



Arc Fault Detection Device (RCBO version)



Residual current circuit breakers with integral overcurrent protection DIFO

EVE



Build-in switch, Build-in devices



Control equipment



Bistable switches RBS



Miniature and auxiliary contactors CE, CEC



Motor contactors CES & CEM



Motor protective circuit breakers MSP, MPE & MS

ETIBREAK



Low breaking capacity MCCBs, Low voltage MCCBs and low voltage switch disconnectors



Low voltage moulded case circuit breakers with residual current protection



Accessories



Load Break Change Over Switch LBS.CO



Motorised Change Over Load Break Switch MLBS.CO



Fuse Load Break Switch FLBS



Rotary Cam Switches



LED lighting protection



Surge arrester ETITEC group WENT, ML, C, CM, D

ETITRAFO



Single phase safety and insulating transformers



Fuse - disconnection units

C



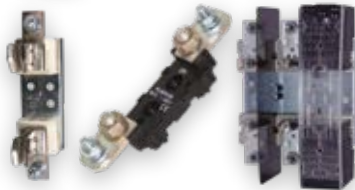
Low voltage cylindrical fuse-links CH



Fuse disconnectors for cylindrical fuse-links EFD



Fuse disconnectors for cylindrical fuse-links PCF



Fuse bases



Low voltage fuse-rails



Strip type fuse-switch-disconnectors



Disconnectors with fuses



Double insulation enclosures IP66, IK10



Metal enclosures



Free-standing cable distribution cabinets



Section rails fork, pin and SKN type, DIN rails



DIN rail distribution blocks, Accessories

ULTRA QUICK



Fuses for semiconductor devices protection

[Ultra Quick Catalogue](#)

GREEN PROTECT



Protection of Photovoltaic Systems and other renewable energy sources

[Green Protect Catalogue](#)



“I take my responsibilities very seriously, always investing myself fully. My work is not just a job, it’s my life.”

**MSc. Tomaž Berginc,
General director and CEO**

Ensuring your safety for more than 70 years

Since 1950, respect for fundamental human rights, fair business practices, responsible environmental management and safety for users of our products have played a fundamental part of our business strategy.

Today, ETI is a world's leading provider of products and services in the field of electrical installations, and an important manufacturer of technical ceramic products, tools and equipment, as well as plastic products.

A substantial element in the company's growth strategy are its subsidiaries in Slovenia and abroad, and close cooperation with selected strategic partners. ETI employs more than 1900 people, and its products are sold in more than 75 countries all over the world. The company is investing a lot into research, development and innovative activities. We are pioneers in the field of protection of battery storage and photovoltaic systems and co-creators of international standards in the field of fuses and switchgear. The quality of products and services is constantly aimed at achieving customers' satisfaction and corresponding business excellence. All our products are internationally certified and have been awarded many quality symbols.

A wide range of manufactured products allows us to implement projects in various fields, such as energy, industry, residential and commercial buildings, renewable energy systems, power electronics, semiconductor equipment, etc.

We are confident that the criteria for our success are full compliance with all the requests and needs of the electrical engineering market, providing complex solutions and implementing the assigned tasks, technical support, high qualifications of the company's employees, as well as flexibility, reliability and stability in working with our partners.

At ETI we always think of safety – so you don't have to.



1950

Establishment of the company

1954

Bergmann pipe
ETI's first electro-porcelain product

1960

Fuse
ETI was one of the first producers of safety fuses

1977

Miniature Circuit Breaker
ETI manufactures the first Miniature Circuit Breaker

1980

Automation
ETI develops its first assembly line

1997

First subsidiary
Establishment of the first subsidiary

2006

System integrator
ETI becomes a system integrator

2008

Photovoltaics
ETI is one of the pioneers in protection of photovoltaic systems

2012

ETI becomes a panel builder with its own solutions

2014

Lean principles of production
Extensive reorganisation of production for improved efficiency and value added

Six sigma principles

Introduction of Six sigma principles in all business functions

2018

Extensive switchgear production automation

2020

Opening of a new automated RCD production line



Our role in product quality and safety



Operational reliability is one of the most important criteria when choosing an electrical equipment manufacturer. Thanks to the experience that we have accumulated over the years, as well as the high level of qualifications of our specialists, we offer complex solutions, from the development and implementation of new types of products into production, to accompanying the delivery and supporting the client at all stages of the transaction.

ETI provides automated 100% control of all key parameters of each product during production, the measurements are recorded in the form of a QR code printed on the component and the product.

The high quality of ETI products is confirmed by numerous certificates of European and international standards.

Why choose ETI?



RANGE & VALUE

electrical protection and control,
constant product innovation and
production optimisation



PRODUCTION FLEXIBILITY

small enough to react quickly, large
enough to offer significant capacities



EXPERTISE

integrated service: product,
technical consulting and support



CUSTOMER ORIENTATION

solving your problem is our mission



INNOVATIVE BUSINESS CULTURE

everyone at ETI contributes to constant
development and innovation



RESPONSIBILITY & PARTNERSHIP

we always keep our promises



SAFETY

is in our genes



RESIDENTIAL AND COMMERCIAL ELECTRICAL INSTALLATIONS

- Miniature circuit breakers and residual current devices ASTI
- Modular and control devices EVE
- Surge arresters ETITEC
- Distribution boards DIDO
- Modular contactors RA, RD, R
- Low voltage fuses D, D0, C
- Low voltage NH knife-blade fuses

INDUSTRIAL ELECTRICAL INSTALLATIONS

- Low voltage NH knife-blade fuses
- Moulded case circuit breakers and switch disconnectors ETIBREAK
- Low voltage contactors ETICON
- Switch disconnectors ETISWITCH
- ATS controller ETICONTROL
- Three Phase Network Analyzer ETIMETER
- Line-up terminals ETICONNECT
- Reactive Power Compensation Components CP
- Single phase safety and insulating transformers ETITRAFO
- Distribution boards, metal enclosures and free-standing cable distribution cabinets ETIBOX
- Actuators and indicators ETISIG
- Industrial plug-in equipment ETICEE



ELECTRICAL POWER DISTRIBUTION

- Low voltage NH knife-blade fuses
- Moulded case circuit breakers and switch disconnectors ETIBREAK
- Free-standing cable distribution cabinets ETIBOX
- Air circuit breakers ETIPOWER
- High voltage fuses VV

SEMICONDUCTORS PROTECTION

- Ultra Quick fuse-links D-UQ, D0-UQ, CH-UQ
- Ultra Quick fuse-links BS-UQ
- Ultra Quick fuse-links NH
- NH gS fuses for protection of frequency converters and soft starters
- Fuse bases



SPECIAL PURPOSE FUSES

- Multimeter and metering fuses
- DC fuses, fuse bases and disconnectors
- Mining fuses
- Non standard higher voltage gG fuses and disconnectors
- Safe Work Fuses
- Power Capacitor Fuses
- Fuses for TVSS products protection
- Fuses for railway applications
- Battery Protection Fuses
- Fuel Cell Protection Fuses
- Minifuses



PROTECTION OF PHOTOVOLTAIC SYSTEMS

- Cylindrical fuse-links
- Photovoltaic fuseholders for cylindrical fuse-links
- NH fuse-links and fuse bases
- NH photovoltaic fuseholders
- Lightning and Surge Arresters
- Switch disconnectors
- Distribution boards
- Ready made DC-junction boxes



ETIGROUP



Production sites in Slovenia, Poland, Germany and BiH.



Warehouses in Slovenia, Germany, Romania, Poland, BiH, Ukraine, ...



ETI branches in **12** European countries and partners in **75** countries of the world.



72 years of consistent growth



13% of revenues from new products



36 product patents



Over **1900** employees in Europe



10% of revenues invested in R&D and technology



Regular deliveries to **75** countries of the world





PARENT COMPANY
ETI d.o.o.
Obrezija 5, 1411 Izlake
Slovenia
+386 3 56 57 570
E-mail: eti@eti.si
www.etigroup.eu
www.eti.si

SUBSIDIARIES

ETI Proplast d.o.o.

Obrezija 5,
1411 Izlake, Slovenia
+386 3 56 57 590
etiproplast@eti.si
www.etiproplast.si

ETI DE GmbH

ETI Deutschland GmbH
Schönbornstraße 4
63741 Aschaffenburg
Germany
+49 6021 90159-0
contact@de.etigroup.eu
www.eti-de.de

ETI POLAM Sp.z.o.o.

Ul. Jana Pawła II 18,
06100 Pułtusk, Poland
+48 23 691 93 00
etipolam@etipolam.com.pl
www.etipolam.com.pl

ETI SARAJEVO d.o.o.

Hifzi Bjelevca 13,
71 000 Sarajevo, BIH
+387 33 77 52 50
etisa@bih.net.ba
www.eti.ba

ETI HU Elektrotechnikai

Rokolya utca 25,
1131 Budapest, Hungary
+36 1 238 0784
eti@eti-hu.hu
www.eti-hu.hu

ETI UKRAINE

Akademika Tupoleva 19,
04128 Kiev, Ukraine
+380 44 494 21 80
office@eti.ua
www.eti.ua

ETIBALTUS, UAB

Tilžes g. 41a, 47187
Kaunas, Lithuania
+370 37 261 582
info@etibaltus.lt
www.etibaltus.lt

ETI ROMANIA S.R.L.

Str. Doina, Nr. 17, Sector 5,
Bucharest, Romania
+40 (0)21 317 1743
eti.electrice@gmail.com
www.etigroup.ro

ETI Elektroelement s.r.o.

P3 Logistics Parks,
Budova F, Paceařická
2773/1 19300 Praha - Horní
Počernice, Czech Republic
+420 226 203 490

ETI B

Zvečanska 56/17,
11000 Beograd, Serbia
+381 11 3691 092
miodrag.stojkovic@etib.rs
www.etib.rs

ETI Zagreb

Trpanjska 7,
10000 Zagreb, Croatia
+38518896814
kristijan.vlasic@etigroup.hr

ASSOCIATED COMPANIES

ITALWEBER S.p.A.

Via Risorgimento 84,
20017 Rho, Milano, Italy
+39 02 939 771
info@italweber.it
www.italweber.it

Support



Our main goal is customer's safety. It is a prerequisite for their satisfaction and satisfied customers are our guiding principle. We are doing our best to ensure they know how to install and use our products. We offer advice and technical support through the entire duration of the project and beyond. Our objective is to meet all customer needs, expectations and wishes. This is accomplished by a technically well-grounded team, who is always open to and successful in overcoming new challenges.

On our website you will find various software tools for electrical designers, which make their work easier and at the same time enable them to make better informed and technically advanced choices for their customers.

ETISON is a software application which is useful tool for drawing and analysing I/t curves of protection devices, analysing selectivity between protective devices, simulating load or short circuit response of protection devices, etc.

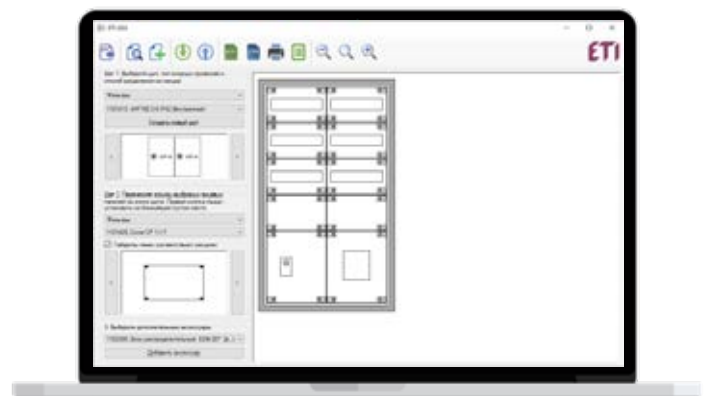
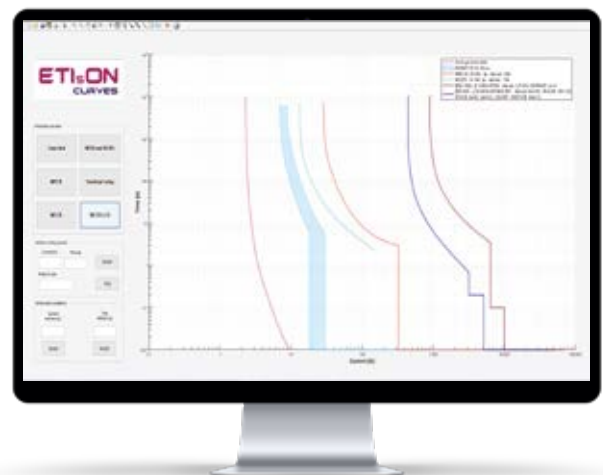
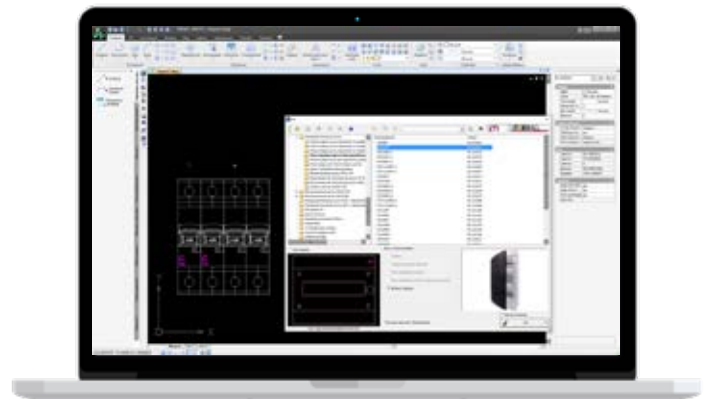
ETI CAD - Plug-in library for various CAD programs. ETI also offers over 5600 products for designers in the EPLAN database. Configurators: CP Configurator is a program for selecting a complete set of reactive power compensation devices.

Solid GSX is an application for the layout of GSX panels.

ETI ACB is a simple step-by-step configuration of ETIPOWER circuit breakers (ACB).

ATS Configurator is an application for selection and configuration of automatic transfer switchboards based on the ATS controller.

For the convenience of choosing fuses there is an online application FuseFinder, and an online configurator ETI SPD has been created for the selection of surge arresters.





ASTI

Miniature circuit breakers and residual current devices

Miniature circuit breakers	12
Residual current circuit breakers	51
Residual current circuit breakers with integral overcurrent protection	72



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/etigroup

ETI
SWITCH TO
A SAFE FUTURE

ASTI

Miniature Circuit Breakers ETIMAT - MCBs

Miniature circuit breakers ETIMAT P - NEW GENERATION



EXACT TRACEABILITY AND HIGHEST QUALITY CONTROL

Fully automated assembly line with 17 different tests and measurements during assembly process to ensure best functionality of each finished product. All important components are marked with a DMC code, containing individual test results and thus ensuring exact traceability and highest quality control of every MCB.

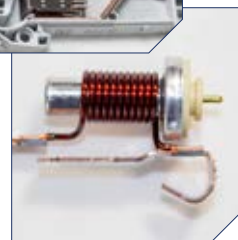
PATENTED CONSTRUCTION

The unique technology of combined thermomagnetic tripping unit with integrated thermal release prevents both manual tampering of the overload settings and material deterioration, ensuring precise and reliable overload tripping through the entire lifecycle of the MCB.



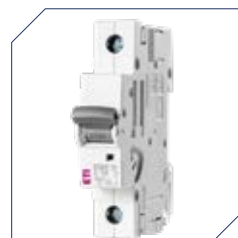
ALL DATA AVAILABLE WITH A SINGLE QR CODE SCAN

Every product has a QR code with a link to the product webpage with all relevant information, instruction manuals and other technical materials. All important technical data is printed on the front and side of the MCB. Every product is marked with EAN code.



SUPERIOR TECHNICAL FEATURES

reduced power dissipation
high electrical endurance: 20.000 operation cycles
operation in DC circuits with voltage up to 60V DC/pole
construction solutions protected by two international patents



SPECIAL RESET VERSION

In the reset version, the toggle position clearly indicates the reason for tripping, preventing user mistakes and always making it clear whether the system turning off was intentional (manual) or the result of a fault in the electrical circuit.



- /// supply possibility from top or bottom
- /// possibility to connect wires to terminals up to 25 mm²
- /// same profile as our other modular devices resulting in a coordinated and streamlined look to the installation

/// The possibility of mounting up to 3 auxiliary / signal switches



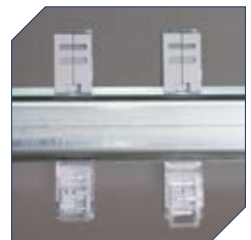
/// 4-module devices are equipped with sturdy pins, thus ensuring a rigid / smooth movement of the toggles. All the MCBs also offer enough space for marking labels.



/// Double connection possibility - all MCBs can be simultaneously connected to busbar and conductor, both from above and below



/// NO WOBBLE™ technology new snapping unit enables easy, firm and secure DIN-rail mounting and replacement



/// Trip-free mechanism ensures that MCB trips even if the toggle is held in ON position

/// Separate indication of contacts' real state (independent of the toggle position) ensures additional user safety

/// Green flag: contacts open, red flag: contacts closed



/// The possibility of mounting a terminal cover

/// The possibility of locking the handle in the "ON/OFF" position



/// Better protection of terminals against touching the parts under voltage

/// "ON/OFF" mark on the switch button

/// The possibility of sealing in "ON" or "OFF" position



Miniature circuit breaker ETIMAT P6

Rated short-circuit capacity
6 kA

Rated current
0,5 - 63 A

Tripping characteristic
B, C, D

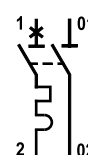
Technical data

Rated voltage	240/415V AC; max 60V DC/pol
Min. operating voltage	12V AC/DC
Max operating voltage	250/440V AC
Rated current	0,5-63A
Rated frequency	50/60Hz
Rated insulation voltage	500V
Rated impulse withstand voltage	6kV (acc. to 60947-2)
Shock resistance	30g, min 2 shocks, t=13ms
Rated short-circuit capacity	6 kA
Energy limiting class	3; B,C
Tripping characteristic	B, C, D
Back-up fuse	100A gG
Index of protection	IP 20 (IP 40)
Terminals	1-25mm ² , min 1,4Nm / max 2,5Nm
Terminal screw	M5 (Pozidrive PZ2)
Mechanical endurance	20.000 op. cycles
Electrical endurance	20.000 op. cycles
Ambient temperature	max -40°C ... +70°C
Storage temperature	max -60°C ... +70°C
Supply possibility	top or bottom
Build-in width	18mm/pol
Insulating class	B
Overvoltage category	III
Pollution degree	2
Mounting on the rail	EN 60715
Mounting position	any
Sealing possibility	✓
Terminal cover	✓
Contact position indicator	✓
Locking device	✓
Resistance to vibrations acc. to IEC 60068-2-7	5g (10,60 & 500Hz)
Standards	IEC/EN 60898-1, IEC 60947-2

1p



1p+n



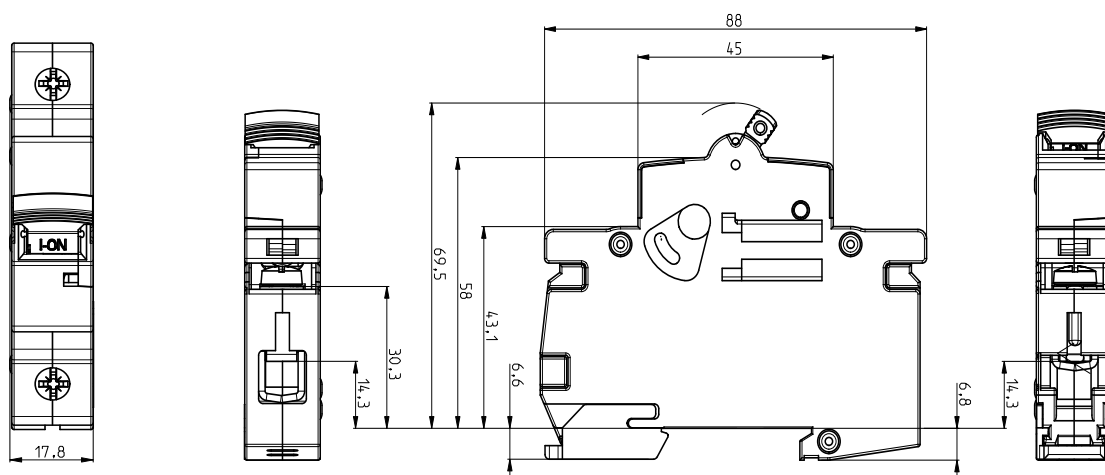
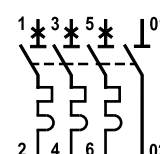
2p



3p




3p+n



Tripping characteristics


Characteristic	Test current	Tripping time	Result
B, C, D	1,13 I _n	t ≥ 3600 s	No tripping
B, C, D	1,45 I _n	t < 3600 s	Tripping
B, C, D	2,55 I _n	1s < t < 60 s	Tripping
B	3,00 I _n	t ≤ 0,1 s	No tripping
C	5,00 I _n	t ≤ 0,1 s	No tripping
D	10,00 I _n	t ≤ 0,1 s	No tripping
B	5,00 I _n	t < 0,1 s	Tripping
C	10,00 I _n	t < 0,1 s	Tripping
D	20,00 I _n	t < 0,1 s	Tripping

1-pole

I _n [A]	U _n [V]	Type B	Code No. B	Type C	Code No. C	Type D	Code No. D	
0,5	240/415	/	/	ETIMAT P6 1p C 0,5	001900021	ETIMAT P6 1p D 0,5	001900041	12/108
1		ETIMAT P6 1p B 1	001900002	ETIMAT P6 1p C 1	001900022	ETIMAT P6 1p D 1	001900042	12/108
1,6		ETIMAT P6 1p B 1,6	001900003	ETIMAT P6 1p C 1,6	001900023	ETIMAT P6 1p D 1,6	001900043	12/108
2		ETIMAT P6 1p B 2	001900004	ETIMAT P6 1p C 2	001900024	ETIMAT P6 1p D 2	001900044	12/108
3		ETIMAT P6 1p B 3	001900005	ETIMAT P6 1p C 3	001900025	ETIMAT P6 1p D 3	001900045	12/108
4		ETIMAT P6 1p B 4	001900006	ETIMAT P6 1p C 4	001900026	ETIMAT P6 1p D 4	001900046	12/108
6		ETIMAT P6 1p B 6	001900007	ETIMAT P6 1p C 6	001900027	ETIMAT P6 1p D 6	001900047	12/108
10		ETIMAT P6 1p B 10	001900008	ETIMAT P6 1p C 10	001900028	ETIMAT P6 1p D 10	001900048	12/108
13		ETIMAT P6 1p B 13	001900009	ETIMAT P6 1p C 13	001900029	ETIMAT P6 1p D 13	001900049	12/108
16		ETIMAT P6 1p B 16	001900010	ETIMAT P6 1p C 16	001900030	ETIMAT P6 1p D 16	001900050	12/108
20		ETIMAT P6 1p B 20	001900011	ETIMAT P6 1p C 20	001900031	ETIMAT P6 1p D 20	001900051	12/108
25		ETIMAT P6 1p B 25	001900012	ETIMAT P6 1p C 25	001900032	ETIMAT P6 1p D 25	001900052	12/108
32		ETIMAT P6 1p B 32	001900013	ETIMAT P6 1p C 32	001900033	ETIMAT P6 1p D 32	001900053	12/108
40		ETIMAT P6 1p B 40	001900014	ETIMAT P6 1p C 40	001900034	ETIMAT P6 1p D 40	001900054	12/108
50		ETIMAT P6 1p B 50	001900015	ETIMAT P6 1p C 50	001900035	ETIMAT P6 1p D 50	001900055	12/108
63		ETIMAT P6 1p B 63	001900016	ETIMAT P6 1p C 63	001900036	/	/	12/108




1-pole + N

I _n [A]	U _n [V]	Type B	Code No. B	Type C	Code No. C	Type D	Code No. D	
0,5	240	/	/	ETIMAT P6 1p+N C 0,5	001900121	ETIMAT P6 1p+N D 0,5	001900141	6/54
1		ETIMAT P6 1p+N B 1	001900102	ETIMAT P6 1p+N C 1	001900122	ETIMAT P6 1p+N D 1	001900142	6/54
1,6		ETIMAT P6 1p+N B 1,6	001900103	ETIMAT P6 1p+N C 1,6	001900123	ETIMAT P6 1p+N D 1,6	001900143	6/54
2		ETIMAT P6 1p+N B 2	001900104	ETIMAT P6 1p+N C 2	001900124	ETIMAT P6 1p+N D 2	001900144	6/54
3		ETIMAT P6 1p+N B 3	001900105	ETIMAT P6 1p+N C 3	001900125	ETIMAT P6 1p+N D 3	001900145	6/54
4		ETIMAT P6 1p+N B 4	001900106	ETIMAT P6 1p+N C 4	001900126	ETIMAT P6 1p+N D 4	001900146	6/54
6		ETIMAT P6 1p+N B 6	001900107	ETIMAT P6 1p+N C 6	001900127	ETIMAT P6 1p+N D 6	001900147	6/54
10		ETIMAT P6 1p+N B 10	001900108	ETIMAT P6 1p+N C 10	001900128	ETIMAT P6 1p+N D 10	001900148	6/54
13		ETIMAT P6 1p+N B 13	001900109	ETIMAT P6 1p+N C 13	001900129	ETIMAT P6 1p+N D 13	001900149	6/54
16		ETIMAT P6 1p+N B 16	001900110	ETIMAT P6 1p+N C 16	001900130	ETIMAT P6 1p+N D 16	001900150	6/54
20		ETIMAT P6 1p+N B 20	001900111	ETIMAT P6 1p+N C 20	001900131	ETIMAT P6 1p+N D 20	001900151	6/54
25		ETIMAT P6 1p+N B 25	001900112	ETIMAT P6 1p+N C 25	001900132	ETIMAT P6 1p+N D 25	001900152	6/54
32		ETIMAT P6 1p+N B 32	001900113	ETIMAT P6 1p+N C 32	001900133	ETIMAT P6 1p+N D 32	001900153	6/54
40		ETIMAT P6 1p+N B 40	001900114	ETIMAT P6 1p+N C 40	001900134	ETIMAT P6 1p+N D 40	001900154	6/54
50		ETIMAT P6 1p+N B 50	001900115	ETIMAT P6 1p+N C 50	001900135	ETIMAT P6 1p+N D 50	001900155	6/54
63		ETIMAT P6 1p+N B 63	001900116	ETIMAT P6 1p+N C 63	001900136	/	/	6/54




2-pole

I_n [A]	U_n [V]	Type B	Code No. B	Type C	Code No. C	Type D	Code No. D	
0,5	/	/	/	ETIMAT P6 2p C 0,5	001900221	ETIMAT P6 2p D 0,5	001900241	6/54
1		ETIMAT P6 2p B 1	001900202	ETIMAT P6 2p C 1	001900222	ETIMAT P6 2p D 1	001900242	6/54
1,6		ETIMAT P6 2p B 1,6	001900203	ETIMAT P6 2p C 1,6	001900223	ETIMAT P6 2p D 1,6	001900243	6/54
2		ETIMAT P6 2p B 2	001900204	ETIMAT P6 2p C 2	001900224	ETIMAT P6 2p D 2	001900244	6/54
3		ETIMAT P6 2p B 3	001900205	ETIMAT P6 2p C 3	001900225	ETIMAT P6 2p D 3	001900245	6/54
4		ETIMAT P6 2p B 4	001900206	ETIMAT P6 2p C 4	001900226	ETIMAT P6 2p D 4	001900246	6/54
6		ETIMAT P6 2p B 6	001900207	ETIMAT P6 2p C 6	001900227	ETIMAT P6 2p D 6	001900247	6/54
10	415	ETIMAT P6 2p B 10	001900208	ETIMAT P6 2p C 10	001900228	ETIMAT P6 2p D 10	001900248	6/54
13		ETIMAT P6 2p B 13	001900209	ETIMAT P6 2p C 13	001900229	ETIMAT P6 2p D 13	001900249	6/54
16		ETIMAT P6 2p B 16	001900210	ETIMAT P6 2p C 16	001900230	ETIMAT P6 2p D 16	001900250	6/54
20		ETIMAT P6 2p B 20	001900211	ETIMAT P6 2p C 20	001900231	ETIMAT P6 2p D 20	001900251	6/54
25		ETIMAT P6 2p B 25	001900212	ETIMAT P6 2p C 25	001900232	ETIMAT P6 2p D 25	001900252	6/54
32		ETIMAT P6 2p B 32	001900213	ETIMAT P6 2p C 32	001900233	ETIMAT P6 2p D 32	001900253	6/54
40		ETIMAT P6 2p B 40	001900214	ETIMAT P6 2p C 40	001900234	ETIMAT P6 2p D 40	001900254	6/54
50		ETIMAT P6 2p B 50	001900215	ETIMAT P6 2p C 50	001900235	ETIMAT P6 2p D 50	001900255	6/54
63		ETIMAT P6 2p B 63	001900216	ETIMAT P6 2p C 63	001900236	/	/	6/54




3-pole

I_n [A]	U_n [V]	Type B	Code No. B	Type C	Code No. C	Type D	Code No. D	
0,5	/	/	/	ETIMAT P6 3p C 0,5	001900321	ETIMAT P6 3p D 0,5	001900341	4/36
1		ETIMAT P6 3p B 1	001900302	ETIMAT P6 3p C 1	001900322	ETIMAT P6 3p D 1	001900342	4/36
1,6		ETIMAT P6 3p B 1,6	001900303	ETIMAT P6 3p C 1,6	001900323	ETIMAT P6 3p D 1,6	001900343	4/36
2		ETIMAT P6 3p B 2	001900304	ETIMAT P6 3p C 2	001900324	ETIMAT P6 3p D 2	001900344	4/36
3		ETIMAT P6 3p B 3	001900305	ETIMAT P6 3p C 3	001900325	ETIMAT P6 3p D 3	001900345	4/36
4		ETIMAT P6 3p B 4	001900306	ETIMAT P6 3p C 4	001900326	ETIMAT P6 3p D 4	001900346	4/36
6		ETIMAT P6 3p B 6	001900307	ETIMAT P6 3p C 6	001900327	ETIMAT P6 3p D 6	001900347	4/36
10	415	ETIMAT P6 3p B 10	001900308	ETIMAT P6 3p C 10	001900328	ETIMAT P6 3p D 10	001900348	4/36
13		ETIMAT P6 3p B 13	001900309	ETIMAT P6 3p C 13	001900329	ETIMAT P6 3p D 13	001900349	4/36
16		ETIMAT P6 3p B 16	001900310	ETIMAT P6 3p C 16	001900330	ETIMAT P6 3p D 16	001900350	4/36
20		ETIMAT P6 3p B 20	001900311	ETIMAT P6 3p C 20	001900331	ETIMAT P6 3p D 20	001900351	4/36
25		ETIMAT P6 3p B 25	001900312	ETIMAT P6 3p C 25	001900332	ETIMAT P6 3p D 25	001900352	4/36
32		ETIMAT P6 3p B 32	001900313	ETIMAT P6 3p C 32	001900333	ETIMAT P6 3p D 32	001900353	4/36
40		ETIMAT P6 3p B 40	001900314	ETIMAT P6 3p C 40	001900334	ETIMAT P6 3p D 40	001900354	4/36
50		ETIMAT P6 3p B 50	001900315	ETIMAT P6 3p C 50	001900335	ETIMAT P6 3p D 50	001900355	4/36
63		ETIMAT P6 3p B 63	001900316	ETIMAT P6 3p C 63	001900336	/	/	4/36

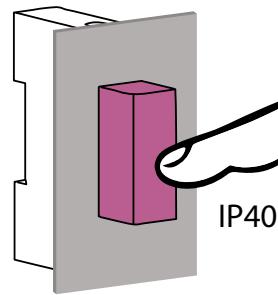
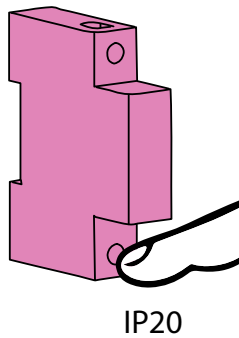
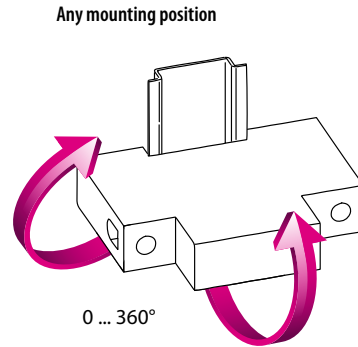
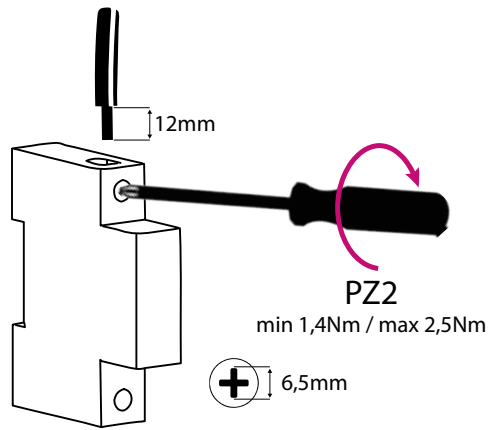


3-pole + N

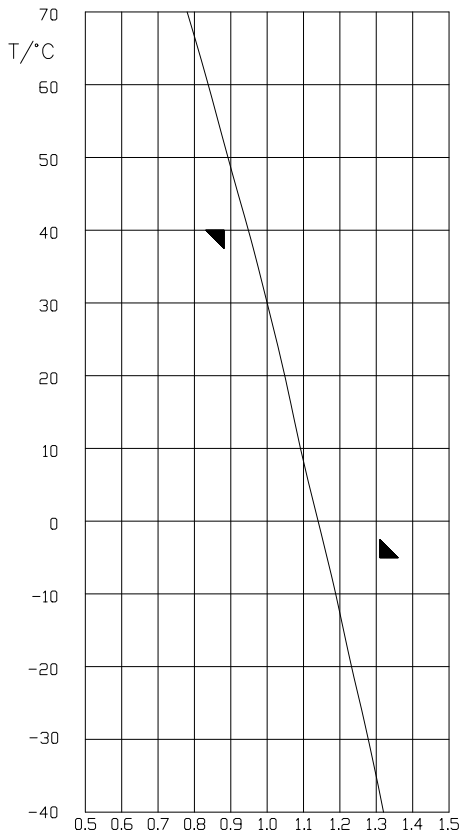
I_n [A]	U_n [V]	Type B	Code No. B	Type C	Code No. C	Type D	Code No. D	
0,5	/	/	/	ETIMAT P6 3p+N C 0,5	001900421	ETIMAT P6 3p+N D 0,5	001900441	3/27
1		ETIMAT P6 3p+N B 1	001900402	ETIMAT P6 3p+N C 1	001900422	ETIMAT P6 3p+N D 1	001900442	3/27
1,6		ETIMAT P6 3p+N B 1,6	001900403	ETIMAT P6 3p+N C 1,6	001900423	ETIMAT P6 3p+N D 1,6	001900443	3/27
2		ETIMAT P6 3p+N B 2	001900404	ETIMAT P6 3p+N C 2	001900424	ETIMAT P6 3p+N D 2	001900444	3/27
3		ETIMAT P6 3p+N B 3	001900405	ETIMAT P6 3p+N C 3	001900425	ETIMAT P6 3p+N D 3	001900445	3/27
4		ETIMAT P6 3p+N B 4	001900406	ETIMAT P6 3p+N C 4	001900426	ETIMAT P6 3p+N D 4	001900446	3/27
6		ETIMAT P6 3p+N B 6	001900407	ETIMAT P6 3p+N C 6	001900427	ETIMAT P6 3p+N D 6	001900447	3/27
10	415	ETIMAT P6 3p+N B 10	001900408	ETIMAT P6 3p+N C 10	001900428	ETIMAT P6 3p+N D 10	001900448	3/27
13		ETIMAT P6 3p+N B 13	001900409	ETIMAT P6 3p+N C 13	001900429	ETIMAT P6 3p+N D 13	001900449	3/27
16		ETIMAT P6 3p+N B 16	001900410	ETIMAT P6 3p+N C 16	001900430	ETIMAT P6 3p+N D 16	001900450	3/27
20		ETIMAT P6 3p+N B 20	001900411	ETIMAT P6 3p+N C 20	001900431	ETIMAT P6 3p+N D 20	001900451	3/27
25		ETIMAT P6 3p+N B 25	001900412	ETIMAT P6 3p+N C 25	001900432	ETIMAT P6 3p+N D 25	001900452	3/27
32		ETIMAT P6 3p+N B 32	001900413	ETIMAT P6 3p+N C 32	001900433	ETIMAT P6 3p+N D 32	001900453	3/27
40		ETIMAT P6 3p+N B 40	001900414	ETIMAT P6 3p+N C 40	001900434	ETIMAT P6 3p+N D 40	001900454	3/27
50		ETIMAT P6 3p+N B 50	001900415	ETIMAT P6 3p+N C 50	001900435	ETIMAT P6 3p+N D 50	001900455	3/27
63		ETIMAT P6 3p+N B 63	001900416	ETIMAT P6 3p+N C 63	001900436	/	/	3/27



Circuit breakers type ETIMAT P6 / 3-pole + N are suitable for use as 4-pole circuit breakers



Effect of the ambient temperature on the tripping characteristic



I_n [A]	Ambient temperature T/°C											
	-40	-30	-20	-10	0	10	20	30	40	50	60	70
0,5	0,66	0,64	0,62	0,60	0,57	0,55	0,53	0,5	0,48	0,45	0,42	0,39
1	1,32	1,28	1,23	1,19	1,14	1,09	1,05	1	0,95	0,89	0,84	0,78
1,6	2,11	2,05	1,97	1,90	1,82	1,74	1,68	1,6	1,52	1,42	1,34	1,25
2	2,64	2,56	2,46	2,38	2,28	2,18	2,10	2	1,90	1,78	1,68	1,56
4	5,28	5,12	4,92	4,76	4,56	4,36	4,20	4	3,80	3,56	3,36	3,12
6	7,92	7,68	7,38	7,14	6,84	6,54	6,30	6	5,70	5,34	5,04	4,68
10	13,2	12,8	12,3	11,9	11,4	10,9	10,5	10	9,50	8,90	8,40	7,80
13	17,2	16,6	16,0	15,5	14,8	14,2	13,7	13	12,4	11,6	10,9	10,1
16	21,1	20,5	19,7	19,0	18,2	17,4	16,8	16	15,2	14,2	13,4	12,5
20	26,4	25,6	24,6	23,8	22,8	21,8	21,0	20	19,0	17,8	16,8	15,6
25	33,0	32,0	30,8	29,8	28,5	27,3	26,3	25	23,8	22,3	21,0	19,5
32	42,2	41,0	39,4	38,1	36,5	34,9	33,6	32	30,4	28,5	26,9	25,0
40	52,8	51,2	49,2	47,6	45,6	43,6	42,0	40	38,0	35,6	33,6	31,2
50	66,0	64,0	61,5	59,5	57,0	54,5	52,6	50	47,5	44,5	42,0	39,0
63	83,2	80,6	77,5	75,0	71,8	68,7	66,2	63	59,9	56,1	52,9	49,1

Correction factor is valid for current with times over 30 s
 $k = \frac{I(x^\circ\text{C})}{I(30^\circ\text{C})}$
 I(x°C) - test current at x ambient temperature
 I(30°C) - test current at 30°C ambient temperature

Resistance and power dissipation

characteristic	I_n [A]	R/pole [mΩ]	P/pole [w]
B, C	0,5	3587	1,16
	1	935	1,21
	1,6	382	1,26
	2	264	1,37
	3	/	/
	4	69,6	1,38
	6	40,3	1,96
	10	16,9	2,00
	13	11,4	2,08
	16	8,17	2,26
	20	6,73	2,53
	25	5,03	2,96
	32	3,92	3,44
	40	/	/
	50	2,22	3,57
	63	1,71	4,59
	D	0,5	/
1		1183	1,55
1,6		/	/
2		303	1,58
3		135	1,52
4		81,8	1,66
6		40,0	1,78
10		17,3	1,57
13		11,3	2,04
16		8,59	2,31
20		7,17	2,73
25		4,77	2,91
32		3,92	3,44
40	/	/	
50	/	/	
63	/	/	

Selectivity

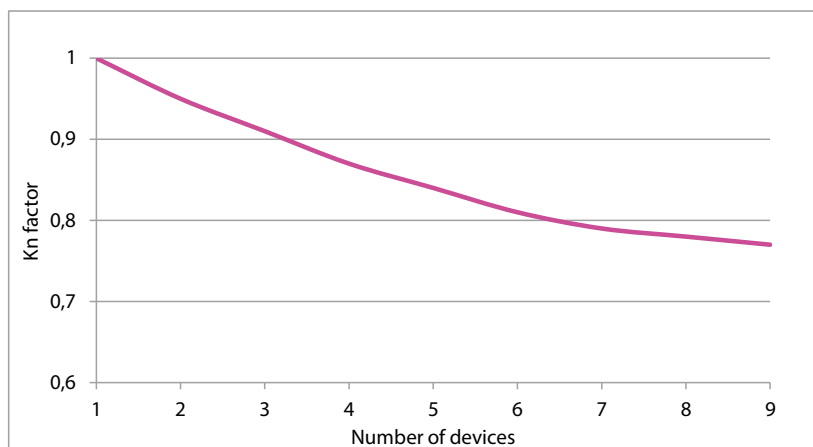
ETIMAT	gGNV										
	20	25	32	35	40	50	63	80	100	125	160
B 6	0,5	0,78	1,2	1,4	1,7	2,4	4,6	6,0	6,0	6,0	6,0
B 10/13	0,45	0,65	1,1	1,3	1,6	2,2	4,0	6,0	6,0	6,0	6,0
B 16		0,55	1,0	1,2	1,5	2,0	3,6	5,5	6,0	6,0	6,0
B 20			0,85	1,2	1,5	1,8	3,1	4,6	6,0	6,0	6,0
B 25				1,1	1,4	1,7	2,9	4,0	6,0	6,0	6,0
B 32					1,3	1,6	2,5	3,4	5,5	6,0	6,0
B 40						1,5	2,2	3,1	4,9	6,0	6,0
B 50							2,1	2,9	4,0	6,0	6,0
B 63								2,5	3,3	5,1	6,0
ETIMAT	gGNV										
	20	25	32	35	40	50	63	80	100	125	160
C,D 6	0,52	0,82	1,3	1,5	2,0	2,7	5,1	6,0	6,0	6,0	6,0
C,D 10/13	0,47	0,70	1,1	1,4	1,8	2,3	4,0	6,0	6,0	6,0	6,0
C,D 16		0,61	0,92	1,2	1,5	1,9	3,2	5,0	6,0	6,0	6,0
C,D 20			0,90	1,1	1,4	1,7	2,9	4,2	6,0	6,0	6,0
C,D 25				1,0	1,3	1,6	2,7	3,9	6,0	6,0	6,0
C,D 32					1,2	1,5	2,3	3,4	5,2	6,0	6,0
C,D 40						1,4	2,1	3,0	4,6	6,0	6,0
C,D 50							2,0	2,7	3,8	6,0	6,0
C,D 63								2,3	3,2	5,5	6,0

R: measured at $0.1 \cdot I_n$ P: measured at I_n

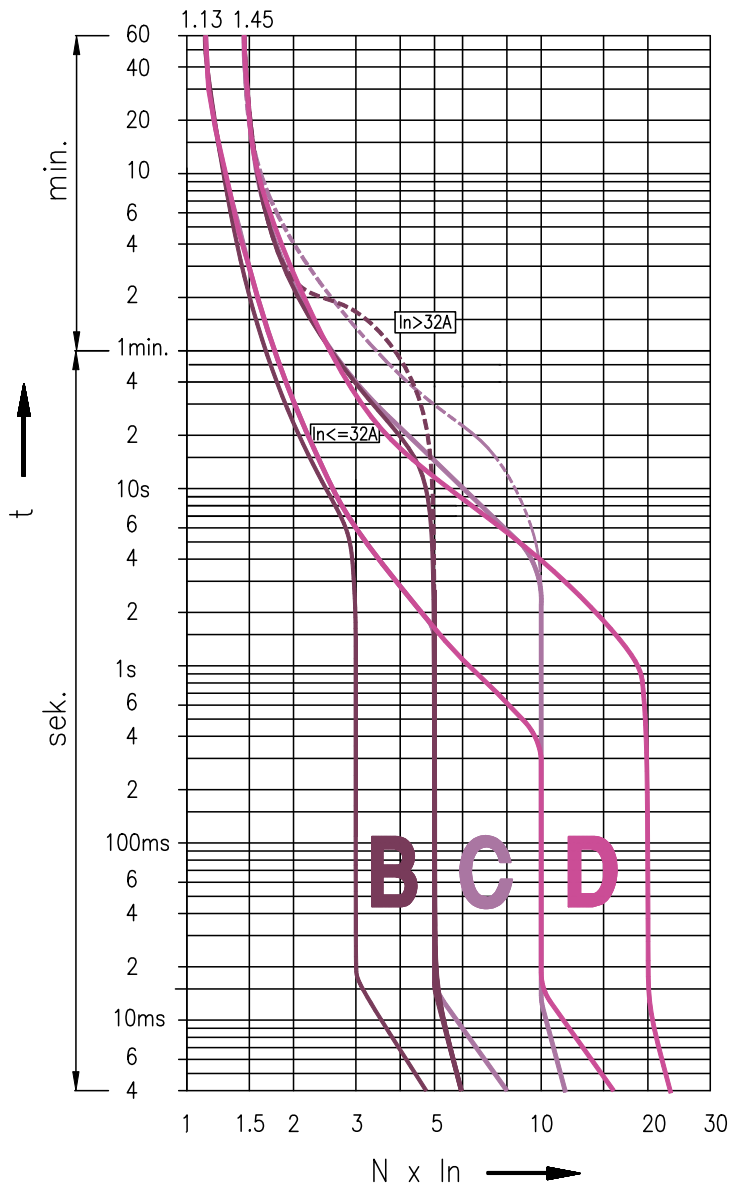
Effect of number of poles on the tripping characteristic ETIMAT P6

Correction factor K_n

Number of devices	K_n
1	1
2	0,95
3	0,91
4	0,87
5	0,84
6	0,81
7	0,79
8	0,78
9	0,77
>9	0,77



Time current characteristics I/t at 50 and 60Hz, ETIMAT P6

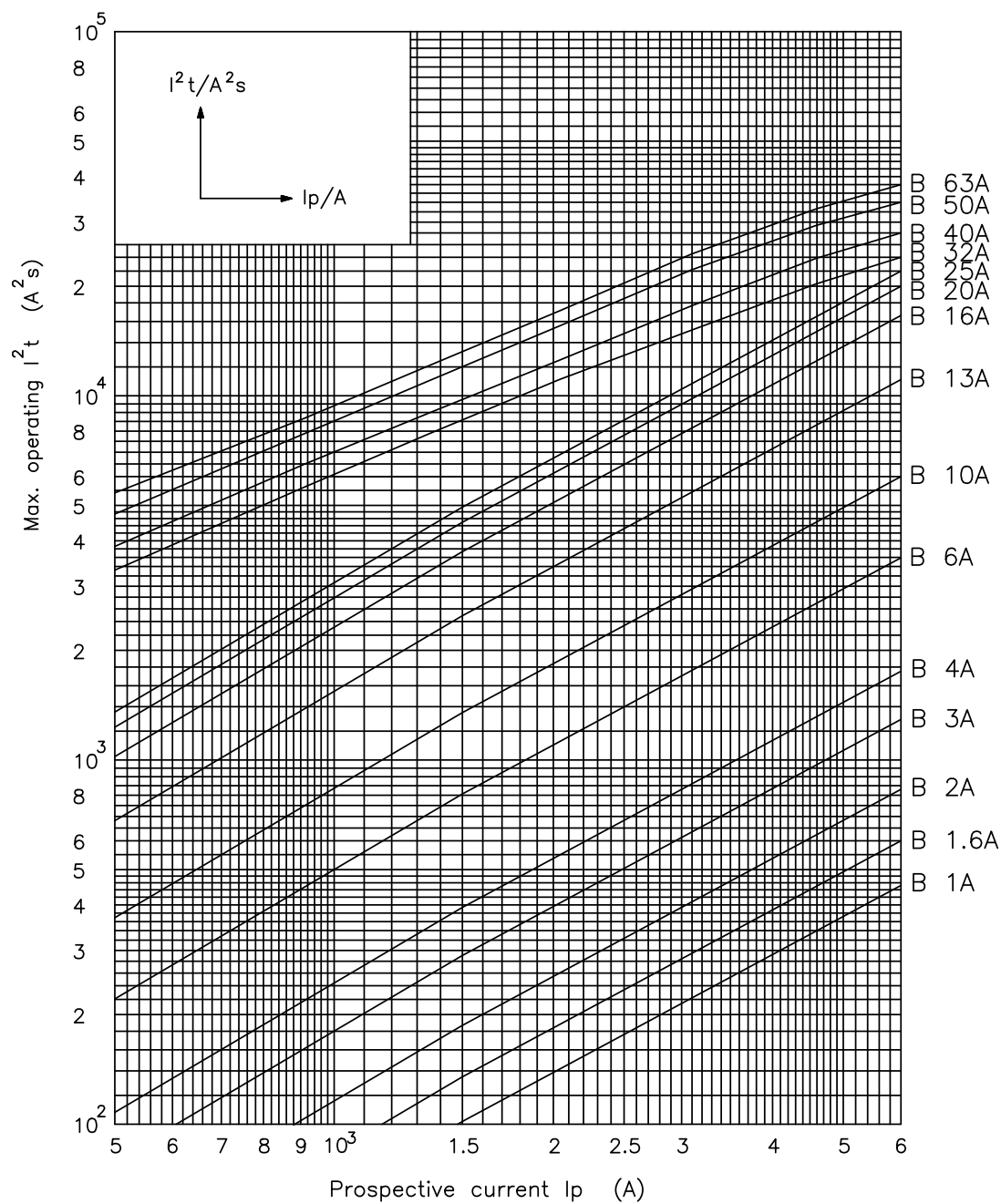


Conductor cross-section [mm ²]	Number of single conductors, rigid, single-wire CU conductor				
	1	2	3	4	5
1,5	✓	✓	✓	✓	✗
2,5	✓	✓	✓	✗	✗
4	✓	✓	✓	✗	✗
6	✓	✓	✗	✗	✗
10	✓	✓	✗	✗	✗
16	✓	✗	✗	✗	✗
25	✓	✗	✗	✗	✗

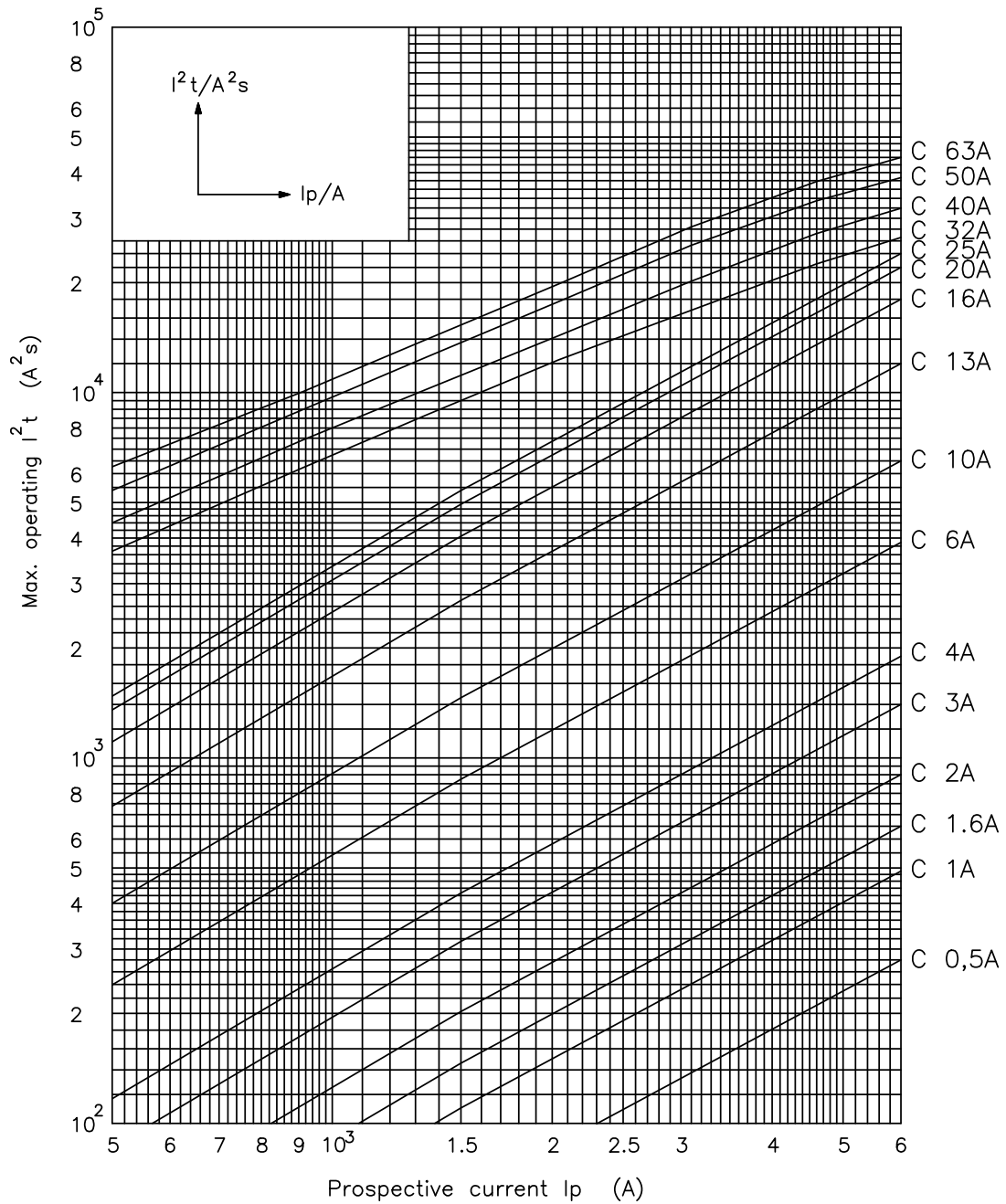
Remark: When you use more than 2 cables you have to be careful how those cables are inserted, due to insure proper pressure on each cable

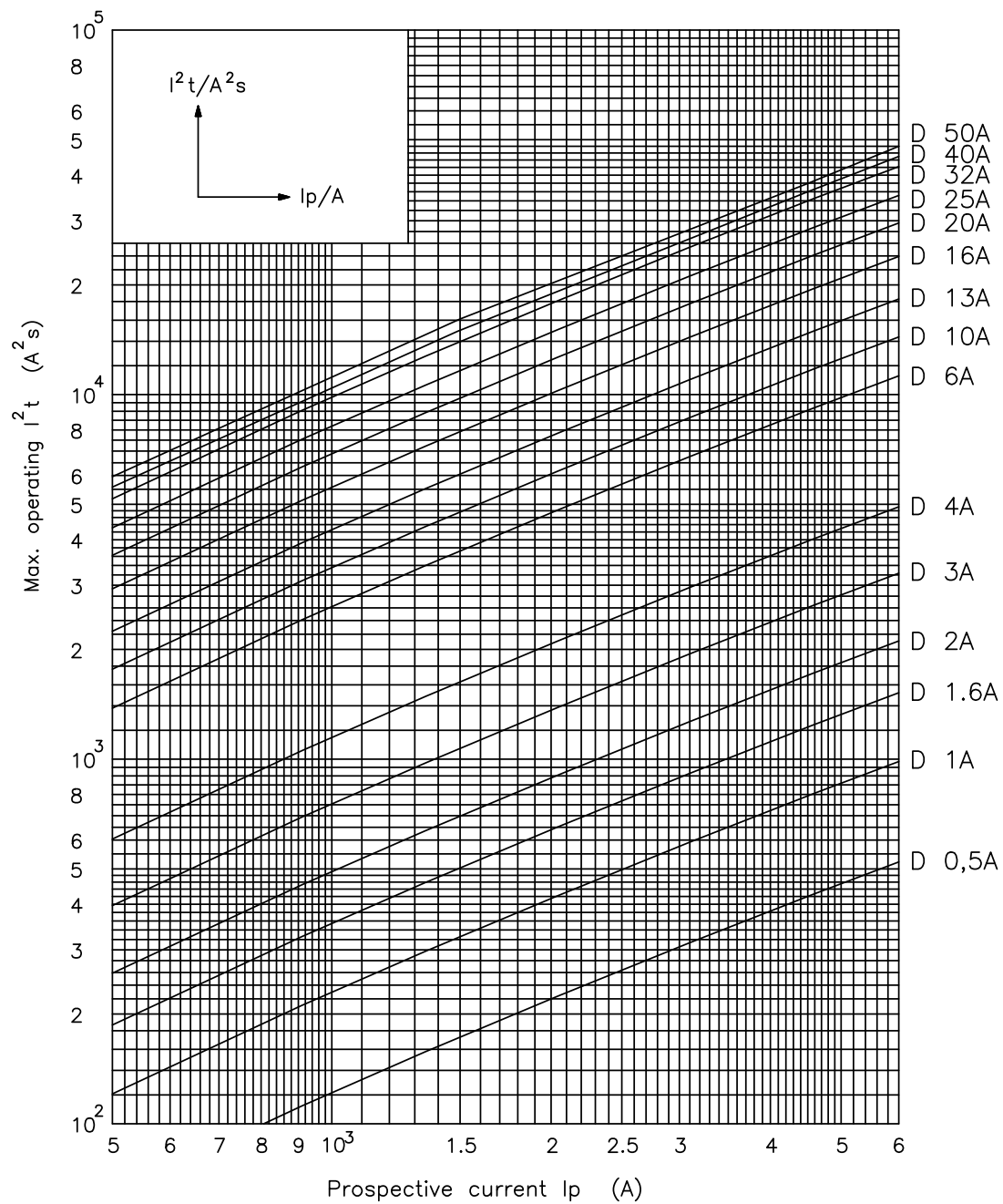
Conductor cross-section [mm ²]	Number of single conductors, flexible Cu conductors with cable ferrule					
	1	2	3	4	5	6
1,5	✓	✓	✓	✓	✓	✓
2,5	✓	✓	✓	✓	✓	✓
4	✓	✓	✓	✓	✓	✓
6	✓	✓	✓	✗	✗	✗
10	✓	✓	✗	✗	✗	✗
16	✓	✗	✗	✗	✗	✗
25	✓	✗	✗	✗	✗	✗

Combination of rigid single-wire and flexible multi-wire Cu conductors is not allowed

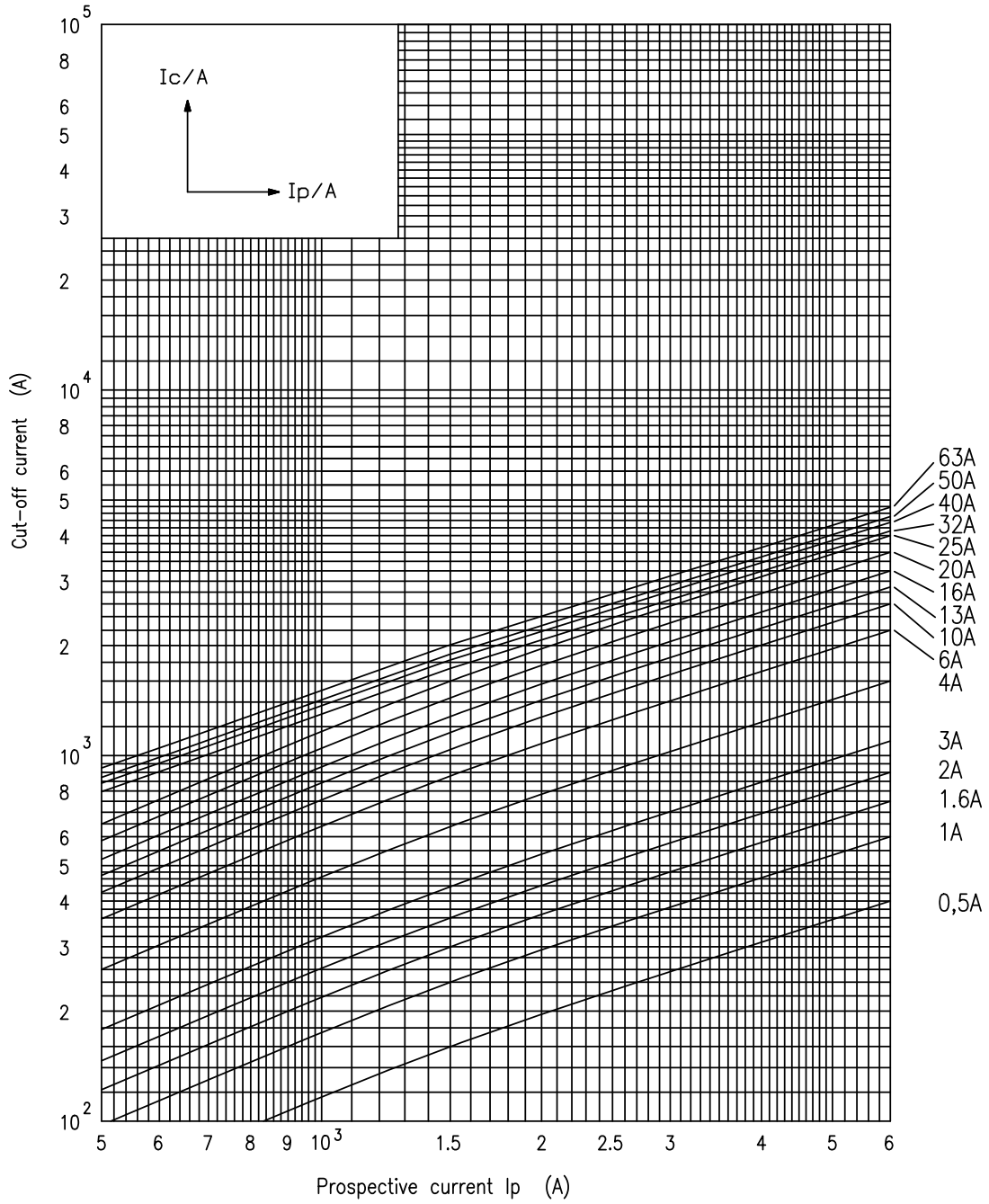
Melting energy characteristics I^2t ETIMAT P6

Melting energy characteristics I²t ETIMAT P6



Melting energy characteristics I^2t ETIMAT P6

Cut-off characteristics I²t ETIMAT P6



Miniature circuit breaker ETIMAT P10

Rated short-circuit capacity
10 kA

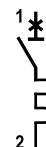
Rated current
0,5 - 63 A

Tripping characteristic
B, C, D, K, Z

Technical data for ETIMAT P10 and ETIMAT P10 Reset

Rated voltage	240/415V AC; max 60V DC/pol
Min. operating voltage	12V AC/DC
Max operating voltage	250/440V AC
Rated current	B:1-63A, C:0.5-63A, D:0.5-63A, K&Z:0.5-32A
Rated frequency	50/60Hz
Rated insulation voltage	500V
Rated impulse withstand voltage	6kV (acc. to 60947-2)
Shock resistance	30g, min 2 shocks, t=13ms
Rated short-circuit capacity	10 kA
Energy limiting class	3; B,C
Tripping characteristic	B, C, D, K, Z
Back-up fuse	100A gG
Index of protection	IP 20 (IP 40)
Terminals	1-25mm ² , min 1,4Nm / max 2,5Nm
Terminal screw	M5 (Pozidrive PZ2)
Mechanical endurance	20.000 op. cycles
Electrical endurance	20.000 op. cycles
Ambient temperature	max -40°C ... +70°C
Storage temperature	max -60°C ... +70°C
Supply possibility	top or bottom
Build-in width	18mm/pol
Insulating class	B
Overvoltage category	III
Pollution degree	2
Mounting on the rail	EN 60715
Mounting position	any
Sealing possibility	✓
Terminal cover	✓
Contact position indicator	✓
Locking device	✓
Resistance to vibrations acc. to IEC 60068-2-7	5g (10,60 & 500Hz)
Standards	IEC/EN 60898-1, IEC 60947-2

1p



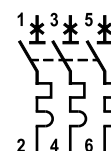
1p+n



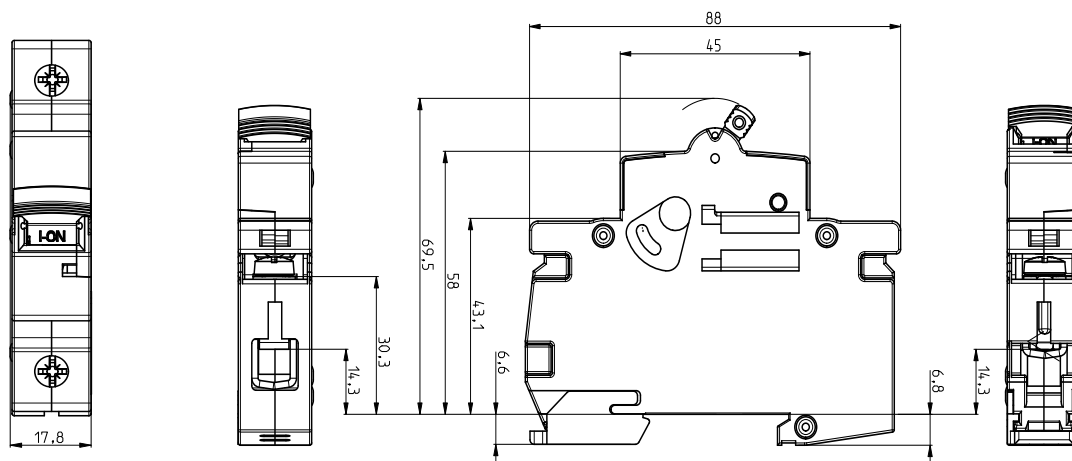
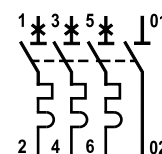
2p



3p



3p+n



Tripping characteristics

Characteristic	Test current	Tripping time	Result
B, C, D	1,13 I _n	t ≥ 3600 s	No tripping
B, C, D	1,45 I _n	t < 3600 s	Tripping
B, C, D	2,55 I _n	1s < t < 60 s	Tripping
B	3,00 I _n	t ≤ 0,1 s	No tripping
C	5,00 I _n	t ≤ 0,1 s	No tripping
D	10,00 I _n	t ≤ 0,1 s	No tripping
B	5,00 I _n	t < 0,1 s	Tripping
C	10,00 I _n	t < 0,1 s	Tripping
D	20,00 I _n	t < 0,1 s	Tripping
K, Z	1,05 I _n	t > 7200 s	No Tripping
K, Z	1,20 I _n	t < 7200 s	Tripping
K	8,00 I _n	t ≤ 0,2 s	No Tripping
K	12,00 I _n	t < 0,2 s	Tripping
Z	2,00 I _n	t ≤ 0,2s	No Tripping
Z	3,00 I _n	t < 0,2s	Tripping

1-pole, characteristic B, C



I _n [A]	U _n [V]	Type B	Code No. B	Type C	Code No. C		
0,5	240/415	/	/	ETIMAT P10 1p C0,5	001901021	92	12/108
1		ETIMAT P10 1p B1	001901002	ETIMAT P10 1p C1	001901022	92	12/108
1,6		ETIMAT P10 1p B1,6	001901003	ETIMAT P10 1p C1,6	001901023	92	12/108
2		ETIMAT P10 1p B2	001901004	ETIMAT P10 1p C2	001901024	92	12/108
3		ETIMAT P10 1p B3	001901005	ETIMAT P10 1p C3	001901025	92	12/108
4		ETIMAT P10 1p B4	001901006	ETIMAT P10 1p C4	001901026	92	12/108
6		ETIMAT P10 1p B6	001901007	ETIMAT P10 1p C6	001901027	92	12/108
10		ETIMAT P10 1p B10	001901008	ETIMAT P10 1p C10	001901028	92	12/108
13		ETIMAT P10 1p B13	001901009	ETIMAT P10 1p C13	001901029	92	12/108
16		ETIMAT P10 1p B16	001901010	ETIMAT P10 1p C16	001901030	92	12/108
20		ETIMAT P10 1p B20	001901011	ETIMAT P10 1p C20	001901031	102	12/108
25		ETIMAT P10 1p B25	001901012	ETIMAT P10 1p C25	001901032	105	12/108
32		ETIMAT P10 1p B32	001901013	ETIMAT P10 1p C32	001901033	105	12/108
40		ETIMAT P10 1p B40	001901014	ETIMAT P10 1p C40	001901034	105	12/108
50		ETIMAT P10 1p B50	001901015	ETIMAT P10 1p C50	001901035	111	12/108
63		ETIMAT P10 1p B63	001901016	ETIMAT P10 1p C63	001901036	115	12/108



1-pole, characteristic D, K, Z



I _n [A]	U _n [V]	Type D	Code No. D	Type K	Code No. K	Type Z	Code No. Z		
0,5	240/415	ETIMAT P10 1p D0,5	001901041	ETIMAT P10 1p K0,5	001901061	ETIMAT P10 1p Z0,5	001901081	102	12/108
1		ETIMAT P10 1p D1	001901042	ETIMAT P10 1p K1	001901062	ETIMAT P10 1p Z1	001901082	102	12/108
1,6		ETIMAT P10 1p D1,6	001901043	ETIMAT P10 1p K1,6	001901063	ETIMAT P10 1p Z1,6	001901083	102	12/108
2		ETIMAT P10 1p D2	001901044	ETIMAT P10 1p K2	001901064	ETIMAT P10 1p Z2	001901084	102	12/108
3		ETIMAT P10 1p D3	001901045	ETIMAT P10 1p K3	001901065	ETIMAT P10 1p Z3	001901085	102	12/108
4		ETIMAT P10 1p D4	001901046	ETIMAT P10 1p K4	001901066	ETIMAT P10 1p Z4	001901086	102	12/108
6		ETIMAT P10 1p D6	001901047	ETIMAT P10 1p K6	001901067	ETIMAT P10 1p Z6	001901087	102	12/108
10		ETIMAT P10 1p D10	001901048	ETIMAT P10 1p K10	001901068	ETIMAT P10 1p Z10	001901088	102	12/108
13		ETIMAT P10 1p D13	001901049	ETIMAT P10 1p K13	001901069	ETIMAT P10 1p Z13	001901089	102	12/108
16		ETIMAT P10 1p D16	001901050	ETIMAT P10 1p K16	001901070	ETIMAT P10 1p Z16	001901090	102	12/108
20		ETIMAT P10 1p D20	001901051	ETIMAT P10 1p K20	001901071	ETIMAT P10 1p Z20	001901091	102	12/108
25		ETIMAT P10 1p D25	001901052	ETIMAT P10 1p K25	001901072	ETIMAT P10 1p Z25	001901092	105	12/108
32		ETIMAT P10 1p D32	001901053	ETIMAT P10 1p K32	001901073	ETIMAT P10 1p Z32	001901093	105	12/108
40		ETIMAT P10 1p D40	001901054	/	/	/	/	105	12/108
50		ETIMAT P10 1p D50	001901055	/	/	/	/	111	12/108

