1 0
Withdrawn and not arrested	1 0	0 1	0 1
Withdrawn and arrested	1 0	0 1	1 0
Removed and not arrested	1 0	1 0	0 1
Removed and arrested	1 0	1 0	1 0

note: 0 - contact open, 1 - contact closed
- operating state is always in arrested position
- in arrested position it is possible to lock the withdrawable device (for more information see „Advantages and enhanced safety for operator")

[1] - cavities 19 and 20 are only for 4-pole design

Signalling of position SO-BHD-0010

Withdrawable device can be fitted with the switches for signalling the position of the circuit breaker inserted/withdrawn/removed.

Power circuit

- connecting set CS-BH-A011 is used for connecting with busbars or cable lugs, that is included in delivery of switching unit
- for connecting in another way, it is necessary to use connecting sets, see page F8
- connection must comply with our recommendations, see page F18

Auxiliary circuits

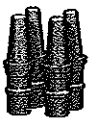
These are connected using 15-wire cable **OD-BHD-KA01.**

Circuit breaker accessories in withdrawable design

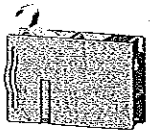
Circuit breaker in withdrawable design has the same accessories as fixed circuit breaker.

Advantages and enhanced safety for operator:

- unambiguous remote and local signalling of the circuit breaker and arrestment positions
- checking of circuit breaker and accessories function in the inspection position
- locking withdrawable device against inserting circuit breaker, locking of circuit breaker in inserted (operating) position, locking of circuit breaker in withdrawn (checking) position - locking by means of padlocks
- visible and conductive disconnection of the power circuit
- easy exchange of circuit breakers in case of failure
- IP20 degree of protection of all termination points
- withdrawable device does not need earthing


Keying set OD-BH-KK01


Connecting cable OD-BHD-KA01


Signalling of position SO-BHD-0010

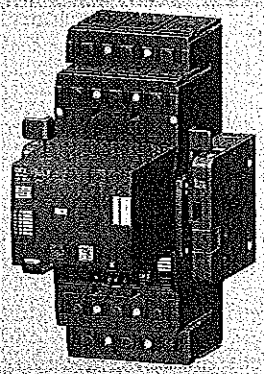
Specifications SO-BHD-0010

Type			SO-BHD-0010
Rated operating voltage	U_e		400 V a.c. 220 V d.c.
Rated insulation voltage	U_i		500 V a.c.
Rated frequency	f_n		50/60 Hz
Rated operating current	I_e/U_e	AC-13	3 A/400 V a.c.
	I_e/U_e	DC-15	3.5 A/24 V d.c., 1 A/48 V d.c., 0.3 A/110 V d.c., 0.15 A/220 V d.c.
Thermal current	I_{th}		16 A
Arrangement of contacts			1001
Connection cross-section	S		0.5 ÷ 1 mm²
Degree of protection of terminals (connected switch)			IP20

For wiring diagram of circuit breaker in withdrawable device with accessories see page F16.

WITHDRAWABLE DEVICE

3P 4P



Circuit breaker in withdrawable design with motor drive

Recommended circuit breaker manipulation

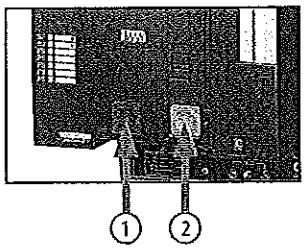
During the manipulation with circuit breaker in withdrawable design with motor drive, the circuit breaker may reach the state, in which the first attempt at switching on by motor drive is unsuccessful. Switching on is executed after repeated make impulse. To avoid this effect, some of the following steps may be done:

1) To keep the process of manipulation with the circuit breaker, see „Recommended circuit breaker manipulation" below
2) To connect OD-BHD-R... control relay into the motor drive circuit according to wiring diagram, see page F71

Recommended process of manipulation

After every manipulation with circuit breaker in withdrawable design is necessary to accomplish the operations in following sequence, after repeated insertion into the plug-in device:

1) press the switch off button (red) on the motor drive, see fig.
2) press the switch on button (green) on the motor drive, see fig.



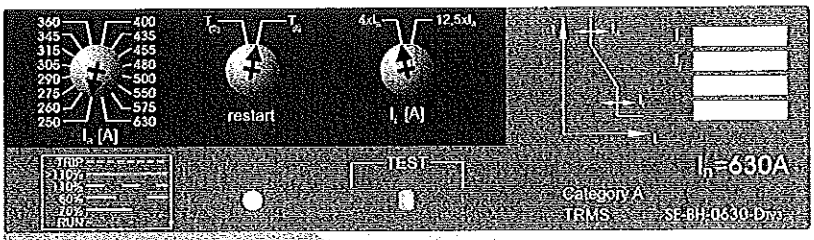
Changes in states of switches in cavities of switching unit when inserting and withdrawing circuit breaker

State before insertion/withdrawal			State after insertion/withdrawal															
State of circuit breaker before insertion			State of switches before insertion - withdrawn position →										State of switches after insertion - inserted position →									
State of circuit breaker before withdrawal			State of switches before withdrawal - inserted position →										State of switches after withdrawal - withdrawn position →									
			Cavity	1		2		3,4,5,(6,7,8,9)[1]					1		2		3,4,5,(6,7,8,9)[1]			
	Circuit breaker lever position	State of the main contacts	PS-BHD-1000	PS-BHD-0100	PS-BHD-1000	PS-BHD-0100	PS-BHD-1000	PS-BHD-0100					PS-BHD-1000	PS-BHD-0100	PS-BHD-1000	PS-BHD-0100	PS-BHD-1000	PS-BHD-0100				
Switched on		1	1	0	0	1	1	0					1	0	1	0	0	1				
Switched off manually or by motor drive electrically (loaded state)		0	1	0	0	1	0	1					1	0	0	1	0	1				
Switched off by overcurrent release		0	0	1	1	0	0	1					0	1	1	0	0	1				
Switched off from switched on state: by auxiliary release, or by TEST push button or by the switch off button on the motor drive		0	1	0	1	0	0	1					1	0	1	0	0	1				

note: 0 - contact open, 1 - contact closed
[1] - cavities 6, 7, 8, 9 are only for 4-pole design

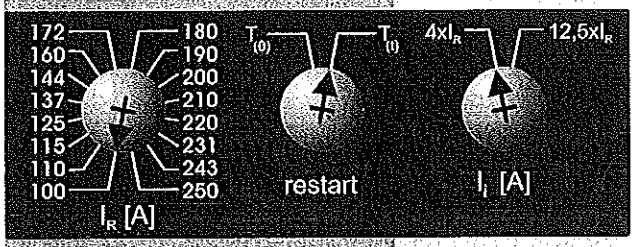
OVERCURRENT RELEASES - DTV3

3P 4P

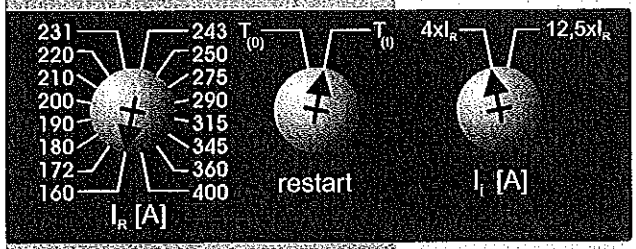


Short-circuit release | Reduced current | Thermal memory

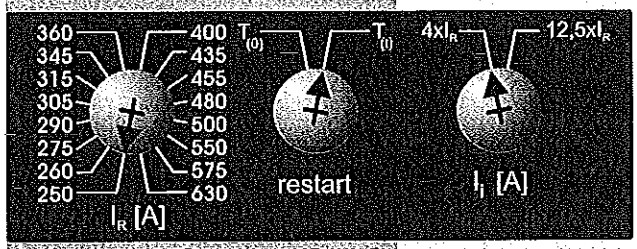
$I_n = 250$ A
SE-BH-0250-DTV3



$I_n = 400$ A
SE-BH-0400-DTV3



$I_n = 630$ A
SE-BH-0630-DTV3

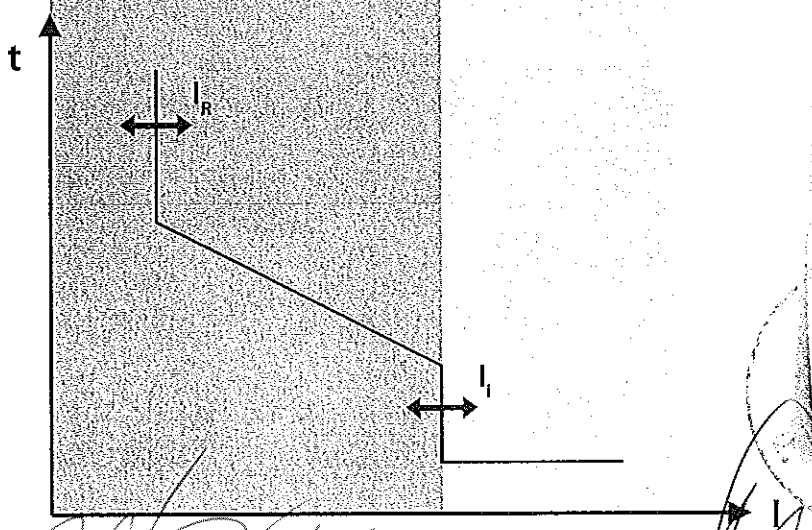


Properties

- suitable for protection of lines and distribution transformers
- protects against both overcurrent and short circuit
- reduced current setting $I_R = 0{,}4 \div 1\ I_n$
- thermal memory can be switched on/off (ON = $T_{(I)}$, OFF = $T_{(0)}$)
- setting of short-circuit release I_i in two steps, $4\ I_R$ or $12.5\ I_R$
- setting of I_R and I_i by means of the rotary switches is stepwise
- the overcurrent release indicates operating state and the value of the passing current by means of LED
- the values of parameters of the overcurrent release are set by the manufacturer to minimum

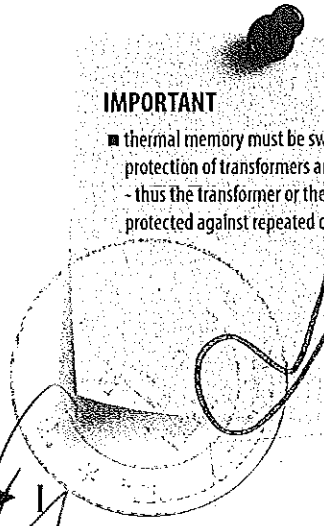
Data for the project

Switching unit		BH630...
Overcurrent release		SE-BH-...
Overcurrent release setting		
Reduced current	I_R	.... A
Thermal memory	T	....
Short-circuit release current	I_i	.... A (... x I_R)



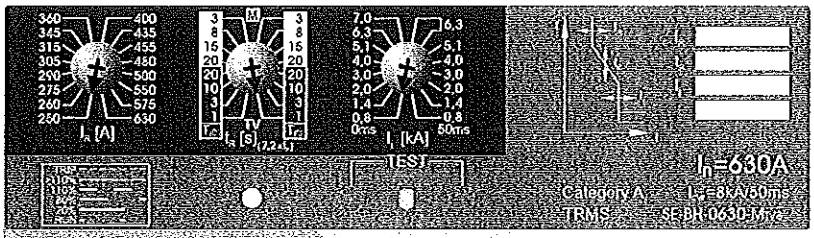
IMPORTANT

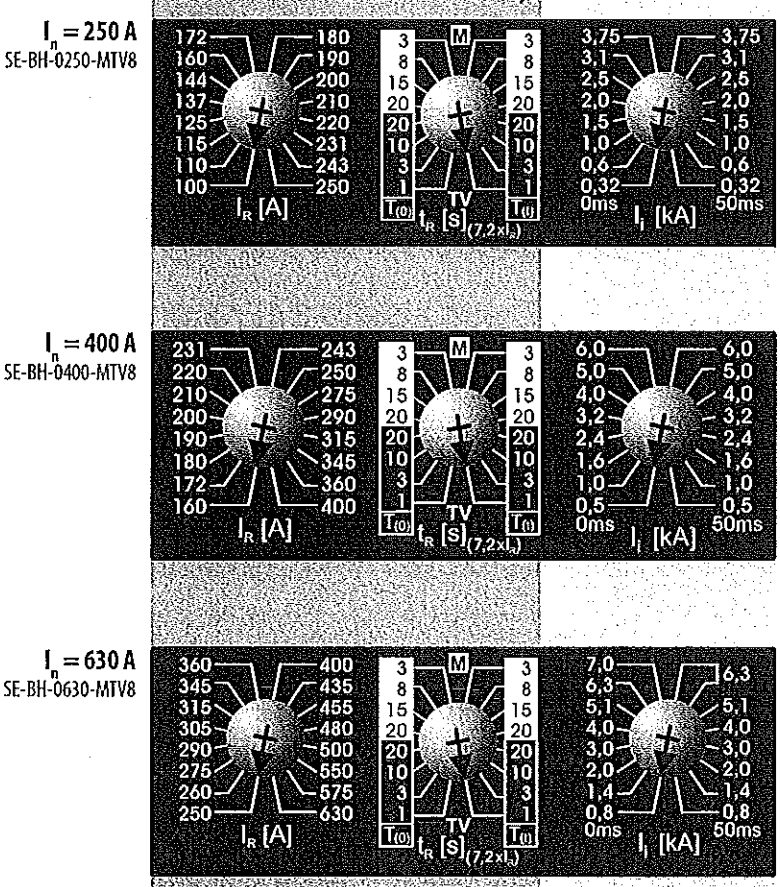
- thermal memory must be switched on in protection of transformers and lines - thus the transformer or the line will be protected against repeated overload



OVERCURRENT RELEASES - MTV8, TV mode

3P 4P



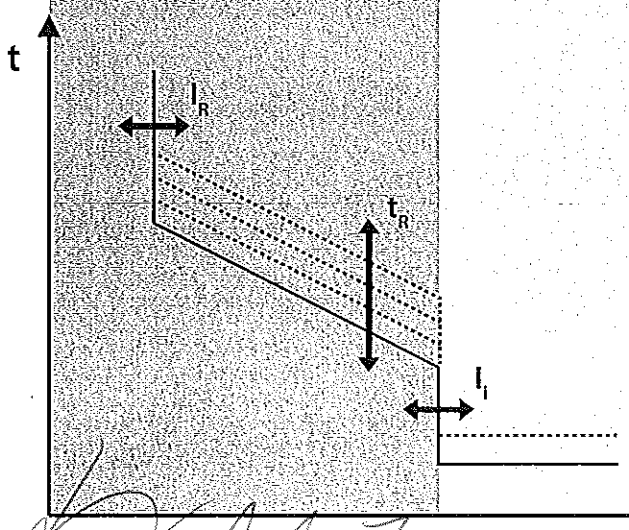


Properties

- TV mode - suitable for protection of lines, distribution transformers and generators
- protects against both overcurrent and short circuit
- reduced current setting $I_R = 0.4 \div 1\,I_n$
- thermal memory can be switched on/off (ON = $T_{(\omega}$, OFF = $T_{(\omega)}$)
- in TV mode the undercurrent release is inactive
- setting of delay of the thermal release t_R 1 s, 3 s, 10 s and 20 s
- setting of the value of short-circuit release I_I in 8 steps and possibility of switching the short-circuit release off with a delay of 50 ms
- setting of I_R, t_R and I_I by means of the rotary switches is stepwise
- the overcurrent release indicates operating state and the value of the passing current by means of LED
- the values of parameters of the overcurrent release are set by the manufacturer to minimum

Data for the project

Switching unit		BH630...
Overcurrent release		SE-BH...
Overcurrent release setting		
Reduced current	I_R	....A
Mode		TV
Thermal memory	T	...
Thermal release delay	t_R	....s
Short-circuit release current	I_I	....A
Setting of short-circuit release		....ms

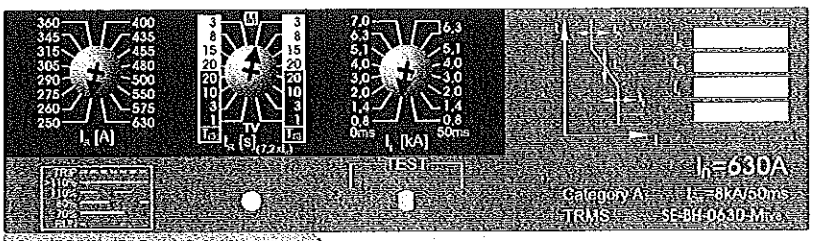


IMPORTANT

- the set value of current of the short-circuit release must correspond to the impedance loop - conditions must be fulfilled for automatic disconnection from power supply in case of failure

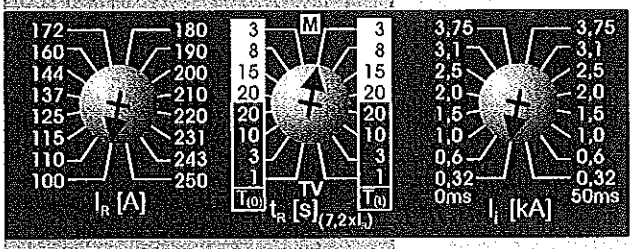
OVERCURRENT RELEASES - MTV8, M mode

3P, 4P

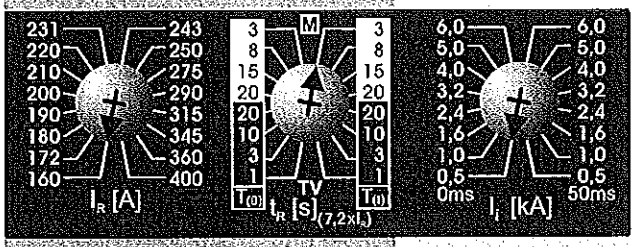


Reduced current | Motor starting | Short-circuit release

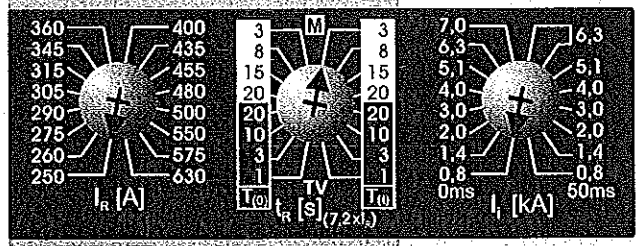
$I_n = 250$ A
SE-BH-0250-MTV8



$I_n = 400$ A
SE-BH-0400-MTV8



$I_n = 630$ A
SE-BH-0630-MTV8

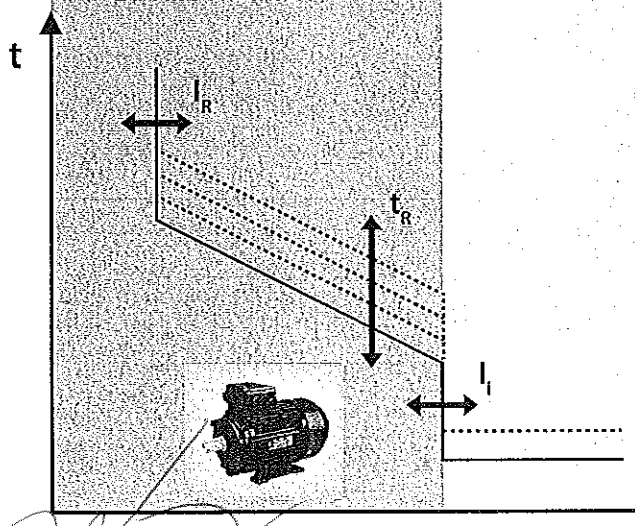


Properties

- M mode - suitable for protection of motors
- protects against both overcurrent and short circuit
- reduced current setting $I_R = 0.4 \div 1\, I_n$
- thermal memory can be switched on/off (ON = $T_{(\omega)}$, OFF = $T_{(0)}$)
- in M mode the undercurrent release is active
- setting of delay of the thermal release t_R 3 s, 8 s, 15 s and 20 s according to the motor starting class
- setting of the value of short-circuit release I_i in 8 steps and possibility of switching the short-circuit release off with a delay of 50 ms
- setting of I_R, t_R and I_i by means of the rotary switches is stepwise
- the overcurrent release indicates operating state and the value of the passing current by means of LED
- the values of parameters of the overcurrent release are set by the manufacturer to minimum

Data for the project

Switching unit		BH630...
Overcurrent release		SE-BH...
Overcurrent release setting		
Reduced current	I_R	... A
Mode		M
Thermal memory	T	...
Thermal release delay	t_R	... s
Short-circuit release current	I_i	... A
Setting of short-circuit release		... ms



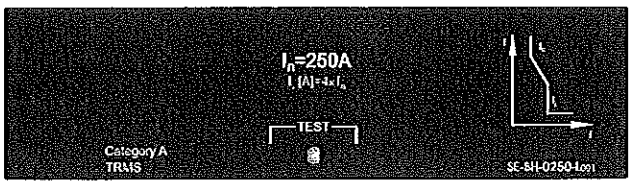
IMPORTANT

- M mode must be selected in protection of motors - the motor will be protected in phase failure
- thermal release delay t_R must correspond to the motor starting class
- in protection of motors it is suitable to set the delay of the short-circuit release at 50 ms

OVERCURRENT RELEASES - L001

3P 4P

$I_n = 250$ A
SE-BH-0250-L001

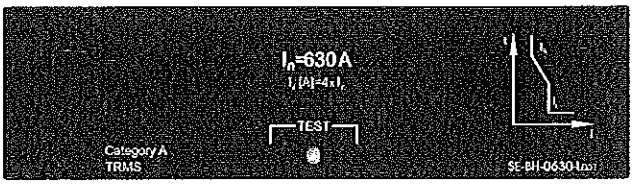


$I_n = 315$ A
SE-BH-0315-L001

$I_n = 400$ A
SE-BH-0400-L001

$I_n = 500$ A
SE-BH-0500-L001

$I_n = 630$ A
SE-BH-0630-L001

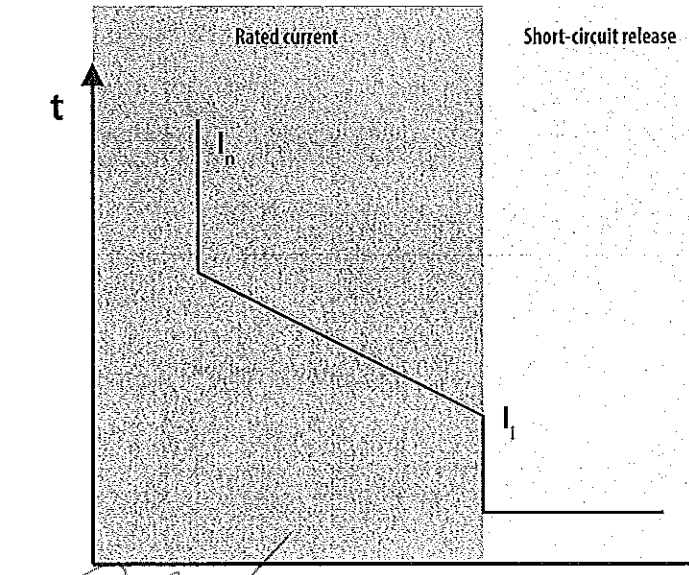


Properties

- suitable for protection of lines with low impulse currents
- protects against both overcurrent and short circuit
- reduced current cannot be set
- thermal release cannot be switched off
- short-circuit release is fixed at 4 I_n

Data for the project

Switching unit		BH630...
Overcurrent release		SE-BH-...
Overcurrent release values		
Rated current	I_n	... A
Short-circuit release current	I_1	... A (4x I_n)

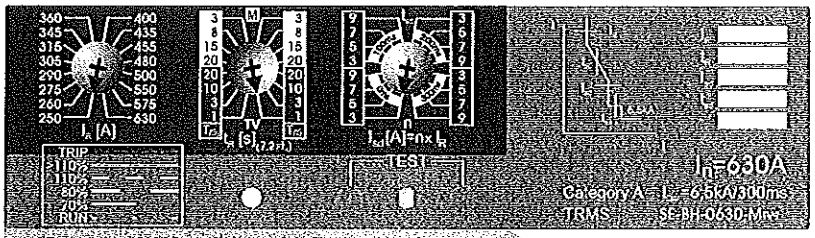


IMPORTANT

- high impulse current must not be in the circuit - undesirable breaking would take place, because the current of the short-circuit release is fixed at 4 I_n

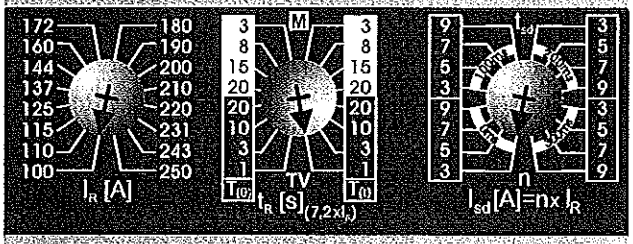
OVERCURRENT RELEASES - MTV9, TV mode

3P, 4P

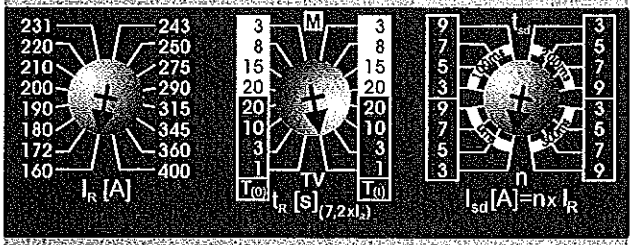


Rated current | Motor starting | Selective release

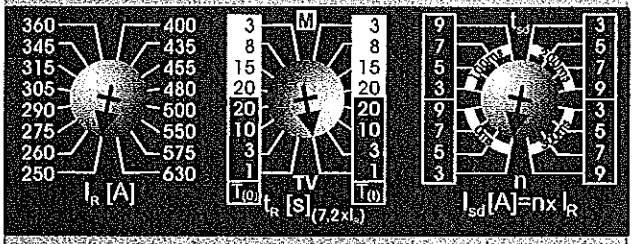
I_n = 250 A
SE-BH-0250-MTV9



I_n = 400 A
SE-BH-0400-MTV9



I_n = 630 A
SE-BH-0630-MTV9



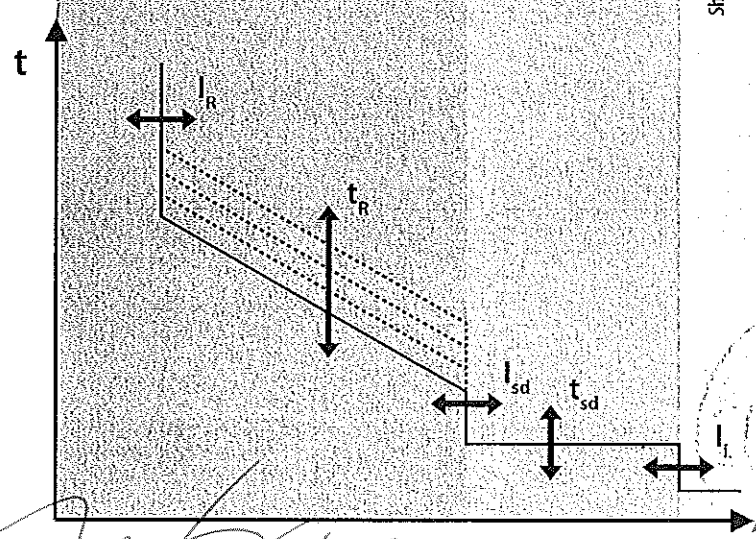
Properties

- TV mode suitable for protection of lines, distribution transformers and generators – enables setting of time selectivity
- protects against both overcurrent and short circuit
- reduced current setting $I_R = 0.4 \div 1\, I_n$
- thermal memory can be switched on/off (ON = $T_{(i)}$, OFF = $T_{(0)}$)
- in TV mode the undercurrent release is inactive
- setting of delay of the thermal release t_R 1 s, 3 s, 10 s and 20 s
- setting of the value of selective release I_{sd} in 4 steps (independent time-delayed release)
- setting of delay of the selective release t_{sd} 0 ms, 100 ms, 200 ms or 300 ms
- setting of I_R, t_R, I_{sd} and t_{sd} by means of rotary switches is stepwise
- the overcurrent release indicates operating state and the value of the passing current by means of LED
- the values of parameters of the overcurrent release are set by the manufacturer to minimum

