

PTCB E1 48DC/1-6A NO - Electronic circuit breaker



1471917

<https://www.phoenixcontact.com/gb/products/1471917>

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Single-channel, electronic device protection for 48 V DC loads. Nominal current adjustable from 1-6 A. With floating remote indication contact. Can be combined with CLIPLINE terminal blocks. For installation on DIN rails.

Your advantages

- Simple application setup due to bridging option to CLIPLINE complete terminal block system
- More space in the control cabinet: narrowest protection on just 6 mm width
- Flexible use and reduction of inventory due to adjustable amp values on each device for wide range of applications

Commercial data

Item number	1471917
Packing unit	1 pc
Minimum order quantity	1 pc
Sales key	CLA135
Product key	CLA135
GTIN	4063151880552
Weight per piece (including packing)	33.66 g
Weight per piece (excluding packing)	27.24 g
Customs tariff number	85363010
Country of origin	DE

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Technical data

Notes

General

Note	Repeated hard short circuits can reduce the melting integral of the integrated backup fuse.
	This device is not a switching device acc. to UL508

Product properties

Product type	Device circuit breakers
Product family	PTCB
Type	DIN rail module, one-piece
Number of positions	1

Insulation characteristics

Protection class	III
Pollution degree	2

Electrical properties

General

Operating voltage	30 V DC ... 56 V DC
Rated voltage	48 V DC
Rated current I_N	20 A DC (Total current input)
	6 A DC (Rated current output)
Rated current I_N	1 / 2 / 3 / 4 / 5 / 6 A DC (adjustable)
Rated current (pre-adjusted)	4 A
Rated surge voltage	0.5 kV
Tripping method	E (electronic)
Feedback resistance	max. 60 V DC
Required backup fuse	Only required if I_{max} of the power supply > the short-circuit switching capacity. Integrated failsafe element.
Short-circuit switching capacity	300 A
Dielectric strength	max. 60 V DC (Load circuit)
Fuse	electronic
Efficiency	> 99 %
Closed circuit current I_0	typ. 10 mA
Power dissipation	typ. 0.5 W (No-load operation)
	< 2.3 W (Nominal operation)
Module initialization time	< 350 ms
Waiting time after switch off of a channel	5 s (at overload / short circuit)
Measuring tolerance I	± 15 %
Temperature derating	12 A (Total current at 60°C)
	20 A (Total current at 30°C)

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MTBF (IEC 61709, SN 29500)	6 A (Channel current at 60°C)
	4 A (Channel current at 30°C)
	18684603 h (at 25 °C with 21 % load)
	6612007 h (at 40°C with 34.25% load)
	1140836 h (at 30° C with 100 % load)
Voltage drop	0.3 V (at 6 A)
Fail-safe element	15 A DC
Contact switching type	without electrical isolation

Load circuit

Shutdown time	≤ 10 ms (For short circuit > 3.0 x I _N)
	≤ 50 ms (with overload >2.0 x I _N)
	≤ 1 s (with overload 1.5...2.0 x I _N)
	≤ 4 s (with overload 1.1...1.5 x I _N)
Undervoltage switch-off	≤ 28.5 V DC (active)
	≥ 29.5 V DC (inactive)
Overvoltage switch-off	≥ 56.5 V DC (active)
	≤ 55.5 V DC (inactive)
Max. capacitive load	10000 µF (Depending on the current setting and the available short-circuit current, e.g., 3 mF at 48 V DC and 0.1 ohm cable)

Indicator/remote signaling

Connection name	Remote indication circuit
Switching function	N/O contact
Operating voltage	0 V DC ... 56 V DC
Operating current	100 mA DC

Connection data

Main circuit IN+

Connection method	Push-in connection
Stripping length	8 mm
Conductor cross section flexible	0.2 mm² ... 2.5 mm²
Conductor cross section rigid	0.2 mm² ... 4 mm²
Conductor cross section AWG	24 ... 12
Conductor cross section, flexible, with ferrule, with plastic sleeve	0.2 mm² ... 2.5 mm²
Conductor cross section flexible, with ferrule without plastic sleeve	0.2 mm² ... 2.5 mm²

Main circuit IN-

Connection method	Push-in connection
Stripping length	8 mm
Conductor cross section flexible	0.2 mm² ... 2.5 mm²
Conductor cross section rigid	0.2 mm² ... 4 mm²
Conductor cross section AWG	24 ... 12
Conductor cross section, flexible, with ferrule, with plastic sleeve	0.2 mm² ... 2.5 mm²

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Conductor cross section flexible, with ferrule without plastic sleeve	0.2 mm ² ... 2.5 mm ²
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Main circuit OUT

