Electronic circuit breaker - PTCB E1 24DC/1-4A NO - 2908261

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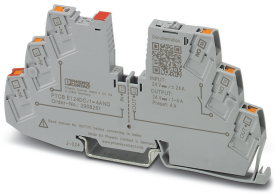

Single-channel electronic circuit breaker for protecting 24 V DC loads against overload and short circuit. Simple potential distribution using components from the CLIPLINE complete terminal block system. With electronic locking of the set nominal currents. For installation on DIN rails.

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
- Individual setup for suitable protection, exactly according to your requirements

Key Commercial Data

Packing unit	1 pc
GTIN	4 055626 323756
GTIN	4055626323756
Weight per Piece (excluding packing)	40.000 g
Custom tariff number	85363010
Country of origin	Germany

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

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Ambient conditions

Ambient temperature (storage/transport)	-40 °C ... 70 °C
Humidity test	96 h, 95 % RH, 40 °C
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 ... 30 V DC
Rated voltage	24 V DC
Rated current I_N	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	4 A DC
Efficiency	> 99 %
Closed circuit current I_0	typ. 12 mA
Power dissipation	typ. 0.3 W (No-load operation)
	< 1.3 W (Nominal operation)
Module initialization time	1 s
Waiting time after switch off of a channel	5 s (at overload / short circuit)

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Electrical data

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)
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	0.12 V (at 4 A)
MTBF (IEC 61709, SN 29500)	28571428 h (at 25 °C with 21 % load)
	14084507 h (at 40°C with 34.25% load)
	2053388 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	≥ 30.5 V DC (active)
	≤ 29.5 V DC (inactive)
Max. capacitive load load circuit	20000 µF (Depending on the current setting and the short-circuit current available)

Remote indication contact

Connection name	Remote indication circuit
Switching function	N/O contact
Stripping length	10 mm
Conductor cross section solid	0.2 mm² ... 4 mm²
Conductor cross section AWG	24 ... 14
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
DC operating voltage	0 V DC ... 30 V DC
DC operating current	100 mA DC

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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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	10 mm
Conductor cross section solid	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
Connection name	Main circuit IN-
Connection method	Push-in connection
Stripping length	10 mm
Conductor cross section solid	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
Connection name	Main circuit OUT
Connection method	Push-in connection
Stripping length	10 mm
Conductor cross section solid	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

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

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Conformance/approvals

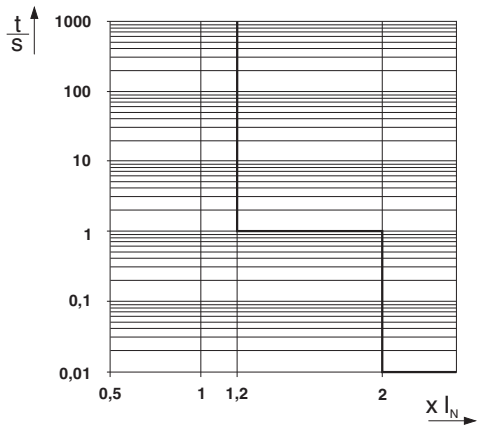
Designation	UL approval
Identification	UL/C-UL Listed UL 508
	UL Recognized UL 2367
	UL/C-UL Listed ANSI/UL 121201 Class I, Division 2, Groups A, B, C, D; T4 (Hazardous Location)
Designation	Shipbuilding approval
Identification	DNV GL
Temperature	D
Humidity	B
Vibration	B
EMC	B
Enclosure	A

Environmental Product Compliance

REACh SVHC	Lead 7439-92-1
China RoHS	Environmentally Friendly Use Period = 50 years
	For details about hazardous substances go to tab “Downloads”, Category “Manufacturer's declaration”