Data for the project

Switching unit		BH630…
Overcurrent release		SE-BH-…
Overcurrent release setting		
Reduced current	I_R	…. A
Mode		TV
Thermal memory	T	….
Thermal release delay	t_R	…. s
Selective release value	I_{sd}	…. A (… x I_R)
Selective release delay	t_{sd}	…. ms

Short-circuit release

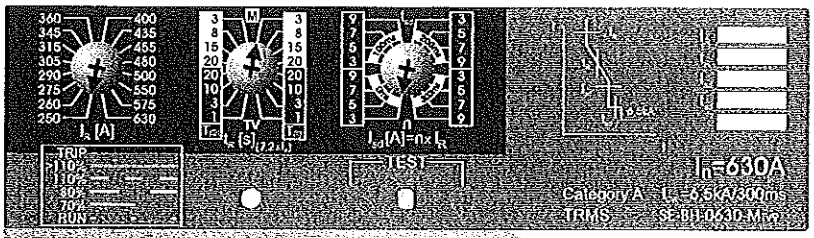


IMPORTANT

- the set value of current of the short-circuit release must correspond to the impedance loop - conditions must be fulfilled for automatic disconnection from power supply in case of failure

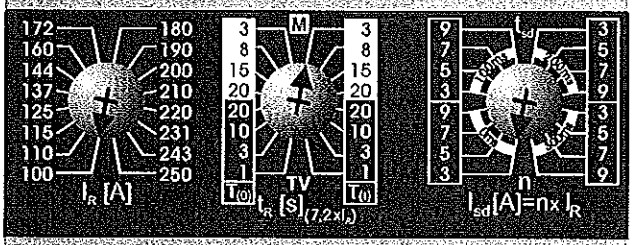
OVERCURRENT RELEASES - MTV9, M mode

3P 4P

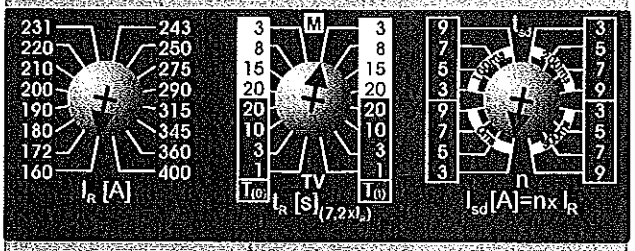


Rated current | Motor starting | Selective release

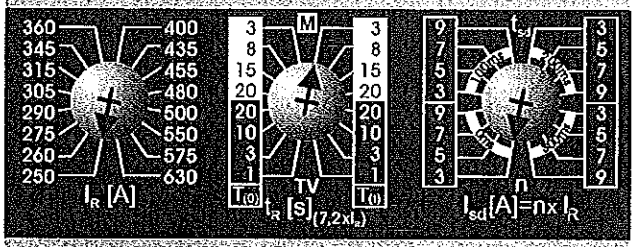
I_n = 250 A
SE-BH-0250-MTV9



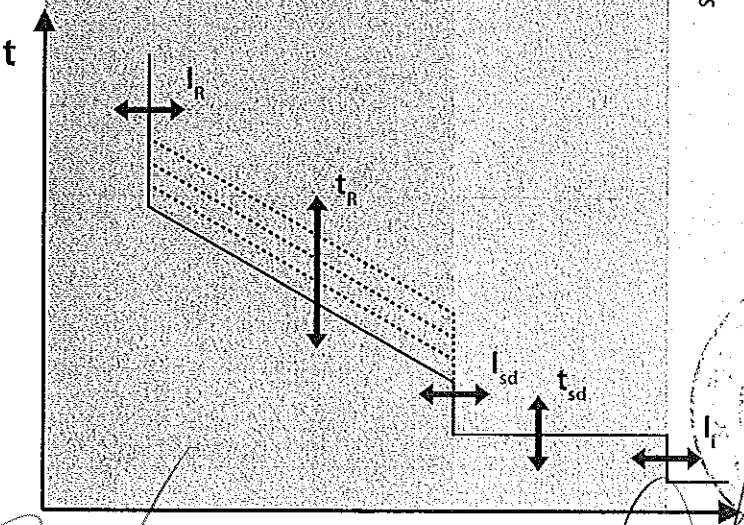
I_n = 400 A
SE-BH-0400-MTV9



I_n = 630 A
SE-BH-0630-MTV9



Short-circuit release



Properties

- M mode suitable for protection of motors – enables setting of time selectivity
- protects against both overcurrent and short circuit
- reduced current setting $I_R = 0.4 \div 1\ I_n$
- thermal memory can be switched on/off (ON = $T_{(i)}$, OFF = $T_{(i)}$)
- in M mode the undercurrent release is active
- setting of delay of the thermal release t_R 3 s, 8 s, 15 s and 20 s according to the motor starting class
- setting of the value of selective release I_{sd} in 4 steps (independent time-delayed release)
- setting of delay of the selective release t_{sd} 0 ms, 100 ms, 200 ms or 300 ms
- setting of I_R, t_R, I_{sd} and t_{sd} by means of rotary switches is stepwise
- the overcurrent release indicates operating state and the value of the passing current by means of LED
- the values of parameters of the overcurrent release are set by the manufacturer to minimum

Data for the project

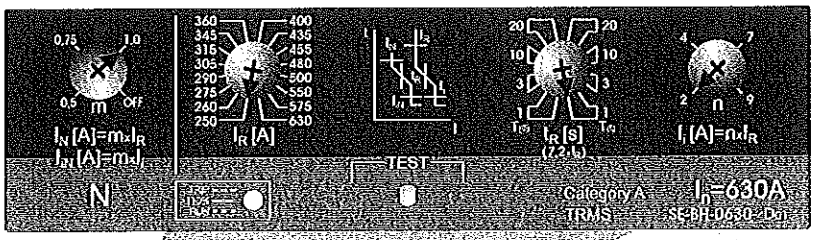
Switching unit		BH630...
Overcurrent release		SE-BH-...
Overcurrent release setting		
Reduced current	I_R	... A
Mode		M
Thermal memory	T	...
Thermal release delay	t_R	... s
Selective release value	I_{sd}	... A (... x I_R)
Selective release delay	t_{sd}	... ms

IMPORTANT

- M mode must be selected in protection of motors - the motor will be protected in phase failure!
- thermal release delay t_R must correspond to the motor starting class

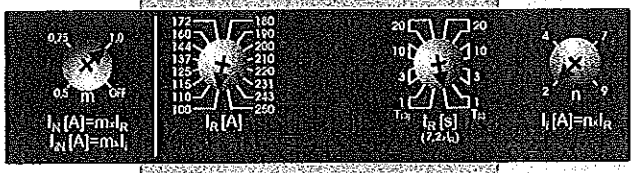
OVERCURRENT RELEASES - 4D01

4P

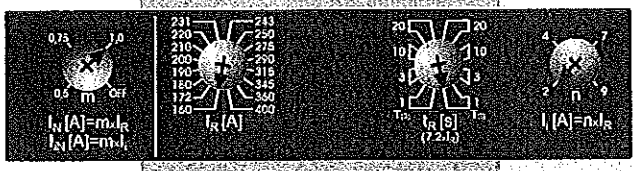


Rated current | Motor starting | Short-circuit release

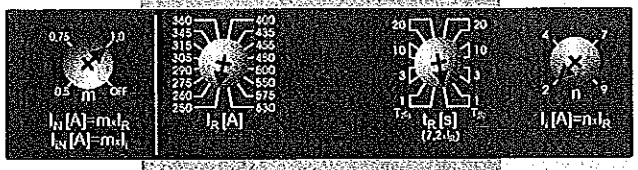
I_n = 250 A
SE-BH-0250-4D01



I_n = 400 A
SE-BH-0400-4D01



I_n = 630 A
SE-BH-0630-4D01

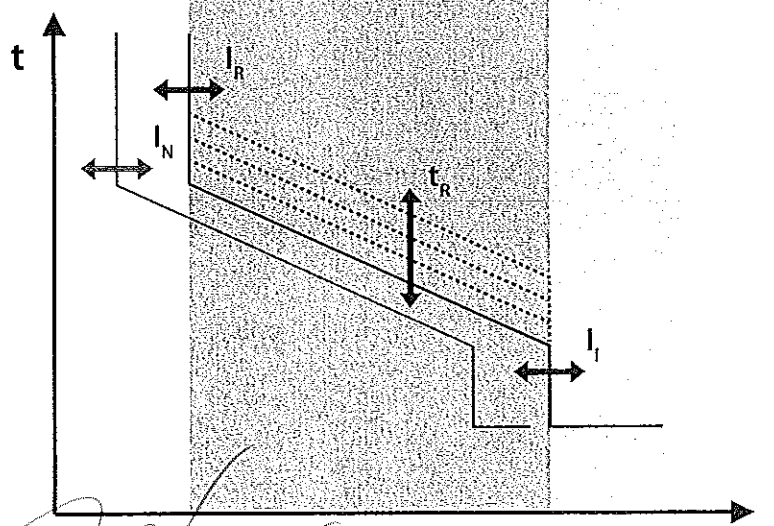


Properties

- it is appropriate for protection of lines and distribution transformers with protected „N" conductor in TN-C-S and TN-S networks
- protects against both overcurrent and short circuit
- reduced current setting $I_R = 0.4 \div 1\ I_n$
- thermal memory can be switched on/off (ON = $T_{(t)}$, OFF = $T_{(t)}$)
- setting of delay of the thermal release t_R 1 s, 3 s, 10 s and 20 s
- setting of the value of the short-circuit release I_I in 4 steps $(2 \div 9)\ I_R$
- setting of the value of reduced current I_N and short-circuit current I_{IN} in the 4th pole
- setting of I_R, t_R, I_N and I_{IN} by means of rotary switches is stepwise
- the overcurrent release indicates operating state and the value of the passing current by means of LED
- the values of parameters of the overcurrent release are set by the manufacturer to minimum

Data for the project

Switching unit		BH630...
Overcurrent release		SE-BH...
Overcurrent release setting		
Reduced current	I_R	....A
Thermal memory	T	....
Thermal release delay	t_R	....s
Level of reduced current in the 4th pole	I_N	....A (..xI_R)
Level of reduced current in the 4th pole	I_{IN}	....A (..xI_I)



IMPORTANT

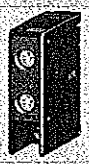
- the set value of current of the short-circuit release must correspond to the impedance loop - conditions must be fulfilled for automatic disconnection from power supply in case of failure

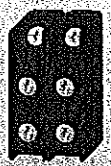
SWITCHES

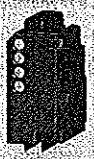
3P 4P

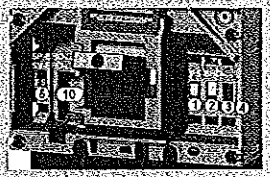

Simple


Double


Make-and-break


Double make-and-break


Early


Cavities in BH630... switching unit

Specifications

Type		PS-BHD-...00	PS-BHD-...0Au[1]
Rated operating voltage	U_e	60 ÷ 500 V a.c.	5 ÷ 60 V a.c.
	U_e	60 ÷ 500 V d.c.	5 ÷ 60 V d.c.
Rated insulation voltage	U_i	500 V	500 V
Rated frequency	f_n	50/60 Hz	50/60 Hz
Rated operating current	I_e/U_e AC-15	6 A/240 V, 4 A/400 V, 2 A/500 V	AC-12, DC-12 0.004 ÷ 0.5 A/5 V,
	I_e/U_e DC-13	0.4 A/240 V, 0.3 A/400 V, 0.2 A/500 V	0.004 ÷ 0.01/60 V
Thermal current	I_{th}	10 A	0.5 A
Arrangement of contacts		01, 10, 02, 11, 20	01, 10, 02, 11, 20
Connection cross-section	S	0.5 ÷ 1 mm²	0.5 ÷ 1 mm²
Degree of protection of terminals (connected switch)		IP20	IP20

Type		SP-BHD-0002	PS-BHD-0010/0020	PS-BHD-0010-Au/0020-Au
Rated operating voltage	U_e	250 V a.c.	60 ÷ 250 V a.c.	5 ÷ 60 V a.c.
	U_e	-	60 ÷ 250 V d.c.	5 ÷ 60 V d.c.
Rated insulation voltage	U_i	250 V	250 V	250 V
Rated frequency	f_n	50/60 Hz	50/60 Hz	50/60 Hz
Rated operating current	I_e/U_e	1 A/250 V a.c.	AC-15 1.5 A/250 V a.c.	AC-12, DC-12 0.004 ÷ 0.5 A/5 V,
	I_e/U_e		DC-13 0.2 A/250 V d.c.	0.004 ÷ 0.01/60 V
Thermal current	I_{th}	-	6 A	0.5 A
Arrangement of contacts		02, 11, 20	001/002	001/002
Connection cross-section	S	0.5 ÷ 1 mm²	0.5 ÷ 1 mm²	0.5 ÷ 1 mm²
Degree of protection of terminals (connected switch)		IP20	IP20	IP20

[1] - PS-BHD-....-Au is not suitable to control electromagnetic loads

Type designation, number and type of contacts according to contact arrangement

Arrangement of contacts	Type	Number of contacts	Contact types
01	PS-BHD-1000 (-Au)	1	make
20	PS-BHD-2000 (-Au)	2	make
01	PS-BHD-0100 (-Au)	1	break
02	PS-BHD-0200 (-Au)	2	break
11	PS-BHD-1100 (-Au)	1+1	break+make
001	PS-BHD-0010 (-Au)	1	make-and-break
002	PS-BHD-0020(-Au)	2	make-and-break

Function and names of switches according to their location in cavities

Position of switch	Switch name	Switch function
Cavity 1	Signal	signals tripping of circuit breaker by overcurrent release
Cavity 2	Relative	signals tripping of circuit breaker/switch-disconnector by releases, TEST push button or by switch off button on the motor drive
Cavity 3, 4, 5 (6, 7, 8, 9)[2]	Auxiliary	signals position of circuit breaker/switch-disconnector's main contacts
Cavity 10	Early	makes/breaks in advance before making the main contact of circuit breaker/switch-disconnector

[2] - cavities 6, 7, 8, 9 are only for 4-pole design

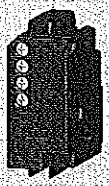
States of switches in the circuit breaker cavities

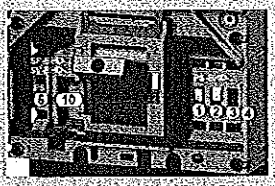
Cavity			1	2	3, 4, 5 (6, 7, 8, 9)[2]	10	2 and 3	2 and 3	2 and 3	1	2	3, 4, 5 (6, 7, 8, 9)[2]
State of circuit breaker	Circuit breaker lever position	State of the main contacts	PS-BHD-1000 / PS-BHD-0100	PS-BHD-1000 / PS-BHD-0100	PS-BHD-1000 / PS-BHD-0100	SP-BHD-0002 / SP-BHD-X...-0001	PS-BHD-2000	PS-BHD-1100	PS-BHD-0200	PS-BHD-0010	PS-BHD-0010	PS-BHD-0010
Switched on	I	1	1 0	0 1	1 0	1 0	1 1	0 1	0 0	1 0	1 0	1 0
Switched off manually or by motor drive electrically (loaded state)	◎	0	1 0	0 1	0 1	0 1	0 0	1 0	1 1	0 1	0 1	0 1
Switched off by overcurrent release	⩛	0	0 1	1 0	0 1	0 1	0 0	1 0	1 1	0 1	1 0	0 1
Switched off from switched on state: by auxiliary release, or by TEST push button or by the switch off button on the motor drive	⩛	0	1 0	1 0	0 1	0 1	0 0	1 0	1 1	1 0	1 0	0 1

note: 0 - contact open, 1 - contact closed [2] - cavities 6, 7, 8, 9 are only for 4-pole design

SHUNT TRIPS

3P 4P





Cavities in BH630... switching unit

Specifications

Type		SV-BHD-X...
Rated operating voltage	U_e	24, 40, 48, 110, 230, 400/500 V a.c. 24, 40, 48, 110, 220 V d.c.
Rated frequency	f_e	50/60 Hz
Input power at 1.1 U_e	AC	< 3 VA
	DC	< 3 W
Characteristic		$U \geq 0.7\ U_e$ the circuit breaker must trip
Time to switching off		20 ms
Loading time		∞
Connection cross-section	S	0.5 ÷ 1 mm²
Degree of protection of terminals (connected release)		IP20
Position in cavity No.		10

Type designation according to rated operating voltage

U_e	Type
24, 40, 48 V a.c./d.c.	SV-BHD-X024
110 V a.c./d.c.	SV-BHD-X110
230, 400, 500 V a.c. /220 V d.c.	SV-BHD-X230

The specific rated operating voltage of the release is set up by jumpers directly on the release. It is always set to the maximum value by default (see fig. 1).

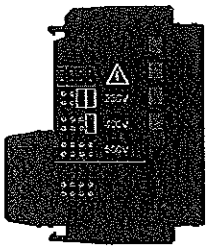
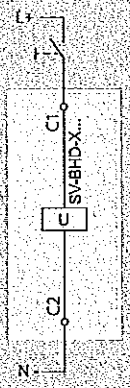
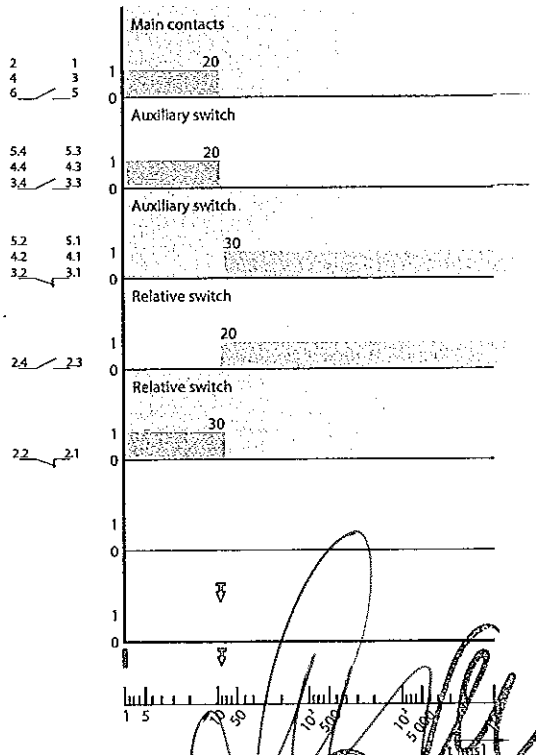


Fig. 1 - The rated operating voltage setting



Circuit breaker/switch-disconnector switching off by shunt trip



States and positions of circuit breaker/ /switch-disconnector lever

States of circuit breaker/ /switch-disconnector	Lever position of circuit breaker/ /switch-disconnector
Switched on	
Switched off by releases, TEST or by switch off button on the motor drive	
Switched off manually or by motor drive electrically (loaded state)	

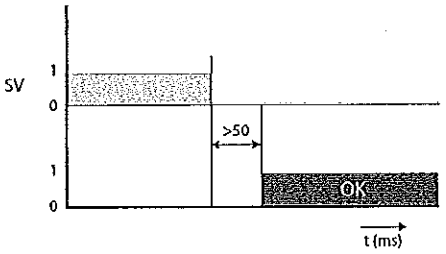
SHUNT TRIPS

3P 4P

Specifications

Reaction time of the auxiliary releases

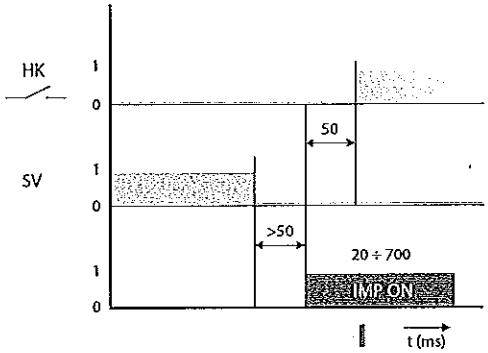
Shunt trip



Cooperation of motor drive and shunt trip

It is necessary to keep time delay when the control of the circuit breaker is done by motor drive and shunt trip or undervoltage release. The following time delays have to be kept between the disconnection of voltage from the shunt trip or bringing the voltage to the undervoltage release and the control impulse for switch on of the motor drive:

Shunt trip



States and positions of circuit breaker/switch-disconnector lever

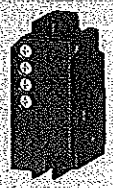
States of circuit breaker/switch-disconnector	Lever position of circuit breaker/switch-disconnector
Switched on	
Switched off by releases, TEST or by switch off button on the motor drive	
Switched off manually or by motor drive electrically (loaded state)	

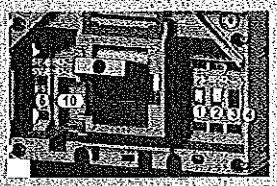
Description of graphs

Symbol	Description
HK	Main contacts
OK	Circuit breaker is ready for further handling
IMP ON	Make impulse for the motor drive
SV	Control voltage on the shunt trip
SP	Control voltage on the undervoltage release

UNDERVOLTAGE RELEASES

3P 4P





Cavities in BH630... switching unit

Specifications

Type		SP-BHD-X...	SP-BHD-X...-0001 [2]
Rated operating voltage	U_e	24, 40, 48, 110, 230, 400, 500 V a.c. 24, 40, 48, 110, 220 V d.c.	24, 40, 48, 110, 230, 400, 500 V a.c. 24, 40, 48, 110, 220 V d.c.
Rated frequency	f_e	50/60 Hz	50/60 Hz
Input power at 1.1 U_e	AC	< 3 VA	< 3 VA
	DC	< 3 W	< 3 W
Characteristic [1]		$U \geq 0.85\ U_e$ - it is possible to switch on the circuit breaker $U \leq 0.35\ U_e$ - the circuit breaker must trip	
Time to switching off		20 ms	20 ms
Loading time		∞	∞
Connection cross-section	S	0.5 ÷ 1 mm²	0.5 ÷ 1 mm²
Degree of protection of terminals (connected release)		IP20	IP20
Position in cavity No.		10	10
Early switch			
Rated operating voltage	U_e	-	250 V a.c.
Rated frequency	f_e	-	50/60 Hz
Rated operating current	I_e /U_e	-	1 A/250 V a.c.
Arrangement of contacts		-	10, 01
Connection cross-section	S	-	0.5 ÷ 1 mm²
Degree of protection of terminals (connected switch)		-	IP20

[1] - tripping of the undervoltage release can be delayed using the delay unit BZ-BX-X230-A, for more detailed information see page P2

[2] - cannot be used in combination with motor drive MP-BH-X....

Number and type of contacts according to contact arrangement

Arrangement of contacts	Number of contacts	Contact types
01	1	break
10	1	make

Type designation according to rated operating voltage

U_e	Type
24, 40, 48 V a.c.	SP-BHD-X024
110 V a.c./d.c.	SP-BHD-X110
230, 400, 500 a.c./220 V d.c.	SP-BHD-X230

The specific rated operating voltage of the release is set up by jumpers directly on the release. It is always set to the maximum value by default (see fig. 1).

