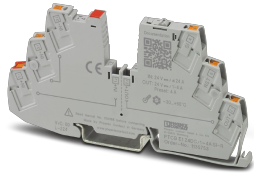


# Electronic circuit breaker - PTCB E1 24DC/1-4A SI-R - 1135753

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Single-channel, electronic fuse for the protection of 24 V loads. Simple potential distribution using terminal blocks from the CLIPLINE complete system. With status output, reset input, and electronic interlock. 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
- ✔ Enhanced diagnostic and control options, thanks to integrated status output and reset input
- ✔ Optimum protection for cables and sensors as well as NEC Class 2 circuits by means of an additional internal output fuse



## Key Commercial Data

Packing unit	1 pc
GTIN	 4 063151 069759
GTIN	4063151069759
Weight per Piece (excluding packing)	27.500 g
Custom tariff number	85363010
Country of origin	Germany
Sales Key	CLA135

## Technical data

### Dimensions

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

### Ambient conditions

Ambient temperature (operation)	-30 °C ... 60 °C
Ambient temperature (storage/transport)	-40 °C ... 70 °C
Humidity test	96 h, 95 % RH, 40 °C

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### Ambient conditions

Altitude	≤ 3000 m up to 52 °C (amsl (above mean sea level))
	≤ 4000 m up to 46 °C (amsl (above mean sea level))
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)
Degree of protection	IP20

### General

Flammability rating according to UL 94	V-0
Mounting type	DIN rail: 35 mm
Color	traffic grey A RAL 7042
Number of positions	1
Protection class	III
Degree of pollution	2
Type	DIN rail module, one-piece

### Electrical data

Fuse type	electronic
Rated surge voltage	0.5 kV
Operating voltage	18 V DC ... 27.5 V DC
Rated voltage	24 V DC
Rated current I <sub>N</sub>	24 A DC (Total current input)
	4 A DC (Rated current output)
	1 / 2 / 3 / 4 A DC (adjustable)
Measuring tolerance I	± 15 %
Feedback resistance	max. 35 V DC
Fail-safe element	5 A DC
Efficiency	> 99 %
Closed circuit current I <sub>0</sub>	typ. 8 mA
Power dissipation	typ. 0.15 W (No-load operation)
	< 1.1 W (Nominal operation)
Module initialization time	1 s
Waiting time after switch off of a channel	5 s (at overload / short circuit)
Temperature derating	21 A (Total current at 60°C)
	24 A (Total current at 50°C)
	4 A (Channel current at 60°C)
	4 A (Channel current at 50°C)
Tripping method	E (electronic)

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## Technical data

### Electrical data

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. 35 V DC (Load circuit)
Voltage drop	0.13 V (at 4 A)
MTBF (IEC 61709, SN 29500)	27027027 h (at 25 °C with 21 % load)
	13157894 h (at 40°C with 34.25% load)
	1960784 h (at 60°C with 100% load)
Shutdown time load circuit	≤ 10 ms (for short circuit > 2.0 x $I_N$ )
	1 s (1.2 ... 2.0 x $I_N$ )
Undervoltage switch-off load circuit	≤ 17.8 V DC (active)
	≥ 18.8 V DC (inactive)
Overvoltage switch-off shutdown load circuit	≥ 27.5 V DC (active)
	≤ 27 V DC (inactive)
Max. capacitive load load circuit	26000 µF (Depending on the current setting and the short-circuit current available)
Output voltage status output	24 V DC (Error)
Output current status output	max. 0.015 A (Short-circuit-proof)
Stripping length	8 mm
Conductor cross section solid	0.2 mm <sup>2</sup> ... 4 mm <sup>2</sup>
Conductor cross section, flexible, with ferrule, with plastic sleeve	0.25 mm <sup>2</sup> ... 2.5 mm <sup>2</sup>
Conductor cross section flexible, with ferrule without plastic sleeve	0.25 mm <sup>2</sup> ... 2.5 mm <sup>2</sup>
Conductor cross section AWG	24 ... 12
Input voltage reset input	7 V DC ... 30 V DC (Reset with falling edge)
Current consumption reset input	typ. 0.4 mA (at 24 V DC)
Pulse length reset input	≥ 50 ms (High)
	≥ 50 ms (Low)
Voltage reset input	< 5 V DC (Low state)
	> 8 V DC (High state)
Stripping length	8 mm
Conductor cross section solid	0.2 mm <sup>2</sup> ... 2.5 mm <sup>2</sup>
Conductor cross section, flexible, with ferrule, with plastic sleeve	0.25 mm <sup>2</sup> ... 2.5 mm <sup>2</sup>
Conductor cross section flexible, with ferrule without plastic sleeve	0.25 mm <sup>2</sup> ... 2.5 mm <sup>2</sup>
Conductor cross section AWG	24 ... 12