1-pole + N, characteristic B, C



I_n [A]	U_n [V]	Type B	Code No. B	Type C	Code No. C		
0,5		/	/	ETIMAT P10 1p+N C0,5	001901121	184	6/54
1		ETIMAT P10 1p+N B1	001901102	ETIMAT P10 1p+N C1	001901122	184	6/54
1,6		ETIMAT P10 1p+N B1,6	001901103	ETIMAT P10 1p+N C1,6	001901123	184	6/54
2		ETIMAT P10 1p+N B2	001901104	ETIMAT P10 1p+N C2	001901124	184	6/54
3		ETIMAT P10 1p+N B3	001901105	ETIMAT P10 1p+N C3	001901125	184	6/54
4		ETIMAT P10 1p+N B4	001901106	ETIMAT P10 1p+N C4	001901126	184	6/54
6		ETIMAT P10 1p+N B6	001901107	ETIMAT P10 1p+N C6	001901127	184	6/54
10	240	ETIMAT P10 1p+N B10	001901108	ETIMAT P10 1p+N C10	001901128	184	6/54
13		ETIMAT P10 1p+N B13	001901109	ETIMAT P10 1p+N C13	001901129	184	6/54
16		ETIMAT P10 1p+N B16	001901110	ETIMAT P10 1p+N C16	001901130	184	6/54
20		ETIMAT P10 1p+N B20	001901111	ETIMAT P10 1p+N C20	001901131	205	6/54
25		ETIMAT P10 1p+N B25	001901112	ETIMAT P10 1p+N C25	001901132	210	6/54
32		ETIMAT P10 1p+N B32	001901113	ETIMAT P10 1p+N C32	001901133	210	6/54
40		ETIMAT P10 1p+N B40	001901114	ETIMAT P10 1p+N C40	001901134	210	6/54
50		ETIMAT P10 1p+N B50	001901115	ETIMAT P10 1p+N C50	001901135	223	6/54
63		ETIMAT P10 1p+N B63	001901116	ETIMAT P10 1p+N C63	001901136	230	6/54



1-pole + N, characteristic D, K, Z



I_n [A]	U_n [V]	Type D	Code No. D	Type K	Code No. K	Type Z	Code No. Z		
0,5		ETIMAT P10 1p+N D0,5	001901141	ETIMAT P10 1p+N K0,5	001901161	ETIMAT P10 1p+N Z0,5	001901181	205	6/54
1		ETIMAT P10 1p+N D1	001901142	ETIMAT P10 1p+N K1	001901162	ETIMAT P10 1p+N Z1	001901182	205	6/54
1,6		ETIMAT P10 1p+N D1,6	001901143	ETIMAT P10 1p+N K1,6	001901163	ETIMAT P10 1p+N Z1,6	001901183	205	6/54
2		ETIMAT P10 1p+N D2	001901144	ETIMAT P10 1p+N K2	001901164	ETIMAT P10 1p+N Z2	001901184	205	6/54
3		ETIMAT P10 1p+N D3	001901145	ETIMAT P10 1p+N K3	001901165	ETIMAT P10 1p+N Z3	001901185	205	6/54
4		ETIMAT P10 1p+N D4	001901146	ETIMAT P10 1p+N K4	001901166	ETIMAT P10 1p+N Z4	001901186	205	6/54
6		ETIMAT P10 1p+N D6	001901147	ETIMAT P10 1p+N K6	001901167	ETIMAT P10 1p+N Z6	001901187	205	6/54
10	240	ETIMAT P10 1p+N D10	001901148	ETIMAT P10 1p+N K10	001901168	ETIMAT P10 1p+N Z10	001901188	205	6/54
13		ETIMAT P10 1p+N D13	001901149	ETIMAT P10 1p+N K13	001901169	ETIMAT P10 1p+N Z13	001901189	205	6/54
16		ETIMAT P10 1p+N D16	001901150	ETIMAT P10 1p+N K16	001901170	ETIMAT P10 1p+N Z16	001901190	205	6/54
20		ETIMAT P10 1p+N D20	001901151	ETIMAT P10 1p+N K20	001901171	ETIMAT P10 1p+N Z20	001901191	205	6/54
25		ETIMAT P10 1p+N D25	001901152	ETIMAT P10 1p+N K25	001901172	ETIMAT P10 1p+N Z25	001901192	210	6/54
32		ETIMAT P10 1p+N D32	001901153	ETIMAT P10 1p+N K32	001901173	ETIMAT P10 1p+N Z32	001901193	210	6/54
40		ETIMAT P10 1p+N D40	001901154	/	/	/	/	210	6/54
50		ETIMAT P10 1p+N D50	001901155	/	/	/	/	223	6/54

2-pole, characteristic B, C



I_n [A]	U_n [V]	Type B	Code No. B	Type C	Code No. C		
0,5		/	/	ETIMAT P10 2p C0,5	001901221	184	6/54
1		ETIMAT P10 2p B1	001901202	ETIMAT P10 2p C1	001901222	184	6/54
1,6		ETIMAT P10 2p B1,6	001901203	ETIMAT P10 2p C1,6	001901223	184	6/54
2		ETIMAT P10 2p B2	001901204	ETIMAT P10 2p C2	001901224	184	6/54
3		ETIMAT P10 2p B3	001901205	ETIMAT P10 2p C3	001901225	184	6/54
4		ETIMAT P10 2p B4	001901206	ETIMAT P10 2p C4	001901226	184	6/54
6		ETIMAT P10 2p B6	001901207	ETIMAT P10 2p C6	001901227	184	6/54
10	415	ETIMAT P10 2p B10	001901208	ETIMAT P10 2p C10	001901228	184	6/54
13		ETIMAT P10 2p B13	001901209	ETIMAT P10 2p C13	001901229	184	6/54
16		ETIMAT P10 2p B16	001901210	ETIMAT P10 2p C16	001901230	184	6/54
20		ETIMAT P10 2p B20	001901211	ETIMAT P10 2p C20	001901231	205	6/54
25		ETIMAT P10 2p B25	001901212	ETIMAT P10 2p C25	001901232	210	6/54
32		ETIMAT P10 2p B32	001901213	ETIMAT P10 2p C32	001901233	210	6/54
40		ETIMAT P10 2p B40	001901214	ETIMAT P10 2p C40	001901234	210	6/54
50		ETIMAT P10 2p B50	001901215	ETIMAT P10 2p C50	001901235	223	6/54
63		ETIMAT P10 2p B63	001901216	ETIMAT P10 2p C63	001901236	230	6/54



2-pole, characteristic D, K, Z



I_n [A]	U_n [V]	Type D	Code No. D	Type K	Code No. K	Type Z	Code No. Z		
0,5	415	ETIMAT P10 2p D0,5	001901241	ETIMAT P10 2p K0,5	001901261	ETIMAT P10 2p Z0,5	001901281	205	6/54
1		ETIMAT P10 2p D1	001901242	ETIMAT P10 2p K1	001901262	ETIMAT P10 2p Z1	001901282	205	6/54
1,6		ETIMAT P10 2p D1,6	001901243	ETIMAT P10 2p K1,6	001901263	ETIMAT P10 2p Z1,6	001901283	205	6/54
2		ETIMAT P10 2p D2	001901244	ETIMAT P10 2p K2	001901264	ETIMAT P10 2p Z2	001901284	205	6/54
3		ETIMAT P10 2p D3	001901245	ETIMAT P10 2p K3	001901265	ETIMAT P10 2p Z3	001901285	205	6/54
4		ETIMAT P10 2p D4	001901246	ETIMAT P10 2p K4	001901266	ETIMAT P10 2p Z4	001901286	205	6/54
6		ETIMAT P10 2p D6	001901247	ETIMAT P10 2p K6	001901267	ETIMAT P10 2p Z6	001901287	205	6/54
10		ETIMAT P10 2p D10	001901248	ETIMAT P10 2p K10	001901268	ETIMAT P10 2p Z10	001901288	205	6/54
13		ETIMAT P10 2p D13	001901249	ETIMAT P10 2p K13	001901269	ETIMAT P10 2p Z13	001901289	205	6/54
16		ETIMAT P10 2p D16	001901250	ETIMAT P10 2p K16	001901270	ETIMAT P10 2p Z16	001901290	205	6/54
20		ETIMAT P10 2p D20	001901251	ETIMAT P10 2p K20	001901271	ETIMAT P10 2p Z20	001901291	205	6/54
25		ETIMAT P10 2p D25	001901252	ETIMAT P10 2p K25	001901272	ETIMAT P10 2p Z25	001901292	210	6/54
32		ETIMAT P10 2p D32	001901253	ETIMAT P10 2p K32	001901273	ETIMAT P10 2p Z32	001901293	210	6/54
40		ETIMAT P10 2p D40	001901254	/	/	/	/	210	6/54
50		ETIMAT P10 2p D50	001901255	/	/	/	/	223	6/54

3-pole, characteristic B, C



I_n [A]	U_n [V]	Type B	Code No. B	Type C	Code No. C		
0,5	415	/	/	ETIMAT P10 3p C0,5	001901321	277	4/36
1		ETIMAT P10 3p B1	001901302	ETIMAT P10 3p C1	001901322	277	4/36
1,6		ETIMAT P10 3p B1,6	001901303	ETIMAT P10 3p C1,6	001901323	277	4/36
2		ETIMAT P10 3p B2	001901304	ETIMAT P10 3p C2	001901324	277	4/36
3		ETIMAT P10 3p B3	001901305	ETIMAT P10 3p C3	001901325	277	4/36
4		ETIMAT P10 3p B4	001901306	ETIMAT P10 3p C4	001901326	277	4/36
6		ETIMAT P10 3p B6	001901307	ETIMAT P10 3p C6	001901327	277	4/36
10		ETIMAT P10 3p B10	001901308	ETIMAT P10 3p C10	001901328	277	4/36
13		ETIMAT P10 3p B13	001901309	ETIMAT P10 3p C13	001901329	277	4/36
16		ETIMAT P10 3p B16	001901310	ETIMAT P10 3p C16	001901330	277	4/36
20		ETIMAT P10 3p B20	001901311	ETIMAT P10 3p C20	001901331	308	4/36
25		ETIMAT P10 3p B25	001901312	ETIMAT P10 3p C25	001901332	316	4/36
32		ETIMAT P10 3p B32	001901313	ETIMAT P10 3p C32	001901333	316	4/36
40		ETIMAT P10 3p B40	001901314	ETIMAT P10 3p C40	001901334	316	4/36
50		ETIMAT P10 3p B50	001901315	ETIMAT P10 3p C50	001901335	335	4/36
63	ETIMAT P10 3p B63	001901316	ETIMAT P10 3p C63	001901336	345	4/36	





3-pole, characteristic D, K, Z

I_n [A]	U_n [V]	Type D	Code No. D	Type K	Code No. K	Type Z	Code No. Z		
0,5	415	ETIMAT P10 3p D0,5	001901341	ETIMAT P10 3p K0,5	001901361	ETIMAT P10 3p Z0,5	001901381	308	4/36
1		ETIMAT P10 3p D1	001901342	ETIMAT P10 3p K1	001901362	ETIMAT P10 3p Z1	001901382	308	4/36
1,6		ETIMAT P10 3p D1,6	001901343	ETIMAT P10 3p K1,6	001901363	ETIMAT P10 3p Z1,6	001901383	308	4/36
2		ETIMAT P10 3p D2	001901344	ETIMAT P10 3p K2	001901364	ETIMAT P10 3p Z2	001901384	308	4/36
3		ETIMAT P10 3p D3	001901345	ETIMAT P10 3p K3	001901365	ETIMAT P10 3p Z3	001901385	308	4/36
4		ETIMAT P10 3p D4	001901346	ETIMAT P10 3p K4	001901366	ETIMAT P10 3p Z4	001901386	308	4/36
6		ETIMAT P10 3p D6	001901347	ETIMAT P10 3p K6	001901367	ETIMAT P10 3p Z6	001901387	308	4/36
10		ETIMAT P10 3p D10	001901348	ETIMAT P10 3p K10	001901368	ETIMAT P10 3p Z10	001901388	308	4/36
13		ETIMAT P10 3p D13	001901349	ETIMAT P10 3p K13	001901369	ETIMAT P10 3p Z13	001901389	308	4/36
16		ETIMAT P10 3p D16	001901350	ETIMAT P10 3p K16	001901370	ETIMAT P10 3p Z16	001901390	308	4/36
20		ETIMAT P10 3p D20	001901351	ETIMAT P10 3p K20	001901371	ETIMAT P10 3p Z20	001901391	308	4/36
25		ETIMAT P10 3p D25	001901352	ETIMAT P10 3p K25	001901372	ETIMAT P10 3p Z25	001901392	316	4/36
32		ETIMAT P10 3p D32	001901353	ETIMAT P10 3p K32	001901373	ETIMAT P10 3p Z32	001901393	316	4/36
40		ETIMAT P10 3p D40	001901354	/	/	/	/	316	4/36
50		ETIMAT P10 3p D50	001901355	/	/	/	/	335	4/36

3-pole + N, characteristic B, C

I_n [A]	U_n [V]	Type B	Code No. B	Type C	Code No. C		
0,5		-	-	ETIMAT P10 3p+N C0,5	001901421	370	3/27
1		ETIMAT P10 3p+N B1	001901402	ETIMAT P10 3p+N C1	001901422	370	3/27
1,6		ETIMAT P10 3p+N B1,6	001901403	ETIMAT P10 3p+N C1,6	001901423	370	3/27
2		ETIMAT P10 3p+N B2	001901404	ETIMAT P10 3p+N C2	001901424	370	3/27
3		ETIMAT P10 3p+N B3	001901405	ETIMAT P10 3p+N C3	001901425	370	3/27
4		ETIMAT P10 3p+N B4	001901406	ETIMAT P10 3p+N C4	001901426	370	3/27
6		ETIMAT P10 3p+N B6	001901407	ETIMAT P10 3p+N C6	001901427	370	3/27
10	415	ETIMAT P10 3p+N B10	001901408	ETIMAT P10 3p+N C10	001901428	370	3/27
13		ETIMAT P10 3p+N B13	001901409	ETIMAT P10 3p+N C13	001901429	370	3/27
16		ETIMAT P10 3p+N B16	001901410	ETIMAT P10 3p+N C16	001901430	370	3/27
20		ETIMAT P10 3p+N B20	001901411	ETIMAT P10 3p+N C20	001901431	412	3/27
25		ETIMAT P10 3p+N B25	001901412	ETIMAT P10 3p+N C25	001901432	422	3/27
32		ETIMAT P10 3p+N B32	001901413	ETIMAT P10 3p+N C32	001901433	422	3/27
40		ETIMAT P10 3p+N B40	001901414	ETIMAT P10 3p+N C40	001901434	422	3/27
50		ETIMAT P10 3p+N B50	001901415	ETIMAT P10 3p+N C50	001901435	448	3/27
63		ETIMAT P10 3p+N B63	001901416	ETIMAT P10 3p+N C63	001901436	460	3/27

**3-pole + N, characteristic D, K, Z**

I_n [A]	U_n [V]	Type D	Code No. D	Type K	Code No. K	Type Z	Code No. Z		
0,5		ETIMAT P10 3p+N D0,5	001901441	ETIMAT P10 3p+N K0,5	001901461	ETIMAT P10 3p+N Z0,5	001901481	412	3/27
1		ETIMAT P10 3p+N D1	001901442	ETIMAT P10 3p+N K1	001901462	ETIMAT P10 3p+N Z1	001901482	412	3/27
1,6		ETIMAT P10 3p+N D1,6	001901443	ETIMAT P10 3p+N K1,6	001901463	ETIMAT P10 3p+N Z1,6	001901483	412	3/27
2		ETIMAT P10 3p+N D2	001901444	ETIMAT P10 3p+N K2	001901464	ETIMAT P10 3p+N Z2	001901484	412	3/27
3		ETIMAT P10 3p+N D3	001901445	ETIMAT P10 3p+N K3	001901465	ETIMAT P10 3p+N Z3	001901485	412	3/27
4		ETIMAT P10 3p+N D4	001901446	ETIMAT P10 3p+N K4	001901466	ETIMAT P10 3p+N Z4	001901486	412	3/27
6		ETIMAT P10 3p+N D6	001901447	ETIMAT P10 3p+N K6	001901467	ETIMAT P10 3p+N Z6	001901487	412	3/27
10	415	ETIMAT P10 3p+N D10	001901448	ETIMAT P10 3p+N K10	001901468	ETIMAT P10 3p+N Z10	001901488	412	3/27
13		ETIMAT P10 3p+N D13	001901449	ETIMAT P10 3p+N K13	001901469	ETIMAT P10 3p+N Z13	001901489	412	3/27
16		ETIMAT P10 3p+N D16	001901450	ETIMAT P10 3p+N K16	001901470	ETIMAT P10 3p+N Z16	001901490	412	3/27
20		ETIMAT P10 3p+N D20	001901451	ETIMAT P10 3p+N K20	001901471	ETIMAT P10 3p+N Z20	001901491	412	3/27
25		ETIMAT P10 3p+N D25	001901452	ETIMAT P10 3p+N K25	001901472	ETIMAT P10 3p+N Z25	001901492	422	3/27
32		ETIMAT P10 3p+N D32	001901453	ETIMAT P10 3p+N K32	001901473	ETIMAT P10 3p+N Z32	001901493	422	3/27
40		ETIMAT P10 3p+N D40	001901454	/	/	/	/	422	3/27
50		ETIMAT P10 3p+N D50	001901455	/	/	/	/	448	3/27

Circuit breakers type ETIMAT P10 / 3-pole + N are suitable for use as 4-pole circuit breakers

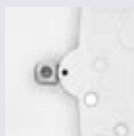
Miniature circuit breaker ETIMAT P10 Reset

Rated short-circuit capacity
10 kA

Rated current
0,5 - 63 A

Tripping characteristic
B, C

Special reset version



In the reset version, the toggle position clearly indicates the reason for tripping, preventing user mistakes and always making it clear whether the system turning off was intentional (manual) or

the result of a fault in the electrical circuit.

In case of overcurrent, the button moves to the “trip” (middle) position. In case of manual turn off, the button moves to the “off” (lowest) position.

1-pole

I_n [A]	U_n [V]	Type B	Code No. B	Type C	Code No. C		
0,5		/	/	ETIMAT P10/R 1p C0,5	001902021	92	12/108
1		ETIMAT P10/R 1p B1	001902002	ETIMAT P10/R 1p C1	001902022	92	12/108
1,6		ETIMAT P10/R 1p B1,6	001902003	ETIMAT P10/R 1p C1,6	001902023	92	12/108
2		ETIMAT P10/R 1p B2	001902004	ETIMAT P10/R 1p C2	001902024	92	12/108
3		ETIMAT P10/R 1p B3	001902005	ETIMAT P10/R 1p C3	001902025	92	12/108
4		ETIMAT P10/R 1p B4	001902006	ETIMAT P10/R 1p C4	001902026	92	12/108
6		ETIMAT P10/R 1p B6	001902007	ETIMAT P10/R 1p C6	001902027	92	12/108
10	240/415	ETIMAT P10/R 1p B10	001902008	ETIMAT P10/R 1p C10	001902028	92	12/108
13		ETIMAT P10/R 1p B13	001902009	ETIMAT P10/R 1p C13	001902029	92	12/108
16		ETIMAT P10/R 1p B16	001902010	ETIMAT P10/R 1p C16	001902030	92	12/108
20		ETIMAT P10/R 1p B20	001902011	ETIMAT P10/R 1p C20	001902031	102	12/108
25		ETIMAT P10/R 1p B25	001902012	ETIMAT P10/R 1p C25	001902032	105	12/108
32		ETIMAT P10/R 1p B32	001902013	ETIMAT P10/R 1p C32	001902033	105	12/108
40		ETIMAT P10/R 1p B40	001902014	ETIMAT P10/R 1p C40	001902034	105	12/108
50		ETIMAT P10/R 1p B50	001902015	ETIMAT P10/R 1p C50	001902035	111	12/108
63		ETIMAT P10/R 1p B63	001902016	ETIMAT P10/R 1p C63	001902036	115	12/108





1-pole + N

I_n [A]	U_n [V]	Type B	Code No. B	Type C	Code No. C		
0,5		/	/	ETIMAT P10/R 1p+N C0,5	001902121	184	6/54
1		ETIMAT P10/R 1p+N B1	001902102	ETIMAT P10/R 1p+N C1	001902122	184	6/54
1,6		ETIMAT P10/R 1p+N B1,6	001902103	ETIMAT P10/R 1p+N C1,6	001902123	184	6/54
2		ETIMAT P10/R 1p+N B2	001902104	ETIMAT P10/R 1p+N C2	001902124	184	6/54
3		ETIMAT P10/R 1p+N B3	001902105	ETIMAT P10/R 1p+N C3	001902125	184	6/54
4		ETIMAT P10/R 1p+N B4	001902106	ETIMAT P10/R 1p+N C4	001902126	184	6/54
6		ETIMAT P10/R 1p+N B6	001902107	ETIMAT P10/R 1p+N C6	001902127	184	6/54
10	240	ETIMAT P10/R 1p+N B10	001902108	ETIMAT P10/R 1p+N C10	001902128	184	6/54
13		ETIMAT P10/R 1p+N B13	001902109	ETIMAT P10/R 1p+N C13	001902129	184	6/54
16		ETIMAT P10/R 1p+N B16	001902110	ETIMAT P10/R 1p+N C16	001902130	184	6/54
20		ETIMAT P10/R 1p+N B20	001902111	ETIMAT P10/R 1p+N C20	001902131	205	6/54
25		ETIMAT P10/R 1p+N B25	001902112	ETIMAT P10/R 1p+N C25	001902132	210	6/54
32		ETIMAT P10/R 1p+N B32	001902113	ETIMAT P10/R 1p+N C32	001902133	210	6/54
40		ETIMAT P10/R 1p+N B40	001902114	ETIMAT P10/R 1p+N C40	001902134	210	6/54
50		ETIMAT P10/R 1p+N B50	001902115	ETIMAT P10/R 1p+N C50	001902135	223	6/54
63		ETIMAT P10/R 1p+N B63	001902116	ETIMAT P10/R 1p+N C63	001902136	230	6/54





2-pole

I_n [A]	U_n [V]	Type B	Code No. B	Type C	Code No. C		
0,5		/	/	ETIMAT P10/R 2p C0,5	001902221	184	6/54
1		ETIMAT P10/R 2p B1	001902202	ETIMAT P10/R 2p C1	001902222	184	6/54
1,6		ETIMAT P10/R 2p B1,6	001902203	ETIMAT P10/R 2p C1,6	001902223	184	6/54
2		ETIMAT P10/R 2p B2	001902204	ETIMAT P10/R 2p C2	001902224	184	6/54
3		ETIMAT P10/R 2p B3	001902205	ETIMAT P10/R 2p C3	001902225	184	6/54
4		ETIMAT P10/R 2p B4	001902206	ETIMAT P10/R 2p C4	001902226	184	6/54
6		ETIMAT P10/R 2p B6	001902207	ETIMAT P10/R 2p C6	001902227	184	6/54
10	415	ETIMAT P10/R 2p B10	001902208	ETIMAT P10/R 2p C10	001902228	184	6/54
13		ETIMAT P10/R 2p B13	001902209	ETIMAT P10/R 2p C13	001902229	184	6/54
16		ETIMAT P10/R 2p B16	001902210	ETIMAT P10/R 2p C16	001902230	184	6/54
20		ETIMAT P10/R 2p B20	001902211	ETIMAT P10/R 2p C20	001902231	205	6/54
25		ETIMAT P10/R 2p B25	001902212	ETIMAT P10/R 2p C25	001902232	210	6/54
32		ETIMAT P10/R 2p B32	001902213	ETIMAT P10/R 2p C32	001902233	210	6/54
40		ETIMAT P10/R 2p B40	001902214	ETIMAT P10/R 2p C40	001902234	210	6/54
50		ETIMAT P10/R 2p B50	001902215	ETIMAT P10/R 2p C50	001902235	223	6/54
63		ETIMAT P10/R 2p B63	001902216	ETIMAT P10/R 2p C63	001902236	230	6/54





3-pole

I_n [A]	U_n [V]	Type B	Code No. B	Type C	Code No. C		
0,5		/	/	ETIMAT P10/R 3p C0,5	001902321	277	4/36
1		ETIMAT P10/R 3p B1	001902302	ETIMAT P10/R 3p C1	001902322	277	4/36
1,6		ETIMAT P10/R 3p B1,6	001902303	ETIMAT P10/R 3p C1,6	001902323	277	4/36
2		ETIMAT P10/R 3p B2	001902304	ETIMAT P10/R 3p C2	001902324	277	4/36
3		ETIMAT P10/R 3p B3	001902305	ETIMAT P10/R 3p C3	001902325	277	4/36
4		ETIMAT P10/R 3p B4	001902306	ETIMAT P10/R 3p C4	001902326	277	4/36
6		ETIMAT P10/R 3p B6	001902307	ETIMAT P10/R 3p C6	001902327	277	4/36
10	415	ETIMAT P10/R 3p B10	001902308	ETIMAT P10/R 3p C10	001902328	277	4/36
13		ETIMAT P10/R 3p B13	001902309	ETIMAT P10/R 3p C13	001902329	277	4/36
16		ETIMAT P10/R 3p B16	001902310	ETIMAT P10/R 3p C16	001902330	277	4/36
20		ETIMAT P10/R 3p B20	001902311	ETIMAT P10/R 3p C20	001902331	308	4/36
25		ETIMAT P10/R 3p B25	001902312	ETIMAT P10/R 3p C25	001902332	316	4/36
32		ETIMAT P10/R 3p B32	001902313	ETIMAT P10/R 3p C32	001902333	316	4/36
40		ETIMAT P10/R 3p B40	001902314	ETIMAT P10/R 3p C40	001902334	316	4/36
50		ETIMAT P10/R 3p B50	001902315	ETIMAT P10/R 3p C50	001902335	335	4/36
63		ETIMAT P10/R 3p B63	001902316	ETIMAT P10/R 3p C63	001902336	345	4/36

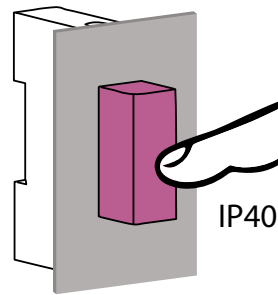
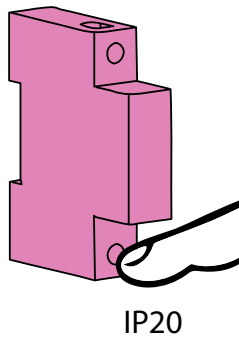
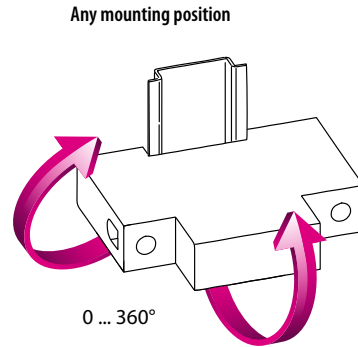
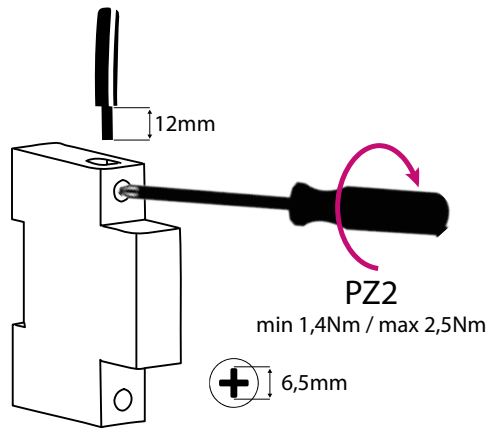


3-pole + N

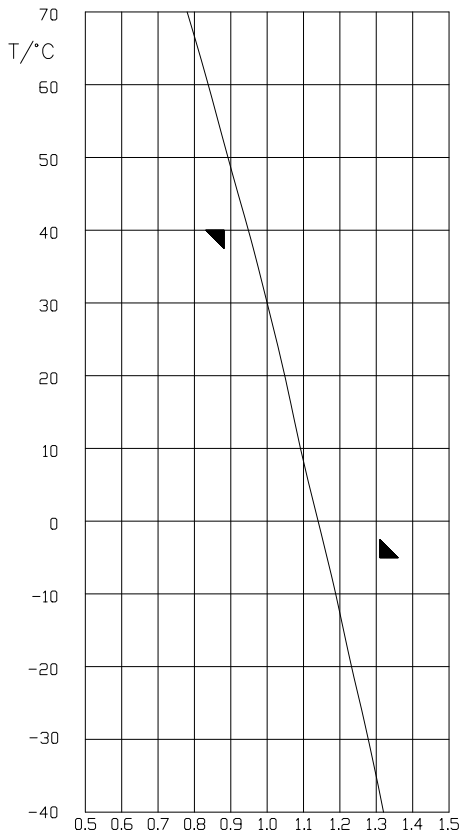
I_n [A]	U_n [V]	Type B	Code No. B	Type C	Code No. C		
0,5		/	/	ETIMAT P10/R 3p+N C0,5	001902421	370	3/27
1		ETIMAT P10/R 3p+N B1	001902402	ETIMAT P10/R 3p+N C1	001902422	370	3/27
1,6		ETIMAT P10/R 3p+N B1,6	001902403	ETIMAT P10/R 3p+N C1,6	001902423	370	3/27
2		ETIMAT P10/R 3p+N B2	001902404	ETIMAT P10/R 3p+N C2	001902424	370	3/27
3		ETIMAT P10/R 3p+N B3	001902405	ETIMAT P10/R 3p+N C3	001902425	370	3/27
4		ETIMAT P10/R 3p+N B4	001902406	ETIMAT P10/R 3p+N C4	001902426	370	3/27
6		ETIMAT P10/R 3p+N B6	001902407	ETIMAT P10/R 3p+N C6	001902427	370	3/27
10	415	ETIMAT P10/R 3p+N B10	001902408	ETIMAT P10/R 3p+N C10	001902428	370	3/27
13		ETIMAT P10/R 3p+N B13	001902409	ETIMAT P10/R 3p+N C13	001902429	370	3/27
16		ETIMAT P10/R 3p+N B16	001902410	ETIMAT P10/R 3p+N C16	001902430	370	3/27
20		ETIMAT P10/R 3p+N B20	001902411	ETIMAT P10/R 3p+N C20	001902431	412	3/27
25		ETIMAT P10/R 3p+N B25	001902412	ETIMAT P10/R 3p+N C25	001902432	422	3/27
32		ETIMAT P10/R 3p+N B32	001902413	ETIMAT P10/R 3p+N C32	001902433	422	3/27
40		ETIMAT P10/R 3p+N B40	001902414	ETIMAT P10/R 3p+N C40	001902434	422	3/27
50		ETIMAT P10/R 3p+N B50	001902415	ETIMAT P10/R 3p+N C50	001902435	448	3/27
63		ETIMAT P10/R 3p+N B63	001902416	ETIMAT P10/R 3p+N C63	001902436	460	3/27



Circuit breakers type ETIMAT P10 / 3-pole + N are suitable for use as 4-pole circuit breakers



Effect of the ambient temperature on the tripping characteristic



I _n [A]	Ambient temperature T/°C											
	-40	-30	-20	-10	0	10	20	30	40	50	60	70
0,5	0,66	0,64	0,62	0,60	0,57	0,55	0,53	0,5	0,48	0,45	0,42	0,39
1	1,32	1,28	1,23	1,19	1,14	1,09	1,05	1	0,95	0,89	0,84	0,78
1,6	2,11	2,05	1,97	1,90	1,82	1,74	1,68	1,6	1,52	1,42	1,34	1,25
2	2,64	2,56	2,46	2,38	2,28	2,18	2,10	2	1,90	1,78	1,68	1,56
4	5,28	5,12	4,92	4,76	4,56	4,36	4,20	4	3,80	3,56	3,36	3,12
6	7,92	7,68	7,38	7,14	6,84	6,54	6,30	6	5,70	5,34	5,04	4,68
10	13,2	12,8	12,3	11,9	11,4	10,9	10,5	10	9,50	8,90	8,40	7,80
13	17,2	16,6	16,0	15,5	14,8	14,2	13,7	13	12,4	11,6	10,9	10,1
16	21,1	20,5	19,7	19,0	18,2	17,4	16,8	16	15,2	14,2	13,4	12,5
20	26,4	25,6	24,6	23,8	22,8	21,8	21,0	20	19,0	17,8	16,8	15,6
25	33,0	32,0	30,8	29,8	28,5	27,3	26,3	25	23,8	22,3	21,0	19,5
32	42,2	41,0	39,4	38,1	36,5	34,9	33,6	32	30,4	28,5	26,9	25,0
40	52,8	51,2	49,2	47,6	45,6	43,6	42,0	40	38,0	35,6	33,6	31,2
50	66,0	64,0	61,5	59,5	57,0	54,5	52,6	50	47,5	44,5	42,0	39,0
63	83,2	80,6	77,5	75,0	71,8	68,7	66,2	63	59,9	56,1	52,9	49,1

Correction factor is valid for current with times over 30 s

$$k = \frac{I(x^{\circ}\text{C})}{I(30^{\circ}\text{C})}$$

I(x°C) - test current at x ambient temperature
I(30°C) - test current at 30°C ambient temperature

Resistance and power dissipation

characteristic	I_n [A]	R/pole [mΩ]	P/pole [w]	
B, C	0,5	3587	1,16	
	1	935	1,21	
	1,6	382	1,26	
	2	264	1,37	
	3	/	/	
	4	69,6	1,38	
	6	40,3	1,96	
	10	16,9	2,00	
	13	11,4	2,08	
	16	8,17	2,26	
	20	6,73	2,53	
	25	5,03	2,96	
	32	3,92	3,44	
	40	/	/	
	50	2,22	3,57	
	63	1,71	4,59	
	D	0,5	/	/
		1	1183	1,55
		1,6	/	/
2		303	1,58	
3		135	1,52	
4		81,8	1,66	
6		40,0	1,78	
10		17,3	1,57	
13		11,3	2,04	
16		8,59	2,31	
20		7,17	2,73	
25		4,77	2,91	
32		3,92	3,44	
40		/	/	
50	/	/		
63	/	/		

Selectivity

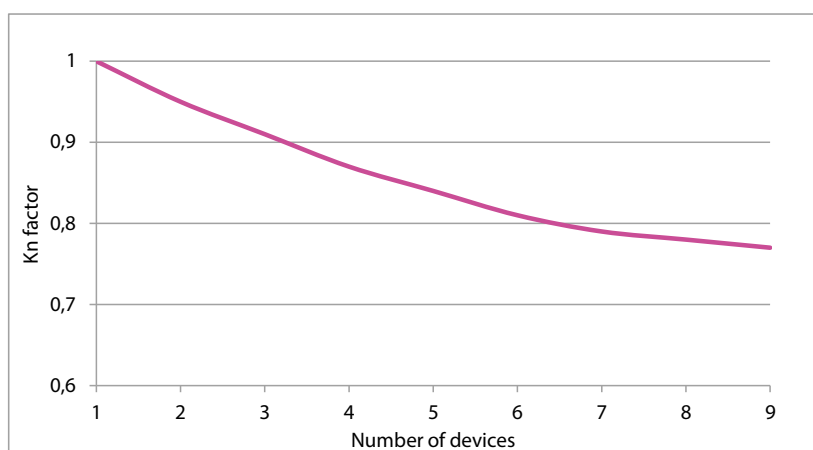
ETIMAT	gG NV										
	20	25	32	35	40	50	63	80	100	125	160
B 6	0,5	0,78	1,2	1,4	1,7	2,4	4,6	7,0	10	10	10
B 10/13	0,45	0,65	1,1	1,3	1,6	2,2	4,0	6,5	10	10	10
B 16		0,55	1,0	1,2	1,5	2,0	3,6	5,5	9,5	10	10
B 20			0,85	1,2	1,5	1,8	3,1	4,6	9,0	10	10
B 25				1,1	1,4	1,7	2,9	4,0	8,0	10	10
B 32					1,3	1,6	2,5	3,4	5,5	9,0	10
B 40						1,5	2,2	3,1	4,9	8,0	10
B 50							2,1	2,9	4,0	6,2	10
B 63								2,5	3,3	5,1	8,0
ETIMAT	gG NV										
	20	25	32	35	40	50	63	80	100	125	160
C,D,K,Z 6	0,52	0,82	1,3	1,5	2,0	2,7	5,1	9,0	10	10	10
C,D,K,Z 10/13	0,47	0,70	1,1	1,4	1,8	2,3	4,0	7,0	10	10	10
C,D,K,Z 16		0,61	0,92	1,2	1,5	1,9	3,2	5,0	9,0	10	10
C,D,K,Z 20			0,90	1,1	1,4	1,7	2,9	4,2	8,0	10	10
C,D,K,Z 25				1,0	1,3	1,6	2,7	3,9	6,0	10	10
C,D,K,Z 32					1,2	1,5	2,3	3,4	5,2	9,0	10
C,D 40						1,4	2,1	3,0	4,6	8,0	10
C,D 50							2,0	2,7	3,8	7,0	10
C 63								2,3	3,2	5,5	9,0

R: measured at $0.1 \cdot I_n$ P: measured at I_n

Effect of number of poles on the tripping characteristic ETIMAT P10 and P10 Reset

Correction factor K_n

Number of devices	K_n
1	1
2	0,95
3	0,91
4	0,87
5	0,84
6	0,81
7	0,79
8	0,78
9	0,77
>9	0,77



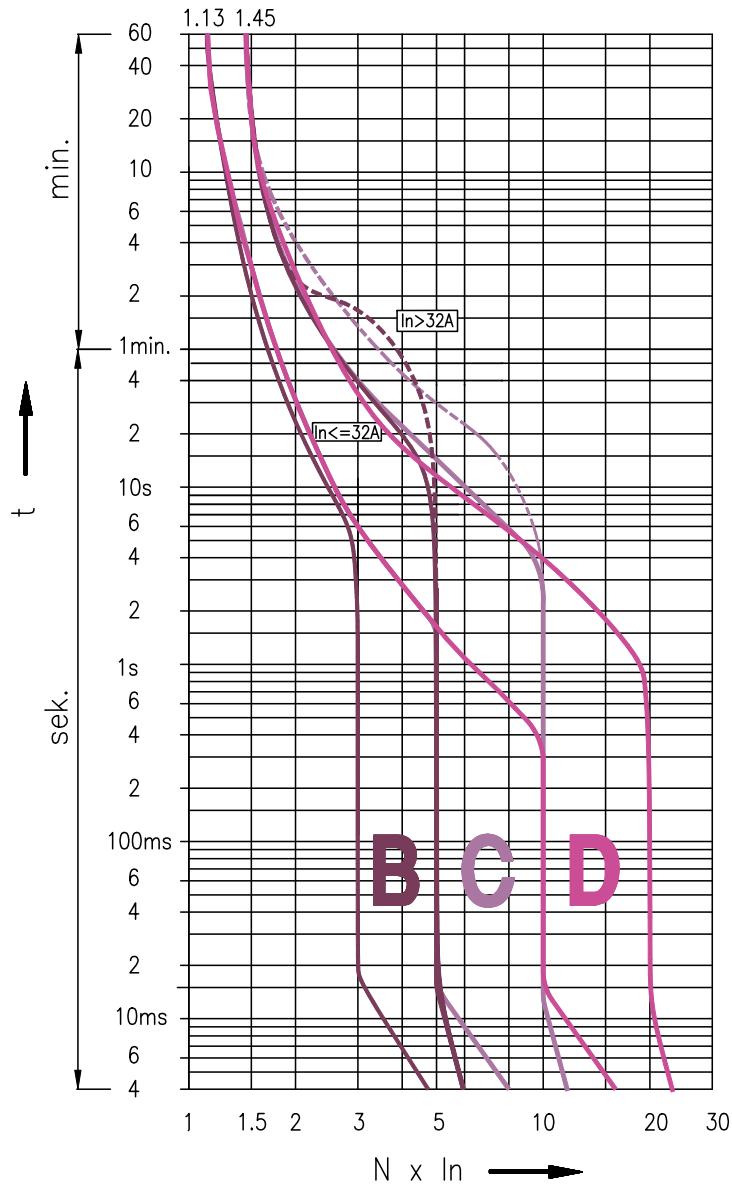
Conductor cross-section [mm ²]	Number of single conductors, rigid, single-wire CU conductor				
	1	2	3	4	5
1,5	✓	✓	✓	✓	✗
2,5	✓	✓	✓	✗	✗
4	✓	✓	✓	✗	✗
6	✓	✓	✗	✗	✗
10	✓	✓	✗	✗	✗
16	✓	✗	✗	✗	✗
25	✓	✗	✗	✗	✗

Remark: When you use more than 2 cables you have to be careful how those cables are inserted, due to insure proper pressure on each cable

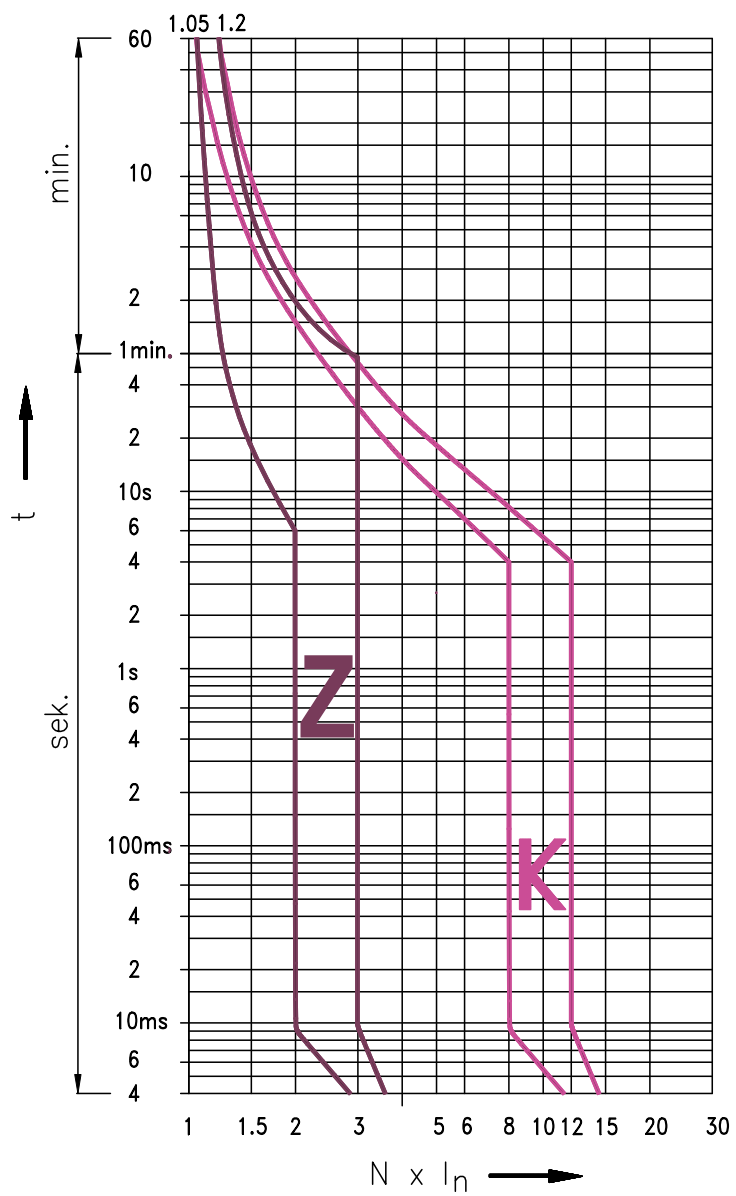
Conductor cross-section [mm ²]	Number of single conductors, flexible Cu conductors with cable ferrule					
	1	2	3	4	5	6
1,5	✓	✓	✓	✓	✓	✓
2,5	✓	✓	✓	✓	✓	✓
4	✓	✓	✓	✓	✓	✓
6	✓	✓	✓	✗	✗	✗
10	✓	✓	✗	✗	✗	✗
16	✓	✗	✗	✗	✗	✗
25	✓	✗	✗	✗	✗	✗

Combination of rigid single-wire and flexible multi-wire Cu conductors is not allowed

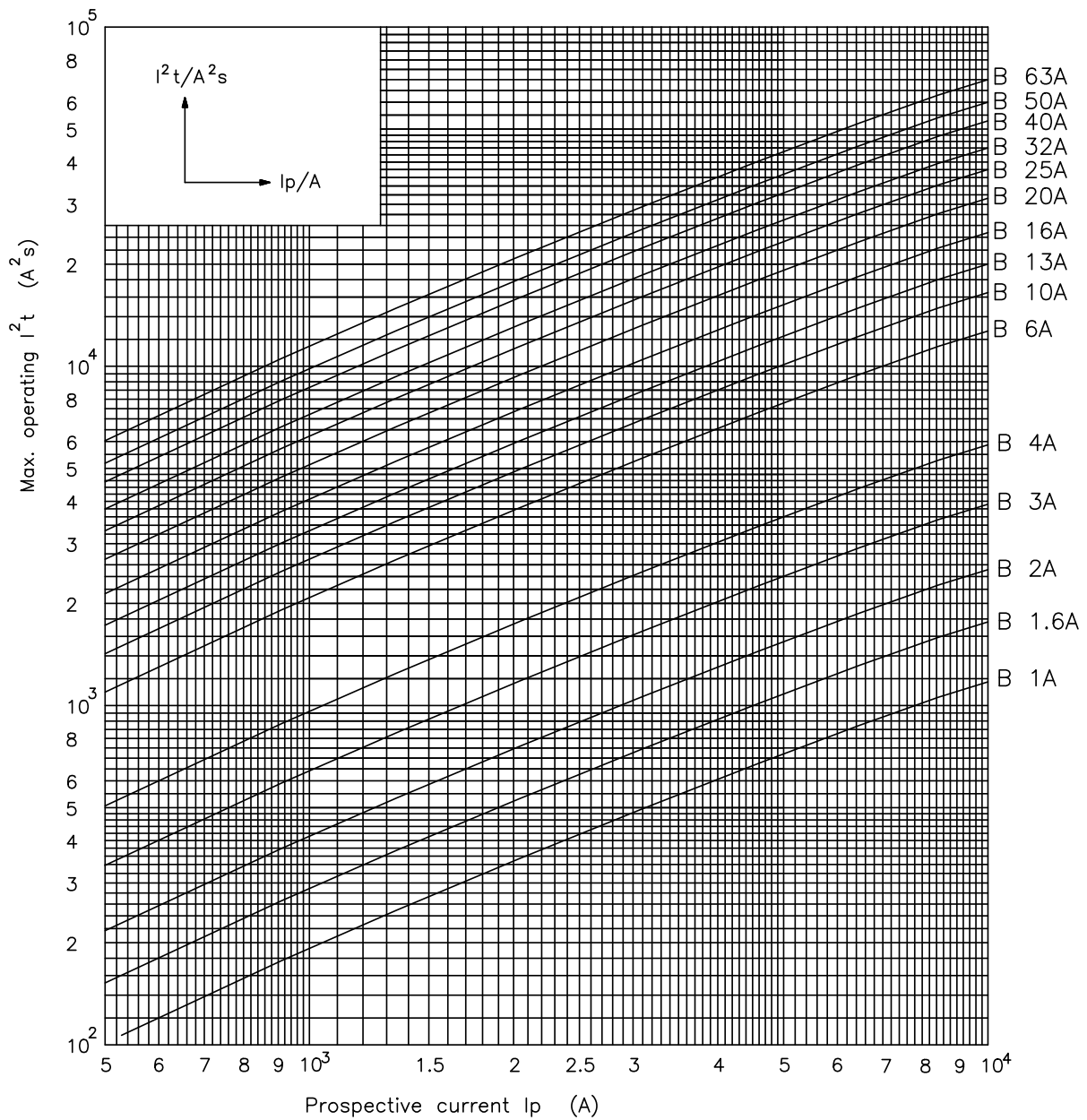
Time current characteristics I/t at 50 and 60Hz, ETIMAT P10 and P10 Reset

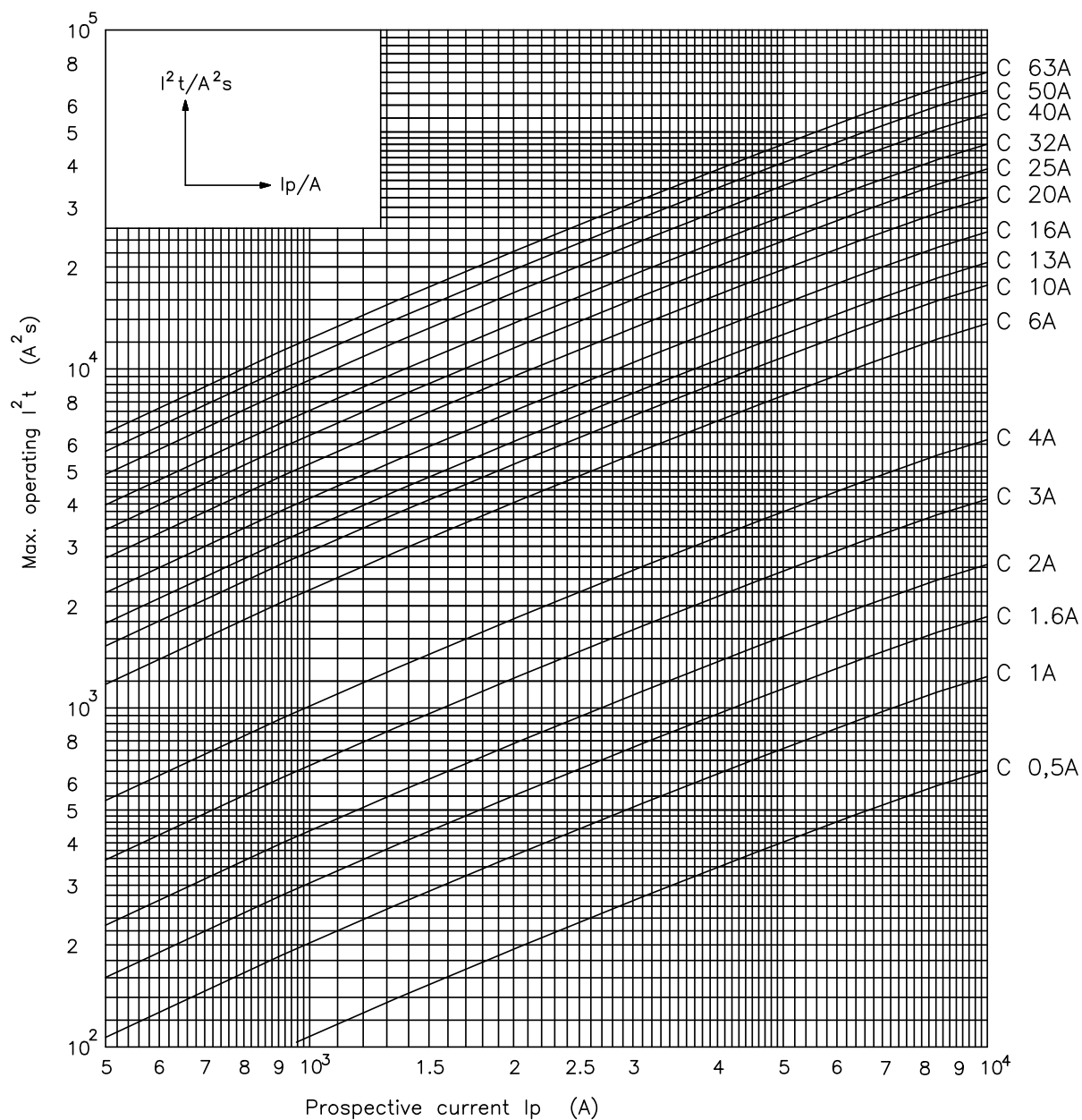


Time current characteristics I/t at 50 and 60Hz, ETIMAT P10 and P10 Reset

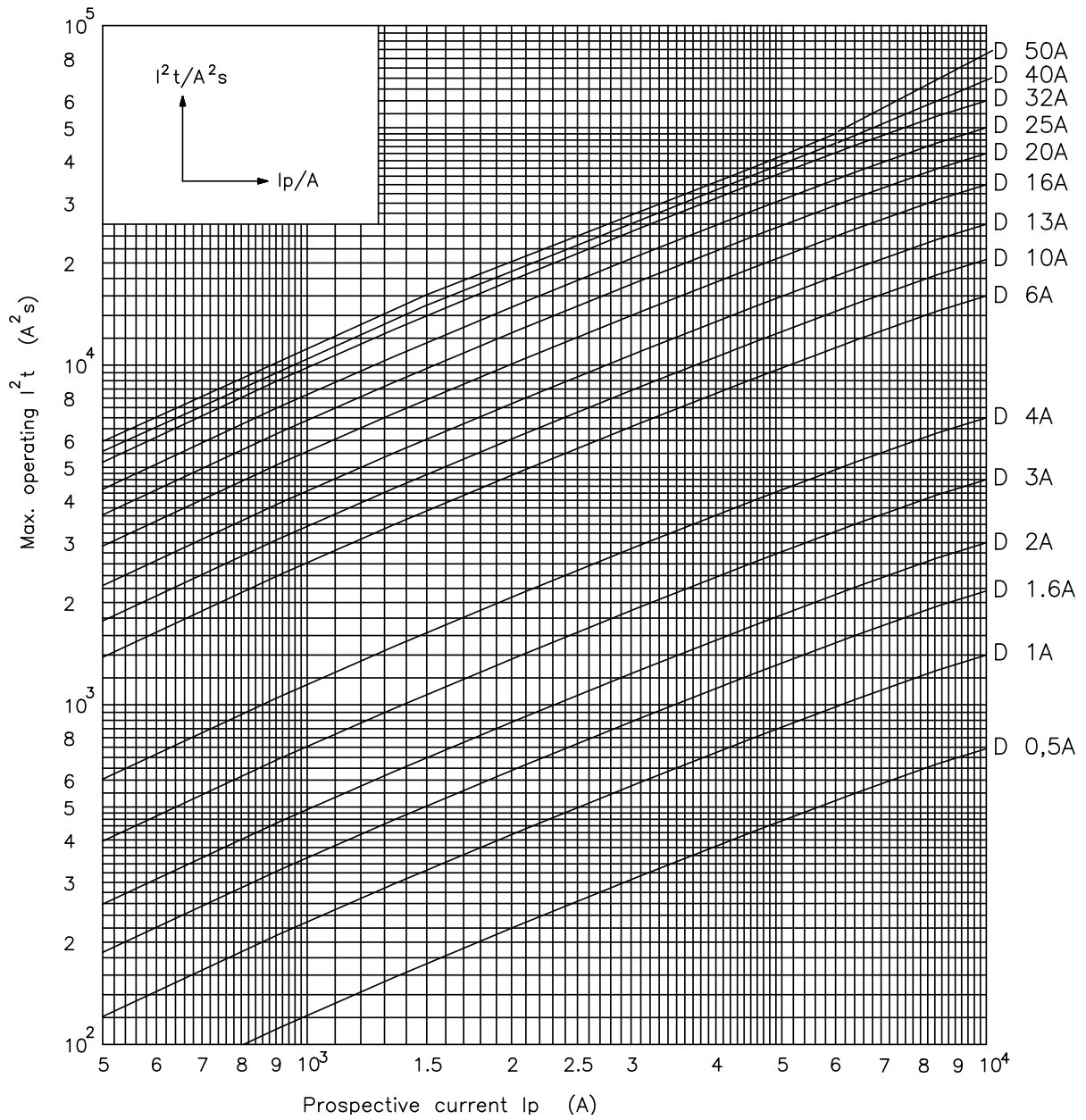


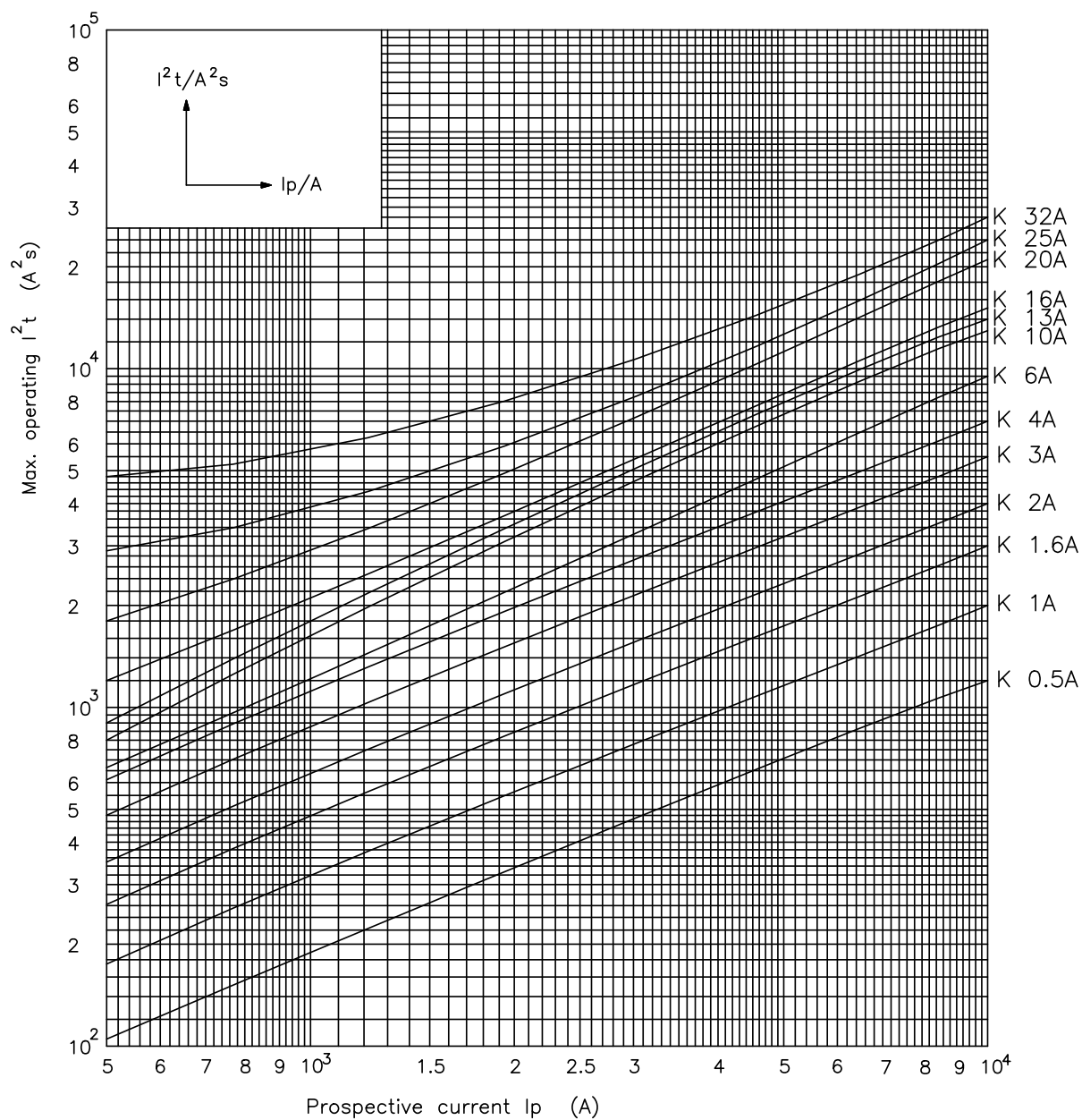
Melting energy characteristics I²t ETIMAT P10 and P10 Reset



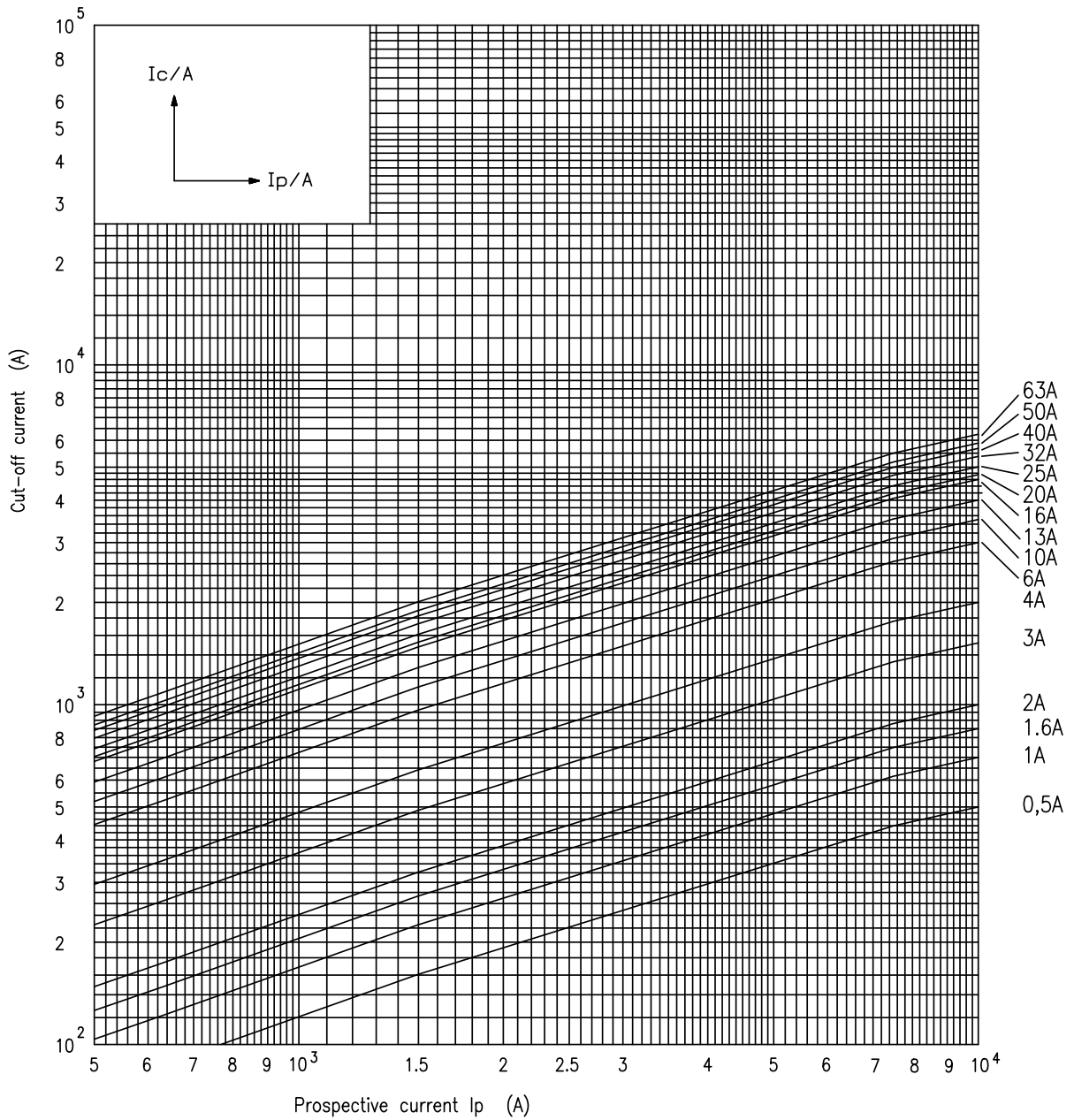
Melting energy characteristics I^2t ETIMAT P10 and P10 Reset

Melting energy characteristics I²t ETIMAT P10 and P10 Reset



Melting energy characteristics I^2t ETIMAT P10 and P10 Reset

Cut-off characteristics I²t ETIMAT P10 and P10 Reset



Miniature circuit breaker ETIMAT P10-DC

Rated short-circuit capacity
10 kA

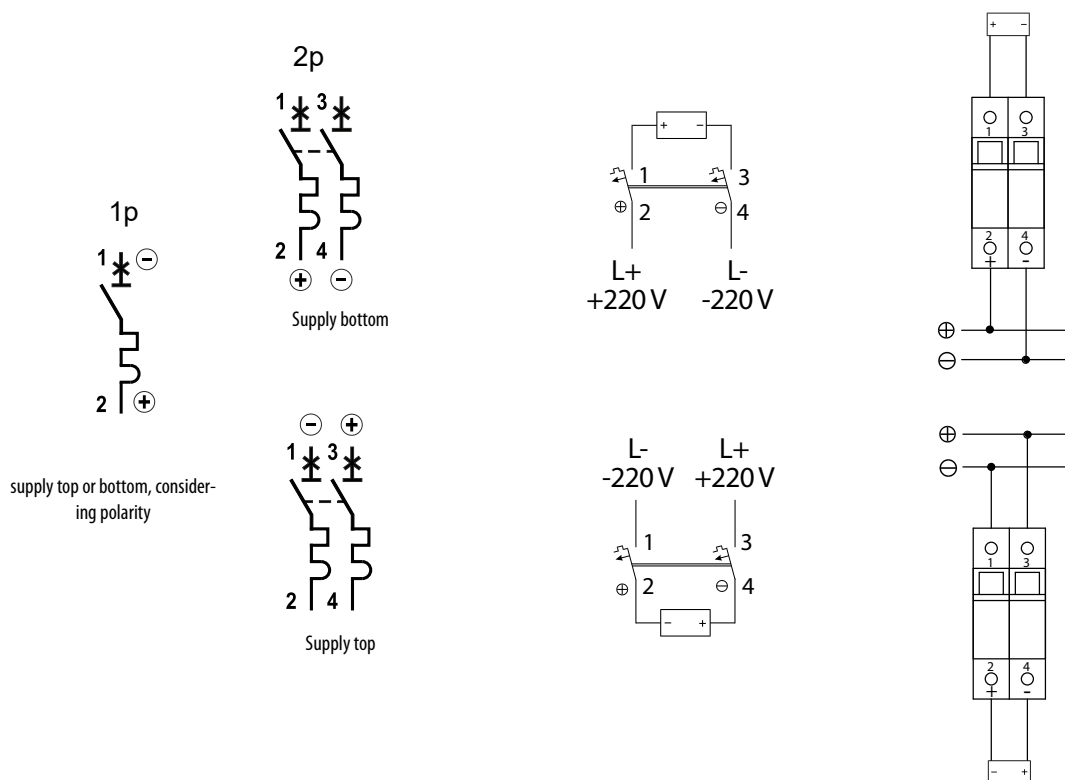
Rated current
0,5 - 63 A

Tripping characteristic
B, C, K, Z



Application: Miniature circuit breakers ETIMAT DC are used for protection of conductors in direct current electric circuits. 1-pole circuit breakers are used for voltages up to 220 V d.c., while 2-pole circuit breakers with poles connected in a series are used for higher voltages (up to 440 V d.c.). When connecting the MCB ETIMAT DC, attention must be paid to polarity as connected in a wrong way the MCB can be destroyed. Note that two 1-pole MCBs cannot be used instead of one 2-pole MCB.

