

# PLC-...24DC/1IC/ACT

## PLC INTERFACE for High Inrush Currents (Lamp Loads, Capacitive Loads, Etc.)

### INTERFACE

Data Sheet  
100222\_en\_02

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## 1 Description

The slim 14 mm **PLC-...24DC/1IC/ACT** PLC INTERFACE module is designed for special load applications such as lamp loads, capacitive loads, and/or loads with a high continuous current.

### 1.1 Lamp Loads and Capacitive Loads

Loads that are particularly difficult to control include all those with high inrush currents. If the wrong relay is selected, it will have a short service life due to welded contacts.

These difficult loads include all types of lamps, which cause high inrush currents due to their low cold resistance. This category also includes loads, which cause high inrush peaks due to capacitors in the circuit. Examples include energy-saving lamps, parallel-compensated fluorescent tubes or those with electronic ballasts, AC motors with starting capacitors, etc.

### 1.2 Inrush Currents up to 130 A

The PLC-...24DC/1IC/ACT inrush current relay offers the ideal solution with an N/O contact, which is optimized for these applications. This relay safely controls brief inrush peaks up to 130 A. The maximum permissible continuous current is 6 A, but when connected to the relay contact connections arranged in pairs (e.g., with the FBST 14-PLC... plug-in bridge), continuous currents up to 10 A are supported.

The actuator version of the module provides connection and bridging options for the lamp or motor return conductor, which means that additional return conductor terminal blocks are not required.

### 1.3 Optimum Use of Plug-In Bridges

The PLC INTERFACE module achieves maximum efficiency with the user-friendly FBST plug-in bridge system. The PLC-...24DC/1IC/ACT makes effective use of the bridging options for the A1/A2 connection on the coil side, for the supply at connection 13 on the contact side, and for the input at connection BB. 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.

### 1.4 Additional Advantages

- Integrated input/protective circuit
- Safe isolation according to DIN EN 50178
- Spring-cage and screw connection types available
- 4 kV<sub>rms</sub> electrical isolation between coil and contact
- Inflammability 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:

## PLC-...24DC/1IC/ACT

## 2 Ordering Data

### PLC INTERFACE

| Description                                                                                                                                                                                                                                                                                                                      | Type                  | Order No. | Pcs./Pck. |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------|-----------|-----------|
| PLC INTERFACE, comprising PLC-BSC.../1 IC/ACT basic terminal block with screw connection and plug-in miniature relay, for high inrush currents 1 N/O contact, 24 V DC input voltage, maximum inrush current up to 130 A, for mounting on        | PLC-RSC- 24DC/1IC/ACT | 2967604   | 10        |
| PLC INTERFACE, comprising PLC-BSC.../1 IC/ACT basic terminal block with spring-cage connection and plug-in miniature relay, for high inrush currents 1 N/O contact, 24 V DC input voltage, maximum inrush current up to 130 A, for mounting on  | PLC-RSP- 24DC/1IC/ACT | 2912413   | 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

|                                              |                                                                       |
|----------------------------------------------|-----------------------------------------------------------------------|
| Input voltage $U_N$                          | 24 V DC                                                               |
| Permissible range (with reference to $U_N$ ) | See "Operating Voltage Ranges" on page 4                              |
| Typical input current at $U_N$               | 18 mA                                                                 |
| Typical response time at $U_N$               | 8 ms                                                                  |
| Typical release time at $U_N$                | 10 ms                                                                 |
| Input circuit                                | Yellow LED, protection against polarity reversal, free-wheeling diode |

### Output Data

|                             |                                                                            |
|-----------------------------|----------------------------------------------------------------------------|
| Contact type                | Single contact, 1 N/O contact                                              |
| Contact material            | Silver tin oxide AgSnO                                                     |
| Maximum switching voltage   | 250 V AC/DC <sup>1</sup>                                                   |
| Minimum switching voltage   | 12 V AC/DC                                                                 |
| Limiting continuous current | 6 (10) A <sup>2</sup>                                                      |
| Maximum inrush current      | 80 mA (for 20 ms)/130 A (peak, with capacitive load, 230 V AC, 24 $\mu$ F) |
| Minimum switching current   | 100 mA                                                                     |
| Maximum shutdown power      | Ohmic load $\tau = 0$ ms                                                   |
|                             | 24 V DC 144 (240) W <sup>2</sup>                                           |
|                             | 48 V DC 58 W                                                               |
|                             | 60 V DC 48 W                                                               |
|                             | 110 V DC 50 W                                                              |
|                             | 220 V DC 80 W                                                              |
|                             | 250 V AC 1500 (2500) VA <sup>2</sup>                                       |
| Minimum switching power     | 1.2 W                                                                      |

<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.

