

PLC-OPT-110DC/110DC/3RW - Solid-state relay module



2900396

<https://www.phoenixcontact.com/us/products/2900396>

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PLC-INTERFACE for railway applications, consisting of basic terminal block with push-in connection and integrated miniature solid-state relay, range: $0.7 \times U_N$ to $1.25 \times U_N$, temperature range: -25°C to $+70^\circ\text{C}$, 1 N/O contact, input: 110 V DC, output: 12 - 140 V DC/3 A

Your advantages

- Shock resistance in accordance with DIN 50155 (requirements in accordance with EN 61373)
- Temperature range: -25°C ... $+70^\circ\text{C}$
- Input voltage range of $0.7 - 1.25 \times U_N$

Commercial data

| | |
|--------------------------------------|---------------------|
| Item number | 2900396 |
| Packing unit | 10 pc |
| Minimum order quantity | 10 pc |
| Sales key | C461 |
| Product key | CK62AL |
| Catalog page | Page 417 (C-5-2019) |
| GTIN | 4046356506953 |
| Weight per piece (including packing) | 35.77 g |
| Weight per piece (excluding packing) | 35.77 g |
| Customs tariff number | 85364900 |
| Country of origin | DE |

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Technical data

Product properties

| | |
|----------------|--------------------------|
| Product type | Solid-state relay module |
| Product family | PLC-INTERFACE |
| Application | Railway applications |
| Operating mode | 100% operating factor |

Data management status

| | |
|------------------------------|------------|
| Date of last data management | 16.09.2024 |
| Article revision | 07 |

Insulation characteristics: Air clearances and creepage distances, input/output

| | |
|----------------------|------------------|
| Insulation | Basic insulation |
| Overvoltage category | III |
| Pollution degree | 2 |

Electrical properties

| | |
|---|--------------------------|
| Maximum power dissipation for nominal condition | 0.6 W |
| Test voltage (Input/output) | 2.5 kV AC (Input/output) |

Air clearances and creepage distances, input/output

| | |
|--------------------------|-------|
| Rated insulation voltage | 160 V |
| Rated surge voltage | 4 kV |

Input data

| | |
|--|---|
| Nominal input voltage U_N | 110 V DC |
| Input voltage range in reference to U_N | 0.7 ... 1.25 ($t < 1 \text{ s} = 0.6 \dots 1.4 \times U_N$) |
| Input voltage range | 77 V DC ... 137.5 V DC |
| Switching threshold "0" signal in reference to U_N | < 0.3 |
| Switching threshold "1" signal in reference to U_N | > 0.6 |
| Typical input current at U_N | 5.5 mA |
| Typical response time | 400 μs |
| Typical turn-off time | 800 μs |
| Operating voltage display | Yellow LED |
| Protective circuit | Reverse polarity protection; Series polarity protection diode Surge protection |
| Surge voltage protection | > 150 V |
| Transmission frequency | 50 Hz |

Output data

| | |
|--------------------------|--|
| Contact switching type | 1 N/O contact |
| Design of digital output | electronic |
| Output nominal voltage | 110 V DC |
| Output voltage range | 12 V DC ... 140 V DC ($t < 1 \text{ s} = 1.40 \times U_N$) |

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| | |
|--|---|
| Limiting continuous current | 3 A (see derating curve) |
| Surge voltage protection | > 150 V |
| Voltage drop at max. limiting continuous current | < 150 mV |
| Output circuit | 2-conductor, floating |
| Protective circuit | Reverse polarity protection; Parallel polarity protection diode Surge protection |

Connection data

| | |
|----------------------------------|---|
| Connection method | Push-in connection |
| Stripping length | 10 mm |
| Conductor cross section rigid | 0.14 mm ² ... 2.5 mm ² |
| Conductor cross section flexible | 0.14 mm ² ... 2.5 mm ² 0.2 mm ² ... 2.5 mm ² (Single ferrule) 2x 0.5 mm ² ... 1 mm ² (TWIN ferrule) |
| Conductor cross section AWG | 26 ... 14 |

Dimensions

| | |
|--------|--------|
| Width | 6.2 mm |
| Height | 80 mm |
| Depth | 94 mm |

Material specifications

| | |
|--|-----------------|
| Color | gray (RAL 7042) |
| Flammability rating according to UL 94 | V0 (Housing) |

Environmental and real-life conditions

Ambient conditions

| | |
|---|------------------|
| Degree of protection | IP20 |
| Ambient temperature (operation) | -25 °C ... 70 °C |
| Ambient temperature (storage/transport) | -40 °C ... 85 °C |

Approvals

CE

| | |
|-------------|--------------|
| Certificate | CE-compliant |
|-------------|--------------|

UKCA

| | |
|-------------|----------------|
| Certificate | UKCA-compliant |
|-------------|----------------|

Corrosive gas test

| | |
|----------------|---|
| Identification | ISA-S71.04. G3 Harsh Group EN 60068-2-60 |
|----------------|---|

Shipbuilding approval

| | |
|-------------|------------|
| Certificate | TAE0000196 |
|-------------|------------|