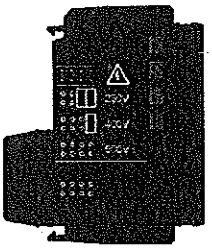
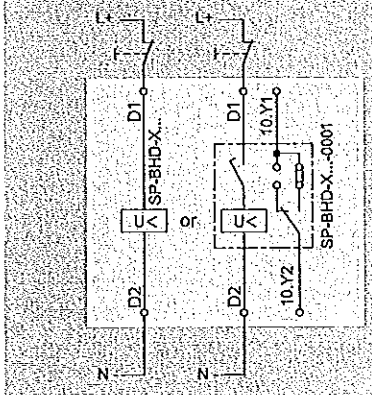
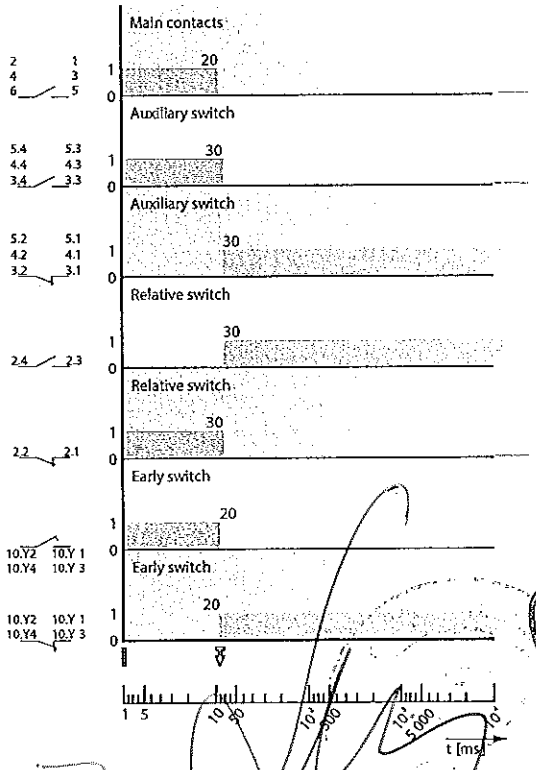


Fig. 1 - The rated operating voltage setting



Circuit breaker/switch-disconnector switching off by shunt trip



States and positions of circuit breaker/switch-disconnector lever

States of circuit breaker/switch-disconnector	Lever position of circuit breaker/switch-disconnector
Switched on	
Switched off by releases, TEST or by switch-off button on the motor drive	
Switched off manually or by motor drive electrically (loaded state)	

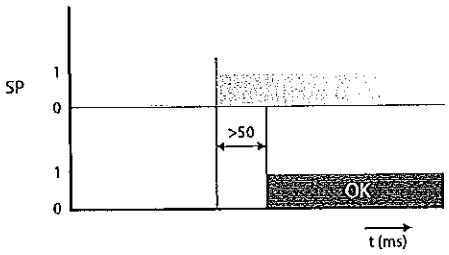
UNDERVOLTAGE RELEASES

3P 4P

Specifications

Reaction time of the auxiliary releases

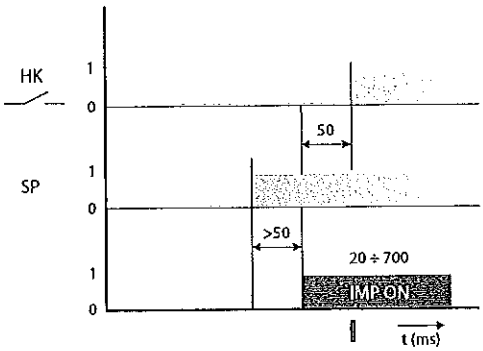
Undervoltage release



Cooperation of motor drive and undervoltage release

It is necessary to keep time delay when the control of the circuit breaker is done by motor drive and shunt trip or undervoltage release. The following time delays have to be kept between the disconnection of voltage from the shunt trip or bringing the voltage to the undervoltage release and the control impulse for switch on of the motor drive:

Undervoltage release



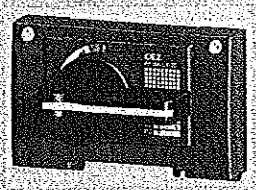
States and positions of circuit breaker/switch-disconnector lever

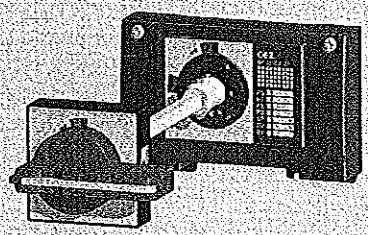
States of circuit breaker/switch-disconnector	Lever position of circuit breaker/switch-disconnector
Switched on	I
Switched off by releases, TEST or by switch off button on the motor drive	T V
Switched off manually or by motor drive electrically (loaded state)	O

Description of graphs

Symbol	Description
HK	Main contacts
OK	Circuit breaker is ready for further handling
IMP ON	Make impulse for the motor drive
SV	Control voltage on the shunt trip
SP	Control voltage on the undervoltage release

HAND DRIVES





Description

The hand drive permits controlling the circuit breaker/ /switch-disconnector by turning the lever, e.g. to switch machines on and off. Modular conception of the drives enables simple mounting on the switching unit (also additionally) after the cover of cavities is removed. The fixed drive can be sealed. The drive and its accessories are ordered separately according to your choice, see page F12.

- The hand drive makes possible to control the circuit breaker:
  - **a) from the front panel (fig. 1)**
    Hand drive unit RP-BH-CK..
    + Hand drive lever RP-BHD-CP..
  - **b) through the switchboard door (fig. 2)**
    Hand drive unit RP-BH-CK..
    + Extension shaft RP-BHD-CH..
    + Hand drive bearing PR-BHD-CN..
    + Hand drive lever + RP-BHD-CP..

- The hand drive unit is fixed directly to switching unit of the circuit breaker.
- The hand drive bearing is fixed to the switchboard door and it provides degree of protection IP40 or IP66.
- Hand drive lever is fixed on the hand drive unit or on the hand drive bearing.
- The extension shaft is supplied in two options, standard (length 365 mm - can be shortened) and telescopic (adjustable length 245 ÷ 410 mm).

Enhanced safety for operator:

- The hand drive unit and hand drive lever are also supplied with the possibility to lock the circuit breaker in position „switched off manually". The unit and lever of the hand drive can be locked using three padlocks with shank diameter max. 6 mm.
- Each hand drive bearing prevents the door from opening when the circuit breaker is switched on or in a state of being switched off by releases and in the circuit breaker state „switched off manually" and hand drive lever is locked up.
- Two circuit breakers with hand drives can be fitted also with reciprocal mechanical interlocking or mechanical parallel switching, see page F65.

3P 4P

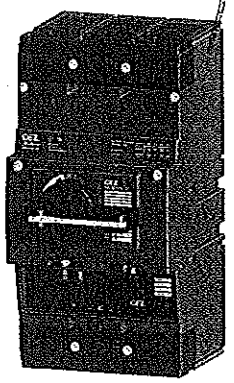


Fig. 1 - DIMENSIONS see page F28

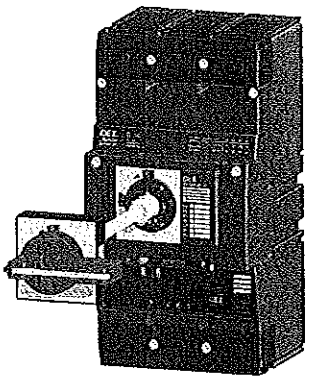
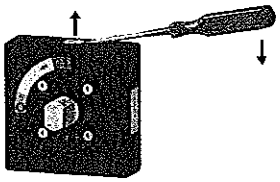


Fig. 2 - DIMENSIONS see page F28

By a screwdriver it is possible to unlock the mechanism blocking the switchboard door opening with the circuit breaker switched on (for bearing RP-BHD-CN40 and RP-BHD-CN41).

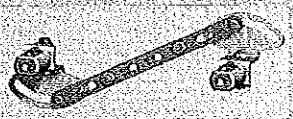


Specifications

Type	Description	Colour	Locking while the circuit breaker is in OFF state	Degree of protection	Locking of the switchboard door opening in the circuit breaker state: switched on	switched off manually and locked	Switchboard door opening with the circuit breaker switched on	Length (mm)
RP-BH-CK10	Hand drive unit	blue	no	-	-	-	-	-
RP-BH-CK20	Hand drive unit	blue	yes	-	-	-	-	-
RP-BH-CK21	Hand drive unit	yellow	yes	-	-	-	-	-
RP-BH-CK30	Hand drive unit - right side	blue	-	-	-	-	-	-
RP-BH-CK31	Hand drive unit - left side	blue	-	-	-	-	-	-
RP-BHD-CP10	Hand drive lever	black	no	-	-	-	-	-
RP-BHD-CP20	Hand drive lever	black	yes	-	-	-	-	-
RP-BHD-CP21	Hand drive lever	red	yes	-	-	-	-	-
RP-BHD-CN40	Hand drive bearing	black	-	IP40	yes	yes	yes	-
RP-BHD-CN41	Hand drive bearing	yellow	-	IP40	yes	yes	yes	-
RP-BHD-CN60	Hand drive bearing	black	-	IP66	yes	yes	no	-
RP-BHD-CN61	Hand drive bearing	yellow	-	IP66	yes	yes	no	-
RP-BHD-CH10	Extension shaft	-	-	-	-	-	-	365 (can be shortened)
RP-BHD-CH20	Extension shaft - telescopic	-	-	-	-	-	-	245 ÷ 410

MECHANICAL INTERLOCKING AND PARALLEL SWITCHING

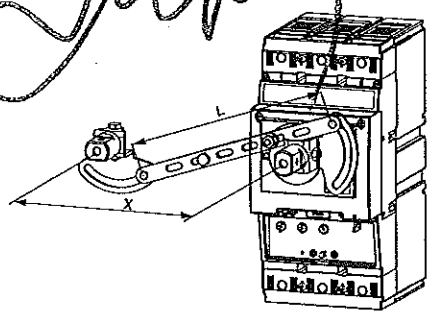
3P 4P



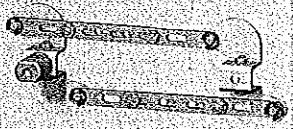
RP-BHD-CB10 Mechanical interlocking

Provides mechanical interlocking of two circuit breakers/switch-disconnectors so that they cannot both be tripped simultaneously, but only one of them at a time. Both circuit breakers may be switched off simultaneously. Interlocking can be used between two BH630 circuit breakers or between BH630 and BD250 circuit breakers. Both circuit breakers must be equipped with a hand drive (at least one with a hand drive unit and hand drive lever), see page F63.

In order to use the interlocking, it is absolutely necessary to comply with the dimensions that are shown in the figure and given in the table.

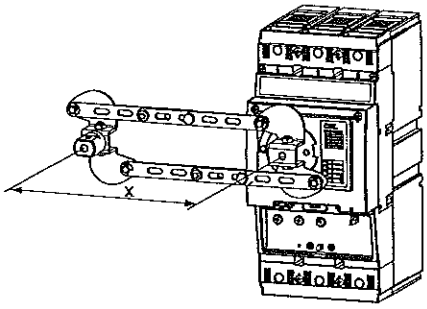


		Right switching unit							
		BD250..3..		BD250..4..		BH630..3		BH630..4..	
	Dimension [mm]	X	L	X	L	X	L	X	L
Left switching unit	BD250..3..	105	112	140	145.5	122.5	128.5	181	185.5
	BD250..4..	105	112	140	145.5	122.5	128.5	181	185.5
	BH630..3..	122.5	128.5	157.5	162.5	140	145.5	185	189
	BH630..4..	122.5	128.5	157.5	162.5	140	145.5	185	189



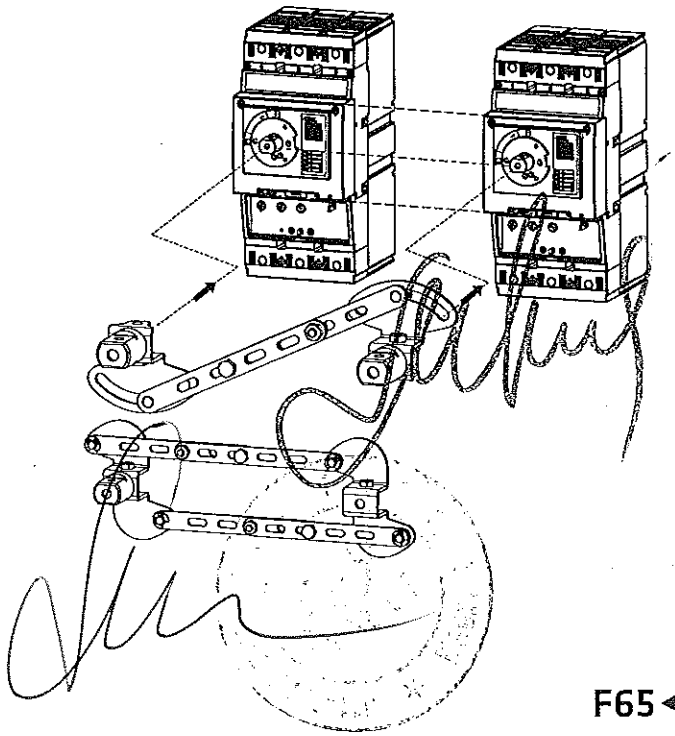
RP-BHD-CD10 Mechanical parallel switching

Enables for simultaneous switching of two circuit breakers/switch-disconnectors. Parallel switching can be used between two BH6301) circuit breakers or between BH630 and BD250 circuit breakers. Both circuit breakers must be equipped with a hand drive unit and at least one with a hand drive lever, see page F63. In order to use parallel switching, it is absolutely necessary to comply with the dimensions that are shown in the figure and given in the table.

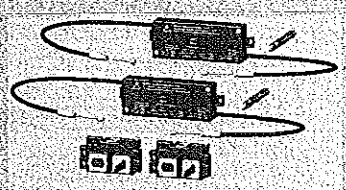


		Right switching unit							
		BD250..3..		BD250..4..		BH630..3..		BH630..4..	
	Dimension [mm]	X^{+7}	X^{+7}	X^{+7}	X	X^{+7}	X^{+7}	X^{+7}	X^{+7}
Left switching unit	BD250..3..	105^{+7}	164.5^{+7}	122.5^{+7}	164.5^{+7}	122.5^{+7}	164.5^{+7}	x	x
	BD250..4..	105^{+7}	164.5^{+7}	122.5^{+7}	164.5^{+7}	122.5^{+7}	164.5^{+7}	x	x
	BH630..3..	122.5^{+7}	164.5^{+7}	140^{+7}	164.5^{+7}	140^{+7}	164.5^{+7}	x	x
	BH630..4..	122.5^{+7}	164.5^{+7}	140^{+7}	164.5^{+7}	140^{+7}	164.5^{+7}	x	x

1) - Switching unit BH630..4.. (4-pole design) can only be on the left side



MECHANICAL INTERLOCKING

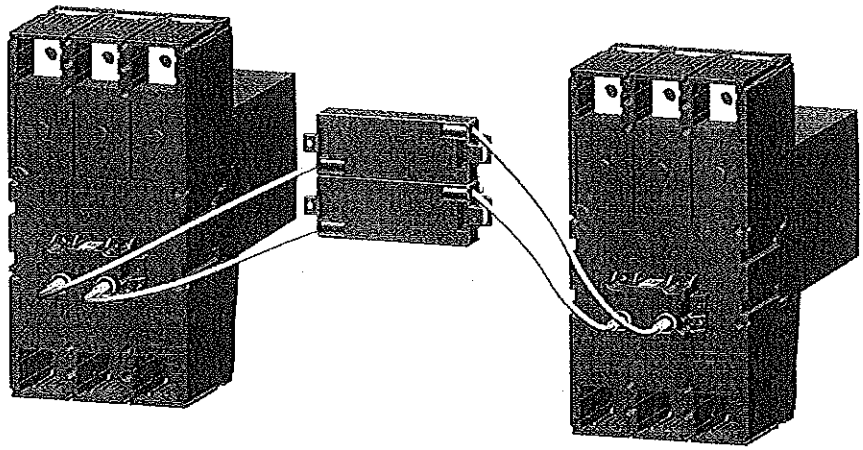


Mechanical interlocking
MB-BH-PV04
MB-BHD-PV03

3P 4P

Type of circuit-breakers	BH630	BD250
	BH630	BH630
Type of mechanical interlocking	MB-BH-PV04	MB-BHD-PV03

- Provides mechanical interlocking of two circuit breakers/ /switch-disconnectors so that they cannot both be tripped simultaneously, but only one of them at a time. Both circuit breakers may be switched off simultaneously.
- Mechanical interlocking MB-BH-PV04 is intended for two BH630 circuit breakers. Interlocking MB-BHD-PV03 is intended for one BH630 circuit breaker and one BD250.
- Circuit breakers may be in fixed, plug-in and withdrawable designs.



Circuit breaker placement in switchboard
Detailed information can be found in the instructions for use, which you may download from our website www.oez.com.

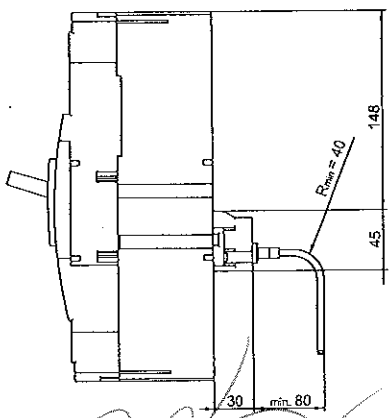
Recommended circuit breaker manipulation

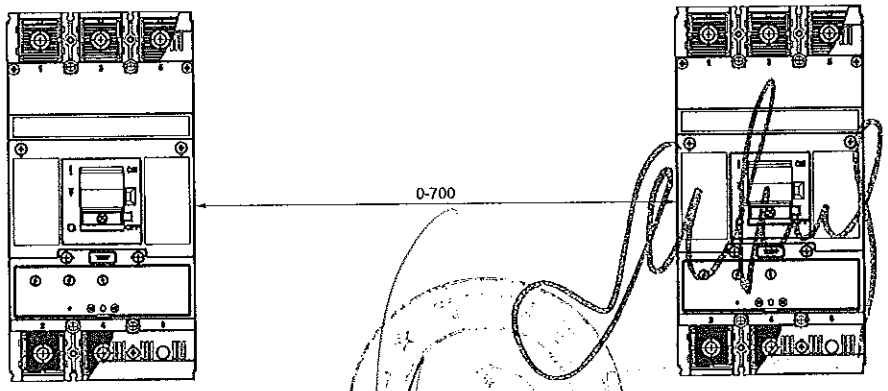
During the manipulation with circuit breaker with mechanical interlocking and motor drive, the circuit breaker may reach the state, in which the first attempt at switching on by motor drive is unsuccessful. Switching on is executed after repeated make impulse. To avoid this effect, some of the following steps may be done:

1) To keep the process of manipulation with the circuit breaker, see „Recommended circuit breaker manipulation" below
2) To connect OD-BHD-R... control relay into the motor drive circuit according to wiring diagram, see page F72

Recommended process of manipulation

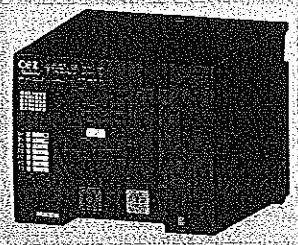
1) Shunt trip/undervoltage release must be used to switch off the circuit breaker. Circuit breaker switching off cannot be made by motor drive
2) Circuit breaker can be stored and switched on only if the second circuit breaker is in switch-off mode. Circuit breaker status indicator on motor drive is in „0" position. Between storing and switching on the circuit breaker, it is necessary to keep the time interval min. 100 ms. Switch „S" must be disconnected.
3) In case of infringement of these principles, the first switching on of circuit breaker is unsuccessful.

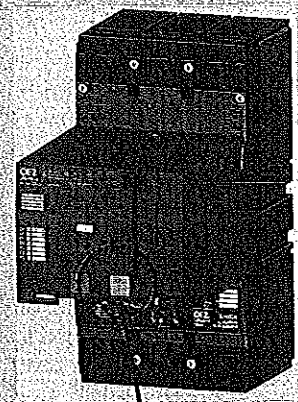




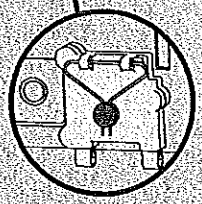
MOTOR DRIVES

3P 4P

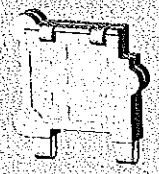




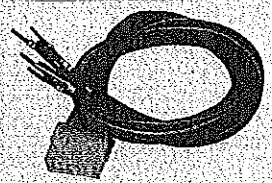
DIMENSIONS, see page F29



Cover of switch on button OD-BHD-KT01



Connecting cable OD-BHD-KA02



Description

- It is used for remote control of the circuit breaker (switch OFF/ON).
- Simple mounting on the circuit breaker after the circuit breaker cover of cavities is removed.
- Usage in industrial applications e.g. switching of stand by units etc. or wherever the automatic operation of electric devices is needed.
- In order to speed up the circuit breaker's switch off (e.g. safety STOP button) the undervoltage release or shunt trip can be used.
- On the motor drive front panel there is a change-over switch to select the drive modes AUTO/MANUAL:
  - AUTO mode – remote control. The circuit breaker is controlled by buttons for remote switch off/on, furthermore in this position mechanical control can be used on the front panel of the motor drive
  - MANUAL mode – manual control. Control voltage is not needed. The circuit breaker can be switched on using the green switch on button and switched off using the red switch off button on the front part of the drive cover. Electric switch on is blocked. Electric switch off is functional. The accumulation of energy can be done by means of hinged lever.
- Possibility to indicate remotely the state of the AUTO/MANUAL switch.
- Switch S (external switch – has to be bought separately) enables the choice of automatic accumulation of energy (circuit breaker loading).
  - automatic accumulation of energy is on (S switch switched on): after tripping of the circuit breaker by the overcurrent release, by auxiliary release, or by TEST push button or by the switch off button on the motor drive motor drive immediately accumulates energy (circuit breaker loading), motor drive is then ready to switch on the circuit breaker
  - automatic accumulation of energy is switched off (S switch open): after tripping of the circuit breaker by the overcurrent release, by auxiliary release, or by TEST push button or by the switch off button on the motor drive both motor drive and circuit breaker stay in position „switched off by releases". In this position motor drive waits for the impulse from switch S. When the impulse is brought in the motor drive accumulates energy (turn on the circuit breaker) and after this loading the motor drive is ready to switch on the circuit breaker. It is not possible to switch on the circuit breaker when motor drive is not loaded
- Front panel state indicating device of the stored energy signals the state of motor drive storage devices. The state can be signalled from a distance.
- The drive may be furnished with an electromechanical counter of cycles:
  - internal design on the motor drive cover
  - external design OD-BHD-PP01 for mounting on the switchboard's door or inside the switchboard by means of metal holder, that is part of the delivery
- Motor drive can be sealed by means of bolt sealing insert (OD-BH-VP01).
- Drive can be locked in off position by up to three padlocks (shank diameter max. 4.3 mm).
- Switch on button can be covered and sealed (OD-BHD-KT01).
- Drive is connected by multi-pole connector with cavities (in order to connect cables special tongs have to be used).
- Drive can be furnished with cable (OD-BHD-KA02) that has on one side connector to the motor drive and on the other side free terminals for connection to etc. switchboard's terminal block.

Specifications

Type		MP-BH-X... / MP-BH-X...-P
Operating voltage	U_s	24, 48, 110, 230 V a.c. 24, 48, 110, 220 V d.c.
Rated frequency	f_s	50/60 Hz
Control impulse length for storage		400 ms ÷ ∞ [1]
Control impulse length for switching on for switching off		20 ÷ 700 ms [1] 400 ms ÷ ∞ [1]
Time to switching on		< 60 ms
Time to switching off		900 ms
Frequency of cycles ON/OFF		3 cycles/min
Frequency of cycles - instant successive ON/OFF		10 cycles
Mechanical endurance		20 000 cycles
Input power	AC DC	100 VA 100 W
Protection	24, 48, 110 V a.c.; 230 V a.c. 24, 48, 110 V d.c.; 220 V d.c.	LPN-4C-1; LPN-2C-1 LPN-DC-4C-1; LPN-DC-2C-1
Rated operating current of the change-over switch AUTO/MANUAL	I_s/U_s	6 A/250 V a.c. 6 A/250 V d.c.
Type		OD-BHD-KA02
Number of conductors		12
Conductor cross-section	S	0.35 mm²
Conductor lengths		0.6 m

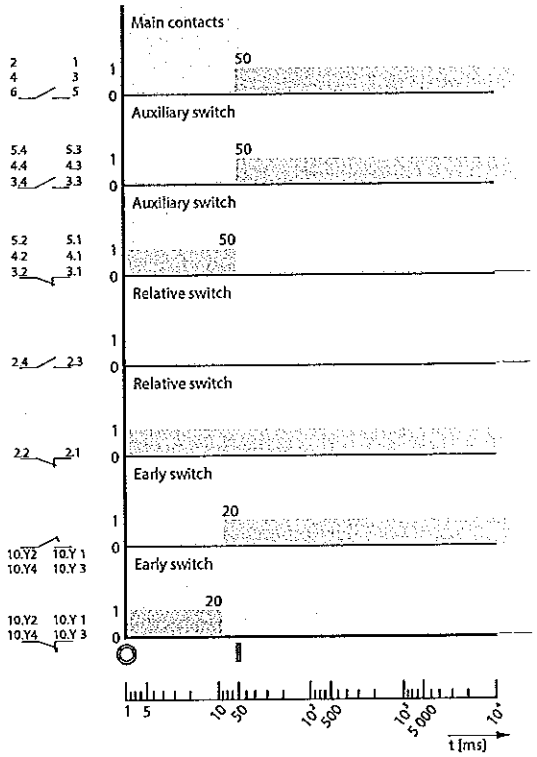
[1] - for sequence of control impulses, see page F70

MOTOR DRIVES

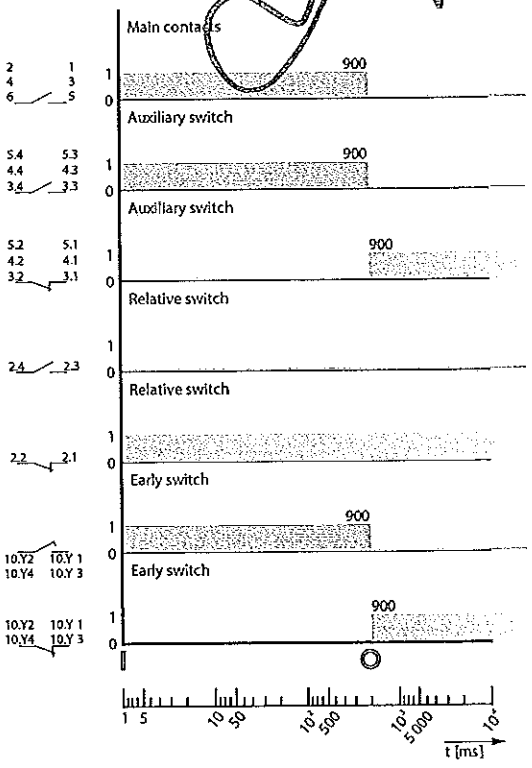
3P 4P

Specifications

Circuit breaker switching on by motor drive - electrically by ON push button

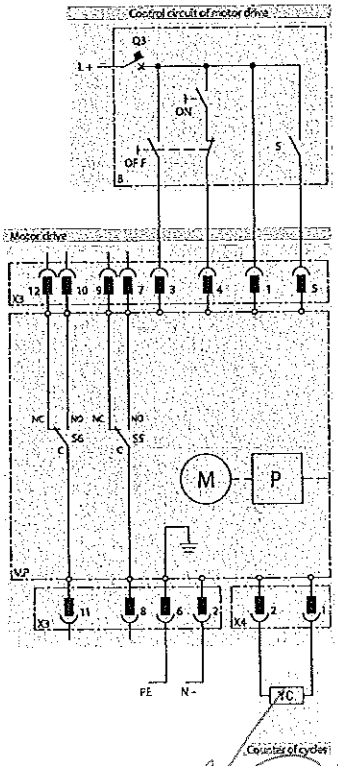


Circuit breaker switching off by motor drive - electrically by OFF push button



Diagram

Circuit breaker switching on and off by motor drive - electrically by ON and OFF push button



States and positions of circuit breaker/switch-disconnector lever

States of circuit breaker/switch-disconnector	Lever position of circuit breaker/switch-disconnector
Switched on	I
Switched off by releases, TEST or by switch off button on the motor drive	
Switched off manually or by motor drive electrically (loaded state)	O

