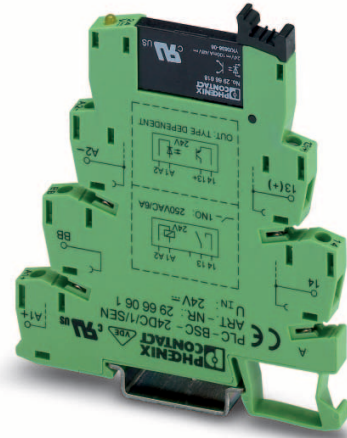


# PLC-OS.../SEN

## PLC INTERFACE With Solid-State Relay, Sensor Version

### INTERFACE

Data Sheet  
103152\_en\_01



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## 1 Description

In applications as the interface between the PLC and sensors (e.g., proximity switches, limit switches or auxiliary contacts), as a rule only one N/O contact is required. In this case, the **PLC-OS.../SEN** input module can be used, which is specially optimized for these applications and consists of a 6.2 mm basic terminal block and plug-in miniature solid-state relay with screw or spring-cage connection.

### 1.1 No Need for Power Terminal Blocks

Unlike conventional input relays, all sensor connections, including the supply voltage for the sensors and switches, are connected directly to the PLC INTERFACE module. The PLC-OS.../SEN can thus be used directly as a terminal strip with integrated interface function for the incoming sensor cables, without the need for additional modular terminal blocks (see also INTERFACE catalog).

- Elimination of the need for modular terminal blocks for the sensor/switch supply, signal, and sensor ground
- Space savings of around 80%
- Time saving of around 60%
- Reduction in wiring due to plug-in bridges

### 1.2 Optimum Use of Plug-In Bridges

The PLC INTERFACE module achieves maximum efficiency with the user-friendly FBST plug-in bridge system. The PLC-OS.../SEN makes effective use of the bridging options for the power supply for sensors/switches, for the supply/sensor ground at the A2 connection, and for the common supply potential of the PLC at connection 13. Especially effective here are the 500 mm long color-insulated continuous plug-in bridges that can easily be cut to the required length and quickly inserted in the bridge shafts. They eliminate the need for complicated and time-consuming loop bridges – the reduction in wiring by eliminating the need for modular terminal blocks and the use of all bridging options is around 60%.

### 1.3 Additional Advantages

- Switching power of up to 24 V DC/3 A, depending on the type
- IP67-protected fully encapsulated optical electronics
- Available with input or power solid-state relays as an option
- Integrated input circuit
- Solid-state relay can be replaced using an engagement lever
- Wear-resistant switching
- Resistant to vibrations and shocks
- Flammability class V0 according to UL94





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 With Solid-State Relay, Sensor Version

| Description                                                                                                                                                                                                                                        | Type                           | Order No.                 | Pcs./Pck. |    |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------|---------------------------|-----------|----|
| PLC INTERFACE, comprising PLC-BSC...SEN basic terminal block and plug-in solid-state relay (see INTERFACE catalog), with screw connection, for mounting on        | 24 V DC                        | PLCOSC- 24DC/48DC/100/SEN | 2966773   | 10 |
|                                                                                                                                                                                                                                                    | 120 V AC/110 V DC              | PLCOSC-120UC/48DC/100/SEN | 2966799   | 10 |
|                                                                                                                                                                                                                                                    | 230 V AC/220 V DC <sup>1</sup> | PLCOSC-230UC/48DC/100/SEN | 2966809   | 10 |
| PLC INTERFACE, comprising PLC-BSP...SEN basic terminal block and plug-in solid-state relay (see INTERFACE catalog), with spring-cage connection, for mounting on  | 24 V DC                        | PLCOSP- 24DC/48DC/100/SEN | 2967578   | 10 |
|                                                                                                                                                                                                                                                    | 120 V AC/110 V DC              | PLCOSP-120UC/48DC/100/SEN | 2967581   | 10 |
|                                                                                                                                                                                                                                                    | 230 V AC/220 V DC <sup>1</sup> | PLCOSP-230UC/48DC/100/SEN | 2967594   | 10 |

<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.



With the 120 V and 230 V modules, an OPT-60DC/... 60 V solid-state relay is normally used due to the input circuit integrated in the basic terminal block.  
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...                                                            | ...120UC...                  | ...230UC...       |
|----------------------------------------------|-----------------------------------------------------------------------|------------------------------|-------------------|
| Nominal input voltage                        | 24 V DC                                                               | 120 V AC/110 V DC            | 230 V AC/220 V DC |
| Permissible range (with reference to $U_N$ ) | 0.8 ... 1.2 x $U_N$                                                   | 0.8 ... 1.1 x $U_N$          |                   |
| Switching level                              |                                                                       |                              |                   |
| 1 signal ("H")                               | 0.8 x $U_N$                                                           | 0.8 x $U_N$                  |                   |
| 0 signal ("L")                               | 0.4 x $U_N$                                                           | 0.3 x $U_N$                  |                   |
| Typical input current at $U_N$               | 8 mA                                                                  | 4 mA                         |                   |
| Typical response time at $U_N$               | 20 $\mu$ s                                                            | 6 ms                         | 3 ms              |
| Typical release time at $U_N$                | 300 $\mu$ s                                                           | 10 ms                        | 5 ms              |
| Transmission frequency $f_{limit}$           | 300 Hz                                                                | 10 Hz                        |                   |
| Input circuit                                | Yellow LED, protection against polarity reversal, free-wheeling diode | Yellow LED, bridge rectifier |                   |

