

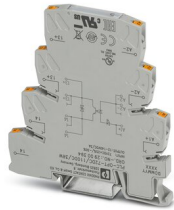
# PLC-OPT- 72DC/110DC/3RW - Solid-state relay module



2900394

<https://www.phoenixcontact.com/us/products/2900394>

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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: 72 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	2900394
Packing unit	1 pc
Minimum order quantity	1 pc
Note	Made to order (non-returnable)
Sales key	C461
Product key	CK6233
Catalog page	Page 417 (C-5-2019)
GTIN	4046356581547
Weight per piece (including packing)	34.98 g
Weight per piece (excluding packing)	31.89 g
Customs tariff number	85364900
Country of origin	DE

# PLC-OPT- 72DC/110DC/3RW - Solid-state relay module



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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

Insulation	Basic insulation
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### 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	0.4 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 $U_N$	72 V DC
Input voltage range in reference to $U_N$	0.7 ... 1.25 ( $t < 1$ s = 0.6 ... 1.4 x $U_N$ )
Input voltage range	50.4 V DC ... 90 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 $\mu$ s
Typical turn-off time	800 $\mu$ 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 ( $t < 1$ s = 1.40 x $U_N$ )
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 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> 0.2 mm <sup>2</sup> ... 2.5 mm <sup>2</sup> (Single ferrule) 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	86 mm

## Material specifications

Flammability rating according to UL 94	V0 (Housing)
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## 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
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### UKCA

Certificate	UKCA-compliant
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### Corrosive gas test

Identification	ISA-S71.04. G3 Harsh Group EN 60068-2-60
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### Shipbuilding approval

Certificate	TAE0000196
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### DNV GL data

Temperature	D
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# PLC-OPT- 72DC/110DC/3RW - Solid-state relay module



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

## EMC data

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

## Standards and regulations

### Air clearances and creepage distances, input/output

Standards/regulations	IEC 60947-5-1
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### Railway standard

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

## Mounting

Mounting type	DIN rail mounting
Assembly instructions	in rows with zero spacing
Mounting position	any

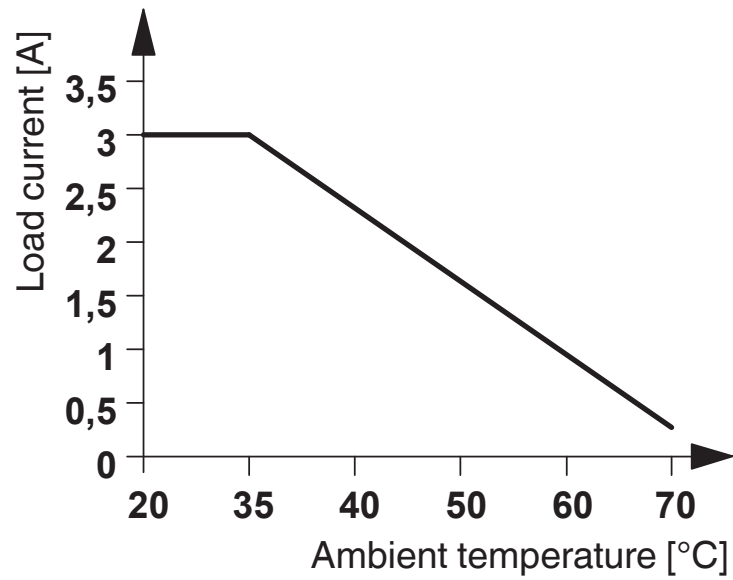
# PLC-OPT- 72DC/110DC/3RW - Solid-state relay module