Technical data

Rated voltage - for 1-pole U_n - for 2-pole U_n	220 V DC 220 V / 440 V DC
Rated time constant L/R	4 ms
Rated current I_n	0,5-32A (K & Z), 0,5-63A (C), 2-63A (B)
Rated short-circuit capacity	10 kA
Tripping characteristic	B, C, K, Z
Energy limiting class	3
Insulating class	B
Pollution degree	2
Back-up fuse	100 A gG
Ambient temperature	-40°C ... +70°C
Storage temperature	-60°C ... +70°C
Terminals	1-25mm ² , min 1,4Nm / max 2,5Nm
Terminal screw	M5 (PoziDrive PZ2)
Mounting position	any
Sealing possibility	✓
Terminal cover	✓
Contact position indicator	✓
Locking device	✓
Resistance to vibrations (IEC 60068-2-7)	5g (10,60 & 500Hz)
Standards	IEC 60898, EN 60898, DIN VDE 0641





1-pole, characteristic B, C



I_n [A]	U_n [V]	Type B	Code No. B	Type C	Code No. C		
0,5	220	/	/	ETIMAT P10-DC 1p C0,5	001903021	94	12/108
1		ETIMAT P10-DC 1p B1	001903002	ETIMAT P10-DC 1p C1	001903022	94	12/108
1,6		ETIMAT P10-DC 1p B1,6	001903003	ETIMAT P10-DC 1p C1,6	001903023	94	12/108
2		ETIMAT P10-DC 1p B2	001903004	ETIMAT P10-DC 1p C2	001903024	94	12/108
3		ETIMAT P10-DC 1p B3	001903005	ETIMAT P10-DC 1p C3	001903025	94	12/108
4		ETIMAT P10-DC 1p B4	001903006	ETIMAT P10-DC 1p C4	001903026	94	12/108
6		ETIMAT P10-DC 1p B6	001903007	ETIMAT P10-DC 1p C6	001903027	94	12/108
10		ETIMAT P10-DC 1p B10	001903008	ETIMAT P10-DC 1p C10	001903028	94	12/108
13		ETIMAT P10-DC 1p B13	001903009	ETIMAT P10-DC 1p C13	001903029	94	12/108
16		ETIMAT P10-DC 1p B16	001903010	ETIMAT P10-DC 1p C16	001903030	94	12/108
20		ETIMAT P10-DC 1p B20	001903011	ETIMAT P10-DC 1p C20	001903031	94	12/108
25		ETIMAT P10-DC 1p B25	001903012	ETIMAT P10-DC 1p C25	001903032	95	12/108
32		ETIMAT P10-DC 1p B32	001903013	ETIMAT P10-DC 1p C32	001903033	95	12/108
40		ETIMAT P10-DC 1p B40	001903014	ETIMAT P10-DC 1p C40	001903034	95	12/108
50		ETIMAT P10-DC 1p B50	001903015	ETIMAT P10-DC 1p C50	001903035	103	12/108
63		ETIMAT P10-DC 1p B63	001903016	ETIMAT P10-DC 1p C63	001903036	106	12/108



1-pole, characteristic K, Z



I_n [A]	U_n [V]	Type K	Code No. K	Type Z	Code No. Z		
0,5	220	ETIMAT P10-DC 1p K0,5	001903061	ETIMAT P10-DC 1p Z0,5	001903081	94	12/108
1		ETIMAT P10-DC 1p K1	001903062	ETIMAT P10-DC 1p Z1	001903082	94	12/108
1,6		ETIMAT P10-DC 1p K1,6	001903063	ETIMAT P10-DC 1p Z1,6	001903083	94	12/108
2		ETIMAT P10-DC 1p K2	001903064	ETIMAT P10-DC 1p Z2	001903084	94	12/108
3		ETIMAT P10-DC 1p K3	001903065	ETIMAT P10-DC 1p Z3	001903085	94	12/108
4		ETIMAT P10-DC 1p K4	001903066	ETIMAT P10-DC 1p Z4	001903086	94	12/108
6		ETIMAT P10-DC 1p K6	001903067	ETIMAT P10-DC 1p Z6	001903087	94	12/108
10		ETIMAT P10-DC 1p K10	001903068	ETIMAT P10-DC 1p Z10	001903088	94	12/108
13		ETIMAT P10-DC 1p K13	001903069	ETIMAT P10-DC 1p Z13	001903089	94	12/108
16		ETIMAT P10-DC 1p K16	001903070	ETIMAT P10-DC 1p Z16	001903090	94	12/108
20		ETIMAT P10-DC 1p K20	001903071	ETIMAT P10-DC 1p Z20	001903091	94	12/108
25		ETIMAT P10-DC 1p K25	001903072	ETIMAT P10-DC 1p Z25	001903092	95	12/108
32		ETIMAT P10-DC 1p K32	001903073	ETIMAT P10-DC 1p Z32	001903093	95	12/108

2-pole, characteristic B, C

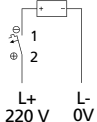
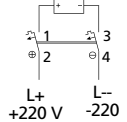
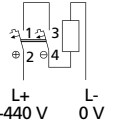
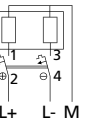
I_n [A]	U_n [V]	Type B	Code No. B	Type C	Code No. C		
0,5	440	/	/	ETIMAT P10-DC 2p C0,5	001903221	190	6/54
1		ETIMAT P10-DC 2p B1	001903202	ETIMAT P10-DC 2p C1	001903222	190	6/54
1,6		ETIMAT P10-DC 2p B1,6	001903203	ETIMAT P10-DC 2p C1,6	001903223	190	6/54
2		ETIMAT P10-DC 2p B2	001903204	ETIMAT P10-DC 2p C2	001903224	190	6/54
3		ETIMAT P10-DC 2p B3	001903205	ETIMAT P10-DC 2p C3	001903225	190	6/54
4		ETIMAT P10-DC 2p B4	001903206	ETIMAT P10-DC 2p C4	001903226	190	6/54
6		ETIMAT P10-DC 2p B6	001903207	ETIMAT P10-DC 2p C6	001903227	190	6/54
10		ETIMAT P10-DC 2p B10	001903208	ETIMAT P10-DC 2p C10	001903228	190	6/54
13		ETIMAT P10-DC 2p B13	001903209	ETIMAT P10-DC 2p C13	001903229	190	6/54
16		ETIMAT P10-DC 2p B16	001903210	ETIMAT P10-DC 2p C16	001903230	190	6/54
20		ETIMAT P10-DC 2p B20	001903211	ETIMAT P10-DC 2p C20	001903231	190	6/54
25		ETIMAT P10-DC 2p B25	001903212	ETIMAT P10-DC 2p C25	001903232	193	6/54
32		ETIMAT P10-DC 2p B32	001903213	ETIMAT P10-DC 2p C32	001903233	193	6/54
40		ETIMAT P10-DC 2p B40	001903214	ETIMAT P10-DC 2p C40	001903234	193	6/54
50		ETIMAT P10-DC 2p B50	001903215	ETIMAT P10-DC 2p C50	001903235	208	6/54
63		ETIMAT P10-DC 2p B63	001903216	ETIMAT P10-DC 2p C63	001903236	215	6/54

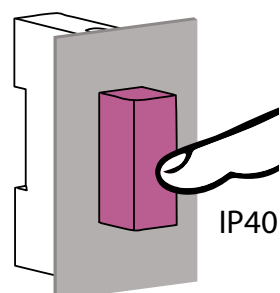
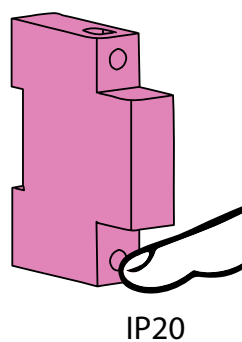
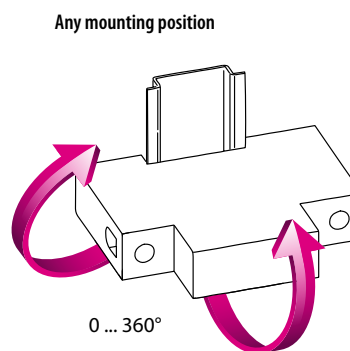
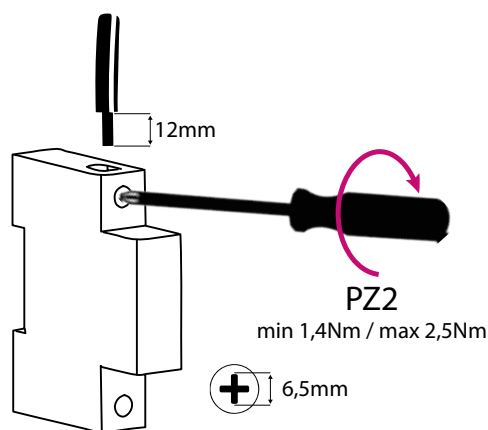


2-pole, characteristic K, Z

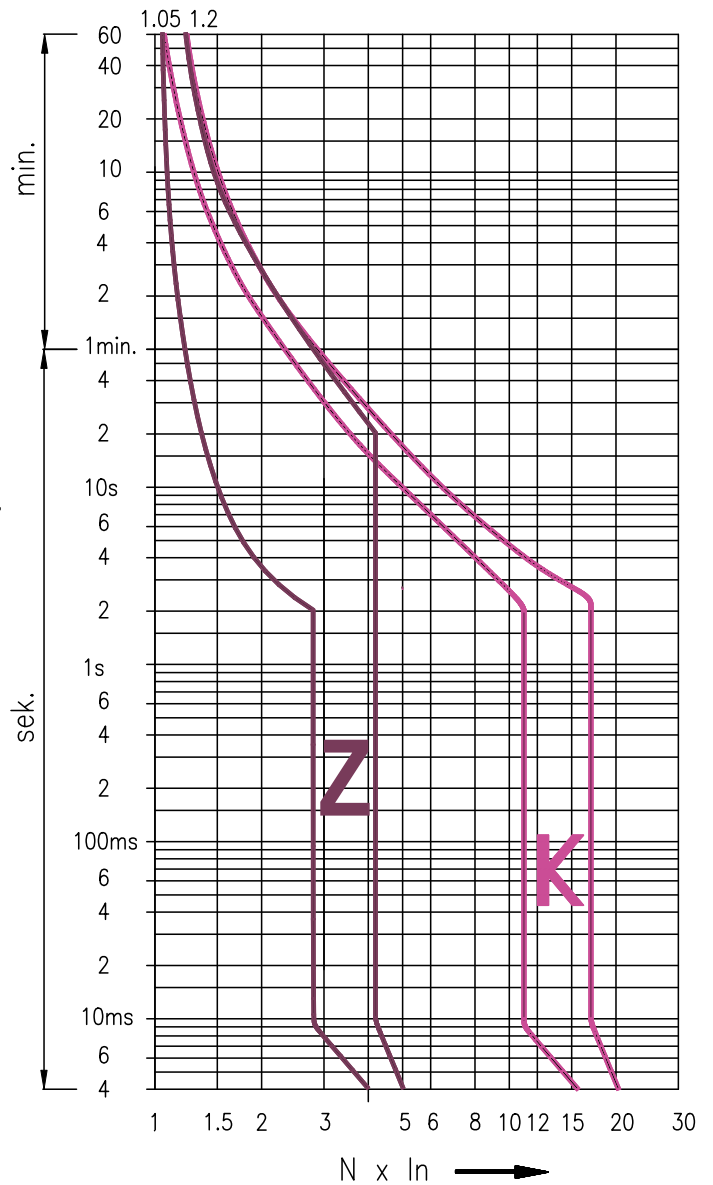
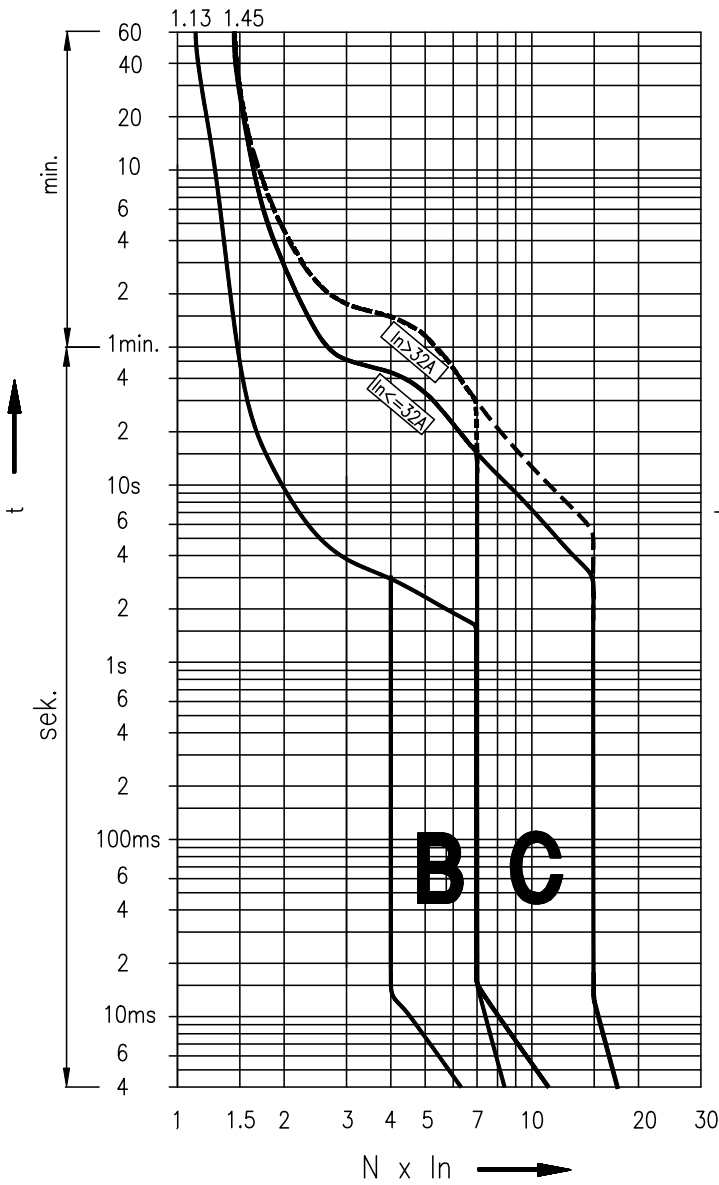
I_n [A]	U_n [V]	Type K	Code No. K	Type Z	Code No. Z		
0,5	440	ETIMAT P10-DC 2p K0,5	001903261	ETIMAT P10-DC 2p Z0,5	001903281	190	6/54
1		ETIMAT P10-DC 2p K1	001903262	ETIMAT P10-DC 2p Z1	001903282	190	6/54
1,6		ETIMAT P10-DC 2p K1,6	001903263	ETIMAT P10-DC 2p Z1,6	001903283	190	6/54
2		ETIMAT P10-DC 2p K2	001903264	ETIMAT P10-DC 2p Z2	001903284	190	6/54
3		ETIMAT P10-DC 2p K3	001903265	ETIMAT P10-DC 2p Z3	001903285	190	6/54
4		ETIMAT P10-DC 2p K4	001903266	ETIMAT P10-DC 2p Z4	001903286	190	6/54
6		ETIMAT P10-DC 2p K6	001903267	ETIMAT P10-DC 2p Z6	001903287	190	6/54
10		ETIMAT P10-DC 2p K10	001903268	ETIMAT P10-DC 2p Z10	001903288	190	6/54
13		ETIMAT P10-DC 2p K13	001903269	ETIMAT P10-DC 2p Z13	001903289	190	6/54
16		ETIMAT P10-DC 2p K16	001903270	ETIMAT P10-DC 2p Z16	001903290	190	6/54
20		ETIMAT P10-DC 2p K20	001903271	ETIMAT P10-DC 2p Z20	001903291	190	6/54
25		ETIMAT P10-DC 2p K25	001903272	ETIMAT P10-DC 2p Z25	001903292	193	6/54
32	ETIMAT P10-DC 2p K32	001903273	ETIMAT P10-DC 2p Z32	001903293	193	6/54	

Connecting diagrams in direct current electric circuits

Rated voltage of circuit breaker	220 V ---	220/440 V ---	220/440 V ---	220/440 V ---
Voltage between conductors - max.	220 V ---	440 V ---	440 V ---	440 V ---
Voltage between conductor and earth - max.	220 V ---	220 V ---	440 V ---	220 V ---
Circuit breaker	1-pole	2-pole	2-pole	2-pole
Connecting diagram				



Time current characteristics I/t at 50 and 60Hz, ETIMAT P10-DC



Conductor cross-section [mm ²]	Number of single conductors, rigid, single-wire CU conductor				
	1	2	3	4	5
1,5	✓	✓	✓	✓	✗
2,5	✓	✓	✓	✗	✗
4	✓	✓	✓	✗	✗
6	✓	✓	✗	✗	✗
10	✓	✓	✗	✗	✗
16	✓	✗	✗	✗	✗
25	✓	✗	✗	✗	✗


Remark: When you use more than 2 cables you have to be careful how those cables are inserted, due to insure proper pressure on each cable

Conductor cross-section [mm ²]	Number of single conductors, flexible Cu conductors with cable ferrule					
	1	2	3	4	5	6
1,5	✓	✓	✓	✓	✓	✓
2,5	✓	✓	✓	✓	✓	✓
4	✓	✓	✓	✓	✓	✓
6	✓	✓	✓	✗	✗	✗
10	✓	✓	✗	✗	✗	✗
16	✓	✗	✗	✗	✗	✗
25	✓	✗	✗	✗	✗	✗



Combination of rigid single-wire and flexible multi-wire Cu conductors is not allowed

Accessories for ETIMAT P6, ETIMAT P10(/R) and ETIMAT P10-DC



ETIMAT terminal cover

Code No.		
002159011	2	12

Sealing piece ETIMAT

Code No.		
001908405	2	12

Locking device

Code No.		
001908401	3	1/1

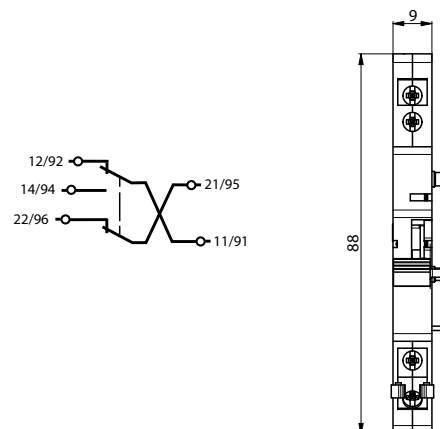


The PS/SS ETIMAT P6/P10 is an auxiliary/signal switch designed for remote signalling. It is used in conjunction with the MCB, to which it is attached on the left side. Although the PS/SS ETIMAT P6/P10 can be fixed initially, it may also be attached at a later stage. The clamps on the device are safe to touch. Its external dimensions are consistent with the MCB, and its built-in width measures 0.5 module (9 mm).



During installation, ensure that the MCB is switched off. The package for the PS/SS ETIMAT P6/P10 includes connection springs if you're using only one PS/SS. However, up to three PS/SS can be fitted to the ETIMAT P6/P10 using special connection springs.

Technical data



Function	Auxiliary or Signal Switch
Rated voltage	230V AC/DC, 110V DC
Rated current	6A (230V AC); 1A (110V DC); 0,5A (220V DC)
Rated frequency	50/60Hz, DC
Index of protection	IP 20 (IP 40)
Terminal capacity	1,5mm ²
Terminal Screw	M3 PH1
Terminal torque	max. 0,5Nm
Ambient temperature	-25°C... +40°C
Storage temperature	-40°C... +70°C
Contacts	1x NC, 1x NC/NO
Mounting position	any
Standards	EN 62019



Auxiliary / signal switch PS/SS ETIMAT P6/P10

Type	Code No.	contacts		
PS/SS ETIMAT P6/P10	001908421	1xNC, 1xNC/NO	53	1/12

Connection spring for 2x and 3x PS/SS

Type	Code No.		
ETIMAT P10 2xPS/SS	027324022	3,7	10
ETIMAT P10 3xPS/SS	027324023	4,5	10



AUX switch connections	status of the breaker	
	ON	OFF
11-14 NO	1	0
11-12 NC	0	1
21-22 NC	0	1

Signal switch connections	status of the breaker		
	ON	manual trip	overcurrent trip
11-14 NO	1	1	0
11-12 NC	0	0	1
21-22 NC	0	0	1

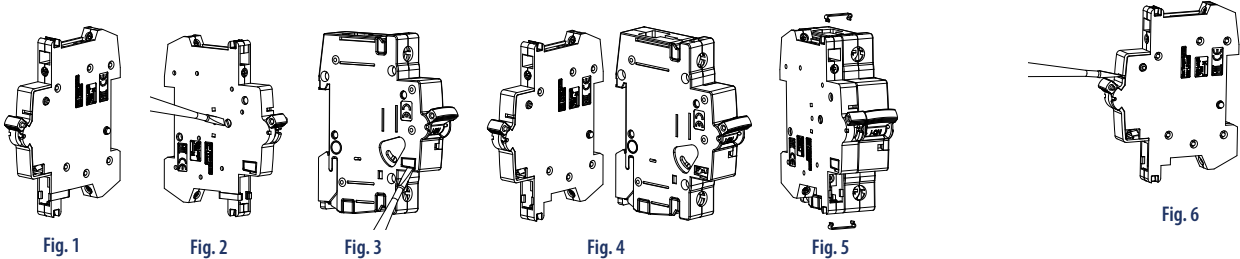
NO - Normally open contact --> during the activation it makes a contact
 NC - Normally closed contact --> during the activation it brakes the contact
 1 - contact
 0 - without a contact

Installation instructions

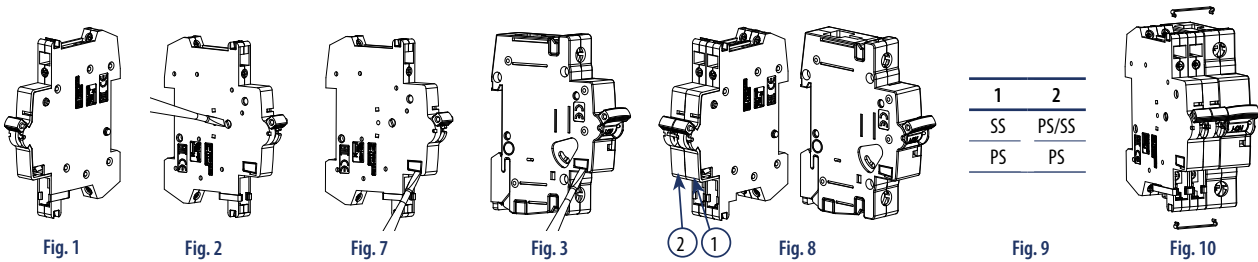
WARNING: Do not install three auxiliary/signal switches on a single-pole MCB.

1. Before adding the switch, first remove the connection spring (Fig. 1).
2. Adjust the contact position based on the desired function, using the rotary switch as per the markings (Fig. 2).
3. When utilizing two or three auxiliary/signal switches, ensure the function selection matches the guides in Fig. 9 or Fig. 13, respectively.
4. For installations involving two or three additional auxiliary/signal switches, break the plastic windows on their housings, except for the outermost one (Fig. 7, Fig. 11).
5. If breaking the plastic window on the switch, ensure that no fragments enter the body of the switch (Fig. 3).
6. Connect the auxiliary/signal switches to the MCB (Fig. 4, Fig. 8, Fig. 12).
7. Secure the auxiliary/signal switches in place using appropriately sized connection springs (Fig. 5, Fig. 10, Fig. 14). Note: These connection springs are not included in the delivery set.
8. To test the additional auxiliary/signal switches (PS/SS), use a screwdriver to press the triggering mechanism in the "TEST" window of the "ON" position of the switch (Fig. 6). Ensure the handle is set to the "ON" position.

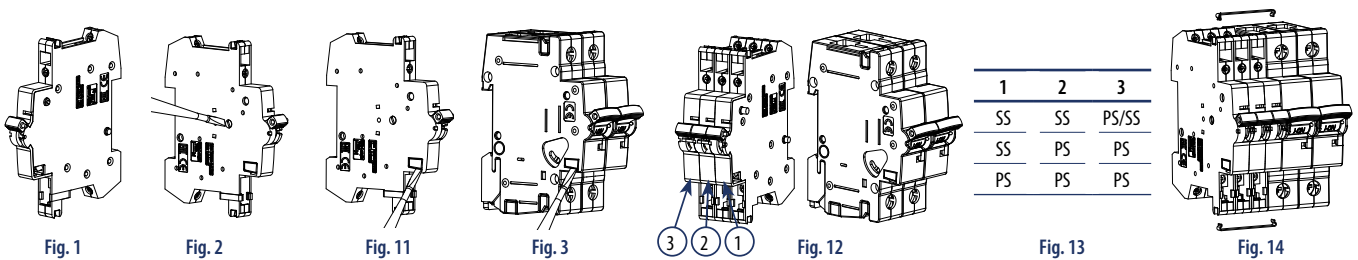
Installation of one PS/SS ETIMAT P6/P10 switch



Installation of two PS/SS ETIMAT P6/P10 switches



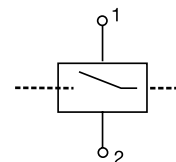
Installation of three PS/SS ETIMAT P6/P10 switches



DA ETIMAT P6/P10 shunt trip release is fixed to the right side of the miniature circuit breaker ETIMAT P6/P10 for remote release of the MCB. Dimensions correspond to those of MCB ETIMAT P6/P10.

Technical data

Rated voltage	12-60V AC/DC, 110-250V AC/DC
Rated frequency	50/60Hz, DC
Max inrush current	3A
Index of protection	IP 20 (IP 40)
Terminals	1-25mm ² , min 1,4Nm / max 2,5Nm
Terminal screw	M5 (Pozidrive PZ2)
Ambient temperature	-40°C ... +70°C
Storage temperature	-60°C ... +70°C
Mounting on the rail	EN 60715
Mounting position	any
Sealing possibility	✓
Terminal cover	✓
Locking device	✓



Note: Same dimensions as ETIMAT P10



Shunt trip release DA ETIMAT P6/P10

Type	Code No.		
DA ETIMAT P6/P10 12-60V AC/DC	001908411	110	1/54
DA ETIMAT P6/P10 110-250V AC/DC	001908412	110	1/54
DA ETIMAT P10/R 12-60V AC/DC	001908413	110	1/54
DA ETIMAT P10/R 110-250V AC/DC	001908414	110	1/54

Miniature circuit breaker ETIMAT 10 80 -125A

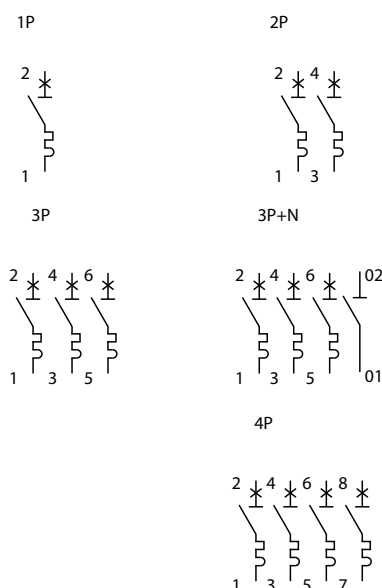
Rated short-circuit capacity
15, 20 kA

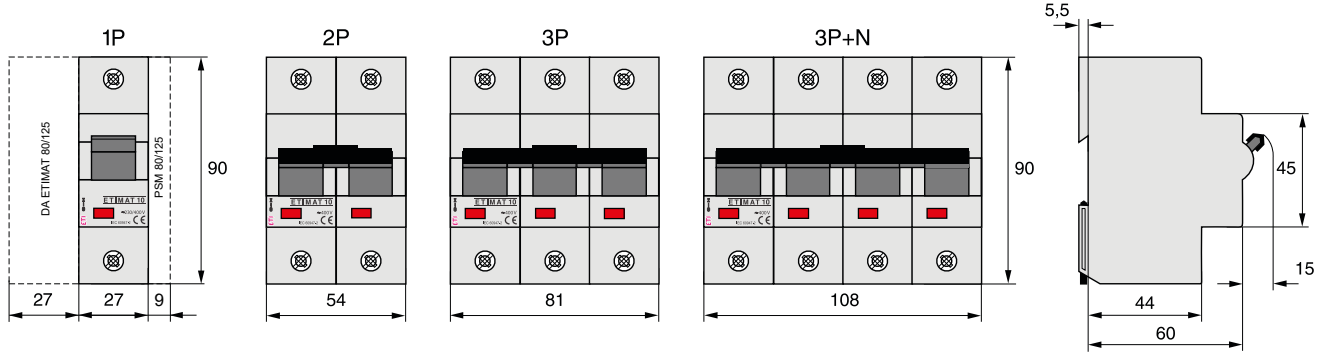
Rated current
80 - 125 A

Tripping characteristics
B, C, D

Technical data

Rated voltage	80-125 A	240/415V AC, 60V DC/pole
Rated current	80, 100, 125 A	
Tripping characteristics	B, C, D	
Rated frequency	50/60 Hz	
Rated insulation voltage	440V AC (80-125A)	
Rated impulse withstand voltage U _{imp}	4kV (80-125A)	
Rated short-circuit capacity:	Characteristic B, C	I _n = 80, 100 A 20kA (EN 60947-2)
		I _n = 125 A 15kA (EN 60947-2)
	Characteristic D	I _n = 80 A 20kA (EN 60947-2)
		I _n = 100 A 15kA (EN 60947-2)
Energy limiting class	3	
Terminals	80-125 A	2,5-50mm ² / 2,5-3,0 Nm
Build-in width	80-125 A	27mm/Pol
Terminal screw	M6 PZ2	
Mounting on the rail	EN 60715 (EN 50022)	
Mounting position	any	
Ambient temperature	max -30°C ... +50°C	
Storage temperature	max -50°C ... +70°C	
Mechanical durability (cycles)	80-125 A	min. 20000
Sealing possibility	ON / OFF	
Back-up fuse	max 200A gL	
Resistance to vibrations (IEC 60068-2-7)	5g (10,60 & 500Hz)	
Standards	EN 60898, EN 60947-2	





1-pole

I_n [A]	Type B	Code No. B	Type C	Code No. C	Type D	Code No. D	g	Box
80	ETIMAT 10 1p B 80	002121731	ETIMAT 10 1p C 80	002131731	ETIMAT 10 1p D 80	002151731	231	2/72
100	ETIMAT 10 1p B 100	002121732	ETIMAT 10 1p C 100	002131732	ETIMAT 10 1p D 100	002151732	231	2/72
125	ETIMAT 10 1p B 125	002121733	ETIMAT 10 1p C 125	002131733	/	/	231	2/72

2-pole

I_n [A]	Type B	Code No. B	Type C	Code No. C	Type D	Code No. D	g	Box
80	ETIMAT 10 2p B 80	002123731	ETIMAT 10 2p C 80	002133731	ETIMAT 10 2p D 80	002153731	466	1/36
100	ETIMAT 10 2p B 100	002123732	ETIMAT 10 2p C 100	002133732	ETIMAT 10 2p D 100	002153732	466	1/36
125	ETIMAT 10 2p B 125	002123733	ETIMAT 10 2p C 125	002133733	/	/	466	1/36

3-pole

I_n [A]	Type B	Code No. B	Type C	Code No. C	Type D	Code No. D	g	Box
80	ETIMAT 10 3p B 80	002125731	ETIMAT 10 3p C 80	002135731	ETIMAT 10 3p D 80	002155731	696	1/18
100	ETIMAT 10 3p B 100	002125732	ETIMAT 10 3p C 100	002135732	ETIMAT 10 3p D 100	002155732	696	1/18
125	ETIMAT 10 3p B 125	002125733	ETIMAT 10 3p C 125	002135733	/	/	696	1/18

3-pole + N

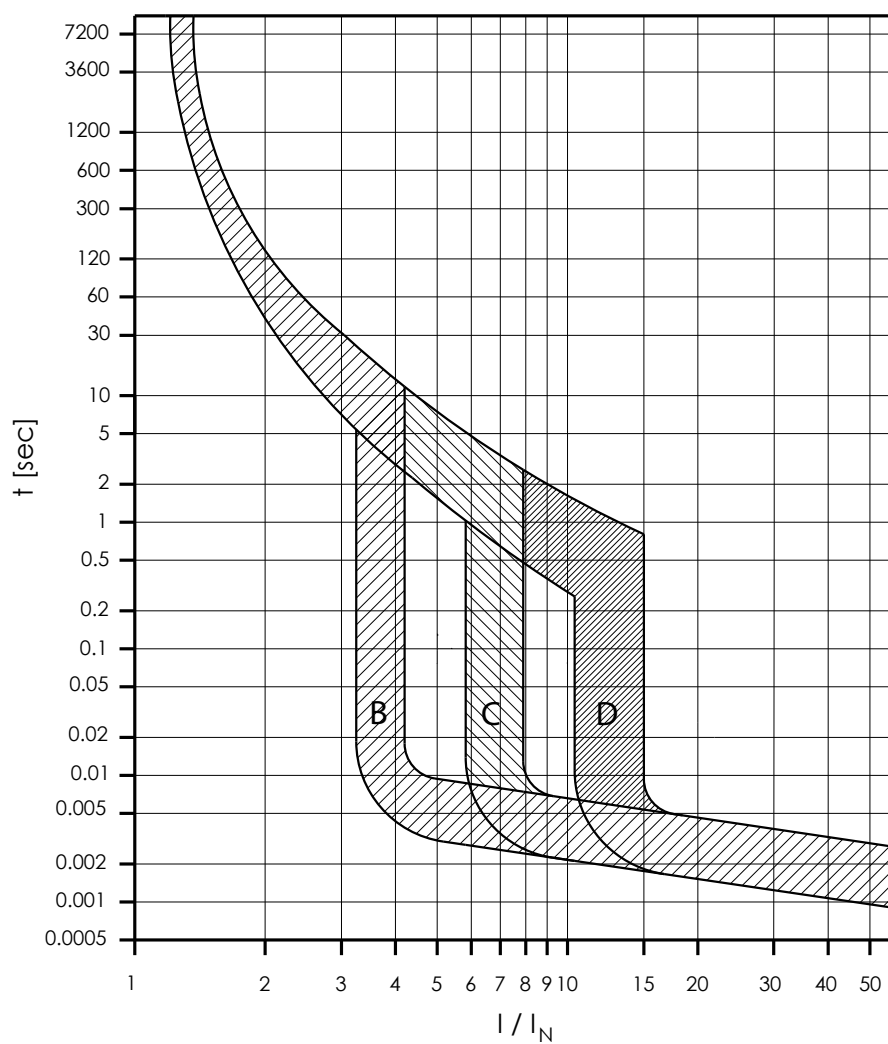
I_n [A]	Type B	Code No. B	Type C	Code No. C	Type D	Code No. D	g	Box
80	ETIMAT 10 3p+N B 80	002126731	ETIMAT 10 3p+N C 80	002136731	ETIMAT 10 3p+N D 80	002156731	860	1/14
100	ETIMAT 10 3p+N B 100	002126732	ETIMAT 10 3p+N C 100	002136732	ETIMAT 10 3p+N D 100	002156732	860	1/14
125	ETIMAT 10 3p+N B 125	002126733	ETIMAT 10 3p+N C 125	002136733	/	/	860	1/14

4-pole

I_n [A]	Type B	Code No. B	Type C	Code No. C	g	Box
80	ETIMAT 10 4p B 80	002127731	ETIMAT 10 4p C 80	002137731	930	1/14
100	ETIMAT 10 4p B 100	002127732	ETIMAT 10 4p C 100	002137732	930	1/14
125	ETIMAT 10 4p B 125	002127733	ETIMAT 10 4p C 125	002137733	930	1/14



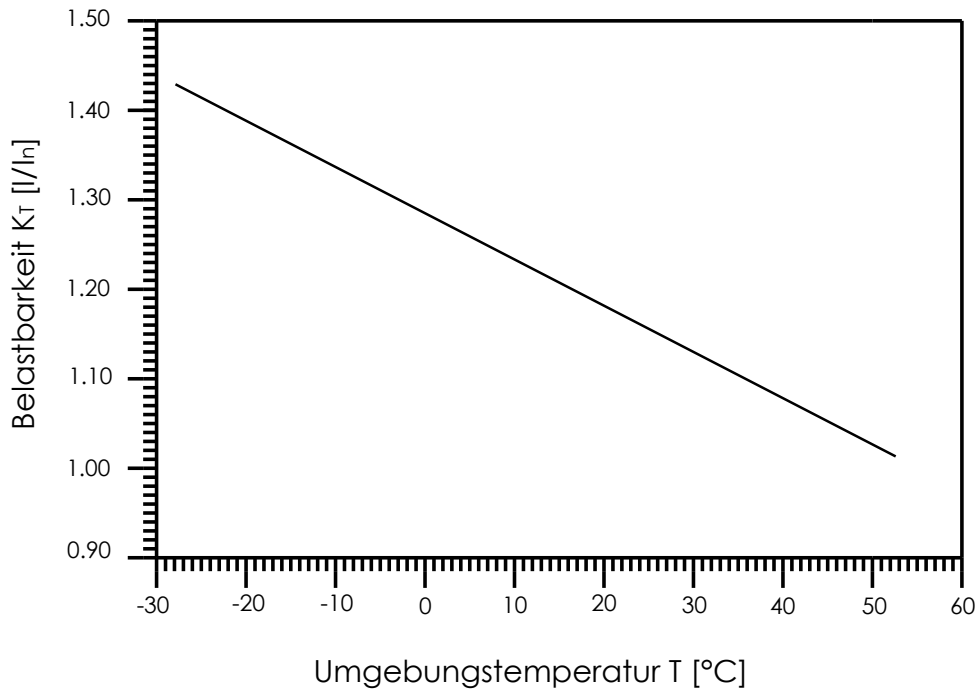
Time current characteristics I/t at 50 and 60Hz, ETIMAT 10 80 -125A



Resistance and power dissipation

characteristic	I_n [A]	R/pole [mΩ]	P/pole [w]
	80	1,2	7,1
B, C, D	100	0,9	9,1
	125	0,66	11,9

Effect of the ambient temperature ($^{\circ}\text{C}$) K_T on the tripping characteristics of ETIMAT 10 80 - 125A

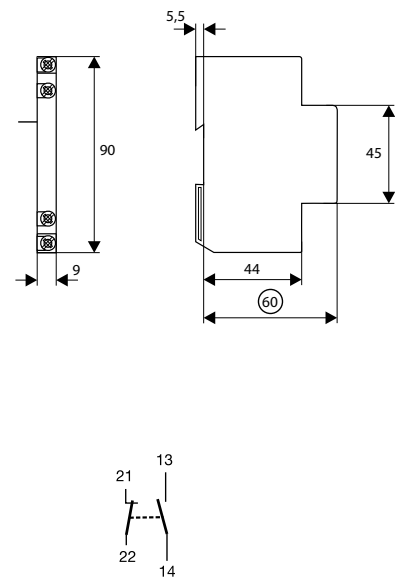


Zulässige Dauerbelastung I_L bei Umgebungstemperatur T: $I_L(T) = I_n K_T(T)$

Accessories for ETIMAT10 80 - 125A

Technical data

Rated current	6 A / AC13 (250 V AC)
Rated thermal current I_{th}	8 A
Rated insulation voltage	440 V AC
Max. back-up fuse	6A
Contacts	1x a-contact, 1x b-contact
Utilization category AC-13	6 A/250 V AC
	2 A/440 V AC
Utilization category DC-13	4 A/600 V DC
	2 A/110 V DC
	0,5 A/230 V DC
Ambient temperature	max -5 $^{\circ}\text{C}$... +40 $^{\circ}\text{C}$
Build-in width	9 mm/Pol
Mounting position	any
Mounting on the rail	EN 60715 (EN 50022)
Terminals	1x1mm ² ... 2x2,5mm ²
Standard	EN 60947-5-1

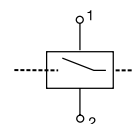
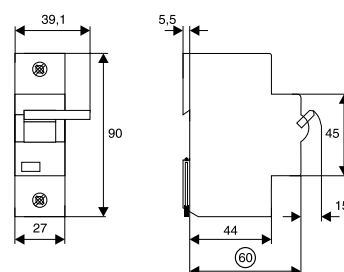




Auxiliary switch PSM 80/125

Type	Code No.		
PSM 80 - 125 A	002159121	62	1/12

**Technical data**

	24V	230V
Responding limit	8 V AC / 11 V DC	70 V AC / 90 V DC
Operating voltage range	12 V...60 V AC / DC	110 V...415 V AC / 110 V...230 V DC
Max. current consumption at the moment of switching on	18 A (24 V)	2 A (230 V)
Duration of current flow at max consumption	4,5 ms (AC) / 2 ms (DC)	4,5 ms (AC) / 4 ms (DC)
Minimum pulse duration	15 ms	10 ms
Internal resistance	2,0 Ω	130 Ω
Duty	100 %	
Tripping time	< 20 ms	
Peak withstand voltage	2 kV	
Service live operating cycles	> 4000	
Upper / lower terminals	lift / lift	
Conductor cross section	2,5 mm ² ... 50 mm ²	

**Shunt trip release DA ETIMAT 80/125**

Type	Code No.		
DA ETIMAT 80/125 12-60V AC/DC	002159320	173	1/54
DA ETIMAT 80/125 110-415V	002159321	173	1/54



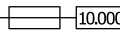









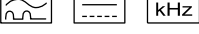
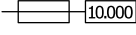




ASTI Residual Current Circuit Breakers - RCCBs

Residual current circuit breakers can be used in TN-S, TN-CS, TT and IT network systems, that is in all systems where neutral and protective conductors are separated. Residual current circuit breakers EFI are used for protection against indirect contact (fault protection) and direct contact (additional protection) of parts under voltage. In the case of protection against indirect contact (fault protection) you can use residual current protective devices with a rated residual current of $I_{\Delta n} \leq 300\text{mA}$. Residual current protective devices with a rated residual current of $I_{\Delta n} \leq 30\text{mA}$ fulfil the conditions for protection against direct contact (additional protection). For protection against fire, according to DIN VDE 0100-482 and IEC 60364-4-482, all cables and conductors in TN and TT systems must be protected by means of residual current protective devices with rated residual current of $I_{\Delta n} \leq 300\text{mA}$. In applications where resistive faults can cause a fire (radiant ceiling heating with panel heating elements), the rated residual current must be $I_{\Delta n} = 30\text{mA}$.

Types

- /// AC Type: they are sensitive to alternating (sinusoidal) AC residual currents.
- /// A Type: they are sensitive to alternating (sinusoidal) AC residual currents and pulsating DC residual currents.
- /// B Type: they are sensitive to alternating (sinusoidal) AC residual currents, pulsating DC residual currents and smooth DC residual currents. Tripping values are defined up to 1kHz.
- /// B+ Type: they are sensitive to alternating (sinusoidal) AC residual currents, pulsating DC residual currents and smooth DC residual currents. Tripping values are defined up to 20kHz and they are below 420mA.
- /// Classification regarding break time
- /// Instantaneous: max. break time 40ms (Inst.)
- /// G/KV-Short time delay: time delayed min. 10ms and max. 40ms (G/KV)
- /// S-Selective: time delayed min. 40ms and max. 150ms (S)

EFI-P2 (2M)		Type AC		Type A	
		Inst.	Inst.	G/KV	S
	For alternating residual current	✓	✓	✓	✓
	For alternating and pulsating direct residual current		✓	✓	✓
	Short-circuit capacity with back-up fuse	✓	✓	✓	✓
	Lower temperature limit of application -25°C	✓	✓	✓	✓
	VDE 0664, part 1 (up to 80 A)		✓		✓
	Short time delayed (10 - 40 ms)			✓	
	Selective (time delayed 40 -150 ms)				✓

EFI-P4 (4M)		Type AC		Type A		Type B			Type B+		
		Inst.	Inst.	G/KV	S	Inst.	G/KV	S	Inst.	G/KV	S
	For alternating residual current	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	For alternating and pulsating direct residual current		✓	✓	✓	✓	✓	✓	✓	✓	✓
	For alternating, pulsating direct and smooth DC residual current (up to 1kHz)					✓	✓	✓	✓	✓	✓
	For alternating, pulsating direct and smooth DC residual current (up to 20kHz)								✓	✓	✓
	Short-circuit capacity with back-up fuse	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	Lower temperature limit of application -25°C	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	VDE 0664, part 1 (up to 80 A)		✓		✓	✓		✓	✓		✓
	Short time delayed (10 - 40 ms)			✓		✓				✓	
	Selective (time delayed 40 -150 ms)				✓			✓			✓

A and AC type residual current circuit breaker EFI-P2(R) & EFI-2

Rated residual current
0,03 - 0,5 A

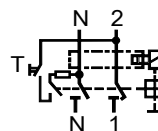
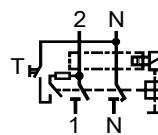
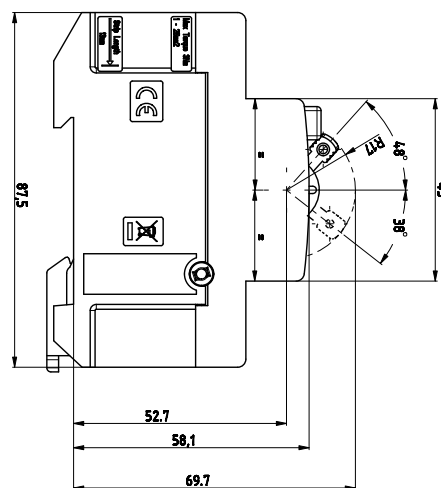
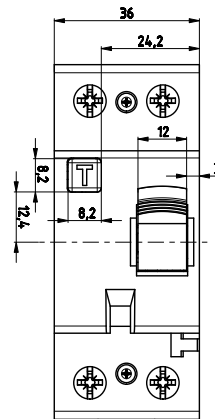
Rated current
16 - 125 A

Type
A, AC

Technical data EFI-P2(R) Instantaneous type AC & A

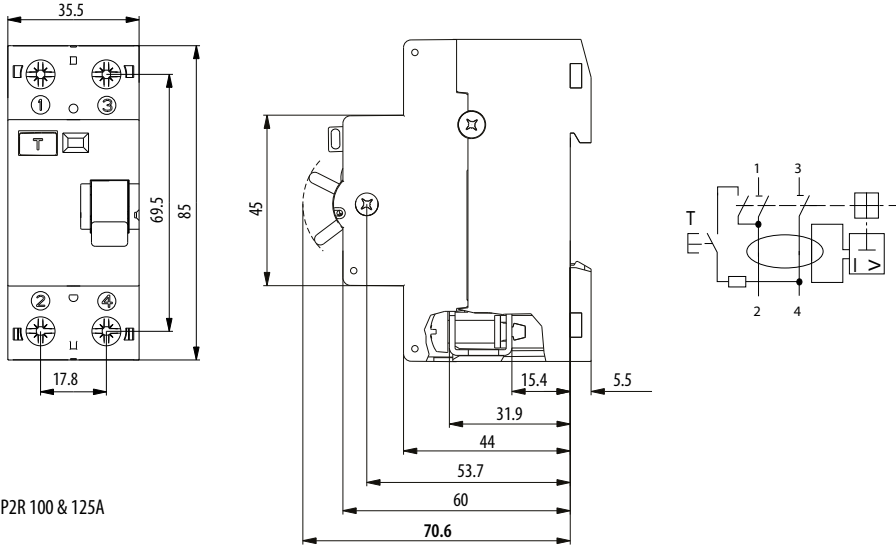
	EFI-P2, EFI-P2R 16-80A	EFI-P2R 100-125A
Electrical		
Rated Voltage U_n	230 / 240 V AC	230 V AC
Rated current I_n	16, 25, 40, 63, 80A	100, 125A
Rated frequency f_n	50/60Hz	50Hz
Rated insulation voltage U_i	440V	400V
Rated impulse withstand voltage (1,2/50 μ s)	4kV	4kV
Peak withstand current (8/20 μ s)	400A	250A
Electrical isolation	> 4mm contact space	
Rated residual operating current $I_{\Delta n}$	0,03; 0,1; 0,3 & 0,5A	
Rated conditional short-circuit current I_{cn}	10kA	10kA
Rated making and breaking capacity I_m	800A	1250A
Max back-up fuse for short circuit protection	80A gG	125A gG
Voltage range test circuit	150-264V	150-264V
Min. operating voltage	voltage independent	voltage independent
Insulating class	B	B
Standards	IEC/EN 61008	IEC/EN 61008
Mechanical Endurance (cycles)	> 10.000	> 5.000
Electrical endurance (cycles)	> 4.000	> 2.000
Shock resistance acc. to	IEC/EN 61008-1	IEC/EN 61008-1
Resistance to vibrations acc. To IEC 60068-2-7	5g (10, 60 & 500Hz)	5g (10, 60 & 500Hz)
Mechanical		
Frame size	45mm	45mm
Device height	68mm (DIN rail acc to EN6071)	
Device width	36mm (2 x Module units)	36mm (2 x Module units)
Degree of protection	IP20	IP20
Upper and lower terminals	open mounted/lift terminals	
Terminal capacity	1-25mm ²	1-50mm ²
Terminal screw	M5 (Pozidrive PZ2)	M6 (Pozidrive PZ2)
Terminal torque	max. 3Nm	max 5,0Nm
Busbar thickness	0,8 - 2 mm	0,8 - 2 mm
Operating temperature	-25°C ... +70°C	-25°C ... +55°C
Storage and transport temperature	-40°C ... +70°C	-40°C ... +70°C
Resistance to climatic conditions	IEC/EN 61008	IEC/EN 61008
Contact position indicator	mechanical red/green	
Mounting position	any	
Mounting on the rail	35mm acc to EN50022	
Supply possibility	top or bottom	

EFI-P2, EFI-P2R 16 - 80A



Version with N-pole
on the left

I_n [A]	Power dissipation EFI-P2 P/pole [W]
16	0,46-0,51
25	1,22-1,27
40	3,48-3,72
63	2,14-2,58
80	3,53-3,82
100	7,35-7,65
125	10,7-11,3



EFIP2R 100 & 125A

EFIP2 Instantaneous, EFIP2R Instantaneous

I_n [A]	$I_{\Delta n}$ [A]	Type A	Type A Code No.	Type A Reset	Type A - R Code No.	Type AC	Type AC Code No.	g	
16	0.03	EFIP2 A 16/0.03	002061110	EFIP2R A 16/0.03	002061460	EFIP2 AC 16/0.03	002061210	175	1/54
25		EFIP2 A 25/0.03	002061111	EFIP2R A 25/0.03	002061461	EFIP2 AC 25/0.03	002061211	175	1/54
40		EFIP2 A 40/0.03	002061112	EFIP2R A 40/0.03	002061462	EFIP2 AC 40/0.03	002061212	175	1/54
63		EFIP2 A 63/0.03	002061113	EFIP2R A 63/0.03	002061463	EFIP2 AC 63/0.03	002061213	190	1/54
80		EFIP2 A 80/0.03	002061114	EFIP2R A 80/0.03	002061464	EFIP2 AC 80/0.03	002061214	190	1/54
100		/	/	/	EFIP2R A 100/0.03	002061465	/	/	184
125	/	/	/	EFIP2R A 125/0.03	002061466	/	/	184	1/54
16	0.1	EFIP2 A 16/0.1	002061120	EFIP2R A 16/0.1	002061470	EFIP2 AC 16/0.1	002061220	175	1/54
25		EFIP2 A 25/0.1	002061121	EFIP2R A 25/0.1	002061471	EFIP2 AC 25/0.1	002061221	175	1/54
40		EFIP2 A 40/0.1	002061122	EFIP2R A 40/0.1	002061472	EFIP2 AC 40/0.1	002061222	175	1/54
63		EFIP2 A 63/0.1	002061123	EFIP2R A 63/0.1	002061473	EFIP2 AC 63/0.1	002061223	190	1/54
80		EFIP2 A 80/0.1	002061124	EFIP2R A 80/0.1	002061474	EFIP2 AC 80/0.1	002061224	190	1/54
100		/	/	/	EFIP2R A 100/0.1	002061475	/	/	184
125	/	/	/	EFIP2R A 125/0.1	002061476	/	/	184	1/54
16	0.3	EFIP2 A 16/0.3	002061130	EFIP2R A 16/0.3	002061480	EFIP2 AC 16/0.3	002061230	175	1/54
25		EFIP2 A 25/0.3	002061131	EFIP2R A 25/0.3	002061481	EFIP2 AC 25/0.3	002061231	175	1/54
40		EFIP2 A 40/0.3	002061132	EFIP2R A 40/0.3	002061482	EFIP2 AC 40/0.3	002061232	175	1/54
63		EFIP2 A 63/0.3	002061133	EFIP2R A 63/0.3	002061483	EFIP2 AC 63/0.3	002061233	190	1/54
80		EFIP2 A 80/0.3	002061134	EFIP2R A 80/0.3	002061484	EFIP2 AC 80/0.3	002061234	190	1/54
100		/	/	/	EFIP2R A 100/0.3	002061485	/	/	184
125	/	/	/	EFIP2R A 125/0.3	002061486	/	/	184	1/54
16	0.5	EFIP2 A 16/0.5	002061140	EFIP2R A 16/0.5	002061490	EFIP2 AC 16/0.5	002061240	175	1/54
25		EFIP2 A 25/0.5	002061141	EFIP2R A 25/0.5	002061491	EFIP2 AC 25/0.5	002061241	175	1/54
40		EFIP2 A 40/0.5	002061142	EFIP2R A 40/0.5	002061492	EFIP2 AC 40/0.5	002061242	175	1/54
63		EFIP2 A 63/0.5	002061143	EFIP2R A 63/0.5	002061493	EFIP2 AC 63/0.5	002061243	190	1/54
80		EFIP2 A 80/0.5	002061144	EFIP2R A 80/0.5	002061494	EFIP2 AC 80/0.5	002061244	190	1/54
100		/	/	/	EFIP2R A 100/0.5	002061495	/	/	184
125	/	/	/	EFIP2R A 125/0.5	002061496	/	/	184	1/54



16 - 80 A



100, 125A

ASTI / Residual Current Circuit Breakers

Reset version





In the reset version, the toggle position clearly indicates the reason for tripping, preventing user mistakes and always making it clear whether the system turning off was intentional (manual) or

the result of a fault in the electrical circuit.

In case of differential current, the button moves to the "trip" (middle) position. In case of manual turn off, the button moves to the "off" (lowest) position.

EFI-P2 Special versions

I_n [A]	$I_{\Delta n}$ [A]	Type A 127V	127V Code No.	Type A NL	NL Code No.		
16	0.03	EFI-P2 A 16/0.03 127V	002061350	EFI-P2 A 16/0.03 NL	002061410	175	1/54
25		EFI-P2 A 25/0.03 127V	002061351	EFI-P2 A 25/0.03 NL	002061411	175	1/54
40		EFI-P2 A 40/0.03 127V	002061352	EFI-P2 A 40/0.03 NL	002061412	175	1/54
63		EFI-P2 A 63/0.03 127V	002061353	EFI-P2 A 63/0.03 NL	002061413	190	1/54
80		EFI-P2 A 80/0.03 127V	002061354	EFI-P2 A 80/0.03 NL	002061414	190	1/54
16	0.1	EFI-P2 A 16/0.1 127V	002061360	EFI-P2 A 16/0.1 NL	002061420	175	1/54
25		EFI-P2 A 25/0.1 127V	002061361	EFI-P2 A 25/0.1 NL	002061421	175	1/54
40		EFI-P2 A 40/0.1 127V	002061362	EFI-P2 A 40/0.1 NL	002061422	175	1/54
63		EFI-P2 A 63/0.1 127V	002061363	EFI-P2 A 63/0.1 NL	002061423	190	1/54
80		EFI-P2 A 80/0.1 127V	002061364	EFI-P2 A 80/0.1 NL	002061424	190	1/54
16	0.3	EFI-P2 A 16/0.3 127V	002061370	EFI-P2 A 16/0.3 NL	002061430	175	1/54
25		EFI-P2 A 25/0.3 127V	002061371	EFI-P2 A 25/0.3 NL	002061431	175	1/54
40		EFI-P2 A 40/0.3 127V	002061372	EFI-P2 A 40/0.3 NL	002061432	175	1/54
63		EFI-P2 A 63/0.3 127V	002061373	EFI-P2 A 63/0.3 NL	002061433	190	1/54
80		EFI-P2 A 80/0.3 127V	002061374	EFI-P2 A 80/0.3 NL	002061434	190	1/54



NL version

Special versions

127V version: For use in lower than standard system voltage (for instance 110V, 125V or 127V) system

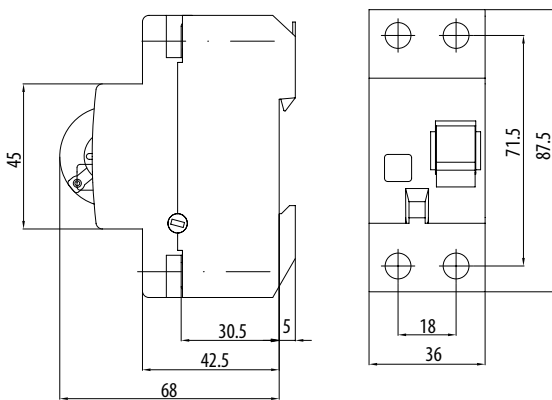
NL version: Connection of the neutral conductor on the left side, which allows the use of standard busbars (1p, 3p) for connecting RCCBSs and MCBs



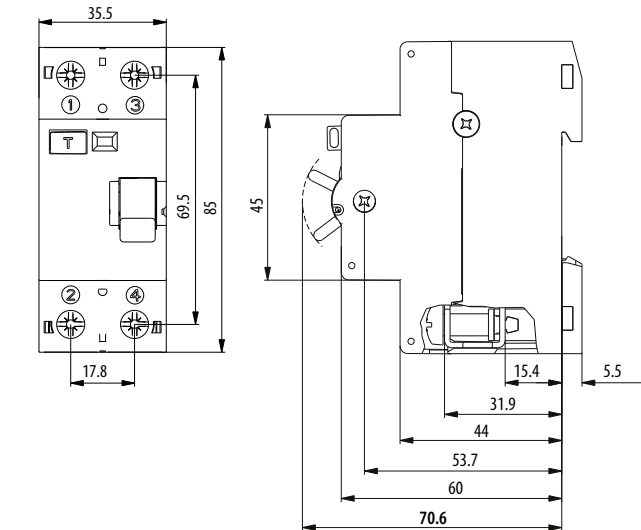
Technical data EFI-2 Short time delay & Selective

Type	G/KV type	S type	S Reset
Electrical			
Rated voltage U_n	230/240V AC	230/240V AC	230V AC
Rated current I_n	25, 40, 63A	25, 40, 63A	100, 125A
Rated Insulation voltage U_i	440V	440V	440V
Rated frequency f_n	50/60Hz	50/60Hz	50Hz
Peak withstand current	3kA (8/20 μ s) surge current proof	5kA (8/20 μ s) surge current proof	3kA (8/20 μ s) surge current proof
Electrical isolation	> 4mm contact space	> 4mm contact space	> 4mm contact space
Rated residual operating current $I_{\Delta n}$	0,03; 0,1 & 0,3A	0,1 & 0,3A	0,1 & 0,3A
Rated conditional short-circuit current I_{cn}	10kA	10kA	10kA
Rated making and breaking capacity I_m	630A	630A	1250A
Maximum back-up fuse	80A gG	80A gG	125A gG
Insulating class	B	B	B
Standard	IEC/EN 61008, OVE E 8601	IEC/EN 61008	IEC/EN 61008
Mechanical endurance (op. c.)	> 4000	> 4000	> 5000
Electrical endurance (op. c.)	> 2000	> 2000	> 2000
Mechanical			
Frame size	45mm	45mm	45mm
Device height	68mm (DIN rail acc to EN60715)	68mm (DIN rail acc to EN60715)	70,6mm (DIN rail acc to EN60715)
Device width	36mm (2 x Module units 18mm)	36mm (2 x Module units 18mm)	35,5mm (2 x Module units 17,8mm)
Degree of protection	IP20	IP20	IP20
Upper and lower terminals	open mounted/lift terminals	open mounted/lift terminals	open mounted/lift terminals
Terminal capacity	1-25mm ²	1-25mm ²	1-50mm ²
Terminal screw	M5 (Pozidrive PZ2)	M5 (Pozidrive PZ2)	M6 (Pozidrive PZ2)
Terminal torque	2-2,5Nm	2-2,5Nm	2,5-5Nm
Busbar thickness	0,8 - 2 mm	0,8 - 2 mm	0,8 - 2 mm
Operating temperature	-25°C ... +70°C	-25°C ... +70°C	-25°C ... +40°C
Storage and transport temperature	-40°C ... +70°C	-40°C ... +70°C	-35°C ... +60°C
Resistance to climatic conditions	IEC/EN 61008	IEC/EN 61008	acc. to IEC 60068-2-30: 28 cycles (55 °C, 95% relative humidity)
Resistance to vibrations acc. to IEC 60068-2-7	5g (10,60 & 500Hz)	5g (10,60 & 500Hz)	/
Contact position indicator	mechanical red/green	mechanical red/green	mechanical red/green
Supply possibility	Top or bottom	Top or bottom	Top or bottom
Mounting position	any	any	any



EFI-P2 G/KV & S 25-63A



EFI-P2R S 100&125A



EFI-2 Short time delay & Selective

I_n [A]	$I_{\Delta n}$ [A]	Type A G/KV-Short time delay	G/KV Code No.	Type A S-Selective	S Code No.	Type A Selective Reset**	S - R Code No.		
25	0,03	EFI-2 A G/KV 25/0.03	002062727	/	/	/	/	197	1/54
40		EFI-2 A G/KV 40/0.03	002062728	/	/	/	/	197	1/54
63		EFI-2 A G/KV 63/0.03	002062729	/	/	/	/	206	1/54
25	0,1	EFI-2 A G/KV 25/0.1	002063727	EFI-2 A S 25/0.1	002063732	/	/	193	1/54
40		EFI-2 A G/KV 40/0.1	002063728	EFI-2 A S 40/0.1	002063733	/	/	193	1/54
63		EFI-2 A G/KV 63/0.1	002063729	EFI-2 A S 63/0.1	002063734	/	/	196	1/54
100	0,3	/	/	/	/	EFI-P2R A S 100/0.1	002061184	184	1/54
125		/	/	/	/	EFI-P2R A S 125/0.1	002061185	184	1/54
25		/	/	EFI-2 A S 25/0.3	002064732	/	/	198	1/54
40	0,3	/	/	EFI-2 A S 40/0.3	002064733	/	/	198	1/54
63		/	/	EFI-2 A S 63/0.3	002064734	/	/	204	1/54
100		/	/	/	/	EFI-P2R A S 100/0.3	002061194	184	1/54
125	/	/	/	/	/	EFI-P2R A S 125/0.3	002061195	184	1/54

** Reset version: in case of differential current, the button moves to the "trip" (middle) position. In case of manual turn off, the button moves to the "off" (lowest) position.



G/KV



S

Power dissipation EFI-2 G/KV & S type

I_n [A]	P / pole (W)
25	1,29-1,43
40	2,80 - 3,05
63	4,28 - 5,34
100	7,35-7,65
125	10,7-11,3

Conductor cross-section [mm ²]	Number of single conductors, rigid, single-wire CU conductor				
	1	2	3	4	5
1,5	✓	✓	✓	✓	✗
2,5	✓	✓	✓	✗	✗
4	✓	✓	✓	✗	✗
6	✓	✓	✗	✗	✗
10	✓	✓	✗	✗	✗
16	✓	✗	✗	✗	✗
25	✓	✗	✗	✗	✗

Remark: When you use more than 2 cables you have to be careful how those cables are inserted, due to insure proper pressure on each cable

Conductor cross-section [mm ²]	Number of single conductors, flexible Cu conductors with cable ferrule					
	1	2	3	4	5	6
1,5	✓	✓	✓	✓	✓	✓
2,5	✓	✓	✓	✓	✓	✓
4	✓	✓	✓	✓	✓	✓
6	✓	✓	✓	✗	✗	✗
10	✓	✓	✗	✗	✗	✗
16	✓	✗	✗	✗	✗	✗
25	✓	✗	✗	✗	✗	✗

Combination of rigid single-wire and flexible multi-wire Cu conductors is not allowed

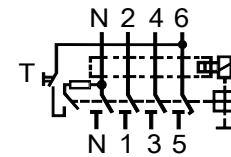
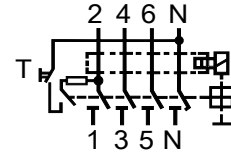
A and AC type residual current circuit breaker EFI-P4(R) & EFI-4

Rated residual current 0,03 - 0,5 A	Rated current 16 - 100 A	Type A, AC
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Technical data EFI-P4(R), EFI-4 Instantaneous type AC & A

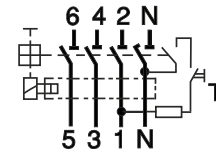
	EFI-P4, EFI-P4R 16-63A	EFI-4 80A, EFI-P4 R 100A, 125A
Electrical		
Rated Voltage U_n	400/415V AC	400V AC
Rated current I_n	16, 25, 40, 63A	80, 100, 125A
Rated frequency f_n	50/60Hz	50Hz
Rated insulation voltage U_i	440V	440V
Rated impulse withstand voltage (1,2/50 μ s)	4kV	4kV
Peak withstand current (8/20 μ s)	400A	
Electrical isolation	> 4mm contact space	
Rated residual operating current $I_{\Delta n}$	0,03; 0,1; 0,3 & 0,5A	
Rated conditional short-circuit current I_{cn}	10kA	10kA
Rated making and breaking capacity I_m	630A	800A ($I_n=80A$); 1250A ($I_n=100, 125A$)
Max back-up fuse for short circuit protection	63A gG	80A ($I_n=80A$); 125A ($I_n=100, 125A$)
Voltage range test circuit	150-264V	150-264V
Min. operating voltage	voltage independent	voltage independent
Insulating class	B	B
Standards	IEC/EN 61008	IEC/EN 61008
Mechanical Endurance (cycles)	> 10.000	> 4.000
Electrical endurance (cycles)	> 4.000	> 2.000
Shock resistance acc. to	IEC/EN 61008-1	IEC/EN 61008-1
Resistance to vibrations acc. To IEC 60068-2-7	5g (10, 60 & 500Hz)	5g (10, 60 & 500Hz)
Mechanical		
Frame size	45mm	45mm
Device height	68mm (DIN rail acc to EN6071)	
Device width	72mm (4 x Module Units)	72mm (4 x Module Units)
Degree of protection	IP20	IP20
Upper and lower terminals	open mounted/lift terminals	
Terminal capacity	1-25mm ²	1-25mm ² ($I_n=80A$), 1-50mm ² ($I_n=100, 125A$)
Terminal screw	M5 (PoziDrive PZ2)	M5 (80A) , M6 (100-125A) (PoziDrive PZ2)
Terminal torque	max. 3Nm	max 2,5Nm (80A); max 5,0Nm (100&125A)
Busbar thickness	0,8 - 2 mm	0,8 - 2 mm
Operating temperature	-25°C ... +70°C	-25°C ... +55°C
Storage and transport temperature	-40°C ... +70°C	-35°C ... +60°C
Resistance to climatic conditions	IEC/EN 61008	acc. to IEC 60068-2-30: 28 cycles (55 °C, 95 % relative humidity)
Contact position indicator	mechanical red/green	
Mounting position	any	
Mounting on the rail	35mm acc to EN50022	
Supply possibility	top or bottom	

EFI-P4, EFI-P4R 16 - 63A

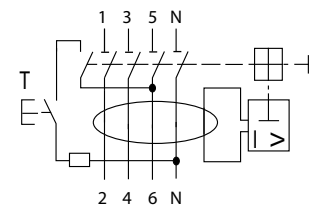


Version with N-pole on the left

EFI-4 80A





EFI-P4R 100 A, 125A



I_n [A]	Power dissipation EFI-P4
	P/pole [W]
16	0,48-0,62
25	1,27-1,52
40	4,14-5,00
63	2,45-3,00
80	8,00-8,90
100	7,35-7,65
125	10,7-11,3

EFI-P4 Instantaneous, EFI-P4R Instantaneous

I_n [A]	$I_{\Delta n}$ [A]	Type A	Type A Code No.	Type A Reset	Type A - R Code No.	Type AC	Type AC Code No.			
16	0,03	EFI-P4 A 16/0.03	002061510	EFI-P4R A 16/0.03	002061860	EFI-P4 AC 16/0.03	002061610	300	1/27	
25		EFI-P4 A 25/0.03	002061511	EFI-P4R A 25/0.03	002061861	EFI-P4 AC 25/0.03	002061611	300	1/27	
40		EFI-P4 A 40/0.03	002061512	EFI-P4R A 40/0.03	002061862	EFI-P4 AC 40/0.03	002061612	300	1/27	
63		EFI-P4 A 63/0.03	002061513	EFI-P4R A 63/0.03	002061863	EFI-P4 AC 63/0.03	002061613	330	1/27	
80		EFI-4 A 80/0.03	002063545*	/	/	/	EFI-4 AC 80/0.03	002062145*	380	1/27
100		/	/	/	EFI-P4R A 100/0.03	002061865	/	/	350	1/27
125	/	/	/	EFI-P4R A 125/0.03	002061866	/	/	350	1/27	
16	0,10	EFI-P4 A 16/0.1	002061520	EFI-P4R A 16/0.1	002061870	EFI-P4 AC 16/0.1	002061620	300	1/27	
25		EFI-P4 A 25/0.1	002061521	EFI-P4R A 25/0.1	002061871	EFI-P4 AC 25/0.1	002061621	300	1/27	
40		EFI-P4 A 40/0.1	002061522	EFI-P4R A 40/0.1	002061872	EFI-P4 AC 40/0.1	002061622	300	1/27	
63		EFI-P4 A 63/0.1	002061523	EFI-P4R A 63/0.1	002061873	EFI-P4 AC 63/0.1	002061623	330	1/27	
80		EFI-4 A 80/0.1	002063545*	/	/	/	EFI-4 AC 80/0.1	002063145*	380	1/27
100		/	/	/	EFI-P4R A 100/0.1	002061875	/	/	350	1/27
125	/	/	/	EFI-P4R A 125/0.1	002061876	/	/	350	1/27	
16	0,30	EFI-P4 A 16/0.3	002061530	EFI-P4R A 16/0.3	002061880	EFI-P4 AC 16/0.3	002061630	300	1/27	
25		EFI-P4 A 25/0.3	002061531	EFI-P4R A 25/0.3	002061881	EFI-P4 AC 25/0.3	002061631	300	1/27	
40		EFI-P4 A 40/0.3	002061532	EFI-P4R A 40/0.3	002061882	EFI-P4 AC 40/0.3	002061632	300	1/27	
63		EFI-P4 A 63/0.3	002061533	EFI-P4R A 63/0.3	002061883	EFI-P4 AC 63/0.3	002061633	330	1/27	
80		EFI-4 A 80/0.3	002064545*	/	/	/	EFI-4 AC 80/0.3	002064145*	380	1/27
100		/	/	/	EFI-P4R A 100/0.3	002061885	/	/	350	1/27
125	/	/	/	EFI-P4R A 125/0.3	002061886	/	/	350	1/27	
16	0,50	EFI-P4 A 16/0.5	002061540	EFI-P4R A 16/0.5	002061890	EFI-P4 AC 16/0.5	002061640	300	1/27	
25		EFI-P4 A 25/0.5	002061541	EFI-P4R A 25/0.5	002061891	EFI-P4 AC 25/0.5	002061641	300	1/27	
40		EFI-P4 A 40/0.5	002061542	EFI-P4R A 40/0.5	002061892	EFI-P4 AC 40/0.5	002061642	300	1/27	
63		EFI-P4 A 63/0.5	002061543	EFI-P4R A 63/0.5	002061893	EFI-P4 AC 63/0.5	002061643	330	1/27	
80		EFI-4 A 80/0.5	002065545*	/	/	/	EFI-4 AC 80/0.5	002065145*	380	1/27
100		/	/	/	EFI-P4R A 100/0.5	002061895	/	/	350	1/27
125	/	/	/	EFI-P4R A 125/0.5	002061896	/	/	350	1/27	

* Old version (EFI-4)



16 - 63 A



100, 125 A

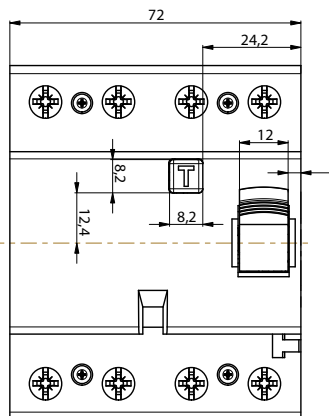
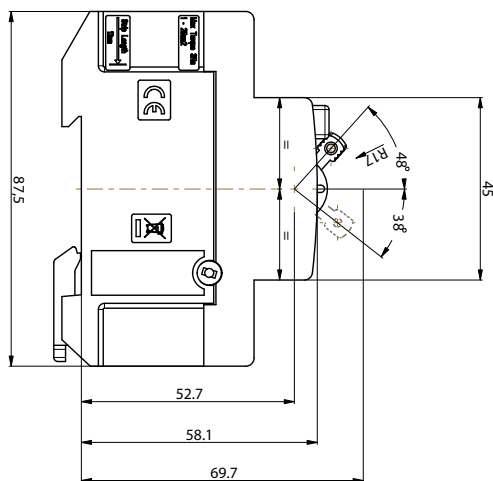
Reset version



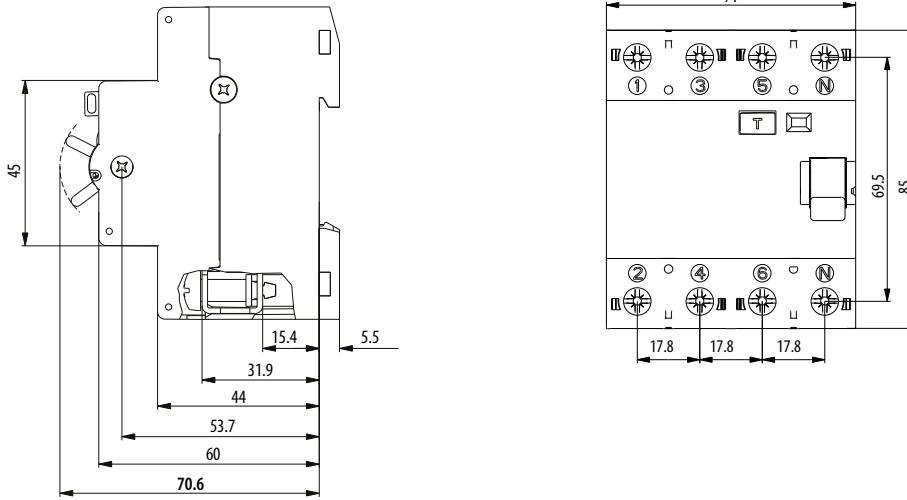
In the reset version, the toggle position clearly indicates the reason for tripping, preventing user mistakes and always making it clear whether the system turning off was intentional (manual) or

the result of a fault in the electrical circuit. In case of differential current, the button moves to the "trip" (middle) position. In case of manual turn off, the button moves to the "off" (lowest) position.