Wiring diagram description

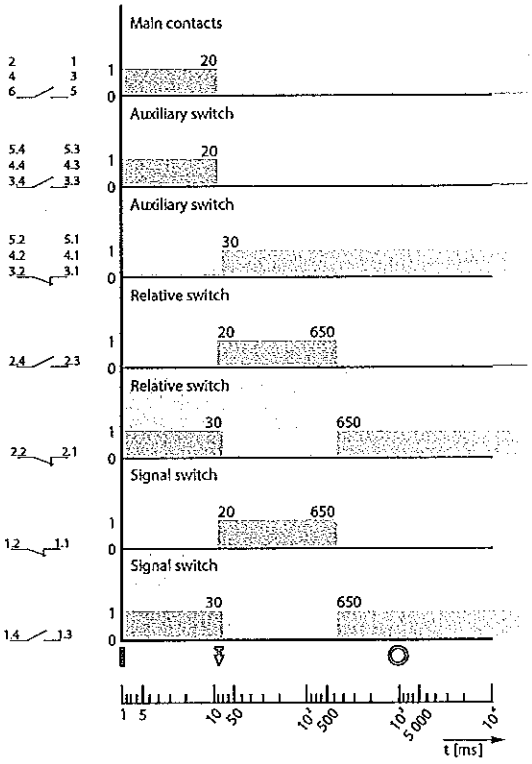
Symbol	Description
MP	motor drive MP-BH-X...
M	motor
P	storage device
X3	connector for connection of control circuits
X4	connector for external counter of cycles
S5	switch to indicate AUTO (NO-C)/MANUAL modes (NC-C)
S6	switch to indicate full storage (ready to switch on: NO-C)
YC	external counter of cycles OD-BHD-PPO
B	recommended wiring of the control circuits (not included in motor drive order)
ON	switch off button
OFF	switch off button
S	switch for energy storage (switched on = automatic storage, may be continuously switched on)
Q3	motor drive circuit breaker - see page F66

MOTOR DRIVES

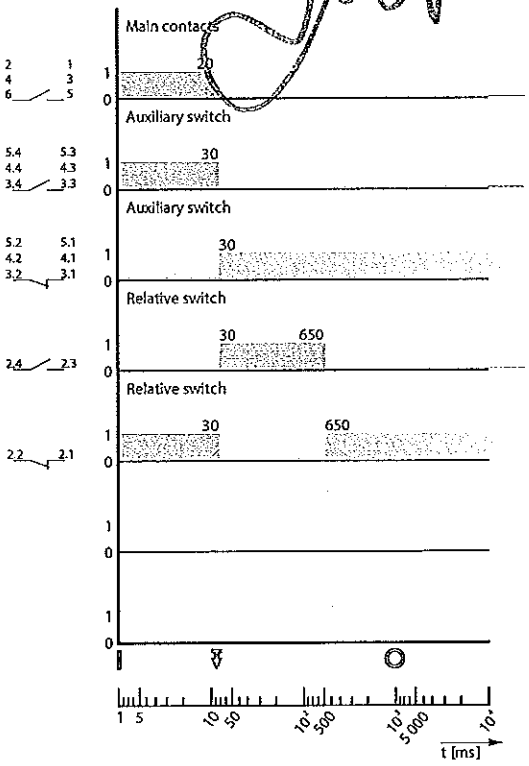
3P 4P

Specifications

Switching off of the circuit breaker with motor drive by overcurrent release (S switch in switched on state-automatic storage)

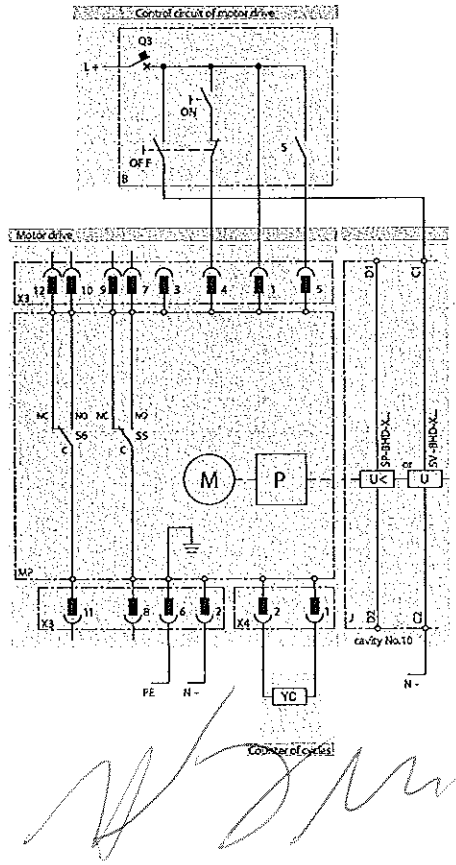


Switching off of the circuit breaker with motor drive by shunt trip or undervoltage release (switch S in switched on state-automatic storage)

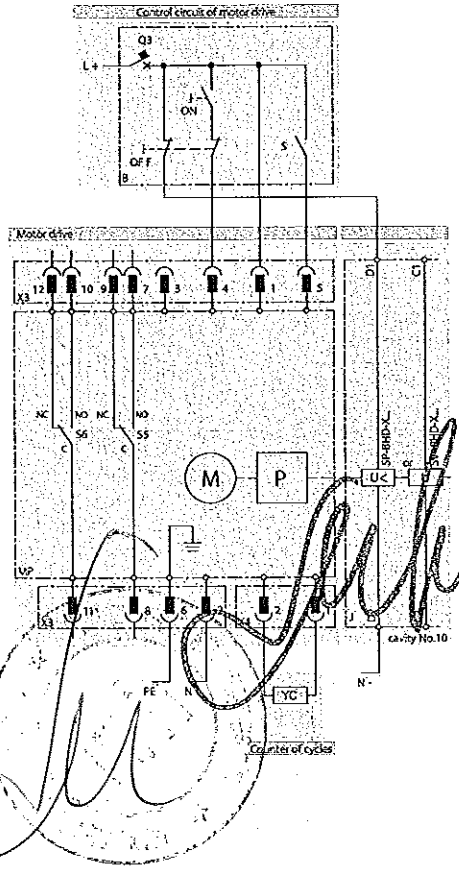


Diagram

Circuit breaker switching on by motor drive (electrically by ON push button) and tripping by shunt trip



Circuit breaker switching on by motor drive (electrically by ON push button) a tripping by undervoltage release



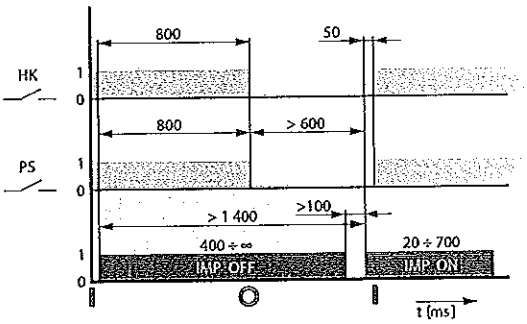
MOTOR DRIVE

3P 4P

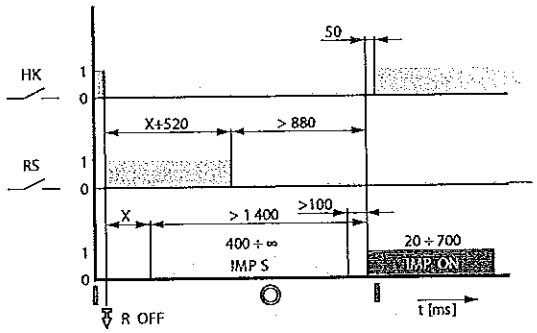
Specifications

Recommended control impulses

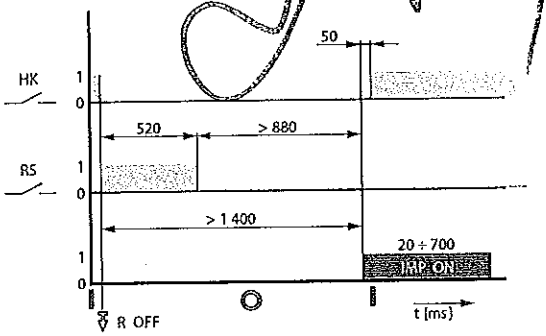
Circuit breaker switching on and off by motor drive
- S switch permanently switched on (automatic storage) or open



Circuit breaker switching off by overcurrent or auxiliary release and switching on by motor drive - S switch switched on only for storing up



Circuit breaker switching off by overcurrent or auxiliary release and switching on by motor drive - S switch permanently switched on (automatic storage)



Description of graphs

Symbol	Description
HK	main contacts
PS	auxiliary switch
RS	relative switch
R OFF	circuit breaker closing instant by release of circuit breaker
IMP S	impulse to store up motor drive energy (generated by S switch)
IMP ON	make impulse for the motor drive
IMP OFF	break impulse for the motor drive
X	random segment of time

States and positions of circuit breaker/switch-disconnector lever

States of circuit breaker/switch-disconnector	Lever position of circuit breaker/switch-disconnector
Switched on	
Switched off by releases, TEST or by switch off button on the motor drive	
Switched off manually or by motor drive electrically (loaded state)	

MOTOR DRIVES

Diagram

Recommended wiring diagram of connecting the circuit breaker control circuits in withdrawable/plug-in design with motor drive

- connecting with control relays
- operating voltage U_s 24 V a.c./d.c., 48 V a.c./d.c., 110 ÷ 230 V a.c., 110 V d.c.

Switching off by motor drive

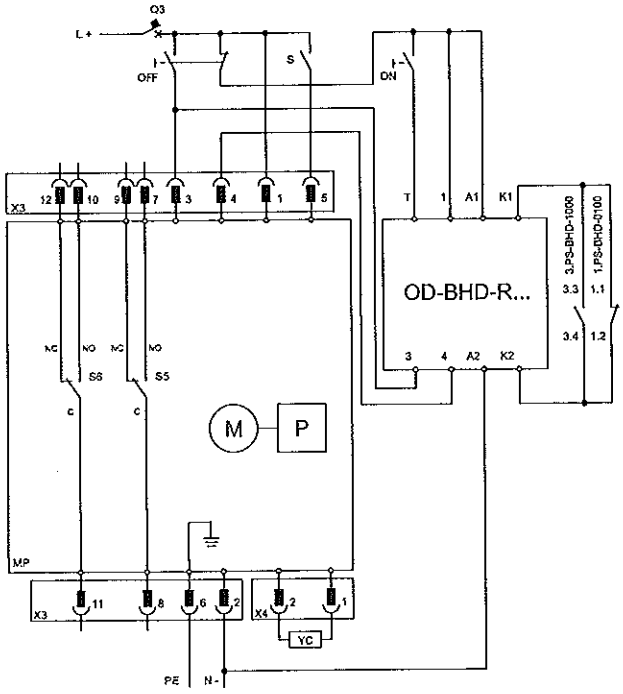


Diagram description

Symbol	Description
MP	motor drive - U_s of drive must be the same as U_s of control relay
M	motor
P	storage device
X3	connector for connection of control circuits
X4	connector for external counter of cycles
S5	switch to indicate AUTO (NO-C) / MANUAL modes
YC	external counter of cycles OD-BHD-PP01 (not included in motor drive order)
OFF	switch off button
S	switch for energy storage
Q3	motor drive circuit breaker for 24 V a.c. LPN-4C-1 for 48 V a.c. LPN-4C-1 for 110 V a.c. LPN-4C-1 for 230 V a.c. LPN-2C-1 for 24 V d.c. LPN-DC-4C-1 for 48 V d.c. LPN-DC-4C-1 for 110 V d.c. LPN-DC-4C-1
OD-BHD-R...	control relay for 24 V a.c./d.c. OD-BHD-RX01 for 48 V a.c./d.c. OD-BHD-RX02 for 110 ÷ 230 V a.c. OD-BHD-RA03 for 110 V d.c. OD-BHD-RD04
3.PS-BHD-1000	auxiliary switch
1.PS-BHD-0100	signal switch

- impulse on T terminal reacts to trailing edge

MOTOR DRIVES

3P 4P

Diagram

Recommended wiring diagram of connecting the circuit breakers control circuits with mechanical interlocking and motor drive (applicable for any circuit breaker)

- connecting with control relays
- operating voltage U_e 24 V a.c./d.c., 48 V a.c./d.c., 110 ÷ 230 V a.c., 110 V d.c.

Switching off is possible only by undervoltage release or shunt trip

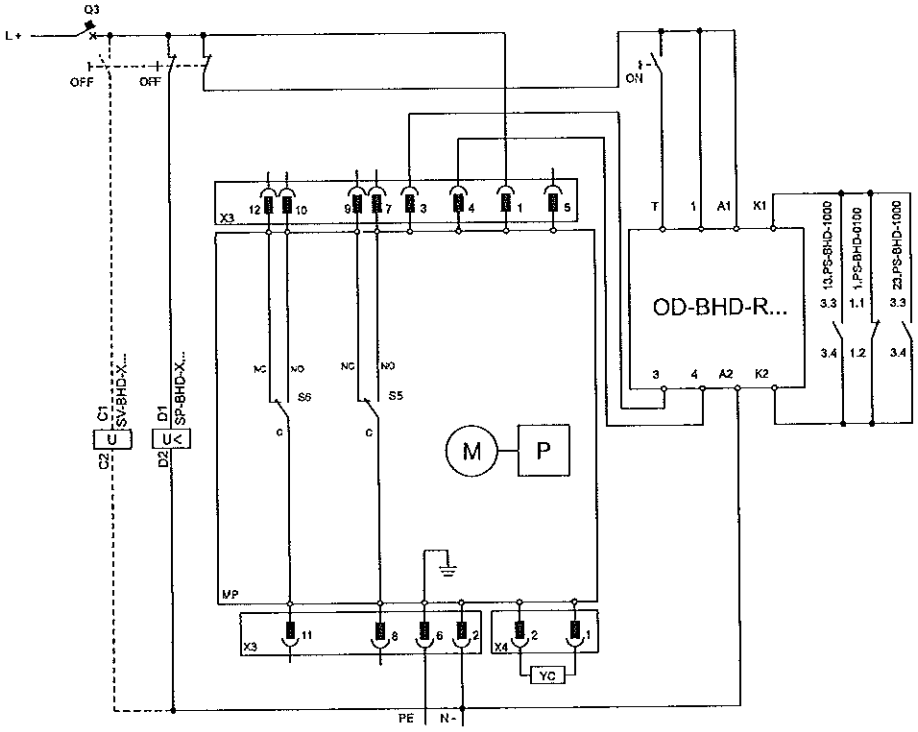
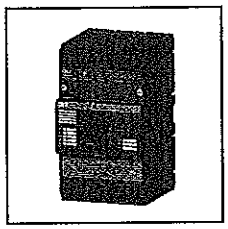


Diagram description

Symbol	Description
MP	motor drive - U_e of drive must be the same as U_e of control relay
M	motor
P	storage device
X3	connector for connection of control circuits
X4	connector for external counter of cycles
S5	switch to indicate AUTO (NO-C) / MANUAL modes
YC	external counter of cycles OD-BHD-PP01
S6	switch to indicate full storage (ready to switch on: NO-C)
OFF	switch off button
Q3	motor drive circuit breaker for 24 V a.c. LPN-4C-1 for 48 V a.c. LPN-4C-1 for 110 V a.c. LPN-4C-1 for 230 V a.c. LPN-2C-1 for 24 V d.c. LPN-DC-4C-1 for 48 V d.c. LPN-DC-4C-1 for 110 V d.c. LPN-DC-4C-1
OD-BHD-R...	control relay for 24 V a.c./d.c. OD-BHD-RX01 for 48 V a.c./d.c. OD-BHD-RX02 for 110 ÷ 230 V a.c. OD-BHD-RA03 for 110 V d.c. OD-BHD-RD04
1.PS-BHD-0100	signal switch
13.PS-BHD-1000	switch inserted in cavity 3 (first circuit breaker) - auxiliary switch
23.PS-BHD-1000	switch inserted in cavity 3 (second circuit breaker) - auxiliary switch
SP-BHD-X...	undervoltage release - U_e of release must be the same as U_e of control relay
SV-BHD-X...	shunt trip - U_e of release must be the same as U_e of control relay

- impulse on T terminal reacts to trailing edge

OTHER ACCESSORIES OF MOULDED CASE CIRCUIT BREAKERS



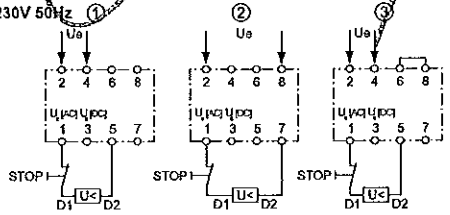
DELAY UNIT

Type	Product code	Description	Weight [kg]	Package [pc]
BZ-BX-X230-A	36696	enables to delay the undervoltage release tripping of circuit-breakers	0.2	1

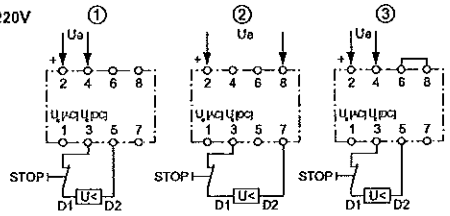
- the delay can be set up at three levels (according to wiring)

Circuit breaker	Delay [s]		
	1st level	2nd level	3rd level
BC160	1.0	2.0	3.2
BD250, BH630	0.6	1.2	1.9
BL1000, BL1600	0.5	1.0	1.5

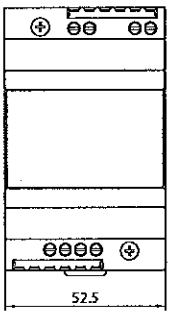
AC 230V 50Hz

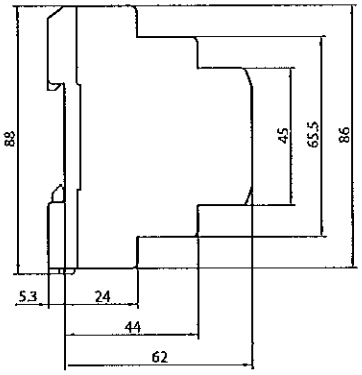


DC 220V

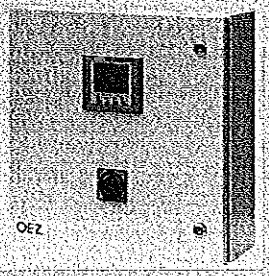


BZ-BX-X230-A





AUTOMATIC STANDBY UNIT MODI



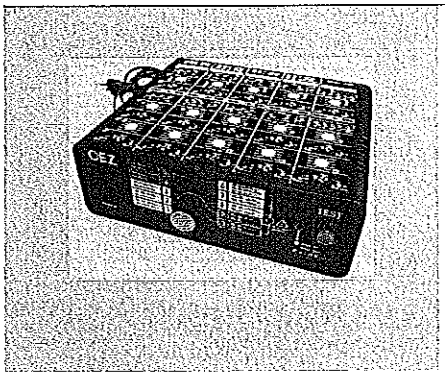
Type	Description	Weight [kg]	Package [pc]
MODI ZA...	- enables safe control of switching of two power supplies to one or two loads with exclusion of parallel operation of the power supplies - enables various adaptations according to the customer's requirements - for backup operation with a transformer or generator - from 16 to 6 300 A	10	1

- for circuit breakers and switch-disconnectors Modeion and Arion WL
- for detail information see catalogue Automatic standby unit MODI ZA

Type	Description	Weight [kg]	Package [pc]
MODI ZB...	- enables safe control of two power supplies to one load with exclusion of parallel operation of the power supplies - for backup operation, in particular with a generator - from 40 to 630 A	10	1

- for Modeion circuit breakers
- for detail information see catalogue Automatic standby unit MODI ZB

TESTER OF OVERCURRENT RELEASES OF CIRCUIT BREAKERS



Type	Product code	Description	Weight [kg]	Package [pc]
ZES4	17273	Tester of overcurrent releases of circuit breakers BD250..., BH630..., BL1000S and BL1600S	3.75	1

- service device for checking the functionality of electronic overcurrent releases and switching units for Modeion circuit breakers
- tests: - overcurrent releases
  - functionality of switching unit tripping mechanism
  - current transformers
- tests overcurrent releases: L001, DTV3, MTV8, MTV9, U001
- tests switching units for circuit breakers: BD250N, BD250S, BH630N, BH630S, BL1000S, BL1600S

Tester must be connected to an external power supply. Power supply voltage of tester is 230 V a.c.

For more detailed information and documentation contact our technical support No.: +420 465 672 191 or visit our websites www.oez.com

CONTROL RELAYS FOR BD250 AND BH630

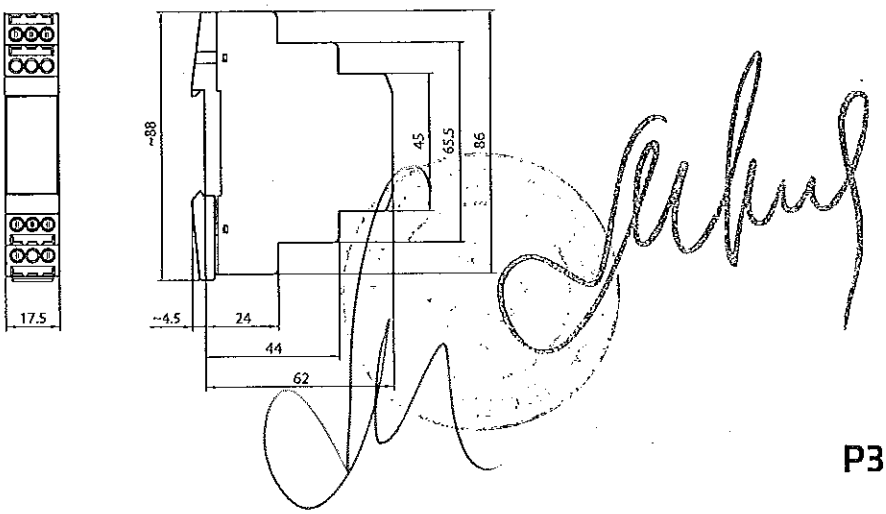
Type	Product code	Specification	Weight [kg]	Package [pc]
OD-BHD-RX01	37425	24 V a.c./d.c.	0.06	1
OD-BHD-RX02	37426	48 V a.c./d.c.	0.06	1
OD-BHD-RA03	37427	110 ÷ 230 V a.c.	0.06	1
OD-BHD-RD04	37428	110 V d.c.	0.06	1

- control relay is suitable for control of the circuit breaker with motor drive in withdrawable/plug-in device or in combination with mechanical interlocking by Bowden, see page E72, E73, F70, F71

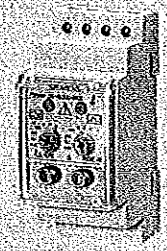
Specifications

Type		OD-BHD-R...
Standards		EN 61812-1
Approval marks		CE
Control circuit		
Rated operating voltage	U_c	24 V a.c./d.c., 48 V a.c./d.c., 110 ÷ 230 V a.c./d.c., 110 V d.c.
Rated frequency		50 Hz
Consumption at U_n	at 24 ÷ 230 V a.c. at 24 ÷ 220 V d.c.	1.2 VA ÷ 2.6 VA 1.4 W ÷ 1.7 W
Mechanical endurance		30 000 cycles
Electrical endurance		30 000 cycles
Connection		0.2 ÷ 2.5 mm²
Torque		0.5 Nm
Control impulse		
Min. excitation time		15 ms
Max. excitation time		unlimited
Other data		
Mounting on „U" rail according to EN 60715 - type		TH 35
Degree of protection		IP20
Ambient temperature		-20 ÷ +50 °C
Working position		arbitrary
Seismic resistance		3g / 8 ÷ 50 Hz

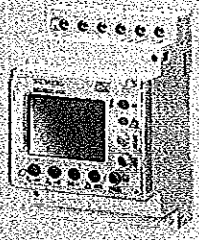
OD-BHD-R...