Connection method	Push-in connection
Stripping length	8 mm
Conductor cross section flexible	0.2 mm ² ... 2.5 mm ²
Conductor cross section rigid	0.2 mm ² ... 4 mm ²
Conductor cross section AWG	24 ... 12
Conductor cross section, flexible, with ferrule, with plastic sleeve	0.2 mm ² ... 2.5 mm ²
Conductor cross section flexible, with ferrule without plastic sleeve	0.2 mm ² ... 2.5 mm ²

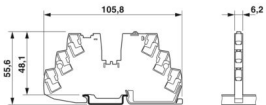
Remote indication circuit

Connection method	Push-in connection
Stripping length	10 mm
Conductor cross section flexible	0.2 mm ² ... 2.5 mm ²
Conductor cross section rigid	0.2 mm ² ... 4 mm ²
Conductor cross section AWG	24 ... 14
Conductor cross section, flexible, with ferrule, with plastic sleeve	0.2 mm ² ... 2.5 mm ²
Conductor cross section flexible, with ferrule without plastic sleeve	0.2 mm ² ... 2.5 mm ²

Signaling

Channel LED off	off (Channel switched off)
Channel LED yellow	lit (Channel switched on, channel load > 80%)
	flashing (Programming mode active)
Channel LED green	lit (Channel switched on)
Channel LED red	lit (Channel switched off, over- or undervoltage active)
	ON temporarily (Channel switched off, 5 s cool-down phase, overload or short-circuit release)
	flashing (Channel switched off, ready to be switched back on, overload or short-circuit release)
	flashing quickly (Channel switched off, external voltage at the output, possible installation error)
Channel LED red-yellow	flashing (Overtemperature)

Dimensions

Dimensional drawing	
Width	6.2 mm
Height	105.8 mm
Depth	55.6 mm (incl. DIN rail 7.5 mm)

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Material specifications

Color	gray (RAL 7042)
Material	PBT
	PBT
Flammability rating according to UL 94	V-0

Environmental and real-life conditions

Ambient conditions

Degree of protection	IP20
Ambient temperature (operation)	-30 °C ... 60 °C
Ambient temperature (storage/transport)	-40 °C ... 70 °C
Altitude	≤ 3000 m up to 52 °C (amsl)
	≤ 4000 m up to 46 °C (amsl)
Humidity test	96 h, 95 % RH, 40 °C
Shock (operation)	30g (IEC 60068-2-27, Test Ea)
Vibration (operation)	10 Hz ... 59.6 Hz (Amplitude ±0.35 mm; in accordance with IEC 60068-2-6, Test Fc)
	59.6 Hz ... 150 Hz (Acceleration 5g; in accordance with IEC 60068-2-6, Test Fc)
	5 Hz ... 100 Hz (Resonance search 4g; resonance frequency 4g; 90 min in accordance with DNV GL Class B)

Approvals

UL approval

Identification	UL/C-UL Listed UL 508
	UL Recognized UL 2367

Standards and regulations

Standards/specifications	EN 61000-6-2
Note	EMC – Immunity for industrial areas
Standards/specifications	EN 61000-6-3
Note	EMC – Emission for residential, business and commercial properties and small operations
Standards/specifications	EN 60068-2-78
Note	Environmental influences – Moisture and heat, constant
Standards/specifications	EN 50178
Note	Equipping power installations with electronic equipment
Standards/specifications	EN 60068-2-6
Note	Environmental influences – Vibrations (sinusoidal)
Standards/specifications	EN 60068-2-27
Note	Environmental influences – Shocks
Standards/specifications	EN 60068-2-30
Note	Environmental influences – Part 2-30: Tests – Test Db: Damp heat, cyclical

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Mounting

Mounting type	DIN rail: 35 mm
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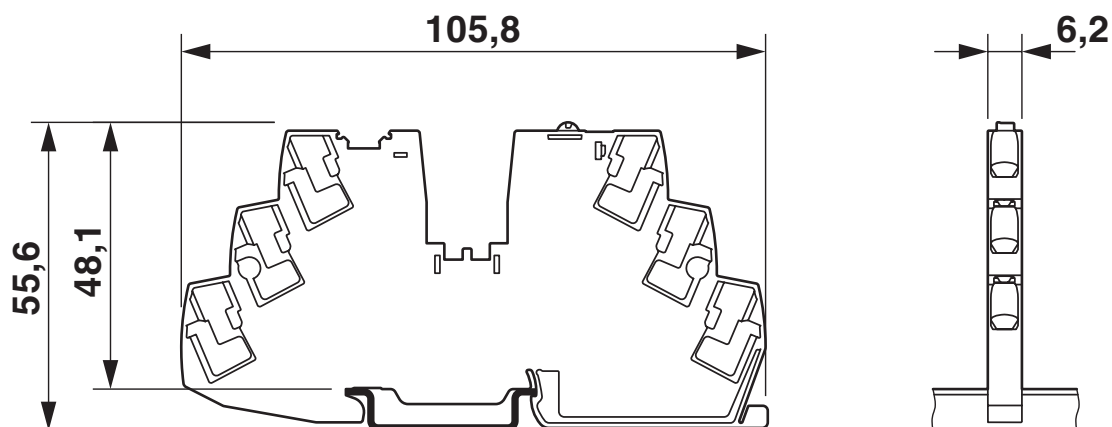


