

# PLC INTERFACE With Leakage Current Protection Against Interference Currents and Voltages on the Control Side - PLC-BSC-24DC/21SO46

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## 1. Short Description

PLC INTERFACE, the super thin, plug-in, and flexible modular interface system with a user-friendly plug-in bridge system, now offers an extended range of relay interfaces for applications in which high levels of interference voltage occur on the control side (coil).

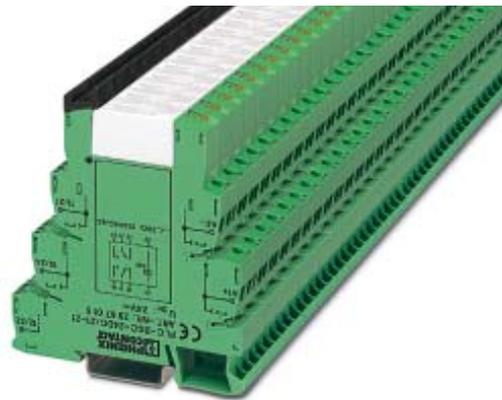
### Application Problem: Long Cables

This problem is familiar to almost every practical expert: relays do not drop again on a "0" signal or even pick up in extreme cases due to interference voltages on the control cables. This is often caused by long and/or poorly-laid cables. AC voltages are thus coupled from adjacent cables, which frequently exceed 10 V. Conventional coupling relays become overloaded with these undefined signals and do not demonstrate clear switching behavior.

### Solution: PLC-...SO46 With Leakage Current Protection

A 6.2 mm (0.244 in.) PLC-...SO46 version with leakage current protection is now available for 24 V DC applications with high levels of interference voltage. The leakage current filter considerably reduces interference in the control circuit and thus contributes to safe signal transmission.

The PLC-...SO46 is only supplied as a basic terminal block with leakage current filter; a relay or optocoupler is not included. For possible components, please refer to the Technical Data.

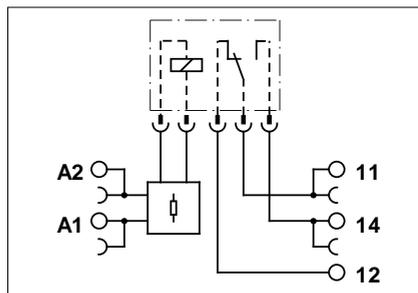


### All Other PLC Advantages

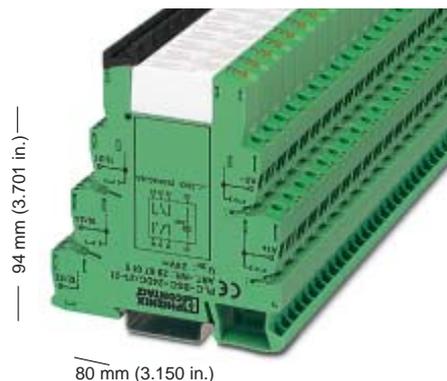
The PLC-...SO46 series also features the other advantages of the PLC range:

- Super thin 6.2 mm (0.244 in.) design
- Universal SPDT series
- User-friendly, vibration-resistant, and time-saving plug-in bridge system
- Integrated input wiring and protective circuit
- Relay or optocoupler can be quickly replaced using an engagement lever
- Screw connection technology
- Etc.

## 2. Technical Data



Circuit diagram



### PLC-BSC-24DC/21SO46

basic terminal block that can be fitted with a relay

**Note:** Please refer to the INTERFACE catalog for installation instructions and accessories



M 3

8 mm (0.31 in.)

	Solid	Stranded		I	U
	[mm <sup>2</sup> ]	[mm <sup>2</sup> ]	AWG	[A]	[V]
Connection data	0.14 - 2.5	0.14 - 2.5	26 - 14	*	*

\* The electrical data is determined by the relay.

Description	Input voltage U <sub>N</sub>
<b>PLC interface with screw connection</b> PLC-BSC.../21/SO46 basic terminal block for plug-in miniature relay, for mounting on 3	24 V DC
<b>Suitable plug-in miniature relay</b>	Gold contact Power contact

#### Technical Data<sup>1)</sup>

##### Input Data

Nominal input voltage U<sub>N</sub>  
Permissible range (with reference to U<sub>N</sub> and T<sub>u</sub> = 20°C [68°F])  
Typical input current at U<sub>N</sub>  
Typical response time/release time at U<sub>N</sub>  
Input wiring

##### Output Data (when fitted with...)

Contact type  
Contact material  
Maximum switching voltage  
Minimum switching voltage  
Limiting continuous current  
Maximum inrush current  
Minimum switching current  
Maximum shutdown power, ohmic load:

24 V DC
48 V DC
60 V DC
110 V DC
220 V DC
250 V AC

Minimum switching power

##### General Data

Test voltage I/O  
Ambient operating temperature range  
Nominal operating mode  
Inflammability class  
Mechanical service life  
Standards/specifications

Mounting position/mounting

Housing width 6.2 mm (0.244 in.)

