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# PLC-BS...-TTL/1

## Basic Terminal Block for Fitting With Solid-State Relay or Electromechanical Relay

### INTERFACE

Data Sheet  
103247\_en\_03

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## 1 Description

The 6.2 mm **PLC-BS...-TTL/1** PLC INTERFACE module with screw or spring-cage connection can be fitted with a solid-state relay or an electromechanical relay.

The module operates with a supply voltage of 5 V DC at the input. The control input is designed for TTL (5 V). A further advantage is the ready-integrated input circuit, comprising status indicator, polarity protection function and surge protection function.

### 1.1 Plug-In Bridges Save Wiring

The PLC INTERFACE module achieves maximum efficiency with the user-friendly FBST plug-in bridge system. PLC-BS...-TTL/1 makes effective use of the bridging options for the A1/A2 connection on the control side and for the supply at connection 13 on the load side. 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.

### 1.2 Additional Advantages

- Switching capacity dependent on component fitted
- Integrated input circuit
- Inflammability class V0 in accordance with UL94





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It can be downloaded at [www.phoenixcontact.net/download](http://www.phoenixcontact.net/download).



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

## 2 Ordering Data

### PLC INTERFACE

Description	Type	Order No.	Pcs./Pck.
Basic terminal block for fitting with solid-state relay or electromechanical relay, for mounting on  , with screw connection	PLC-BSC-TTL/1	2982689	10
Basic terminal block for fitting with solid-state relay or electromechanical relay, for mounting on  , with spring-cage connection	PLC-BSP-TTL/1	2982692	10

### Accessories

Description	Type	Order No.	Pcs./Pck.
Plug-in solid-state relay (input solid-state relay), input voltage 5 V DC	OPT- 5DC/48DC/100	2967992	10
Plug-in solid-state relay with power contact, input voltage 5 V DC	OPT- 5DC/24DC/2	2967989	10
Plug-in miniature relay with power contact, 1 PDT, input voltage 4.5 V DC	REL-MR- 4.5DC/21	2961367	10
Plug-in miniature relay with multi-layer contact, 1 PDT, input voltage 4.5 V DC	REL-MR- 4.5DC/21AU	2961370	10
Partition plate	PLC-ATP BK	2966841	25



The PLC-ATP BK partition 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

Rated control supply voltage $U_{VN}$	5 V DC
Rated control supply voltage range with reference to $U_{VN}$	0,9 ... 1,2 x $U_{VN}$
Rated control supply current $I_{VN}$	
with solid-state relay OPT- 5DC/48DC/100	6.2 mA
with solid-state relay OPT- 5DC/24DC/2	11.5 mA
with electromechanical relay REL-MR- 4.5DC/21	41 mA
with electromechanical relay REL-MR- 4.5DC/21AU	41 mA
Rated actuating voltage $U_C$ (IN)	5 V DC (TTL)
Rated actuating voltage range with reference to $U_C$	0,9 ... 1,2 x $U_C$
Switching level	
1 signal ("H") (TTL signal)	> 2 V DC
0 signal ("L") (TTL signal)	< 0.8 V DC
Rated actuating current $I_C$	2.5 mA
Typical response time at $U_{VN}$	
with solid-state relay OPT- 5DC/48DC/100	35 $\mu$ s
with solid-state relay OPT- 5DC/24DC/2	35 $\mu$ s
with electromechanical relay REL-MR- 4.5DC/21	4.5 ms
with electromechanical relay REL-MR- 4.5DC/21AU	4.5 ms
Typical release time at $U_{VN}$	
with solid-state relay OPT- 5DC/48DC/100	140 $\mu$ s
with solid-state relay OPT- 5DC/24DC/2	320 $\mu$ s
with electromechanical relay REL-MR- 4.5DC/21	3.5 ms
with electromechanical relay REL-MR- 4.5DC/21AU	3.5 ms

Input Data (Continued)	
Transmission frequency at $U_{VN}$	
with solid-state relay OPT- 5DC/48DC/100	1000 Hz
with solid-state relay OPT- 5DC/24DC/2	500 Hz
Input circuit	Yellow LED, polarity protection <sup>1</sup> , surge protection
Surge protection	> 6.5 V

<sup>1</sup> Use a fuse to prevent short circuit in the event of polarity reversal.