RESIDUAL CURRENT MONITOR



5SV8000-6KK



5SV8001-6KK, 5SV8200-6KK

Specifications

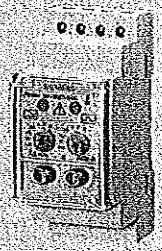
Type designation	5SV8000-6KK	5SV8001-6KK	5SV8200-6KK
Dimensions - number of modules	2	3	3
Weight	0.17 kg	0.24 kg	0.24 kg
Standards	EN 62020 IEC 62020	EN 62020 IEC 62020	EN 62020 IEC 62020
Approval marks	CE	CE	CE
Number of independent circuits	1	1	4
Rated residual current	0.03 ÷ 5 A	0.03 ÷ 30 A	0.03 ÷ 30 A
Maximum inactivity time	0.02 ÷ 5 s	0.02 ÷ 10 s	0.02 ÷ 10 s
Type	A (up to $I_{\Delta n}$ = 3 A) AC ($I_{\Delta n}$ from 3 to 5 A)	A (up to $I_{\Delta n}$ = 3 A) AC ($I_{\Delta n}$ from 3 to 30 A)	A (up to $I_{\Delta n}$ = 3 A) AC ($I_{\Delta n}$ from 3 to 30 A)
Rated voltage	230 V a.c.	230 V a.c.	230 V a.c.
Rated operating voltage	164 ÷ 284 V a.c.	164 ÷ 284 V a.c.	164 ÷ 284 V a.c.
Rated frequency	50 Hz	50 Hz	50 Hz
Electrical endurance	10 x 10^6 cycles	10 x 10^6 cycles	10 x 10^6 cycles
Degree of protection from front side of the device	IP41	IP41	IP41
Degree of protection of terminals	IP20	IP20	IP20
Method of mounting	„U" rail 35 mm	„U" rail 35 mm	„U" rail 35 mm
Ambient temperature range	-10 ÷ 50 °C	-10 ÷ 50 °C	-10 ÷ 50 °C
Max. sea level	2 000 m	2 000 m	2 000 m
Relative humidity	5 ÷ 95 %	5 ÷ 95 %	5 ÷ 95 %
Connection cross-section	0.2 ÷ 2 mm²	0.2 ÷ 2 mm²	0.2 ÷ 2 mm²
External remote trip/reset	–/•	•/•	•/•
Internal diameter of the transformer	30 ÷ 210 mm	30 ÷ 210 mm	30 ÷ 210 mm
Local signalling of reach of relative low value of $I_{\Delta n}$ (ALARM)	•	•	•
Remote signalling of reach of relative low value of $I_{\Delta n}$ (ALARM)	–	•	•
Local signalling of power supply/ALARM/failure/value of $I_{\Delta n}$	•/•/•/•	•/•/•/•	•/•/•/•
Display	–	•	•
Sealing of setting/control panel	•	•	•
Control circuit - outputs			
Rated operating voltage	230 V a.c.	230 V a.c.	230 V a.c.
Rated current	6 A	6 A	6 A
Max. switched power - AC1	2 500 VA	2 500 VA	2 500 VA
Rated frequency	50 Hz	50 Hz	50 Hz
Number of control contacts	1 CO	2 CO	4 NO
Control circuit - inputs			
Rated voltage	–	110 ÷ 230 V a.c./d.c.	230 V a.c.
Rated operating voltage	–	110 ÷ 284 V a.c./d.c.	230 ÷ 284 V a.c.
Input power	–	0.7 W	0.7 W

• available, – unavailable, + being prepared

Total max. switching off time

	Maximum inactivity time - adjusted value							
	20 ms	100 ms	200 ms	300 ms	400 ms	500 ms	750 ms	1 000 ms
1x $I_{\Delta n}$	< 80 ms	< 135 ms	< 240 ms	< 340 ms	< 440 ms	< 540 ms	< 790 ms	< 1 050 ms
2x $I_{\Delta n}$	< 60 ms	< 130 ms	< 230 ms	< 330 ms	< 435 ms	< 540 ms	< 780 ms	< 1 040 ms

RESIDUAL CURRENT MONITOR – ANALOG



5SV8000-6KK

Description

- designed for monitoring of leakage current (residual/ /fault current) and protection against fire e.g. due to worsened insulation or sneak currents
- possibility of setting of residual current $I_{\Delta n}$ and setting of limit time of inactivity of $I_{\Delta t}$ (see parameters) by means of rotary switches
- mounting on „U" rail
- measurement by means of external summation current transformer
- circuit breaker switching off by means of shunt trip or undervoltage release

Local signalling

- first LED signals functionality of the relay and current transformer:
  LED is lighting - the relay is in order
  LED does not light - the relay is not supplied
  LED is flashing - interrupted connection between the relay and the transformer, or broken secondary winding
- the second LED signals value of the passing current:
  LED is lighting - signalling reach of 100 % residual current
  LED is flashing - flashing period increases with increasing residual current

Remote signalling:

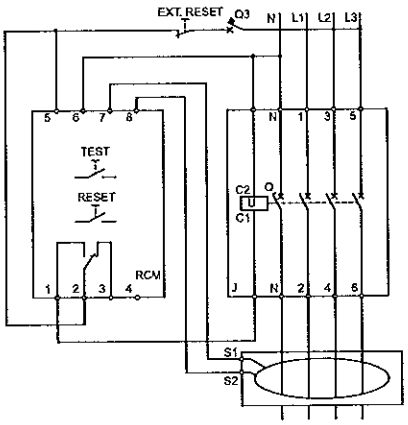
- by means of make-and-break contact (CO)
- serves for signalling of reach of the set value of $I_{\Delta n}$ and/or for circuit breaker switching off via undervoltage release or shunt trip

Control

- the TEST push-button serves for testing of the function of both the relay and circuit breaker - disconnects the circuit
- if the relay trips (switches the circuit breaker off) it is necessary to reset it by the „RESET" push-button, or interrupt its supply and thus perform the remote reset
- setting can be sealed

Wiring diagram

Wiring diagram with shunt trip



Wiring diagram with undervoltage release

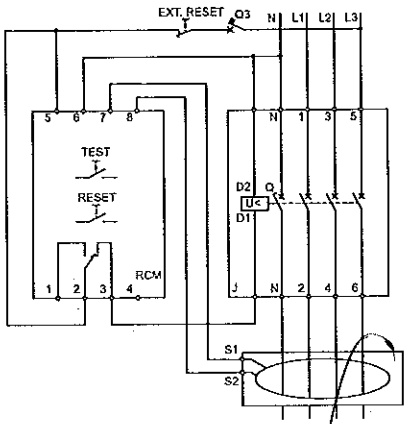
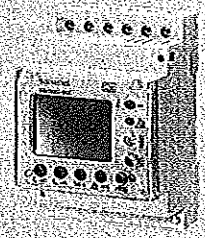


Diagram description

Symbol	Description
J	circuit breaker
RCM	residual current monitor
TEST	test push-button of the relay
RESET	local reset push-button
EXT. STOP/RESET	remote reset push-button or STOP push-button
S1,S2	current transformer terminals
Q3	protection of relay LPN-2C-1

1) only in combination with an undervoltage release

RESIDUAL CURRENT MONITOR - DIGITAL



5SV8001-6KK

Description

- designed for monitoring of leakage current (residual// fault current) and protection against fire e.g. due to worsened insulation or sneak currents
- possibility of setting of residual current $I_{\Delta n}$ and setting of maximum inactivity time $t_{\Delta t}$ by means of push-buttons and the display (see table)
- presentation of cause of trip and of current value of residual current on the display
- mounting on „U" rail
- measurement by means of external transformer
- circuit breaker switching off by means of shunt trip or undervoltage release
- possibility of setting of characteristic S - selective

Local signalling

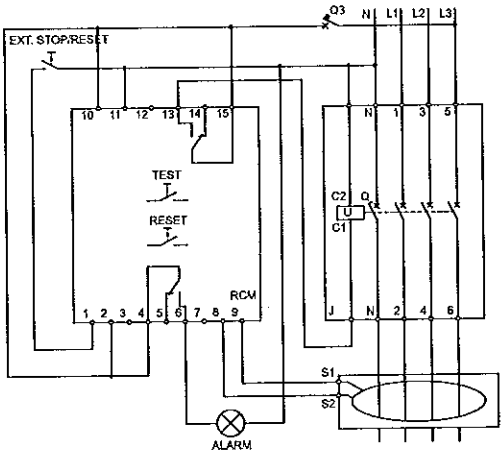
- the first LED signals functionality of the relay and trip in reach of the set residual current:
  LED gives a green light - the relay Is supplied
  LED gives a red light - signalling of reach of 100 % residual current
- the second LED signals reach of relative low set value:
  LED gives a yellow light - signalling of reach of the set value

Remote signalling

- by means of make-and-break contact (CO)
- serves for signalling of reach of the set value of $I_{\Delta n}$ and/or for circuit breaker switching off via undervoltage release or shunt trip
- possibility of remote switching off by applying voltage 110 ÷ 230 V a.c./d.c. on potential free terminals number 1 and 2
- the TEST push-button serves for testing of the function of both the relay and circuit breaker - disconnects the circuit
- if the relay trips (switches the circuit breaker off) it is necessary to reset it by the "RESET" push-button, or interrupt its supply and thus perform the remote reset
- setting can be sealed

Wiring diagram

Wiring diagram with shunt trip



Wiring diagram with undervoltage release

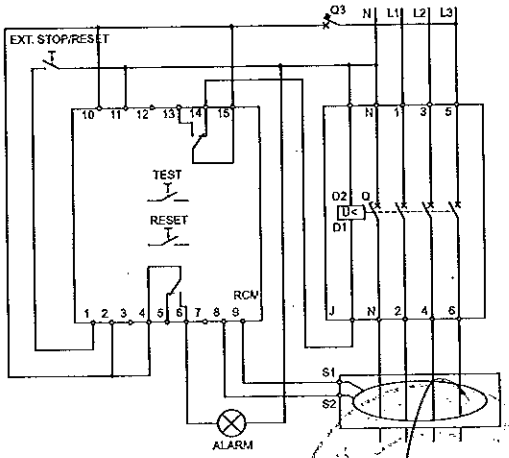
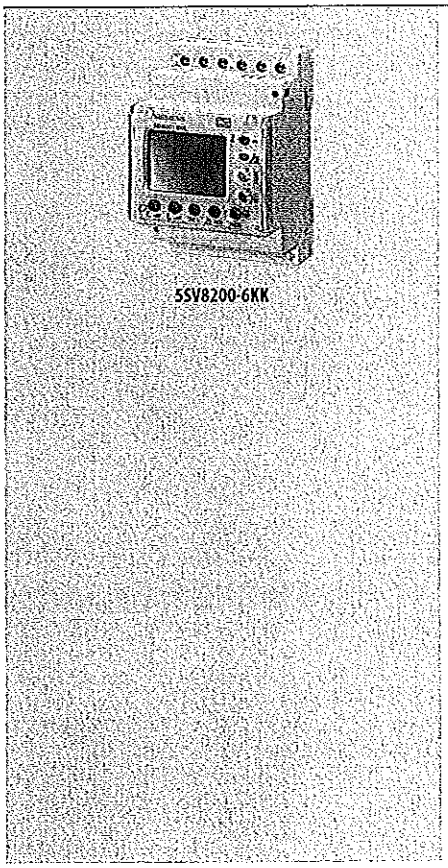


Diagram description

Symbol	Description
J	circuit breaker
RCM	residual current monitor
TEST	test push-button of the relay
RESET	local reset push-button
EXT. STOP/RESET	remote reset push-button or STOP push-button
S1, S2	current transformer terminals
ALARM	signalling of reach of the set value of $I_{\Delta n}$
Q3	protection of relay LPN-2C-1

RESIDUAL CURRENT MONITOR - DIGITAL, 4-CHANNEL



5SV8200-6KK

Description

- designed for monitoring of leakage current (residual/fault current) and protection against fire e.g. due to worsened insulation or sneak currents
- possibility of setting of residual current $I_{\Delta n}$ and setting of maximum inactivity time $I_{\Delta t}$ by means of push-buttons and the display (see table)
- presentation of cause of trip and of current value of residual current on the display
- mounting on „U" rail
- measurement by means of an external transformer; it is possible to connect up to 4 transformers
- circuit breaker switching off by shunt trip
- possibility of setting of characteristic S – selective

Local signalling

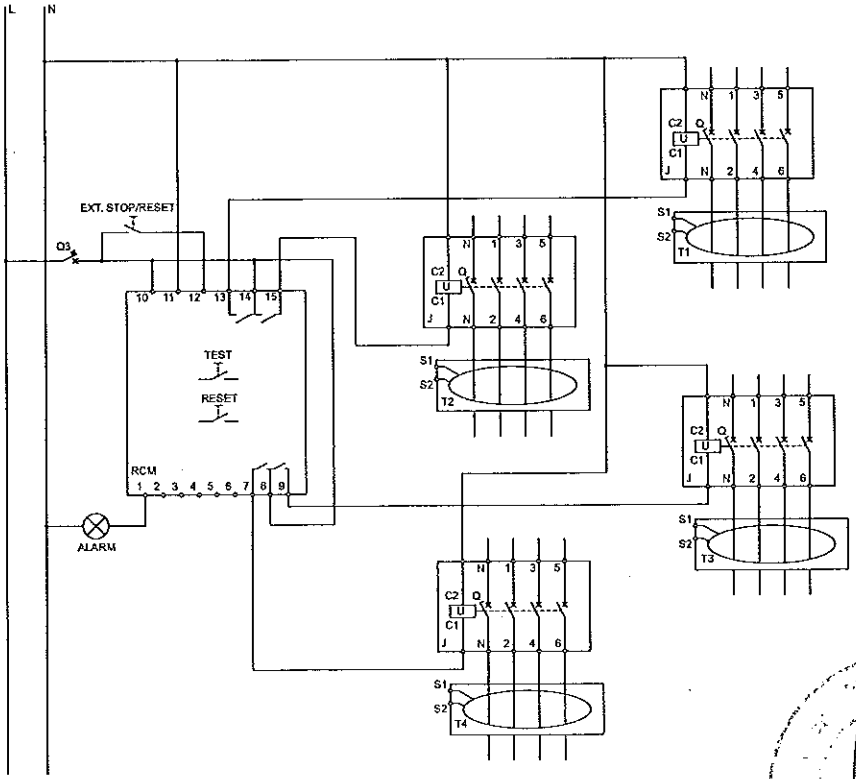
- the first LED signals functionality of the relay and trip in reach of the set residual current:
  LED gives a green light - the relay is supplied
  LED gives a red light - signalling of reach of 100 % residual current
- the second LED signals reach of relative low set value:
  LED gives a yellow light - signalling of reach of the set value

Remote signalling

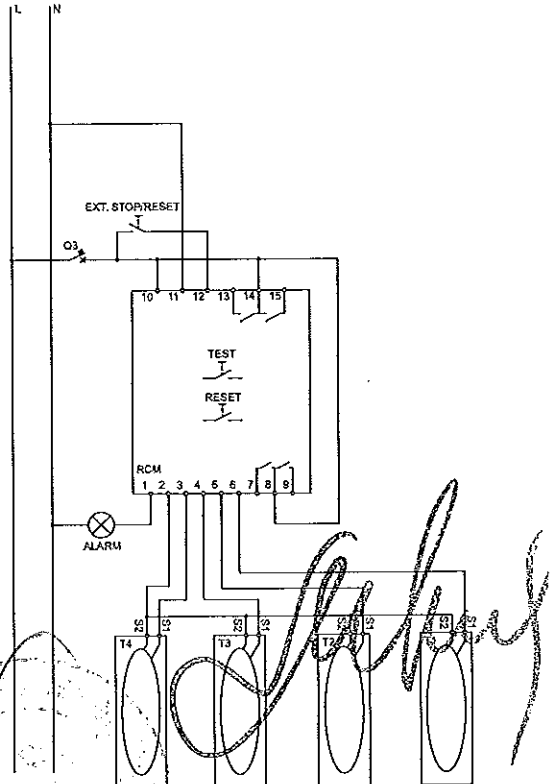
- by means of make-and-break contact (CO)
- serves for signalling of reach of the set value of $I_{\Delta n}$ and/or for circuit breaker switching off via undervoltage release or shunt trip
- possibility of remote switching off by applying voltage 110 ÷ 230 V a.c./d.c. on potential free terminal number 12
- the TEST push-button serves for testing of the function of both the relay and circuit breaker - disconnects the circuit
- if the relay trips (switches the circuit breaker off) it is necessary to reset it by the „RESET" push-button, or interrupt its supply and thus perform the remote reset
- setting can be sealed

Wiring diagram

Wiring diagram with shunt trip
- connecting of circuit breakers



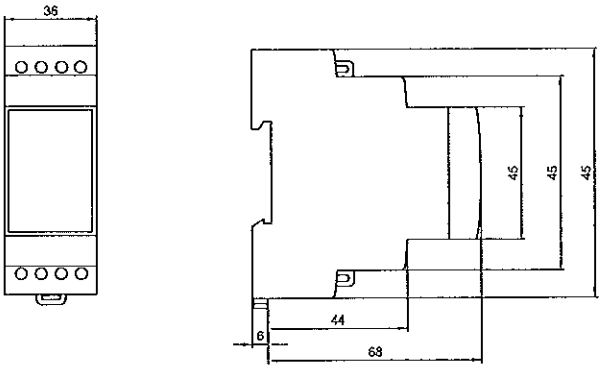
- connecting of current transformers



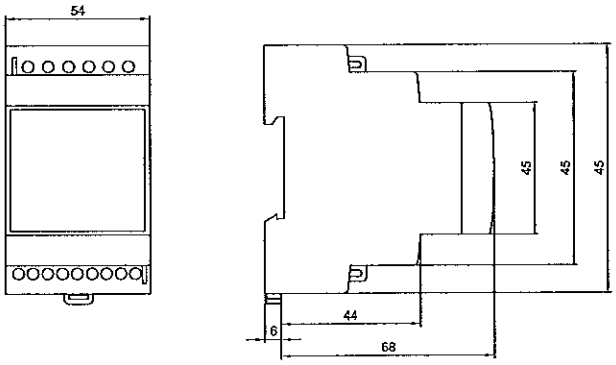
RESIDUAL CURRENT MONITOR

Dimensions

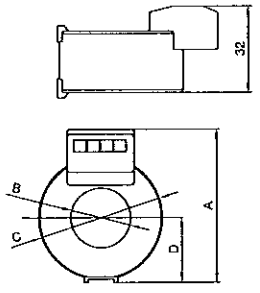
Residual current monitor 5SV8000-6KK



Residual current monitor 5SV8001-6KK, 5SV8200-6KK

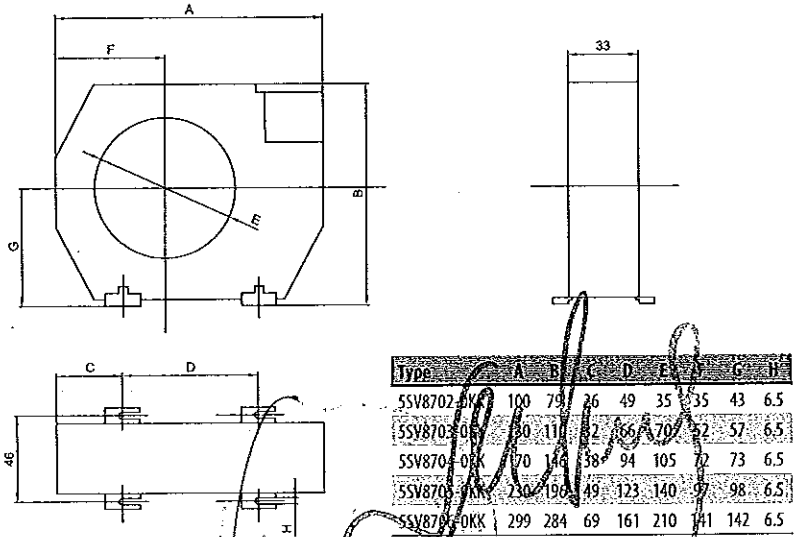


Measuring current transformers 5SV8700-0KK, 5SV8701-0KK



Type	A	B	C	D
5SV8700-0KK	60	20	46	24
5SV8701-0KK	70	30	59	30

Measuring current transformers 5SV87...-0KK



Type	A	B	C	D	E	F	G	H
5SV8702-0KK	100	79	26	49	35	35	43	6.5
5SV8703-0KK	130	111	32	66	70	52	57	6.5
5SV8704-0KK	170	146	38	94	105	72	73	6.5
5SV8705-0KK	230	196	49	123	140	97	98	6.5
5SV8706-0KK	299	284	69	161	210	141	142	6.5

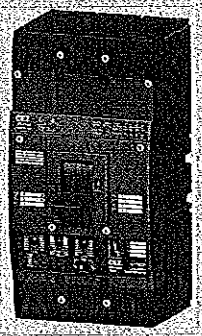
SPARE PARTS OF CIRCUIT BREAKERS AND SWITCH-DISCONNECTORS MODEION

Spare parts for BC160N

Type	Product code	Name, description	Weight [kg]	Package
OD-BC-SP01	34456	Control lever	0.002	1
OD-BC-DV01	20606	Conductor holder	0.001	1
OD-BC-MS01	20607	Set of screws M3x30, 2 pcs	0.005	1
CS-BC-T411	33656	Connecting terminal	0.094	1
CS-BC-T412	33657	Connecting terminal	0.095	1
OD-BC-KS01	20624	Terminal cover, upper or lower terminals, 3P design, 1 pc	0.01	1
OD-BC-KS41	33659	Terminal cover, upper or lower terminals, 4P design, 1 pc	0.015	1
OD-BC-KON2	37798	Connector and sockets for MP-BC-X...-B	0.02	1

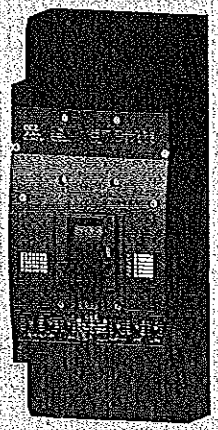
Spare parts for BD250N, BD250S

Type	Product code	Name, description	Weight [kg]	Package
OD-BD-SP01	34457	Control lever	0.007	1
OD-BD-DV01	15329	Conductor holder	0.002	1
OD-BD-MS01	14419	Set of screws M4x35, 4 pcs	0.018	1
OD-BD-KS01	24720	Terminal cover, upper or lower terminals, 3P design, 4 pc	0.1	1
OD-BD-KS44	35896	Terminal cover, lower terminals, 4P design, 1 pc	0.1	1
OD-BD-KS45	35897	Terminal cover, upper terminals, 4P design, 1 pc	0.1	1
OD-BHD-JUMP	34460	Jumper for auxiliary releases	0.001	1
OD-BHD-KON2	34461	Connector and sockets for MP-BD, BH	0.004	1
OD-BX-KON1	34462	Connector and sockets for OD-xx-KA01	0.017	1



Spare parts for BH630N, BH630S

Type	Product code	Name, description	Weight [kg]	Package
OD-BH-SP01	34458	Control lever	0.012	1
OD-BH-DV01	15331	Conductor holder	0.002	1
OD-BH-MS01	14420	Set of screws M5x25, 4 pcs	0.03	1
OD-BH-KS01	24730	Terminal cover, upper or lower terminals, 3P design, 1 pc	0.15	1
OD-BH-KS44	35894	Terminal cover, lower terminals, 4P design, 1 pc	0.2	1
OD-BH-KS45	35895	Terminal cover, upper terminals, 4P design, 1 pc	0.2	1
OD-BHD-JUMP	34460	Jumper for auxiliary releases	0.001	1
OD-BHD-KON2	34461	Connector and sockets for MP-BD,BH	0.004	1
OD-BX-KON1	34462	Connector and sockets for OD-xx-KA01	0.017	1

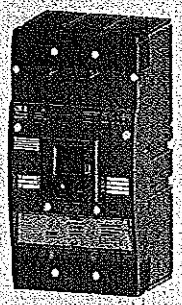


Spare parts for BL1000S, BL1600S

Type	Product code	Name, description	Weight [kg]	Package
OD-BL-SP01	34459	Control lever	0.03	1
OD-BL-MS01	14854	Set of screws M8x80, 4 pcs	0.144	1
OD-BL-KON2	34463	Connector and sockets for MP-BL-X...	0.004	1
OD-BX-KON1	34462	Connector and sockets for OD-xx-KA01	0.017	1

NOTES

THE USAGE OF SWITCH-DISCONNECTORS AT GIVEN OVERCURRENT PROTECTION



Particular designs of Modeion switch-disconnectors can be used together with the assigned device (circuit breaker, fuse-link) at the spot of electrical circuit where the value of initial peak short-circuit current I_k is lower or max equal to the related value from the table:

Backup protective device	Type of Modeion switch-disconnector I_{cm} [kA]/400 V a.c.				
	BC	BD	BH	BL1000	BL1600
BC160 (all overcurrent releases types)	25	25	25	25	25
BD250 (all overcurrent releases types)	18	18	36[1], 65[2]	36[1], 65[2]	36[1], 65[2]
BH630 (all overcurrent releases types)	–	–	36[1], 65[2]	36[1], 65[2]	36[1], 65[2]
BL1000 (all overcurrent releases types)	–	–	–	50	50
BL1600 (all overcurrent releases types)	–	–	–	–	50
PN, PLN, PHN gG max. $I_n = 125$ A[3]	100	•[3]	•[3]	•[3]	•[3]
PN, PLN, PHN gG max. $I_n = 224$ A[3]	–	65	•[3]	•[3]	•[3]
PN, PHN gG max. $I_n = 500$ A[3]	–	–	65	•[3]	•[3]
PN, PHN gG max. $I_n = 630$ A[3]	–	–	–	65	65

Notes:

[1] Additional values in table 1) are related to the back-up circuit breaker of design N.

[2] Additional values in table 2) are related to the back-up circuit breaker of design S.

[3] Max value of initial peak short-circuit current that enables the usage of switch-disconnector with backup fuse-links of lower rated currents (see [3]) is determined on the basis of equality of their limited current i_c.

- I_n rated current of backup fuse-link has to be min by one degree lower than I_e rated current of the switch-disconnector.
- Given values are valid for voltage 400 V a.c.

NOTES

GLOSSARY OF TERMS

Note: Precise wording of definitions and texts relating to a given term are detailed in the respective standards, see Name.

Name	Symbol	Explanation
Rated operating voltage EN 60947-1; 4.3.1.1	U_e	Voltage fixed by the manufacturer. Several pertinent tests relate to its determination, as may also the utilization category. Along with the rated (operating) current, it determines the device's utilization. The highest value of rated operating voltage may in no case be greater than the value of the rate insulation voltage U_i.
Rated insulation voltage EN 60947-1; 4.3.1.2	U_i	Voltage measure to which are related tests of dielectric strength and creepage distance.
Rated current EN 60947-2; 4.3.2.3	I_n	Current value of particular circuit breaker that can be handled uninterruptedly. The highest current valued tripping the circuit breaker in conformity with a specifically stated tripping characteristic.
Reduced rated current	I_R	Specifically established, reduced value of I_n current for a regulated time-dependent (thermal) release and that the circuit breaker can handle continuously. Maximum setting is at value equal to I_n. Changing I_R moves the release's tripping characteristic along the current axis. $I_r = k \times I_n$ holds where $k \leq 1$
Tripping time at a given I_r multiple	t_R	Time after which circuit breaker will trip, if a current flows through it that is equal to the given multiple of I_R. Changing t_R moves the tripping characteristic along the time axis.
Release current of independent instantaneous (selective) release	I_{sd}	Minimum current value that causes tripping of the time-independent delayed release.
Delay of time-independent delayed release	t_{sd}	If a current flows through the circuit breaker equal to at least I_{sd} but not reaching I_{sd} the circuit breaker will trip with time delay t_{sd}. Total switching off time is influenced by the tripping of the circuit breaker itself and is about 10 ÷ 20 ms longer.
Release current of independent instantaneous (short-circuit) release	I_i	Minimum current value that causes tripping of the time-independent instantaneous release.
Rated operating current EN 60947-1; 4.3.2.3	I_e	Rated operating current of device (switch-disconnector) is fixed by the manufacturer with consideration for the rated operating voltage, rated frequency, rated operation, utilization category and type of protective cover, if that comes into consideration.
Rated normal current EN 60947-1; 4.3.2.4	I_u	Current value set by the manufacturer and which the device can handle in continuous operation, i.e. during a period longer than 8 hours (weeks, months, or longer).
Rated short-circuit ultimate breaking capacity EN 60947-2; 2.15.1; 4.3.5.2.1	I_{cu}	Value of ultimate short-circuit breaking capacity expressed as the rms value of the alternating component of the assumed short-circuit current that the circuit breaker must be able to manage in the mode: 1x switching off of the short-circuit and a following 1x make-break sequence. After testing, the circuit breaker need not be able to conduct the rated current uninterruptedly. I_{cu} is set for the rated operating voltage at the rated frequency and at the established power factor for alternating current or at the time constant for direct current. Must fulfil the condition: $I_{cu} \geq I_k''$
Rated short-circuit service breaking capacity EN 60947-2; 2.15.2; 4.3.5.2.2	I_{cs}	Value of the operating short-circuit breaking capacity expressed as the rms value of the alternating component of the assumed short-circuit current that the circuit breaker must be able to manage in the mode: 1x switching off of the short-circuit and a following 2x make-break sequence. May also be expressed as a percentage of I_{cu}. After testing, the circuit breaker must be able uninterruptedly to conduct the rated current and to switch off the overcurrent. Temperature increase of the main terminals may be greater. I_{cs} is set for the rated operating voltage at the rated frequency and at the established power factor for alternating current or at the time constant for direct current. Permitted $I_{cs} \geq I_k''$
Rated short-time withstand current EN 60947-1; 4.3.6.1 EN 60947-2; 4.3.5.4 EN 60947-3; 4.3.6.1	I_{cw}	Value of short-time withstand current specified by the manufacturer that the device is able to handle without damage during a designated time period (short-time delay). In case of alternating current, it is the rms value of the alternating component of the assumed short-circuit current I_p.

