

# PLC-OPT- 24DC/110DC/3RW - Solid-state relay module



2900391

<https://www.phoenixcontact.com/gb/products/2900391>

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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:  $-25^\circ\text{C}$  to  $+70^\circ\text{C}$ , 1 N/O contact, input: 24 V DC, output: 12 - 140 V DC/3 A

## Your advantages

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

## Commercial data

|                                      |                     |
|--------------------------------------|---------------------|
| Item number                          | 2900391             |
| Packing unit                         | 10 pc               |
| Minimum order quantity               | 1 pc                |
| Sales key                            | DK62AL              |
| Product key                          | DK62AL              |
| Catalog page                         | Page 417 (C-5-2019) |
| GTIN                                 | 4046356508964       |
| Weight per piece (including packing) | 35.16 g             |
| Weight per piece (excluding packing) | 31.2 g              |
| Customs tariff number                | 85364190            |
| 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    |

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

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

Data management status

|                              |            |
|------------------------------|------------|
| Date of last data management | 16.09.2024 |
|------------------------------|------------|

### Electrical properties

|   |                          |
|---|--------------------------|
| Maximum power dissipation for nominal condition | 0.29 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 $U_N$                          | 24 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                                  | 16.8 V DC ... 30 V DC   |
| Switching threshold "0" signal in reference to $U_N$ | < 0.4   |
| Switching threshold "1" signal in reference to $U_N$ | > 0.6   |
| Typical input current at $U_N$                       | 12 mA   |
| Typical response time                                | 400 $\mu\text{s}$   |
| Typical turn-off time                                | 800 $\mu\text{s}$   |
| 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 ( $t < 1 \text{ s} = 1.40 \times U_N$ ) |
| Limiting continuous current | 3 A (see derating curve)                                     |

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|  |   |
|--|---|
| 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<br>Surge protection |

## Connection data

|                                  |   |
|----------------------------------|---|
| Connection method                | Push-in connection  |
| Stripping length                 | 10 mm   |
| Conductor cross section rigid    | 0.14 mm <sup>2</sup> ... 2.5 mm <sup>2</sup>  |
| Conductor cross section flexible | 0.14 mm <sup>2</sup> ... 2.5 mm <sup>2</sup><br>0.2 mm <sup>2</sup> ... 2.5 mm <sup>2</sup> (Single ferrule)<br>2x 0.5 mm <sup>2</sup> ... 1 mm <sup>2</sup> (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<br>EN 60068-2-60 |
|----------------|---|

### Shipbuilding approval

|             |            |
|-------------|------------|
| Certificate | TAE0000196 |
| Temperature | D          |
| Humidity    | A          |

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|           |   |
|-----------|---|
| 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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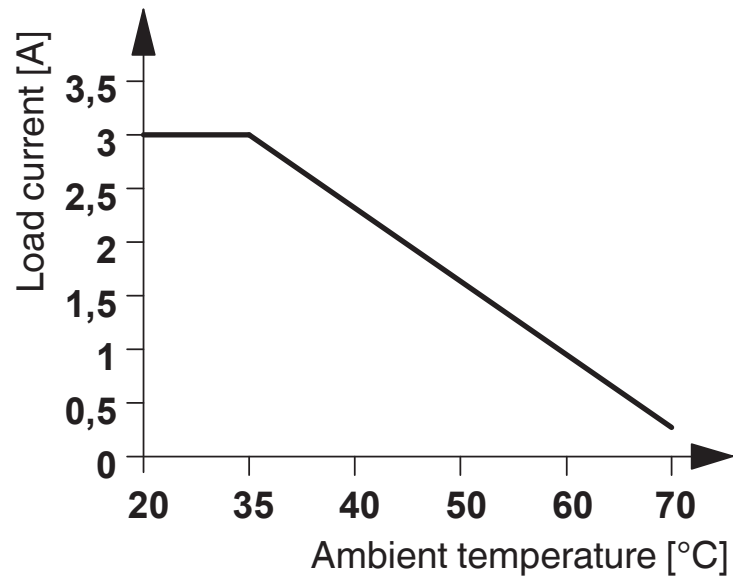


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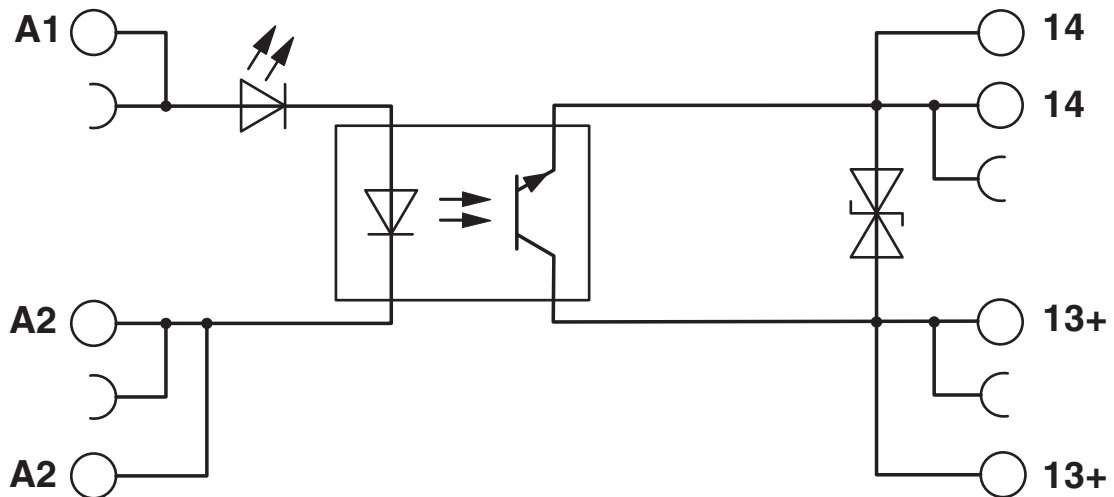
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## Drawings

Diagram



Circuit diagram



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## Approvals

To download certificates, visit the product detail page: <https://www.phoenixcontact.com/gb/products/2900391>



**EAC**

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



**cULus Listed**

Approval ID: E140324



**cUL Recognized**

Approval ID: E238705



**UL Recognized**

Approval ID: E238705



**UL Listed**

Approval ID: FILE E 172140



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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                                | 0f96ab9e-70a9-4f5e-977f-feed15df1545 |

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