

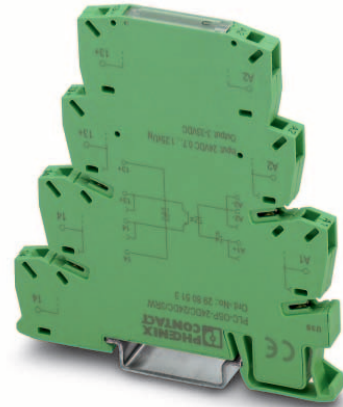
# PLC-OSP-.../24DC/3RW

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

### INTERFACE

Data Sheet  
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## 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  $0.7 \dots 1.25 \times U_N$ .

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

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](http://www.download.phoenixcontact.com).  
A conversion table is available on the Internet at  
[www.download.phoenixcontact.com/general/7000\\_en\\_00.pdf](http://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](http://www.phoenixcontact.com).

## 3 Technical Data

Input Data	...24DC...	...110DC...
Nominal input voltage $U_N$ <sup>1</sup>	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 $U_{ON}$	$\geq 0.6 \times U_N$	
Switch-off threshold $U_{OFF}$	$\leq 0.3 \times U_N$	
Typical response time at $U_N$	40 $\mu$ s	80 $\mu$ s
Typical release time at $U_N$	200 $\mu$ s	600 $\mu$ s
Transmission frequency at $U_N$	300 Hz	100 Hz
Input circuit	Protection against polarity reversal	
Status indicator	Yellow LED	

<sup>1</sup> 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.

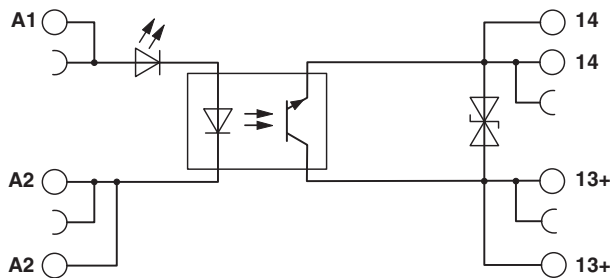
Output Data	...24DC...	...110DC...
Nominal output voltage $U_N$	24 V DC	
Permissible range (with reference to $U_N$ )	3 V DC ... 33 V DC ( $t < 1$ s = 1.40 x $U_N$ )	
Limiting continuous current	3 A (see "Derating Curve" on page 3)	
Voltage drop at maximum limiting continuous current	< 200 mV	
Output 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 <sub>rms</sub> , 50 Hz, 1 min.
Nominal operating mode	100% operating factor
Air and creepage distances between the circuits <sup>1</sup>	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 <sup>2</sup> ... 2.5 mm <sup>2</sup> (24 - 14 AWG)
Stranded	0.2 mm <sup>2</sup> ... 2.5 mm <sup>2</sup> (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

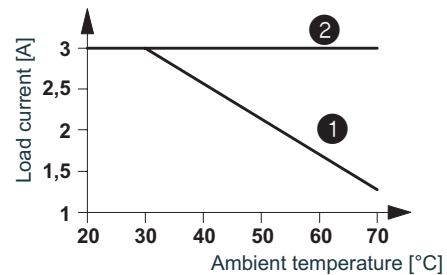
<sup>1</sup> The PLC-ATP insulating plate must be installed for safe isolation between adjacent modules (see "Accessories"). FBST 8-PLC... or FBST 500... is then used for potential bridging.

Approvals	
CE	CE
UL/CUL	Applied for

#### 4 Block Diagram



#### 5 Derating Curve



- ① In rows with zero spacing
- ② 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.