EFI-P4, EFI-P4R



EFI-P4 R 100&125A



EFI-P4 Special versions

I_n [A]	$I_{\Delta n}$ [A]	Type A 127V	127V Code No.	Type A NL	NL Code No.	g	Box
16	0,03	EFI-P4 A 16/0.03 127V	002061750	EFI-P4 A 16/0.03 NL	002061810	300	1/27
25		EFI-P4 A 25/0.03 127V	002061751	EFI-P4 A 25/0.03 NL	002061811	300	1/27
40		EFI-P4 A 40/0.03 127V	002061752	EFI-P4 A 40/0.03 NL	002061812	300	1/27
63	0,1	EFI-P4 A 63/0.03 127V	002061753	EFI-P4 A 63/0.03 NL	002061813	330	1/27
16		EFI-P4 A 16/0.1 127V	002061760	EFI-P4 A 16/0.1 NL	002061820	300	1/27
25		EFI-P4 A 25/0.1 127V	002061761	EFI-P4 A 25/0.1 NL	002061821	300	1/27
40		EFI-P4 A 40/0.1 127V	002061762	EFI-P4 A 40/0.1 NL	002061822	300	1/27
63		EFI-P4 A 63/0.1 127V	002061763	EFI-P4 A 63/0.1 NL	002061823	330	1/27
16		0,3	EFI-P4 A 16/0.3 127V	002061770	EFI-P4 A 16/0.3 NL	002061830	300
25	EFI-P4 A 25/0.3 127V		002061771	EFI-P4 A 25/0.3 NL	002061831	300	1/27
40	EFI-P4 A 40/0.3 127V		002061772	EFI-P4 A 40/0.3 NL	002061832	300	1/27
63	EFI-P4 A 63/0.3 127V		002061773	EFI-P4 A 63/0.3 NL	002061833	330	1/27

Special versions

127V version: For use in in lower than standard system voltage (for instance 110V, 125V or 127V) system

NL version: Connection of the neutral conductor on the left side, which allows the use of standard busbars (1p, 3p) for connecting RCCBs and MCBs

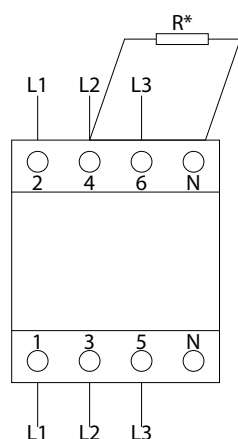


Technical data EFI-4 Short time delay & Selective

Type	G/KV type	S type	S Reset
Electrical			
Rated voltage Un	400/415V AC	400/415V AC	400V AC
Rated current In	25, 40, 63A	25, 40, 63A	100 & 125A
Rated Insulation voltage Ui	440V	440V	440V
Rated frequency fn	50/60Hz	50/60Hz	50Hz
Peak withstand current	3kA (8/20 μ s) surge current proof	5kA (8/20 μ s) surge current proof	3kA (8/20 μ s) surge current proof
Electrical isolation	> 4mm contact space	> 4mm contact space	> 4mm contact space
Rated residual operating current I Δ n	0,03; 0,1 & 0,3A	0,1 & 0,3A	0,1 & 0,3A
Rated conditional short-circuit current Icn	10kA	10kA	10kA
Rated making and breaking capacity Im	630A	630A	1250A
Maximum back-up fuse	80A gG	80A gG	125A gG
Insulating class	B	B	B
Standard	IEC/EN 61008, OVE E 8601	IEC/EN 61008	IEC/EN 61008
Mechanical endurance (op. c.)	> 4000	> 4000	> 5000
Electrical endurance (op. c.)	> 2000	> 2000	> 2000
Mechanical			
Frame size	45mm	45mm	45mm
Device height	68mm (DIN rail acc to EN60715)	68mm (DIN rail acc to EN60715)	70,6mm (DIN rail acc to EN60715)
Device width	72mm (4 x Module units 18mm)	72mm (4 x Module units 18mm)	71mm (4 x Module units 17,8mm)
Degree of protection	IP20	IP20	IP20
Upper and lower terminals	open mounted/lift terminals	open mounted/lift terminals	open mounted/lift terminals
Terminal capacity	1-25mm ²	1-25mm ²	1-50mm ²
Terminal screw	M5 (Pozidrive PZ2)	M5 (Pozidrive PZ2)	M6 (Pozidrive PZ2)
Terminal torque	2-2,5Nm	2-2,5Nm	2,5-5Nm
Busbar thickness	0,8 - 2 mm	0,8 - 2 mm	0,8 - 2 mm
Operating temperature	-25°C ... +70°C	-25°C ... +70°C	-25°C ... +40°C
Storage and transport temperature	-40°C ... +70°C	-40°C ... +70°C	-35°C ... +60°C
Resistance to vibrations acc. to IEC 60068-2-7	5g (10,60 & 500Hz)	5g (10,60 & 500Hz)	/
Resistance to climatic conditions	IEC/EN 61008	IEC/EN 61008	acc. to IEC 60068-2-30: 28 cycles (55 °C, 95 % relative humidity)
Contact position indicator	mechanical red/green	mechanical red/green	mechanical red/green
Supply possibility	Top or bottom	Top or bottom	Top or bottom
Mounting position	any	any	any

Power dissipation EFI-4 G/KV & S type

I _n [A]	P / pole (W)
25	1,40-1,61
40	2,73 - 4,11
63	4,76 - 5,69
100	7,35-7,65
125	10,7-11,3





RCD EFI-4 Type in 3-phase system without neutral conductor:

30mA: R=2k7/1W/500V
 100mA: R=1k2/1W/500V
 300mA: R=470 Ω /2W/500V
 500mA: R=270 Ω /3W/500V

* Resistor (R) has to be connected between N and 2 or L3 as to ensure proper functionality of the test button.

EFI-4 Short time delay & Selective

I_n [A]	$I_{\Delta n}$ [A]	Type A G/KV-Short time delay	G/KV Code No.	Type A S-Selective	S Code No.	Type A Selective Reset**	S - R Code No.		
25	0.03	EFI-4 A G/KV 25/0.03	002062747	/	/	/	/	328	1/27
40		EFI-4 A G/KV 40/0.03	002062748	/	/	/	/	328	1/27
63		EFI-4 A G/KV 63/0.03	002062749	/	/	/	/	350	1/27
25	0.1	EFI-4 A G/KV 25/0.1	002063747	EFI-4 A S 25/0.1	002063752	/	/	320	1/27
40		EFI-4 A G/KV 40/0.1	002063748	EFI-4 A S 40/0.1	002063753	/	/	320	1/27
63		EFI-4 A G/KV 63/0.1	002063749	EFI-4 A S 63/0.1	002063754	/	/	338	1/27
100	0.3	/	/	/	/	EFI-P4R A S 100/0.1	002061584	350	1/27
125		/	/	/	/	EFI-P4R A S 125/0.1	002061585	350	1/27
25		EFI-4 A G/KV 25/0.3	002064747	EFI-4 A S 25/0.3	002064752	/	/	320	1/27
40	EFI-4 A G/KV 40/0.3	002064748	EFI-4 A S 40/0.3	002064753	/	/	320	1/27	
63	EFI-4 A G/KV 63/0.3	002064749	EFI-4 A S 63/0.3	002064754	/	/	338	1/27	
100	0.3	/	/	/	/	EFI-P4R A S 100/0.3	002061594	350	1/27
125		/	/	/	/	EFI-P4R A S 125/0.3	002061595	350	1/27

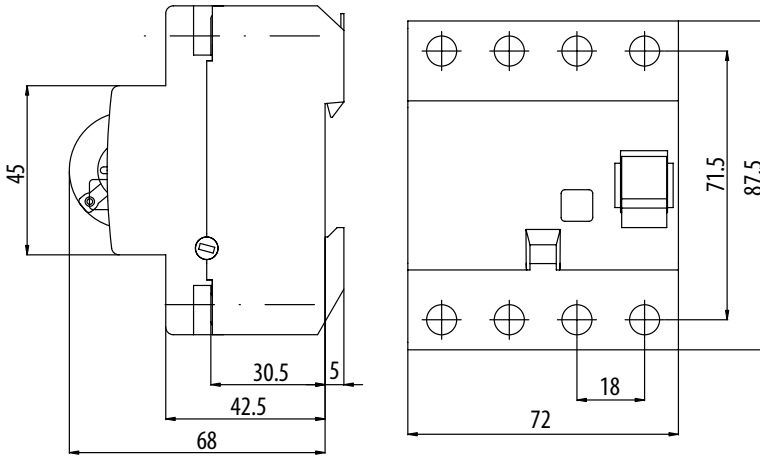
** Reset version: in case of differential current, the button moves to the "trip" (middle) position. In case of manual turn off, the button moves to the "off" (lowest) position.



G/KV



S



Conductor cross-section [mm ²]	Number of single conductors, rigid, single-wire CU conductor				
	1	2	3	4	5
1,5	✓	✓	✓	✓	✗
2,5	✓	✓	✓	✗	✗
4	✓	✓	✓	✗	✗
6	✓	✓	✗	✗	✗
10	✓	✗	✗	✗	✗
16	✓	✗	✗	✗	✗
25	✓	✗	✗	✗	✗

Remark: When you use more than 2 cables you have to be careful how those cables are inserted, due to insure proper pressure on each cable

Conductor cross-section [mm ²]	Number of single conductors, flexible Cu conductors with cable ferrule					
	1	2	3	4	5	6
1,5	✓	✓	✓	✓	✓	✓
2,5	✓	✓	✓	✓	✓	✓
4	✓	✓	✓	✓	✓	✓
6	✓	✓	✓	✗	✗	✗
10	✓	✓	✗	✗	✗	✗
16	✓	✗	✗	✗	✗	✗
25	✓	✗	✗	✗	✗	✗

Combination of rigid single-wire and flexible multi-wire Cu conductors is not allowed

UNIVERSAL CURRENT SENSITIVE RCCBs B and B+ type

APPLICATION

Fault protection (protection against indirect contact of live parts)
 Additional protection (protection in case of direct contact of live parts, $I_{\Delta n} \leq 30\text{mA}$)
 Fire Protection (for locations exposed to fire hazard)

Residual current sensitivity – UNIVERSAL

AC pure sinus residual current, 50/60Hz
 A sinus and pulsating direct current, 50/60Hz
B AC + A + smooth direct current + high frequency (1kHz)
B+ AC + A + smooth direct current + high frequency (20kHz)

Basic types

according to rated values:

4p B $I_n = 25\text{A}, 40\text{A}, 63\text{A}, I_{\Delta n} = 30\text{mA}, 300\text{mA}$
 4p B+ $I_n = 25\text{A}, 40\text{A}, 63\text{A}, I_{\Delta n} = 30\text{mA}, 100\text{mA}, 300\text{mA}$

according to breaking times:

4p B, B+ instantaneous, short time delayed (G/KV), selective (S)

according to the number of poles:

4p, 2p

Standards

IEC/EN 61008-1 basic standard for RCCB's AC and A type
 IEC/EN 62423 additional requirements for type B
 VDE 0664-400 B+ VDE standard for B+ requirements (20kHz)

Mode of operation

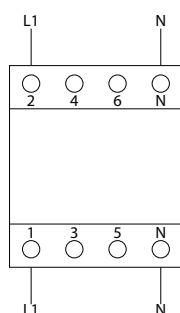
Pure a.c. and pulsating d.c. type residual current sensitivity, A voltage independent
 Smooth d.c. current sensitivity: B, B+ voltage dependent
 Minimum operating voltage: 50V

Typical applications

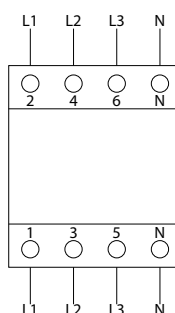
Which are vulnerable to smooth d.c. residual currents:

Frequency converters,
 Photovoltaic systems, a.c side,
 Charging stations for electric vehicles,
 Variable speed machine tools,
 UPS, computer data centres
 Elevator controls,
 Cranes of all kinds
 Electronic equipment on construction sites,
 Test set-ups in laboratories,
 Installation in general where we can expect d.c. smooth direct residual currents, etc.

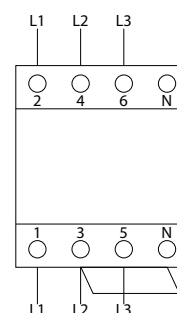
RCD ETI Type B in 1-phase system $U_n = 240\text{V}$



RCD ETI Type B in 3-phase system $U_n = 240/415\text{V}$



RCD ETI Type B in 3-phase system without neutral conductor - $U_n = 240\text{V}$



Technical data

Type		B & B+
Electrical		
Design according to	IEC/EN 61008, IEC/EN 62423 B+ -> VDE 0664-400	
Current test marks as printed onto the device		
Rated voltage U_n	240/415 V AC	
Rated frequency f_n	50/60Hz	
Mode of operation	A type functionality: voltage independent B and B+ type functionality: voltage dependent	
Operation voltage electronic	50 – 253V AC	
Voltage range test circuit	196 – 253V AC	
Rated residual operating current $I_{\Delta n}$	Instantaneous	30, 100, 300 mA
	K - short time delayed	30, 100, 300 mA
	S - selective	100, 300 mA
Sensitivity	Alternating, pulsed and smooth direct currents	
Rated insulation voltage U_i	440 V	
Rated impulse withstand voltage U_{imp}	4 kV (1.2/50µs)	
Rated conditional short-circuit current I_{cn}	10 kA	
Rated making and breaking capacity I_m	800 A	
Peak withstand current	3 kA (8/20 µs) surge current proof	
Electrical isolation	> 4 mm contact space	
Maximum back-up fuse $I_n = 25-63A$	Short circuit and overload protection 100 A gG/gL	
Endurance (operating cycles)	electrical	≥ 4000
	mechanical	≥ 10000
Mechanical		
Frame size	45 mm	
Device height	68 mm (DIN rail acc to EN60715)	
Device width	72 mm (4xModule Units 18mm)	
Degree of protection	IP20	
Upper and lower terminals	open mounted/lift terminals	
Terminal protection finger and hand touch safe	IEC/EN 61008	
Terminal capacity	1 - 25 mm ²	
Terminal screw	M5 (Pozidrive PZ2)	
Terminal torque	2 - 2.5 Nm	
Busbar thickness	0.8 - 2 mm	
Operating temperature	-25°C ... +70°C	
Storage- and transport temperature	-40°C ... +70°C	
Resistance to vibrations acc. to IEC 60068-2-7	5g (10,60 & 500Hz)	
Resistance to climatic conditions	IEC/EN 61008	
Contact position indicator	mechanical red / green	
Supply possibility	top or bottom	
Mounting position	any	

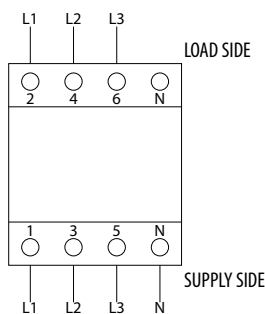
Conductor cross-section [mm ²]	Number of single conductors, rigid, single-wire CU conductor				
	1	2	3	4	5
1,5	✓	✓	✓	✓	✗
2,5	✓	✓	✓	✗	✗
4	✓	✓	✓	✗	✗
6	✓	✓	✗	✗	✗
10	✓	✓	✗	✗	✗
16	✓	✗	✗	✗	✗
25	✓	✗	✗	✗	✗

Remark: When you use more than 2 cables you have to be careful how those cables are inserted, due to insure proper pressure on each cable

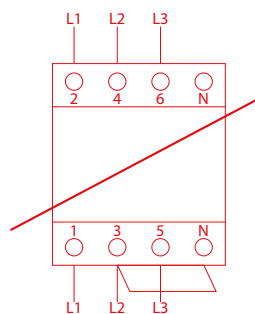
Conductor cross-section [mm ²]	Number of single conductors, flexible Cu conductors with cable ferrule					
	1	2	3	4	5	6
1,5	✓	✓	✓	✓	✓	✓
2,5	✓	✓	✓	✓	✓	✓
4	✓	✓	✓	✓	✓	✓
6	✓	✓	✓	✗	✗	✗
10	✓	✓	✗	✗	✗	✗
16	✓	✗	✗	✗	✗	✗
25	✓	✗	✗	✗	✗	✗

Combination of rigid single-wire and flexible multi-wire Cu conductors is not allowed

RCD ETI Type B in 3-phase system without neutral conductor - $U_n=415V$



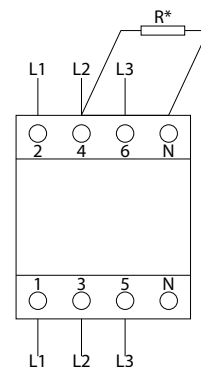
RCD ETI Type B in 3-phase system without neutral conductor - $U_n=415V$



RCD ETI Type B in 3-phase system without neutral conductor - $U_n=415V$

30mA: R=2k7/1W (500V)

300mA: R=470Ω/2W (500V)



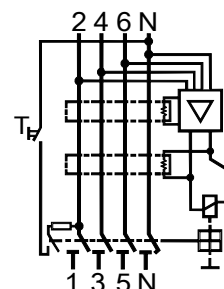
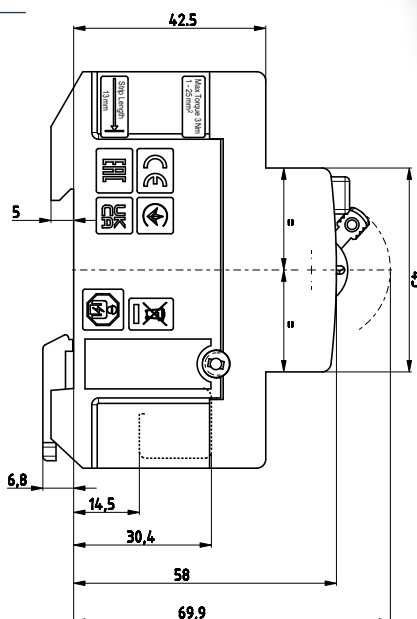
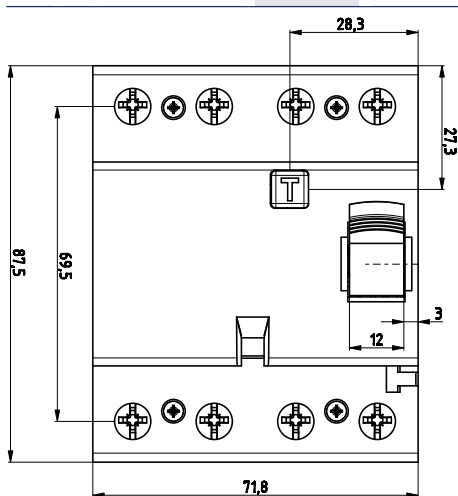
* Resistor (R) has to be connected between N and L2 as to ensure proper functionality of the test button.

B type residual current circuit breaker EFI-P4 B Instantaneous

Rated residual current **0,03 - 0,3 A** Rated current **25 - 63 A** Type **B**

EFI-P4 B Instantaneous

I_n [A]	$I_{\Delta n}$ [A]	Type	Code No.		
25	0,03	EFI-P4 B 40/0.03	002061951	318	1/27
40		EFI-P4 B 25/0.03	002061952	318	1/27
63		EFI-P4 B 63/0.03	002061953	318	1/27
25	0,3	EFI-P4 B 40/0.3	002061971	318	1/27
40		EFI-P4 B 25/0.3	002061972	318	1/27
63		EFI-P4 B 63/0.3	002061973	318	1/27



B type residual current circuit breaker EFI-4 B G/KV-Short time delay

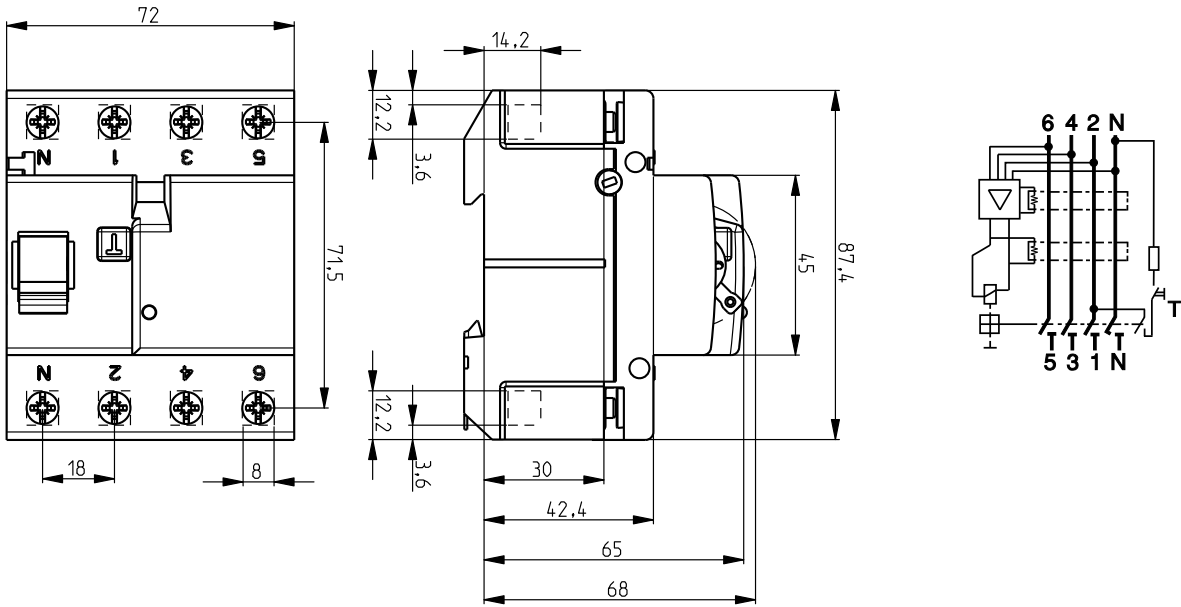
Rated residual current **0,03 - 0,3 A** Rated current **25 - 63 A** Type **B (G/KV)**

EFI-4 B G/KV-Short time delay

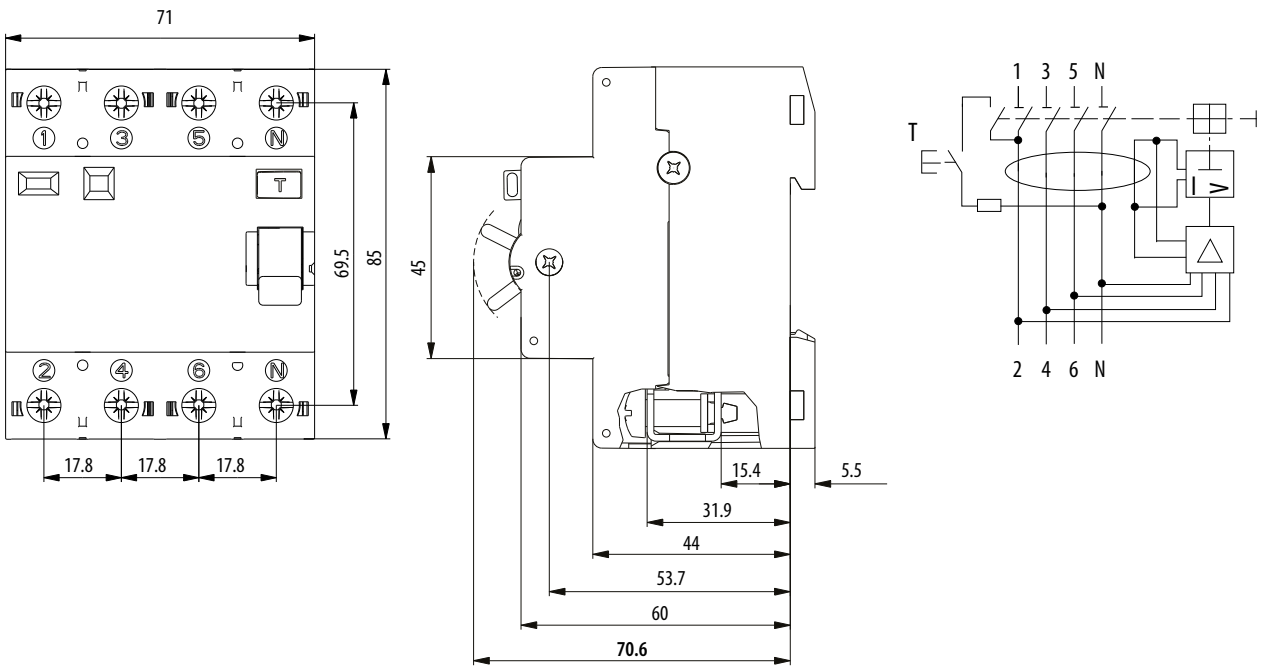
I_n [A]	$I_{\Delta n}$ [A]	Type B G/KV	B G/KV Code No.	G/KV Reset	B G/KV Reset Code No.			
25	0,03	EFI-4 B G/KV 25/0.03	002062652		/	340	1/27	
40		EFI-4 B G/KV 40/0.03	002062653		/	340	1/27	
63		EFI-4 B G/KV 63/0.03	002062654		/	345	1/27	
100	0,1	/	/	EFI-P4R B G/KV 100/0.03	002061905	350	1/27	
125		/	/	EFI-P4R B G/KV 125/0.03	002061906	350	1/27	
25		EFI-4 B G/KV 25/0.1	002063652		/	340	1/27	
40	0,3	EFI-4 B G/KV 40/0.1	002063653		/	340	1/27	
63		EFI-4 B G/KV 63/0.1	002063654		/	345	1/27	
100		/	/		EFI-P4R B G/KV 100/0.1	002061915	350	1/27
125	0,5	/	/		EFI-P4R B G/KV 125/0.1	002061916	350	1/27
25		EFI-4 B G/KV 25/0.3	002064652		/	340	1/27	
40		EFI-4 B G/KV 40/0.3	002064653		/	340	1/27	
63	0,5	EFI-4 B G/KV 63/0.3	002064654		/	345	1/27	
100		/	/		EFI-P4R B G/KV 100/0.3	002061925	350	1/27
125		/	/		EFI-P4R B G/KV 125/0.3	002061926	350	1/27
100	0,5	/	/		EFI-P4R B G/KV 100/0.5	002061935	350	1/27
125		/	/		EFI-P4R B G/KV 125/0.5	002061936	350	1/27



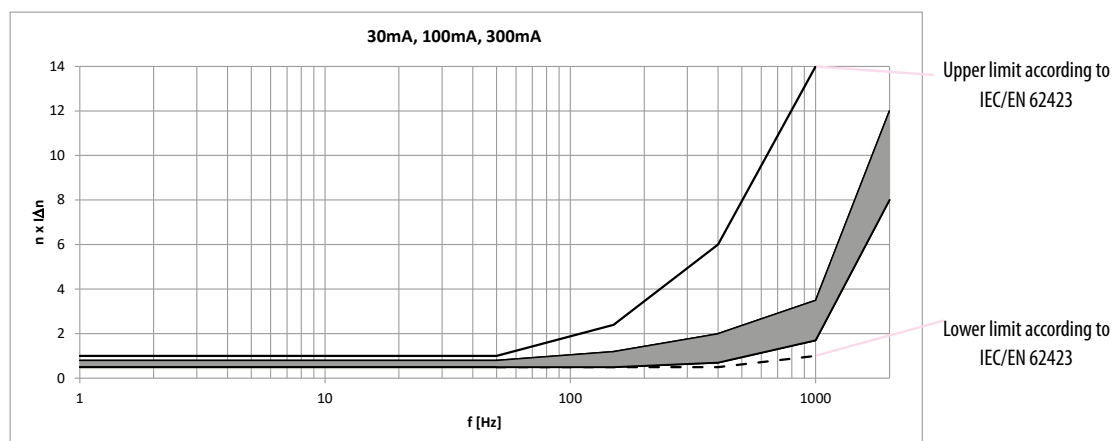
K-Short time delay



G/KV - Reset (100 & 125A)



EFI B type

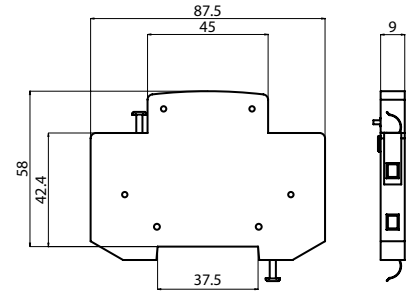


Accessories for residual current circuit breakers EFI



The PS EFI is fixed to EFI series switches. The width of the device is 9 mm, other dimensions are in compliance with EFI switches. The auxiliary switch PS EFI is used for the remote signalling of the state of contact's condition (closed/open) of EFI switches. During fitting, the EFI must be switched off. PS EFI and DA EFI can not be mounted both together, because both can only be mounted on the right side of EFI.

Technical data PS EFI 16-80A

Rated current I_n	6 A (230 V AC), AC 12, 1 A (110 V DC), DC 12
Conditional short-circuit current	1 kA with fuse-link 20 A
Terminals	1-2,5mm ² , max. 0,5Nm
Terminal Screw	M3 (PH1)
Operating temperature	-25°C ... +70°C
Storage and transport temperature	-40°C ... +70°C
Mounting position	any
Standards	EN 62019



Auxiliary Switch PS EFI 16-80A

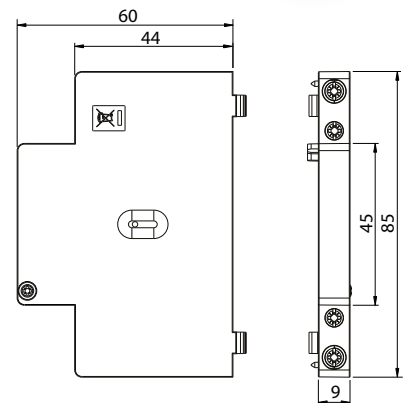
Type	Contact	Code No.	 g	
PS EFI - MD	NC+NO	002069001	50	1/12
PS EFI - 2M	2xNC	002069002	50	1/12
PS EFI - 2D	2xNO	002069003	50	1/12

NO = make contact
NC = break contact





Technical data PS EFI 100-125A

Rated current I_n	6 A (230 V AC), AC 12, 1,5 A (110 V DC), DC 12
Conditional short-circuit current	10 kA with fuse-link 6 A
Terminals	0,75-2,5mm ² , max. 0,8Nm
Terminal Screw	M3 (PZ1)
Operating temperature	-25°C ... +70°C
Storage and transport temperature	-40°C ... +70°C
Mounting position	any
Standards	IEC/EN 60947-1, IEC/EN 60947-5-1, IEC/EN 62019, DIN EN 62019 (VDE 0640)



Auxiliary Switch PS EFI 100-125A

Type	Contact	Code No.	 g	
PS EFI 100/125 - NC+NO	NC+NO	002069006	31	1/12
PS EFI 100/125 - 2xNC	2xNC	002069007	31	1/12
PS EFI 100/125 - 2xNO	2xNO	002069008	31	1/12

NO = make contact
NC = break contact



Residual Current Circuit Breakers for Protection of EV Charging Stations EFI-P eV

Rated residual current
0,03 A

Rated current
25 - 63 A

Type
A

- Meets requirements from standard IEC 60364-7-722 --> Low-Voltage electrical Installations - Requirements for special installations or locations - Supplies for electric vehicles

- Individual test measurements and other production data for each device can be read from the QR code, as well as instruction manuals and other technical materials



- detects smooth DC residual currents above 6 mA
- Rated conditional short-circuit current: 10 kA



- All necessary technical & installation information can be found on the front and side of the device



- Supply is possible both from top and bottom terminals

- RCCBs can be supplied with single phase and three phase busbars

- Basic installation requirements are engraved into housing



- Clearly marked terminals to ensure appropriate connection



- Real contact position indication for easier identification, whether RCCB is in ON or OFF position



- Better protection of terminals against touching the parts under voltage



Technical data EFI-P4 A eV

Type	EFI-P4 A eV
Electrical	
Rated Voltage U_n	400/415V AC
Rated current I_n	25, 40, 63 A
Rated frequency f_n	50/60Hz
Mode of operation	A type functionality : voltage independent DC functionality: voltage dependent
Sensitivity	Alternating, pulsed and smooth direct currents
Rated insulation voltage U_i	440V
Rated impulse withstand voltage (1,2/50 μ s)	4kV
Electrical isolation	> 4mm contact space
Rated residual operating current $I_{\Delta n}$	30 mA
DC tripping treshold	6 mA
Rated conditional short-circuit current I_m	10kA
Rated making and breaking capacity I_m	630A
Max back-up fuse for short circuit protection	80A gG
Voltage range test circuit	196 – 253 V AC
Min. operating voltage	80 V
Standards	IEC/EN 61008, IEC 62955:2018
Mechanical Endurance (cycles)	10.000
Electrical endurance (cycles)	2.000
Shock resistance acc. to	IEC/EN 61008-1
Resistance to vibrations acc. to IEC 60068-2-7	5g (10, 60 & 500Hz)
Mechanical	
Frame size	45mm
Device height	68mm (DIN rail acc to EN6071)
Device width	72mm (4 x Module Units)
Degree of protection	IP20
Overvoltage category	III
Upper and lower terminals	open mounted/lift terminals
Terminal capacity	1-25mm ²
Terminal screw	M5 (Pozidrive PZ2)
Terminal torque	max. 3Nm
Busbar thickness	0,8 - 2 mm
Operating temperature	-25°C ... +70°C
Storage and transport temperature	-40°C ... +85°C
Resistance to climatic conditions	IEC/EN 61008
Contact position indicator	mechanical red/green
Mounting position	any
Mounting on the rail	35mm acc to EN50022
Supply possibility	top or bottom
Locking device	Locking is possible through button and cover

I_n [A]	Maximum power dissipation EFI-4 A eV	
	P/pole [W]	
25	1,33	
40	3,12	
63	6,62	



conductor cross-section [mm ²]	Number of single conductors, rigid, single-wire Cu conductor				
	1	2	3	4	5
1,5	✓	✓	✓	✓	✗
2,5	✓	✓	✓	✗	✗
4	✓	✓	✓	✗	✗
6	✓	✓	✗	✗	✗
10	✓	✓	✗	✗	✗
16	✓	✗	✗	✗	✗
25	✓	✗	✗	✗	✗

Remark: When you use more than 2 cables you have to be careful how those cables are inserted, due to insure proper pressure on each cable

Conductor cross-section [mm ²]	Number of single conductors, flexible Cu conductors with cable ferrule					
	1	2	3	4	5	6
1,5	✓	✓	✓	✓	✓	✓
2,5	✓	✓	✓	✓	✓	✓
4	✓	✓	✓	✓	✓	✓
6	✓	✓	✓	✗	✗	✗
10	✓	✓	✗	✗	✗	✗
16	✓	✗	✗	✗	✗	✗
25	✓	✗	✗	✗	✗	✗

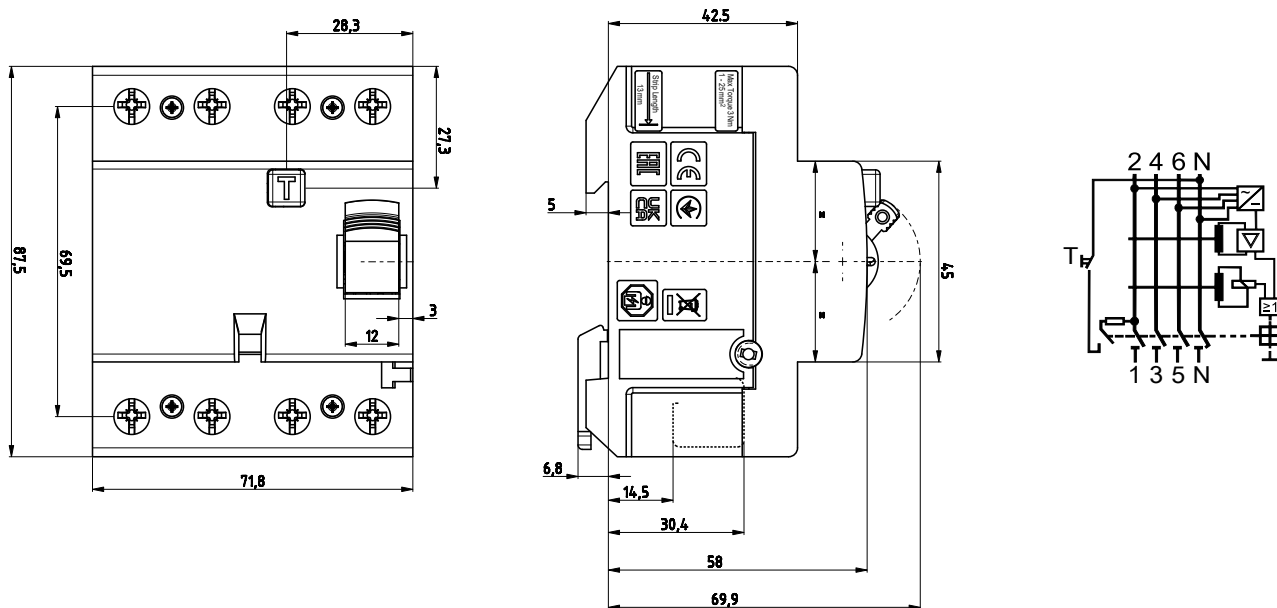
Combination of rigid single-wire and flexible multi-wire Cu conductors is not allowed

EFI-P4 eV

I_n [A]	$I_{\Delta n}$ [A]	Type	Code No.		
25	0,03	EFI-P4 eV 25/0.03	002061991	318	1/27
40		EFI-P4 eV 40/0.03	002061992	318	1/27
63		EFI-P4 eV 63/0.03	002061993	318	1/27

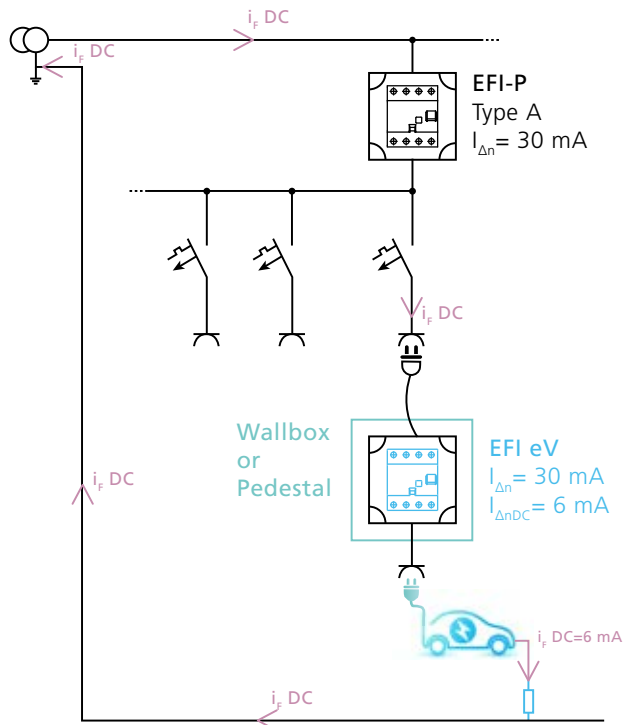


ASTI / Residual Current Circuit Breakers



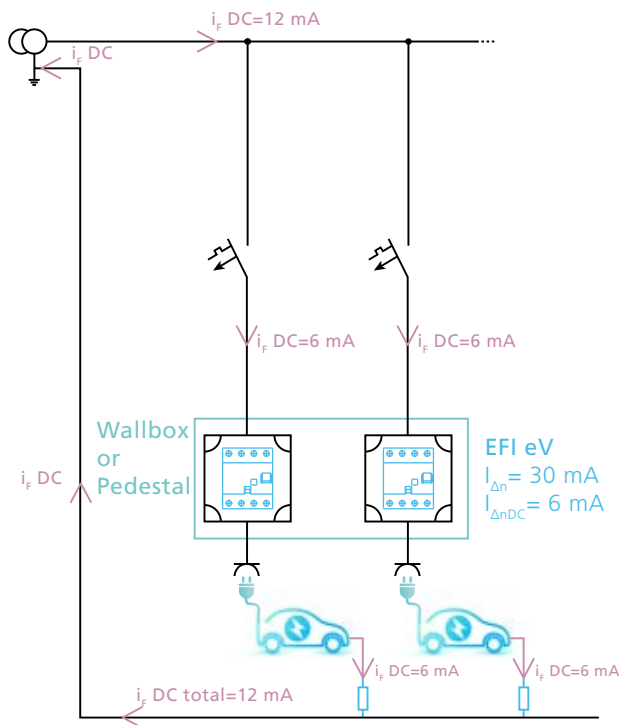
Electrical Design Recommendations

TN-System



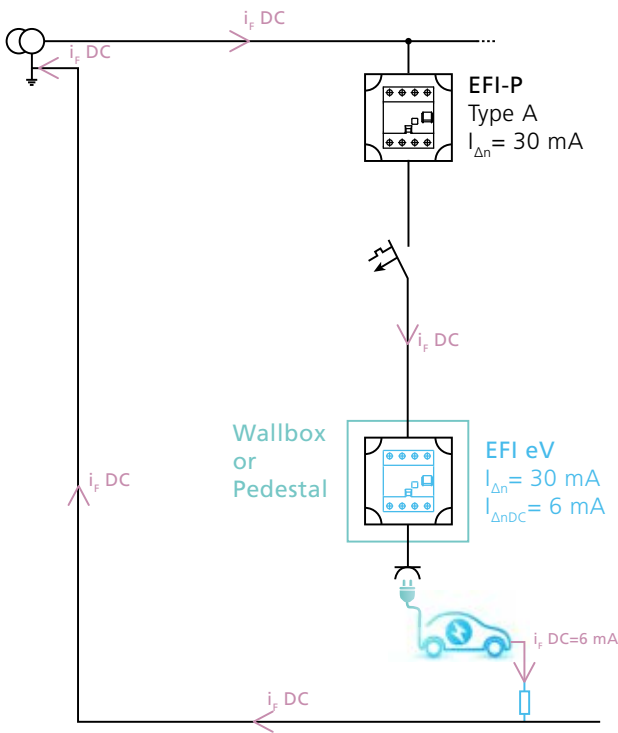
If the charging unit is plugged into an existing socket, protected with a Type A RCCB, additional protection against smooth DC residual currents above 6 mA must be provided (IEC 60364-7-722).

TN-System



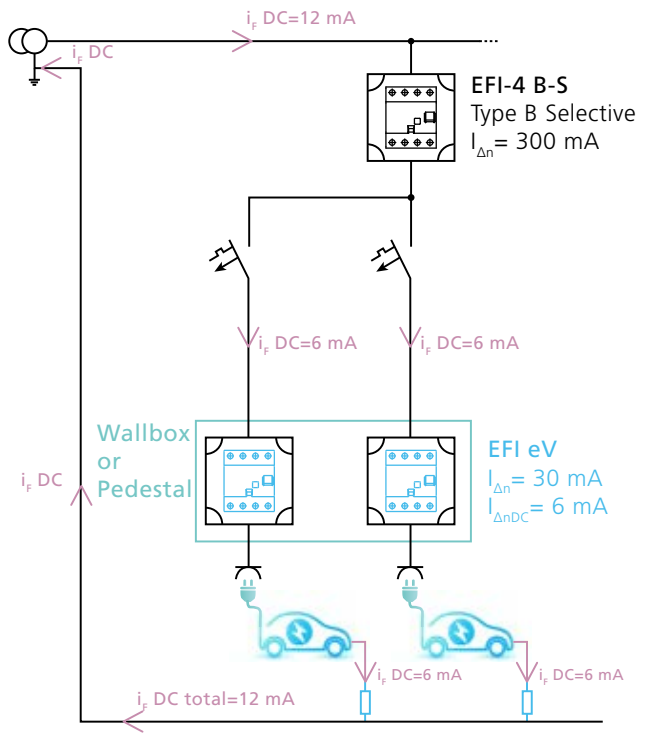
If the charging unit has a fixed connection, EFI eV will provide complete protection against residual currents.

TT-System



In these systems, switch-off times must comply to stricter rules so even the charging units with fixed connection require a Type A RCCB, which needs to be additionally protected against smooth DC residual currents above 6 mA by EFI eV.

TT-System



If more charging units are in use, the first RCCB must be a Type B device to protect from the sum of all smooth DC residual currents. Each charging plug socket must also be protected with EFI eV.

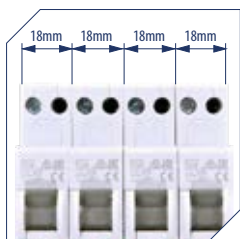
ASTI Residual Current Circuit Breakers with Integral Overcurrent Protection - RCBOs

Residual current circuit breaker with integral overcurrent protection KZS -1M

By combining both the MCB (protection against overcurrent faults) and RCCB (protection against residual currents) functions, the RCBO provides enhanced safety and protection for both people and electrical systems. It is commonly used in residential, commercial and industrial electrical installations with operating temperature down to -35°C .

SPACE SAVING

Two devices (MCB and an RCCB) in a single 1-module unit, switching active and neutral pole.



EITHER WAY UP

New universal KZS - 1M UNI enables top and bottom, line and load compatibility for easy, fast either-way-up installations.



OVERVOLTAGE PROTECTION

A special version with built-in overvoltage protection KZS-1M DN is also available.



Added protection against any pulsating DC component that can be generated from electrical appliances

Line voltage-dependent differential tripping (minimum supply voltage 85V)

Energy limiting class 3: highest energy limiting performance for optimal protection of cable insulation and maximally reducing risk of fire and other damage



All necessary technical and installation information can be found on the front and side of the device

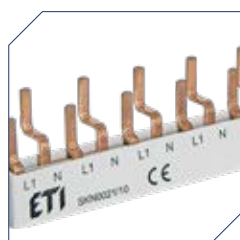


The middle (trip) position of the toggle indicates electric fault tripping

The terminals accept not only wires but also time saving busbars



The possibility of connecting to SKN-type busbars



Easy removal from existing busbar system



Real contact position indication for easier identification, whether RCBO is in ON or OFF position



Clearly marked terminals ensure appropriate connection

Increased opening on the N pole (size PZ2 screw drive)



Sealing possibility



Recommended for use in installations with high level of additional protection required (bathrooms, hospitals, kindergartens etc). Used for fault and additional protection.

Residual current circuit breaker with integral overcurrent protection KZS -1M UNI

Rated short-circuit capacity
6 kA

Rated current
6 - 25 A

Tripping characteristic
B, C

Rated residual current
0,01 - 0,03 - 0,1 A

Description - KZS -1M UNI is a residual current circuit breaker with integral overcurrent protection, functionally dependent on line voltage. Bi-directional connection.

Technical data

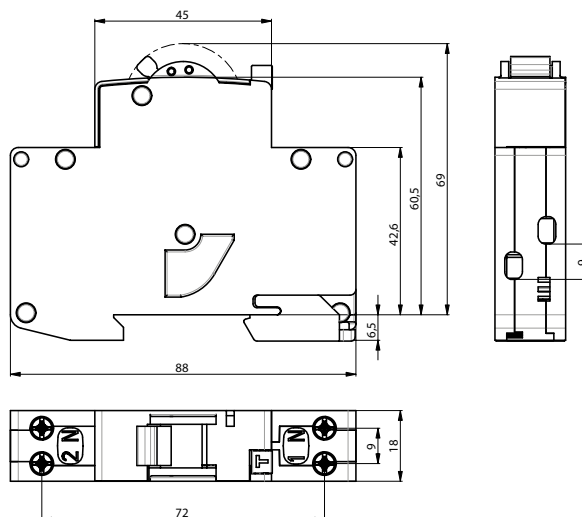
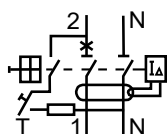
Type	KZS 1M UNI
Rated voltage U_n	230/240 V AC
Rated current I_n	6-25 A
Minimum supply voltage U_{min}	85 V
Rated frequency f_n	50/60 Hz
Rated short-circuit capacity	6.000 A
Back-up fuse	100 A gG
Tripping characteristic	B, C
Rated residual current $I_{\Delta n}$	10, 30, 100 mA
Type of residual release	A, AC
Rated residual making and breaking capacity $I_{\Delta n}$	1500A
Terminals	1-10 mm ² , max. 1,5Nm
Terminal screw	M4 (Pozidrive PZ2)
Width	18 mm
Mounting position	any
Standard	IEC 61009
Length of neutral conductor	-
Operating temperature	-35°C ... +40°C
Storage temperature	-40°C ... +60°C

KZS - 1M UNI

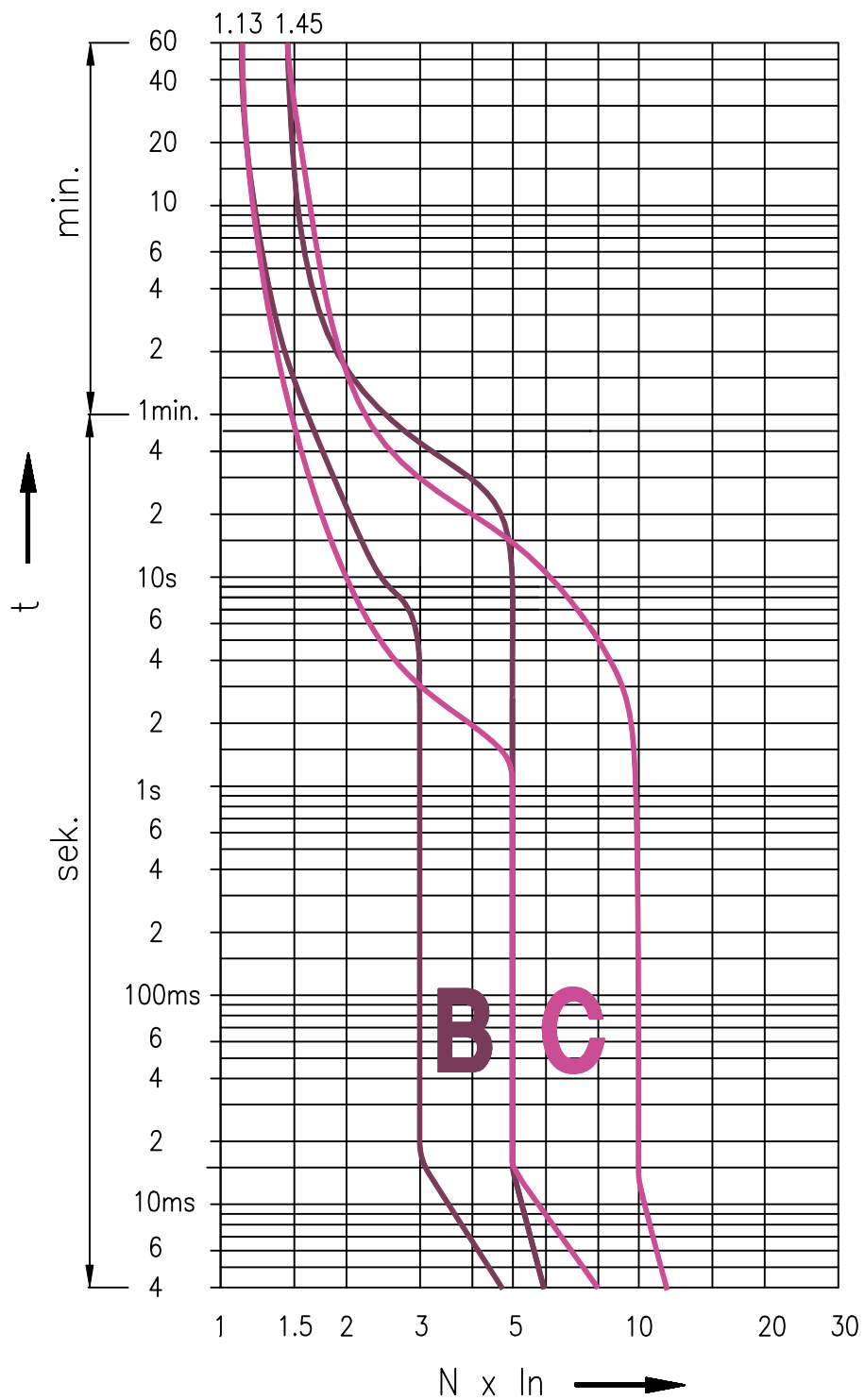
I_n [A]	$I_{\Delta n}$ [A]	Type A Characteristic B	Code No. B	Type A Characteristic C	Code No. C	g	Box
6	0,01	KZS-1M-UNI 1p+N A B6/0.01	002176001	KZS-1M-UNI 1p+N A C6/0.01	002176011	111	1/72
10		KZS-1M-UNI 1p+N A B10/0.01	002176002	KZS-1M-UNI 1p+N A C10/0.01	002176012		
13		KZS-1M-UNI 1p+N A B13/0.01	002176003	KZS-1M-UNI 1p+N A C13/0.01	002176013		
16		KZS-1M-UNI 1p+N A B16/0.01	002176004	KZS-1M-UNI 1p+N A C16/0.01	002176014		
20		KZS-1M-UNI 1p+N A B20/0.01	002176005	KZS-1M-UNI 1p+N A C20/0.01	002176015		
25	KZS-1M-UNI 1p+N A B25/0.01	002176006	KZS-1M-UNI 1p+N A C25/0.01	002176016			
6	0,03	KZS-1M-UNI 1p+N A B6/0.03	002176021	KZS-1M-UNI 1p+N A C6/0.03	002176031	111	1/72
10		KZS-1M-UNI 1p+N A B10/0.03	002176022	KZS-1M-UNI 1p+N A C10/0.03	002176032		
13		KZS-1M-UNI 1p+N A B13/0.03	002176023	KZS-1M-UNI 1p+N A C13/0.03	002176033		
16		KZS-1M-UNI 1p+N A B16/0.03	002176024	KZS-1M-UNI 1p+N A C16/0.03	002176034		
20		KZS-1M-UNI 1p+N A B20/0.03	002176025	KZS-1M-UNI 1p+N A C20/0.03	002176035		
25	KZS-1M-UNI 1p+N A B25/0.03	002176026	KZS-1M-UNI 1p+N A C25/0.03	002176036			
6	0,1	KZS-1M-UNI 1p+N A B6/0.1	002176041	KZS-1M-UNI 1p+N A C6/0.1	002176051	111	1/72
10		KZS-1M-UNI 1p+N A B10/0.1	002176042	KZS-1M-UNI 1p+N A C10/0.1	002176052		
13		KZS-1M-UNI 1p+N A B13/0.1	002176043	KZS-1M-UNI 1p+N A C13/0.1	002176053		
16		KZS-1M-UNI 1p+N A B16/0.1	002176044	KZS-1M-UNI 1p+N A C16/0.1	002176054		
20		KZS-1M-UNI 1p+N A B20/0.1	002176045	KZS-1M-UNI 1p+N A C20/0.1	002176055		
25	KZS-1M-UNI 1p+N A B25/0.1	002176046	KZS-1M-UNI 1p+N A C25/0.1	002176056			

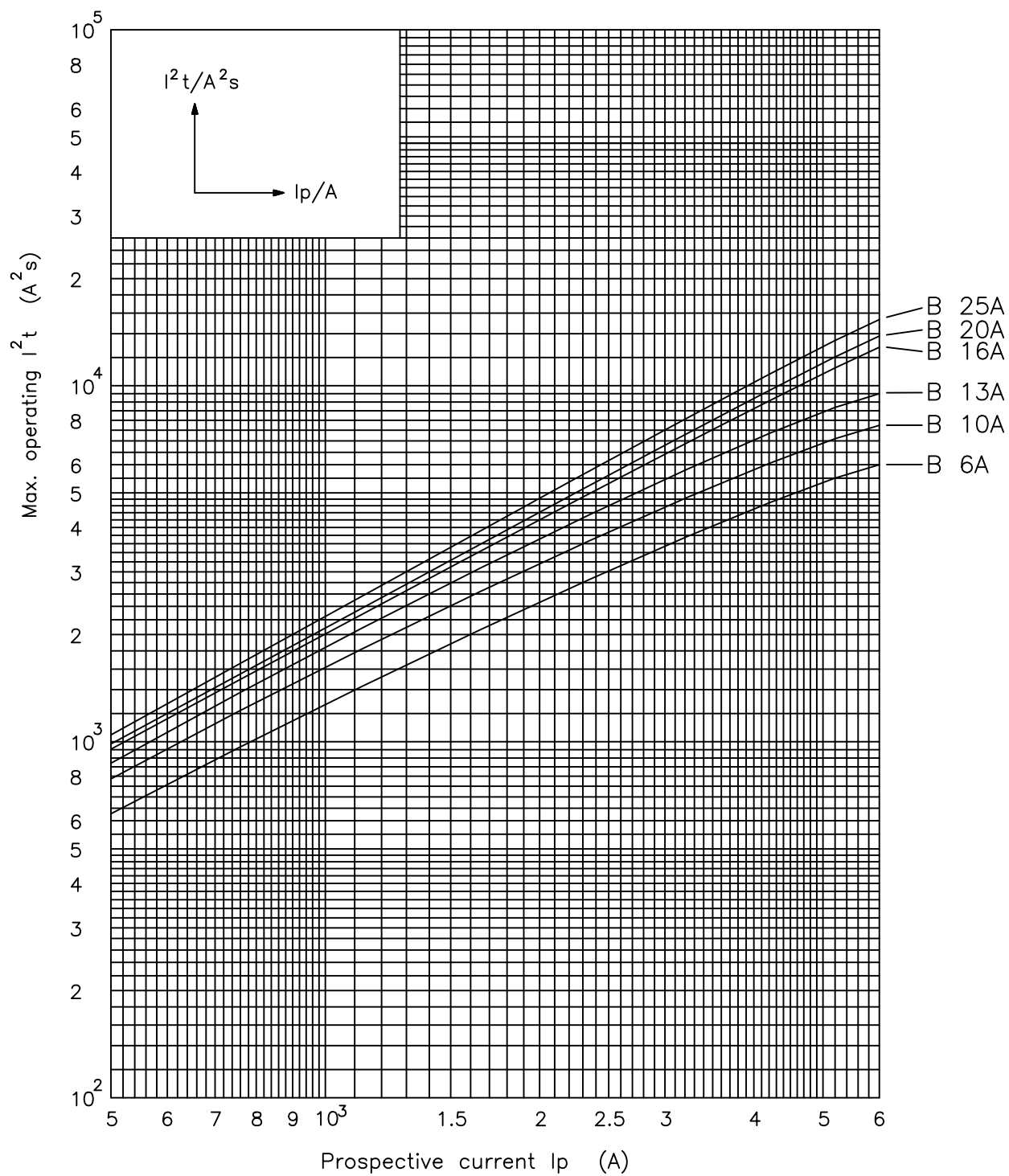
KZS - 1M UNI

I_n [A]	$I_{\Delta n}$ [A]	Type AC Characteristic B	Code No. B	Type AC Characteristic C	Code No. C	g	Box
6	0,01	KZS-1M-UNI 1p+N AC B6/0.01	002176101	KZS-1M-UNI 1p+N AC C6/0.01	002176111	111	1/72
10		KZS-1M-UNI 1p+N AC B10/0.01	002176102	KZS-1M-UNI 1p+N AC C10/0.01	002176112		
13		KZS-1M-UNI 1p+N AC B13/0.01	002176103	KZS-1M-UNI 1p+N AC C13/0.01	002176113		
16		KZS-1M-UNI 1p+N AC B16/0.01	002176104	KZS-1M-UNI 1p+N AC C16/0.01	002176114		
20		KZS-1M-UNI 1p+N AC B20/0.01	002176105	KZS-1M-UNI 1p+N AC C20/0.01	002176115		
25	KZS-1M-UNI 1p+N AC B25/0.01	002176106	KZS-1M-UNI 1p+N AC C25/0.01	002176116			
6	0,03	KZS-1M-UNI 1p+N AC B6/0.03	002176121	KZS-1M-UNI 1p+N AC C6/0.03	002176131	111	1/72
10		KZS-1M-UNI 1p+N AC B10/0.03	002176122	KZS-1M-UNI 1p+N AC C10/0.03	002176132		
13		KZS-1M-UNI 1p+N AC B13/0.03	002176123	KZS-1M-UNI 1p+N AC C13/0.03	002176133		
16		KZS-1M-UNI 1p+N AC B16/0.03	002176124	KZS-1M-UNI 1p+N AC C16/0.03	002176134		
20		KZS-1M-UNI 1p+N AC B20/0.03	002176125	KZS-1M-UNI 1p+N AC C20/0.03	002176135		
25	KZS-1M-UNI 1p+N AC B25/0.03	002176126	KZS-1M-UNI 1p+N AC C25/0.03	002176136			
6	0,1	KZS-1M-UNI 1p+N AC B6/0.1	002176141	KZS-1M-UNI 1p+N AC C6/0.1	002176151	111	1/72
10		KZS-1M-UNI 1p+N AC B10/0.1	002176142	KZS-1M-UNI 1p+N AC C10/0.1	002176152		
13		KZS-1M-UNI 1p+N AC B13/0.1	002176143	KZS-1M-UNI 1p+N AC C13/0.1	002176153		
16		KZS-1M-UNI 1p+N AC B16/0.1	002176144	KZS-1M-UNI 1p+N AC C16/0.1	002176154		
20		KZS-1M-UNI 1p+N AC B20/0.1	002176145	KZS-1M-UNI 1p+N AC C20/0.1	002176155		
25	KZS-1M-UNI 1p+N AC B25/0.1	002176146	KZS-1M-UNI 1p+N AC C25/0.1	002176156			

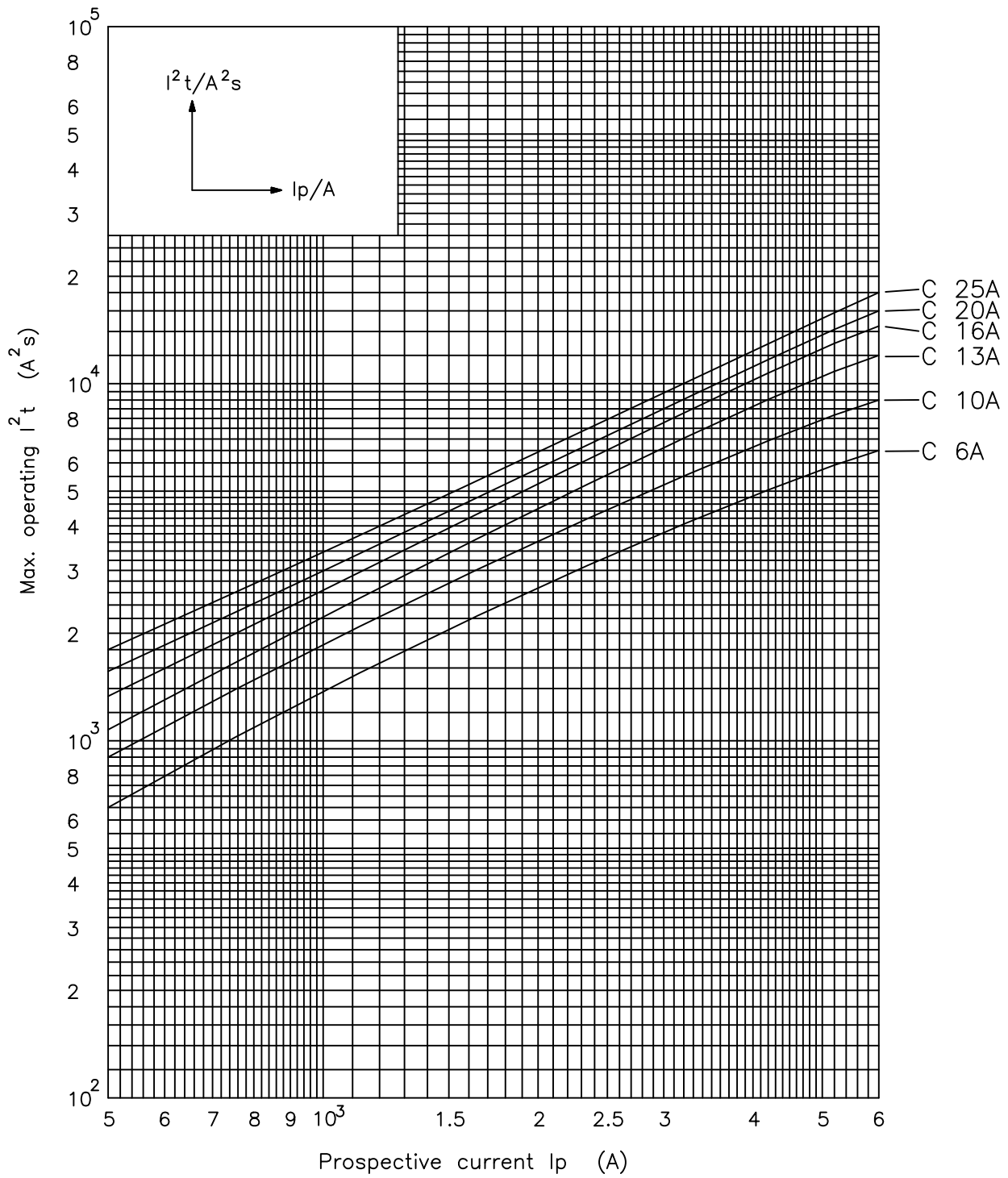


Time current characteristics I/t, KZS-1M

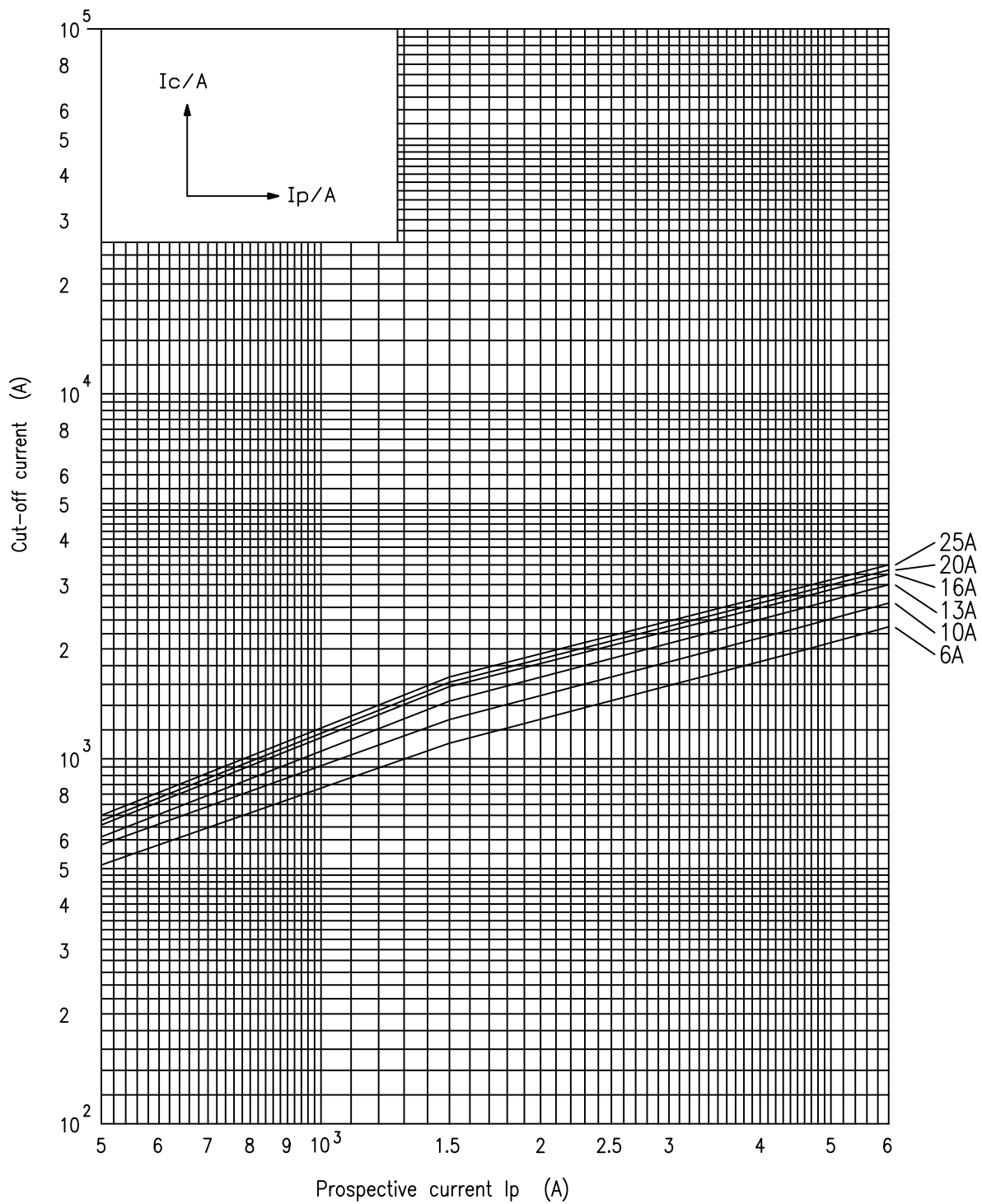


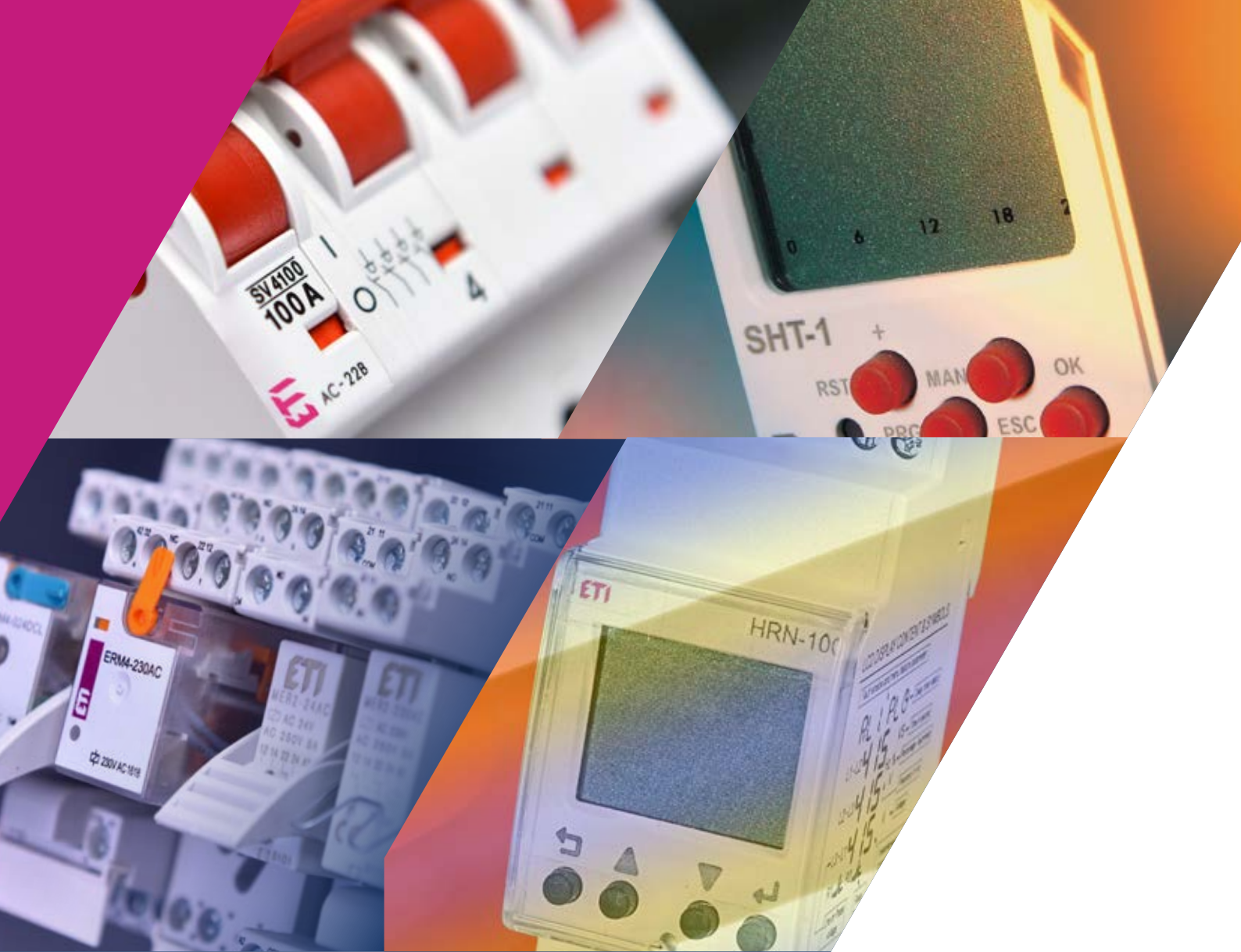
Melting energy characteristics I^2t KZS-1M

Melting energy characteristics I²t KZS-1M



Cut-off current characteristics KZS-1M





EVE - ETIREL

Modular and control devices

Control equipment ETIREL **80**

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/etigroup

ETI
SWITCH TO
A SAFE FUTURE

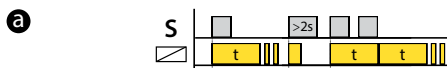
ETIREL Control Equipment

Programmable staircase switch CRM-47

- // Staircase switch enables delayed switching off of lighting on stairs, corridors, entrances, common areas or for delayed running of fans in the toilet or bathroom.
- // The programmable staircase switch offers similar application possibilities as the CRM-4, while it is possible to extend the delay for functions a, b repeatedly by briefly pressing the control button (buttons). Each short press multiplies the time set by the potentiometer, i.e. setting the potentiometer to 2 minutes with three presses extends the delay up to 6 minutes. The maximum value of such an extended delay will always be 30 minutes, regardless of the number of presses.
- // Long press (>2 s) can switch off the output prematurely and end the ongoing delay.
- // Control input with the possibility of loading up to 100 mA load (glow lamp, LED in the button, etc.).
- // Function (selectable by potentiometer on the front panel)
 - a – STAIRCASE SWITCH, programmable with signalization
 - b – STAIRCASE SWITCH, programmable without signalization
 - c – MEMORY LATCH (press to switch on, press to switch off)
 - d – MEMORY LATCH with delay:
 - ✎ ON (permanently closed) - e.g. during cleaning, moving
 - ✎ OFF (permanently open) - e.g. when replacing luminaires.
- // ZERO CROSS feature: closes the output contact when the voltage crosses zero.
- // Adjustable time delay (t) 0.5 – 10 m.
- // Handles surge currents up to 80 A.
- // 3-wire or 4-wire connection (input S can be controlled by A1 potential)

Functions

When switching between functions, the red LED flashes.