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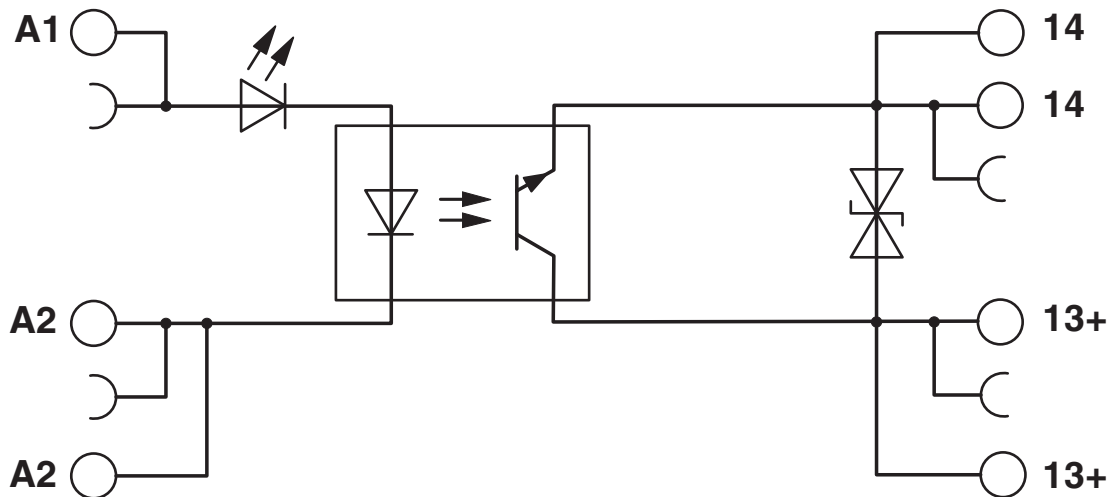
<https://www.phoenixcontact.com/us/products/2900394>

## Drawings

Diagram



Circuit diagram



# PLC-OPT- 72DC/110DC/3RW - Solid-state relay module



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## Approvals

To download certificates, visit the product detail page: <https://www.phoenixcontact.com/us/products/2900394>



**cUL Recognized**  
Approval ID: FILE E 238705



**UL Recognized**  
Approval ID: FILE E 238705



**EAC**  
Approval ID: TR\_TS\_D\_00573\_c



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



**UL Listed**  
Approval ID: FILE E 172140



**cUL Listed**  
Approval ID: FILE E 172140

**cULus Recognized**

**cULus Listed**

# PLC-OPT- 72DC/110DC/3RW - Solid-state relay module



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## Classifications

### ECLASS

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

### ETIM

ETIM 9.0	EC001504
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### UNSPSC

UNSPSC 21.0	39122300
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# PLC-OPT- 72DC/110DC/3RW - Solid-state relay module



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## Environmental product compliance

REACH SVHC	Lead 7439-92-1
China RoHS	Environmentally Friendly Use Period = 50 years
	For information on hazardous substances, refer to the manufacturer's declaration available under "Downloads"




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## Accessories

 Note: Applying some accessories below might limit this product.


### FBST 500-PLC RD - Continuous plug-in bridge

2966786

<https://www.phoenixcontact.com/us/products/2966786>



Continuous plug-in bridge, length: 500 mm, color: red

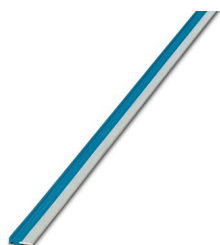
 Max. current carrying capacity: 32 A

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### FBST 500-PLC BU - Continuous plug-in bridge

2966692

<https://www.phoenixcontact.com/us/products/2966692>



Continuous plug-in bridge, length: 500 mm, color: blue

 Max. current carrying capacity: 32 A

# PLC-OPT- 72DC/110DC/3RW - Solid-state relay module

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## FBST 500-PLC GY - Continuous plug-in bridge

2966838

<https://www.phoenixcontact.com/us/products/2966838>



Continuous plug-in bridge, length: 500 mm, color: gray

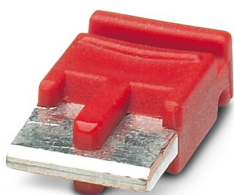
 Max. current carrying capacity: 32 A

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## FBST 6-PLC RD - Single plug-in bridge

2966236

<https://www.phoenixcontact.com/us/products/2966236>



Single plug-in bridge, number of positions: 2, length: 6 mm, color: red

 Max. current carrying capacity: 6 A

# PLC-OPT- 72DC/110DC/3RW - Solid-state relay module

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## FBST 6-PLC BU - Single plug-in bridge

2966812

<https://www.phoenixcontact.com/us/products/2966812>

Single plug-in bridge, number of positions: 2, length: 6 mm, color: blue



 Max. current carrying capacity: 6 A

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## FBST 6-PLC GY - Single plug-in bridge