GLOSSARY OF TERMS

Note: Precise wording of definitions and texts relating to a given term are detailed in the respective standards, see Name.

Name	Symbol	Explanation
Rated short-circuit making capacity EN 60947-1; 4.3.6.2 EN 60947-2; 4.3.5.1 EN 60947-3; 4.3.6.2	I_{cm}	Value of short-circuit making capacity specified by the manufacturer for the rated operating voltage at the rated frequency and at the established power factor for alternating current or at the time constant for direct current. It is expressed as the maximum assumed peak current. Must fulfil the condition: $I_{cm} \geq i_p$
Initial peak short-circuit current EN 60909-0; 1.3.5	I_k''	Short-circuit current value at the moment of its arising at a given point in the electrical distribution expressed as the rms value of the alternating symmetrical component of the assumed short-circuit current.
Surge short-circuit current EN 60909-0; 1.3.8	i_p	Maximum possible momentary value of the assumed short-circuit current. (Corresponds to the moment the short arises, as a result of which there occurs the peak value of the short-circuit current.)
Prospective short-circuit current EN 60947-1; 2.5.5 EN 60909-0; 1.3.3	I_p	Short-circuit current value, which would flow through the circuit if the protection device were replaced and a short-circuit were experienced by conductors with negligible impedance. (In a three-phase distribution, it is assumed that the short-circuit is simultaneous in all phases.)
Rated impulse withstand voltage EN 60947-1; 4.3.1.3	U_{imp}	Peak value of the voltage impulse of the prescribed form and polarity which the device is able to withstand without failure at the established conditions and pertinent to which is the value of the separating air distance. U_{imp} of the device must be equal to or higher than the value established for momentary overvoltage at the point in the circuit (overvoltage category) where the device is used.
Overvoltage category EN 60947-1; 2.5.60		Numerically defined level of momentary overvoltage, i.e. overvoltage having its origin in atmospheric or switching. Standard EN 60664-1 establishes for electrical equipment the overvoltage categories: **Overvoltage category IV** - service entrance, outside lead **Overvoltage category III** - fixed wiring **Overvoltage category II** - appliances **Overvoltage category I** - light-current appliances
Rated frequency EN 60947-1; 4.3.3	f_n	Frequency of the supply network for which the device is proposed and that corresponds to its other characteristics values.
Utilization category (circuit breakers – time selectivity) EN 60947-2; 4.4		Utilization category of circuit breaker establishes whether or not the circuit breaker specifically is intended for providing selectivity by means of intentional time delay (timing selectivity) with other protective devices connected in series on the load side in short-circuiting conditions. **Utilization category:** **A** - circuit breakers are not specifically intended for providing timing selectivity **B** - circuit breakers are specifically intended for providing timing selectivity
Utilization category (switch-disconnectors – switching mode) EN 60947-3; 4.4		Utilization category defines the assumed use of switch devices (switch-disconnectors). Characterized by values of current and voltage, expressed as multiples of rated operating current and rated operating voltage, and further by power factors or time constants of the circuit. **Utilization category:** **AC-21B (DC-21B)** - infrequent switching of resistive loads, including moderate overloading **AC-22B (DC-21B)** - infrequent switching of mixed resistive and inductive loads, including moderate overloading **AC-23B (DC-23B)** - infrequent switching of motor loads or other highly inductive loads
Pollution degree EN 60947-1; 2.5.58; 6.1.3.2		Pollution degree relates to the conditions of the surrounding environment for which the device is intended. **Pollution degree:** **1** - No contamination will occur, or only dry, non-conducting contamination. **2** - Normally occurs only non-conducting contamination, but sometimes there may occur temporary conductibility due to condensation. **3** - There occurs conductive contamination or dry non-conducting contamination that with the effect of condensation will become conductive. **4** - Contamination generates continuous conductibility, by means of, for example, conductive dust, rain or snow.

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ELEKTROTECHNICKÝ ZKUŠEBNÍ ÚSTAV

ELECTROTECHNICAL TESTING INSTITUTE - CZECH REPUBLIC
ELEKTROTECHNISCHE PRÜFANSTALT - TSCHECHISCHE REPUBLIK
INSTITUT ELECTROTECHNIQUE D'ESSAIS - RÉPUBLIQUE TCHÈQUE
ЭЛЕКТРОТЕХНИЧЕСКИЙ ИСПЫТАТЕЛЬНЫЙ ИНСТИТУТ - ЧЕШСКАЯ РЕСПУБЛИКА

Pod Lisem 129, 171 02 Praha 8 - Troja

CERTIFICATE

No.: 1140353

Product: Circuit breakers

Type: BH 630N, BH 630S (plug-in and withdrawable construction)

Rating: Ue = 690 V, Iu = 630 A, 50/60 Hz, Ics = 8 kA

Ordering firm: OEZ s. r. o.
Šedivská 339, 561 51 Letohrad, Czech Republic

Manufacturer: OEZ s. r. o.
Šedivská 339, 561 51 Letohrad, Czech Republic

Trade mark:

The test results are stated in the test-report No.: 400660-01/01 of: 28.04.2014

A sample of the product was found to be in conformity with:
ČSN EN 60947-1ed.4:08+A1:11, ČSN EN 60947-2 ed.3:07+1:07+A1:10+A2:13

The validity of the certificate is limited to: 30.4.2017

28.4.2014

Prague

Miroslav Sedláček
Head of Certification Body

elektrotechnický zkušební ústav ezú -1- Pod Lisem 129, 171 02 Praha 8, Troja

Stamp

400660-01

410

OEZ

ES PROHLÁŠENÍ O SHODĚ / *CE DECLARATION OF CONFORMITY*

Číslo / *No.* : **211807/1405**

My / *We,* **OEZ s.r.o.**
Šedivská 339, 561 51 Letohrad, Česká republika

prohlašujeme na svou výlučnou odpovědnost, že
declare on our own responsibility that

Výrobek: Jističe
Product: Moulded case circuit breakers

Typ / *Type*: BH630

Příslušenství / *Accessory*:
BH630SE.05, BH630NE.05, SE-BH-., SP-BHD-X, SV-BHD-X, ZO-BH-0630-, ZV-BH-0630-, PS-BHD-, MB-BH-, MB-BHD-, RP-, MP-BH-X, CS-BH-..., OD-BH-, OD-BHD-, SO-BHD-, BH630NE405,BH630NE406

je ve shodě s následujícími normami:
complies with the following standards:

České normy / *Czech standards*	**Evropské normy** / *European standards*
ČSN EN 60947-1:08ed.4+A1:11 ČSN EN 60947-2:07ed.3+1:07+A1:10+A2:13	EN 60947-1:07 EN 60947-2:06

a následujícími nařízeními vlády, ve znění pozdějších předpisů (NV)
and the following government regulations (NV), as amended

NV 17/2003 Sb. v platném znění NV 616/2006 Sb. v platném znění	2006/95/ES - including amendments 2004/108/ES - including amendments

Elektrotechnický zkušební ústav, Pod Lisem 129, 171 02 Praha 71, Česká republika
zkoušel / certifikoval daný výrobek a vydal:
tested / certified the product and issued:

EZU Certifikát / *EZU Certificate*: 1140353 ze dne 28.04.2014
1140358 ze dne 29.04.2014

EZÚ zkušební protokol / *EZU test report*: 400660-01/01 ze dne 28.04.2014
400659-01/01 ze dne 29.04.2014

Poslední dvojčíslí roku, v němž bylo označení CE na výrobek umístěno: 14
Last two digits of the year in which the CE mark was placed on the product:

Místo vydání: **Letohrad**
Place of issue:

Zástupce výrobce a podpis: **Ing. Roman Schiffer**
Manufacturer's representative and signature:

Datum vydání: **07.05.2014**
Date of issue:

Funkce: **generální ředitel**
Position: *general director*

OEZ s.r.o.
Šedivská 339, Letohrad 561 51
Česká republika
IČO: 49810146, DIČ: CZ49810146

OEZ

ES PROHLÁŠENÍ O SHODĚ / *CE DECLARATION OF CONFORMITY*

Číslo / *No.* : 21184750_08/1307

My / *We*, **OEZ s.r.o.**
Šedivská 339, 561 51 Letohrad, Česká republika

prohlašujeme na svou výlučnou odpovědnost, že
declare on our own responsibility that

Výrobek: Odpínače
Product: Switch-disconnectors

Typ / *Type*: BH630NE...-630-V

Příslušenství / *Accessory*:

je ve shodě s následujícími normami:
complies with the following standards:

České normy / *Czech standards*	**Evropské normy** / *European standards*
ČSN EN 60947-3:10 ed3+A1:12 ČSN EN 60947-1:08 ed4+A1:11	EN 60947-3:09 EN 60947-1:07

a následujícími nařízeními vlády, ve znění pozdějších předpisů (NV)
and the following government regulations (NV), as amended

NV 17/2003 Sb. v platném znění Low Voltage Directive NV 616/2006 Sb. v platném znění EMC Directive	2006/95/ES - including amendments 2004/108/ES-including amendments

Elektrotechnický zkušební ústav, Pod Lisem 129, 171 02 Praha 71, Česká republika
zkoušel / certifikoval daný výrobek a vydal:
tested / certified the product and issued:

EZU Certifikát / *EZU Certificate*: 1130271 ze dne 19.04.2013
EZÚ zkušební protokol / *EZU test report*: 301531-01/01 ze dne 10.04.2013

Poslední dvojčíslí roku, v němž bylo označení CE na výrobek umístěno: 13
Last two digits of the year in which the CE mark was placed on the product:

Místo vydání: **Letohrad**
Place of issue:

Zástupce výrobce a podpis: **Ing. Roman Schiffer**
Manufacturer's representative and signature:

Datum vydání: **16.07.2013**
Date of issue:

Funkce: **generální ředitel**
Position: *general director*

OEZ s. r. o.
Šedivská 339, Letohrad 561 51
Česká republika
IČO: 49810146, DIČ: CZ49810146

SUMMARY OF MODELS AND ACCESSORIES

3P 4P

CONNECTING SETS

Clamp terminals — CS-BH-T011

Block terminals — CS-BH-B011, CS-BH-B012

Double block terminals — CS-BH-B021, CS-BH-B022

Block terminals — CS-BH-B031, CS-BH-B032

Block terminals — CS-BH-B014

Rear connection — CS-BH-A021

Front connection — CS-BH-A011

Potential terminals — CS-BH-PS01

HAND DRIVES

RP-BH-CK..
RP-BHD-CP..

RP-BHD-CH..
RP-BHD-CH..

Mechanical parallel switching
RP-BHD-CD10

Mechanical interlocking
RP-BHD-CB10

Mechanical blocking with Bowden cable
MB-BH-PV04
MB-BHD-PV03

MOTOR DRIVES MP-BH-X...
OD-BHD-KA02
OD-BHD-PP01

SWITCHING UNIT
BH630SE30S
BH630NE30S

PLUG-IN DEVICE
ZO-BH-0630-300

WITHDRAWABLE DEVICE
ZV-BH-0630-300

SWITCHES PS-BHD-...
Simple — Double — Make-and-break — Early

SHUNT TRIP SV-BHD-X...

UNDERVOLTAGE RELEASE SP-BHD-X...

OVERCURRENT RELEASES
SE-BH-....1D01
SE-BH-....DTV3
SE-BH-....MTV8
SE-BH-....MTV9

SWITCH-DISCONNECTOR UNIT
SE-BH-0630-V001
SE-BH-0630-4D01

ACCESSORIES TO ZO... AND ZV...
Connecting cable
OD-BHD-KA01

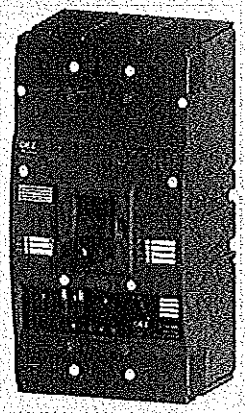
Signalling of position
SO-BHD-0010

Keying set
OD-BH-KK01

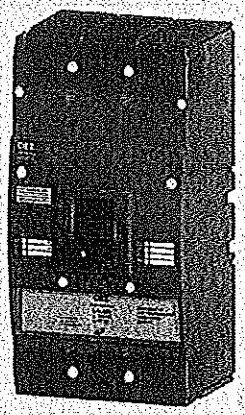
ACCESSORIES
Lever with locking — OD-BH-UP01
Sealing insert — OD-BH-VP01
Additional cover for overcurrent release — OD-BH-VP02
Terminal cover — OD-BH-KS03
Insulating barriers — OD-BHD-KS02

CIRCUIT BREAKERS, SWITCH-DISCONNECTORS

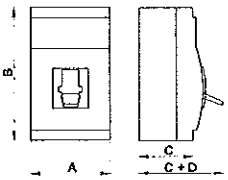
3P 4P



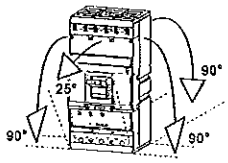
Circuit breaker



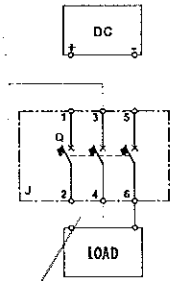
Switch-disconnector



Dimensions



Installation positions - fixed, plug-in and withdrawable design



Connection of switch-disconnector for DC circuits

Specifications

		CIRCUIT BREAKER	SWITCH-DISCONNECTOR
Type		BH630N, BH630S	
Dimensions A x B x C + D (3P/4P design)		140/185 x 275 x 105 + 49 mm	140/185 x 275 x 105 + 49 mm
Weight (3P/4P design)		5.4/7.4 kg	5.4 kg
Standards		EN 60947-2 IEC 60947-2	EN 60947-3 IEC 60947-3
Approval marks		CE EAC PCT UA	
Number of poles		3, 4	3, 4
Rated current	I_n	250, 315, 400, 500, 630 A	-
Rated normal current	I_u	630 A	630 A
Rated operating current	I_e	-	630 A
Rated operating voltage	U_e	max. 690 V a.c. -	max. 690 V a.c. max. 440 V d.c.
Rated frequency	f_n	50/60 Hz	50/60 Hz
Rated impulse withstand voltage	U_{imp}	8 kV	8 kV
Rated insulation voltage	U_i	690 V	690 V
Utilization category (selectivity)	690 V a.c.	A	-
Utilization category (switching mode)	690 V a.c. 440 V d.c.	- -	AC-23B DC-23B
Rated short-time withstand current at U_e = 690 V a.c.	I_{cw} / t	8 kA/50 ms, 7 kA/300 ms, 6.5 kA/1 s	7.5 kA/5 s
Series		NORMAL BH630N / SUPERIOR BH630S	U_e
Rated short-circuit ultimate breaking capacity (rms) [1]	I_{cu}	60 kA / 100 kA	230 V a.c.
		36 kA / 65 kA	415 V a.c.
		20 kA / 35 kA	500 V a.c.
		15 kA / 20 kA	690 V a.c.
Rated short-circuit service breaking capacity (rms)	I_{cs}	40 kA / 75 kA	230 V a.c.
		18 kA / 36 kA	415 V a.c.
		10 kA / 20 kA	500 V a.c.
		8 kA / 15 kA	690 V a.c.
Rated short-circuit making capacity (peak value)	I_{cm} / U_e	75 kA -	140 kA 415 V a.c.	14 kA/415 V a.c. 14 kA/440 V d.c.
Switching off time at I_{cu}		20 ms	-
Losses per 1 pole fixed/withdrawable design		75 W/85 W	75 W/85 W
Mechanical endurance		20 000 cycles	20 000 cycles
Electrical endurance		5 000 cycles	5 000 cycles
Switching frequency		120 cycles/hr	120 cycles/hr
Control force		110 N	110 N
Degree of protection from front side of the device		IP40	IP40
Degree of protection of terminals		IP20	IP20
Operating conditions			
Reference ambient temperature		40 °C	40 °C
Ambient temperature range		-40 ÷ +55 °C	-40 ÷ +55 °C
Working environment		dry and tropical climate	dry and tropical climate
Climatic resistance		EN 60068	EN 60068
Pollution degree		3	3
Max. sea level		2 000 m	2 000 m
Seismic resistance		3g (8 ÷ 50) Hz	3g (8 ÷ 50) Hz
Design modifications			
Front/rear connection		•/•	•/•
Plug-in design 3P/4P		•/•	•/•
Withdrawable design 3P/4P		•/•	•/•
Accessories			
Switches - auxiliary/relative/signal/early		•/•/•/•	•/•/•/•
Shunt trip		•	•
Undervoltage release/with early switch		•/•	•/•
Front hand drive/with adjustable lever		•/•	•/•
Mechanical interlocking-with Bowden cable/for hand drive		•/•	•/•
Motor drive/with counter of cycles		•/•	•/•
Lever with locking		•	•
Bolt sealing insert/additional cover for overcurrent release		•/•	•/•

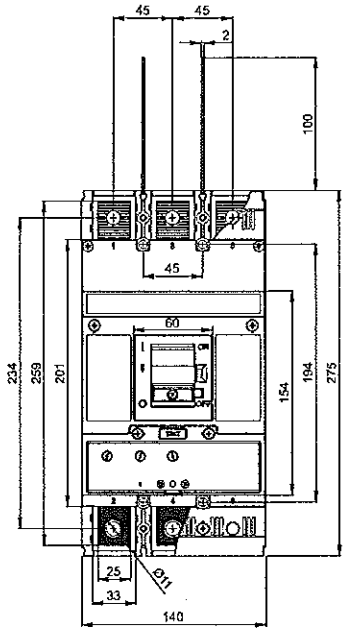
• available, – unavailable, + being prepared

[1] - in case circuit breaker connection is reversed (input terminals 2, 4, 6, output terminals 1, 3, 5) it does not change
- protection of Modelon switch-disconnectors, see page R

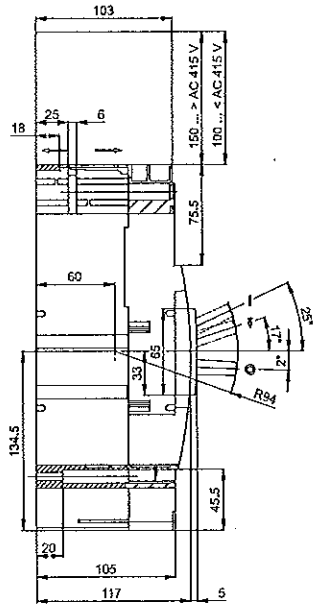
CIRCUIT BREAKERS, SWITCH-DISCONNECTORS

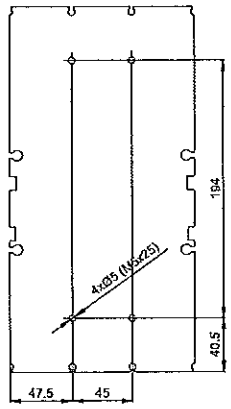
Dimensions

Fixed design, front connection

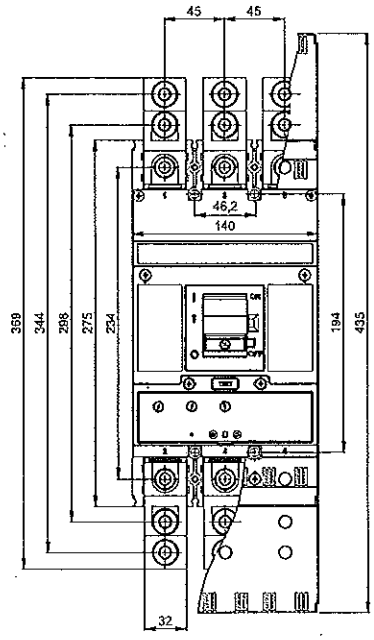


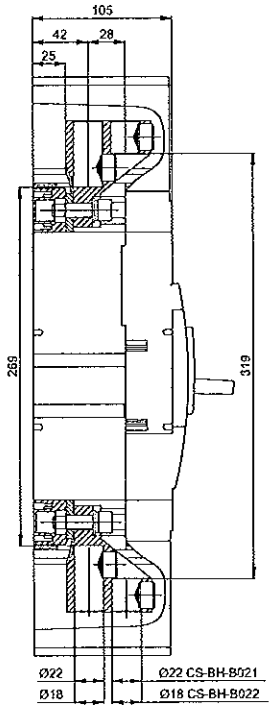
Drilling diagram





Fixed design, front connection (CS-BH-B021, CS-BH-B022 connecting sets)





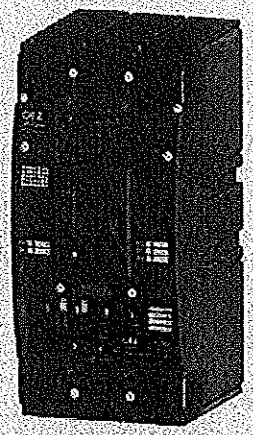
Modeion

BH630N, BH630S техническа информация

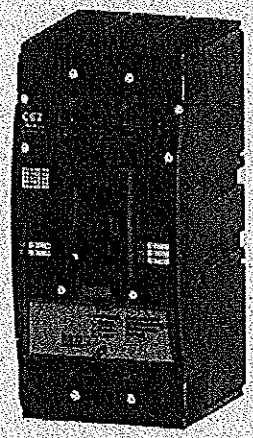
Техническо описание – български език

прекъсвачи, разединители

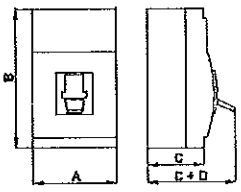
3P 4P



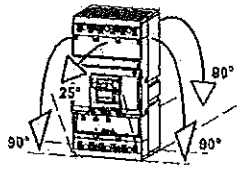
прекъсвач



разединител



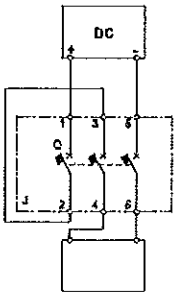
размери



Инсталационни позиции - фиксирана,плуг-ин,изтеглен дизайн

Спецификации

Спецификации		Прекъсвач	Разединител
Вид		**BH630N, BH630S**	
Размери A x B x C + D (3P/4P дизайн)		140/185 x 275 x 1052+49мм	140/185 x 275 x105+49мм
Тегло (3P/4P дизайн)		3кг / 4кг	3 кг /4 кг
Стандарти		EN 60947-2, IEC 60947-2	EN 60947-3, IEC 60947-3
Одобрена маркировка		CE GS PCG	
Брой на полюсите		3, 4	3, 4
Номинален ток	I_n	250, 315,400,5000,630 A	-
Нормален номинален ток	I_u	630 A	630 A
Работен номинален ток	I_e	-	250 A
Роботен номинален волтаж	U_e	max. 690 V a.c.	max. 690 V a.c. max. 440 V d.c.
Номинална честота	f_n	50/60 Hz	50/60 Hz
Номинално импулсно напрежение	U_{imp}	8 kV	8 kV
Номинално изолационно напрежение	U_i	690 V	690 V
Използваема категория (селективност)	690 V a.c.	A	-
Използзвамема категория (режим превключване)	690 V a.c. 440 V d.c.	-	AC-23B DC-23B
Номинален ток на късо съединение U_e = 690 V a.c.	I_{cw} / t	6,5 kA/1 s	7,5 kA/5 s
Серии		NORMAL BD250N / SUPERIOR BD250S	U_e -
Номинална пределна отключваща способност на късо съединение (ефективна стойност (rms) [1])	I_{cu}	60 kA 100 kA 230 V a.c. 36 kA 65 kA 415 V a.c. 16 kA 25 kA 500 V a.c. 10 kA 13 kA 690 V a.c.	единение -
Номинална работна отключваща способност на късо съединение (ефективна стойност (rms) [1])	I_{cs}	30 kA 50 kA 230 V a.c. 18 kA 36 kA 415 V a.c. 8 kA 13 kA 500 V a.c. 5 kA 8 kA 690 V a.c.	-
Номинална работна отключваща способност (пикова стойност)	I_{cm} / U_e	75 kA 140 kA 415 V a.c. - - -	4 kA/415 V a.c. 4 kA/440 V d.c.
Време на изключване при I_{cu}		20 ms	-
Загуби на един полюс/стационарни / изваден състояниен		75 W/85 W	75 W/85 W
Механическа износоустойчивост		20 000 cycles	20 000 cycles
Електрическа износоустойчивост		5 000 cycles	5 000 cycles
Честота на префключване		120 cycles/hr	120 cycles/hr
Сила на управление		110 N	110 N
Степен на защита отпред		IP40	IP40
Степен на зашита на терминалите		IP20	IP20
Работни условия			
Нормална температура на околната среда		40 °C	40 °C
Диапазон на температурата на околната среда		-40 °C ÷ +55 °C	-40 °C ÷ +55 °C
Работна среда		Сух и тропичен климат	Сух и тропичен климат
Климатична устойчивост		EN 60068	EN 60068
Степен на замърсяване		3	3
Максимална височина на д.морското равнище		2 000 m	2 000 m
Вибрационна устойчивост		3g (8 ÷ 50) Hz	3g (8 ÷ 50) Hz
Модификации на конструкцията			
Предна/задна връзка		•/•	•/•
Подвижно изпълнение		•/•	•/•
Изваждаемо изпълнение		•/•	•/•
Принадлежности			



Изключватели-спомагателни/относителни/сигнали/изпреварващи	•/•/•/•	•/•/•/•
Независим разединител	•	•
Разединител на минимално напрежение/с изпреварващо изключване	•/•	•/•
Ръчен преден привод с регулируем лост	•/•	•/•
Механична блокировка – с бронирано – за ръчно управление	•/•	•/•
Моторен привод с брояч на циклите	•/•	•/•
Лост с блокировка	•	•
Вкладк на винта за пломбиране/допълнително капаче на разединителя по максимален ток	•/•	•/•

• достъпен, – недостъпен, +в процес на подготовка

[1] - в случай, че връзката на прекъсвача е обратна (входни терминали 2, 4, 6, изходни терминали 1, 3, 5) I