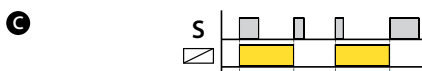
STAIRCASE SWITCH, programmable with signalization

The device times the set time, 30 and 40s before the end of the time by double flashing of the luminaire announces the impending switch-off. You can increase the time interval by briefly pressing the button repeatedly. Suitable for resistive loads (e.g. bulbs).



STAIRCASE SWITCH, programmable without signalization

The device will time the set time without flashing at the end of the interval. You can increase the time interval by briefly pressing the button repeatedly. The function is suitable for loads that can withstand frequent switching on and off (eg energy saving lamps, LED bulbs).



MEMORY LATCH (press to switch on, press to switch off)

By pressing the button the output relay closes and by pressing again the relay opens.

This function is primarily intended for locations where long-term lighting (without timing) is desirable and the unit is controlled from multiple locations (e.g. in office buildings).



MEMORY LATCH with delay

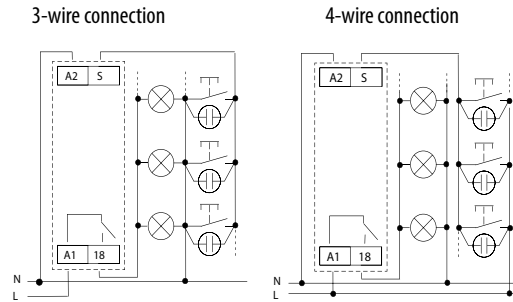
Pressing the button switches the output on/off. If the output is not turned off during the set time "t", it turns off automatically after the timer. This function is suitable for places where lighting is often forgotten (e.g. toilets, corridors, cellars).

Technical data

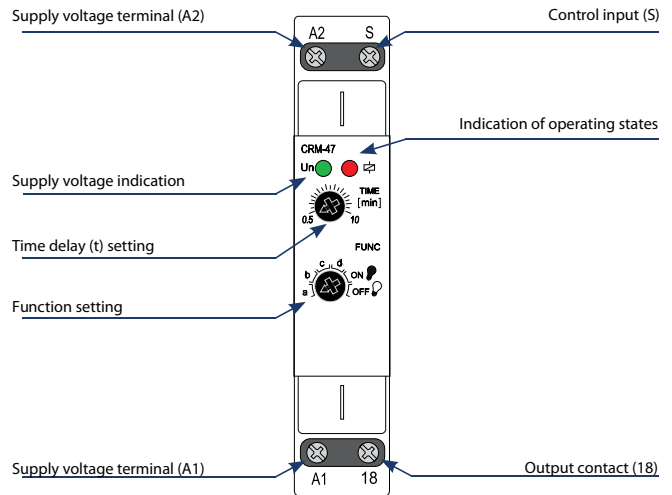
CRM-47	
Power supply	
Supply terminals	A1-A2
Supply voltage	230 V AC / 50-60Hz
Consumption	max. 3VA AC / 1.6 W
Time circuit	
Number of functions	6
Time delay (t)	0.5 - 10 min (prog. 30 min)
Time setting	rotary potentiometer
Time deviation	5%-mechanical adjustment
Repeat accuracy	0,2%-set value stability
Temperature coefficient	0.01 % / °C, at = 20 °C
Output	
Number of contacts	1× closing (AgSnO ₂); closes potential "A1"
Rated current	16 A / AC1
Breaking capacity	4000 VA / AC1, 384W / DC
Inrush current	30A / < 3s.
Switching voltage	max. 250 V AC / 24 V DC
Power dissipation	max. 1,2 W
Mechanical life	10 ⁷
Electrical life (AC1)*	10 ⁵
Control	
Control Voltage	230 V AC
Power the control input max.	4.5 VA / 0.3 W
Glow lamp connection	✓
Max. current of connected glow lamps	100 mA
Control terminals	A1-S / A2-S
Impulse length	min 40ms. / max.unlimited
Reset time	max. 320 ms.
Other data	
Operating temperature	-20...+55 °C
Storage temperature	-30...+70 °C
Operating position	any
Mounting	DIN rail EN 60715
Protection degree	IP 40 from front panel / IP20 terminals
Overvoltage category	III.
Pollution degree	2
Max. cable size	
- Solid wire max.	1x2,5 mm ² / 2x1,5 mm ²
- stranded with ferrule max.	1x2,5 mm ²
Dimensions	90 x 17,6 x 64 mm
Standards	EN 61812-1

* For higher loads and frequent switching, it is recommended to strengthen the relay contact with a contactor



Connection



Description



Programmable staircase switch CRM-47

Type	I _n [A]	Code No.	 g	 1/10
CRM-47 230	16	002470304	70	1/10



Digital time switch SHT-13/2 UNI

DESCRIPTION

All-in-One digital time relay, with various programs (daily, weekly, yearly and astronomical, mixed, random). Simple setting after the first start-up, built-in Web Server for setup via Wi-Fi connection. ASTRONomic program with manual entry of geogr. coordinates or selecting one of the preset cities. 2 independant programmable outputs with permanent NO or NC, pulse or cycle mode.

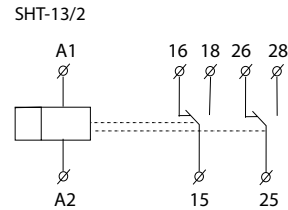
ADVANTAGES

- // supply voltage range AC/DC 24 - 240 V, (AC 50-60 Hz)
- // replaceable battery to back up the set time (CR2032)
- // possible time synchronization through NTP server
- // 2 independant output channels (CO 2x16A)
- // summer/winter time – AUTO or OFF
- // sealable transparent front panel cover
- // PIN code protection against unauthorized changes
- // Wi-Fi (2.4 GHz)
- // Output: 2x changeover, 16 A
- // Housing: 2 MODULE size (2 TE), dimensions: 90 × 35 × 64 mm

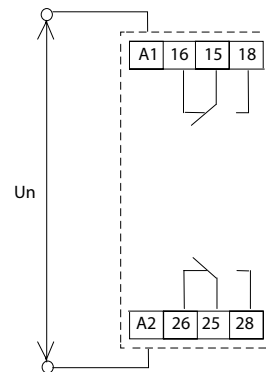
Technical data

Supply terminals	A1-A2
Supply voltage	24 - 240 V AC/DC (50 AC - 60 Hz)
Consumption	Wi-Fi "OFF" 0,5 W / 2 VA; "ON" 1 W / 3 VA
Supply voltage tolerance	-15%; +10%
Output	
Number of contacts	2x changeover (AgSnO2)
Rated current	16 A/AC1; 1 HP 240 Vac, 1/2 HP 120 Vac; PD. B300
Breaking capacity	4000 VA /AC1, 384 W / DC
Inrush current (duty factor 10%)	30 A / < 3 s
Switching voltage	250 V AC1 / 24 V DC
Power dissipation (max.)	2.4 W
Mechanical life	3x10 ⁷
Electrical life (AC1)	10 ⁵
Time circuit	
Accuracy	max. ±0.5 s/day at 23°C
Minimum interval	1 s
Data stored for	min. 10 years
Set time backup	up to 120 days (CR 2032 - 3V)
Program circuit	
Number of memory locations	200
Program type	daily, weekly, yearly, astro
Displayed data	LCD display with white backlight
Settings via website	by Wi-Fi (2.4 GHz)
Other information	
Operating temperature	-20...+55°C
Storage temperature	-30...+70°C
Dielectric strength: supply – output output 1 – output 2	AC 4 kV AC 4 kV
Operating position	any
Mounting	DIN rail EN 60715
Protection degree	IP40 front panel / IP20 terminals
Overvoltage category	III
Pollution degree	2
Cross-wire section – solid/ stranded with ferrule (mm ²)	max. 1× 2.5, 2× 1.5/ max. 1× 2.5 (AWG 14)
Dimensions	90 × 35 × 64 mm
Standards	EN 61812-1



Symbol



Connection

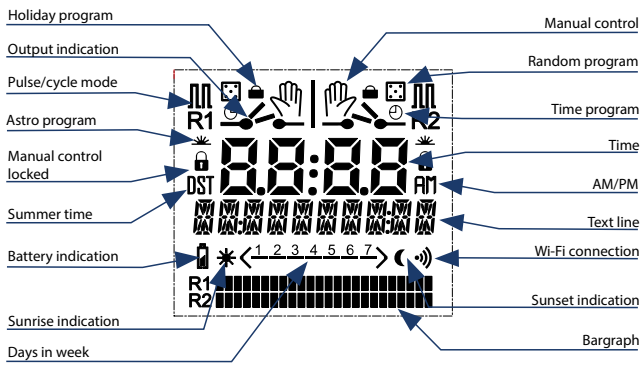


Digital time switch SHT-13/2 UNI

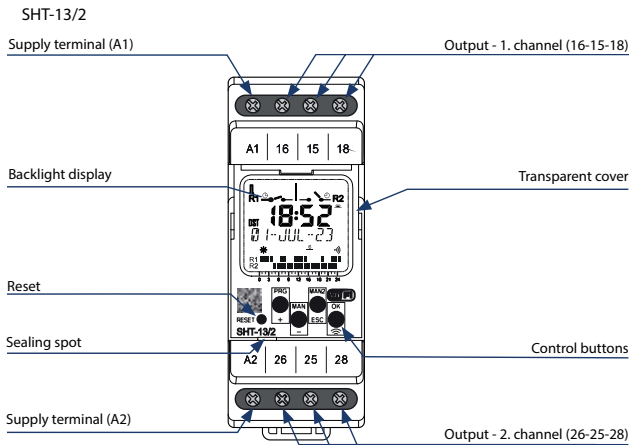
Type	I _n [A]	Code No.		
SHT-13/2 UNI	2x16	002470305	135	1



Controlling elements



Description



Voltage monitoring relay HRN-31, HRN-32, HRN-36



Advantages

- // It is used to monitor the value of alternating or direct voltage in 1-phase circuits.
- // Supply voltage from monitored voltage.
- // Monitors voltage exceeding the upper voltage level (U_{max}) and falling below the lower voltage level (U_{min}) – according to the selected function.
- // Smooth adjustment of both voltage levels – the lower level U_{min} is set in % of the upper level U_{max}.
- // Adjustable time delay (to eliminate short-term voltage drops and spikes).
- // Option to select functions with fault state memory (Latch).
- // The fault state memory can be reseted by the control input (R).
- // Measures true root mean square value of the voltage - TRUE RMS.
- // Type HRN-32/2 has an independent output contact for each voltage level

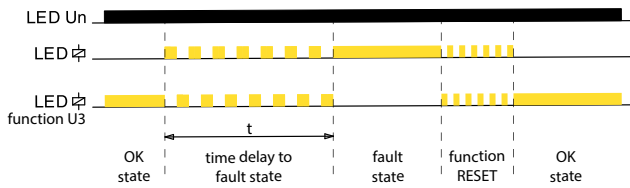
Technical data

	HRN-31, HRN-32, HRN-36		
Type	HRN-31	HRN-32/2	HRN-36
Supply/monitored terminals	A1-A2	A1-A2	A1-A2
Supply/monitored voltage	AC/DC 48 – 276 V (AC 50-60 Hz)	AC/DC 48 – 276 V (AC 50-60 Hz)	DC 6 – 30 V
Consumption (max.)	2.5 VA/0.55 W	2.7 VA/0.65 W	0.35 W
Upper level U _{max}	160-276 V AC	160-276 V AC	12-30 V DC
Bottom level U _{min}	30-95% U _{max}	30-95% U _{max}	50-95% U _{max}
Max. permanent voltage	AC 276 V	AC 276 V	DC 36 V
Peak overload (1 s)	AC 290 V	AC 290 V	DC 48 V
Time delay (d)	300 ms		
Time delay (t)	adjustable, 0.5 – 10 s		
Setting accuracy (mechanical)	5 % – mechanical setting		
Repeat accuracy	< 1 %		
Temperature coefficient	< 0,1% / °C		
Hysteresis (fault to OK)	5 % (functions O1, U1, W) U _{max} – U _{min} (functions O2, U2, U3)		
Output			
Number of contacts	1 x changeover (AgNi)	1× changeover for each level	1 x changeover (AgNi)
Rated current	16 A/AC1; 1 HP 240 Vac, 1/2 HP 120 Vac; PD. B300		
Breaking capacity	4000 VA/AC1, 384 W/DC1		
Switching voltage	max. 250 V AC1 / 24V DC		
Power dissipation (max.)	1.2 W	2.4 W	1.2 W
Mechanical life	10 ⁷		
Electrical life	10 ⁵		
Controlling			
Operating temperature	-20...+55 °C		
Storage temperature	-30...+70 °C		
Dielectric strength	AC 4 kV (supply – output)		
Operating position	any		
Mounting	DIN rail EN 60715		
Protection degree	IP40 front panel / IP20 terminals		
Overvoltage category	III.		
Pollution degree	2		
Cross-wire section – solid/ stranded with ferrule (mm ²)	max. 1× 2.5, 2× 1.5/ max. 1× 2.5 (AWG 14)		
Dimensions	90 × 17.6 × 64 mm		
Standards	EN 60255-1, EN 60255-26, EN 60255-27		

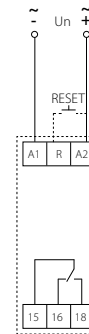
Voltage monitoring relay HRN-31, HRN-32, HRN-36

Type	I_n [A]	Voltage range	Code No.		
HRN-31	16	AC/DC 48 – 276 V	002471450	82	1/10
HRN-36	16	DC 6 – 30 V	002471451	95	1/10
HRN-32/2	16	AC/DC 48 – 276 V	002471452	103	1/10

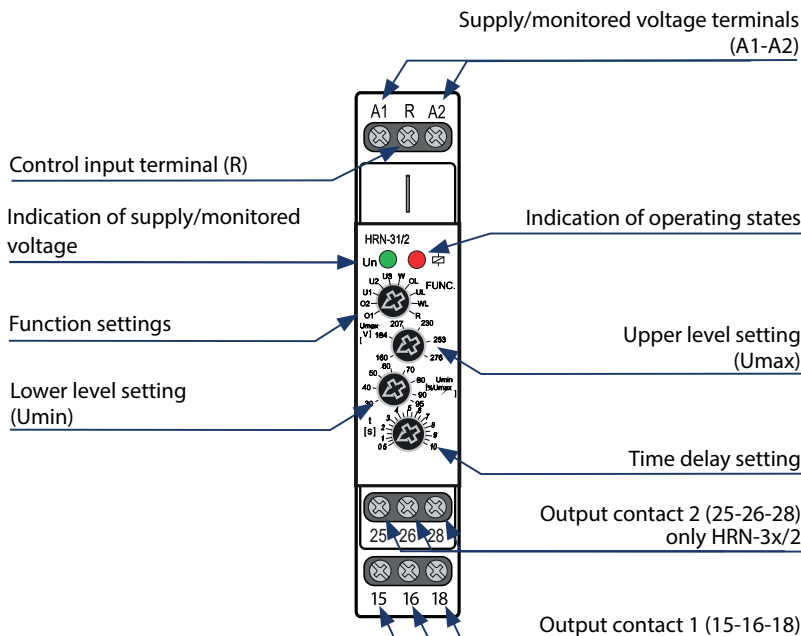
Functions



Connection

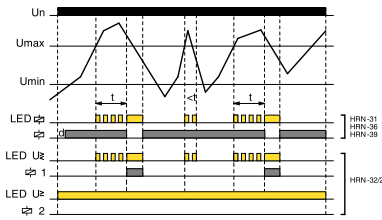


Description

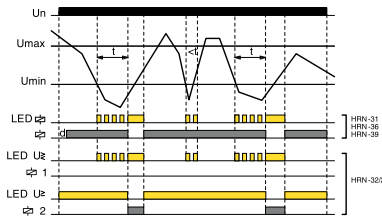


Function description

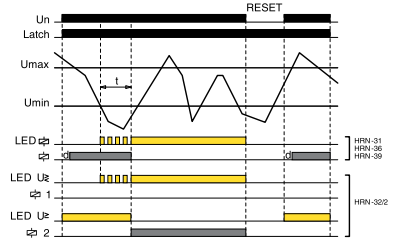
O1 OVER (hysteresis 5%)



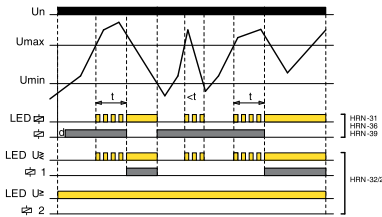
U1 UNDER (hysteresis 5%)



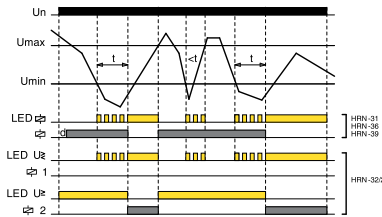
UL UNDER + Latch



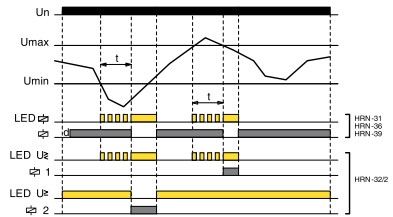
O2 OVER (hysteresis to Umin)



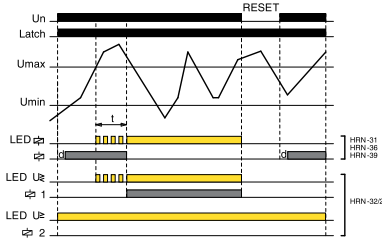
U2 UNDER (hysteresis to Umax)



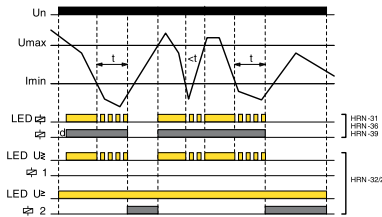
W WINDOW (hysteresis 5%)



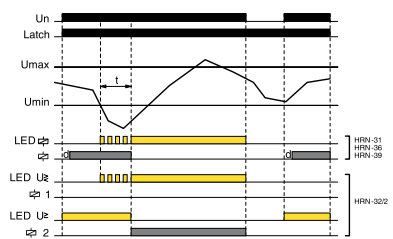
OL OVER + Latch



U3 UNDER (hysteresis to Umax)



WL WINDOW + Latch



OVER:

If the value of the monitored voltage is lower than the set upper level „Umax“, the output contact is closed. If the „Umax“ is exceeded, the output contact will opens after the set delay (fault state).

If the voltage falls below the fixed hysteresis (O1 function) or the set lower level „Umin“ (O2 function), the output contact will closes again.

If the OL function (OVER + Latch) is selected, when the upper voltage level „Umax“ is exceeded, the output contact remains open even when the voltage returns from the fault state.

Fault memory reset can be done in two ways:

- Short-term interruption of supply voltage
- Using the control input (R)
- By setting the function switch to position R (RESET) or any function without memory fault

The RESET state lasts for 3 s after switching the function switch from the R position to a function with a memory fault (UL, OL, WL).

When moving to any other function from the R position, this delay does not apply.

UNDER:

If the value of the monitored voltage is higher than the set lower level „Umin“, the output contact is closed. When the voltage drops below the „Umin“, output contact opens after the set delay (fault state).

If the voltage exceeds the fixed hysteresis (function U1) or the set upper level „Umax“ (function U2, U3), the output contact closes again.

If the UL function (UNDER + Latch) is selected, when the voltage drops below the lower level „Umin“, the output contact remains open even when returning from the fault state. Fault memory reset can be done as in the previous case.

WINDOW:

If the value of the monitored voltage is lower than upper level „Umax“ and at the same time higher than lower level „Umin“, the output contact in closed. If the „Umax“ is exceeded or drops below the „Umin“, output contact opens after the set delay (fault state).

To return from the fault state, a fixed hysteresis is applied.

If the WL function (WINDOW + Latch) is selected, the fault state is again stored in memory and output contact stays open, even when returning from the fault state. Fault memory reset can be done as in the previous cases.



ETIMETER

Network Analyzers

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Modular Energy Counters	90

ETIMETER

Network Analyzers

Network Analyzer END25RSA and END25ETHA

END25RSA and END25ETHA meters measure important electrical parameters in 3 phase 4 wire, 3 phase 3 wire and 1 phase 2 wire network. It measures electrical parameters like active / reactive / apparent energy, power and all basic parameter. The instrument has two optional outputs. It can be configured as pulse output for energy measurement, limit output, timer function and RTC relay.

END25RSA is basic instrument with RS485 interface (MODBUS RTU) and 2 programmable outputs (Potential free, very fast acting relay contacts. Configurable as pulse output which can be used to drive an external counter for energy measurement. Configurable as limit (alarm) switch).

END25ETHA is more advanced instrument, with ETHERNET interface (MODBUS TCP/IP), real time clock and data logging (8MB memory).

All devices can be configured and monitored via PC with free econ software.

Features

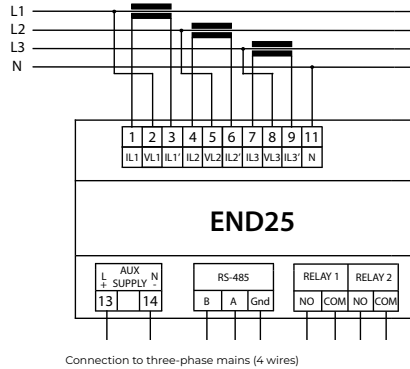
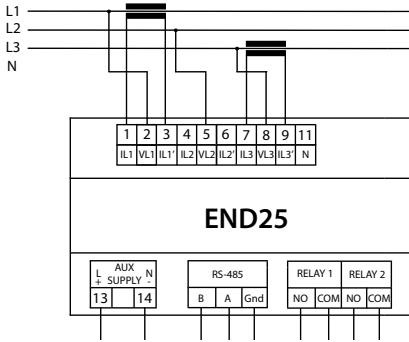
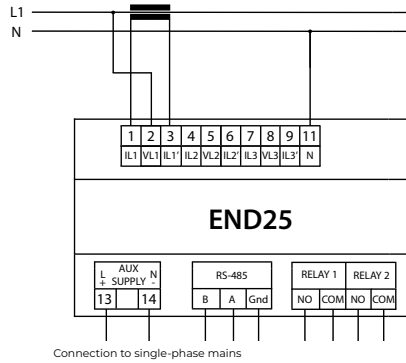
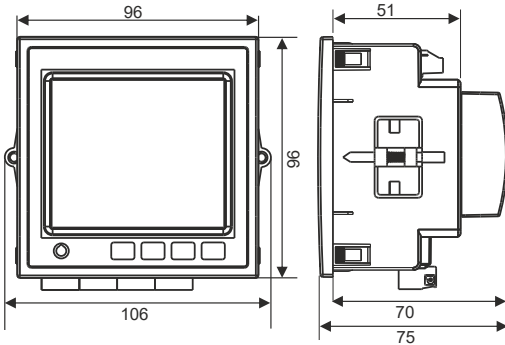
- // Measurement of 85 parameters, THD and harmonics up to 31st for voltage & current
- // Fully configurable LCD screen - possibility of programming 28 independent screens
- // Two optional outputs (END25RSA only). It can be configured as pulse output for energy measurement, limit output and timer function
- // RTC - real time clock (END25ETHA only)
- // Measurement archive – in-built 8MB Flash (END25RSA only)
- // Data logging for:
 - // event logging
 - // time based logging
 - // load Profile logging
- // LCD display with Back-light
- // Remote access of measured parameter via RS-485 (Modbus RTU) or through Ethernet interface (Modbus TCP/IP)
- // external dimension: 96 x 96mm

Technical data

	END25-RSA	END25-ETHA
Power supply voltage	100 - 550V AC/DC	
Measurement voltage phase, AC	57,7 - 346,4V AC	
Measuring voltage linear, AC	100 - 600V AC	
Measuring current (primary winding)	1/5 A	
Measuring current (secondary winding)	1 - 9999 A	
Nominal Frequency	45 - 65 Hz	
Voltage measuring range	20 - 120 % of Un	
Current measuring range	1 - 120 % of In	
Maximum current/voltage input consumption	<0,3 VA	
Relay output	potential free, 2 NO (5A, 240V AC)	-
Communication protocol	RS-485 (Modbus RTU)	Ethernet (Modbus TCP/IP)
Communication speed	4,8 / 9,6 / 19,2 / 38,4 / 57,6 kB	-
Operating temperature	-10 ... +60 °C	
Overvoltage Category	III	
Pollution degree	II	
Protection degree	IP54 - front panel; IP20 - from the connection side	
Dimensions H x W x D	96 x 96 x 75 mm	
Installation opening H x W	92 x 92 mm	
Standards	EN 61010-1-2010, 61326-1, 61000-4-3, 60529, 62053	

Network Analyzer END25

Type	Description	Code		
END25RSA	Analyzer with RS485 port and 2x relay outputs	004656954	400	1
END25ETH	Analyzer with ETHERNET port, RTC and 8MB memory (data logging).	004656955	400	1



Note: The END25-ETH analyzer has no relay outputs and instead of RS-485 terminals there is an RJ-45 connector for Ethernet protocol connection. The measurement and supply terminals are unchanged.

Measured Parameters

Import Active Energy	Power Factor L1	Max Inductive Var Demand	Current L2	Phase Reversal Indication
Export Active Energy	Power Factor L2	Max Capacitive Var Demand	Current L3	Current Reversal Indication
Inductive Reactive Energy	Power Factor L3	Run Hour	System Current THD	Phase Absent Indication
Capacitive Reactive Energy	System Phase Angle	Number of Interruptions	Current L1 THD	Old Import Active Energy
Apparent Energy	Phase Angle L1	System Voltage	Current L2 THD	: Available *: Not Available
System Active Power (kW)	Phase Angle L2	Voltage L1	Current L3 THD	Advanced version
Active Power L1 (kW)	Phase Angle L3	Voltage L2	Individual Harmonics of VL1 (Up to 31st Harmonics)	Old Export Active Energy
Active Power L2 (kW)	KVA Demand	Voltage L3	Individual Harmonics of VL2 (Up to 31st Harmonics)	Old Inductive Reactive Energy
Active Power L3 (kW)	Current Demand	Voltage L12	Individual Harmonics VL3 (Up to 31st Harmonics)	Old Capacitive Reactive Energy
System Re-active Power (kVar)	Import kW Demand	Voltage L23	Individual Harmonics IL1 (Up to 31st Harmonics)	Old Apparent Energy
Re-active Power L1 (kVar)	Export kW Demand	Voltage L31	Individual Harmonics IL2 (Up to 31st Harmonic)	Old Run Hour
Re-active Power L2 (kVar)	Inductive Var Demand	System Voltage THD	Individual Harmonics IL3 (Up to 31st Harmonics)	Old On Hour
Re-active Power L3 (kVar)	Capacitive Var Demand	Voltage L1 THD	Neutral Current	Old Number of Interruptions
System Apparent Power (KVA)	Max Current Demand	Voltage L2 THD	Frequency	Old Max Current Demand
Apparent Power L1 (KVA)	Max KVA Demand	Voltage L3 THD	RPM	Old Max VA Demand
Apparent Power L2 (KVA)	Max Import kW Demand	Parameters		Old Max Import W Demand?
Apparent Power L3 (KVA)	Max Export kW Demand	System Current		Old Max Export W Demand
System Power Factor	On Hour	Current L1		Old Max Inductive VAR Demand
				Old Max Capacitive VAR Demand

Note: 1. Energy on display is autoranging & unit for Energy parameters on modbus are dependent on CTPT ratio or unit selected by user.
2. Parameters are available only on modbus.

ETIMETER Modular Energy Counters

EVSE-ready 3-phase Modular Energy Meter 80A



- EVSE (Electric vehicle supply equipment) ready 3 phase modular Energy Meter 80A with RS485 port, pulse output:
- // compact three-phase direct connected DIN-rail mounting meter.
- // RS485 (modbus) communication
- // tariff input.
- // class B for active energy and class 2 for reactive energy
- // 70°C ambient operational temperature. (EVSE ready)
- // maximum current 80 A (I_{Lmax}).

Meter is intended for energy measurements in three-phase electrical power network and can be used in residential, industrial and utility applications. Meter measures energy directly in 3-wire and 4-wire networks according to the principle of fast sampling of voltage and current signals. A built-in microprocessor calculates energy and other electrical quantities from the measured signals. It also controls LCD, LED, IR and RS485 communication. A capacitive touch button on the front of the energy meter enables access to switch between measurements and settings in the menu. Connecting terminals can be sealed up against non-authorized access with protection covers.

Features:

- // Three phase direct connected DIN-rail mounting meter.
- // Class 1 for active energy according to EN 62053-21 and class B according to EN 50470-3.
- // Class 2 for reactive energy according to IEC 62053-23.
- // Bidirectional energy measurement (import/export).
- // Maximum current 80 A (I_{Lmax}).
- // Display segment Matrix LCD.
- // LCD display with backlight.
- // Multifunctional front red LED.
- // Measurements of:
 - // power (active/reactive/apparent),
 - // energy (active/reactive/apparent),
- each phase and total),
- // voltage for each phase,
- // current for each phase,
- // phase to phase voltage
- // phase to phase angle,
- // frequency,
- // power factor (for each phase and total),
- // power angle (for each phase and total),
- // active tariff,
- // THD of voltage,
- // THD of current.
- Modbus RS485 Serial communication
- // Tariff input (230 V AC).
- // Tariff management (up to 6 tariffs manageable via communication).
- // -25°C ... 70°C ambient operation temperature.
- // Sealable terminal cover.
- // DIN-rail mounting according to EN 60715.
- // 3 DIN modules width.

Modular Energy Counter 3MEM80

Type	Description	Code	 9	
3MEM80-BEVRSP0	3phase, 80A, SO (Pulse output), RS485, EVSE	004657206	248	1/96



Technical Data

Rail mounting	DIN EN60715	Pulse output S01	
Main inputs		Pulse rate	500 imp/kWh
Contacts capacity - Flexible (Rigid)	1.5 mm ² ...25 (16) mm ²	Pulse duration	32 ms ± 2 ms
Connection screws	M5	Rated voltage DC (max)	27 V
Max torque	3.5 Nm (PH2)	Switched current (max)	27 mA
Length or removed isolation	10 mm	Standard	EN 62053-31 (A&B)
Auxiliary contacts		Tariff input	
Contact capacity	0.05 mm ² ...1.5 mm ²	Rated voltage	230 V (-20 %...+15 %)
Screws	M3	Input resistance	360 kΩ
Max torque	0.6 Nm	RS485 Serial communication (option)	
Length or removed isolation	8 mm	Type	RS485
Measuring input		Speed	1200 bit/s to 115200 bit/s (default 115200 bit/s)
Type	three-phase (3W4, 3W3, 2W3) single-phase (1W)	Frame	8, N, 2
Reference (nominal) current (I _{ref})	5 A	Protocol	MODBUS RTU
Maximum current (I _{max})	80 A	Address	33 – (default)
Minimum current (I _{min})	0.25 A	Ambient conditions and Safety	
Transitional current (I _{tr})	0.5 A	Temperature and climatic condition	EN 62052 11
Starting current	20 mA	Dust/water protection	IP50
Power consumption at I _{ref}	< 0.1 VA	Operating temp. range	-25°C... +70°C (non-condensing humidity)
Nominal voltage (U _n)	3x230 V/400 V (-20 %...+15 %)	Storage temp. range	-40 °C... +85°C
Power consumption per phase at U _n	< 8 VA	Enclosure material	self-extinguish complying UL94V
Nominal frequency (f _n)	50 Hz and 60 Hz	Indoor meter	yes
Minimum measuring time	10 s	Degree of pollution	2
Accuracy		Protection class	II
Active energy	class 1 EN 62053-21 class B EN 50470-3 ±1.5 % from I _{min} to I _{tr} ±1 % from I _{tr} to I _{max}	Installation category	300 V _{me} cat.III
		Standard	IEC 62052-31
		Mechanical environment	M1
Reactive, Apparent energy	class 2 IEC 62053-23 ±2.5 % from I _{min} to I _{tr} ±2 % from I _{tr} to I _{max}	Electromagnetic environment	E2
		Humidity	non condensing
		Installation	DIN Rail 35 mm
Voltage	±1 % of measured value	Dimensions (W x H x D)	52.5 mm x 91.7 mm x 68.2 mm
Current	±1 % of I _{ref} from I _{st} to I _{ref} ±1 % of measured value from I _{ref} to I _{max}	Colour	RAL 7035
Active Power	±1 % of nominal power (U _n *I _{ref}) from I _{st} to I _{ref} ±1 % of measured value from I _{ref} to I _{max}	EU Directives	EU Directive on Measuring Instruments 2014/32/EU. EU Directive on EMC 2014/30/EU. EU Directive on Low Voltage 2014/35/EU. EC Directive WEEE 2002/96/EC.
Reactive, Apparent power	±2 % of nominal power from I _{st} to I _{ref} ±2 % of measured value from I _{ref} to I _{max}		
Frequency	±0.5 % of measured value		
LCD			
Display type	Matrix (128 x 64)		
Illumination	white (normal operation) / red (alarm indication)		
LED			
Colour	red		
Pulse rate	1000 imp/kWh		
LED on	no load indication		

3-phase Modular Energy Meter 65A

3 phase modular Energy Meter 65A , various options of communication, measurement:

- // Compact three-phase direct connected DIN-rail mounting meter
- // 3 DIN modules width
- // Maximum current 65 A (Imax)
- // Class 1 for active energy and class 2 for reactive energy
- // Optional: RS485, M-bus comm., Tariff input, pulse output



The meter can be equipped with the following communications and features:

- // RS485 serial communication with the MODBUS protocol.
- // M-bus serial communication, which enables data transmission and thus connection of the measuring places into the network for the control and management with energy.
- // Tariff input. Tariff input provides measurement of two tariffs for selected energy registers.
- // A built-in pulse output (option). It is designed for sending data to the devices for checking and monitoring consumed energy.

Features:

- // Three phase direct connected DIN-rail mounting meter.
- // Class 1 for active energy according to EN 62053- 21, class B according to EN 50470-3.
- // Class 2 for reactive energy according to EN 62053-23.
- // Bidirectional energy measurement (import/export).
- // Maximum current 65 A (Imax).
- // Basic current 5 A (Ib).
- // Reference voltage 3x230 V/400 V (Un).
- // Voltage operating range (-20 % ... +15 %) Un.
- // Reference frequencies 50 Hz and 60 Hz.
- // Power consumption voltage circuit < 8 VA at Un per phase.
- // Power consumption current circuit < 0.8 VA at Ib per phase.
- // Temperature range climatic condition as indoor meter according EN 50470.
- // Display 7+1 digit (100 Wh resolution).
- // Multifunctional front red LED.
- // LED constant 1000 imp/kWh.
- // Measurements of:
 - // power (active/reactive/apparent)
 - // energy (active/reactive/apparent, each phase and total),
 - // voltage for each phase,
 - // current for each phase,
 - // phase to phase voltage
 - // phase to phase angle,
 - // frequency,
 - // power factor (for each phase and total),
- // power angle (for each phase and total),
- // active tariff (option),
- // THD of voltage,
- // THD of current.
- // Pulse output according to EN 62053-31 (option).
- // Tariff input (option).
- // RS485 Serial communication (option).
- // M-bus Serial communication (option).
- // DIN-rail mounting according to EN 60715.
- // Sealable terminal cover.

Modular Energy Counter 3MEM65

Type	Description	Code		
3MEM65-BPO	3 phase, 65A, Pulse output	004657201	248	1/96
3MEM65-BT	3 phase, 65A, Tariff input	004657202	248	1/96
3MEM65-BRS	3 phase, 65A, RS485	004657203	248	1/96
3MEM65-BMB	3 phase, 65A, M-bus	004657204	248	1/96



Technical Data

Rail mounting	DIN EN60715	Pulse output (option)	
Main inputs		Pulse rate	1000 imp/kWh
Contacts capacity - Rigid (flexible)	1.5 mm ² ...25 (16) mm ²	Pulse duration	32 ms ± 2 ms
Connection screws	M5	Rated voltage DC (max)	27 V
Max torque	3.5 Nm (PH2)	Switched current (max)	27 mA
Length or removed isolation	10 mm	Standard	EN 62053-31 (A&B)
Auxiliary contacts		M-BUS Serial communication (option)	
Contact capacity	1 mm ² ... 2.5 mm ²	Type	M-bus
Screws	M3	Speed	300 bit/s to 9600 bit/s (default 2400 bits/s)
Max torque	1.2 Nm	Protocol	M-bus
Length or removed isolation	8 mm	Address	0 – (default)
Measuring input		RS485 Serial communication (option)	
Type	three phase (4u)	Type	RS485
Reference (nominal) current (I _{ref})	5 A	Speed	1200 bit/s to 38400 bit/s (default 38400 bit/s)
Maximum current (I _{max})	65 A	Frame	8, N, 2
Minimum current (I _{min})	0.25 A	Protocol	MODBUS RTU
Transitional current (I _{tr})	0.5 A	Address	33 – (default)
Starting current	20 mA	Tariff input (option)	
Power consumption at I _{ref}	< 0.1 VA	Rated voltage	230 V (-20 % +15 %)
Nominal voltage (U _n)	3x230 V/400 V (-20 %...+15 %)	Input resistance	450 kΩ
Power consumption per phase at U _n	< 8 VA	Ambient conditions and Safety	
Nominal frequency (f _n)	50 Hz and 60 Hz	Temperature and climatic condition	EN 62052 11
Minimum measuring time	10 s	Dust/water protection	IP50
Accuracy		Operating temp. range	-25°C... +55°C (non-condensing humidity)
Active energy	class 1 EN 62053-21 class B EN 50470-3 ±1.5 % from I _{min} to I _{tr} ±1 % from I _{tr} to I _{max}	Storage temp. range	-40 °C... +70°C
		Enclosure material	self-extinguish complying UL94 V
Reactive, Apparent energy	class 2 EN 62053-23 ±2.5 % from I _{min} to I _{tr} ±2 % from I _{tr} to I _{max}	Indoor meter	yes
		Degree of pollution	2
Voltage	±1 % of measured value	Protection class	II
		Installation category	300 V _{ms} cat.III
Current	±1 % of I _{ref} from I _{st} to I _{ref} ±1 % of measured value from I _{ref} to I _{max}	Standard	IEC 62052-31
		Mechanical environment	M1
Active Power	±1 % of nominal power (U _n *I _{ref}) from I _{st} to I _{ref} ±1 % of measured value from I _{ref} to I _{max}	Electromagnetic environment	E2
		Humidity	non condensing
Reactive, Apparent power	±2 % of nominal power from I _{st} to I _{ref} ±2 % of measured value from I _{ref} to I _{max}	Installation	DIN Rail 35 mm
		Dimensions (W x H x D)	53.6 mm x 84 mm x 64 mm (69 mm)
Frequency	±0.5 % of measured value	Colour	RAL 7035
		EU Directives	EU Directive on Measuring Instruments 2014/32/EU. EU Directive on EMC 2014/30/EU. EU Directive on Low Voltage 2014/35/EU. EC Directive WEEE 2002/96/EC.
LCD			
Number of digits:	8 (7+1)		
Height of digits:	4.52 mm		
LED			
Colour	red		
Pulse rate	1000 imp/kWh		
LED on	no load indication		

EVSE-ready 3-phase Modular Energy Meter 40A

EVSE (Electric vehicle supply equipment) ready 3 phase modular Energy Meter 40A with RS485 port:



- // Compact three-phase direct connected DIN-rail mounting meter
- // 3 DIN modules width
- // According to requirements of PTB, VDE and OCMF
- // Class 1 for active energy and class 2 for reactive energy
- // Maximum current 40 A (I_{max})
- // 70°C ambient operation temperature (EVSE ready)
- // Possibility to connect only on one phase

The 3MEM40-EVRS energy meters are intended for energy measurements in the three-phase and one phase electrical charger stations due to allowed high temperature operation (up to 70°C). Measuring energy directly in 4-wire networks according to the principle of fast sampling of voltage and current signals. A built-in microprocessor calculates power, energy, current, voltage, power factor, power angle, frequency, harmonics of THD voltage and THD current harmonics.

Features:

- // 3 DIN modules width three phase direct connected DIN-rail mounting meter
- // Class 1 for active energy according to EN 62053-21
- // Reference frequency 50 Hz or 60 Hz
- // Maximum current 40 A (I_{max})
- // Basic current 5 A (I_b)
- // Reference voltage 3×230 V/400 V (U_n)
- // Voltage operating range (-20 % ... +15 %)U_n
- // Two row display 6+2 digit (10 Wh resolution) with backlight
- // Multifunctional front LED
- // RS485 Serial communication
- // Measurement of:
 - // power (active/reactive/apparent),
 - // energy (active/reactive/apparent) each phase and total),
 - // voltage (each phase),
 - // current (each phase),
 - // phase to phase voltage,
 - // phase to phase angle,
 - // frequency,
 - // power factor (for each phase and total),
 - // power angle (for each phase and total),
 - // THD of voltage,
- // THD of current.
- // Possibility to connect only on one phase (on L3).
- // Remote control of backlight LCD.
- // 70°C ambient operation temperature.
- // Sealable terminal cover.

Modular Energy Counter 3MEM40

Type	Description	Code		
3MEM40-EVRS	3 phase, 40A, RS485, EVSE	004657200	248	1/96



Technical Data

Rail mounting	DIN EN60715	RS485 Serial communication (option)	
Main inputs		Type	RS485
Contacts capacity - Rigid (flexible)	1.5 mm ² ...25 (16) mm ²	Speed	1200 bit/s to 115200 bit/s (default 115200 bit/s)
Connection screws	M5	Frame	8, N, 1
Max torque	3.5 Nm (PH2)	Protocol	MODBUS RTU
Length or removed isolation	10 mm	Address	33 – (default)
Auxiliary contacts		Ambient conditions and Safety	
Contact capacity	1 mm ² ... 2.5 mm ²	Temperature and climatic condition	EN 62052 11
Screws	M3	Dust/water protection	IP50
Max torque	1.2 Nm	Operating temp. range	-25°C... +70°C
Length or removed isolation	8 mm	Storage temp. range	-30 °C... +80°C
Measuring input		Enclosure material	self-extinguish complying UL94 V
Type	three phase (4u)	Indoor meter	yes
Reference (nominal) current (I _{ref})	5 A	Degree of pollution	2
Maximum current (I _{max})	40 A	Protection class	II
Minimum current (I _{min})	0.25 A	Installation category	300 V _{max} cat.III
Transitional current (I _{tr})	0.5 A	Standard	IEC 62052-31
Starting current	20 mA	Mechanical environment	M1
Power consumption at I _{ref}	< 0.1 VA	Electromagnetic environment	E2
Nominal voltage (U _n)	3x230 V/400 V (-20 %...+15 %)	Humidity	non condensing
Power consumption per phase at U _n	< 8 VA	Installation	DIN Rail 35 mm
Nominal frequency (f _n)	50 Hz and 60 Hz	Dimensions (W x H x D)	53.6 mm x 84 mm x 69.4 mm
Minimum measuring time	10 s	Colour	RAL 7035
Accuracy			
Active energy	class 1 EN 62053-21 class B EN 50470-3 ±1.5 % from I _{min} to I _{tr} ±1 % from I _{tr} to I _{max}		
Reactive, Apparent energy	class 2 EN 62053-23 ±2.5 % from I _{min} to I _{tr} ±2 % from I _{tr} to I _{max}		
Voltage	±1 % of measured value		
Current	±1 % of I _{ref} from I _{st} to I _{ref} ±1 % of measured value from I _{ref} to I _{max}		
Active Power	±1 % of nominal power (U _n *I _{ref}) from I _{st} to I _{ref} ±1 % of measured value from I _{ref} to I _{max}		
Reactive, Apparent power	±2 % of nominal power from I _{st} to I _{ref} ±2 % of measured value from I _{ref} to I _{max}		
Frequency	±0.5 % of measured value		
LCD			
Type	LCD		
Number of energy display rows	2		
Number of digits:	8 (6+2)		
Height of digits:	4.52 mm		
LED			
Colour	red		
Pulse rate	1000 imp/kWh		
LED on	no load indication		

Single Phase Modular Energy Meter 40A

Single phase modular Energy Meter, direct metering 40A:



- // Single-phase direct connected DIN-rail mounting meter
- // 1 DIN module width
- // Class 1 for active energy and class 2 for reactive energy
- // Maximum current 40 A (I_{max})
- // Communication: s0 (pulse output)

1MEM40-BPO energy meters for measurement in a single-phase electrical network. Can be used in residential, industrial and utility applications. Meters measure energy directly in 2-wire networks according to the principle of fast sampling of voltage and current signals.

Features:

- // Single-phase direct connected DIN-rail mounting meter.
- // Class 1 for active energy according to EN 62053-21
- // Class 2 for reactive energy according to IEC 62053-23.
- // Bidirectional energy measurement (imp./exp.).
- // Maximum current 40 A (I_{max}).
- // Basic current 5 A (I_b).
- // 230 V rated system voltage input (U_n).
- // Voltage operating range (-20 % ... +15 %) U_n.
- // Reference frequencies 50 Hz and 60 Hz.
- // Power consumption voltage circuit < 10 VA at U_n.
- // Power consumption current circuit < 0.1 VA at I_b.
- // Temperature range climatic condition as indoor meter according IEC 62052-11.
- // Custom LCD display with 7 digits (100 Wh resolution).
- // Multifunctional front red LED.
- // LED constant 1000 imp/kWh.
- // Backlight for better visibility.
- // Special functions added for easier integration into monitoring and control systems.
- // Measurements of:
 - // power (active/reactive/apparent),
 - // energy (active/reactive/apparent),
 - // voltage,
 - // current,
 - // frequency,
 - // power factor,
 - // power angle,
 - // active tariff (option),
 - // THD of voltage,
 - // THD of current.
- // Pulse output according to IEC 62053-31.
- // DIN-rail mounting according to EN 60715.
- // 55°C ambient operation temperature.
- // Sealable terminal cover.
- // 1 DIN module width.

Modular Energy Counter 1MEM40

Type	Description	Code	 g	
1MEM40-BPO	Single phase, 40A, S0 (Pulse output)	004657205	84	1/100



Technical Data

Rail mounting	DIN EN60715	Pulse output	
Main inputs		Pulse rate	1000 imp/kWh
Contacts capacity - Flexible (Rigid)	1.5 mm ² ... 10 mm ²	Pulse duration	32 ms ± 2 ms
Connection screws	M3.5	Rated voltage DC	27 V max
Max torque	0.8 Nm (PZ2)	Switched current	27 mA max
Length or removed isolation	10 mm	Standard	IEC 62053-31 (A&B)
Auxiliary contacts		Ambient conditions and Safety	
Contact capacity	0.05 mm ² ... 1 (2.5) mm ²	Temperature and climatic condition	EN 62052 11
Screws	M3	Dust/water protection	IP50
Max torque	0.6 Nm	Operating temp. range	-25°C... +55°C
Length or removed isolation	8 mm	Storage temp. range	-30 °C... +70°C
Measuring input		Enclosure material	self-extinguish complying UL94 V
Type	Single phase (1b)	Indoor meter	yes
Reference (nominal) current (I _{ref})	5 A	Degree of pollution	2
Maximum current (I _{max})	40 A	Protection class	II
Minimum current (I _{min})	0.25 A	Installation category	300 V _{max} cat.III
Transitional current (I _{tr})	0.5 A	Standard	IEC 62052-31
Starting current	20 mA	Mechanical environment	M1
Power consumption at I _{ref}	< 0.1 VA	Electromagnetic environment	E2
Nominal voltage (U _n)	3x230 V (-20 %...+15 %)	Humidity	non condensing
Power consumption per phase at U _n	< 10 VA	Installation	DIN Rail 35 mm
Nominal frequency (f _n)	50 Hz and 60 Hz	Dimensions (W x H x D)	17,5 mm x 90,7 mm x 68,2 mm
Minimum measuring time	10 s	Colour	RAL 7035
Accuracy			EU Directive on Measuring Instruments 2014/32/EU. EU Directive on EMC 2014/30/EU. EU Directive on Low Voltage 2014/35/EU. EC Directive WEEE 2002/96/EC. EU Directive RED 2014/53/EU
Active energy	class 1 EN 62053-21 class B EN 50470-3 ±1.5 % from I _{min} to I _{tr} ±1 % from I _{tr} to I _{max}	EU Directives	
Reactive, Apparent energy	class 2 EN 62053-23 ±2.5 % from I _{min} to I _{tr} ±2 % from I _{tr} to I _{max}		
Voltage	±1 % of measured value		
Current	±1 % of I _{ref} from I _{st} to I _{ref} ±1 % of measured value from I _{ref} to I _{max}		
Active Power	±1 % of nominal power (U _n *I _{ref}) from I _{st} to I _{ref} ±1 % of measured value from I _{ref} to I _{max}		
Reactive, Apparent power	±2 % of nominal power from I _{st} to I _{ref} ±2 % of measured value from I _{ref} to I _{max}		
Frequency	±0.1 % of measured value		
LCD			
Number of digits:	7		
Height of digits:	5.5 mm		
LED			
Colour	red		
Pulse rate	1000 imp/kWh		
LED on	no load indication		



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Type	Code No.	Rated current AC3 [A]	Rated current AC1 [A]	 g	
CEB10.00-230V-50/60HZ*	002462000	10	25	260	1/66
CEB14.00-230V-50/60HZ*	002462001	14	25	260	1/66
CEB18.00-230V-50/60HZ*	002462002	18	32	260	1/66
CEB22.00-230V-50/60HZ*	002462003	22	32	260	1/66
CEB24.00-230V-50/60HZ*	002462004	24	50	610	1/28
CEB32.00-230V-50/60HZ*	002462005	32	65	610	1/28
CEB40.00-230V-50/60HZ*	002462006	40	80	610	1/28
CEB50.00-230V-50/60HZ**	002462007	50	110	1060	1/16
CEB62.00-230V-50/60HZ**	002462008	62	120	1060	1/16
CEB74.00-230V-50/60HZ**	002462009	74	130	1060	1/16



*max 4 additional aux. Contacts top (front) mounted (BCF or BCFE)

**max 6 additional aux. Contacts top (front) mounted (BCF or BCFE) and 2 side mounted BCS



Aux. Contact block - top (front) mounted

Type	Code No.	For use with	AC15 [A]	Wiring diagram	 g	
CEB-BCFE 10	002462100	CEB10...CEB74	3	1NO	111	10/1020
CEB-BCFE 01	002462101	CEB10...CEB74	3	1NC	111	10/1020
CEB-BCF 10	002462102	CEB10...CEB74	6	1NO	180	10/800
CEB-BCF 01	002462103	CEB10...CEB74	6	1NC	180	10/800

Aux. Contact block - side mounted

Type	Code No.	For use with	AC15 [A]	Wiring diagram	 g	
CEB-BCS1 11	002462104	CEB10...CEB22	6	1NO+1NC	330	10/160
CEB-BCS2 11	002462105	CEB24...CEB74	6	1NO+1NC	330	10/160
CEB-BCS2 02	002462106	CEB24...CEB74	6	2NC	310	10/160

Mechanical interlock for mechanical locking of contactors (ATS systems...)

Type	Code No.	For use with	 g	
CEB-MIL 10-40	002462107	CEB10...CEB40	10	10/100
CEB-MIL 50-74	002462108	CEB50...CEB74	23	10/50

Data according to IEC 947-4-1, EN 60947-4-1, VDE 0660

Main Contacts		Type	CEB10.00	CEB14.00	CEB18.00	CEB22.00	CEB24.00	CEB32.00	CEB40.00	CEB50.00	CEB62.00	CEB74.00
Rated insulation voltage U_i ¹⁾	V AC		690	690	690	690	690	690	690	830	830	830
Making capacity I_{eff} at $U_e = 690V$ AC	A		200	200	200	200	400	500	500	700	900	900
	A		-	-	-	-	-	-	-	-	-	-
	A		-	-	-	-	-	-	-	-	-	-
Breaking capacity I_{eff} 400V			180	200	200	200	380	400	400	600	800	800
CEB10 to CEB22 $\cos\phi = 0,65$	500V AC A		150	150	180	180	300	370	370	500	700	700
CEB24 to CEB74 $\cos\phi = 0,35$	690V AC A		100	100	150	150	260	340	340	400	500	500
	1000V AC A		-	-	-	-	-	-	-	-	-	-
Utilization category AC1												
Switching of resistive load												
Rated operational current $I_o (=I_{tr})$ at 40°C, open	690V A		25	25	32	32	50	65	80	110	120	130
Rated operational power	220V kW		9,5	9,5	12,2	12,2	19,0	24,7	30,4	41,9	45,7	49,5
of three-phase resistive loads	230V kW		9,9	9,9	12,7	12,7	19,9	25,9	31,8	43,8	47,7	51,7
50-60Hz, $\cos\phi = 1$	240V kW		10,4	10,4	13,3	13,3	20,8	27,0	33,2	45,7	49,8	54,0
	380V kW		16,4	16,4	21,0	21,0	32,9	42,7	52,6	72,3	78,9	85,5
	400V kW		17,3	17,3	22,1	22,1	34,6	45,0	55,4	76,1	83,0	90,0
	415V kW		17,9	17,9	23,0	23,0	35,9	46,7	57,4	79,0	86,2	93,3
	440V kW		19,0	19,0	24,4	24,4	38,1	49,5	60,9	83,7	91,3	99,0
	500V kW		21,6	21,6	27,7	27,7	43,3	56,2	69,2	95,2	103,8	112,5
	660V kW		28,5	28,5	36,5	36,5	57,1	74,2	91,3	125,6	137,0	148,4
	690V kW		29,8	29,8	38,2	38,2	59,7	77,6	95,5	131,3	143,2	155,2
	1000V kW		-	-	-	-	-	-	-	-	-	-
Rated operational current $I_o (=I_{tr})$ at 40°C, inside the enclosure 60°C	690V A		25	25	32	32	40	55	65	90	100	110
Rated operational power	220V kW		9,5	9,5	12,2	12,2	15,2	20,9	24,7	34,3	38,1	41,9
of three-phase resistive loads	230V kW		9,9	9,9	12,7	12,7	15,9	21,9	25,9	35,8	39,8	43,8
50-60Hz, $\cos\phi = 1$	240V kW		10,4	10,4	13,3	13,3	16,6	22,8	27,0	37,4	41,5	45,7
	380V kW		16,4	16,4	21,0	21,0	26,3	36,2	42,7	59,2	65,7	72,3
	400V kW		17,3	17,3	22,1	22,1	27,7	38,1	45,0	62,3	69,2	76,1
	415V kW		17,9	17,9	23,0	23,0	28,7	39,5	46,7	64,6	71,8	79,0
	440V kW		19,0	19,0	24,4	24,4	30,4	41,9	49,5	68,5	76,1	83,7
	500V kW		21,6	21,6	27,7	27,7	34,6	47,6	56,2	77,9	86,5	95,2
	660V kW		28,5	28,5	36,5	36,5	45,7	62,8	74,2	102,8	114,2	125,6
	690V kW		29,8	29,8	38,2	38,2	47,7	65,7	77,6	107,4	119,4	131,3
	1000V kW		-	-	-	-	-	-	-	-	-	-
Minimum cross-section of conductor at load with $I_o (=I_{tr})$	mm ²		4	4	6	6	10	16	25	35	50	50
Utilization category AC2 and AC3												
Switching of three-phase motors												
Rated operational current I_o open and enclosed	220V A		12	15	18	22	24	32	40	50	63	74
	230V A		11,5	14,5	18	22	24	32	40	50	62	74
	240V A		11	14	18	22	24	32	40	50	62	74
	380-400V A		10	14	18	22	24	32	40	50	62	74
	415V A		9	14	18	22	23	30	40	50	62	74
	440V A		9	14	18	22	23	30	40	50	62	74
	500V A		8,9	11,9	15	15	22,5	28,5	28,5	44	54	64,5
	660-690V A		6,7	9	12	12	17,5	21	21	33	42	49
	1000V A		-	-	-	-	-	-	-	-	-	-
Rated operational power of three-phase motors 50-60Hz	220-230V kW		3	4	5	6	6	8,5	11	12,5	18,5	22
	240V kW		3	4	5	7	7	9	11,5	13,5	19	23
	380-400V kW		4	5,5	7,5	11	11	15	18,5	22	30	37
	415V kW		4,5	6	8,5	12	12	16	20	24	33	40
	440V kW		4,5	6	8,5	12	12	16	20	24	33	40
	500V kW		5,5	7,5	10	10	15	18,5	18,5	30	37	45
	660-690V kW		5,5	7,5	10	10	15	18,5	18,5	30	37	45
	1000V kW		-	-	-	-	-	-	-	-	-	-

1) Suitable at 690V for: earthed-neutral systems, overvoltage category I to IV, pollution degree 3 (standard-industry): $U_{imp} = 8kV$.
Data for other conditions on request.

Contactors

Data according to IEC 947-4-1, EN 60947-4-1, VDE 0660

Main Contacts	Type	CEB10.00	CEB14.00	CEB18.00	CEB22.00	CEB24.00	CEB32.00	CEB40.00	CEB50.00	CEB62.00	CEB74.00	
Utilization category AC4												
Switching of squirrel cage motors, inching												
Rated operational current I_e	220V A	12	15	18	18	24	30	40	50	63	63	
open and enclosed	230V A	11,5	14,5	18	18	24	30	40	50	62	62	
	240V A	11	14	18	18	24	32	40	50	62	62	
	380-400V A	10	14	18	18	24	32	40	50	62	62	
	415V A	9	14	18	18	23	30	37	45	60	60	
	440V A	9	14	18	18	23	30	37	45	55	55	
	500V A	9	12	16	16	17,5	21	21	33	42	42	
	660V A	7	9	9	9	17	20	20	31	40	40	
	690V A	6,5	8,5	8,5	8,5	17	20	20	31	40	40	
	1000V A	-	-	-	-	-	-	-	-	-	-	
Rated operational power of three-phase motors 50-60Hz	220-230V kW	3	4	5	5	6	8,5	11	12,5	18,5	18,5	
	240V kW	3	4	5	5	7	9	11,5	13,5	19	19	
	380-400V kW	4	5,5	7,5	7,5	11	15	18,5	22	30	30	
	415V kW	4,5	6	8,5	8,5	12	16	20	24	33	33	
	440V kW	4,5	6	8,5	8,5	12	16	20	24	33	33	
	500V kW	5,5	7,5	10	10	15	18,5	18,5	30	37	37	
	660-690V kW	5,5	7,5	10	10	15	18,5	18,5	30	37	37	
	1000V kW	-	-	-	-	-	-	-	-	-	-	
Utilization category AC5a												
Switching of gas discharge lamps												
Rated operational current I_e per pole at 220/230V												
Fluorescent lamps, uncompensated and serial compensated	A	20	20	25	25	40	52	64	88	96	104	
parallel compensated	A	7	9	9	9	18	22	22	30	40	40	
dual-connection	A	22,5	22,5	28	28	45	58	72	98	108	117	
Metal halide lamps ¹⁾ , uncompensated	A	12	15	19	19	30	39	48	66	72	78	
parallel compensated	A	7	9	9	9	18	22	22	30	40	40	
Mercury-vapour lamps ²⁾ , uncompensated	A	22,5	25	28	28	45	58	72	99	108	117	
parallel compensated	A	7	9	9	9	18	22	22	30	40	40	
Mixed light lamps ³⁾	A	20	20	25	25	40	52	64	88	96	104	
LED-Lamps												
consider the inrush current of the lamp ballast and $\cos\phi$ of the lamp.												
max inrush current of contactor		A	282	282	282	282	564	705	705	987	1269	1268
			$\text{max. lamps per pole } (I_{rLED} \leq I_{rn}) = \frac{\text{inrush current of contactor}}{\text{inrush current of lamp/EVG}}$									
Utilization category AC5b												
Switching of incandescent lamps⁴⁾												
Rated operational current I_e per pole at 220/230V												
	A	12,5	12,5	12,5	12,5	25	31	31	43	56	56	

1) Metal halide lamps and sodium-vapour lamps (high- and low-pressure lamps)

2) High-pressure lamps

3) Blended lamps, containing a mercury high-pressure unit and a tungsten helix in a fluorescent glass bulb (daylight lamps)

4) Current inrush approx. $16 \times I_e$

Utilization category DC1 Switching of resistive load			CEB10.00	CEB14.00	CEB18.00	CEB22.00	CEB24.00	CEB32.00	CEB40.00	CEB50.00	CEB62.00	CEB74.00
Time constant L/R ≤ 1ms												
Rated operational current I _o 1 pole	24V - 60V	A	20	25	32	32	50	65	80	110	120	130
	110V	A	6	6	6	6	10	10	10	12	12	12
	220V	A	0,8	0,8	0,8	0,8	1,4	1,4	1,4	1,4	1,4	1,4
2 poles in series	24V - 110V	A	20	25	32	32	50	65	80	110	120	130
	220V	A	6	6	6	6	10	10	10	12	12	12
3 poles in series	24V - 110V	A	20	25	32	32	50	65	80	110	120	130
	220V	A	16	20	20	20	30	35	35	63	80	80
Utilization category DC3 and DC5 Switching of shunt motors and series motors												
Time constant L/R ≤ 15ms												
Rated operational current I _o 1 pole	24V	A	20	25	32	32	50	65	80	110	120	130
	60V	A	6	6	6	6	30	30	30	60	60	60
	110V	A	1,2	1,2	1,2	1,2	1,8	1,8	1,8	1,8	1,8	1,8
	220V	A	0,2	0,2	0,2	0,2	0,2	0,2	0,2	0,25	0,25	0,25
2 poles in series	24V - 60V	A	20	25	32	32	50	65	80	110	120	130
	110V	A	6	6	6	6	30	30	30	60	60	60
	220V	A	1,2	1,2	1,2	1,2	1,8	1,8	1,8	1,8	1,8	1,8
3 poles in series	24V	A	20	25	32	32	50	65	80	110	120	130
	60V	A	20	25	32	32	40	40	40	80	80	80
	110V	A	20	20	20	20	40	40	40	80	80	80
	220V	A	2,5	2,5	2,5	2,5	4	4	4	5	5	5

			CEB10.00	CEB14.00	CEB18.00	CEB22.00	CEB24.00	CEB32.00	CEB40.00	CEB50.00	CEB62.00	CEB74.00		
Control Circuit Power consumption of coils														
AC operated	inrush	VA	33-45				90-115				140-165			
	sealed	VA	7-10				9-13				13-18			
		W	2,6-3				2,7-4				5,4-7			
Operation range of coils in multiples of control voltage U _s														
AC operated			0,85-1,1				0,85-1,1				0,85-1,1			
			0,8-1,1				0,8-1,1				0,8-1,1			
Switching time at control voltage U _s ± 10% ^{2) 3)}														
AC operated	make time	ms	8-16				10-25				12-28			
	release time	ms	5-13				8-15				8-15			
	arc duration	ms	10-15				10-15				10-15			
Cable cross-section														
Magnet coil	solid	mm ²	0,75-2,5				0,75-2,5				0,75-2,5			
	flexible	mm ²	0,5-2,5				0,5-2,5				0,5-2,5			
flexible with multicore cable end		mm ²	0,5-1,5				0,5-1,5				0,5-1,5			
Clamps per pole			2				2				2			

Accessories

Data according to IEC 947-5-1, EN 60947-5-1, VDE 0660

Type		CEB-BCFE	CEB-BCF	CEB-BCS	
Rated insulation voltage U_i ¹⁾	V AC	690	690	690	
Thermal rated current I_{th} to bis 690V	max. 40°C	10	25	10	
	max. 60°C	6	20	6	
Frequency of operations z	1/h	3000	-	3000	
Mechanical life	S x 10 ⁶	10	10	10	
Power loss per pole at I_e /AC1	W	0,5	1,5	0,5	
Utilization category AC15					
Rated operational current I_e	220-240V	A	3	6	3
	380-400V	A	2	3	2
	440V	A	1,6	2	1,6
	500V	A	1,2	2	1,2
	660-690V	A	0,6	1	0,6
Utilization category DC13					
Rated operational current I_e	24V	A	2	8	2
	48V	A	2	8	2
	60V	A	2	8	2
	110V	A	0,4	1	0,4
	220V	A	0,1	0,1	0,1
Short circuit protection short-circuit current 1kA, contact welding not accepted max. fuse size gL (gG) A					
		20	25	20	
For contactors with thermal overload relay or auxiliary contacts the device with the smaller admissible control fuse (contactor or thermal overload relay) determines the fuse size.					
Cable cross-sections					
solid or stranded	mm ²	0,75-2,5	0,75-2,5	0,75-2,5	
	flexible	mm ²	0,75-2,5	0,75-2,5	
	flexible with multicore cable end	mm ²	0,5-1,5	0,5-1,5	0,5-1,5
solid	AWG	14 - 12	14 - 12	14 - 12	
	flexible	AWG	18 - 12	18 - 12	18 - 12
Cables per clamp		2	2	2	

1) Suitable for: earthed-neutral systems, overvoltage category I to IV, pollution degree 3 (standard-industry): $U_{imp} = 8kV$. Data for other conditions on request.