2966825

<https://www.phoenixcontact.com/us/products/2966825>

Single plug-in bridge, number of positions: 2, length: 6 mm, color: gray



 Max. current carrying capacity: 6 A

# PLC-OPT- 72DC/110DC/3RW - Solid-state relay module



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<https://www.phoenixcontact.com/us/products/2900394>


## FBST 8-PLC GY - Single plug-in bridge

2967688

<https://www.phoenixcontact.com/us/products/2967688>

Single plug-in bridge, number of positions: 2, length: 8 mm, color: gray



 Max. current carrying capacity: 6 A

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## NS 35/ 7,5 PERF 2000MM - DIN rail perforated

0801733

<https://www.phoenixcontact.com/us/products/0801733>



DIN rail perforated, Pack of 25 (50 m), acc. to EN 60715, material: Steel, galvanized, passivated with a thick layer, Standard profile, color: silver

# PLC-OPT- 72DC/110DC/3RW - Solid-state relay module



2900394

<https://www.phoenixcontact.com/us/products/2900394>

## NS 35/ 7,5 UNPERF 2000MM - DIN rail, unperforated

0801681

<https://www.phoenixcontact.com/us/products/0801681>



DIN rail, unperforated, Pack of 25 (50 m), acc. to EN 60715, material: Steel, galvanized, passivated with a thick layer, Standard profile, color: silver

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## NS 35/ 7,5 WH PERF 2000MM - DIN rail perforated

1204119

<https://www.phoenixcontact.com/us/products/1204119>



DIN rail perforated, Pack of 25 (50 m), acc. to EN 60715, material: Steel, Galvanized, white passivated, Standard profile, color: silver

# PLC-OPT- 72DC/110DC/3RW - Solid-state relay module



2900394

<https://www.phoenixcontact.com/us/products/2900394>

## NS 35/ 7,5 WH UNPERF 2000MM-VPE 10 - DIN rail, unperforated

1204122

<https://www.phoenixcontact.com/us/products/1204122>



DIN rail, unperforated, Pack of 10 (20 m), acc. to EN 60715, material: Steel, Galvanized, white passivated, Standard profile, color: silver

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## NS 35/ 7,5 AL UNPERF 2000MM - DIN rail, unperforated

0801704

<https://www.phoenixcontact.com/us/products/0801704>



DIN rail, unperforated, Pack of 25 (50 m), acc. to EN 60715, material: Aluminum, uncoated, Standard profile, color: silver

# PLC-OPT- 72DC/110DC/3RW - Solid-state relay module

2900394

<https://www.phoenixcontact.com/us/products/2900394>

## NS 35/ 7,5 ZN PERF 2000MM - DIN rail perforated

1206421

<https://www.phoenixcontact.com/us/products/1206421>



DIN rail perforated, Pack of 25 (50 m), acc. to EN 60715, material: Steel, galvanized, Standard profile, color: silver

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## NS 35/ 7,5 ZN UNPERF 2000MM - DIN rail, unperforated

1206434

<https://www.phoenixcontact.com/us/products/1206434>



DIN rail, unperforated, Pack of 25 (50 m), acc. to EN 60715, material: Steel, galvanized, Standard profile, color: silver

# PLC-OPT- 72DC/110DC/3RW - Solid-state relay module



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<https://www.phoenixcontact.com/us/products/2900394>

NS 35/ 7,5 CU UNPERF 2000MM-VPE 10 - DIN rail, unperforated

0801762

<https://www.phoenixcontact.com/us/products/0801762>



DIN rail, unperforated, Pack of 10 (20 m), acc. to EN 60715, material: Copper, uncoated, Standard profile, color: copper-colored

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NS 35/ 7,5 CAP - End cap

1206560

<https://www.phoenixcontact.com/us/products/1206560>

DIN rail end piece, for DIN rail NS 35/7.5





# PLC-OPT- 72DC/110DC/3RW - Solid-state relay module

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## NS 35/15 PERF 2000MM - DIN rail perforated

1201730

<https://www.phoenixcontact.com/us/products/1201730>



DIN rail perforated, Pack of 25 (50 m), similar to EN 60715, material: Steel, galvanized, passivated with a thick layer, Standard profile, color: silver