(F U provided)

<sup>1)</sup>The technical data only applies to basic terminal blocks fitted with a REL-MR-24DC/21 or REL-MR-24DC/21AU

Type	Order No.	Pcs. Pkt.
PLC-BSC-24DC/21SO46	29 80 45 8	10
REL-MR-24DC/21AU	29 61 12 1	18
REL-MR-24DC/21	29 61 10 5	18

24 V DC

0.78

16 mA

5 ms/8 ms

Protection against polarity reversal, free-wheeling diode, resistor

##### REL-MR-24DC/21

Single contact, SPDT contact

AgSnO

250 V AC/DC

12 V AC/DC

6 A

On request

10 mA

140 W

20 W

18 W

23 W

40 W

1500 VA

120 mW

##### REL-MR-24DC/21AU

Single contact, SPDT contact

Ag-alloy, hard gold-plated

30 V AC/36 V DC

100 mV

50 mA

50 mA

1 mA

1.2 W

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–

–

–

–

100 μW

4 kV, 50 Hz, 1 minute

-20°C to +60°C (-4°F to +140°F)

100% operating factor

V0 according to UL 94

2 x 10<sup>7</sup> cycles

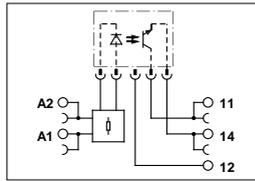
IEC 60 664/IEC 60 664 A/DIN VDE 0110, degree of pollution 3,

Surge Voltage Category III, DIN EN 50 178/VDE 0160 (in relev. parts),

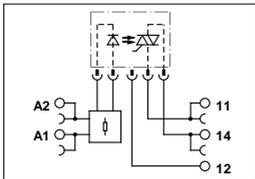
DIN VDE 0106-101:1986-11, reinforced insulation for I/O

Any/can be mounted without spacing

# PLC INTERFACE With Leakage Current Protection – PLC-BSC-24DC/21SO46



Circuit diagram for DC output



Circuit diagram for AC output



**Note:** Please refer to the INTERFACE catalog for installation instructions and accessories



	Solid		Stranded		I [A]	U [V]
	0.14 - 2.5	0.14 - 2.5	26 - 14	*		
Connection data	0.14 - 2.5	0.14 - 2.5	26 - 14	*	*	*

\* The electrical data is determined by the relay.

8 mm (0.31 in.)

## PLC-BSC-24DC/21SO46

basic terminal block that can be fitted with an optocoupler

Housing width 6.2 mm (0.244 in.) (F U provided)

<sup>1)</sup>The technical data only applies to basic terminal blocks fitted with an OPT-24DC/48DC/100; OPT-24DC/24DC/2 or OPT-24DC/230AC/1

Description	Input voltage U <sub>N</sub>
<b>PLC interface with screw connection</b> PLC-BSC.../21/SO46 basic terminal block for plug-in optocoupler, for mounting on 3	24 V DC
<b>Suitable plug-in optocoupler</b>	

Type	Order No.	Pcs. Pkt.
<b>PLC-BSC-24DC/21SO46</b>	<b>29 80 45 8</b>	10
<b>OPT-24DC/48DC/100</b>	<b>29 66 61 8</b>	18
<b>OPT-24DC/24DC/2</b>	<b>29 66 59 5</b>	18
<b>OPT-24DC/230AC/1</b>	<b>29 67 75 0</b>	18

### Input Data

Nominal input voltage U<sub>N</sub>  
Permissible range (with reference to U<sub>N</sub> and T<sub>u</sub> = 20°C [68°F])  
Typical input current at U<sub>N</sub>  
Typical response time/release time at U<sub>N</sub>  
Input wiring

24 V DC  
0.8  
16 mA  
3 ms/9 ms  
Protection against polarity reversal, free-wheeling diode, resistor

### Output Data (when fitted with...)

Maximum switching voltage  
Minimum switching voltage  
Limiting continuous current  
Maximum inrush current  
Minimum switching current  
Output switching

OPT-24DC/48DC/100	OPT-24DC/24DC/2	OPT-24DC/230AC/1
48 V DC	30 V DC	253 V AC
3 V DC	3 V DC	24 V AC
100 mA	3 A (see derating)	0.75 A (see derating)
–	15 A (10 ms)	30 A (10 ms)
–	–	10 mA
2-wire floating ground	2-wire floating ground	2-wire floating ground
Protection against polarity reversal	Protection against polarity reversal	RCV circuit
Surge protection	Surge protection	
< 1 V DC	< 200 mV DC	< 1 V AC
		< 1 mA
		cosφ = 0.5
		4.5 A <sup>2</sup> S

### Output wiring

Voltage drop on limiting continuous current  
Leakage current in the off state  
Maximum phase shift (inductive load)  
Maximum load value I<sup>2</sup> x t (t = 10 ms)

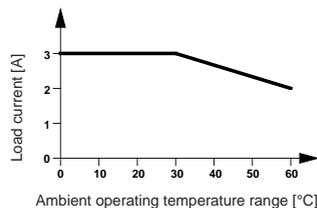
### General Data

Test voltage I/O  
Ambient operating temperature range  
Nominal operating mode  
Inflammability class  
Standards/specifications

2.5 kV, 50 Hz, 1 minute  
-20°C to +55°C (-4°F to +131°F)  
100% operating factor  
V0 according to UL 94  
IEC 60 664/IEC 60 664 A/DIN VDE 0110, degree of pollution 2,  
Surge Voltage Category III  
Any/can be mounted without spacing

### Mounting position/mounting

#### Derating curve for OPT... power optocoupler with DC output



#### Derating curve for OPT... power optocoupler with AC output