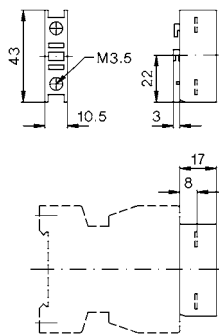
2) Command duration min. 30ms, 10% duty cycle, max. 30 sec.

Dimensions Accessories

Aux. cont. blocks, terminal blocks

CEB-BCFE 10

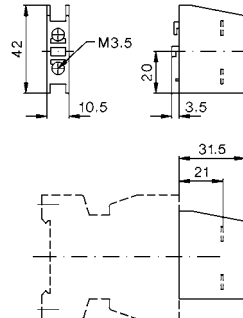
CEB-BCFE 01



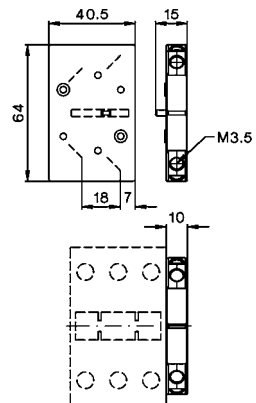
Auxiliary contact blocks

CEB-BCF 10

CEB-BCF 01

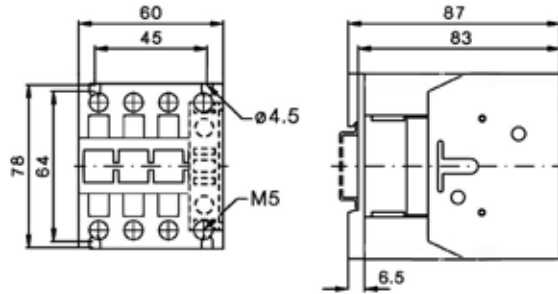
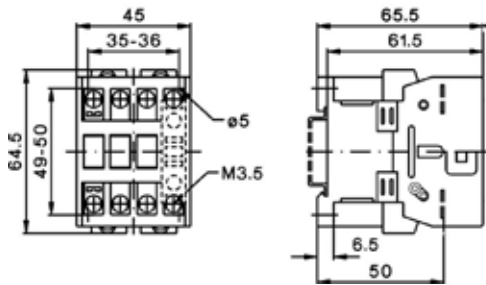


CEB-BCS1 11 CEB-BCS2 11
CEB-BCS2 02

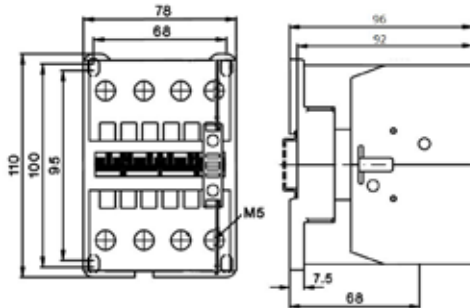


CEB10.00
CEB14.00
CEB18.00
CEB22.00

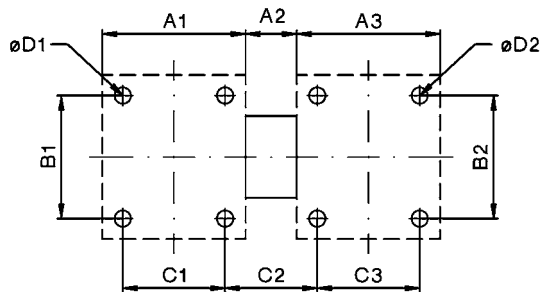
CEB24.00
CEB32.00
CEB40.00



CEB50.00
CEB62.00
CEB74.00



Mechanical interlocks



Type	Contactor 1	Contactor 2	A1	A2	A3	B1	B2	C1	C2	C3	D1	D2
CEB-MIL 10-40	CEB10.00 to CEB40.00	CEB10.00 to CEB40.00	45	7	45	50	50	35	17	35	4,5	4,5
	CEB10.00 to CEB22.00	CEB10.00 to CEB22.00	45	7	45	80	50	35	17	35	4,5	4,5
	CEB24.00 to CEB40.00	CEB22.00 to CEB40.00	45	7	45	80	50	35	17	35	4,5	4,5
CEB-MIL 50-74	CEB50.00 to CEB74.00	CEB24.00 to CEB40.00	60	12	55	100	65	50	22	45	5,5	4,5
	CEB50.00 to CEB74.00	CEB50.00 to CEB74.00	60	12	60	100	100	50	22	50	5,5	5,5



ETIBREAK

Moulded Case Circuit Breakers And Switch Disconnectors

Mining Circuit Breakers EB2 **108**

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ETIBREAK

Low Voltage Moulded Case Circuit Breakers - MCCBs

Mining Circuit Breakers



Product series	description	unit	condition	EB2 125	EB2 250	EB2 400	EB2 630	EB2 800	EB2 1250
Model-type				V	V	VE	VE	VE	VE
Number of poles				3	3	3	3	3	3
Nominal current ratings									
	I_n	(A)	45°C	20, 32, 50, 63, 100, 125	160, 250	400	630	800	800, 1250
Electrical characteristics									
Rated operational voltage	U_e	(V)	AC 50/60 Hz	1100	1100	1100	1100	1100	1100
Rated insulation voltage	U_i	(V)		1100	1100	1100	1100	1100	1100
Rated impulse withstand voltage	U_{imp}	(kV)		8	8	8	8	8	8
Ultimate breaking capacity (IEC, JIS, AS/NZS)	I_{cu}	(kA)	1100V AC	4*/6**	6	12,5	18	18	30
			1000V AC	4*/6**	6	18	20	20	30
Service breaking capacity (IEC, JIS, AS/NZS)	I_{cs}	(kA)	1100V AC	4	4	6,3	13,5	13,5	20
			1000V AC	4	4	13,5	15	15	20
Rated short-time withstand current	I_{cw}	(kA)	0.3 s	-	-	-	-	-	15
Protection									
Adjustable thermal, adjustable magnetic				■	■			-	-
Fixed thermal, fixed magnetic								-	-
Microprocessor						■	■	■	■
Utilisation category				A	A	A	A	A	B
Installation									
Front connection				■	■	■	-	-	-
Extension bar				•	•	•	■	■	■
Solderless terminal (cable clamp)				-	-	-	-	-	-
Rear connection				•	•	•	•	•	•
Plug-in				•	•	•	•	•	•
Draw-out				-	-	-	-	-	-
DIN rail mounting				-	-	-	-	-	-
Dimensions	h	(mm)		155	165	260	273	273	370
	w	(mm)	3 pole	90	105	140	210	210	210
	d	(mm)		68	68	103	103	103	120
Weight		(kg)	3 pole	1,1	1,5	4,8	9,6	9,7	19,8
Operation									
Direct Opening Action				■	■	-	-	-	■
Toggle operation				■	■	■	■	■	■
Variable depth / direct mount operating handle				•	•	•	•	•	•
Motor operator				•	•	•	•	•	•
Endurance	Electrical	cycles	1100V AC	10.000	10.000	1000	1000	500	4000
	Mechanical	cycles		30.000	30.000	5000	5000	3000	5000
Standards	IEC 60947-2, EN 60947-2								

■ Standard • Optional - Not Available

*20, 32A

**50, 63, 100, 125A

ETIBREAK EB2 1100 V

AF	Type	I_n [A]	Code No.	Poles	I_{cu}/I_{cs} 1100V [kA]	Adjustment thermal/magnetic xI_n		
125	EB2 125/3V 20A 3p 1100V	20	004671371	3	4/4	0,63-1/ 6-12	1,1	1
	EB2 125/3V 32A 3p 1100V	32	004671372	3				
	EB2 125/3V 50A 3p 1100V	50	004671373	3				
	EB2 125/3V 63A 3p 1100V	63	004671374	3				
	EB2 125/3V 100A 3p 1100V	100	004671375	3				
	EB2 125/3V 125A 3p 1100V	125	004671376	3				
250	EB2 250/3V 160A 3p 1100V	160	004671377	3	6/4	0,63-1/ 6-13	1,5	1
	EB2 250/3V 250A 3p 1100V	250	004671378	3		0,63-1/ 6-10		
400	EB2 400/3VE 400A 3p 1100V	400	004671379	3	12,5/6,3	0,63-1/adjustable	4,8	1
630	EB2 630/3VE 630A 3p 1100V	630	004671380	3	18/13,5	0,63-1/adjustable	9,6	1
800	EB2 800/3VE 800A 3p 1100V	800	004671381	3	18/13,5	0,63-1/adjustable	9,7	1
1250	EB2 1250/3VE 800A 3p 1100V	800	004671382	3	30/20	0,4-1/adjustable	19,8	1
	EB2 1250/3VE 1250A 3p 1100V	1250	004671383	3				



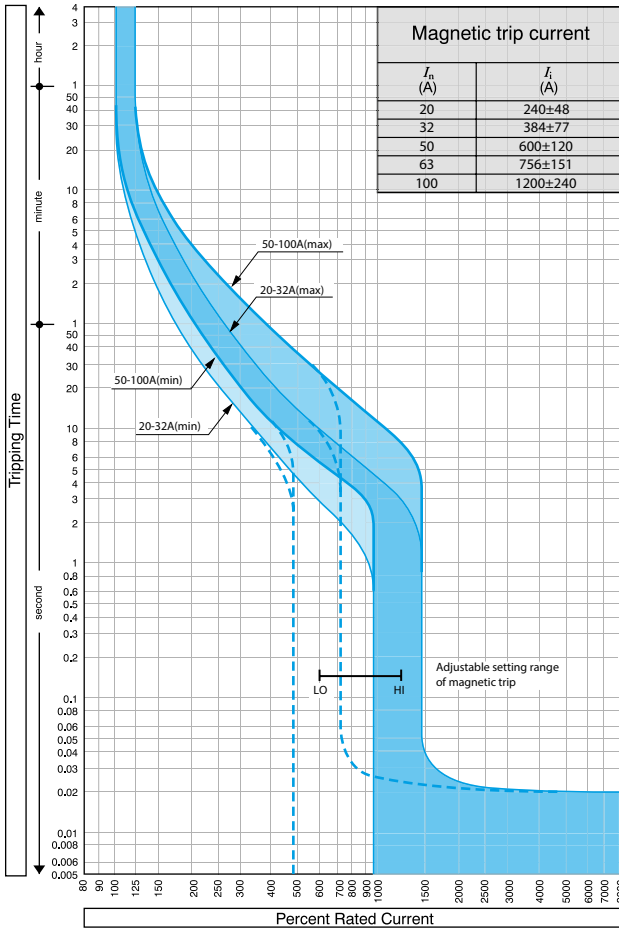
V - Thermal Magnetic MCCB

VE - Microprocessor MCCB

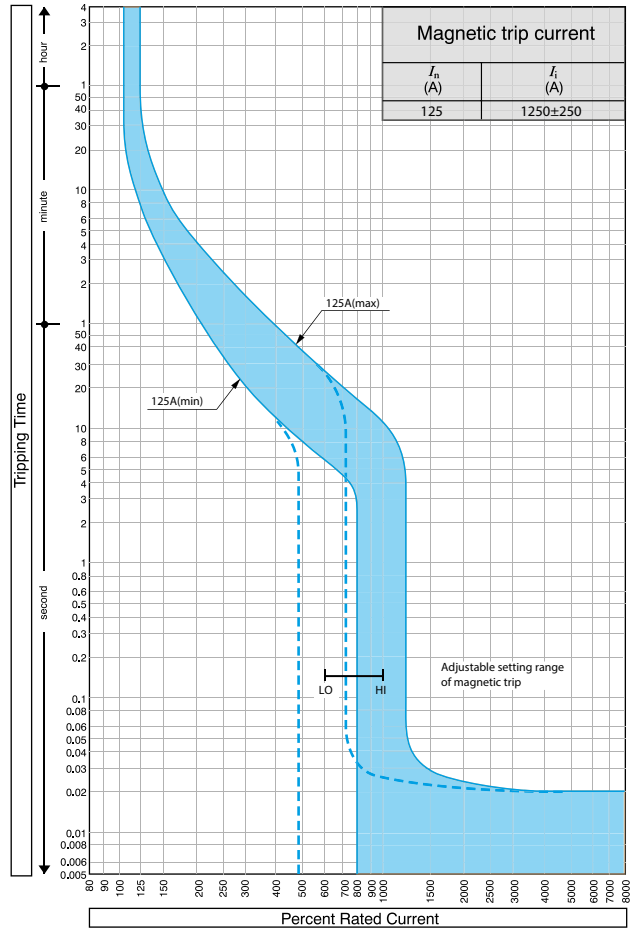
No external or internal accessories available for 400AF, 630AF & 800AF

**THERMAL MAGNETIC CHARACTERISTICS
125A Frame**

Time/current characteristic curves
EB2 125-V



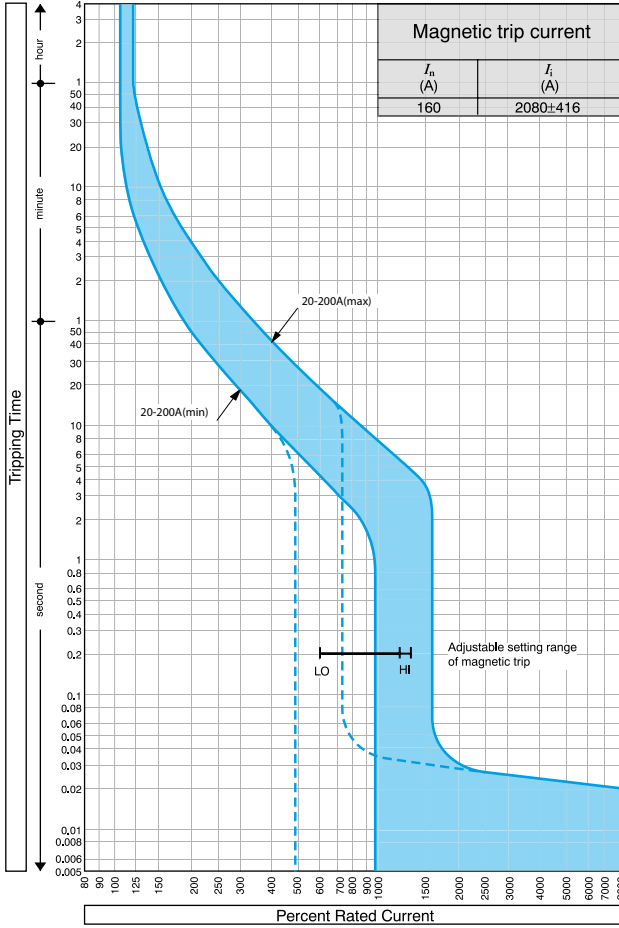
Time/current characteristic curves
EB2 125-V



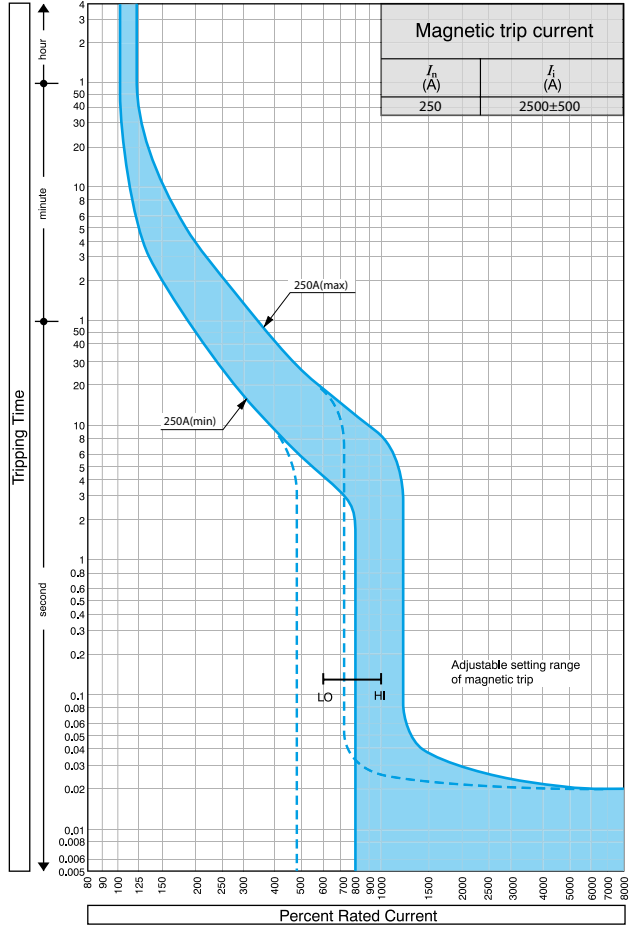
THERMAL MAGNETIC CHARACTERISTICS

160A and 250A Frames

Time/current characteristic curves
EB2 250-V



Time/current characteristic curves
EB2 250-V



Characteristics for 400AF, 630AF & 800AF

In addition to the standard overload and short circuit protection, there are a number of options available to meet specific applications.

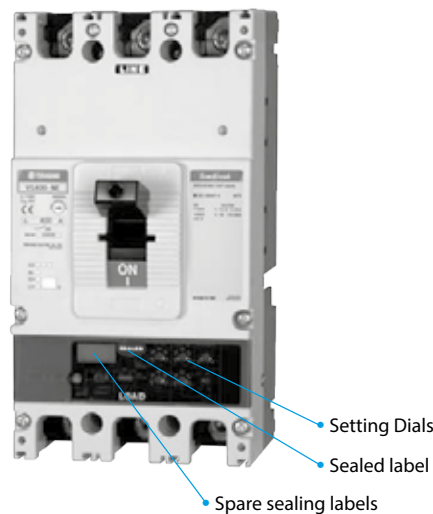
MCCB Type	LTD	STD	INST	PICK-UP LED	TEST PORT	GFT
EB2 400-VE	●	●	●	●	●	-
EB2 630-VE	●	●	●	●	●	○
EB2 800-VE	●	●	●	●	●	○

- Standard
- Optional
- Not available

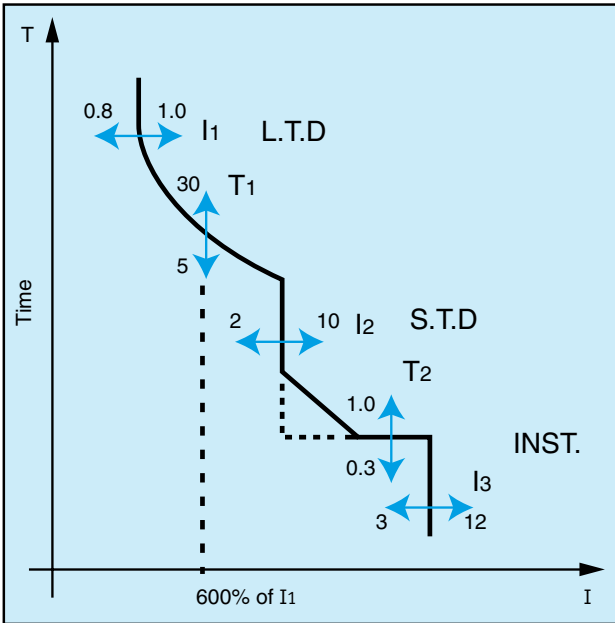
Legend	Application
LTD Long Time Delay	: Overload protection, True R.M.S.
STD Short Time Delay	: Short circuit protection and selectivity
INST Instantaneous	: Short circuit protection, fast acting
Pick-up LED	: Lights on LTD overload, flashes on PTA pick-up
Test Port	: Facility for TNS-1 OCR checker for calibration checking
GFT Ground Fault Trip	: Protection against ground faults

Access to Setting Dials

To adjust the settings on the microprocessor EB2, the sealed label must be broken and the covering fixing screws removed. To adjust the individual trip settings, turn the setting dial with a flat bladed screw driver. Align the setting required between the black dots marked on the dial.

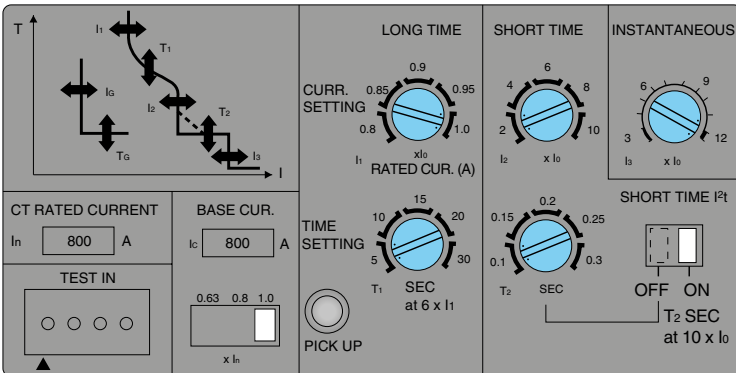


Standard Time Currents Curves for 400AF, 630AF & 800AF



Each part of the characteristic curve can be independently adjusted.

Standard Microprocessor Adjustments



Setting Dial

Available Adjustments

Setting Dial	Available Adjustments
Base Current Setting	I_0 0.63 - 0.8 - 1.0 $\times I_n$ Amps
LTD Pick up	I_1 0.8 - 0.85 - 0.9 - 0.95 - 1.0 $\times I_0$ Amps
LTD Setting	T_1 5 - 10 - 15 - 20 - 25 - 30 (at $I_1 \times 600\%$) Secs
STD Pick up	I_2 2 - 4 - 6 - 8 - 10 $\times I_0$ Amps
STD Setting	T_2 0.1 - 0.15 - 0.2 - 0.25 - 0.3 Secs
INST Pick up	I_3 3 - 12 $\times I_0$ (continuously adjustable) Amps

Overload Adjustment for 400AF, 630AF & 800AF

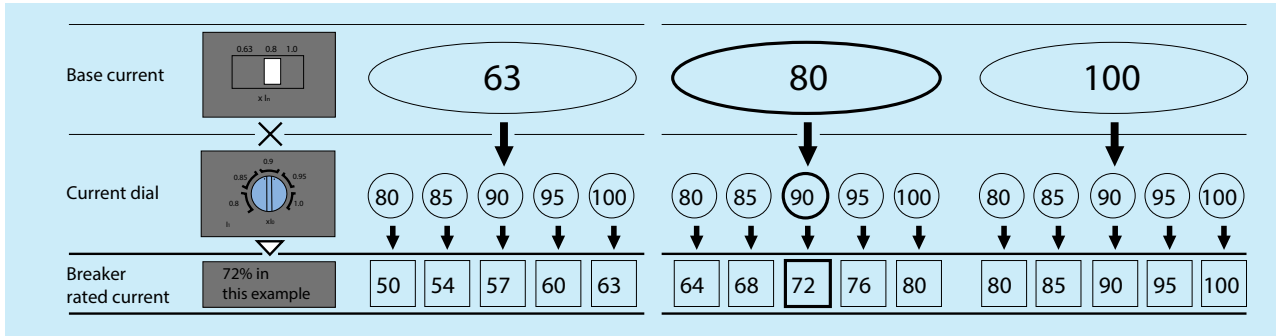
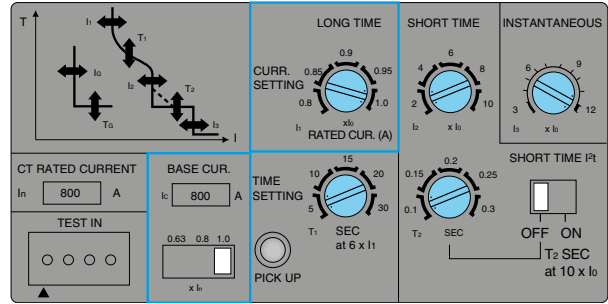
The rated current of the microprocessor based EB2 is adjusted using two current multipliers. This process achieves high accuracy adjustment from 50% to 100%. These are the LTD pickup dial I_1 and the Base Current I_0 selector switch. The rated current (LTD pickup) is achieved as follows:

$$I_{RATED} = I_n \times I_0 \times I_1$$

In the example shown on the right the rating would be:

$$I_{RATED} = 1250 \times 1.0 \times 1.0 = 1250A$$

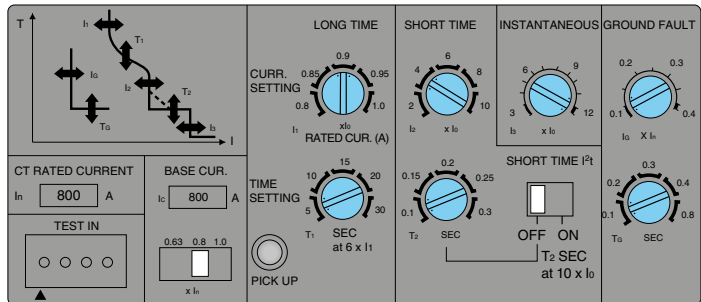
In total there are 15 possible increments of adjustment between 50 and 100% as shown below.



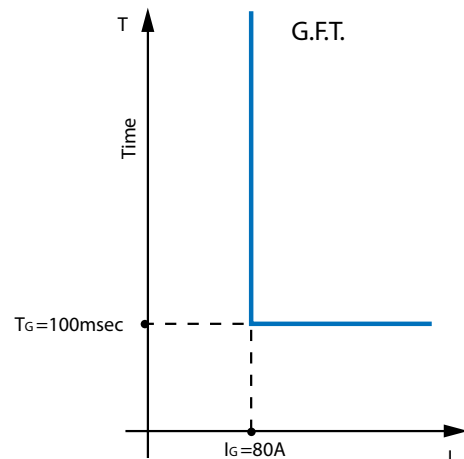
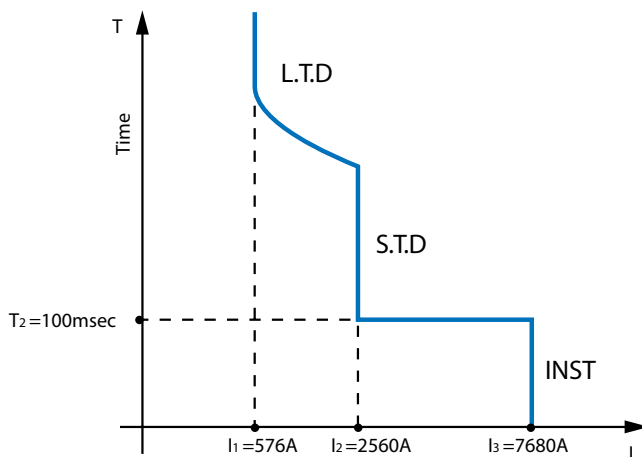
Example - Settings

In the example shown on the right what are all the settings in Amps?

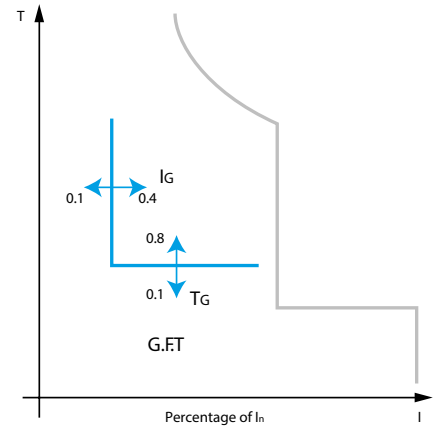
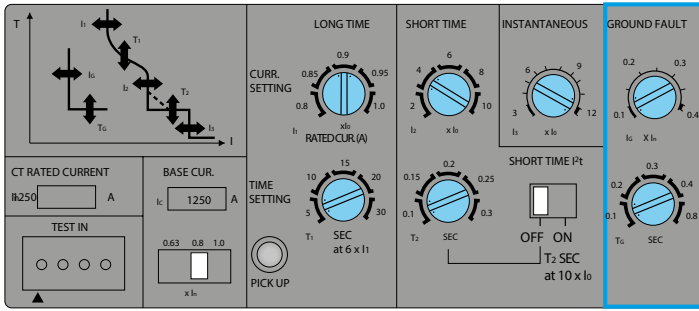
- Solution**
- LTD pickup = $I_n \times I_0 \times I_1 = 800 \times 0.8 \times 0.9 = 576A$
 - STD pickup = $I_n \times I_0 \times I_2 = 800 \times 0.8 \times 4 = 2560A$
 - INST pickup = $I_n \times I_0 \times I_3 = 800 \times 0.8 \times 12 = 7680A$
 - GFT pickup = $I_n \times I_G = 800 \times 0.1 = 80A$
- (Note that GFT is a function of I_n and not I_0)



Example - Time/Current Curves



Ground Fault Adjustments



Setting Dial Available Adjustments

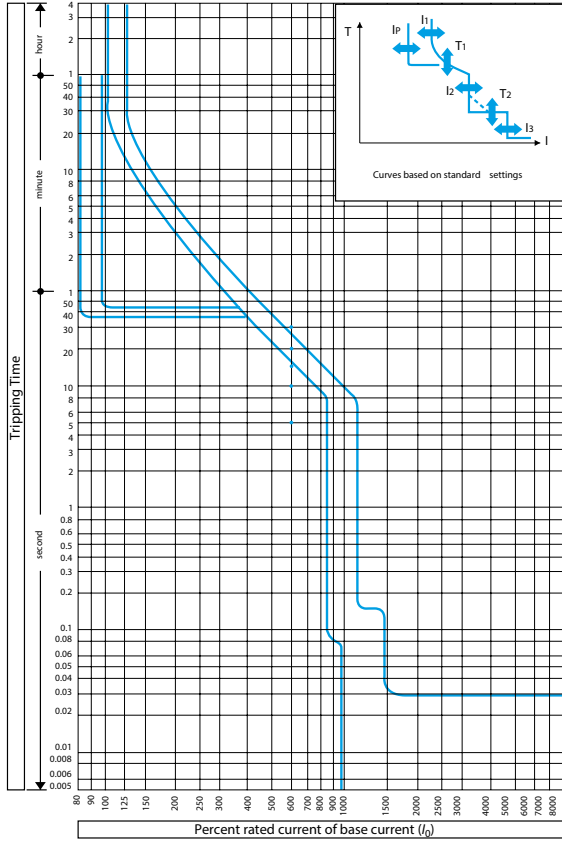
Setting	Symbol	Adjustment Range	Unit
GFT Pickup	I_G	0.1 to 0.4 continuously adjustable $\times I_n$	Amps
GFT Setting	T_G	0.1 - 0.2 - 0.3 - 0.4 - 0.8	seconds

When a 3 pole MCCB is used on a 3 phase 4 wire system a separate CT is required for the neutral line. No control power is required for this option.

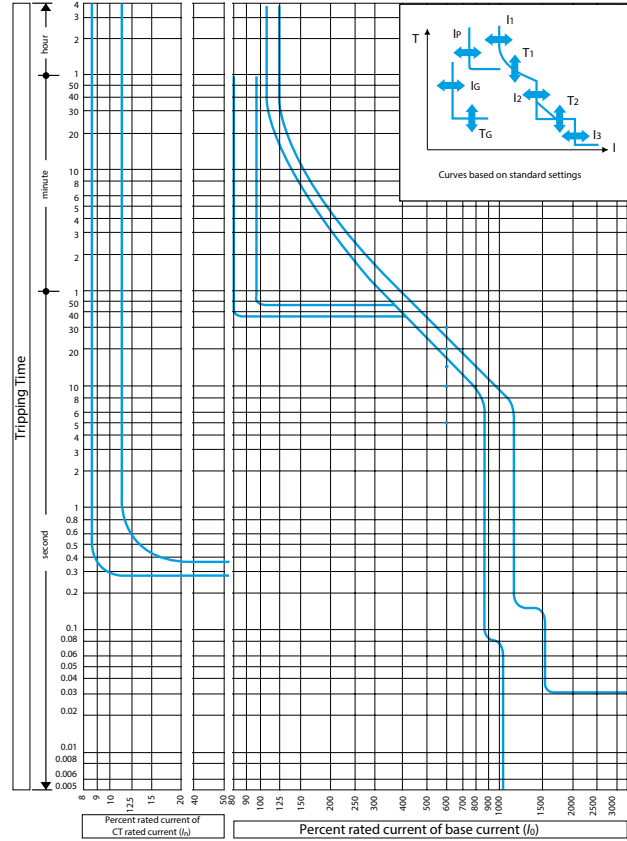
THERMAL MAGNETIC CHARACTERISTICS

400A, 630A and 800A Frames

Time/current characteristic curves
EB2 400-VE



Time/current characteristic curves
EB2 630-VE, EB2 800-VE



Overcurrent tripping characteristics

CT rated current (A) (I_n)	63, 125, 250, 400
Base current setting (A): (I_b)	$(I_n) \times (0.63-0.8-1.0)$
Long time-delay pick-up current (A): (I_1)	$(I_b) \times (0.8-0.85-0.9-0.95-1.0)$ Non-tripping at (I_1) setting $\times 105\%$ and below. Tripping at 125% and above.
Long time-delay time settings (S) (T_1)	(5-10-15-20-30) at (I_1) $\times 600\%$ current. Setting tolerance $\pm 20\%$
Short time-delay pick-up current (A): (I_2)	$(I_b) \times (2-4-6-8-10)$ Setting tolerance $\pm 15\%$
Short time-delay time settings (S) (T_2)	Opening time (0.1, 0.15, 0.2, 0.25, 0.3) in the definite time-delay. Total clearing time is + 50 mS and resettable time -20mS for the time-delay setting
Instantaneous trip pick-up current (A) (I_3)	Continuously adjustable from (I_b) $\times (3$ to $12)$ Setting tolerance $\pm 20\%$

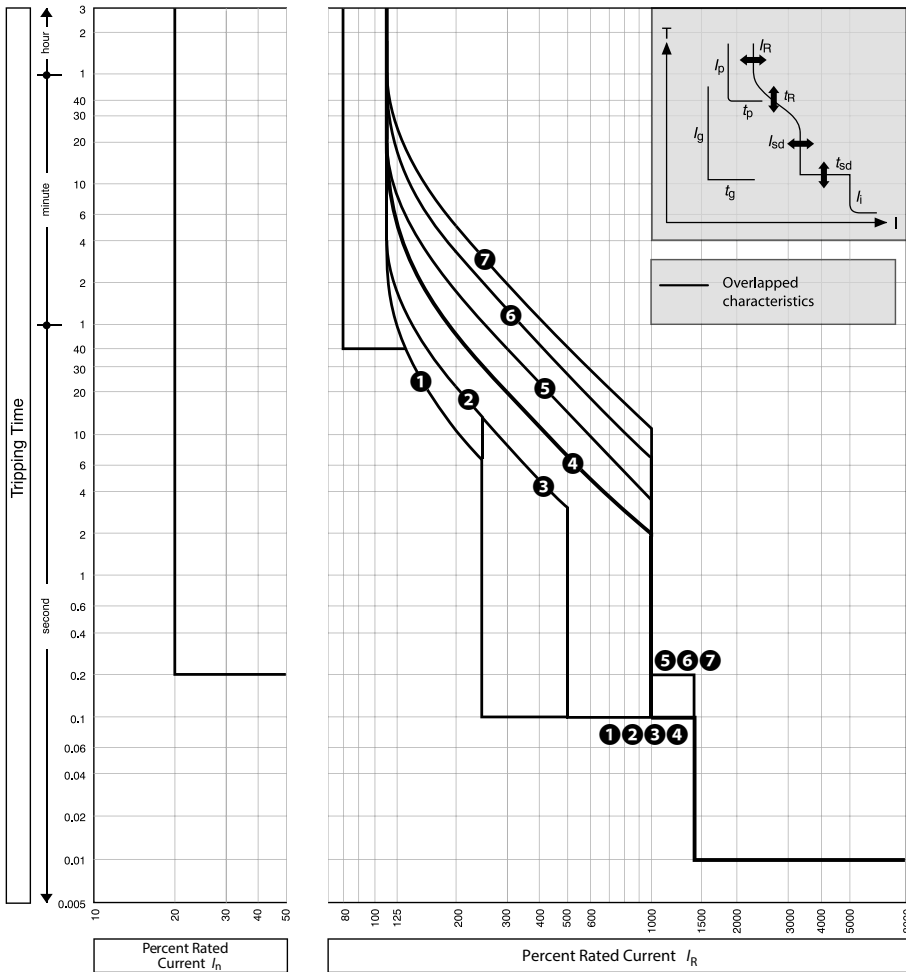
Note: * Optional
Note: The underlined values will be applied as standard ratings unless otherwise specified when ordering.

Overcurrent tripping characteristics

CT rated current (A) (I_n)	630, 800
Base current setting (A): (I_b)	$(I_n) \times (0.63-0.8-1.0)$
Long time-delay pick-up current (A): (I_1)	$(I_b) \times (0.8-0.85-0.9-0.95-1.0)$ Non-tripping at (I_1) setting $\times 105\%$ and below. Tripping at 125% & above.
Long time-delay time settings (S) (T_1)	(5-10-15-20-30) at (I_1) $\times 600\%$ current. Setting tolerance $\pm 20\%$
Short time-delay pick-up current (A): (I_2)	$(I_b) \times (2-4-6-8-10)$ Setting tolerance $\pm 15\%$
Short time-delay time settings (S) (T_2)	Opening time (0.1, 0.15, 0.2, 0.25, 0.3) in the definite time-delay. Total clearing time is + 50 mS and resettable time -20mS for the time-delay setting.
Instantaneous trip pick-up current (A) (I_3)	Continuously adjustable from (I_b) $\times (3$ to $12)$ Setting tolerance $\pm 20\%$
* Ground fault trip pick-up current (A): (I_G)	Continuously adjustable from (I_b) $\times (0.1$ to $0.4)$ Setting tolerance $\pm 15\%$
* Ground fault trip time setting (S): (T_G)	Opening time (0.1-0.2-0.3-0.4-0.8) in the definite time-delay. Total clearing time is + 50mS and resettable time is - 20mS for the time-delay settings

Note: * Optional
Note: The underlined values will be applied as standard ratings unless otherwise specified when ordering.

ELECTRONIC CHARACTERISTICS (STANDARD TYPE)
EB2 1250-VE



$I_n = 800A; 1250A$

		I_R (A)									
		LTD Pick-up current	I_R	$\times I_n$	0.4	0.5	0.63	0.8	0.9	0.95	1.0
Standard	LT	t_R	(s)	1	2	3	4	5	6	7	
				11	21	21	5	10	19	29	
	ST	I_{sd}	$\times I_R$	at 200% $\times I_R$			at 600% $\times I_R$				
				2.5	5	10					
		t_{sd}	(s)	0.1			0.2				
	INST	I_i	$\times I_R$	14(Max: 12 $\times I_n$) Note (1)							
Option	GF Note (3)	I_g	$\times I_n$	0.2							
		t_g	(s)	0.2							

Note:

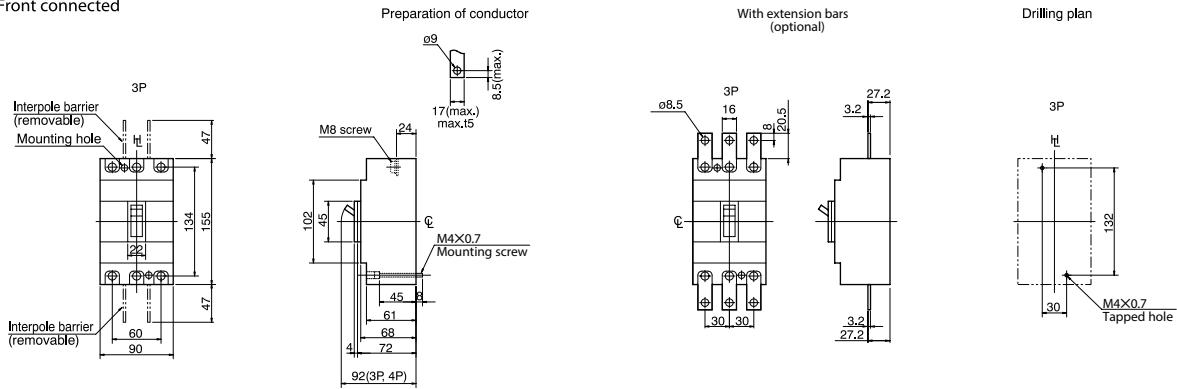
(1) I_i max. = 12 $\times I_n$. (2) When you specify GF on MCCBs with 3 poles the terminal block is automatically fitted to connect with the external neutral CT for 3 phases 4 wires system.

Dimensions

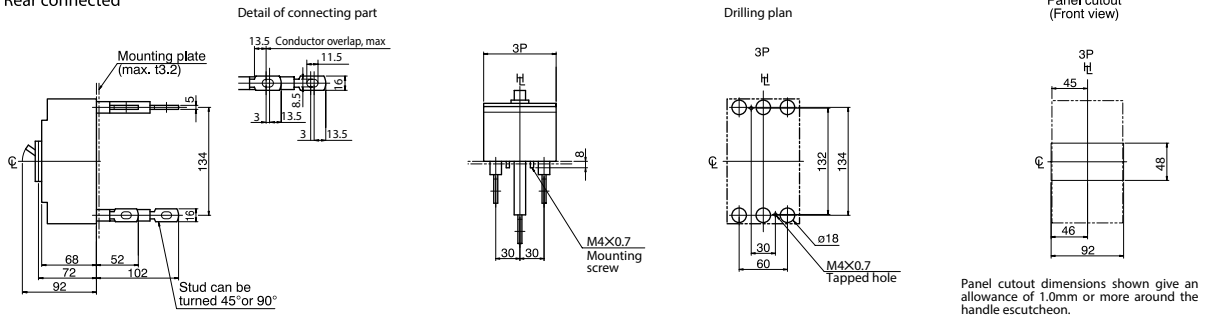
EB2 125 1100V

ASL : Arrangement Standard Line
 H_L : Handle Frame Centre Line

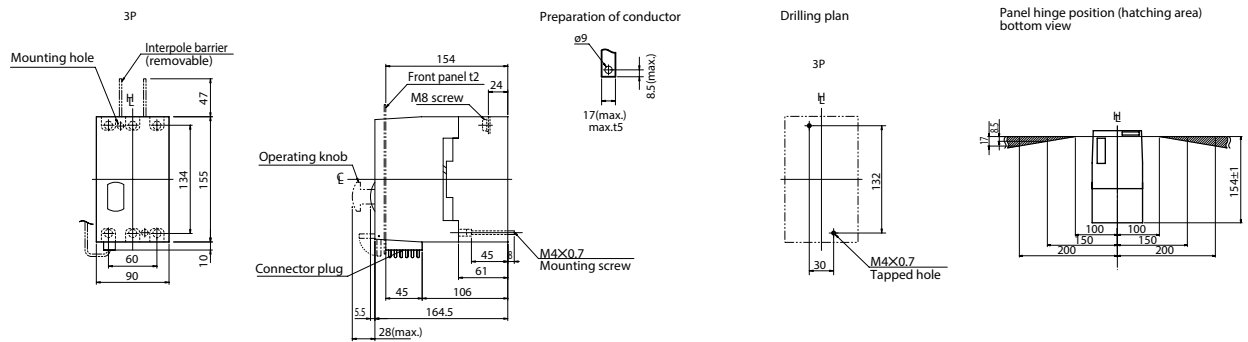
Front connected



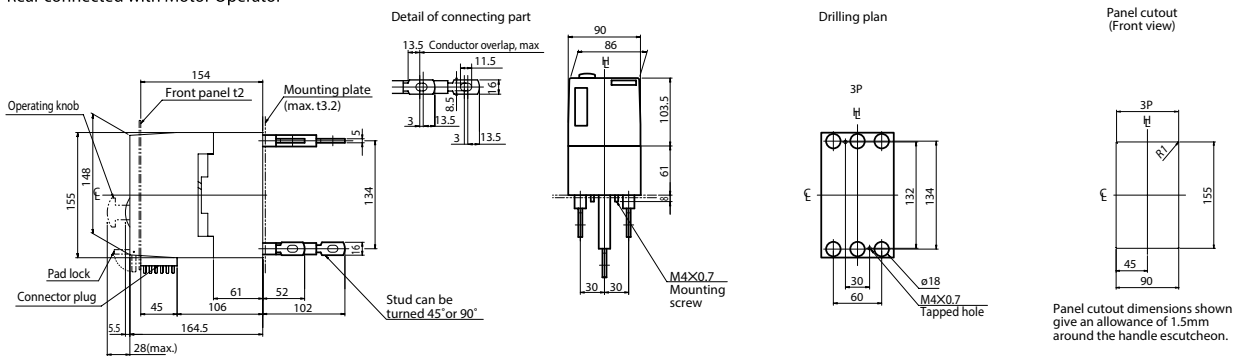
Rear connected



Front connected with Motor Operator



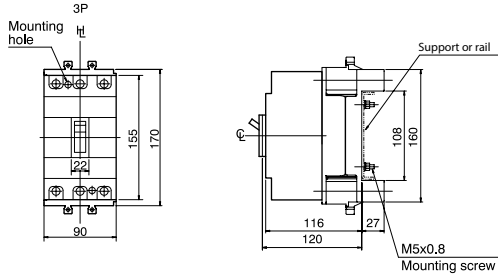
Rear connected with Motor Operator



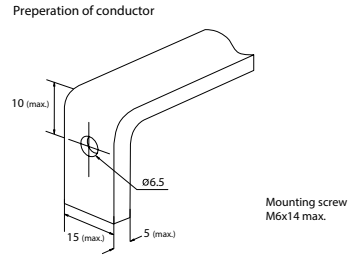
ETIBREAK / Low Voltage Moulded Case Circuit Breakers

ASL : Arrangement Standard Line
 HL : Handle Frame Centre Line

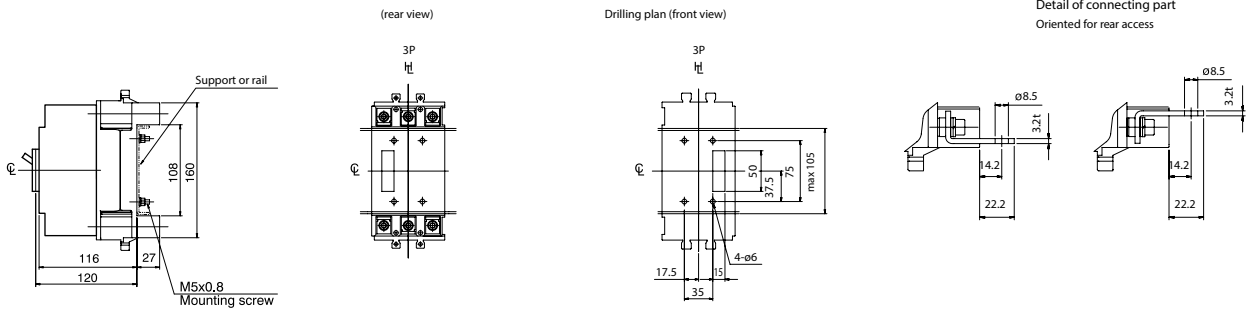
Plug-in connected



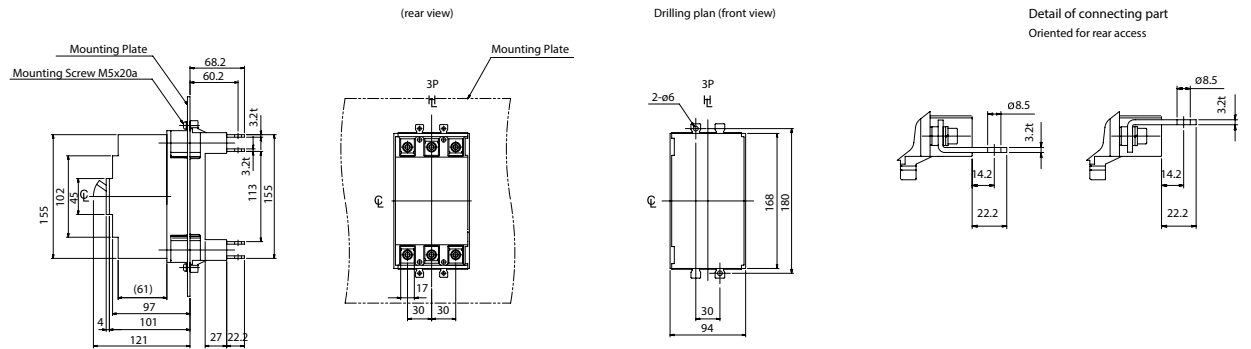
Termination of Busbar



Mounting on a support or rails (shown with optional connection bars oriented for rear access)



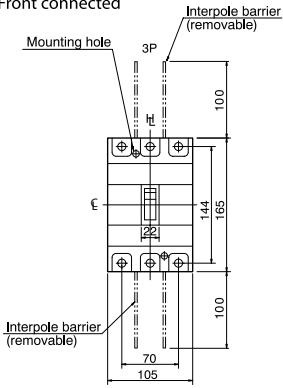
Mounting through the backplate (shown with optional connection bars oriented for rear access)



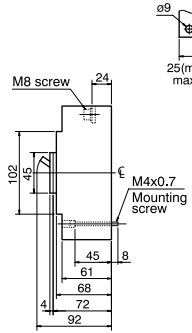
EB2 250 1100V

ASL : Arrangement Standard Line
 Ht : Handle Frame Centre Line

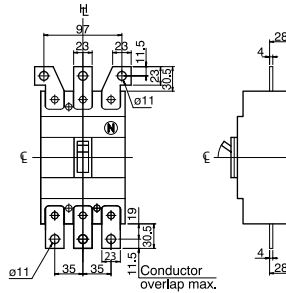
Front connected



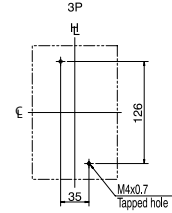
Preparation of conductor



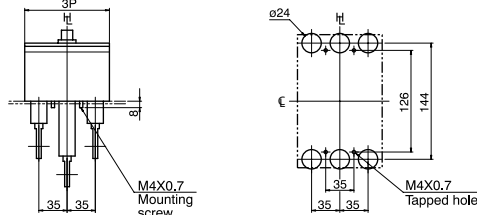
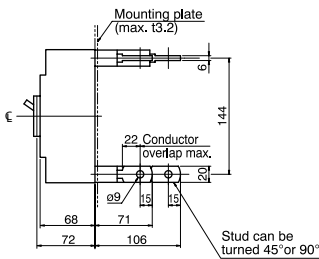
With extension bars (optional)



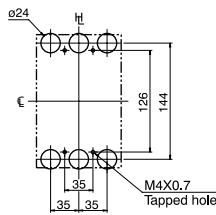
Drilling plan



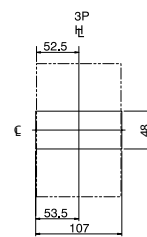
Rear connected



Drilling plan

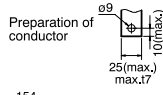
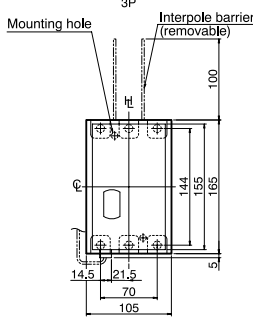


Panel cutout (Front view)

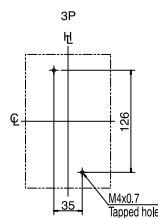


Panel cutout dimensions shown give an allowance of 1.0mm or more around the handle escutcheon.

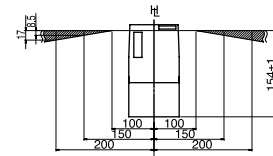
Front connected with Motor Operator



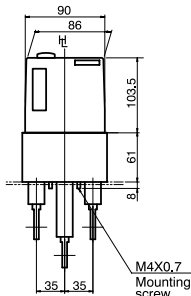
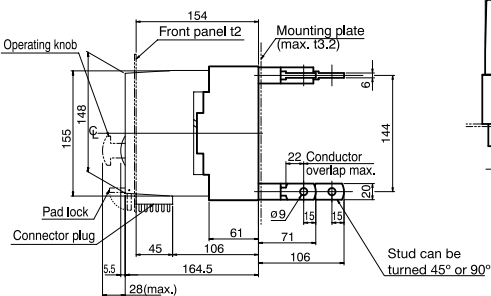
Drilling plan



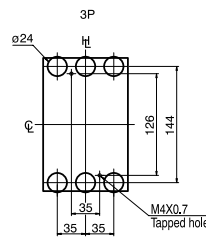
Panel hinge position (hatching area) bottom view



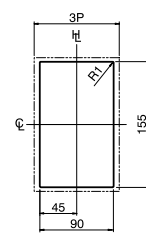
Rear connected with Motor Operator



Drilling plan



Panel cutout (Front view)

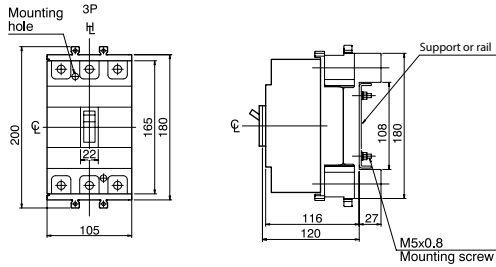


Panel cutout dimensions shown give an allowance of 1.5mm around the handle escutcheon.

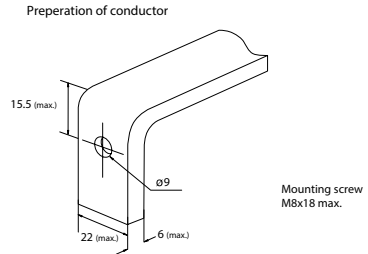
ETIBREAK / Low Voltage Moulded Case Circuit Breakers

ASL: Arrangement Standard Line
 H: Handle Frame Centre Line

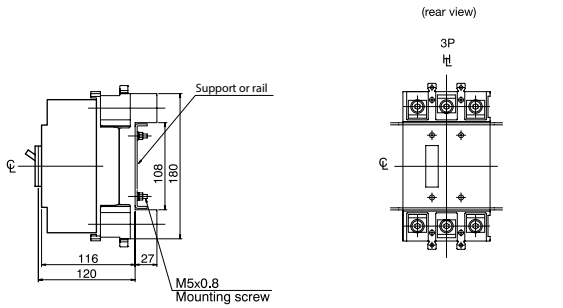
Plug-in connected



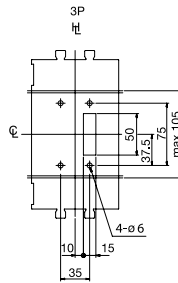
Termination of Busbar



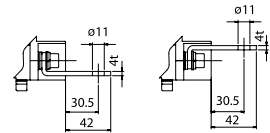
Mounting on a support or rails (shown with optional connection bars oriented for rear access)



Drilling plan (front view)

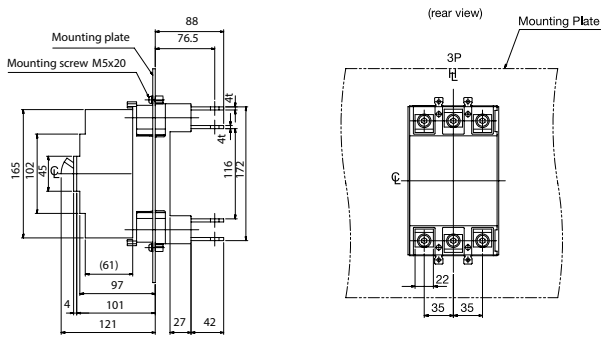


Detail of connecting part
 Oriented for rear access

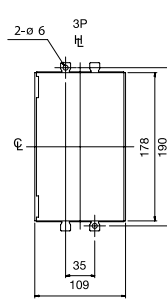


Terminal bars should be connected alternately on adjacent poles.

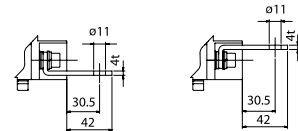
Mounting through the backplate (shown with optional connection bars oriented for rear access)



Drilling plan (front view)



Detail of connecting part
 Oriented for rear access

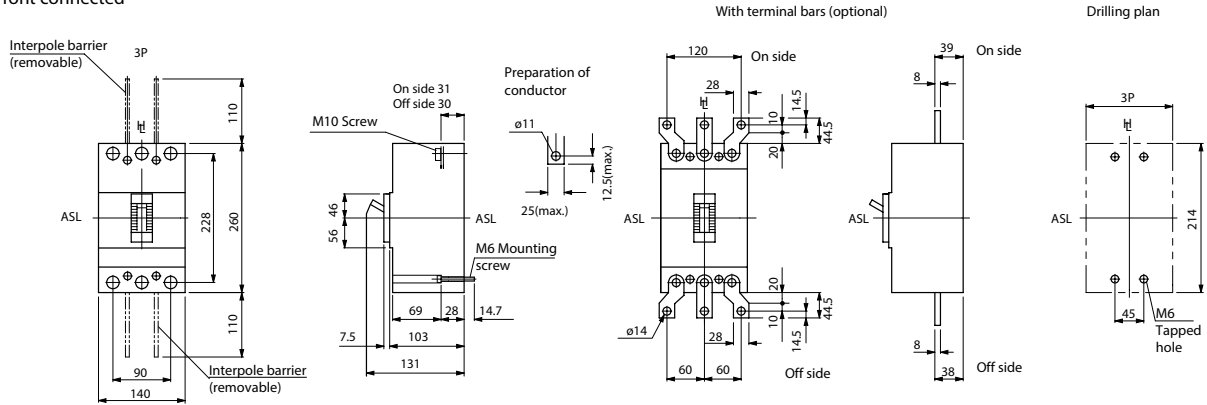


Terminal bars should be connected alternately on adjacent poles.

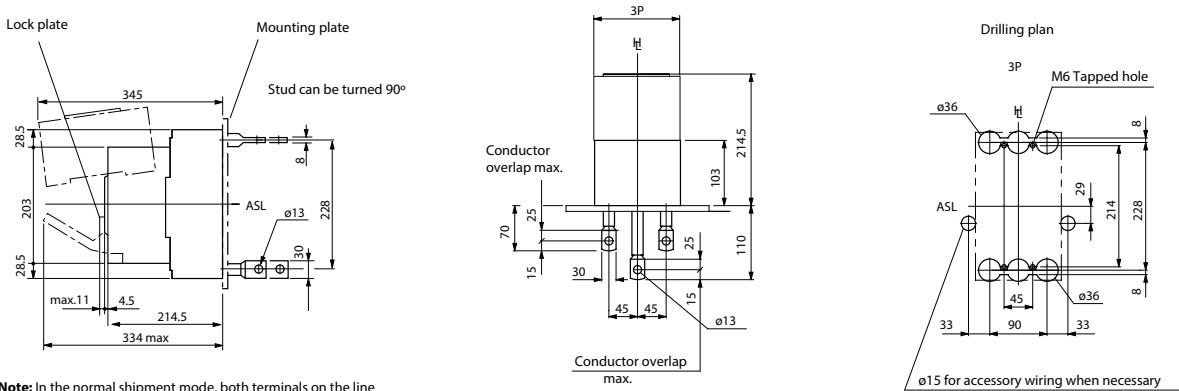
EB2 400 1100V

ASL : Arrangement Standard Line
 H : Handle Frame Centre Line

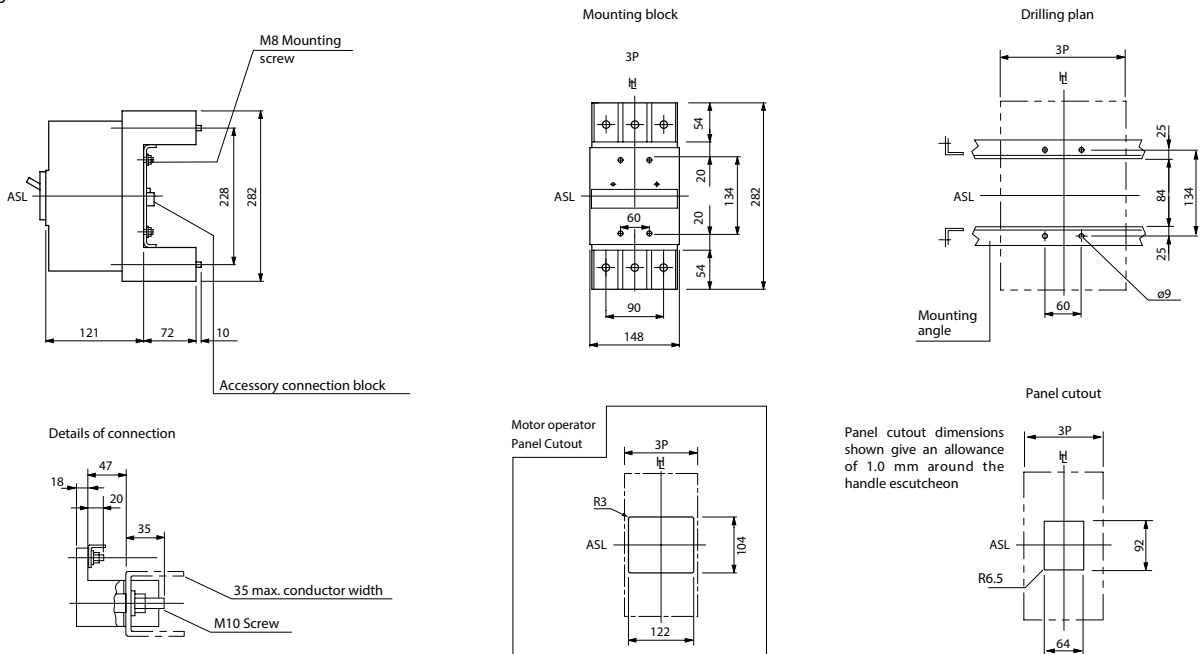
Front connected



Rear connected with motor operator



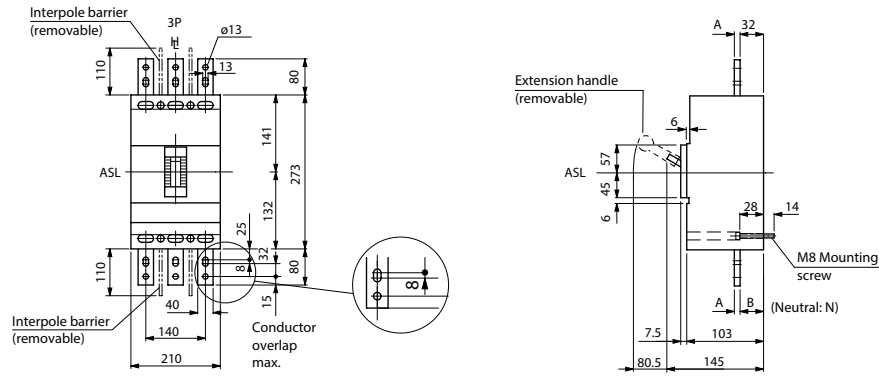
Plug-in connected



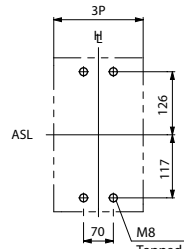
EB2 630 & 800 1100V

ASL: Arrangement Standard Line
 H: Handle Frame Centre Line

Front connected



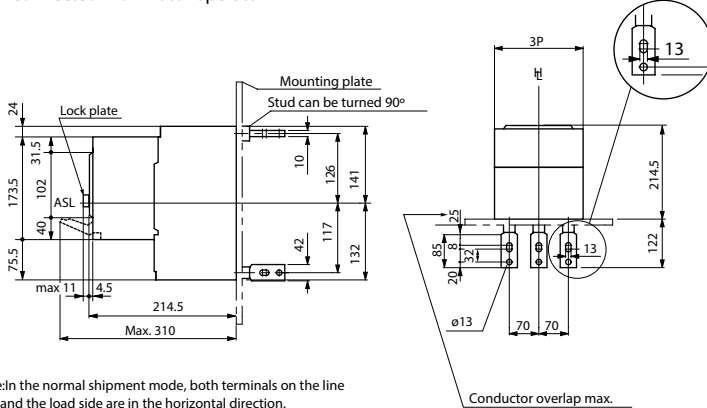
Drilling plan



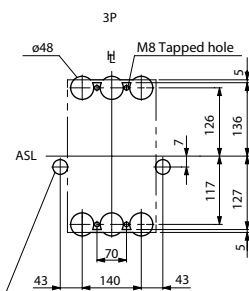
Breaker type	A	B	N
VS630-NE	8	36	36
VS800-NE	10	36	36

Note: Breakers with terminal bars available on request

Rear connected with motor operator

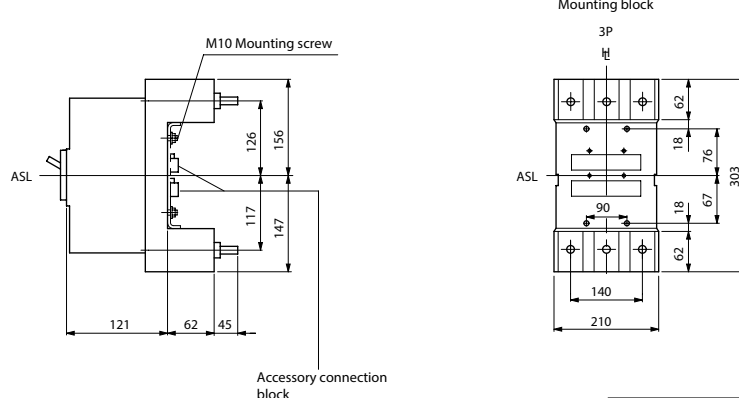


Drilling plan

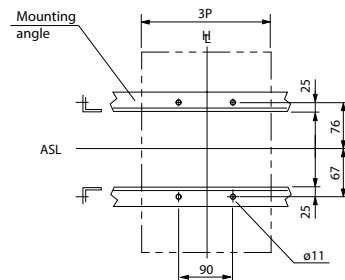


Note: In the normal shipment mode, both terminals on the line side and the load side are in the horizontal direction.

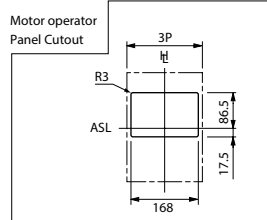
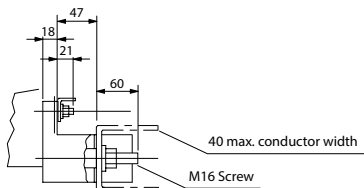
Plug-in connected



Drilling plan

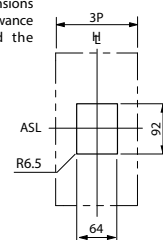


Details of connection



Panel cutout

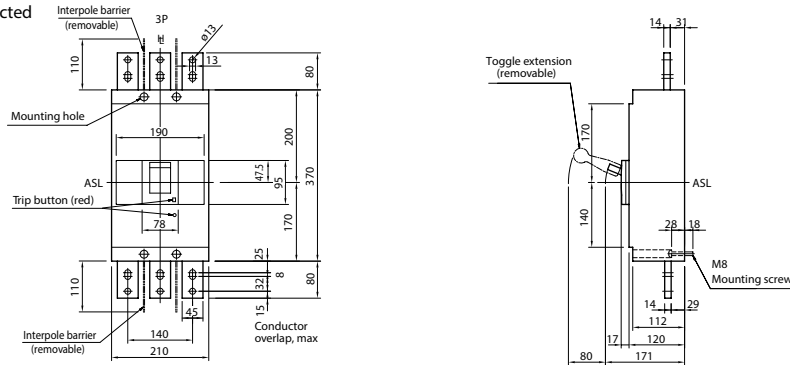
Panel cutout dimensions shown give an allowance of 1.0 mm around the handle escutcheon



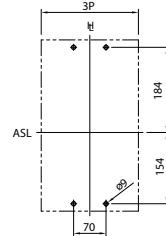
EB2 1250 1100V

ASL : Arrangement Standard Line
 HT : Handle Frame Centre Line

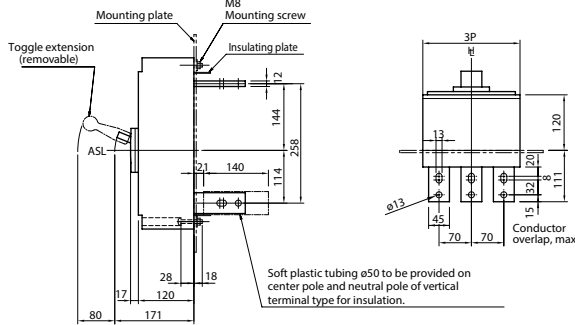
Front connected



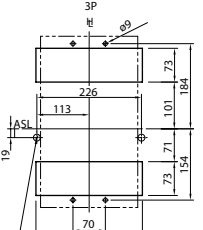
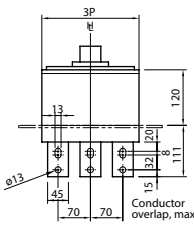
Drilling plan (front view)



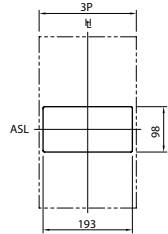
Rear connected



Drilling plan (front view)



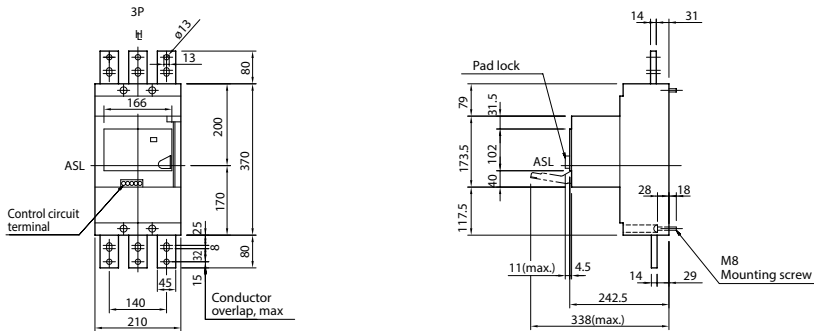
Panel cutout (front view)



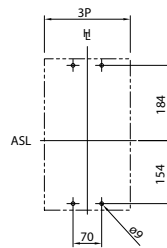
Panel cutout dimensions shown give an allowance of 1.5mm around the handle escutcheon.

Note: Studs are factory installed in horizontal direction both on the line and load sides.

