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PLC-OSP-…/24DC/3RW

PLC INTERFACE With Extended Input Voltage and Temperature Range for Railway Applications

INTERFACE

Data Sheet
102490_en_01

1 Description

Ultra-slim PLC interfaces with the user-friendly plug-in bridge system now offer an extended range of optocoupler interfaces for applications in electrical equipment in rail vehicles.

The new **PLC-OSP-…/24DC/3RW** interface modules with extended input voltage and temperature range are designed for use according to DIN EN 50155 (VDE 0115-200) "Railway Applications Part 200: Electronic Equipment Used on Rolling Stock".

The slim 6.2 mm PLC-OSP-...RW version has been specially developed for applications on rail vehicles, which are operated with an AC voltage, where the operating voltage is supplied via contact lines using a transformer with charger and battery.

The PLC-OSP-...RW is designed with a permissible operating voltage of 0.7 ... 1.25 x U_N.

The temperature of the air inside the vehicle and its housing can increase to up to +70°C due to external influences. This extreme requirement is easily met by the PLC-OSP-...RW with its temperature range of -25°C to +70°C.

PLC-OSP-…/24DC/3RW offers shock resistance according to EN 50155 (requirements according to EN 61373).

1.1 Additional PLC Advantages

– Integrated input/protective circuit
– User-friendly, vibration-resistant, and time-saving plug-in bridge system

Make sure you always use the latest documentation.
It can be downloaded at www.download.phoenixcontact.com.

A conversion table is available on the Internet at
www.download.phoenixcontact.com/general/7000_en_00.pdf.

This data sheet is valid for all products listed on the following page:

2 Ordering Data

PLC INTERFACE

Description	Type	Order No.	Pcs./Pck.
Single-channel optocoupler for railway applications, 24 V DC input voltage, with spring-cage connection, for mounting on ⊔	PLC-OSP- 24DC/24DC/3RW	2980513	10
Single-channel optocoupler for railway applications, 110 V DC input voltage, with spring-cage connection, for mounting on ⊔	PLC-OSP-110DC/24DC/3RW	2980526	10

For the protection of input and output, inductive loads must be dampened with an effective protective circuit.

Accessories

Description	Type	Order No.	Pcs./Pck.
Insulating plate	PLC-ATP BK	2966841	25

The PLC-ATP BK insulating plate should be used in the following cases: always fit at the start and end of a PLC terminal strip for voltages greater than 250 V (L1, L2, L3) between the same terminal points on adjacent modules (FBST 8-PLC... or FBST 500... can be used for potential bridging) and for safe isolation between adjacent modules.

For additional accessories such as power terminal blocks and plug-in bridges, please refer to the INTERFACE catalog or www.phoenixcontact.com.

3 Technical Data

Input Data	...24DC...	...110DC...
Nominal input voltage U_N [1]	24 V DC	110 V DC
Permissible range (with reference to U_N)	0.7 ... 1.25 x U_N (t < 1 s = 0.6 ... 1.40 x U_N)	
Typical input current at U_N	8.5 mA	3 mA
Switch-on threshold U_{ON}	≥ 0.6 x U_N	
Switch-off threshold U_{OFF}	≤ 0.3 x U_N	
Typical response time at U_N	40 µs	80 µs
Typical release time at U_N	200 µs	600 µs
Transmission frequency at U_N	300 Hz	100 Hz
Input circuit	Protection against polarity reversal	
Status indicator	Yellow LED	

[1] The PLC-ATP BK insulating plate must be installed for voltages greater than 250 V (L1, L2, L3) between the same terminal points on adjacent modules (see "Accessories"). FBST 8-PLC... or FBST 500... is then used for potential bridging.

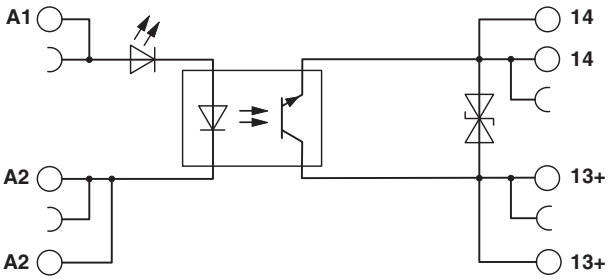
Output Data	...24DC...	...110DC...
Nominal output voltage U_N	24 V DC	
Permissible range (with reference to U_N)	3 V DC ... 33 V DC (t < 1 s = 1.40 x U_N)	
Limiting continuous current	3 A (see "Derating Curve" on page 3)	
Voltage drop at maximum limiting continuous current	< 200 mV	
Output configuration	2-wire floating	
Output circuit	Protection against polarity reversal, surge protection	
Surge voltage limitation	> 33 V DC	

General Data	
Rated insulation voltage	250 V
Impulse voltage withstand level	4 kV
Ambient temperature range	
Operation	-25°C ... 70°C
Storage/transport	-40°C ... 85°C
Test voltage input/output	2.5 kV_{rms}, 50 Hz, 1 min.
Nominal operating mode	100% operating factor
Air and creepage distances between the circuits[1]	DIN EN 50178/VDE 0160 (basic insulation)
Standards/specifications	DIN EN 50155/VDE 0115-200 (in relevant parts)
Pollution degree	2
Surge voltage category	III
Mounting position	Any
Mounting	Can be aligned without spacing
Weight	40 g, approximately
Connection method	Spring-cage connection
Conductor cross-section	
Solid	0.2 mm^2 ... 2.5 mm^2 (24 - 14 AWG)
Stranded	0.2 mm^2 ... 2.5 mm^2 (24 - 14 AWG)
Stripping length	8 mm
Dimensions (W x H x D)	6.2 mm x 86 mm x 80 mm
Housing material	Polybutylene terephthalate PBT, non-reinforced, green

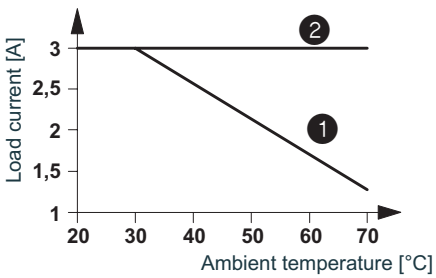
[1] The PLC-ATP insulating plate must be installed for safe isolation between adjacent modules (see "Accessories"). FBST 8-PLC... or FBST 500... is then used for potential bridging.

Approvals	
CE	CE
UL/CUL	Applied for

4 Block Diagram



5 Derating Curve



❶ In rows with zero spacing
❷ in rows with > 20 mm spacing

Figure shows load current depending on the ambient temperature for PLC-OSP-…/24DC/3RW. Operating time: 100% operating factor.