### Signaling

Channel LED off	off (Channel switched off)
Channel LED green	lit (Channel switched on)
Channel LED yellow	lit (Channel switched on, channel load > 80% )
	flashing (Programming mode active)
Channel LED red	lit (Channel switched off, over- or undervoltage active)

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## Technical data

### Signaling

	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)

### Connection data

Connection name	Main circuit IN+
Connection method	Push-in connection
Stripping length	8 mm
Conductor cross section solid	0.2 mm <sup>2</sup> ... 4 mm <sup>2</sup>
Conductor cross section AWG	24 ... 12
Conductor cross section, flexible, with ferrule, with plastic sleeve	0.2 mm <sup>2</sup> ... 2.5 mm <sup>2</sup>
Conductor cross section flexible, with ferrule without plastic sleeve	0.2 mm <sup>2</sup> ... 2.5 mm <sup>2</sup>
Connection name	Main circuit IN-
Connection method	Push-in connection
Stripping length	8 mm
Conductor cross section solid	0.2 mm <sup>2</sup> ... 4 mm <sup>2</sup>
Conductor cross section AWG	24 ... 12
Conductor cross section, flexible, with ferrule, with plastic sleeve	0.2 mm <sup>2</sup> ... 2.5 mm <sup>2</sup>
Conductor cross section flexible, with ferrule without plastic sleeve	0.2 mm <sup>2</sup> ... 2.5 mm <sup>2</sup>
Connection name	Main circuit OUT
Connection method	Push-in connection
Stripping length	8 mm
Conductor cross section solid	0.2 mm <sup>2</sup> ... 4 mm <sup>2</sup>
Conductor cross section AWG	24 ... 12
Conductor cross section, flexible, with ferrule, with plastic sleeve	0.2 mm <sup>2</sup> ... 2.5 mm <sup>2</sup>
Conductor cross section flexible, with ferrule without plastic sleeve	0.2 mm <sup>2</sup> ... 2.5 mm <sup>2</sup>

### Standards and Regulations

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

### Conformance/approvals

Designation	UL approval
Identification	UL/C-UL Listed UL 508

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### Conformance/approvals

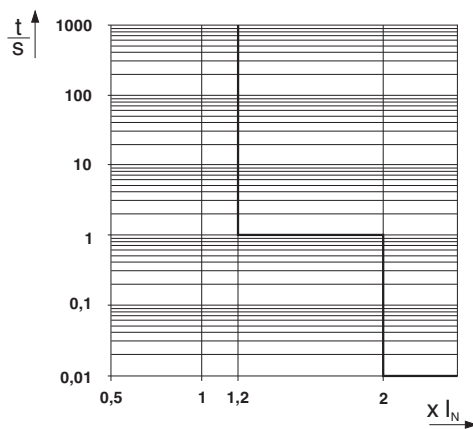
	UL Recognized UL 2367
	NEC Class 2 according to UL 1310
	UL/C-UL Listed ANSI/UL 121201 Class I, Division 2, Groups A, B, C, D; T4 (Hazardous Location)
Designation	Shipbuilding approval
Identification	DNV GL
Temperature	D
Humidity	B
Vibration	B
EMC	B
Enclosure	A

### Environmental Product Compliance

REACH SVHC	Lead 7439-92-1
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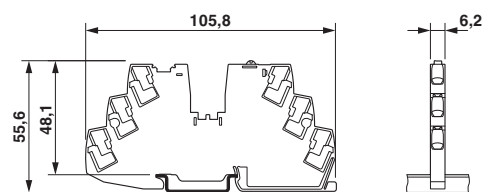
## Drawings

Diagram



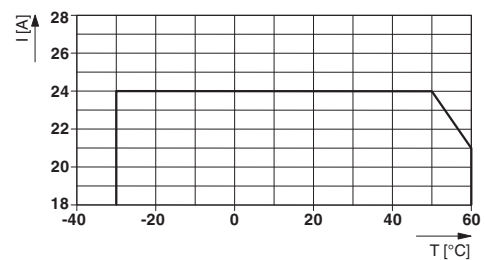
Trigger characteristic in the DC range

Dimensional drawing



Block diagram

Diagram



Total current input

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Diagram