Не се зарежда

- Защита на Modion разединители, вижте стр. R

OEZ

ENGLISH
ČESKY

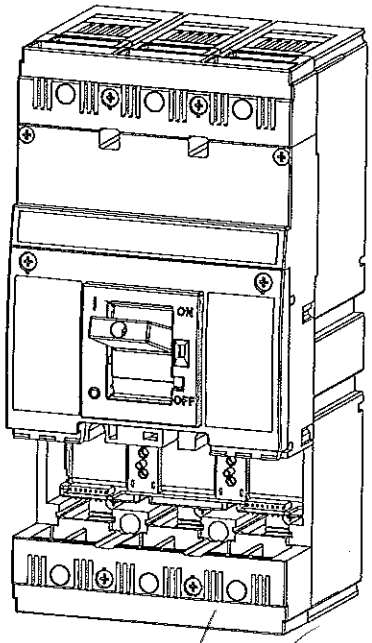
INSTRUCTIONS FOR USE, NÁVOD K POUŽITÍ

SWITCHING UNIT
SPÍNACÍ BLOK

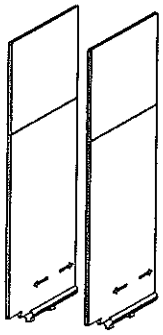
BH630NE305
BH630SE305

1

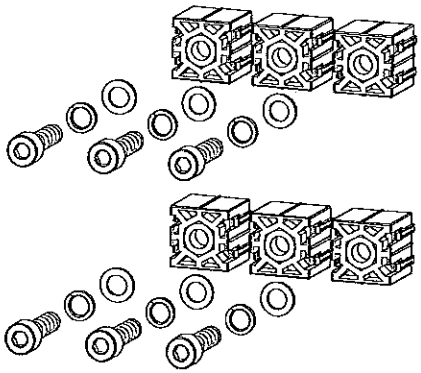
BH630NE305
BH630SE305



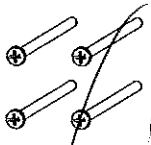
OD-BHD-KS02



2x CS-BH-A011



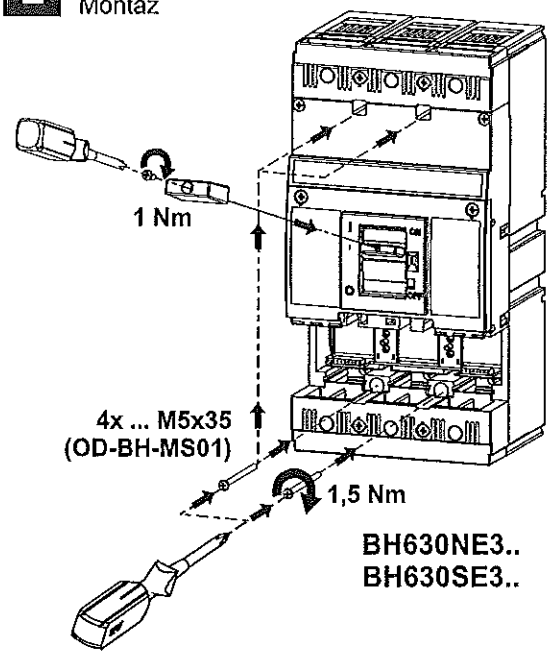
OD-BH-MS01

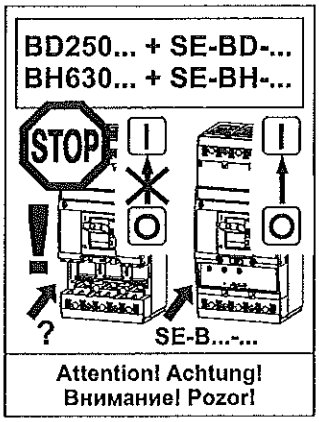


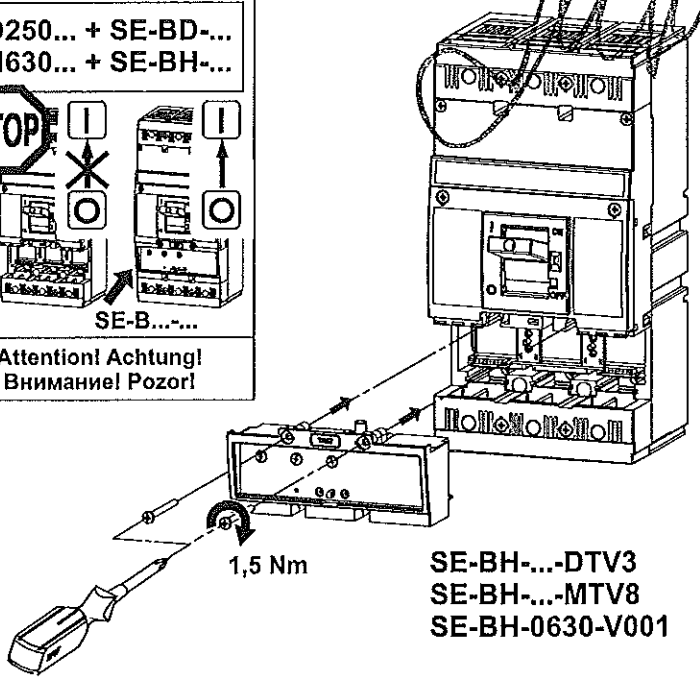
Installation, service and maintenance of the electrical equipment may be carried out by an authorized person only.

Montáž, obsluhu a údržbu smí provádět jen osoba s odpovídající elektrotechnickou kvalifikací.

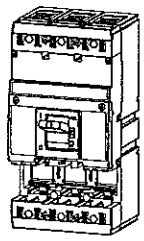
2 Mounting
Montáž





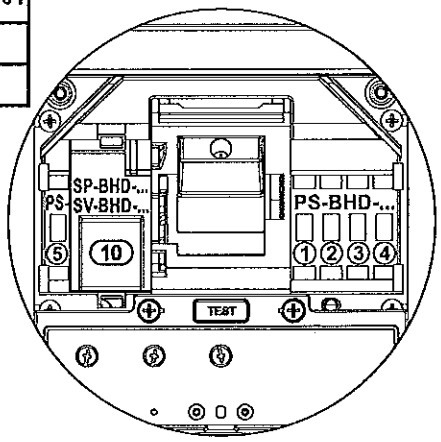


Do not operate the switching block BH630... without overcurrent release or blinding block (SE-BH...) !!!
Spínací blok BH630... se nesmí provozovat bez nadproudové spouště nebo zaslepovacího bloku odpínače (SE-BH...) !!!



	SE-BH-...-L001 SE-BH-...-DTV3	SE-BH-...-MTV8 SE-BH-...-MTV9	SE-BH-0630-V001
BH630NE3..	●	●	●
BH630SE3..	●	●	●

Combination : ● ... Yes ; ▬ ... No
Kombinace : ● ... Ano ; ▬ ... Ne



3

1)* 1 = switched on sepnuto / 0 = switched off rozepnuto	①			②			③÷⑤			⑩	②③	②③	②③
	PS-BHD-1000	PS-BHD-0100	PS-BHD-0010	PS-BHD-1000	PS-BHD-0100	PS-BHD-0010	PS-BHD-1000	PS-BHD-0100	PS-BHD-0010	SP-BHD-0002	PS-BHD-2000	PS-BHD-1100	PS-BHD-0200
2)* State of circuit - breaker Stav jističe	.3 .1 .2 .4 / .4 .2 .1-.2 .1-.4			.3 .1 .2 .4 / .4 .2 .1-.2 .1-.4			.3 .1 .2 .4 / .4 .2 .1-.2 .1-.4				.3 .3 / .4 .4	.1 .3 / .2 .4	.1 .1 / .2 .2
I	1	0	0 1	0	1	1 0	1	0	0 1	1	0	1 1	0 1	0 0
O	1	0	0 1	0	1	1 0	0	1	1 0	0	1	0 0	1 0	1 1
SE-B ...	0	1	1 0	1	0	0 1	0	1	1 0	0	1	0 0	1 0	1 1
MP-B ... TEST SP-B ... SV-B ...	1	0	0 1	1	0	0 1	0	1	1 0	0	1	0 0	1 0	1 1

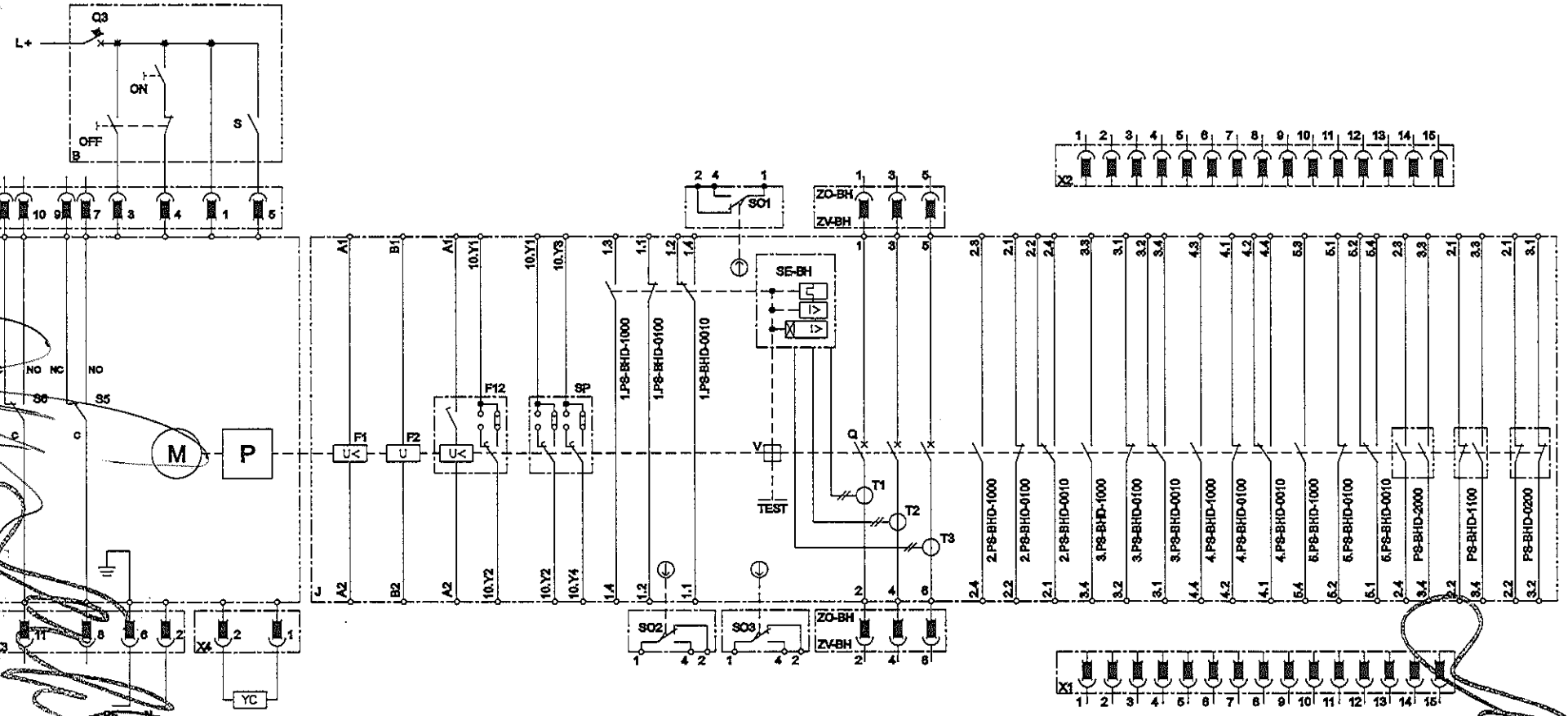
③÷⑤ **Auxiliary switch**
Pomocný spínač

② **Relative switch**
Relativní spínač

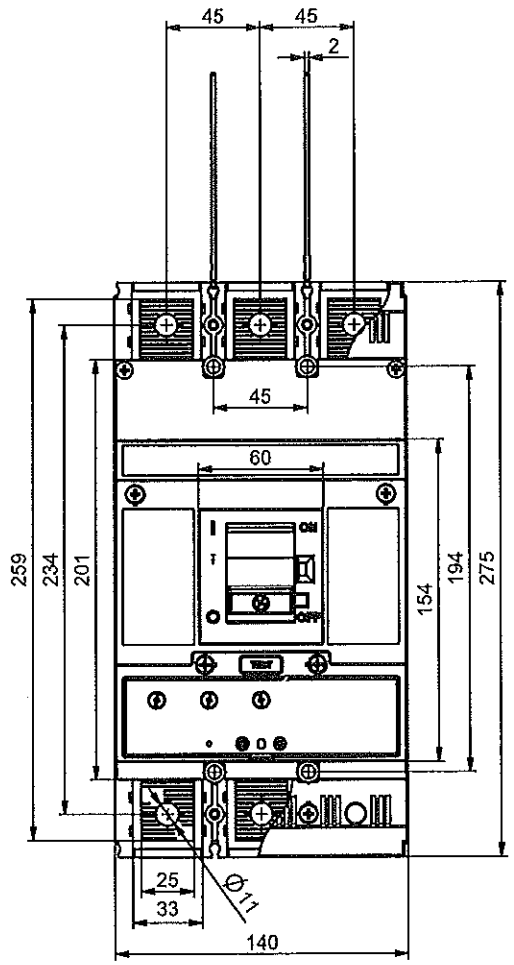
① **Signal switch**
Návěstní spínač

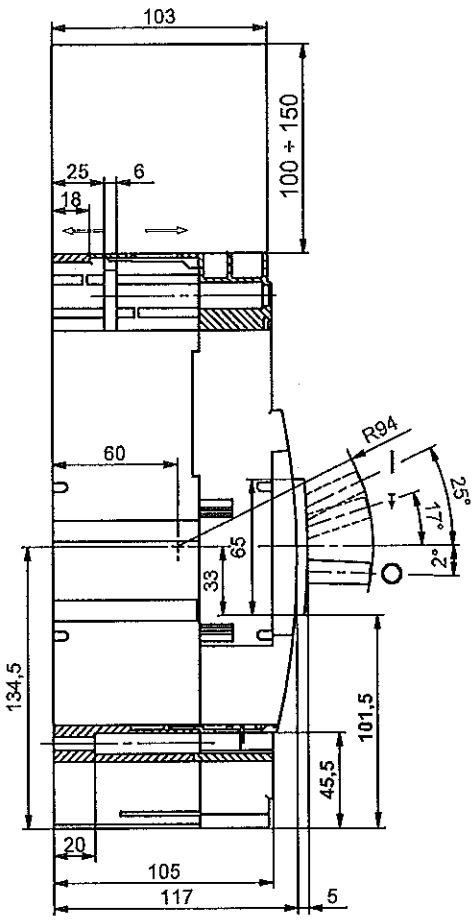
⑩ **Auxiliary releases**
Pomocné spouště

CIRCUIT BREAKER BH630..305 WITH ACCESSORIES
JISTIČ BH630..305 S PŘÍSLUŠENSTVÍM

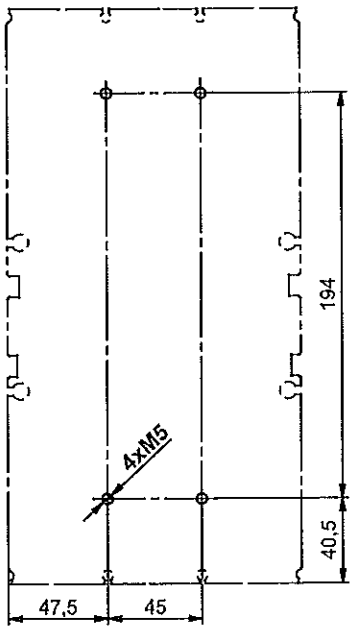


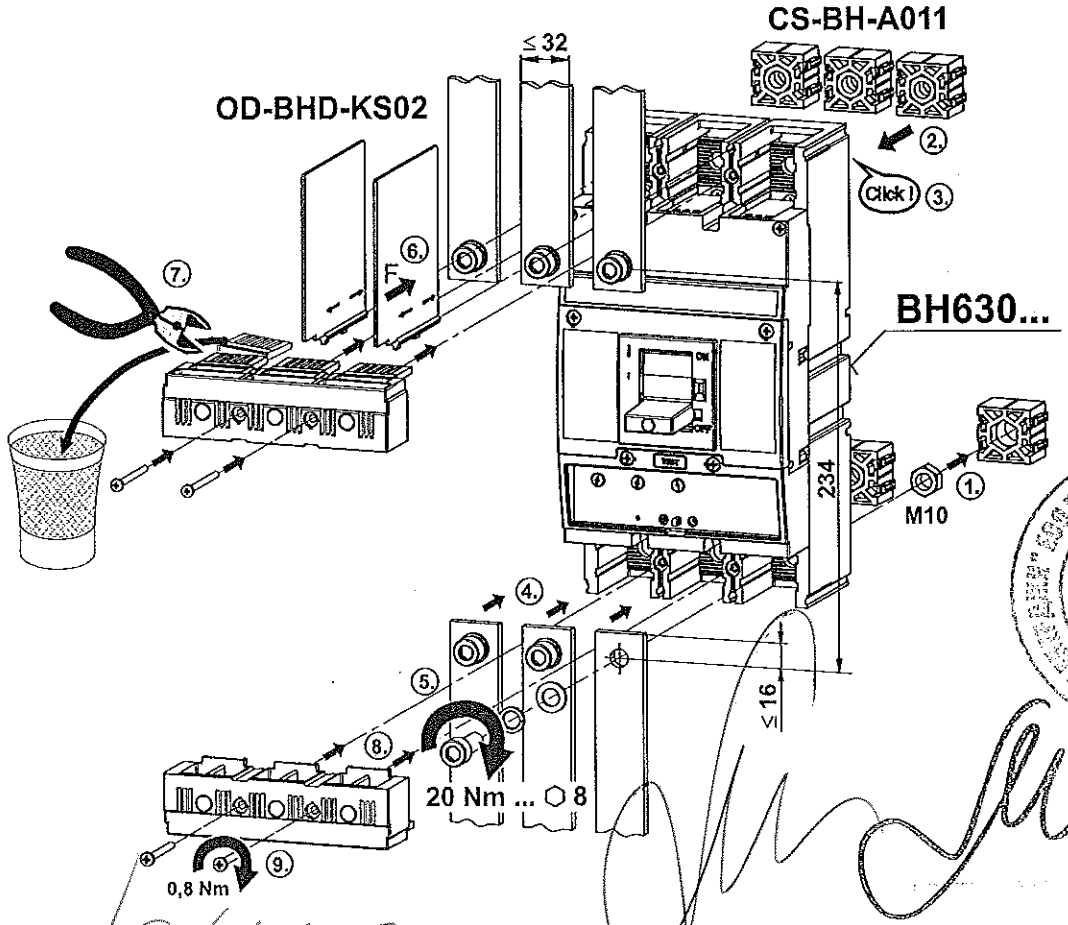
5 FIXED DESIGN, FRONT CONNECTION
PEVNÉ PROVEDENÍ, PŘEDNÍ PŘÍVOD



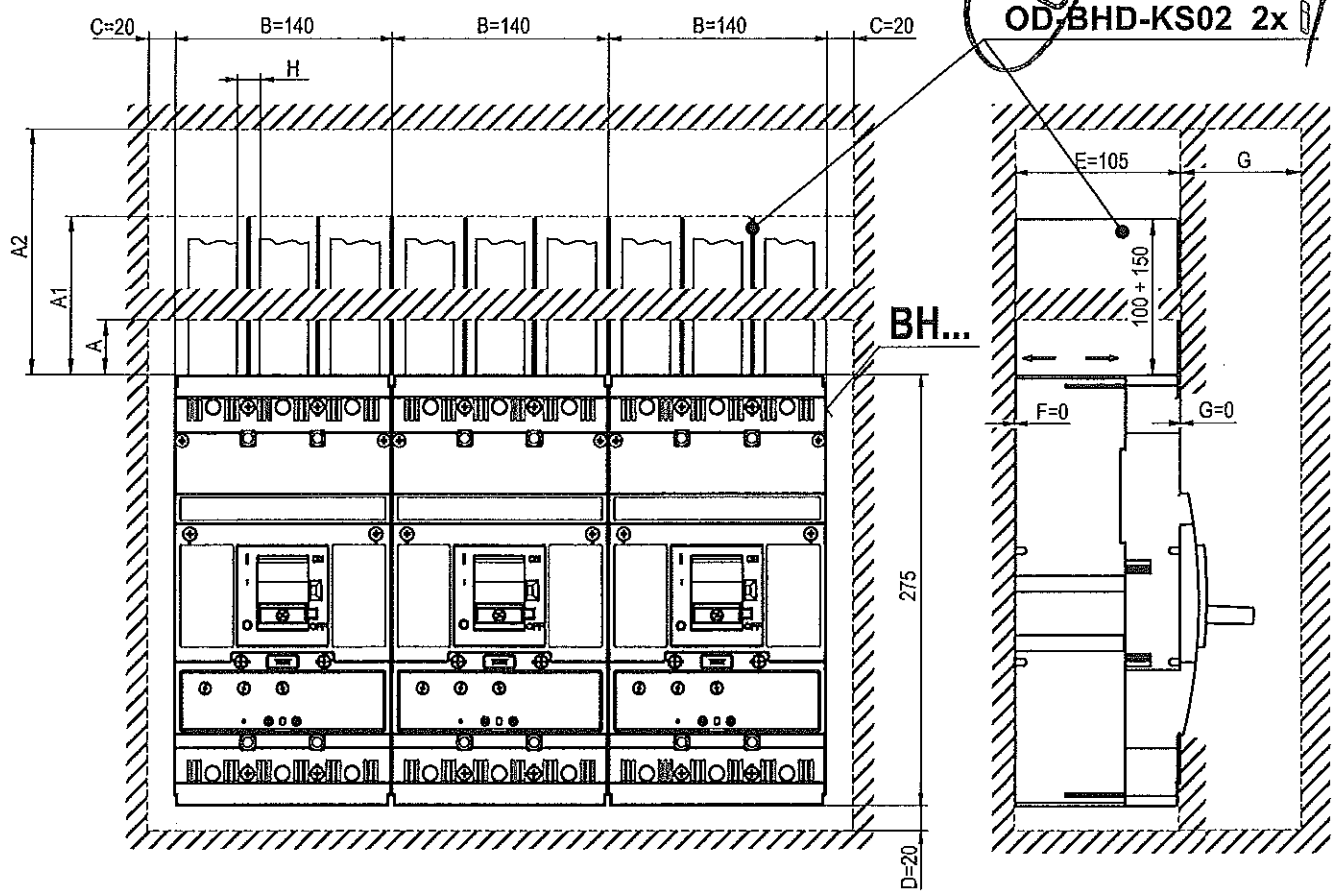


DRILLING DIAGRAM
VRTACÍ PLÁN





6 MINIMUM DEIONIZATION SPACE WITHOUT EARTHED METALLIC CONSTRUCTIONS
MINIMÁLNÍ DEIONIZAČNÍ PROSTOR BEZ KOVOVÝCH UZEMNĚNÝCH KONSTRUKCÍ



A - minimum distance between the circuit breaker and bare wall (this is valid for insulated conductors, cables, flexi bars or rear connection)
- minimální vzdálenost mezi jističem a neizolovanou uzemněnou stěnou (platí pro izolované vodiče, kabely, flexibary nebo zadní přívod)

A1 - minimum length of insulation of bare conductors (with use of insulating barriers OD-BHD-KS02 from 100 mm to max. 150 mm, possibly with additional insulation of conductors above the barriers to A1 level)
- minimální délka izolace holých vodičů (použitím izolačních přepážek OD-BHD-KS02 od 100 mm do max. 150 mm, případně doplňkovou izolací vodičů nad přepážkami minimálně na hodnotu A1)

A2 - minimum distance between the circuit breaker and bare wall (this is valid for bare conductors and busbars), ... between the conductor and busbar, ... between two circuit breakers installed vertically above each other, ... between bare leads of two circuit breakers above each other
- minimální vzdálenost mezi jističem a neizolovanou uzemněnou stěnou (platí pro neizolované vodiče a sběrnice), ... mezi jističem a sběrnicí, ... mezi dvěmi jističi umístěnými vertikálně nad sebou, ... mezi neizolovanými přívody dvou jističů nad sebou

C, D, E, F, G - minimum distance between circuit breaker and bare earthed wall
- minimální vzdálenost mezi jističem a neizolovanou uzemněnou stěnou

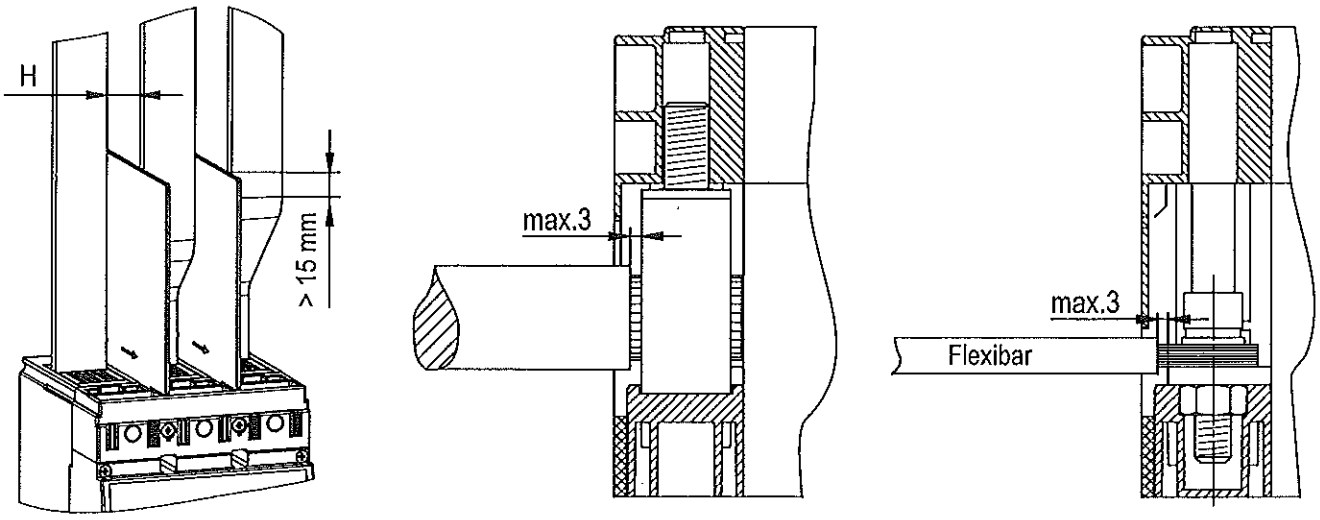
H - minimum distance between bare conductors
- minimální vzdálenost mezi neizolovanými vodiči

BH630			U=230 V AC	U=230 V AC	U=415 V AC	U=415 V AC	U=500 V AC	U=500 V AC	U=690 V AC	U=690 V AC
G	H		Icu < 60 kA	Icu ≥ 60 kA	Icu < 36 kA	Icu ≥ 36 kA	Icu < 20 kA	Icu ≥ 20 kA	Icu < 15 kA	Icu ≥ 15 kA
0 + 79 mm	≥ 13 mm	A	50 mm	50 mm	50 mm	50 mm	50 mm	50 mm	50 mm	50 mm
		A1	100 mm	150 mm	100 mm	200 mm	150 mm	200 mm	150 mm	250 mm
		A2	200 mm	250 mm	200 mm	300 mm	250 mm	300 mm	250 mm	350 mm
	≥ 30 mm	A	50 mm			50 mm				
		A1	100 mm			150 mm				
		A2	150 mm			200 mm				
> 80 mm	≥ 13 mm	A	50 mm			50 mm				
		A1	100 mm			150 mm				
		A2	150 mm			200 mm				

