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 timeconsuming loop bridges.

1.2 Additional Advantages

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

i	Make sure you always use the latest documentation. It can be downloaded at <u>www.phoenixcontact.net/download</u> .
i	This data sheet is valid for all products listed on the following page:





2 Ordering Data

PLC INTERFACE

Description	Туре	Order No.	Pcs./Pck.
Basic terminal block for fitting with solid-state relay or electromechanical relay, for mounting on سرب, with screw connection	PLC-BSC-TTL/1	2982689	10
Basic terminal block for fitting with solid-state relay or electromechanical relay, for mounting on $\neg \neg$, with spring-cage connection	PLC-BSP-TTL/1	2982692	10
Accessories			
Description	Type	Order Ne	Dee /Delr
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	РСЅ./РСК. 10
Plug-in solid-state relay (input solid-state relay), input voltage 5 V DC Plug-in solid-state relay with power contact, input voltage 5 V DC	OPT- 5DC/48DC/100 OPT- 5DC/24DC/2	2967992 2967989	РСЅ./РСК. 10 10
Plug-in solid-state relay (input solid-state relay), input voltage 5 V DC Plug-in solid-state relay with power contact, input voltage 5 V DC Plug-in miniature relay with power contact, 1 PDT, input voltage 4.5 V DC	OPT- 5DC/48DC/100 OPT- 5DC/24DC/2 REL-MR- 4.5DC/21	2967992 2967989 2961367	10 10 10
Plug-in solid-state relay (input solid-state relay), input voltage 5 V DC Plug-in solid-state relay with power contact, input voltage 5 V DC Plug-in miniature relay with power contact, 1 PDT, input voltage 4.5 V DC Plug-in miniature relay with multi-layer contact, 1 PDT, input voltage 4.5 V DC	OPT- 5DC/48DC/100 OPT- 5DC/24DC/2 REL-MR- 4.5DC/21 REL-MR- 4.5DC/21AU	2967992 2967989 2961367 2961370	РСS./РСК. 10 10 10 10

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.

3 Technical Data

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Input Data	
Rated control supply voltage UVN	5 V DC
Rated control supply voltage range with reference to U_{VN}	0,9 1,2 x U _{VN}
Rated control supply current IVN	
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 μs
with solid-state relay OPT- 5DC/24DC/2	35 μs
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 μs
with solid-state relay OPT- 5DC/24DC/2	320 μs
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 UVN		
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 ¹ , surge protection	
Surge protection	> 6.5 V	

¹ 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	¹ , surge protection
Surge protection	> 60 V	> 35 V

¹ 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 μAu ¹	
Maximum switching voltage		250 V AC/DC ²	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	1.2 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 µW	

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¹ 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.

² 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 ¹	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	$0.14 \text{ mm}^2 \dots 2.5 \text{ mm}^2$	
Spring-cage connection	$0.2 \text{ mm}^2 \dots 2.5 \text{ mm}^2$	
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	

¹ 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	





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

5 Block Diagrams