Output Data with Solid-State Relay	OPT- 5DC/48DC/100	OPT- 5DC/24DC/2
Nominal output voltage	48 V DC	24 V DC
Maximum switching voltage	48 V DC	33 V DC
Minimum switching voltage	3 V DC	
Limiting continuous current (see "Derating Curve" on page 4)	100 mA	3 A
Voltage drop at maximum limiting continuous current	< 1 V	< 200 mV
Output configuration	2-wire floating	
Output circuit	Polarity protection <sup>1</sup> , surge protection	
Surge protection	> 60 V	> 35 V

<sup>1</sup> Use a fuse to prevent short circuit in the event of polarity reversal.

Output Data with Electromechanical Relay	REL-MR- 4.5DC/21	REL-MR- 4.5DC/21AU
Contact type	Single contact, 1 N/O contact	
Contact material	AgSnO	AgSnO + 5 $\mu$ Au <sup>1</sup>
Maximum switching voltage	250 V AC/DC <sup>2</sup>	30 V AC/36 V DC
Minimum switching voltage	12 V AC/DC	100 mV
Limiting continuous current	6 A	50 mA
Maximum inrush current	On request	50 mA
Minimum switching current	10 mA	1 mA
Maximum power rating	Ohmic load $\tau = 0$ ms	Ohmic load $\tau = 0$ ms
	24 V DC	140 W
	48 V DC	20 W
	60 V DC	18 W
	110 V DC	23 W
	220 V DC	40 W
	250 V AC	1500 VA
Minimum switching power	120 mW	100 $\mu$ W

<sup>1</sup> If the specified maximum values are exceeded, the gold coating will be damaged. In subsequent operation, the AgSnO contact values given here will apply. This can then result in reduced service life, similar to dedicated power contacts.

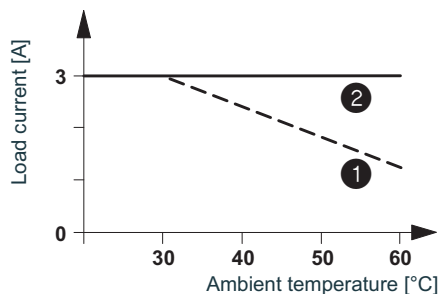
<sup>2</sup> The PLC-ATP BK partition plate must be installed for voltages greater than 250 V (L1, L2, L3) between the same terminal points on adjacent modules (see "Accessories"). Potential bridging is then carried out with FBST 8-PLC... or FBST 500....

General Data	
Rated insulation voltage	250 V
Impulse voltage withstand level	6 kV
Ambient temperature range	-20°C - 60°C
Nominal operating mode	100% operating factor
Inflammability class in accordance with UL 94 (housing)	V0
Air and creepage distances between the circuits	
Basic insulation <sup>1</sup>	DIN EN 50178
Degree of pollution	2
Surge voltage category	III
Mounting position	Any
Mounting	Can be aligned without spacing
Conductor cross-section (solid and stranded)	
Screw connection	0.14 mm <sup>2</sup> ... 2.5 mm <sup>2</sup>
Spring-cage connection	0.2 mm <sup>2</sup> ... 2.5 mm <sup>2</sup>
Stripping length	8 mm
Dimensions (W x H x D)	6.2 mm x 86 mm x 80 mm
Housing material	Polyamide PA, color green

<sup>1</sup> The PLC-ATP BK partition plate must be installed for safe isolation between adjacent modules (see "Accessories"). Potential bridging is then carried out with FBST 8-PLC... or FBST 500....

Tests/Approvals	
CE	CE
UL	Applied for

#### 4 Derating Curve



- ① Mounted in rows without spacing
- ② Mounted with spacing > 2 cm

Figure 1 Derating curve for basic terminal block with power solid-state relay OPT- 5DC/24DC/2

#### 5 Block Diagrams