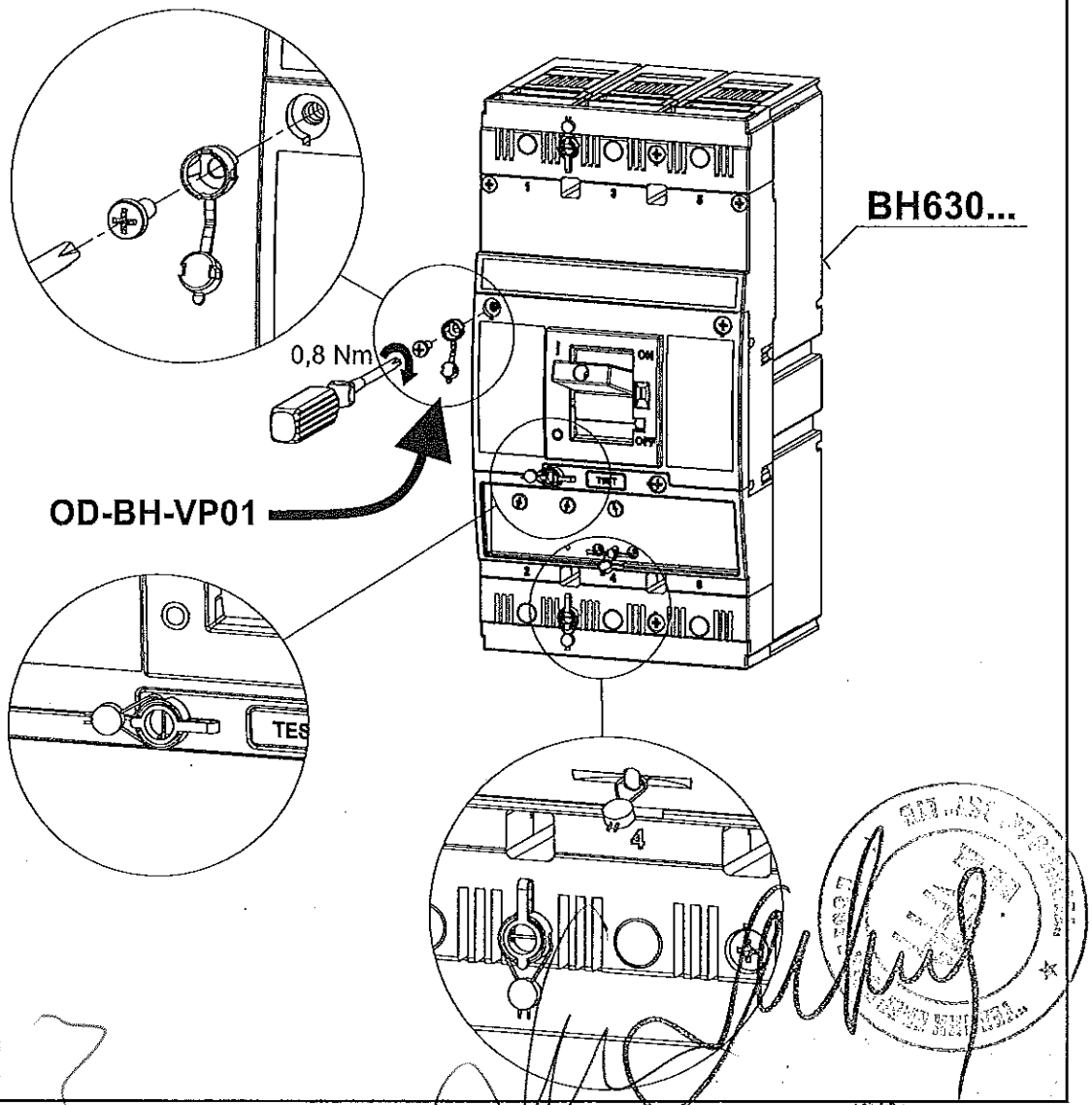
7

In use of insulated conductors, cables, flexi bars or rear connection, it is not necessary to use OD-BHD-KS02 insulating barriers for U ≤ 415V AC.

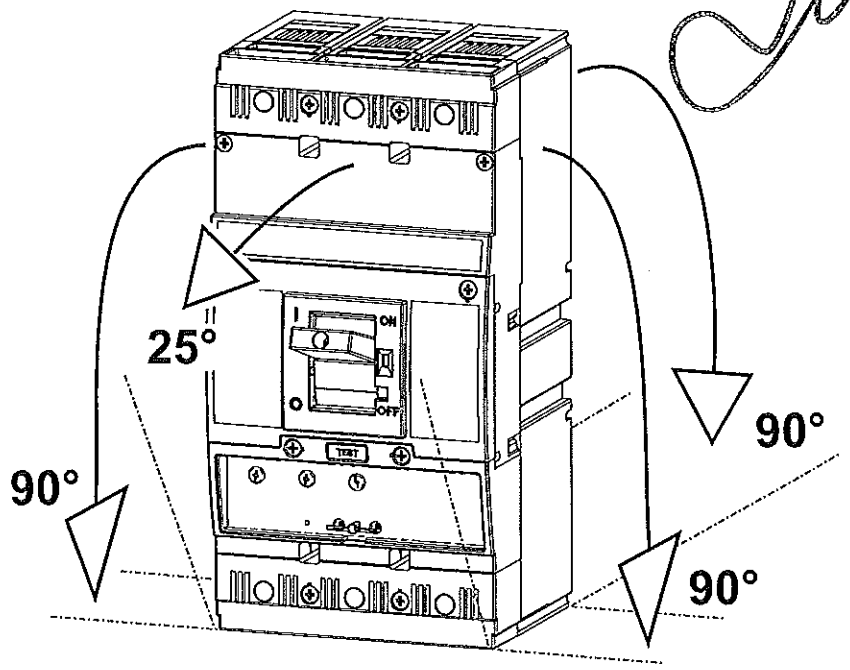
Při použití izolovaných vodičů, kabelů, flexibarů nebo zadního přívodu není nutné do U ≤ 415V AC použít izolační přepážky OD-BHD-KS02.



8 Sealing
Plombování



9 Operating positions
Pracovní polohy



10 **Only materials which have low adverse environmental impact and which do not contain dangerous substances as specified in ROHS directive have been used in the product.**

Ve výrobku jsou použity materiály s nízkým negativním dopadem na životní prostředí, které neobsahují zakázané nebezpečné látky dle ROHS.

425

Инструкция за експлоатация на български

Коммутационен блок – BH630NE305, BH630SE305

1 Монтаж, експлоатация и поддръжка може да се извършва само от лице с подходяща електротехническа квалификации

2 Монтаж

! Коммутационен блок BD250...забранява се използването му без разединител на максималния ток или блок разединител (SE-BD...)!!!

Комбинация:
o ... да
-... не

3

(1)	-PS-BHD-...	Сигнал включен
(2)	-PS-BHD-...	Сигнал изключен
(3)	-PS-BHD-...	Помощно изключване
(10)	-SP-BHD-..., SV-BHD-...	Помощно освобождаване

1) 1= включен
0= изключен
2) * Състояние на автоматичния изключвател

4 Автоматически разединител BD250..305 с аксесоари

5 Стационарно изпълнение
Предно подвеждане
План за рзапробиване

6 Пломбирование

7 Минимално. дейонизация пространство без заземени метални конструкции
A - Минималното разстояние между прекъсвача и неизолирани заземени стена (валиден за изолирани проводници, кабели, гъвкави ленти или задната връзка)
A1) минимална дължина на изолация на голи проводници (с използване на изолационни бариери OD-BHD-KS02 от 100 mm до макс. 150 mm, с възможност за допълнителна изолация на проводници над бариерите за ниво A1)
A2 - Минималното разстояние между прекъсвача и неизолирани заземени стена (валиден за неизолирани проводници и шини),
. между прекъсвача и шината
. между два прекъсвача, поставени вертикално един над друг
. между неизолирани входове между два прекъсвача един над друг
C, D, E, F, G - Минимално разстояние между автоматичен прекъсвач и неизолирана заземена стена
H - Минимално разстояние между голите проводници

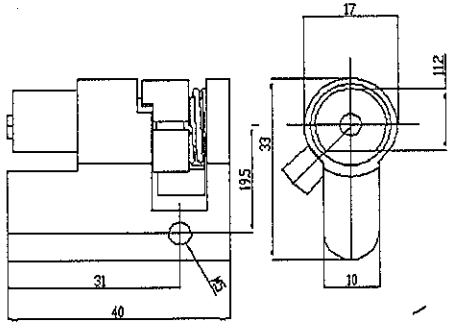
8 При июползване на изолирани проводници, кабели, гъвкави шини или заднен вход до U < 415 V променлив ток няма необходимост да се използват изолационни прегради OD-BHD-KS02 .

9 Работно положене

10 В изделията са използвани материали с малко негативно влияние на околната среда, които не съдържат забранени опасни вещества, указани в директива ROHS.

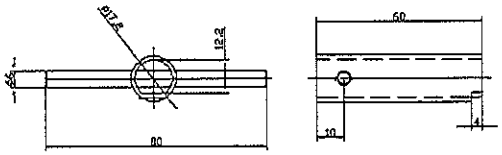
11 План за разпробиване

Халф цилиндъра тип "Полумесец"



код: 1102.546.2

Галванизиран стоманен ключ



код: 1103.30.1

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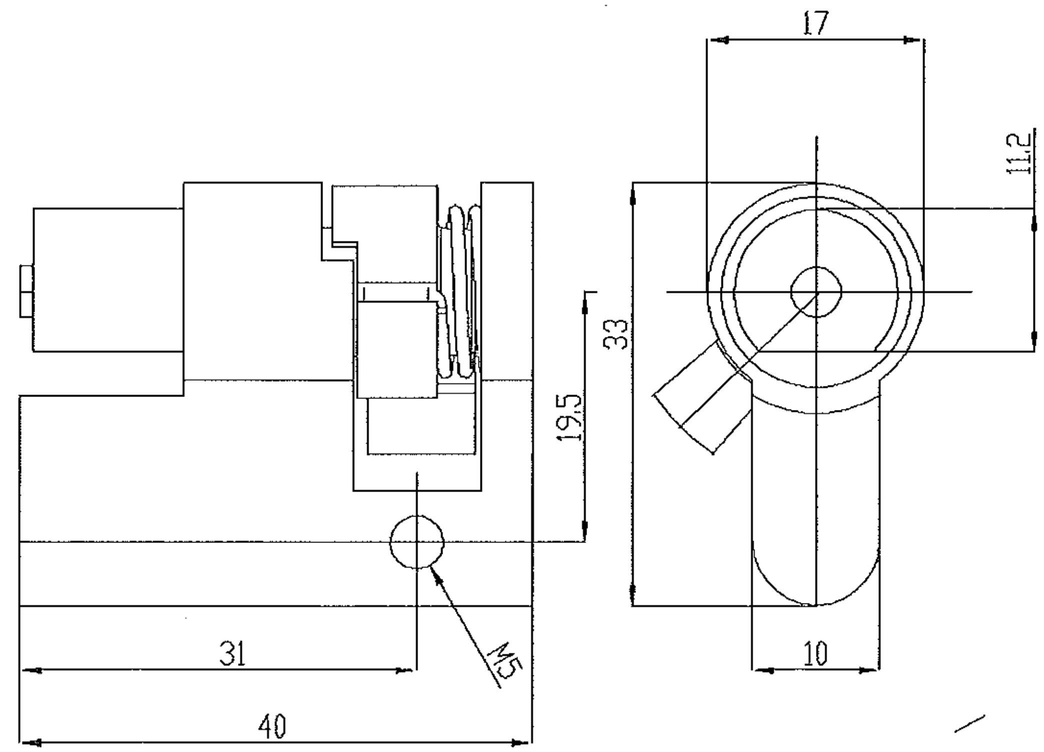
Прил. 1.2.12

Халф цилиндъра тип "Полумесец"



Халф цилиндъра тип "Полумесец" е предназначен за заключване на електроразпределителни съоръжения, намиращи се в експлоатация в електрическата разпределителна мрежа на дружеството

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КОДКИЙ ТЕКНОЛОДЖИС ООД

фабрика Ст.Загора, ул."Индустриална „1;факс.042 620332; тел:042 620 796
e-mail:codkey@mail.bg

Приложение 2.2.2

ДЕКЛАРАЦИЯ ЗА СЪОТВЕТСТВИЕ

Ние ,производителят:

Кодкий Текнолоджис ООД
Гр.Пловдив,ул."Копривките „13А
Гр.Стара Загора ул."Индустриална"1
Тел/факс 042 664101;620332

Декларираме на собствена отговорност ,че посочените по-долу продукти отговарят на изискванията на техническата спецификация посочена в документацията по търг PPD 14-044, PPD 14-045 и PPD 14-046 за електромерни табла.

- **Галванизиран стоманен ключ**
- **Халф цилиндър тип „Полумесец"**

Производството и контрола на вложените в продуктите детайли и възли е по изискванията на действащата система за управление на качеството ISO 9001:2008
Фирма Кодкий Текнолоджис ООД е сертифицирана по ISO 9001:2008 със сертификационнен номер 7510040312 от TUV Rheinland Bulgaria

Стара Загора
01.08.2014

Управител:
Крум Нанев

КОДКИЙ ТЕКНОЛОДЖИС ООД

ДЕКЛАРАЦИЯ ЗА СЪОТВЕТСТВИЕ

Ние ,производителят:

Кодкий Технолоджис ООД
Гр.Пловдив,ул."Копривките „13А
Гр.Стара Загора ул."Индустриална"1
Тел/факс 042 620776;620332

Декларираме на собствена отговорност ,че посочените по-долу продукти отговарят на изискванията на EN 1303:2005

- **Брава едностранна тип 1 с вграден секрет**
- **Брава тристранна тип 3 с вграден секрет**
- **Ключалка едностранна Халф**

Както следва:

-По т.4.3 Надежност на ключалката

Изследването е проведено в съответствие изискванията на т.5.3 на БДС EN1303 съгласно РИУСК 7.5.1.-101**/табл. 1/**

- По т.4.7 Корозоустойчивост

Изследването е проведено в съответствие изискванията на т.5.7 на БДС EN1303 съгласно РИУСК 8.2.4-001 РИУСК 8.2.4-004 РИУСК 8.2.4-005 **/табл. 1/**

- **По т.4.8.2Ниво на секретност**

Съгласно EN 1303 се гарантира от производителя
Определя се по формулата $a_1^m . a_2^m . a_3^m . b . c$ **където**

a_1 **-брой дълбочини по първа ос**
a_2 **-брой дълбочини по втора ос**
a_3 **-брой дълбочини по трета ос**
m **- брой позиции**
b **- брой щифтове**
c **-брой премествания**

/табл. 1/

- **По т.4.8.3 Минимален брой подвижни застопоряващи щифтове**

Съгласно EN 1303 се гарантира от производителя.
В разработената Мастер система удовлетворяваща изискванията за контрол на достъпа на ЧЕЗ България АД

- **минималния брой подвижни застопоряващи щифтове за второ ниво - 15**
- **минимален брой подвижни застопоряващи щифтове за първо ниво - 9**

/табл. 1/

- По т.4.9.1 Устойчивост на разпробиване

Изследването е проведено в съответствие изискванията на т.5.9.1 на БДС EN1303 съгласно РИУСК 7.5.1.-102**/табл. 1/**

4,30

Таб.

Точка от стандарт EN 1303:2005	Изискване	Покрито ниво
4.3.	Надеждност	Ниво 6 – 100 000 цикъла
4.7.	Корозионна устойчивост -цилиндри	Ниво С – висока корозионна и температурна устойчивост от -20° до + 80°С
	- брави и компоненти	Ниво А – висока корозионна
4.8.2	Ниво на секретност	Ниво 6 – над 5 000 000 комбинации
4.8.3.	Минимален брой подвижни щифтове	Ниво 6 – 15 щифта
4.9.1	Издържливост на механична атака	Ниво 2 – 10 мин.

Са произведени във фирма „Кодкий Текнолоджис"ООД в съответствие с правото на собственост на търговската марка вписано в Държавен регистър на марките с рег.№34447; БДС EN 1303-2005; и ISO 9001:2008

Производството и контрола на вложените в продуктите детайли и възли е по изискванията на действащата система за управление на качеството ISO 9001:2008

Фирма Кодкий Текнолоджис ООД е сертифицирана по ISO 9001:2008 със сертификационен номер 7510040312 от TUV Rheinland Bulgaria

При монтажа и експлоатацията на продуктите да се спазват изискванията в съпровождащите документи-ръководство за употреба и гаранция.

Стара Загора
21.05.2013

Управител:
/Крум Нацев/

431

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КОДКИЙ ТЕКНОЛОДЖИС ООД

CERT ISO 9001

Инструкция за съхранение и монтаж на Халф цилиндър тип"Полумесец" в комплект с галванизиран стоманен ключ

I.Съхранение

1.До монтиране: изделието да се съхранява в закрити помещения.
2.Да се пази от влага.
3.При транспортиране да се пази от удар и намокряне.

II. Монтаж

Монтажът на Халф цилиндър тип"Полумесец" съобразено с конструкцията на бравата.

1. Монтирайте винаги секретната част на ключалкат към външната страна на вратата.
2. Закрепването на ключалката към бравата става посредством винт М5.
3. Не насилвайте ключа с инструменти.
4. Не поставяйте ключалката в бравата с усилие.
5. Не използвайте неизправни ключове.
6. Не използвайте ключа като дръжка на врата.
7. Вкарвайте изцяло ключа преди да го завъртите.

Моля , не смазвайте ключалките !

Стара Загора
21.05.2013

Управител:
/Крум Нацев/

ТЕХНИК ЕНЕРДЖИ ЕООД ВАРНА TECHNIC ENERGY LTD

codkey TECHNOLOGIES

КОДКИЙ ТЕКНОЛОДЖИС ООД

фабрика Ст.Загора, ул."Индустриална „1;факс.042 620332; тел:042 620 776
e-mail:codkey@mail.bg

Приложение: 2.2.5

ДЕКЛАРАЦИЯ

Ние ,производителят:

Кодкий Текнолоджис ООД
Гр.Пловдив,ул."Копривките „13А
Гр.Стара Загора ул."Индустриална"1
Тел/факс 042 664101;620332

Декларираме на собствена отговорност ,
че посочените по-долу продукти са изработени от материали, които подлежат на рециклиране.

- **Галванизиран стоманен ключ**
- **Халф цилиндър тип „Полумесец"**

Стара Загора
01.08.2014

Управител:
Крум Нанев

codkey TECHNOLOGIES

КОДКИЙ ТЕКНОЛОДЖИС ООД

фабрика Ст.Загора, ул."Индустриална „1;факс.042 620332; тел:042 620 776
e-mail:codkey@mail.bg

Приложение: 2.2.6

Материалите вложени в изделията:

- Галванизиран стоманен ключ
- Халф цилиндър тип „Полумесец"

Не представляват потенциална заплаха за увеличаване опасността и рисковете от замърсяване на околната среда и класификация на отпадъците съгласно Наредба №3/2004 г. за класификация на отпадъците, издадена от министъра на околната среда и водите и министъра на здравеопазването, обн. ДВ, бр. 44 от 25.05.2004 г.

Стара Загора
01.08.2014

Управител:
Крум Нанев

СРОКОВЕ ЗА ДОСТАВКА И ОПАКОВКА

I. Срокове за доставка

№	Наименование	Миним. размер на партида (Z), бр.	Кол-во със срок на доставка до 7 кал. дни, в бр.	Кол-во със срок на доставка до 30 кал. дни, в бр.
1	2	3	4	5
1	Електромерно табло за индиректно измерване, за монтиране на фасада	1	**250**	**1 250**
2	Електромерно табло за монтиране на фасада/стълб до 250А	10	**60**	**250**
3	Електромерно табло с основа и стабилизираща плоча до 250А	10	**60**	**250**
4	Електромерни табла НН за индиректно измерване до 630 А	10	**60**	**250**

Забележки:

1/ Срокът на доставките започва да тече от датата на изпращане на поръчката.

2/ Количествата в колона 4, със срок на доставка до 7 /седем/ календарни дни, се доставят след поръчка до посочените в обявлението складове на Възложителя за покриване на спешни нужди на Възложителя.

Възложителят може до поръчва посоченото спешно количество веднъж месечно.

3/ В случай, че крайният срок на доставката съвпада с празничен или неработен ден, то доставката се извършва не по-късно от първия работен ден след изтичането на срока.

4/ При поръчки на Възложителя на количества в рамките на посочените по-горе в колони 4 и 5 и недоставени в посочените срокове, ще бъдат налагани неустойки, съгласно условията на договора.

5/ Възложителят може да поръча количества по-малки от посочените в колони 4 и 5, но не по-малки от минималния размер на партидата, посочен в колона 3 за съответния вид електромерно табло и V - клема.

6/ Възложителят може да поръчва количества по-високи от посочените в колони 4 и 5, като това обстоятелство ще бъде посочено текстово в съответната поръчка изпратена към Изпълнителя. С потвърждението на поръчката, Изпълнителят вписва в същата очаквана дата за доставка на количествата електромерни табла и V - клема, надвишаващи посочените в колони 4 и 5.

7/ Количествата за доставка в колони 4 и 5 са отделни и независими едно от друго.

8/ Количествата за доставка в колона 5 не включват в себе си количествата за доставка в колона 4.

9/ Възложителят има право да направи едновременно поръчки за доставка на количества от колони 4 и 5.

II. Опаковка

№	*Наименование на материала*	*Минимален размер на партида бр.*	*Вид минимална опаковка*	*Брой на стоката в минимална опаковка*	*Вид транспортна опаковка*	*Брой на стоката в транспортна опаковка*	*Размери на транспортната опаковка в см. /Д х В х Ш/*	Общо бруто тегло, кг
1	Електромерно табло за индиректно измерване, за монтиране на фасада	1	Вълнообразен картон	1	палет	12	1200x800 x200	769
2	Електромерно табло за монтиране на фасада/стълб до 250А	10	Вълнообразен картон	1	палет	9	1200x800 x200	673
3	Електромерно табло с основа и стабилизираща плоча до 250А	10	Вълнообразен картон	1	палет	9	1200x800 x200	907
4	Електромерни табла НН за индиректно измерване до 630 А	10	Вълнообразен картон	1	палет	9	1200x800 x200	1 060

ВЪЗЛОЖИТЕЛ: **ИЗПЪЛНИТЕЛ:**

Приложение 4

ДОСТАВЧИК

(пълно наименование на фирмата)

ПРИЕМО-ПРЕДАВАТЕЛЕН ПРОТОКОЛ

№

Договор №

...../.....**г.**

ПОЛУЧАТЕЛ:

Централен склад - .....

Поръчка №

Дата на предаване на стоката:

Днес, ...г., беше извършено предаване и приемане на следните материали:

SAP № на стоката	**Наименование на стоката**	**Количество, бр.**

Куриер (*посочва се името на куриерската фирма, извършила доставката)*	
Общ брой Евро палети	
Транспортно средство – камион *(посочва се регистрационния номер)*	
Придружаващи доставката документи	Декларация за съответствие
	Опаковъчен лист, изготвен съгласно т.х на Договора
	Инструкции за съхранение, транспортиране и монтиране
	Комплект документи за отдел УДКК
Забележка *(попълва се при необходимост)*	

Предал:

.....

(име и фамилия)

.....

(длъжност)

(подпис)

Приел:

.....

(име и фамилия)

.....

(длъжност)

(подпис)

Приложение 5

ОПАКОВЪЧЕН ЛИСТ

ДОСТАВЧИК *(име и адрес на фирмата)*	**Поръчка(и) за покупка №:** *(дата)*
ПОЛУЧАТЕЛ	*(име и адрес на фирмата)*
Вид транспортно средство	
Регистрационен номер на транспортното средство	
Име на куриерската фирма, извършила доставката	
Общ брой Евро палети в транспорното средство	
Място на съставяне	
Дата на съставяне	

SAP № на стоката	**Наименование на материала**	**Минимална опаковка**		**Транспортна опаковка**			
		Вид	**Брой**	**Вид**	**Брой**	**Размери на транспортната опаковка в см. /Д х В х Ш/**	**Общо бруто тегло, кг**

Име и фамилия на отговорното лице,
съставило Опаковъчния лист:

.....

.....
(подпис)

ПРИДРУЖАВАЩИ ДОСТАВКАТА ДОКУМЕНТИ

1.1. **Изпълнителят** е длъжен да достави стоката с два комплекта документи, единият от които трябва да съдържа:

1.1.1. **Приемо-предавателен протокол**, изготвен по образец в Приложение 4, в три еднообразни екземпляри.

1.1.2. **Декларация за съответствие**, издадена от производител, която задължително да съдържа следната информация:

1.1.2.1. Име и адрес на производителя.
1.1.2.2. Име и адрес на упълномощения представител на производителя, ако има такъв.
1.1.2.3. Пълно наименование на стоката.
1.1.2.4. Директива(и).
1.1.2.5. Стандарт(и).
1.1.2.6. Дата и място на изготвяне на Декларацията за съответствие.
1.1.2.7. Име и фамилия на лицето, изготвило Декларацията за съответствие.
1.1.2.8. Подпис на лицето, изготвило Декларацията за съответствие.
1.1.2.9. Печат на производителя.

1.1.3. **Опаковъчен лист**, изготвен по образец в Приложение 5, който задължително съдържа следната информация:

1.1.3.1. Име и адрес на **Изпълнителя**.
1.1.3.2. Име и адрес на **Възложителя.**
1.1.3.3. Номер на поръчка (и) за покупка.
1.1.3.4. Дата на издаване на поръчка (и) за покупка.
1.1.3.5. Вид транспортно средство.
1.1.3.6. Регистрационен номер на транспортното средство.
1.1.3.7. Общ брой Евро палети в транспортното средство.
1.1.3.8. SAP номер на стоката.
1.1.3.9. Наименование на стоката.
1.1.3.10. Вид транспортна опаковка, брой на стоката в минимална опаковка,
1.1.3.11. Вид минимална опаковка, брой на стоката в транспортна опаковка,
1.1.3.12. Размери на транспортната опаковка в см/Д х В х Ш/, общо бруто тегло,кг.
1.1.3.13. Място на съставяне на Опаковъчния лист.
1.1.3.14. Дата на съставяне на Опаковъчния лист.
1.1.3.15. Подпис на отговорното лице, съставило Опаковъчния лист.
1.1.3.16. **Изисквания за транспортиране, съхранение и манипулиране - само при първа доставка (за всеки склад поотделно). както и при всяка доставка до обект посочен от Възложителя.**