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## NS 35/15 UNPERF 2000MM - DIN rail, unperforated

1201714

<https://www.phoenixcontact.com/us/products/1201714>



DIN rail, unperforated, Pack of 25 (50 m), similar to EN 60715, material: Steel, galvanized, passivated with a thick layer, Standard profile, color: silver

# PLC-OPT- 72DC/110DC/3RW - Solid-state relay module



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## NS 35/15 WH PERF 2000MM - DIN rail perforated

0806602

<https://www.phoenixcontact.com/us/products/0806602>



DIN rail perforated, Pack of 25 (50 m), similar to EN 60715, material: Steel, Galvanized, white passivated, Standard profile, color: white

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## NS 35/15 WH UNPERF 2000MM-VPE 10 - DIN rail, unperforated

1204135

<https://www.phoenixcontact.com/us/products/1204135>



DIN rail, unperforated, Pack of 10 (20 m), similar to EN 60715, material: Steel, Galvanized, white passivated, Standard profile, color: silver

# PLC-OPT- 72DC/110DC/3RW - Solid-state relay module



2900394

<https://www.phoenixcontact.com/us/products/2900394>

## NS 35/15 AL UNPERF 2000MM - DIN rail, unperforated

1201756

<https://www.phoenixcontact.com/us/products/1201756>



DIN rail, unperforated, similar to EN 60715, material: Aluminum, uncoated, Standard profile, color: silver

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## NS 35/15 ZN PERF 2000MM - DIN rail perforated

1206599

<https://www.phoenixcontact.com/us/products/1206599>



DIN rail perforated, Pack of 25 (50 m), similar to EN 60715, material: Steel, galvanized, Standard profile, color: silver

# PLC-OPT- 72DC/110DC/3RW - Solid-state relay module

2900394

<https://www.phoenixcontact.com/us/products/2900394>

## NS 35/15 ZN UNPERF 2000MM - DIN rail, unperforated

1206586

<https://www.phoenixcontact.com/us/products/1206586>



DIN rail, unperforated, Pack of 25 (50 m), similar to EN 60715, material: Steel, galvanized, Standard profile, color: silver

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## NS 35/15 CU UNPERF 2000MM-VPE 10 - DIN rail, unperforated

1201895

<https://www.phoenixcontact.com/us/products/1201895>



DIN rail, unperforated, Pack of 10 (20 m), similar to EN 60715, material: Copper, uncoated, Standard profile, color: copper-colored

# PLC-OPT- 72DC/110DC/3RW - Solid-state relay module



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<https://www.phoenixcontact.com/us/products/2900394>

## NS 35/15 CAP - End cap

1206573

<https://www.phoenixcontact.com/us/products/1206573>

DIN rail end piece, for DIN rail NS 35/15



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## NS 35/15-2,3 UNPERF 2000MM-VPE 10 - DIN rail, unperforated

1201798

<https://www.phoenixcontact.com/us/products/1201798>

DIN rail, unperforated, Pack of 10 (20 m), acc. to EN 60715, material: Steel, galvanized, passivated with a thick layer, Standard profile 2.3 mm, color: silver



# PLC-OPT- 72DC/110DC/3RW - Solid-state relay module

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## PLC-ATP BK - Separating plate

2966841

<https://www.phoenixcontact.com/us/products/2966841>



Separating plate, 2 mm thick, required at the start and end of a PLC terminal strip. Furthermore, it is used for: visual separation of groups, safe isolation of different voltages of neighboring PLC relays in acc. with DIN VDE 0106-101, isolation

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## PLC-ESK GY - Power terminal block

2966508

<https://www.phoenixcontact.com/us/products/2966508>



Power terminal block, for the input of up to four potentials, for mounting on NS 35/7.5

# PLC-OPT- 72DC/110DC/3RW - Solid-state relay module



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<https://www.phoenixcontact.com/us/products/2900394>

## SZF 1-0,6X3,5 - Screwdriver

1204517

<https://www.phoenixcontact.com/us/products/1204517>



Actuation tool, for ST terminal blocks, also suitable for use as a bladed screwdriver, size: 0.6 x 3.5 x 100 mm, 2-component grip, with non-slip grip

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