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DNV GL data

| | |
|-------------|---|
| Temperature | D |
| Humidity | A |
| Vibration | B |
| EMC | B |
| Enclosure | Required protection according to the Rules shall be provided upon installation on board |

EMC data

| | |
|-------------------------------|--|
| Electromagnetic compatibility | Conformance with EMC directive |
| Low Voltage Directive | Conformance with Low Voltage Directive |

Standards and regulations

Air clearances and creepage distances, input/output

| | |
|-----------------------|---------------|
| Standards/regulations | IEC 60947-5-1 |
|-----------------------|---------------|

Railway standard

| | |
|-----------------------|----------------------------------|
| Standards/regulations | DIN EN 50155 (in relevant parts) |
| Standards/regulations | DNVGL-CG-0339 |

Mounting

| | |
|-------------------|---------------------------|
| Mounting type | DIN rail mounting |
| Assembly note | in rows with zero spacing |
| Mounting position | any |

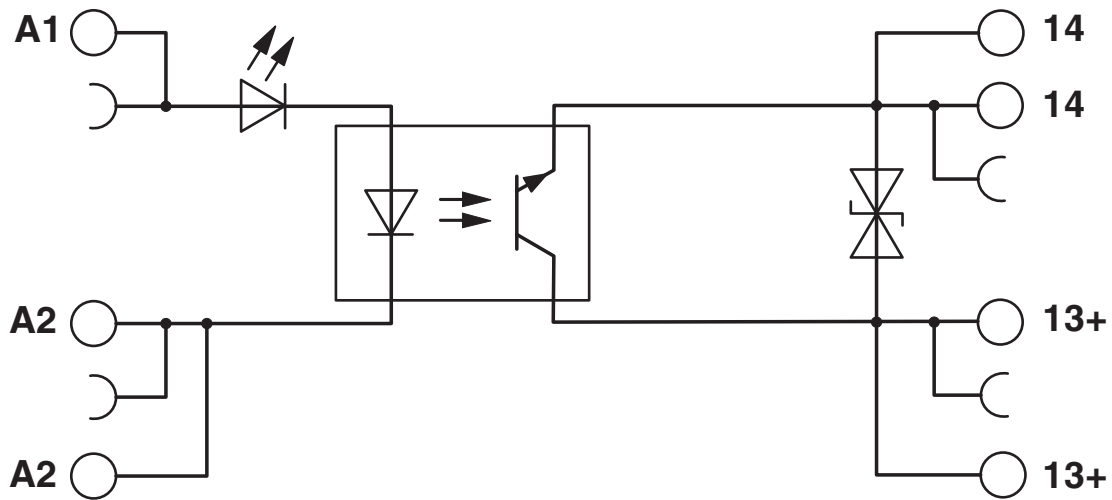
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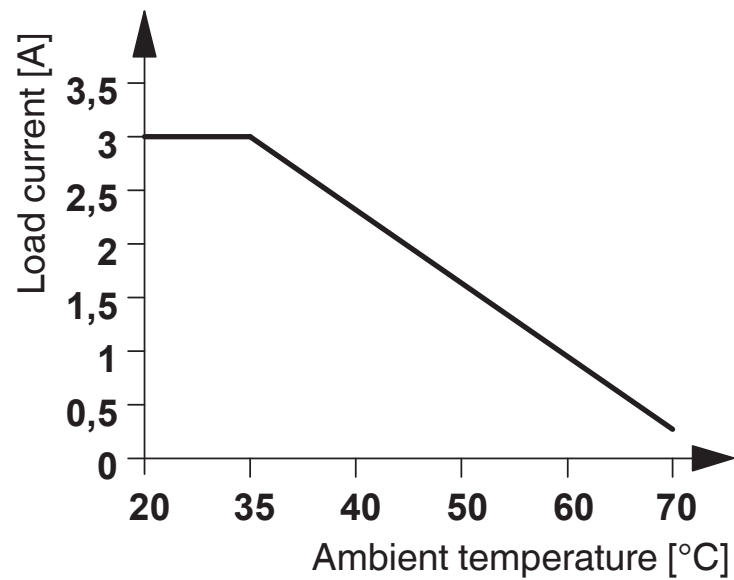
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Drawings

Circuit diagram



Diagram



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Approvals

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cUL Recognized
Approval ID: E238705



UL Recognized
Approval ID: E238705



EAC
Approval ID: RU*C-DE.*08.B.00010



UL Listed
Approval ID: FILE E 172140



cUL Listed
Approval ID: FILE E 172140



cULus Listed
Approval ID: E140324

cULus Recognized

cULus Listed

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Classifications

ECLASS

| | |
|-------------|----------|
| ECLASS-11.0 | 27371604 |
| ECLASS-12.0 | 27371604 |
| ECLASS-13.0 | 27371604 |

ETIM

| | |
|----------|----------|
| ETIM 9.0 | EC001504 |
|----------|----------|

UNSPSC

| | |
|-------------|----------|
| UNSPSC 21.0 | 39122300 |
|-------------|----------|

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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) |
| SCIP | 91643e16-240c-4ad4-a6b4-1cad9fb93915 |

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