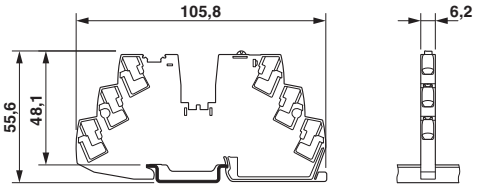
Drawings

Diagram



Trigger characteristic in the DC range

Dimensional drawing



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Product drawing

Diagram

Total current input

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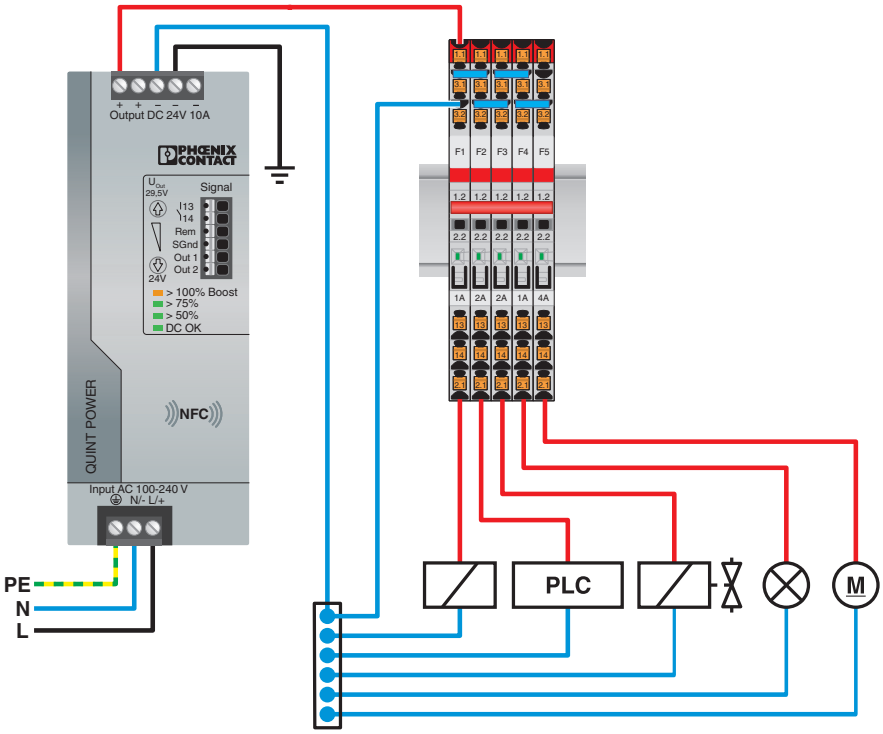
Application drawing



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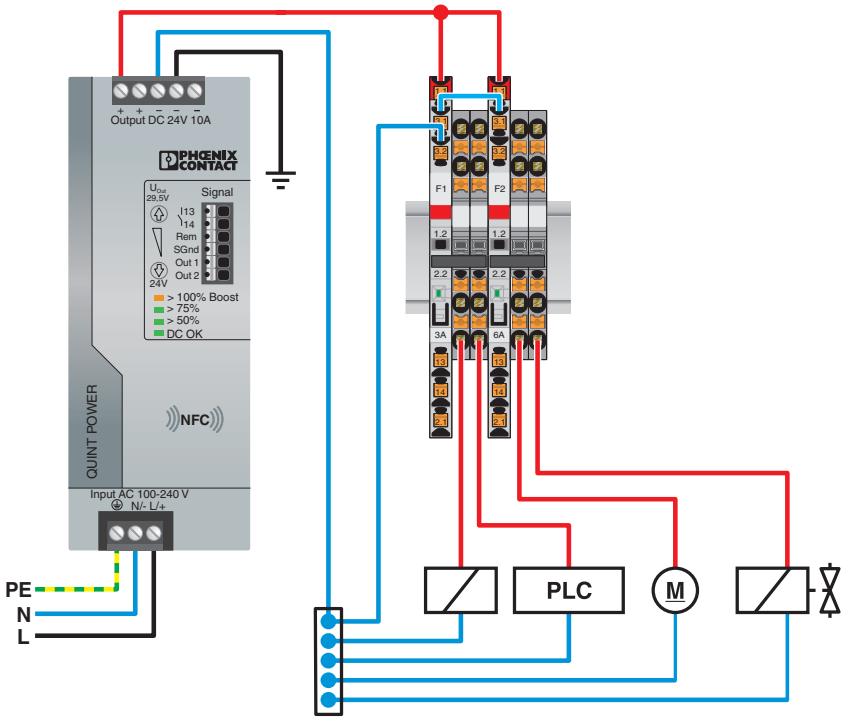
Application drawing



Classifications

eCl@ss

eCl@ss 10.0.1	27140401
eCl@ss 11.0	27140401
eCl@ss 4.0	27141100
eCl@ss 4.1	27141100
eCl@ss 5.0	27141100
eCl@ss 5.1	27141100
eCl@ss 6.0	27141100
eCl@ss 7.0	27141116
eCl@ss 9.0	27141116

ETIM

ETIM 6.0	EC000899
ETIM 7.0	EC000899

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Approvals

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UL Listed / UL Recognized / cUL Listed / DNV GL / cULus Listed

Ex Approvals

UL Recognized / UL Listed / cUL Listed / cULus Listed

Approval details

UL Listed		http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/index.htm	FILE E 123528
UL Recognized		http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/index.htm	FILE E 317172
cUL Listed		http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/index.htm	FILE E 123528
DNV GL		https://approvalfinder.dnvgl.com/	TAE00003UT
cULus Listed