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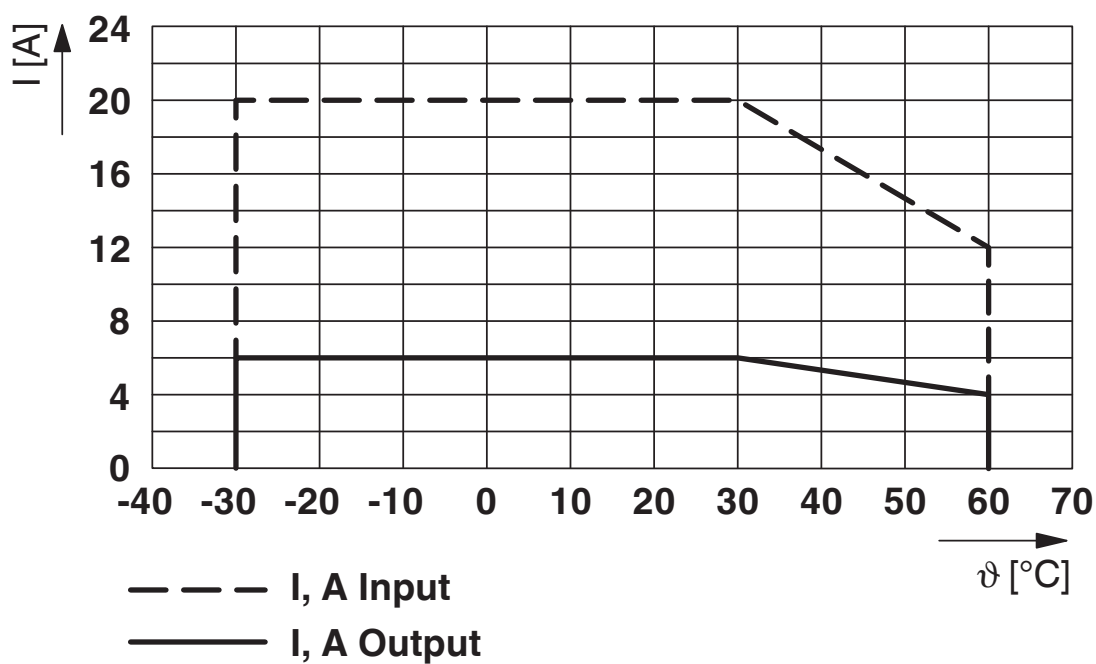
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Drawings