| Output Data                                         |                                                        |
|-----------------------------------------------------|--------------------------------------------------------|
| Maximum switching voltage                           | 48 V DC                                                |
| Minimum switching voltage                           | 3 V DC                                                 |
| Limiting continuous current                         | 100 mA                                                 |
| Output configuration                                | 2-wire floating                                        |
| Output circuit                                      | Protection against polarity reversal, surge protection |
| Voltage drop at maximum limiting continuous current | ≤ 1 V                                                  |

**General Data**

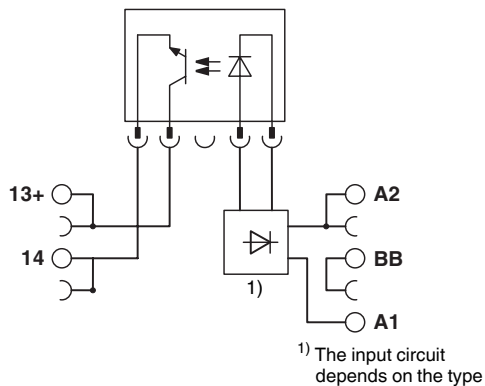
|                                                   |                                                            |
|---------------------------------------------------|------------------------------------------------------------|
| Impulse voltage withstand level                   | 2.5 kV, 50 Hz, 1 min.                                      |
| Ambient temperature range                         |                                                            |
| Operation                                         | -25°C ... 60°C (230 V type 20°C ... 55°C)                  |
| Storage/transport                                 | -40°C ... 85°C                                             |
| Nominal operating mode                            | 100% operating factor                                      |
| Inflammability class according to UL 94 (housing) | V0                                                         |
| Standards/specifications <sup>1</sup>             | IEC 60664, IEC 60664 A, DIN VDE 0110 (basic insulation)    |
| Pollution degree                                  | 2                                                          |
| Surge voltage category                            | III                                                        |
| Mounting position                                 | Any                                                        |
| Mounting                                          | Can be aligned without spacing                             |
| Conductor cross-section                           |                                                            |
| Solid, with screw connection                      | 0.14 mm <sup>2</sup> ... 2.5 mm <sup>2</sup> (26 - 14 AWG) |
| Stranded, with screw connection                   | 0.14 mm <sup>2</sup> ... 1.5 mm <sup>2</sup> (26 - 14 AWG) |
| Solid, with spring-cage connection                | 0.2 mm <sup>2</sup> ... 2.5 mm <sup>2</sup> (24 - 14 AWG)  |
| Stranded, with spring-cage connection             | 0.2 mm <sup>2</sup> ... 1.5 mm <sup>2</sup> (24 - 14 AWG)  |
| Stripping length                                  |                                                            |
| Screw connection                                  | 10 mm                                                      |
| Spring-cage connection                            | 8 mm                                                       |
| Dimensions (W x H x D)                            | 6.2 mm x 94 mm x 80 mm                                     |
| Housing material                                  | Polyamide PA, green                                        |

<sup>1</sup> The PLC-ATP BK 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.

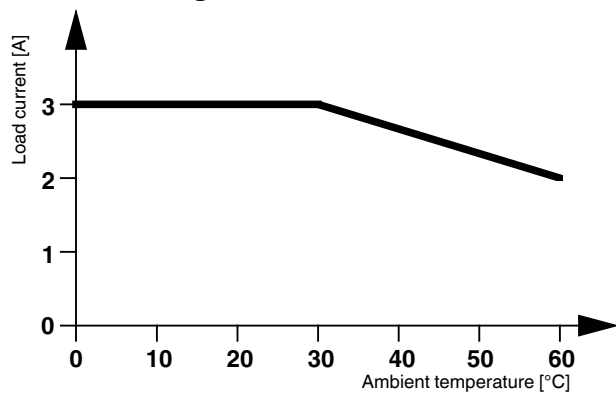
**Tests/Approvals**

|    |                                       |
|----|---------------------------------------|
| CE | CE                                    |
| UL | UL <sup>1</sup> c, UL <sup>1</sup> US |
| GL | GL                                    |

**4 Block Diagram**



**5 Derating Curve**



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