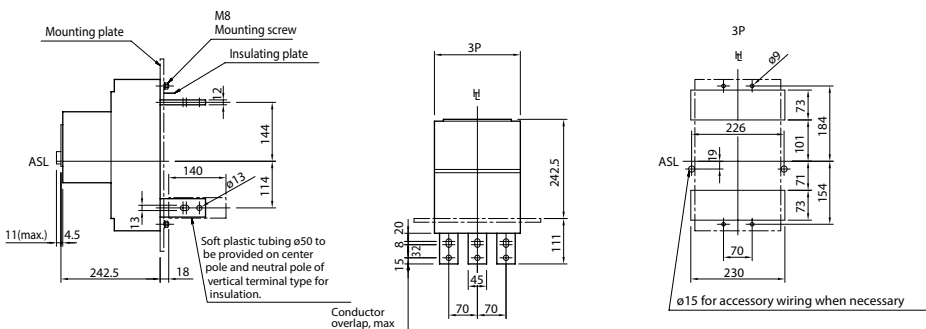
Front connected with Motor Operator



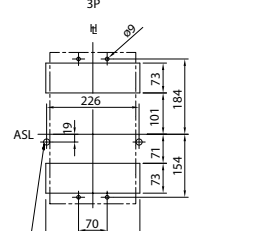
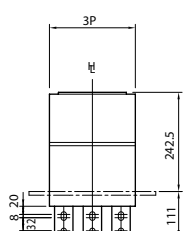
Drilling plan (front view)



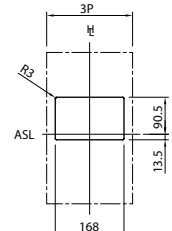
Rear connected with Motor Operator



Drilling plan (front view)



Panel cutout (front view)



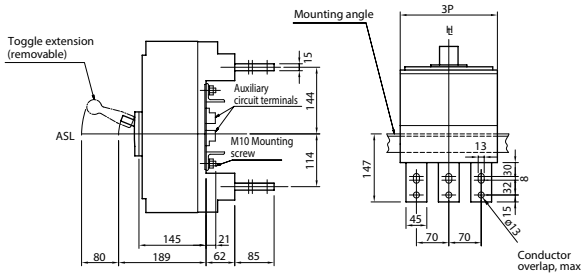
Panel cutout dimensions shown give an allowance of 1.0mm around motor operator.

Note: Studs are factory installed in horizontal direction both on the line and load sides.

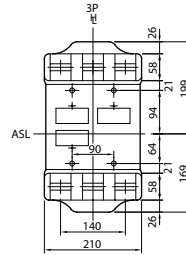
ETIBREAK / Low Voltage Moulded Case Circuit Breakers

ASL : Arrangement Standard Line
 H₁ : Handle Frame Centre Line

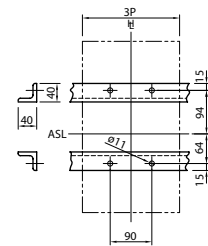
Plug-in connected



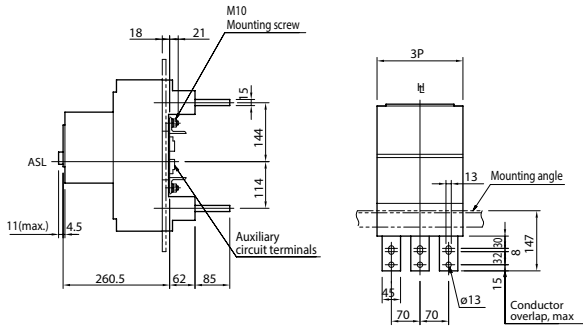
Mounting base (rear view)



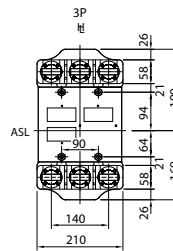
Drilling plan (front view)



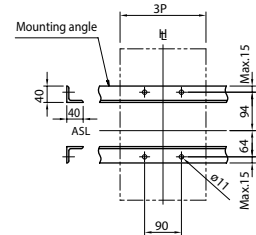
Plug-in connected with Motor Operator



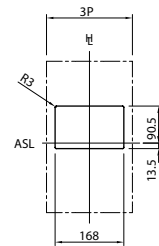
Mounting base (rear view)



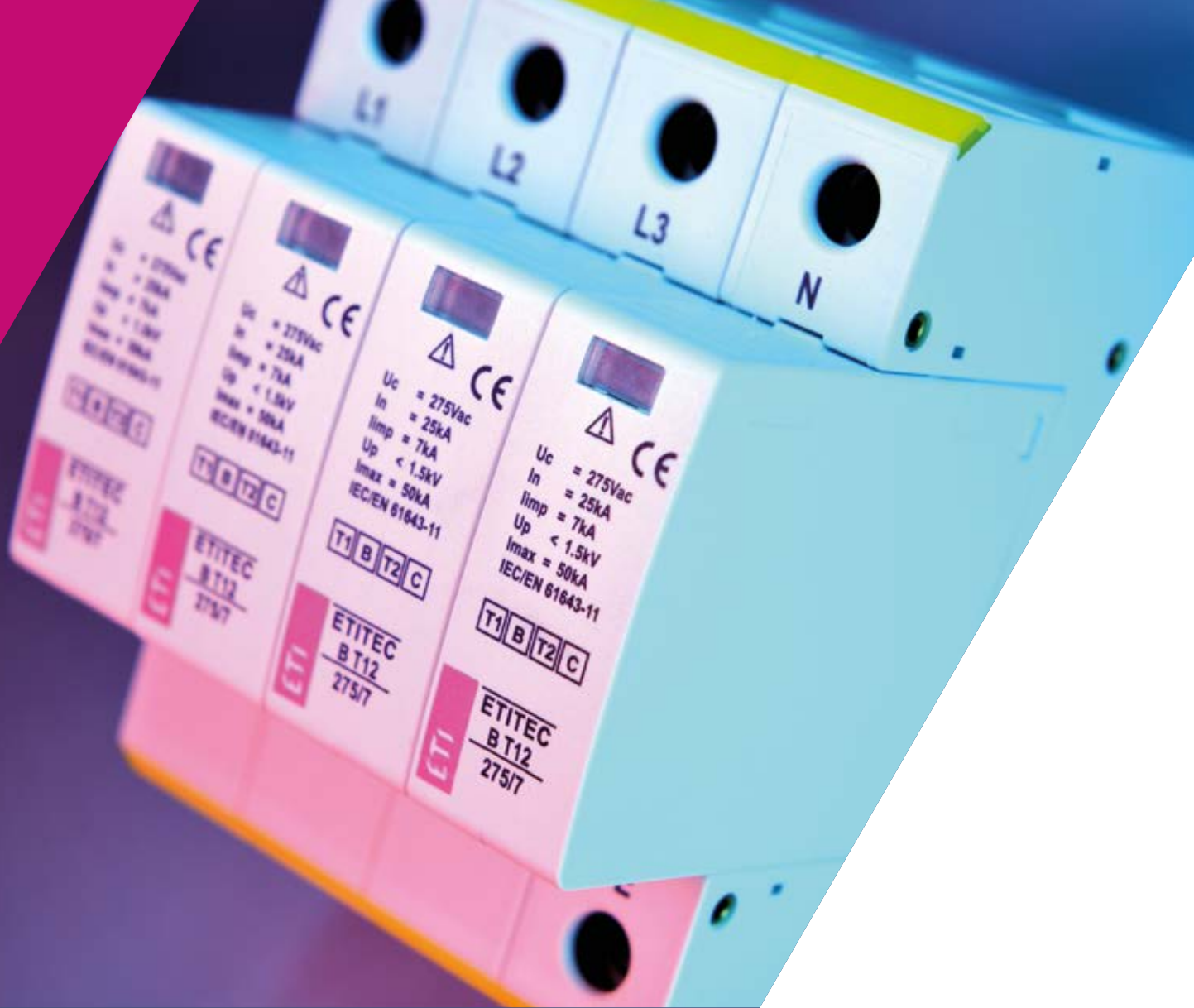
Drilling plan (front view)



Panel cutout (front view)



Panel cutout dimensions shown give an allowance of 1.0mm around motor operator.



ETITEC

Surge Arresters

Surge arresters ETITEC M60 **126**

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ETITEC

Surge arresters M60 series

Combined Lightning Current and Surge Arrester T12 or T23 for direct mounting on 60 mm busbar systems (5 or 10mm thickness). Can be used in industry or other applications where 60mm busbar system is used. No additional adapters or accessories needed. T2 available also with integrated fuse (see M60F), no additional prefuse needed for SPD overcurrent protection. Pluggable design enables also simple module replacement.

Features:

- // optical indication of faulty device (green ok, red false)
- // remote signalisation (RC version only)
- // MOV (metal oxide varistor) technology, no coordination needed

Surge arrester ETITEC M60

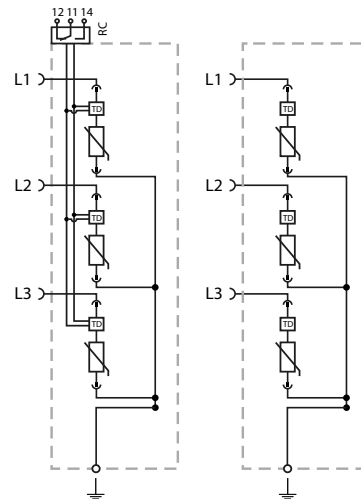
EN/IEC/VDE: T1,T2/I,II/B,C

Technical Data

ETITEC M60 T12 300/12,5 3+0 (RC)

IEC Electrical		
Nominal AC Voltage (50/60Hz)	U_o / U_n	240 V
Maximum Continuous Operating Voltage (AC)	U_c	300 V
Nominal Discharge Current (8/20 μ s)	I_n	20 kA
Maximum Discharge Current (8/20 μ s)	I_{max}	50 kA
Impulse Discharge Current (10/350 μ s)	I_{imp}	12.5 kA
Specific Energy	W/R	39 kJ / Ω
Charge	Q	6.25 As
Voltage Protection Level	U_p	1500V
Response Time	t_a	< 25ns
Overcurrent Protection (max)		160 A gG
Short-Circuit Current Rating (AC)	I_{SCCR}	25 kA
TOV Withstand 5s	U_T	337 V
TOV Safe Fail 120min	U_T	442 V
Number of Ports		1
Additional Electrical Parameters (Tests performed within internal laboratory)		
Residual Voltage 5 kA (8/20 μ s)	U_{res}	1100 V
Overcurrent Protection (min)		160 A gG
Mechanical & Environmental		
Operating Temperature Range	T_a	-40 °C to +85 °C
Permissible Operating Humidity	RH	5%...95%
Altitude (max)		4000 m
Terminal Screw Torque	M_{max}	PH2 / 4.5 Nm
Conductor Cross Section (max)		35 mm ² (Solid, Stranded) / 25 mm ² (Flexible)
Mounting		60 mm Busbar Systems
Degree Of Protection		IP 20 / IP 40 in combination with cover
Housing Material		Thermoplastic: Extinguishing Degree UL 94 V-0
Operating State / Fault Indication		Green Flag / Not Green Flag
Remote Contacts (RC)		Optional
RC Switching Capacity		AC: 250V/ 1A, 125V/ 1A; DC: 48V/0.5A, 24V/0.5 A, 12V/0.5A
RC Conductor Cross Section (max)		1.5 mm ² (Solid)

Internal Configuration



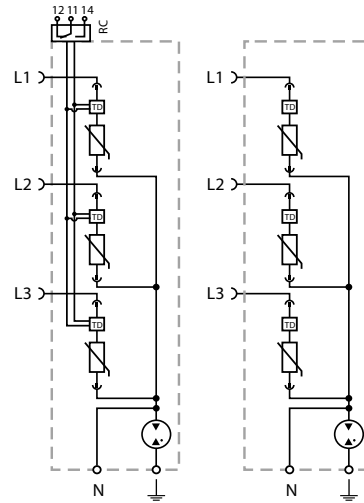
Legend

- L Line Busbar Terminal
- Z PEN Conductor Terminal
- RC Remote Contacts Terminal (Optional)
- TD Thermal Disconnect

Technical Data

ETITEC M60 T12 300/12,5 3+1 (RC)			
IEC Electrical			
Nominal AC Voltage (50/60Hz)		U_n / U_n	240 V
Maximum Continuous Operating Voltage (AC)	(L-N)	U_c	300 V
	(N-PE)	U_c	305 V
Nominal Discharge Current (8/20 μ s)	(L-N)/(N-PE)	I_n	20 kA / 80 kA
Maximum Discharge Current (8/20 μ s)	(L-N)/(N-PE)	I_{max}	50 kA / 100 kA
Impulse Discharge Current (10/350 μ s)	(L-N)/(N-PE)	I_{imp}	12.5 kA / 50 kA
Specific Energy	(L-N)/(N-PE)	W/R	39 kJ / Ω / 625 kJ / Ω
Charge	(L-N)/(N-PE)	Q	6.25 As / 25As
Voltage Protection Level	(L-N)/(N-PE)	U_p	1500V / 1500V
Follow Current Interrupt Rating	(N-PE)	I_n	100A
Response Time	(L-N)/(N-PE)	t_A	< 25ns / < 100ns
Overcurrent Protection (max)			160 A gG
Short-Circuit Current Rating (AC)		I_{SCR}	25 kA
TOV Withstand 5s	(L-N)	U_r	337 V
TOV Safe Fail 120min	(L-N)	U_r	442 V
TOV Withstand 200ms	(N-PE)	U_r	1200 V
Number of Ports			1
Additional Electrical Parameters (Tests performed within internal laboratory)			
Residual Voltage 5 kA (8/20 μ s)		U_{res}	1100 V / 305 V
Overcurrent Protection (min)			160 A gG
Mechanical & Environmental			
Operating Temperature Range		T_a	-40 °C to +85 °C
Permissible Operating Humidity		RH	5%...95%
Altitude (max)			4000 m
Terminal Screw Torque		M_{max}	PH2 / 4.5 Nm
Conductor Cross Section (max)			35 mm ² (Solid, Stranded) / 25 mm ² (Flexible)
Mounting			60 mm Busbar Systems
Degree Of Protection			IP 20 / IP 40 in combination with cover
Housing Material			Thermoplastic: Extinguishing Degree UL 94 V-0
Operating State / Fault Indication			Green Flag / Not Green Flag
Remote Contacts (RC)			Optional
RC Switching Capacity			AC: 250V/ 1A, 125V/ 1A; DC: 48V/0.5A, 24V/0.5 A, 12V/0.5A
RC Conductor Cross Section (max)			1.5 mm ² (Solid)

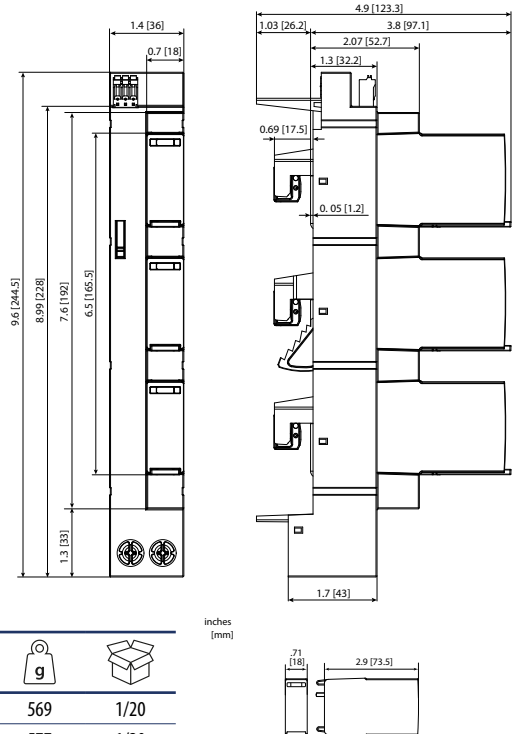
Internal Configuration



Legend

- L Line Busbar Terminal
- Z PE Conductor Terminal
- N Neutral Conductor Terminal
- RC Remote Contacts Terminal (Optional)
- TD Thermal Disconnect

Dimensions



ETITEC M60 T12

Type	Code No.	I_{imp} (10/350) [kA]	I_n/I_{max} (8/20) [kA]	U_c [V AC]	Network	g	Box
ETITEC M60 T12 300/12,5 3+0	002440850	12,5	20/50	300	TN-C	569	1/20
ETITEC M60 T12 300/12,5 3+0 RC	002440851	12,5	20/50	300	TN-C	577	1/20
ETITEC M60 T12 300/12,5 3+1	002440852	12,5	20/50	300	TT, TN-S	610	1/20
ETITEC M60 T12 300/12,5 3+1 RC	002440853	12,5	20/50	300	TT, TN-S	617	1/20

Replacement module

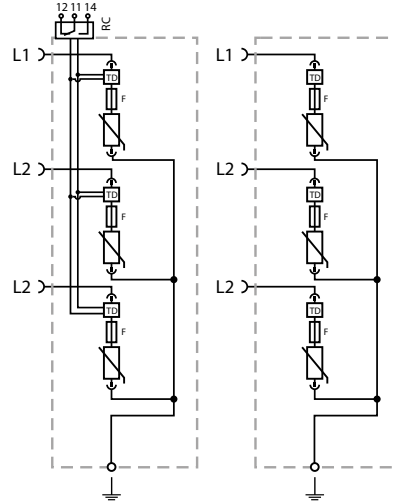
Type	Code No.	For use with	g	Box
MOD.ETITEC M60 T12 300/12,5	002440862	ETITEC M60 T12 300/12,5	104	1/28

Surge arrester ETITEC M60F with Integrated Fuse EN/IEC/VDE: T2,T3/II,III/C,D

Technical Data

ETITEC M60F T23 300/20 3+0 (RC)		
IEC Electrical		
Nominal AC Voltage (50/60Hz)	U_0 / U_n	240 V
Maximum Continuous Operating Voltage (AC)	U_c	300 V
Nominal Discharge Current (8/20 μ s)	I_n	20 kA
Maximum Discharge Current (8/20 μ s)	I_{max}	40 kA
Voltage Protection Level	U_p	1500V
Open Circuit Voltage of Combination Wave Generator (1.2/50 μ s)	U_{oc}	6 kV
Short Circuit Current of Combination Wave Generator (8/20 μ s)	I_{cw}	3 kV
Response Time	t_A	< 25ns
Overcurrent Protection (max)		not required
Short-Circuit Current Rating (AC)	I_{SCCR}	
TOV Withstand 5s	U_T	337 V
TOV Safe Fail 120min	U_T	442 V
Number of Ports		1
Additional Electrical Parameters (Tests performed within internal laboratory)		
Residual Voltage 5 kA (8/20 μ s)	U_{res}	1150 V
Overcurrent Protection (min)		not required
Mechanical & Environmental		
Operating Temperature Range	T_a	-40 °C to +85 °C
Permissible Operating Humidity	RH	5%...95%
Altitude (max)		4000 m
Terminal Screw Torque	M_{max}	PH2 / 4.5 Nm
Conductor Cross Section (max)		35 mm ² (Solid, Stranded) / 25 mm ² (Flexible)
Mounting		60 mm Busbar Systems
Degree Of Protection		IP 20 / IP 40 in combination with cover
Housing Material		Thermoplastic: Extinguishing Degree UL 94 V-0
Operating State / Fault Indication		Green Flag / Not Green Flag
Remote Contacts (RC)		Optional
RC Switching Capacity		AC: 250V/ 1A, 125V/ 1A; DC: 48V/0.5A, 24V/0.5A, 12V/0.5A
RC Conductor Cross Section (max)		1.5 mm ² (Solid)

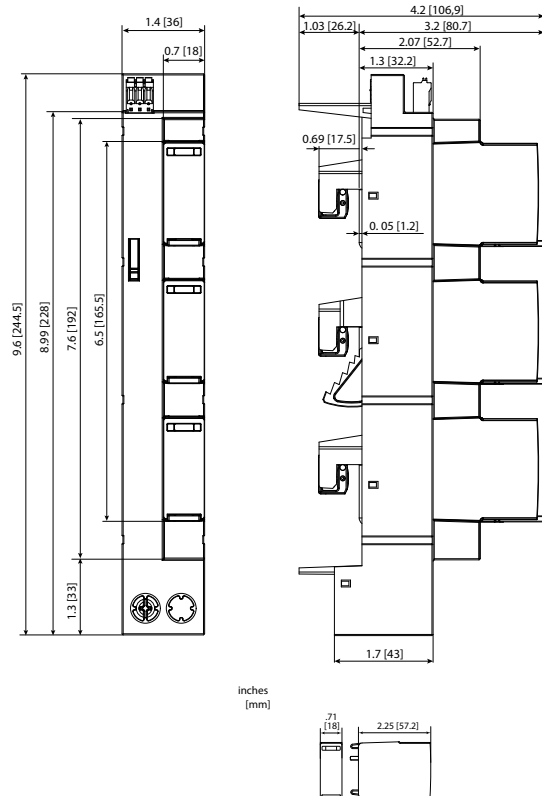
Internal Configuration



Legend

- L Line Busbar Terminal
- Z PEN Conductor Terminal
- RC Remote Contacts Terminal (Optional)
- TD Thermal Disconnecter
- F Integrated Surge Adapted Backup Fuse

Dimensions

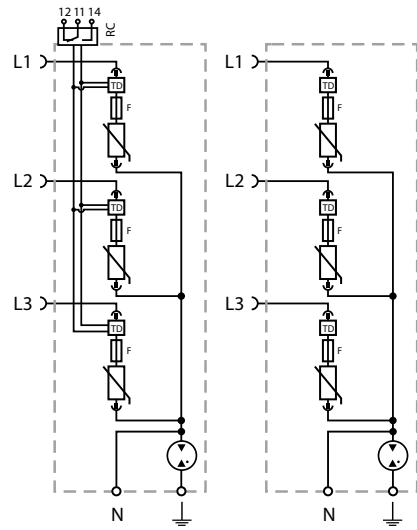


Inches [mm]

Technical Data

ETITEC M60F T23 300/20 3+1 RC			
IEC Electrical			
Nominal AC Voltage (50/60Hz)		U_n / U_n	240 V
Maximum Continuous Operating Voltage (AC)	(L-N)	U_c	300 V
	(N-PE)	U_f	305 V
Nominal Discharge Current (8/20 μ s)	(L-N)/(N-PE)	I_n	20 kA / 40 kA
Maximum Discharge Current (8/20 μ s)	(L-N)/(N-PE)	I_{max}	40 kA / 65 kA
Voltage Protection Level	(L-N)/(N-PE)	U_p	1500V / 1500V
Open Circuit Voltage of Combination Wave Generator (1.2/50 μ s)	(L-N)/(N-PE)	U_{oc}	6 kA / 6 kA
Short Circuit Current of Combination Wave Generator (8/20 μ s)	(L-N)/(N-PE)	I_{cw}	3 kA / 3 kA
Follow Current Interrupt Rating	(N-PE)	I_f	100A
Response Time	(L-N)/(N-PE)	t_A	< 25ns / < 100ns
Overcurrent Protection (max)			not required
Short-Circuit Current Rating (AC)		I_{scCR}	
TOV Withstand 5s	(L-N)	U_T	337 V
TOV Safe Fail 120min	(L-N)	U_T	442 V
TOV Withstand 200ms	(N-PE)	U_T	1200 V
Number of Ports			1
Additional Electrical Parameters (Tests performed within internal laboratory)			
Residual Voltage 5 kA (8/20 μ s)		U_{res}	1150 V
Overcurrent Protection (min)			not required
Mechanical & Environmental			
Operating Temperature Range		T_a	-40 °C to +85 °C
Permissible Operating Humidity		RH	5%...95%
Altitude (max)			4000 m
Terminal Screw Torque		M_{max}	PH2 / 4.5 Nm
Conductor Cross Section (max)			35 mm ² (Solid, Stranded) / 25 mm ² (Flexible)
Mounting			60 mm Busbar Systems
Degree Of Protection			IP 20 / IP 40 in combination with cover
Housing Material			Thermoplastic: Extinguishing Degree UL 94 V-0
Operating State / Fault Indication			Green Flag / Not Green Flag
Remote Contacts (RC)			Optional
RC Switching Capacity			AC: 250V/ 1A, 125V/ 1A; DC: 48V/0.5A, 24V/0.5A, 12V/0.5A
RC Conductor Cross Section (max)			1.5 mm ² (Solid)



Internal Configuration



Legend

- L Line Busbar Terminal
- N Neutral Conductor Terminal
- Z PE Conductor Terminal
- RC Remote Contacts Terminal (Optional)
- TD Thermal Disconnect
- F Integrated Surge Adapted Backup Fuse

ETITEC M60F T23 with integrated fuse

Type	Code No.	I_n / I_{max} (8/20) [kA]	U_{oc} / U_n	U_c [V AC]	Network	 g	
ETITEC M60F T23 300/20 3+0	002440858	20/40	6kV/3kA	300	TN-C	463	1/20
ETITEC M60F T23 300/20 3+0 RC	002440859	20/40	6kV/3kA	300	TN-C	471	1/20
ETITEC M60F T23 300/20 3+1	002440860	20/40	6kV/3kA	300	TT, TN-S	499	1/20
ETITEC M60F T23 300/20 3+1 RC	002440861	20/40	6kV/3kA	300	TT, TN-S	507	1/20

Replacement module

Type	Code No.	For use with	 g	
MOD.ETITEC M60F T23 300/20	002440864	ETITEC M60F T2 300/20	69	1/28

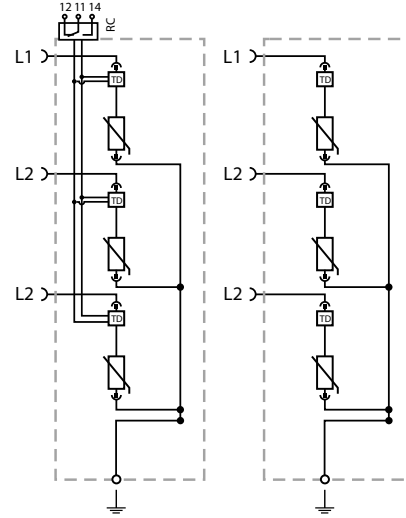
Surge arrester ETITEC M60

EN/IEC/VDE: T2,T3/II,III/C,D

Technical Data

ETITEC M60 T23 300/20 3+0 (RC)		
IEC Electrical		
Nominal AC Voltage (50/60Hz)	U_0 / U_n	240 V
Maximum Continuous Operating Voltage (AC)	U_c	300 V
Nominal Discharge Current (8/20 μ s)	I_n	20 kA
Maximum Discharge Current (8/20 μ s)	I_{max}	50 kA
Voltage Protection Level	U_p	1500V
Response Time	t_A	< 25ns
Overcurrent Protection (max)		160 A gG
Short-Circuit Current Rating (AC)	I_{SCCR}	25 kA
TOV Withstand 5s	U_T	337 V
TOV Safe Fail 120min	U_T	442 V
Number of Ports		1
Additional Electrical Parameters (Tests performed within internal laboratory)		
Residual Voltage 5 kA (8/20 μ s)	U_{res}	1000 V
Overcurrent Protection (min)		80 A gG
Mechanical & Environmental		
Operating Temperature Range	T_a	-40 °C to +85 °C
Permissible Operating Humidity	RH	5%...95%
Altitude (max)		4000 m
Terminal Screw Torque	M_{max}	PH2 / 4.5 Nm
Conductor Cross Section (max)		35 mm ² (Solid, Stranded) / 25 mm ² (Flexible)
Mounting		60 mm Busbar Systems
Degree Of Protection		IP 20 / IP 40 in combination with cover
Housing Material		Thermoplastic: Extinguishing Degree UL 94 V-0
Operating State / Fault Indication		Green Flag / Not Green Flag
Remote Contacts (RC)		Optional
RC Switching Capacity		AC: 250V/ 1A, 125V/ 1A; DC: 48V/0.5A, 24V/0.5A, 12V/0.5A
RC Conductor Cross Section (max)		1.5 mm ² (Solid)

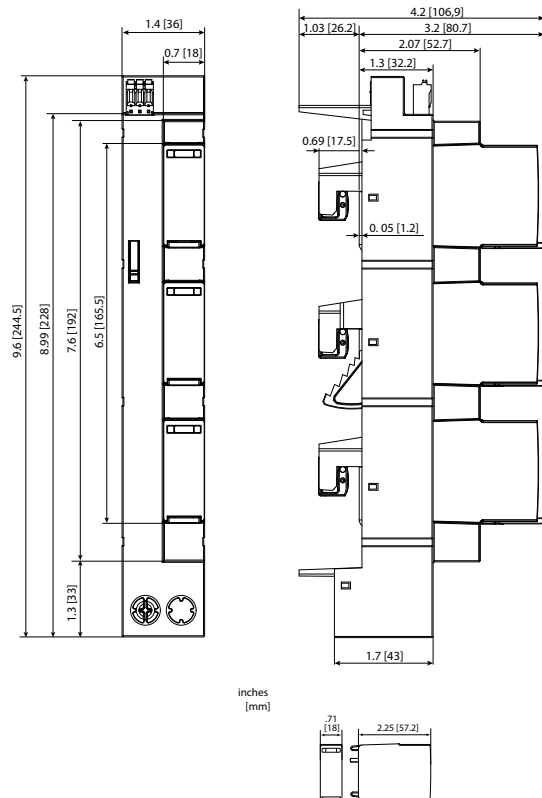
Internal Configuration



Legend

- L Line Busbar Terminal
- Z PEN Conductor Terminal
- RC Remote Contacts Terminal (Optional)
- TD Thermal Disconnector

Dimensions

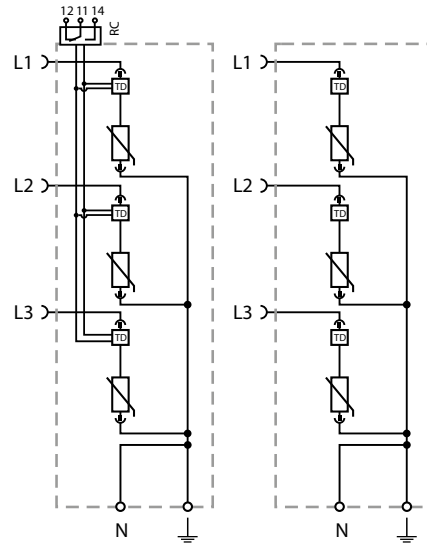


Inches
[mm]

Technical Data

ETITEC M60 T23 300/20 3+1 RC			
IEC Electrical			
Nominal AC Voltage (50/60Hz)		U_n / U_n	240 V
Maximum Continuous Operating Voltage (AC)	(L-N)	U_c	300 V
	(N-PE)	U_f	305 V
Nominal Discharge Current (8/20 μ s)	(L-N)/(N-PE)	I_n	20 kA / 40 kA
Maximum Discharge Current (8/20 μ s)	(L-N)/(N-PE)	I_{max}	40 kA / 65 kA
Voltage Protection Level	(L-N)/(N-PE)	U_p	1500V / 1500V
Follow Current Interrupt Rating	(N-PE)	I_{fn}	100A
Response Time	(L-N)/(N-PE)	t_A	< 25ns / < 100ns
Overcurrent Protection (max)			160 A gG
Short-Circuit Current Rating (AC)		I_{scCR}	25 kA
TOV Withstand 5s	(L-N)	U_T	337 V
TOV Safe Fail 120min	(L-N)	U_T	442 V
TOV Withstand 200ms	(N-PE)	U_T	1200 V
Number of Ports			1
Additional Electrical Parameters (Tests performed within internal laboratory)			
Residual Voltage 5 kA (8/20 μ s)		U_{res}	1000 V / 305 V
Overcurrent Protection (min)			80 A gG
Mechanical & Environmental			
Operating Temperature Range		T_a	-40 °C to +85 °C
Permissible Operating Humidity		RH	5%...95%
Altitude (max)			4000 m
Terminal Screw Torque		M_{max}	PH2 / 4.5 Nm
Conductor Cross Section (max)			35 mm ² (Solid, Stranded) / 25 mm ² (Flexible)
Mounting			60 mm Busbar Systems
Degree Of Protection			IP 20 / IP 40 in combination with cover
Housing Material			Thermoplastic: Extinguishing Degree UL 94 V-0
Operating State / Fault Indication			Green Flag / Not Green Flag
Remote Contacts (RC)			Optional
RC Switching Capacity			AC: 250V/ 1A, 125V/ 1A; DC: 48V/0.5A, 24V/0.5A, 12V/0.5A
RC Conductor Cross Section (max)			1.5 mm ² (Solid)

Internal Configuration



Legend

- L Line Busbar Terminal
- N Neutral Conductor Terminal
- Z PE Conductor Terminal
- RC Remote Contacts Terminal (Optional)
- TD Thermal Disconnector

ETITEC M60 T23

Type	Code No.	I_n / I_{max} (8/20) [kA]	U_{oc} / U_n	U_c [V AC]	Network		
ETITEC M60 T23 300/20 3+0	002440854	20/40	6kV/3kA	300	TN-C	527	1/20
ETITEC M60 T23 300/20 3+0 RC	002440855	20/40	6kV/3kA	300	TN-C	535	1/20
ETITEC M60 T23 300/20 3+1	002440856	20/40	6kV/3kA	300	TT, TN-S	563	1/20
ETITEC M60 T23 300/20 3+1 RC	002440857	20/40	6kV/3kA	300	TT, TN-S	571	1/20

Replacement module

Type	Code No.	For use with		
MOD.ETITEC M60 T23 300/20	002440863	ETITEC M60 T2 300/20	66	1/28



C

Low voltage cylindrical fuses

Cylindrical fuse-links **134**



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ETI
SWITCH TO
A SAFE FUTURE

C Cylindrical fuse-links

Cylindrical fuse-link CH

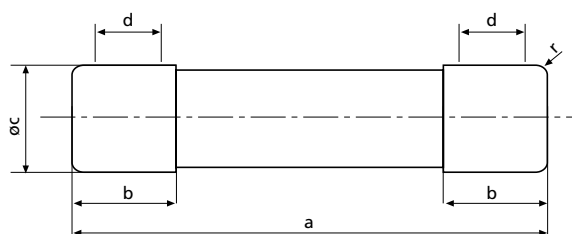
Rated current
0,16-125 A

Fusing characteristic
gG, aM

Application: Cylindrical fuse-links are used as the most secure protection of electrical installations, control, and signal circuits against overloads and short circuit currents. Their dimensions comply with IEC 60269-1 and IEC 60269-2. They are used mainly in industrial areas, since their dimensions allow voltages of up to 690 V. The most common sizes are the following four: 8x32, 10x38, 14x51 and 22x58.

Technical data

Rated voltage	400 V AC, 500 V AC, 690 V AC	
Rated current	CH 8	0,5-25 A/400 V
	CH 10	0,16-20 A/500 V(25 A/500 V gG), 25-32 A/400 V
	CH 14	0,25-25 A/690 V, 32-50 A/500 V
	CH 22	1-80 A/690 V, 100-125 A/500 V
Rated frequency	50 Hz	
Rated breaking capacity	CH 8	20 kA
	CH 10	120 kA
	CH 14	120 kA
	CH 22	120 kA
Characteristics	gG, aM	
Body material	ceramic	
Material of contact parts	Cu, gal.Ag	



size	a	b _{max.}	c	d _{min.} *	r
8 x 32	31,5±0,5	6,7	8,5±0,1	4	1±0,5
10 x 38	38,0±0,6	10,5	10,3±0,1	6	1,5±0,5
14 x 51	51,0+0,6/-1	13,8	14,3±0,1	7,5	±1
22 x 58	58,0+0,1/-2	16,2	22,2±0,1	11	±1

CH 8x32 / 20kA

Rated voltage / Rated current	Code No. gG	Power dissipation (I _n) P _d [W]	Code No. aM	Power dissipation (I _n) P _d [W]	Weight [g]	Packaging [pcs]
400V	0,5A	0,55			4,4	10/2500
	1A	0,35	002652000	0,09		
	2A	0,45	002652001	0,15		
	4A	0,65	002652002	0,26		
	6A	0,83	002652003	0,35		
	8A	1,0	002652004	0,47		
	10A	1,2	002652005	0,55		
	12A	1,3	002652006	0,7		
	16A	1,7				
	20A	2,0				
	25A	2,4				



CH 10x38 / 120kA

Rated voltage / Rated current	Code No. gG	Power dissipation (I _n) P _d [W]	Code No. aM	Power dissipation (I _n) P _d [W]	Weight [g]	Packaging [pcs]	
500V	0,16A		002652007	0,07	8,3	10/1800	
	0,25A		002652008	0,08			
	0,5A	0,07	002652009	0,07			
	1A	0,45	002652010	0,1			
	2A	0,5	002652011	0,14			
	4A	0,85	002652012	0,28			
	6A	0,95	002652013	0,38			
	8A	1,15	002652014	0,55			
	10A	1,3	002652015	0,62			
	12A	1,4	002652016	0,82			
	16A	1,9	002652017	0,87			
	20A	2,4	002652018	1,05			
	400V	25A	2,7	002652019			1,2
		32A	2,8	002652020			1,8

* 500V



CH 14x51 / 120kA

Rated voltage / Rated current	Code No. gG	Power dissipation (I _n) P _d [W]	Code No. aM	Power dissipation (I _n) P _d [W]	Weight [g]	Packaging [pcs]	
690V	0,25A		002652021	0,1	21	10/700	
	0,5A		002652022	0,9			
	1A	0,6	002652023	0,13			
	2A	0,75	002652024	0,18			
	4A	1,1	002652025	0,28			
	6A	1,25	002652026	0,42			
	8A	1,45	002652027	0,55			
	10A	1,65	002652028	0,65			
	12A	1,8	002652029	0,75			
	16A	2,35	002652030	1,05			
	20A	2,75	002652031	1,3			
	25A	3,1	002652032	1,55			
	500V	32A	3,6	002652033			2,05
		40A	4	002652034			2,65
45A			002652035	2,85			
50A		4,8	002652036	2,95			



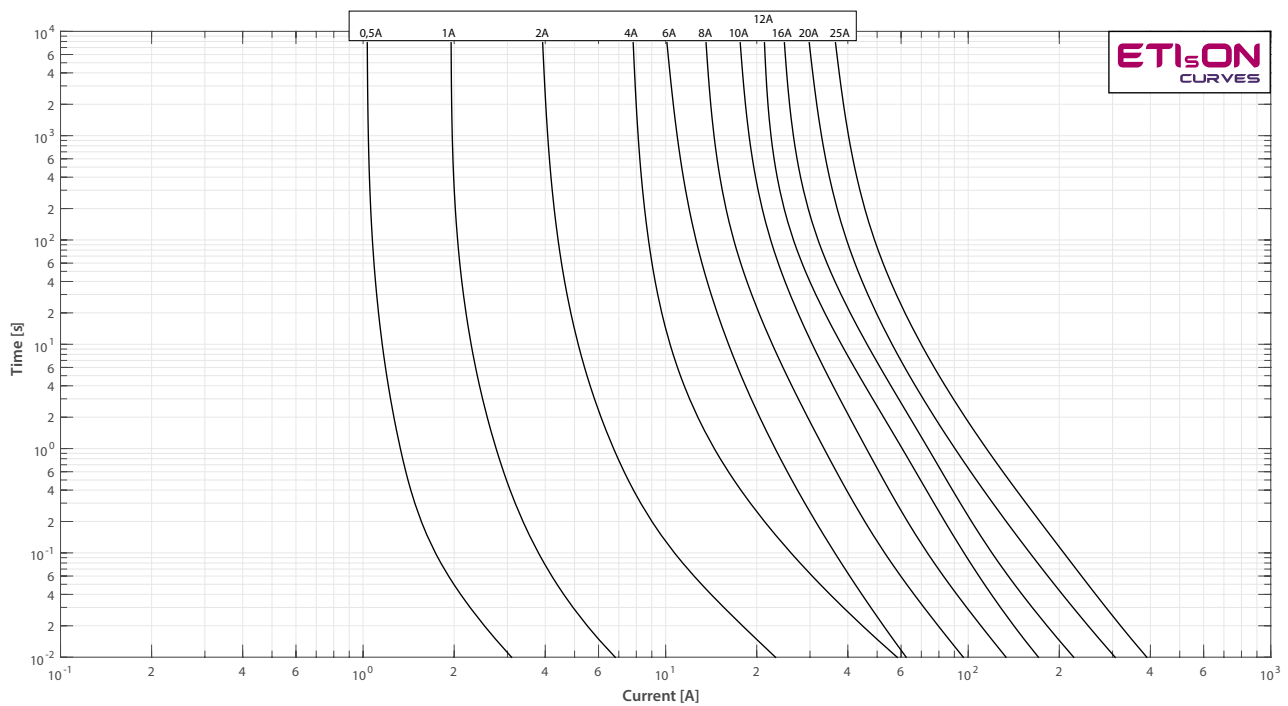
C / Cylindrical fuse-links

CH 22x58 / 120kA

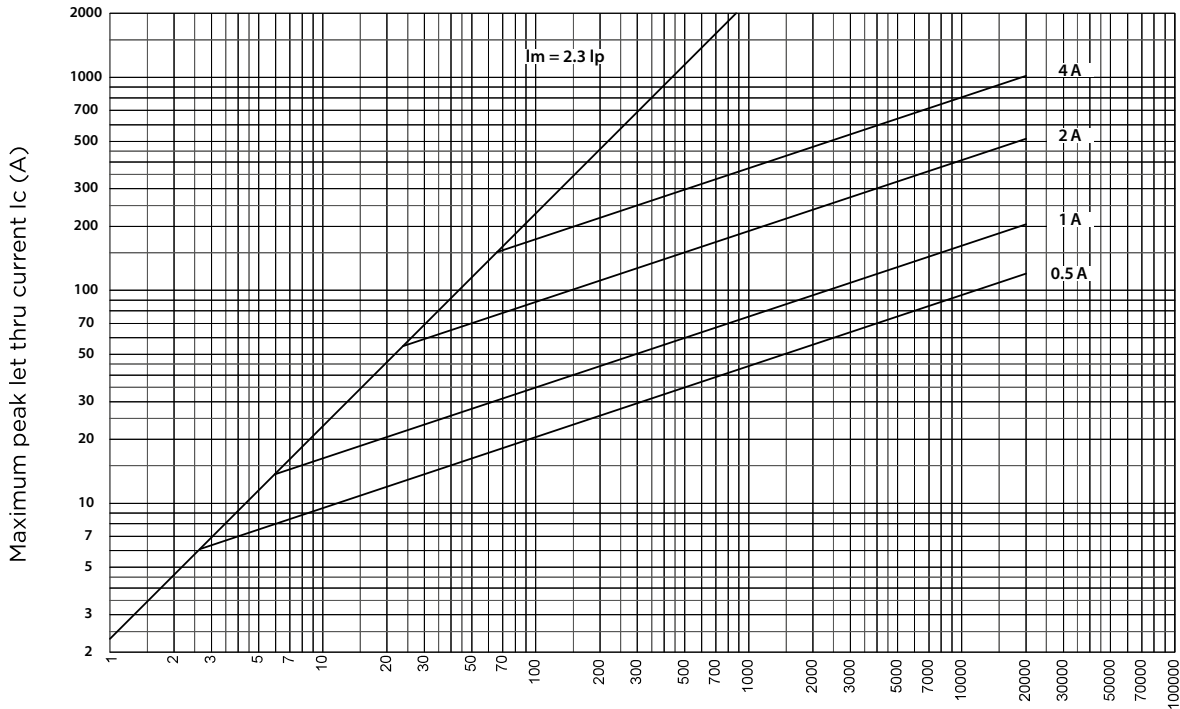
Rated voltage / Rated current	Code No. gG	Power dissipation (I_n) P_d [W]	Code No. aM	Power dissipation (I_n) P_d [W]	Weight [g]	Packaging [pcs]
1A			002652037	0,2		
2A	002651036	0,9	002652038	0,25		
4A	002651037	1,25	002652039	0,35		
6A	002651038	1,4	002652040	0,45		
8A	002651039	1,6	002652041	0,6		
10A	002651040	1,9	002652042	0,75		
12A	002651041	2	002652043	0,85		
16A	002651042	2,5	002652044	1,15		
20A	002651043	3,4	002652045	1,35	54	10/250
25A	002651044	3,5	002652046	1,7		
32A	002651045	3,7	002652047	2,2		
40A	002651046	4,3	002652048	2,7		
50A	002651047	5,3	002652049	3,6		
63A	002651048	6,3	002652050	4,8		
80A	002651049	7,4	002652051	6,2		
100V	100A	8,3	002652052	6,65		
125A	002651051	11,3	002652053	9,9		



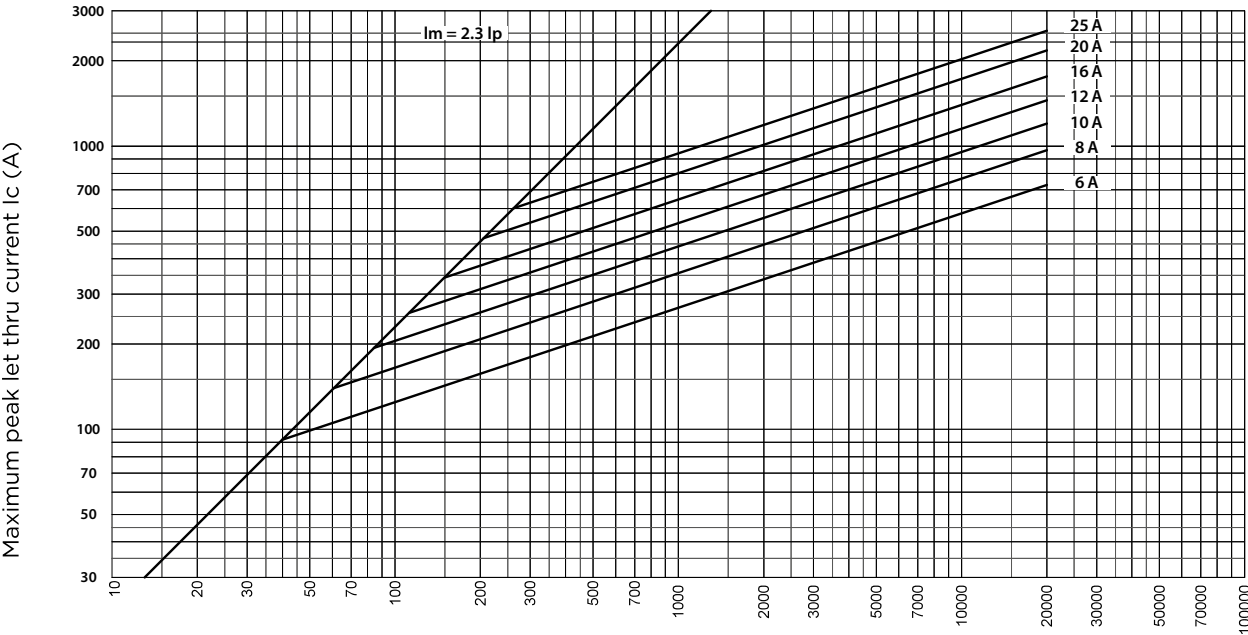
Time current characteristics I/t, CH8 gG



Cut-off current characteristics, CH8 gG



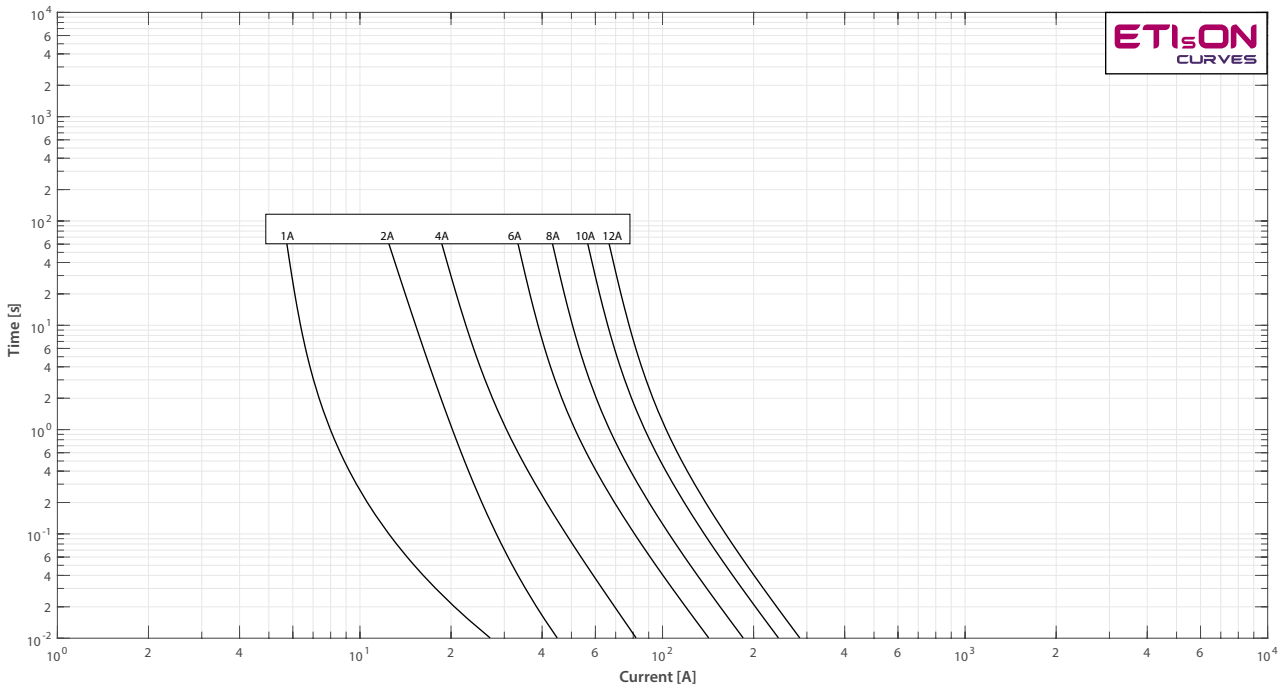
50 Hz RMS symmetrical prospective current I_p (A)



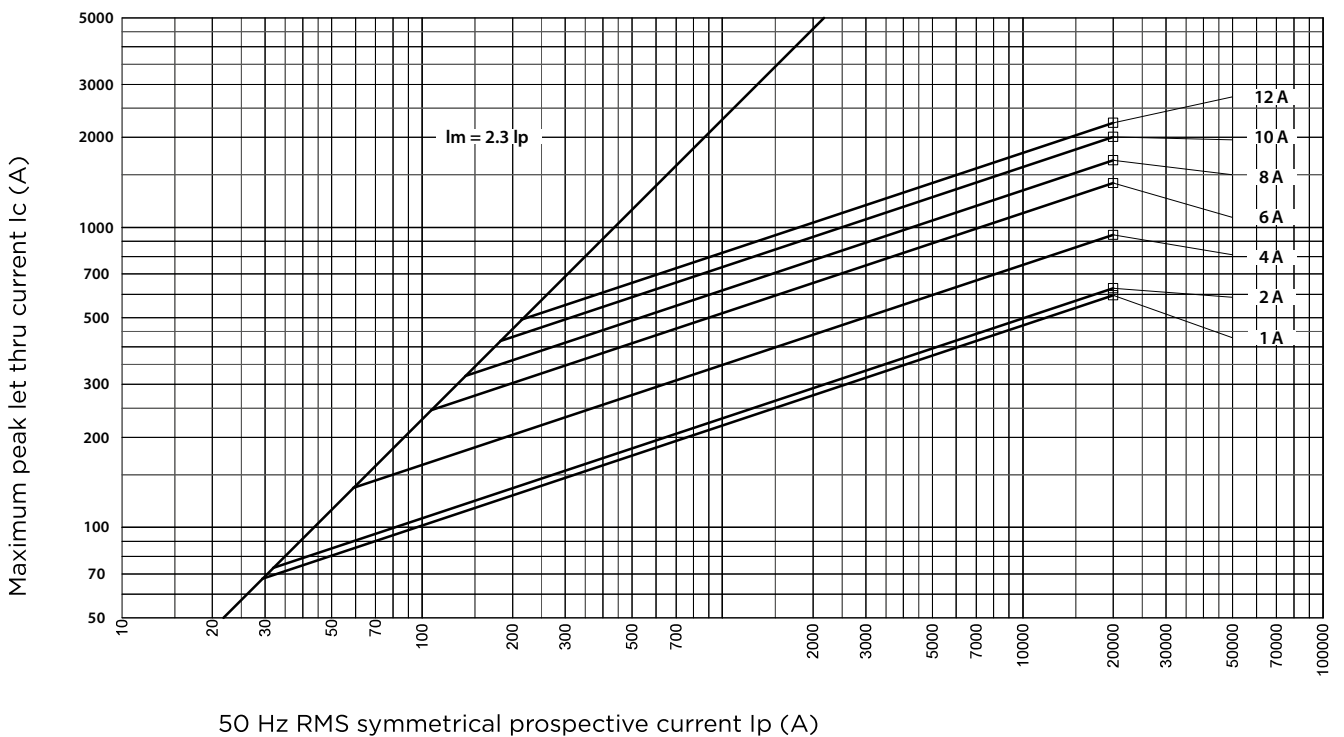
50 Hz RMS symmetrical prospective current I_p (A)

C / Fuse-switch disconnectors for cylindrical fuse-links

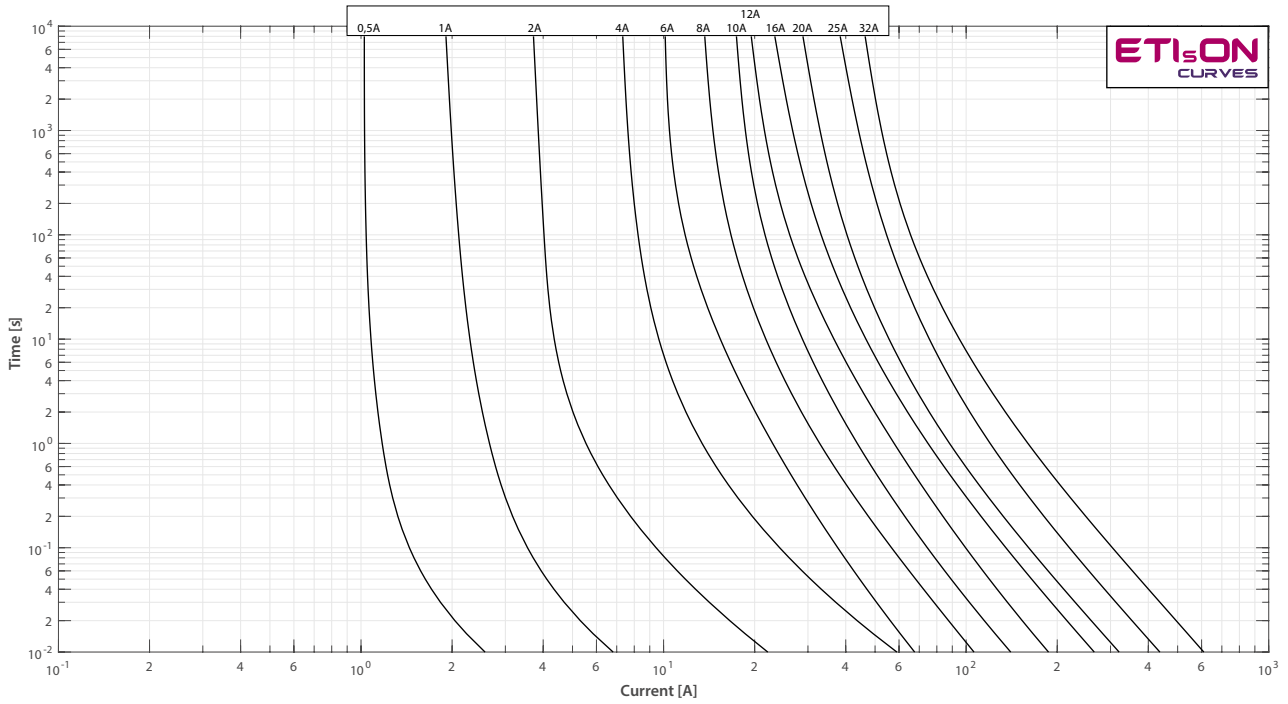
Time current characteristics I/t, CH8 aM



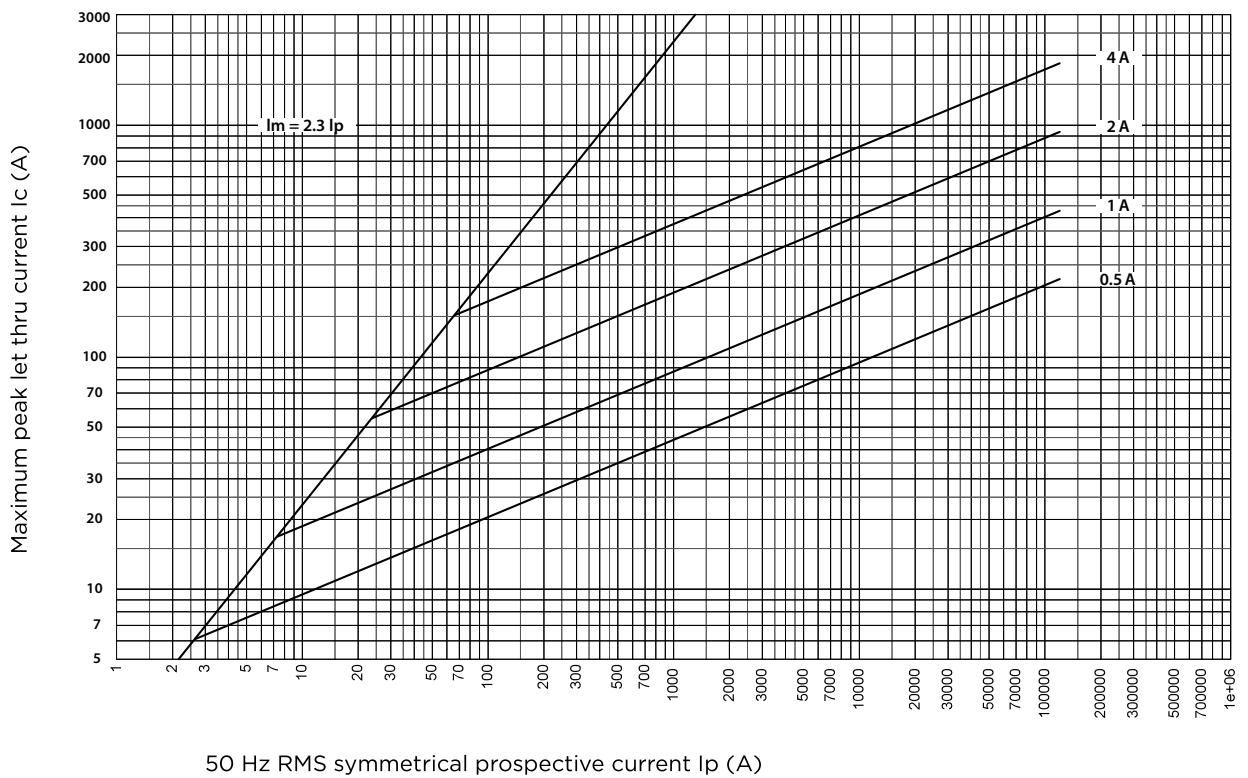
Cut-off current characteristics, CH8 aM



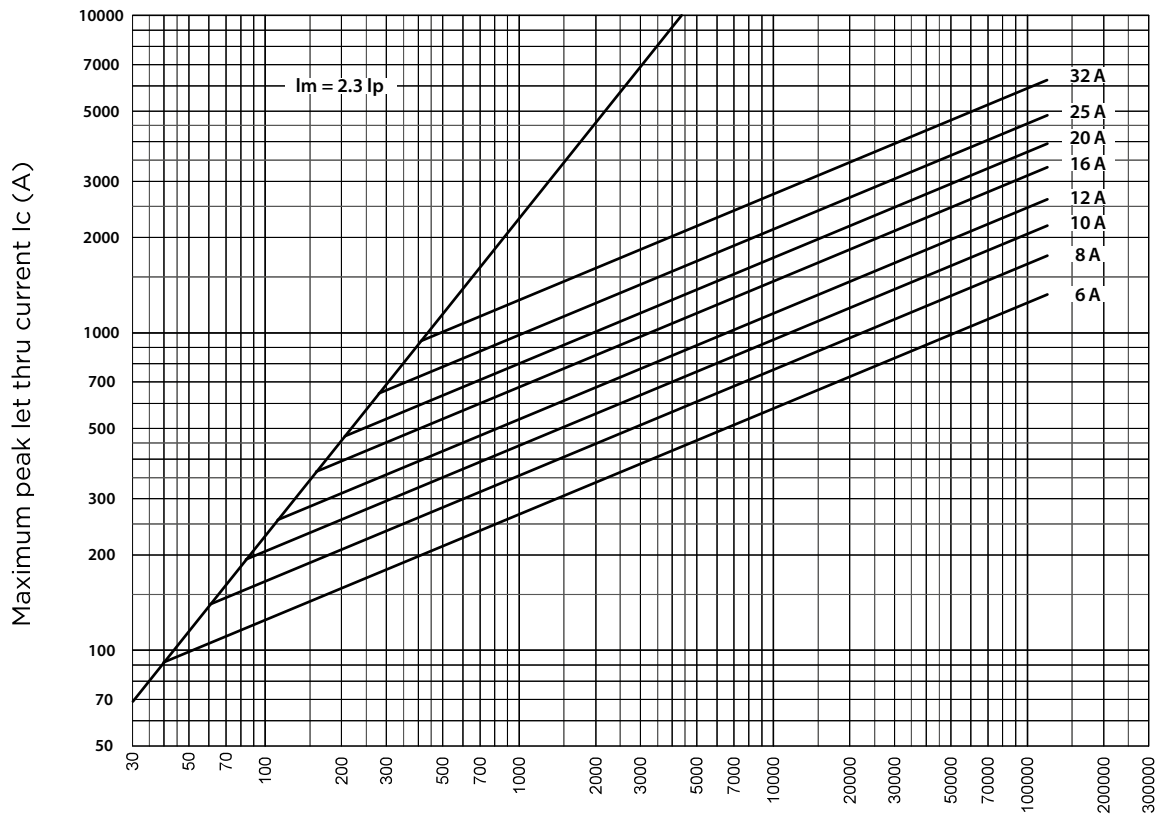
Time current characteristics I/t, CH10 gG



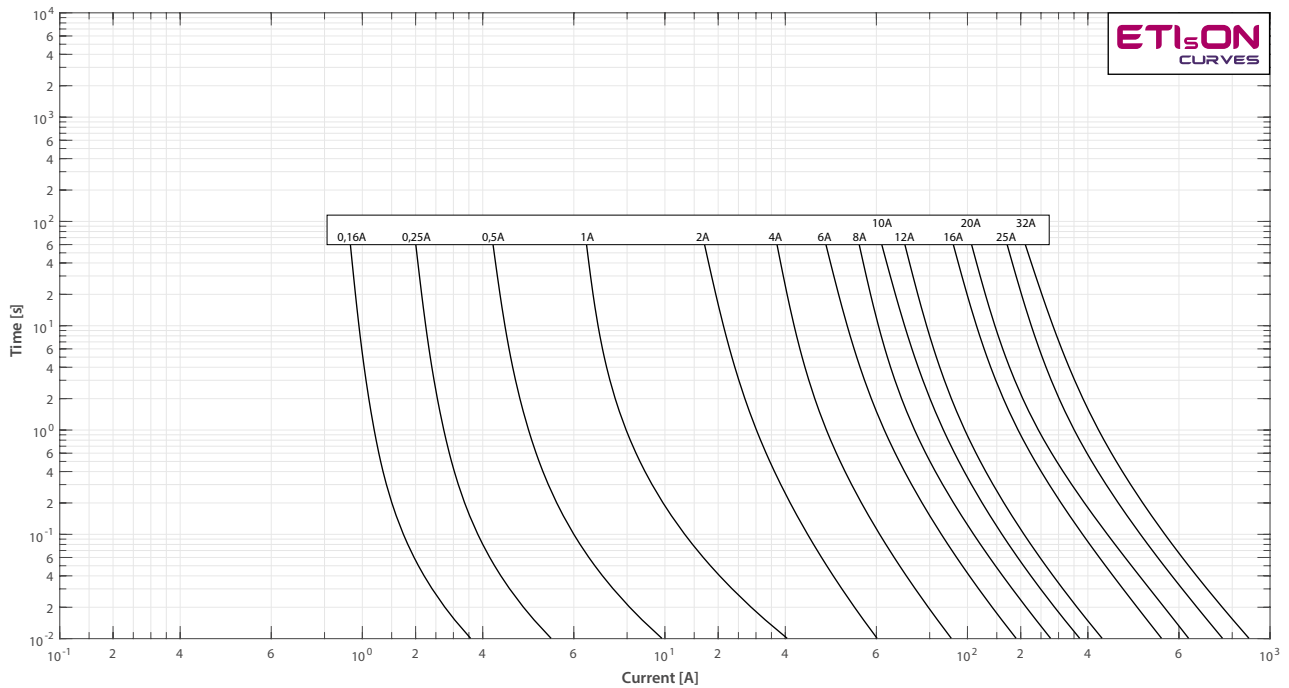
Cut-off current characteristics, CH10 gG



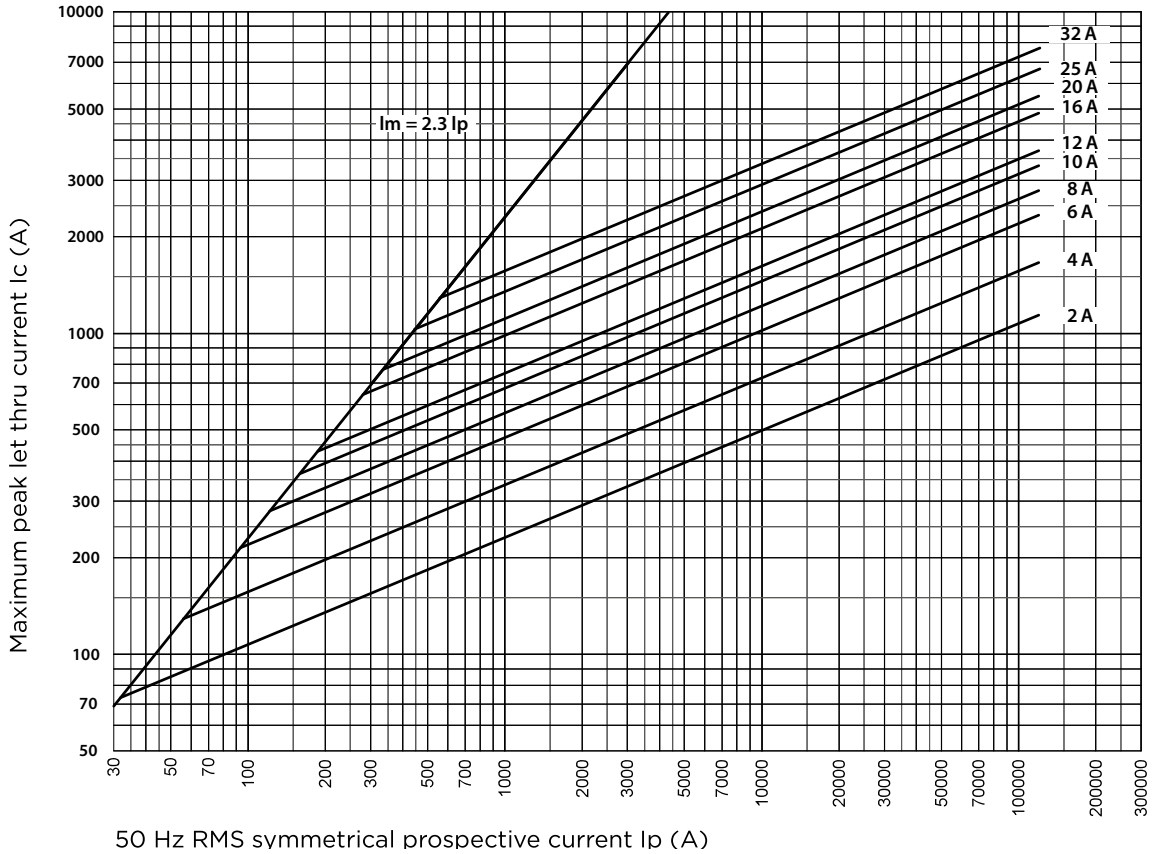
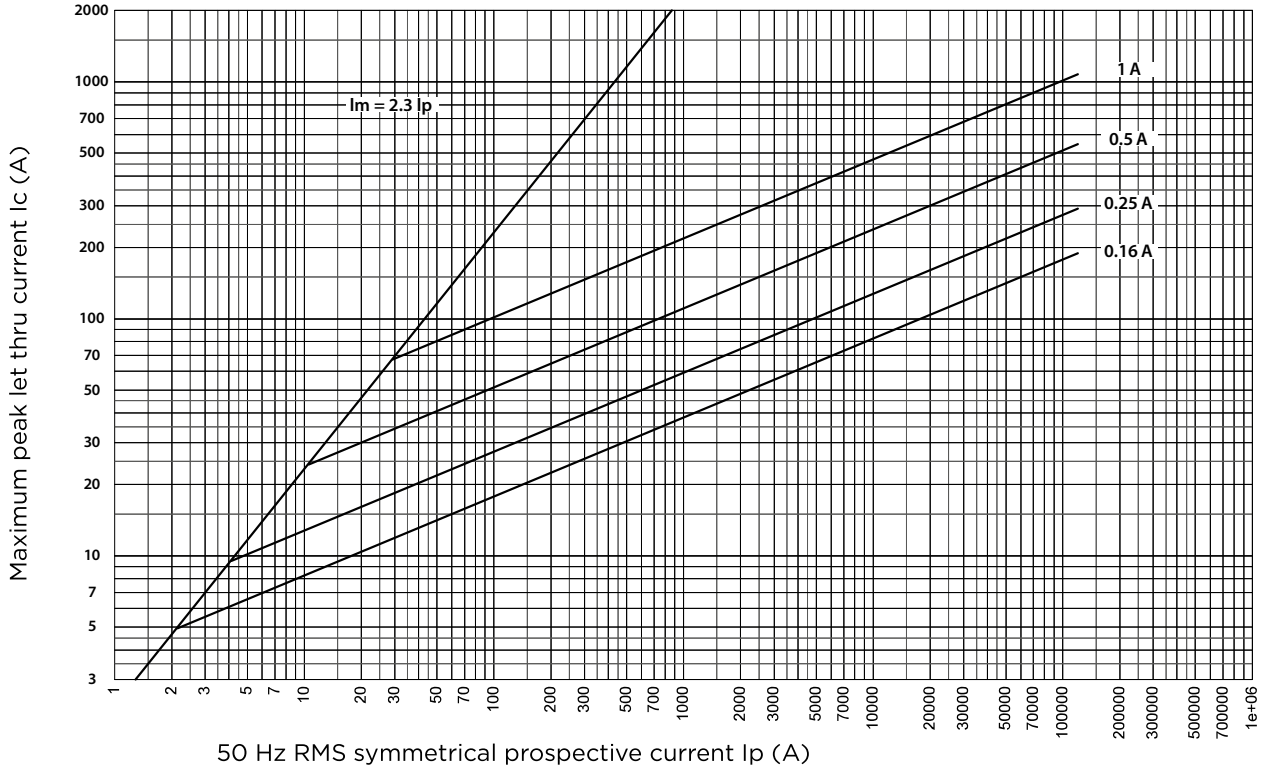
C / Cylindrical fuse-links