Dimensional drawing

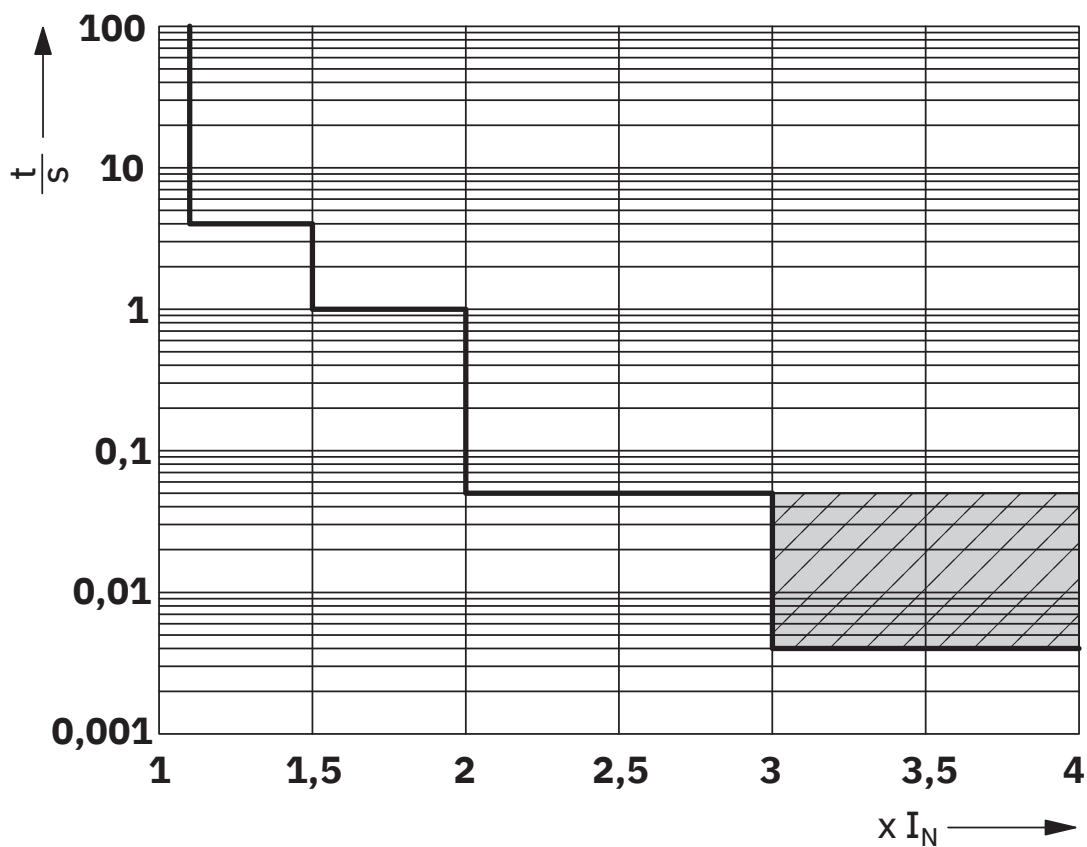


Diagram



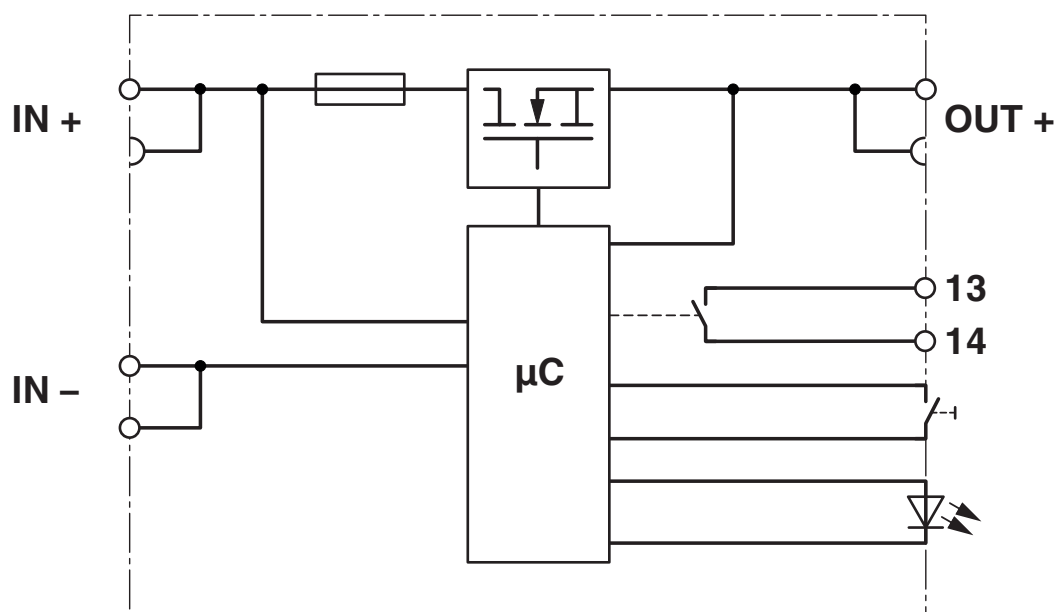
Total current of input and channel current of output

Diagram



Trigger characteristic in the DC range

Block diagram



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Approvals

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UL Listed

Approval ID: E123528



cUL Listed

Approval ID: E123528



UL Recognized

Approval ID: E317172

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Classifications

ECLASS

ECLASS-13.0	27140401
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ETIM

ETIM 9.0	EC003538
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Environmental product compliance

EU RoHS

Fulfills EU RoHS substance requirements	Yes
Exemption	7(a), 7(c)-I

China RoHS

Environment friendly use period (EFUP)	EFUP-50
	An article-related China RoHS declaration table can be found in the download area for the respective article under "Manufacturer declaration". For all articles with EFUP-E, no China RoHS declaration table issued and required.

EU REACH SVHC

REACH candidate substance (CAS No.)	Lead(CAS: 7439-92-1)
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PHOENIX CONTACT Ltd
Halesfield 13, Telford
Shropshire, TF7 4PG
01952 681700
info@phoenixcontact.co.uk