<sup>2</sup> The values in brackets are permitted if connections 13-13, 14-14, and BB-BB are bridged.

## PLC-...24DC/1IC/ACT

### General Data

|                                                              |                                                                                                                                 |
|--------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------|
| Rated insulation voltage                                     | 250 V AC                                                                                                                        |
| Impulse voltage withstand level                              | 4 kV (50 Hz, 1 min.)                                                                                                            |
| Ambient temperature range                                    |                                                                                                                                 |
| Operation                                                    | -25°C ... 60°C                                                                                                                  |
| Storage/transport                                            | -40°C ... 85°C                                                                                                                  |
| Nominal operating mode                                       | 100% operating factor                                                                                                           |
| Inflammability class according to UL 94 (housing)            | V0                                                                                                                              |
| Mechanical service life                                      | 3 x 10 <sup>7</sup> cycles                                                                                                      |
| Air and creepage distances between the circuits <sup>1</sup> | DIN EN 50178/VDE 0160 (safe isolation, reinforced insulation I/O)                                                               |
| Standards/specifications                                     | IEC 60664, IEC 60664 A, DIN VDE 0110, DIN EN 50155/VDE 0115-200 (in relevant parts), IEC 60255/DIN VDE 0435 (in relevant parts) |
| Pollution degree                                             | 3                                                                                                                               |
| 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)                                       | 14 mm x 90 mm x 80 mm                                                                                                           |
| Housing material                                             | Polybutylene terephthalate PBT, non-reinforced, 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.

### Approvals

CE

CE

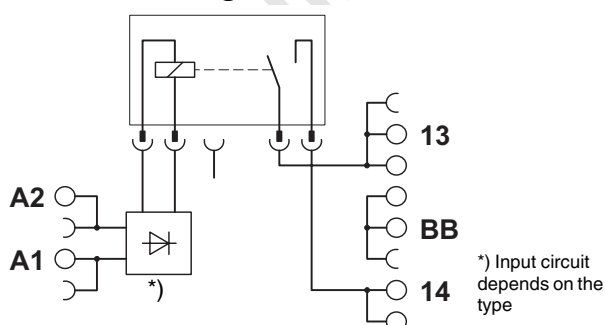
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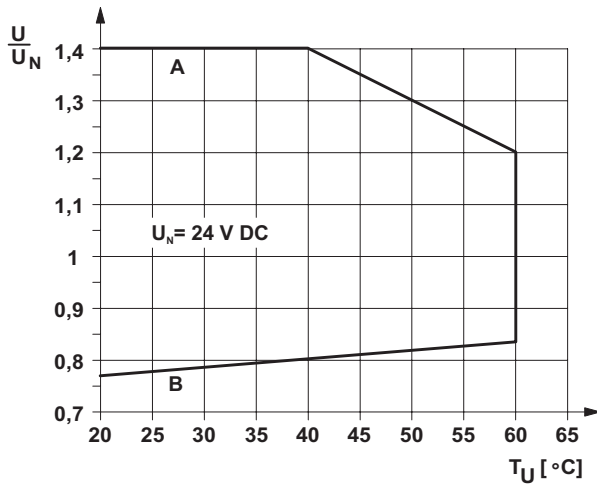
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## 4 Block Diagram



## 5 Operating Voltage Ranges



### General Conditions

Direct alignment in the block, all devices 100% operating factor, horizontal or vertical mounting.

### Curve A

Maximum permissible continuous voltage  $U_{\max}$  with limiting continuous current on the contact side

### Curve B

Minimum permissible relay operate voltage  $U_{\text{op}}$  following pre-excitation