Time current characteristics I/t, CH10 aM

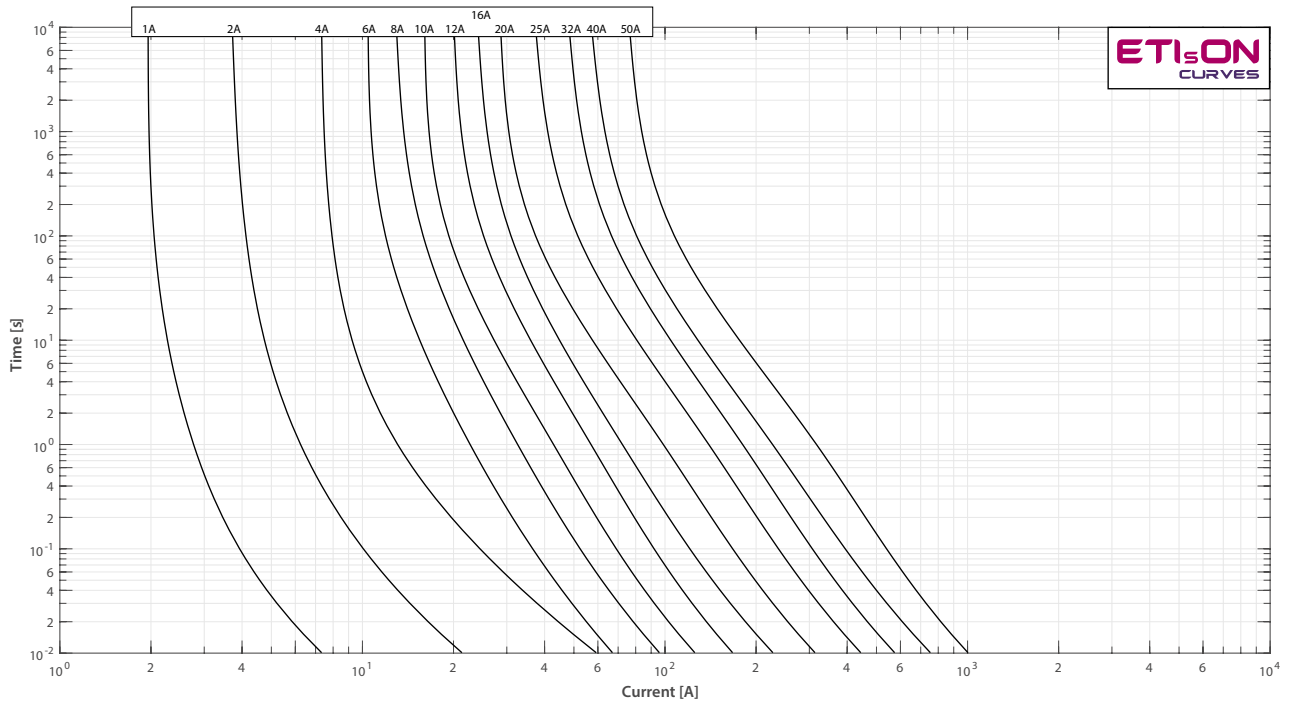


Cut-off current characteristics, CH10 aM

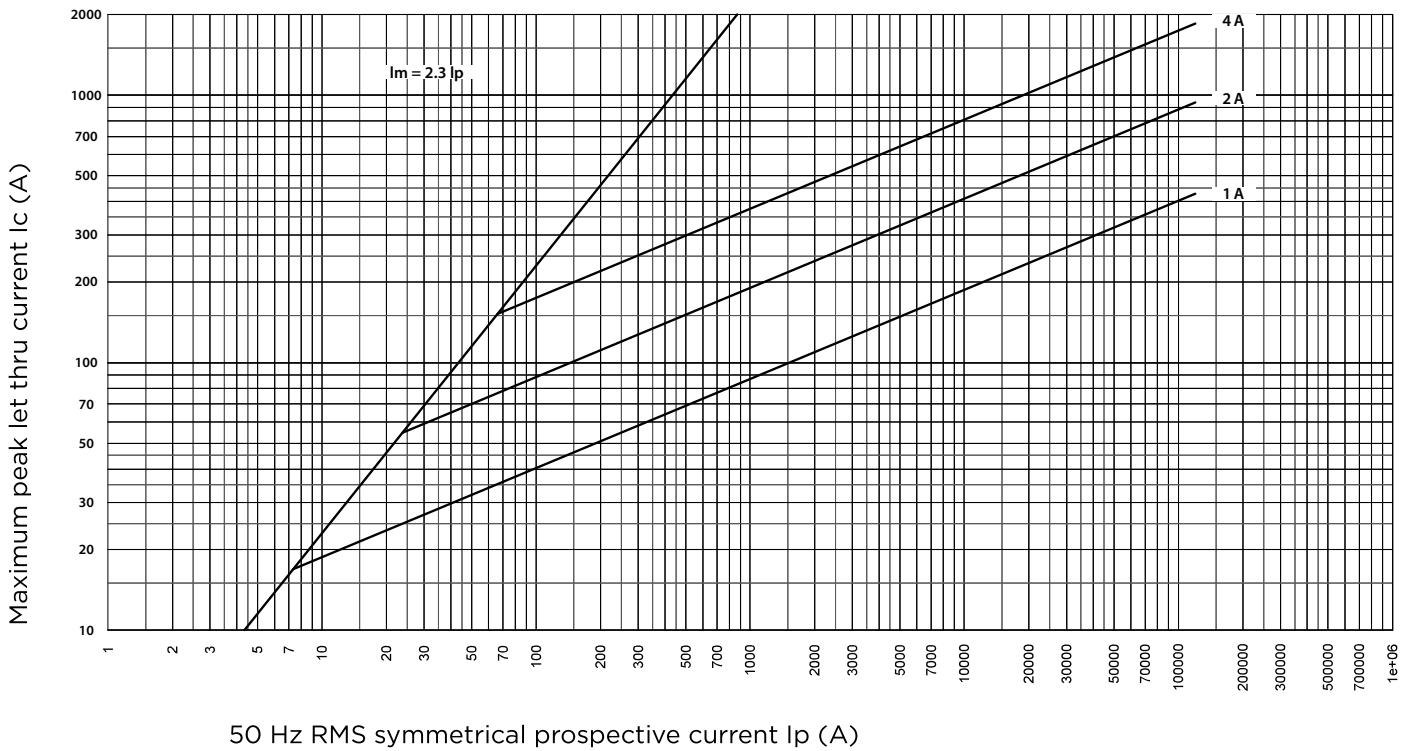


C / Fuse-switch disconnectors for cylindrical fuse-links

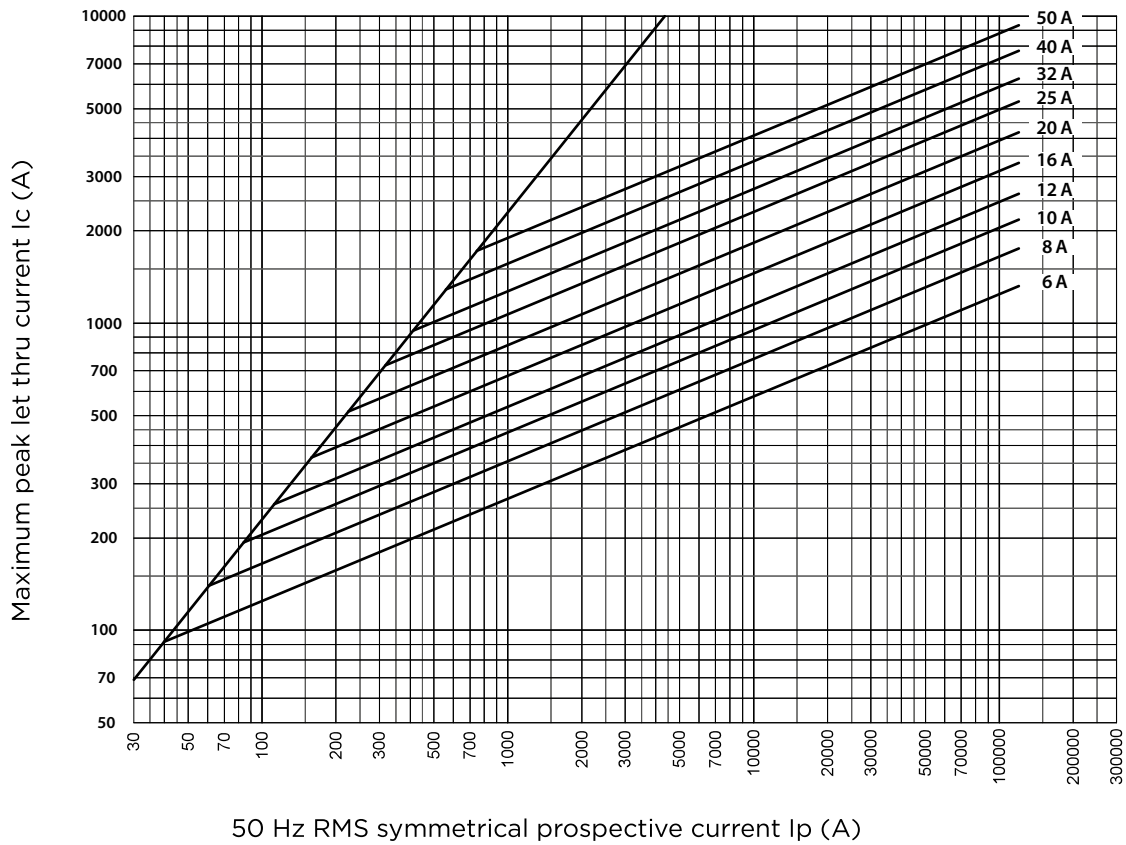
Time current characteristics I/t, CH14 gG



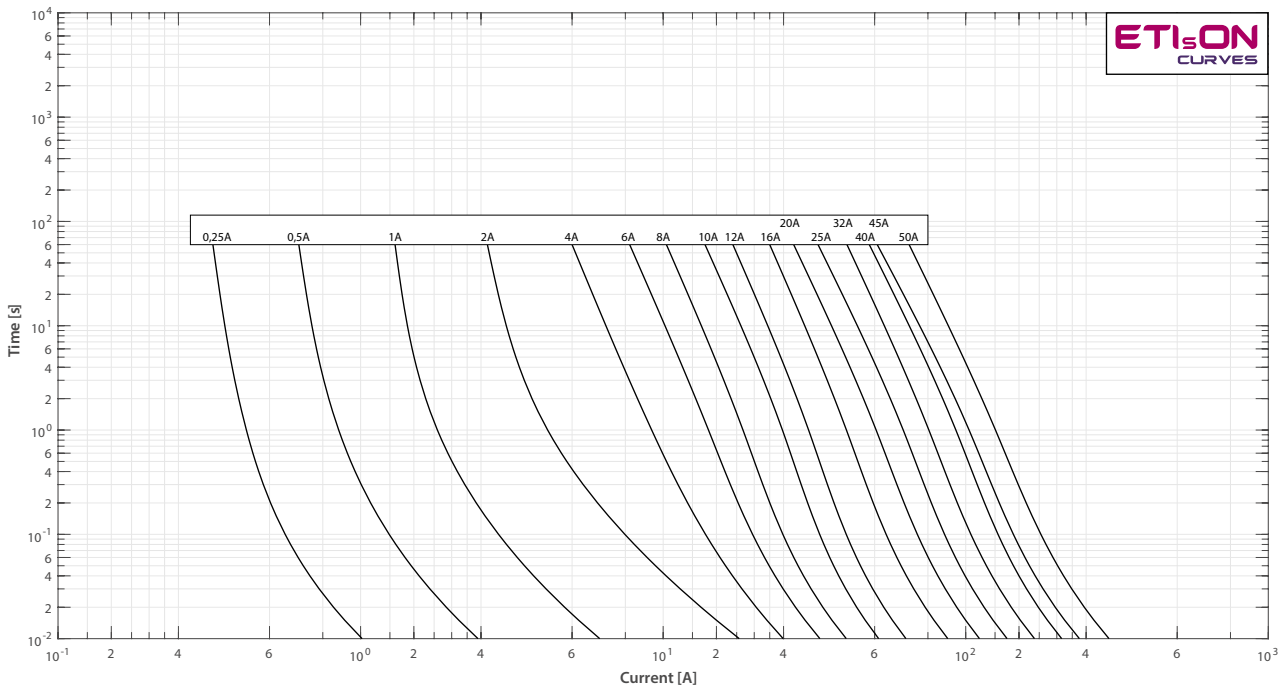
Cut-off current characteristics, CH14 gG



C / Fuse-switch disconnectors for cylindrical fuse-links

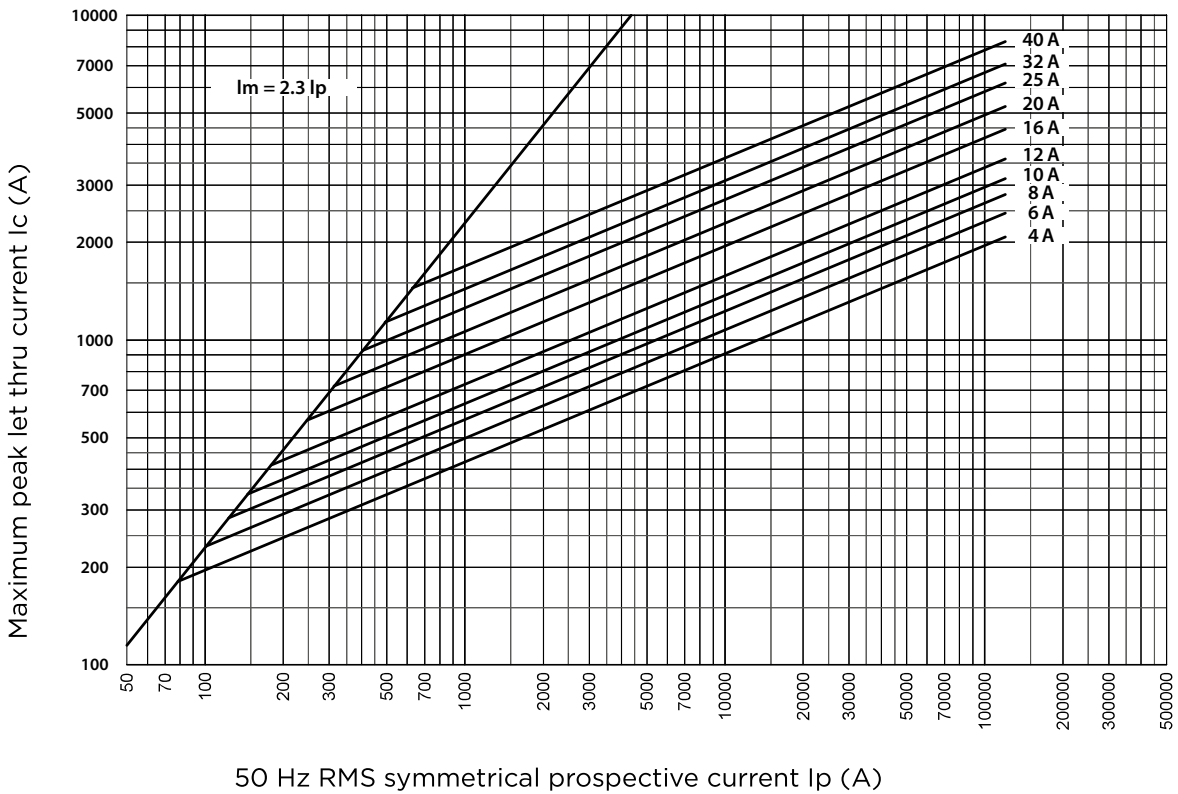
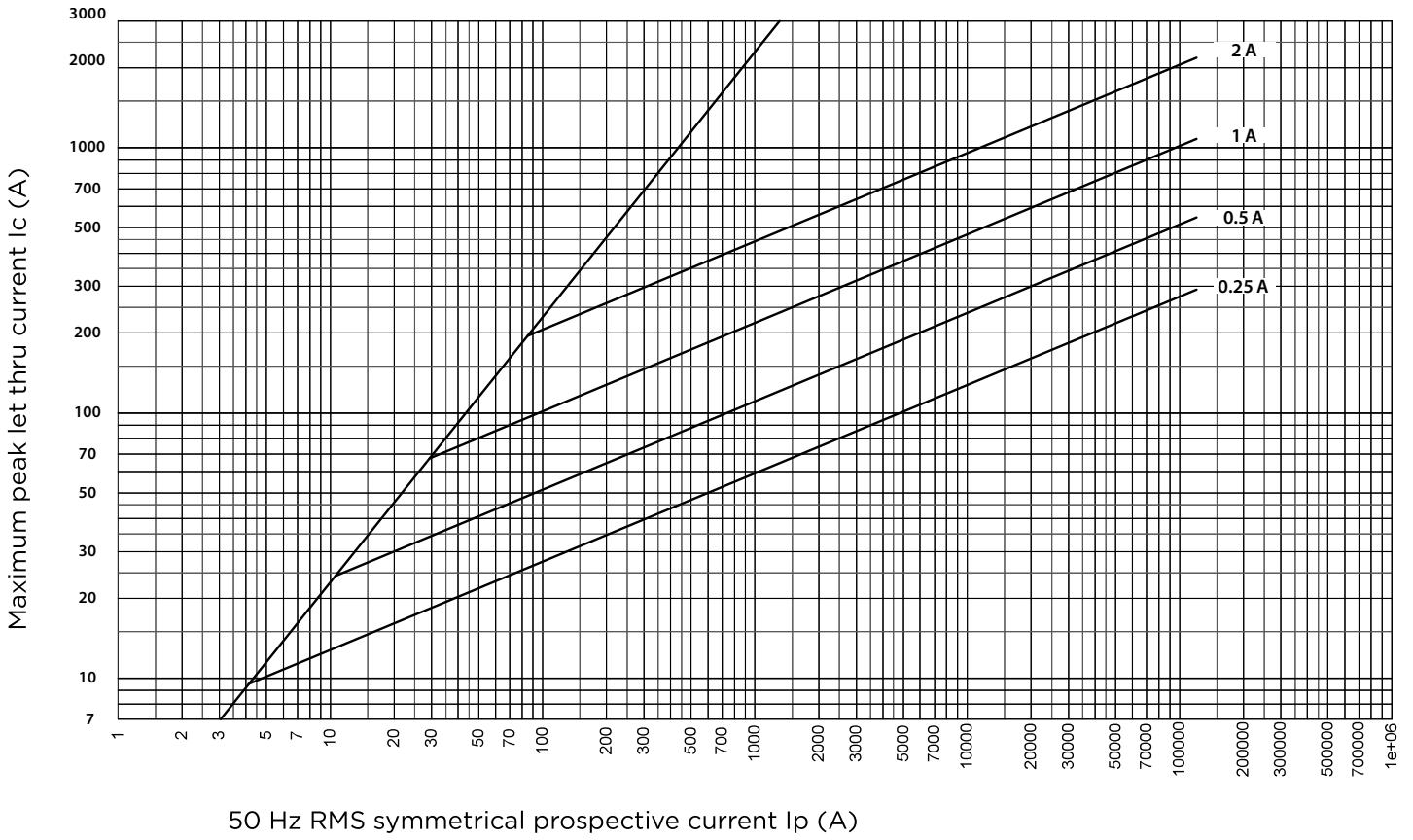


Time current characteristics I/t , CH14 aM

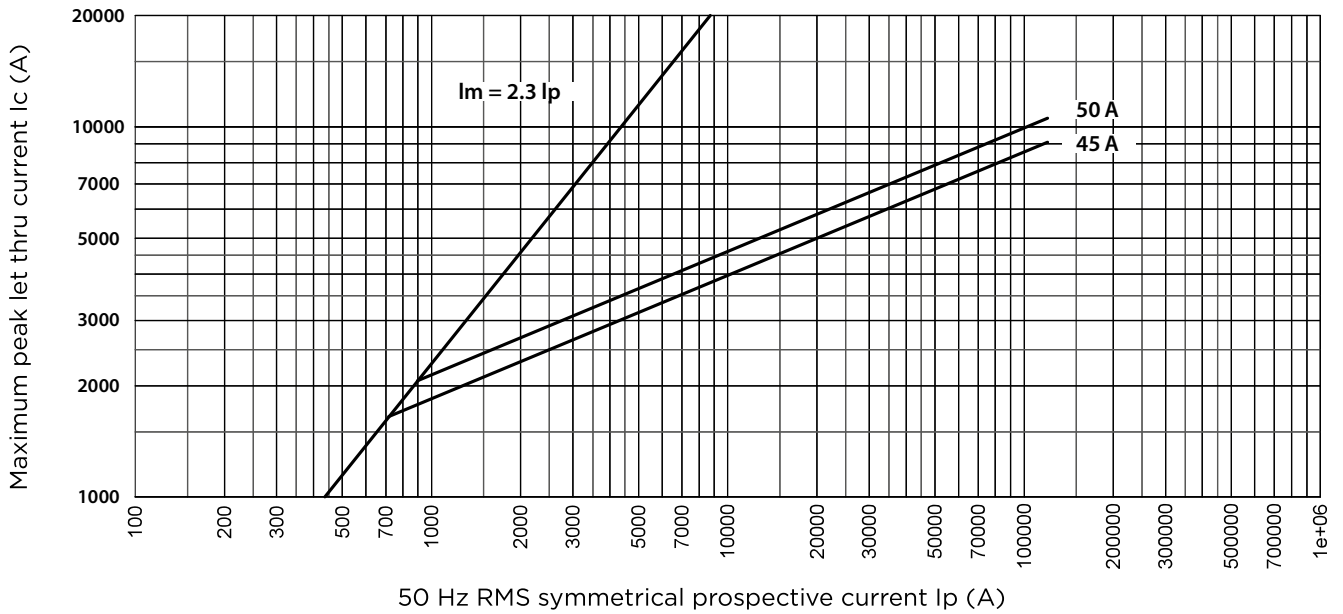


C / Fuse-switch disconnectors for cylindrical fuse-links

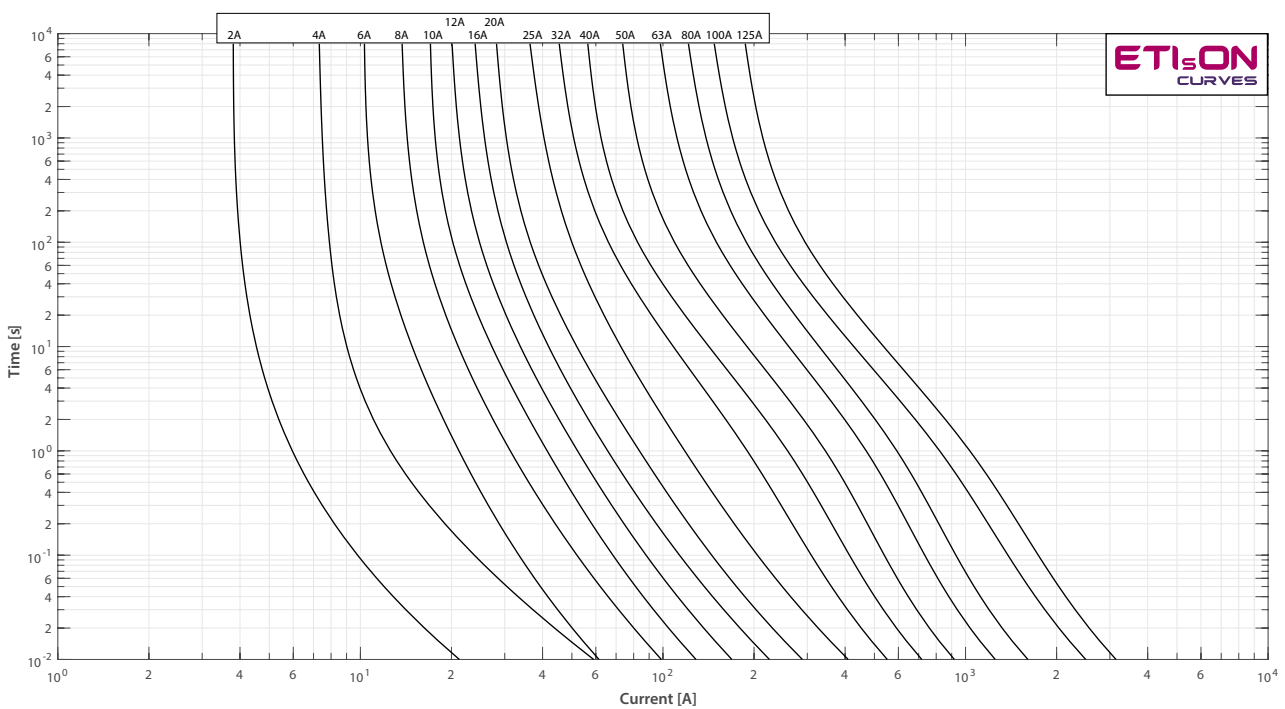
Cut-off current characteristics, CH14 aM



C / Fuse-switch disconnectors for cylindrical fuse-links

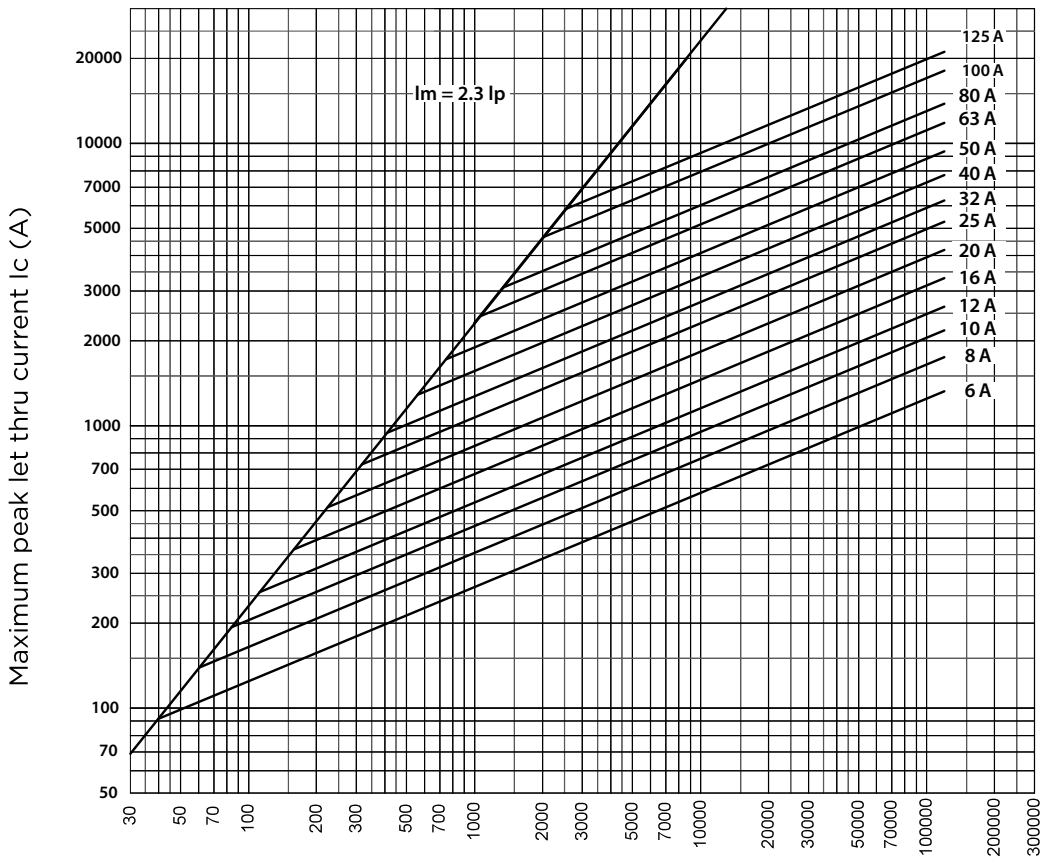
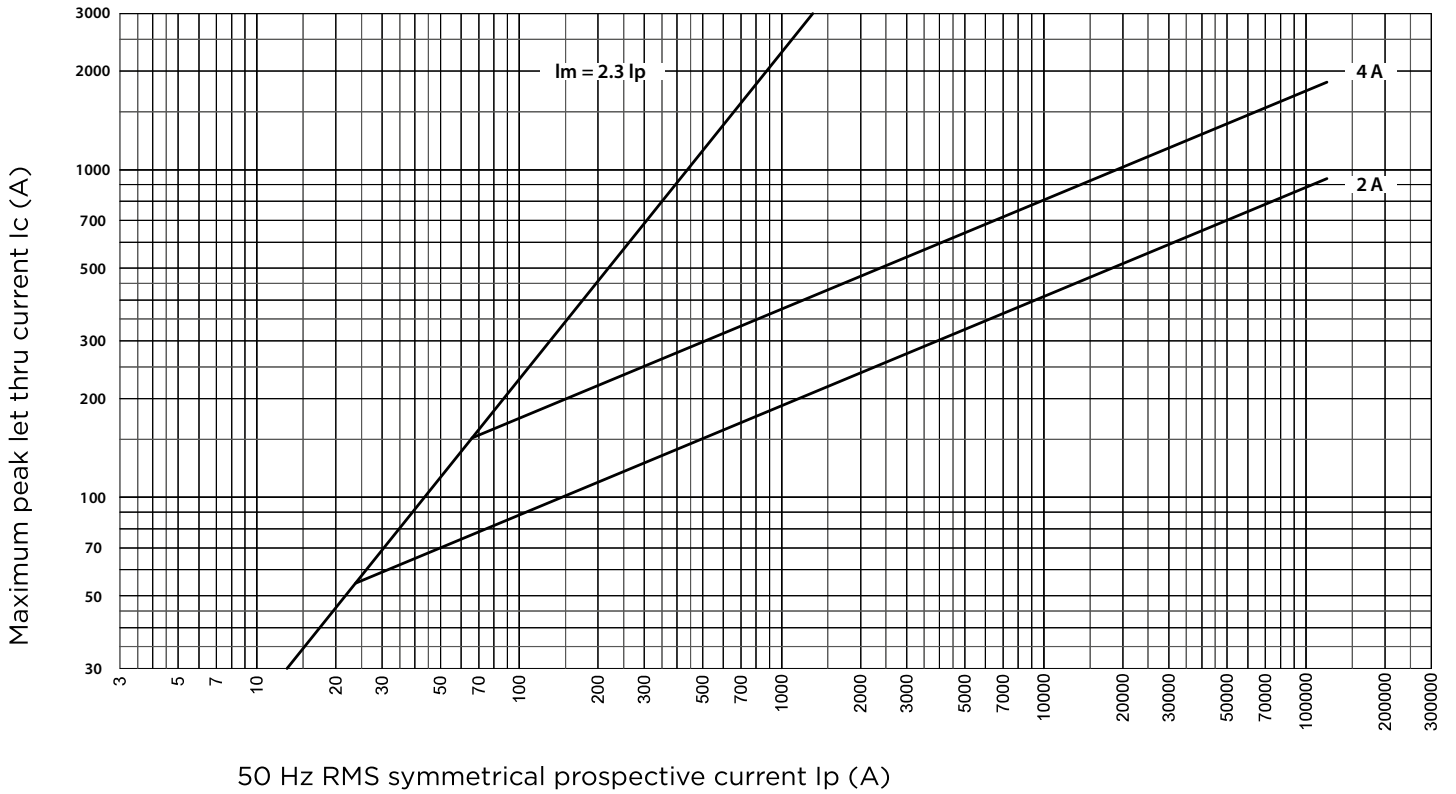


Time current characteristics I/t , CH22 gG

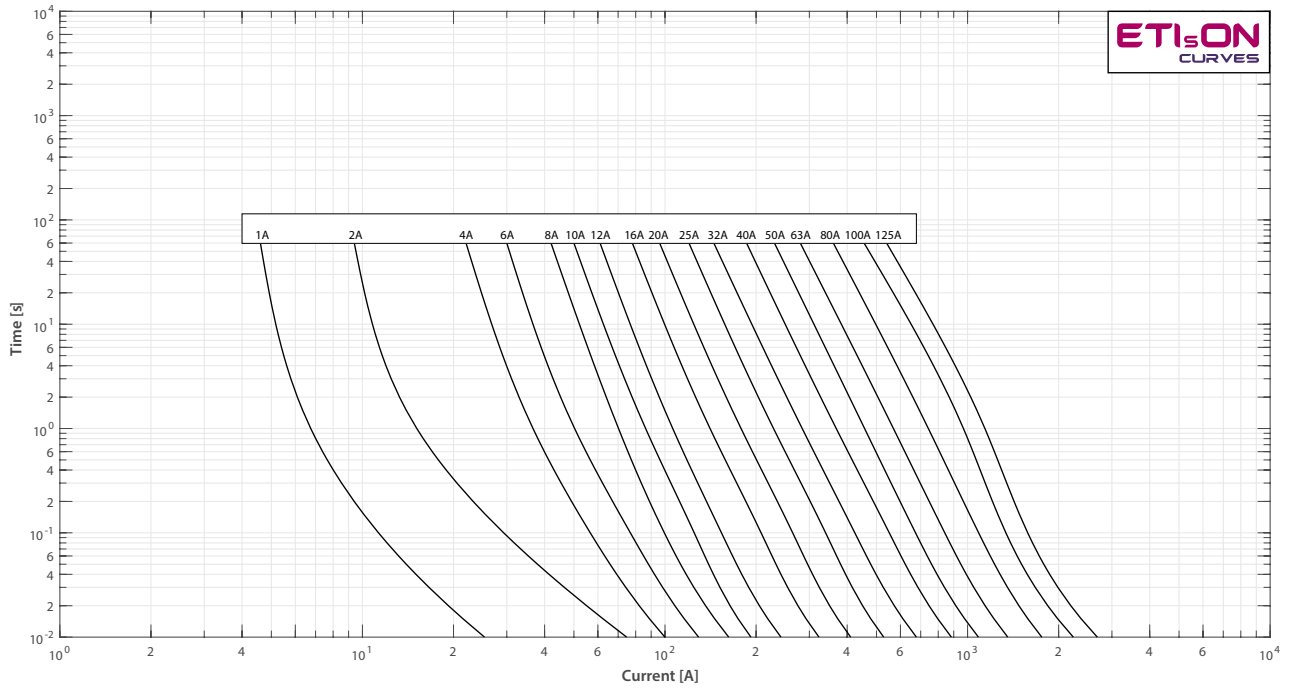


C / Fuse-switch disconnectors for cylindrical fuse-links

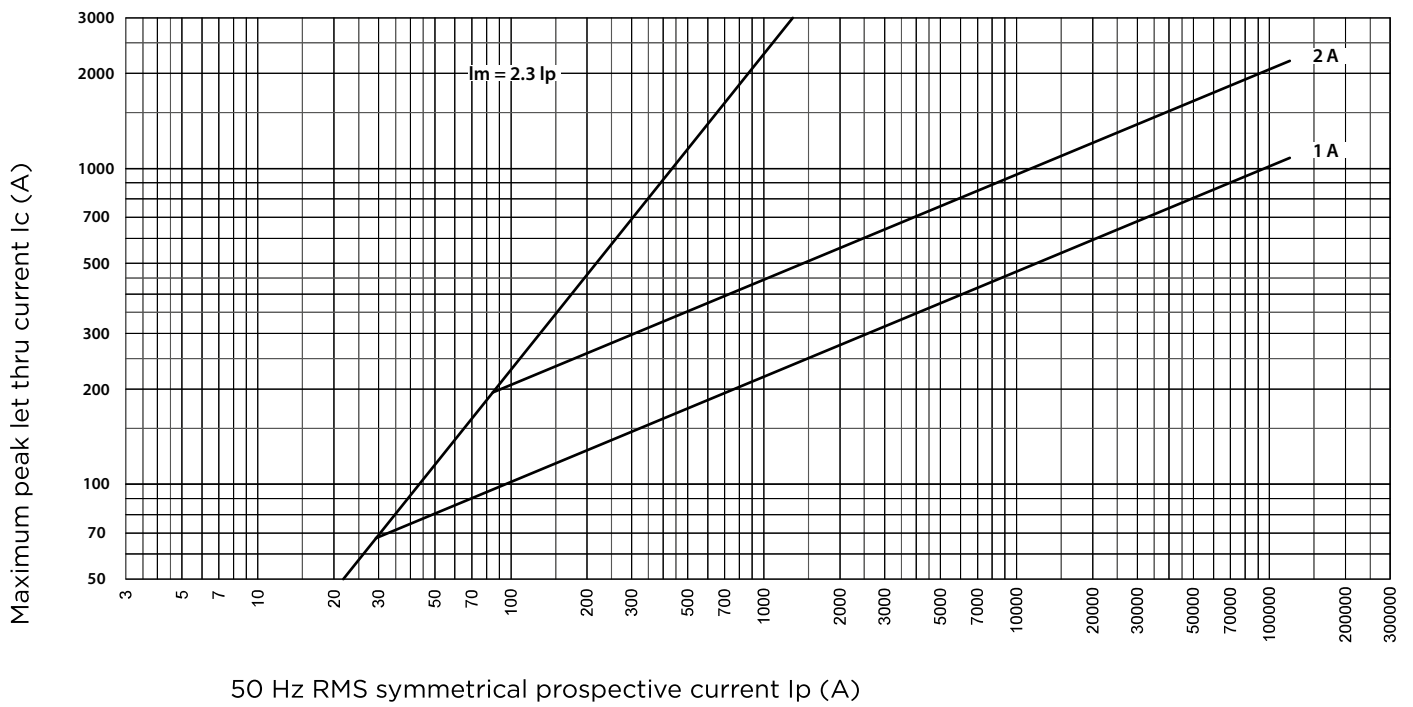
Cut-off current characteristics, CH22 gG



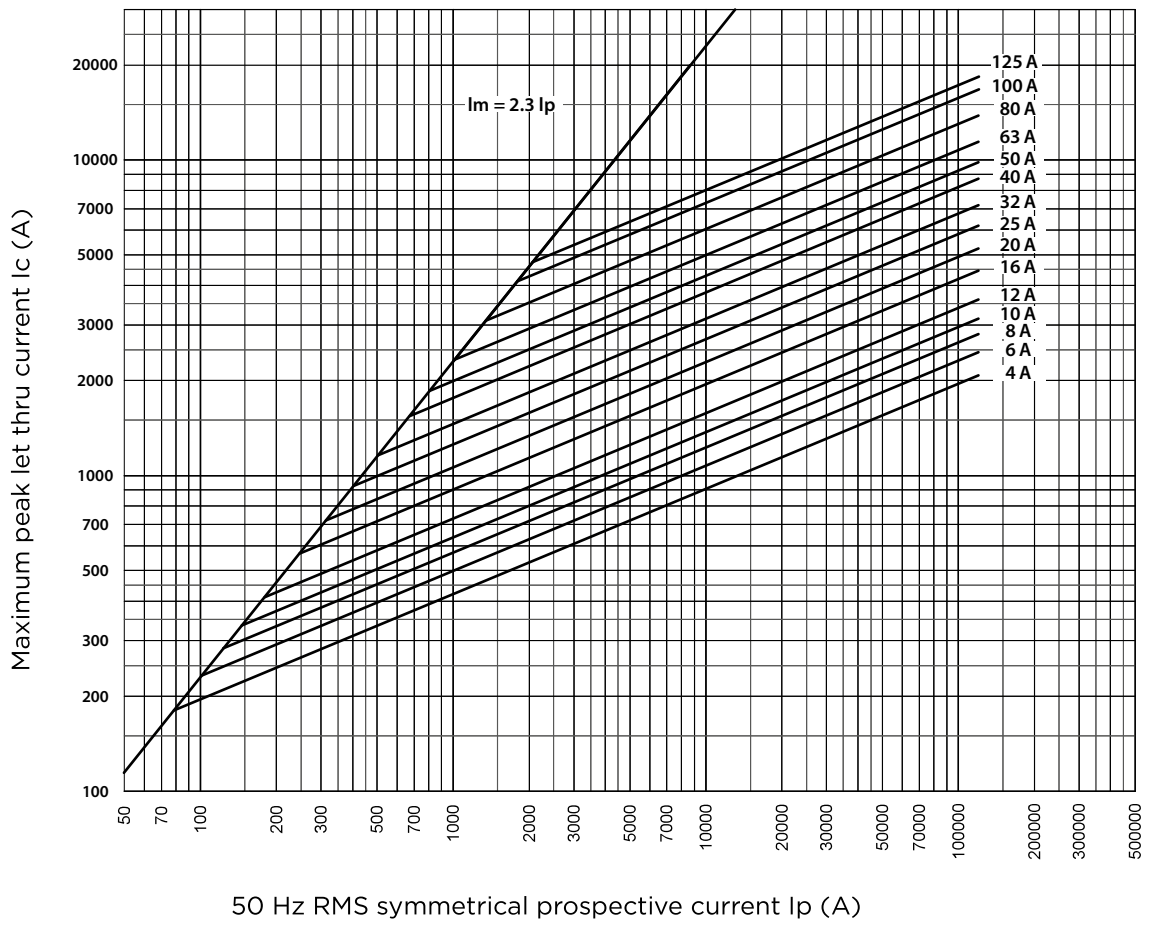
Time current characteristics I/t, CH22 aM



Cut-off current characteristics, CH22 aM



C / Fuse-switch disconnectors for cylindrical fuse-links





ETIBOX

Distribution Boards

Distribution boards DIDO **150**

Accessories **153**

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/etigroup

ETI
SWITCH TO
A SAFE FUTURE

ETIBOX Distribution boards DIDO

Home distribution board DIDO-E

Rated current 63 A	Rated voltage 400 V	Degree of protection IP 40
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Technical data

Degree of protection	IP 40
Colour	white
Double insulation	
Standard	IEC 62208, IEC 60670-1, IEC 60670-24
Installation temperature	-25° / +60°C
Glow wire test	650°C

Number of N - PE terminals (1,5...16mm²):

ECT/M48PT/PO	2x20 20 PE / 20 N
ECT/M1x24PT/PO	2x13 13 PE / 13 N

Flush mounted distribution board - transparent door

Type	Code No.	Number of modules			Rows
ECM48PT transparent door	001100400	48	2320	1/5	4

Flush mounted distribution board - white door

Type	Code No.	Number of modules			Rows
ECM48PO white door	001100402	48	2320	1/5	4

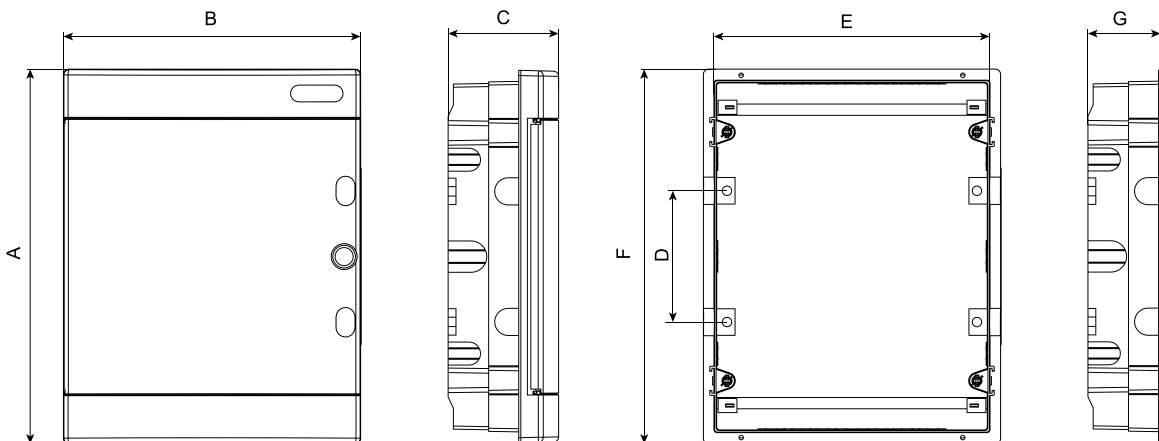
Flush mounted distribution board 1x24 modules

Type	Code No.	Number of modules			Rows
ECM 1x24PT transparent door	001100401	1x24	952	1/5	1
ECM 1x24PO white door	001100403	1x24		1/5	



Flush mounted distribution board


type	Dimensions							Max. allowed power losses when Max. number of devices are installed Pde	Static load
	A	B	C	D	E	F	G		
ECM48PT/ECM48PO	676 mm	283mm	106 mm	125 mm	273 mm	656 mm	68 mm	30W	1560 g
ECM 1x24PT/ECM 1x24PO	500 mm	255 mm	106 mm	125 mm	489 mm	235 mm	68 mm	30W	2340g



Flush mounted enclosures with super thin design DIDO ECG

Rated current 63 A	Rated voltage 400 V	Degree of protection IP 40
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Technical data



Degree of protection	IP 40
Colour	white
Double insulation	
Standard	IEC 62208, IEC 60670-1, IEC 60670-24
Installation temperature	-25° / +60°C
Glow wire test	650°C

Number of N - PE terminals (1,5...16mm²):

ECG56	2x20 20 PE / 20 N
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

- ECG56 and ECG70 have no extra space for PST-UNI terminals.

Flush mounted distribution board - plastic door - transparent

Type	Code No.	Number of modules			Rows
ECG56PT	001100412	48+8	3650	1/1	4

*Rear side plastics conforms 650°C glow wire test (not appropriate for wooden or hollow walls - IEC 60670-24)

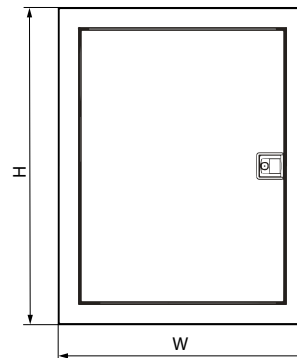
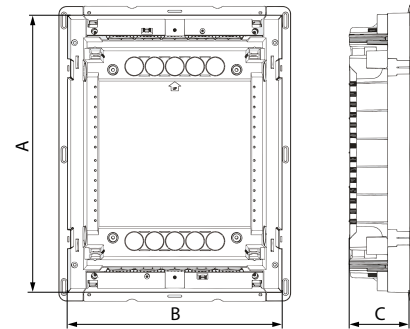
Flush mounted distribution board - plastic door - white

Type	Code No.	Number of modules			Rows
ECG56PO	001100413	48+8	3650	1/1	4

*Rear side plastics conforms 650°C glow wire test (not appropriate for wooden or hollow walls - IEC 60670-24)

Flush mounted distribution board

Type	Dimensions					Max. allowed power losses when Max. number of devices are installed
	A	B	C	H	W	
ECG56	673 mm	306 mm	87 mm	717 mm	346 mm	60 W



ECG

Material	Acrylonitrile butadiene styrene
Color	RAL9003
Door	Acrylonitrile butadiene styrene
Color	Transparent & white
Glow wire test	650°C
Terminal holder	Self extinguish material (Glow wire test: 960°C)
Temperature	-25°C ... +60°C
Rated voltage	AC400V
Standard	IEC 62208, IEC 60670-1, IEC 60670-24
Halogen free	✓

Enclosures for multimedia and communication device DIDO ECG MEDIA

Rated current
63 A

Rated voltage
400 V

Degree of protection
IP 30

Technical data

Degree of protection	IP 30
Colour	white
Standard	IEC 62208, IEC 60670-1, IEC 60670-24
Installation temperature	-25° / +60°C
Glow wire test	650°C



Number of N - PE terminals (1,5...16mm²):

ECG56 2x20 20 PE / 20 N

- ECG56 and ECG70 have no extra space for PST-UNI terminals.



Flush mounted multimedia distribution board - plastic door - transparent

Type	Code No.	Number of mounting plates	 g	
ECG56MEDIAPT	001100415	4	3300	1/1



*Rear side plastics conforms 650°C glow wire test (not appropriate for wooden or hollow walls - IEC 60670-24)

Distribution boards DIDO ACT



DIDO ACT

Material	ABS
Color	RAL9003
Door	styrene acrylonitrile
Color	Transparent & white
Glow wire test	650°C
Terminal holder	Self extinguish material (Glow wire test: 960°C)
Temperature	-25°C ... +60°C
Rated voltage	AC400V
Standard	IEC 62208, IEC 60670-1, IEC60670-24
Halogen free	✓

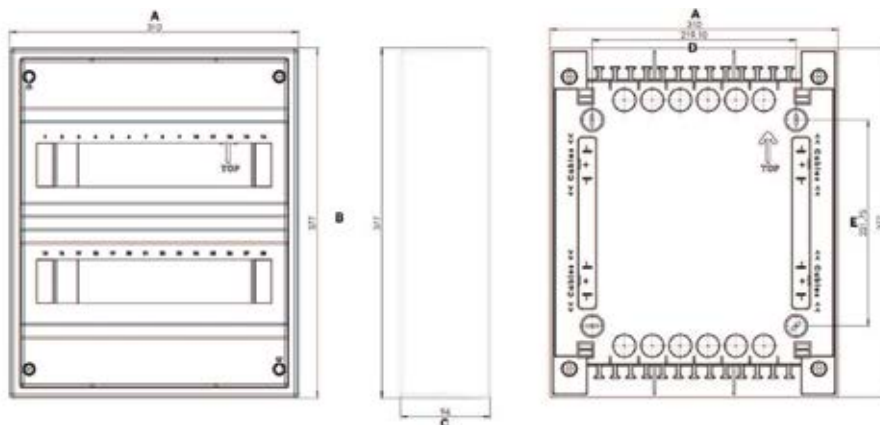
Surface mounted distribution board - plastic door - transparent

Type	Code No.	Number of modules	 g		Rows
ACT48PT	001100410	48+8	2500	1/5	4

Surface mounted distribution board - plastic door - white

Type	Code No.	Number of modules	 g		Rows
ACT48PO	001100411	48+8	2500	1/5	4

	A [mm]	B [mm]	C [mm]	D [mm]	E [mm]	Max. allowed power losses when Max. number of devices are installed
ACT48	310	650	96	219	472	60W



ETIBOX Accessories

Input Terminals EFB

EFB - 25 - F T - 15

1 2 3 4

1 - busbar cross-section (mm²): 25, 50.
 2 - connection type:
 F - fork type,
 P - PIN type.
 3 - cable entry: T - top; S - side
 4 - output length 15...29mm



EFB-25FT-15



EFB-25FS-15



EFB-25PT-15



EFB-25PS-15



EFB-25FT-28



EFB-25FS-28



EFB-25PT-29



EFB-25PS-29

Feeding terminals EFB-25 (80A, AC 690/DC 1500V)

Type	Code No.	Cross-section [mm ²]	Type	Length [mm]	Entering	g	Box
EFB-25FT-15	002921280	6-25 mm ²	Fork	15	top	11	25
EFB-25FS-15	002921282		Fork	15	side	11	25
EFB-25PT-15	002921283		Pin	15	top	11	25
EFB-25PS-15	002921285		Pin	15	side	11	25
EFB-25FT-28	002921286		Fork	28	top	13	25
EFB-25FS-28	002921287		Fork	28	side	13	25
EFB-25PT-29	002921288		Pin	29	top	13	25
EFB-25PS-29	002921289		Pin	29	side	13	25

Feeding terminals EFB-50 (125A, AC 690/DC 1500V)

Type	Code No.	Cross-section [mm ²]	Type	Length [mm]	Entering	g	Box
EFB-50FT-15	002921281	6-50 mm ²	Fork	15	top	20	25
EFB-50PT-15	002921284		Pin	15	top	20	25

Input terminal for insulated conductor rails EFB-50 (160A, AC/DC 1000V)

Type	Code No.	Cross-section [mm ²]	Compatibility	Length [mm]	g	Box
EFB-50	002921278	6-50 mm ²	IZ (IZS) 17,8 mm	50	29	10



EFB-50FT-15



EFB-50PT-15

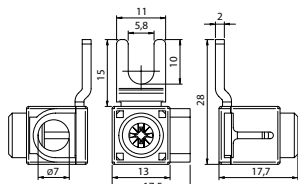


EFB50

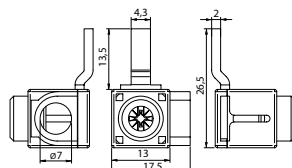


3xEFB50

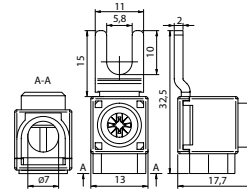
Dimensions



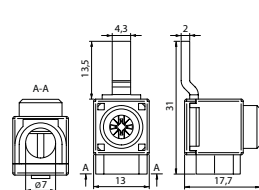
EFB-25FS-15



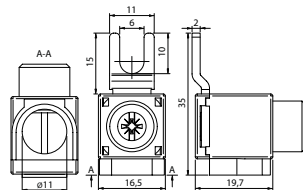
EFB-25PS-15



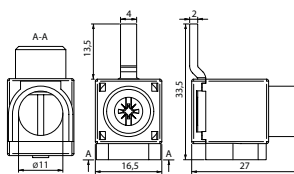
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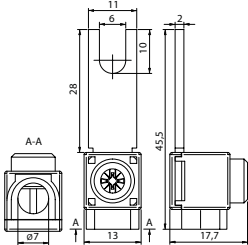
EFB-25PT-15



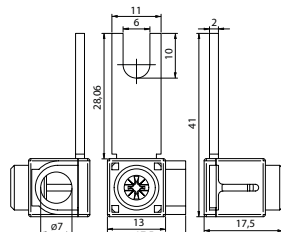
EFB-50FT-15



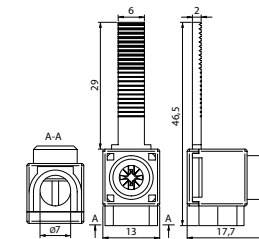
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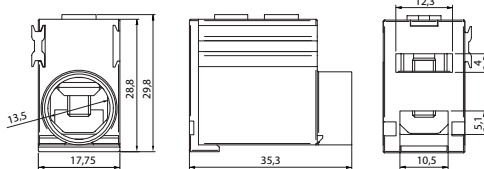
EFB-25FT-28



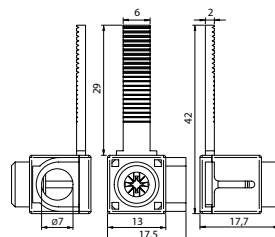
EFB-25FS-28



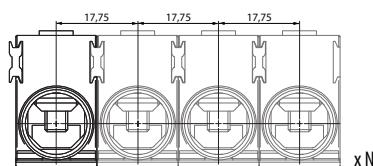
EFB-25PT-29



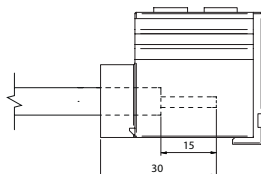
EFB-50



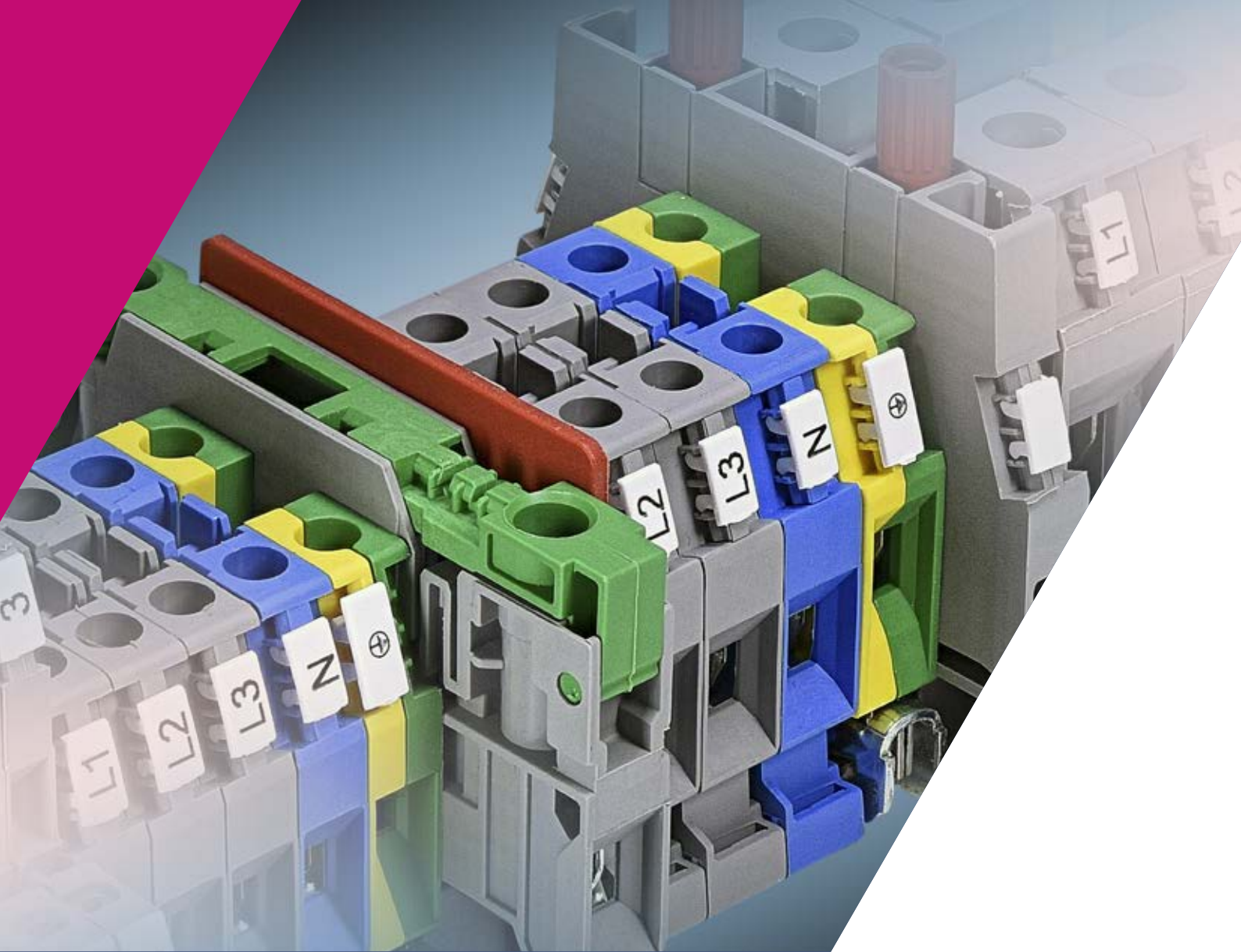
EFB-25PS-29



EFB-50



PZ2



ETICONNECT

Line-up Terminals

»PUSH IN« Terminal Blocks **156**

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/etigroup

ETI
SWITCH TO
A SAFE FUTURE

ETICONNECT »PUSH IN« Terminal Blocks

Feed-through Terminal Blocks

»PUSH IN« feed-through terminal blocks
ESH-EFC

ESH-EFC.1

ESH-EFC.6



		ESH-EFC.1			ESH-EFC.6				
1	Height x Width x Thickness * <small>*The size includes the DIN rail</small>			36,5 x 44,9 x 3,5 mm			39,2 x 60,4 x 8,2 mm		
2	Rated cross-section	1,5 mm²			6 mm²				
3	Connecting capacity	solid		0,2 - 2,5 mm ²	0,2 - 10 mm ²				
		stranded		0,2 - 2,5 mm ²	0,2 - 10 mm ²				
		with ferrule		1,5-WP15/14	6-WP60/20				
Technical characteristics				IEC	UL	IEC	UL		
4	Max voltage AC/DC	630 V			600 V	1000 V	600 V		
5	Max current with rated cross-section	17,5 A			15 A	41 A	41 A		
6	Insulation stripping length	8 mm			12 mm				
7	Rated impulse withstand voltage / pollution degree	6 kV / 3			8 kV / 3				
		Type	Code No.	Packaging [pcs]	Type	Code No.	Packaging [pcs]		
8	PUSH-IN spring clamp terminal block (grey)		ESH-EFC.1	003903340	160	ESH-EFC.6	003903348	120	
9	PUSH-IN spring clamp terminal block (blue)		ESH-EFC.1B	003903341	160	ESH-EFC.6B	003903349	120	
Accessories									
10	End section (grey)		ESH-EFC.1PT	003903352	25	ESH-EFC.6/PT	003903359	25	
11	End section (blue)		ESH-EFC.1PTB	003903353	25	ESH-EFC.6/PTB	003903360	25	
12	Marking tag		ES-N...	BIE cat.		ES-N...	BIE cat.		
13	End bracket (spring Type)		ES-BT0	003903075	25	ES-BT0	003903075	25	
14	End bracket (screw Type)		ES-BT/3	003903229	25	ES-BT/3	003903229	25	
15	Cross connections - bridges (insulated, red)	10 poles		ESH-EFB.1/10/R	003903369	5	ESH-EFB.6/10/R	003903371	5
16	Cross connections - bridges (insulated, blue)	10 poles		ESH-EFB.1/10/B	003903368	5	ESH-EFB.6/10/B	003903370	5

»PUSH IN« feed-through terminal blocks
ESH-EFC

ESH-EFC.1/1+2

ESH-EFC.6/1+2



1	Height x Width x Thickness* *The size includes the DIN rail	 LTH/35,75mm	36,6 x 56,4 x 3,5 mm	39,2 x 78,3 x 8,2 mm
2	Rated cross-section		1,5 mm ²	6 mm ²
3	Connecting capacity	solid	0,2 - 2,5 mm ²	0,2 - 10 mm ²
		stranded	0,2 - 2,5 mm ²	0,2 - 10 mm ²
		with ferrule	1,5-WP15/14	6-WP60/20

Technical characteristics		IEC	UL	IEC	UL
4	Max voltage AC/DC	630 V	600 V	1000 V	600 V
5	Max current with rated cross-section	17,5 A	15 A	41 A	41 A
6	Insulation stripping length		8 mm		12 mm
7	Rated impulse withstand voltage / pollution degree		6 kV / 3		8 kV / 3

	Type	Code No.	Packaging [pcs]	Type	Code No.	Packaging [pcs]	
8	PUSH-IN spring clamp terminal block (1 input, 2 outputs; grey)	ESH-EFC.1/1+2	003903342	120	ESH-EFC.6/1+2	003903350	110
9	PUSH-IN spring clamp terminal block (1 input, 2 outputs; blue)	ESH-EFC.1/1+2/B	003903343	120	ESH-EFC.6/1+2/B	003903351	110

Accessories								
10	End section (grey)	ESH-EFC.1/1+2PT	003903354	25	ESH-EFC.6/1+2/PT	003903366	25	
11	End section (blue)	ESH-EFC.1/1+2PTB	003903355	25	ESH-EFC.6/1+2/PTB	003903367	25	
12	Marking tag	ES-N...	BIE cat.		ES-N...	BIE cat.		
13	End bracket (spring Type)	ES-BTO	003903075	25	ES-BTO	003903075	25	
14	End bracket (screw Type)	ES-BT/3	003903229	25	ES-BT/3	003903229	25	
15	Cross connections - bridges (insulated, red)	10 poles	ESH-EFB.1/10/R	003903369	5	ESH-EFB.6/10/R	003903371	5
	Cross connections - bridges (insulated, blue)	10 poles	ESH-EFB.1/10/B	003903368	5	ESH-EFB.6/10/B	003903370	5

»PUSH IN« feed-through terminal blocks
ESH-EFC

ESH-EFC.1/2+2

ESH-EFC.4/2+2

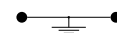
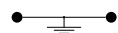


1	Height x Width x Thickness* *The size includes the DIN rail	 LTH/357,5mm	36,5 x 68 x 3,5 mm	39,2 x 88,4 x 6,2 mm					
2	Rated cross-section		1,5 mm ²	4 mm ²					
3	Connecting capacity	solid	0,2 - 2,5 mm ²	0,2 - 6 mm ²					
		stranded	0,2 - 2,5 mm ²	0,2 - 6 mm ²					
		with ferrule	1,5-WP15/14	4 - WP40/16					
Technical characteristics			IEC	UL	IEC	UL			
4	Max voltage AC/DC		630 V	600 V	800 V	600 V			
5	Max current with rated cross-section		17,5 A	15 A	32 A	30 A			
6	Insulation stripping length			8 mm		10 mm			
7	Rated impulse withstand voltage / pollution degree			6 kV / 3		6 kV / 3			
			Type	Code No.	Packaging [pcs]	Type	Code No.	Packaging [pcs]	
8	PUSH-IN spring clamp terminal block (2 inputs, 2 outputs; grey)		ESH-EFC.1/2+2	003903344	120	ESH-EFC.4/2+2	003903346	110	
9	PUSH-IN spring clamp terminal block (2 inputs, 2 outputs; blue)		ESH-EFC.1/2+2/B	003903345	120	ESH-EFC.4/2+2B	003903347	110	
Accessories									
10	End section (grey)		ESH-EFC.1/2+2PT	003903356	25			25	
11	End section (blue)		ESH-EFC.1/2+2PTB	003903357	25	ESH-EFC.4/2+2/PTB	003903358	25	
12	Marking tag		ES-N...	BIE cat.		ES-N...	BIE cat.		
13	End bracket (spring Type)		ES-BTO	003903075	25	ES-BTO	003903075	25	
14	End bracket (screw Type)		ES-BT/3	003903229	25	ES-BT/3	003903229	25	
15	Cross connections - bridges (insulated, red)		10 poles	ESH-EFB.1/10/R	003903369	5	ESH-EFB.4/10/R	003903283	5
16	Cross connections - bridges (insulated, blue)		10 poles	ESH-EFB.1/10/B	003903368	5	ESH-EFB.4/10/B	003903284	5

»PUSH IN« earth terminal blocks
ESH-EFCE

ESH-EFCE.1

ESH-EFCE.6

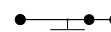


1	Height x Width x Thickness * *The size includes the DIN rail			36,5 x 48,8 x 3,5 mm	39,2 x 60,4 x 8,2 mm		
2	Rated cross-section			1,5 mm²	6 mm²		
3	Connecting capacity	solid		0,2 - 2,5 mm ²	0,2 - 10 mm ²		
		stranded		0,2 - 2,5 mm ²	0,2 - 10 mm ²		
		with ferrule		1,5-WP15/14	6-WP60/20		
Technical characteristics				IEC	UL	IEC	UL
4	Max voltage AC/DC			-	-	-	-
5	Max current with rated cross-section			-	-	-	-
6	Insulation stripping length			8 mm	12 mm		
7	Rated impulse withstand voltage / pollution degree			6 kV / 3	8 kV / 3		
8	PUSH-IN spring clamp terminal block (yellow-green)			Type ESH-EFCE.1 Code No. 003903361 Packaging [pcs] 80	Type ESH-EFCE.6 Code No. 003903364 Packaging [pcs] 70		
Accessories							
9	End section (grey)			ESH-EFC.1PT 003903352 25	ESH-EFC.6/PT 003903359 25		
10	Marking tag			ES-N... BIE cat.	ES-N... BIE cat.		
11	End bracket (spring Type)			ES-BT0 003903075 25	ES-BT0 003903075 25		
12	End bracket (screw Type)			ES-BT/3 003903229 25	ES-BT/3 003903229 25		
13	Cross connections - bridges (insulated, red)	10 poles		ESH-EFB.1/10/R 003903369 5	ESH-EFB.6/10/R 003903371 5		
14	Cross connections - bridges (insulated, blue)	10 poles		ESH-EFB.1/10/B 003903368 5	ESH-EFB.6/10/B 003903370 5		

»PUSH IN« earth terminal blocks
ESH-EFCE

ESH-EFCE.1/1+2
ESH-EFCE1/2+2

ESH-EFCE.6/1+2



1	Height x Width x Thickness* <small>*The size includes the DIN rail</small>	 TH/35 7,5mm	36,5 x 60 (68*) x 3,5 mm	39,2 x 78,3 x 8,2 mm		
2	Rated cross-section		1,5 mm²	6 mm²		
3	Connecting capacity	solid	0,2 - 2,5 mm ²	0,2 - 10 mm ²		
		stranded	0,2 - 2,5 mm ²	0,2 - 10 mm ²		
		with ferrule	1,5-WP15/14	6-WP60/20		
Technical characteristics			IEC	UL	IEC	UL
4	Max voltage AC/DC		-	-	-	-
5	Max current with rated cross-section		-	-	-	-
6	Insulation stripping length		8 mm		12 mm	
7	Rated impulse withstand voltage / pollution degree		6 kV / 3		8 kV / 3	

	Type	Code No.	Packaging [pcs]	Type	Code No.	Packaging [pcs]	
8	PUSH-IN spring clamp terminal block (1 input, 2 outputs; yellow-green)	ESH-EFCE1/1+2	003903362	50	ESH-EFCE.6/1+2	003903365	60
9	PUSH-IN spring clamp terminal block (2 inputs, 2 outputs; yellow-green)	ESH-EFCE1/2+2	003903363	60			

Accessories

10	End section (grey) for ESH-EFCE.2/1+2, ESH-EFCE.4/1+2		ESH-EFC.1/1+2PT	003903354	25	ESH-EFC.6/1+2/PT	003903366	25
11	End section (grey) for ESH-EFCE.2/2+2, ESH-EFCE.4/2+2		ESH-EFC.1/2+2PT	003903356	25			25
12	Marking tag		ES-N...	BIE cat.		ES-N...	BIE cat.	
13	End bracket (spring Type)		ES-BT0	003903075	25	ES-BT0	003903075	25
14	End bracket (screw Type)		ES-BT/3	003903229	25	ES-BT/3	003903229	25
15	Cross connections - bridges (insulated, red)	10 poles	ESH-EFB.1/10/R	003903369	5	ESH-EFB.6/10/R	003903371	5
16	Cross connections - bridges (insulated, blue)	10 poles	ESH-EFB.1/10/B	003903368	5	ESH-EFB.6/10/B	003903370	5

* Length of ESH-EFCE.x/2+2 terminal blocks

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