3.4 Interface module SB70

Article number

6DD1681-0AG2

Description

Interface module SB70 is used to adapt 8 digital output signals from SIMATIC TDC / FM458-1DP with electrical isolation to the signal level of the plant by means of relays.

The voltage of the output signal may amount up to max. 120 V DC or AC.

The cable SC62 is used to connect the interface modules to the SIMATIC TDC / FM458-1DP components (for more information, refer to the SIMATIC TDC / FM458-1DP documentation).

Module design

- Enclosure for snap-on mounting to rails
- Ribbon cable connector (X1):
  - 8 pins for digital inputs
  - 2 pins for 1P, 1M
- Connector (X2), 2x 12-pole
  - 8 terminals for the NO contact
  - 8 terminals for the NC contact
  - 8 terminals for the center contact
- 1 terminal pair X3: 1P, 1M (SIMATIC TDC / FM458-1DP-side voltage)
- Double test socket X5: 1P(+), 1M(G)
- LED displays for diagnostics
- Relays for the electrical isolation of inputs and outputs
- PTC thermistor as line protection downstream of the SIMATIC TDC / FM458-1DP-side voltage supply

Voltage supply on SIMATIC side

The SIMATIC TDC voltage supply is fed to terminal X3:

Terminal X3	Voltage on SIMATIC TDC / FM458-1DP side
1P	+24 V
1M	0 V

The cables are connected with the SM11 parts kit "Power supply connector for interface modules" (article number: 6DD1680-0BB0).

The maximum conductor cross-section at terminal X3 is 2.5 mm².

Note

For connection of the voltage supply, observe the information in the user manual in section Installation and EMC guidelines (Page 7).

⚠ WARNING

Isolation

Safe electrical isolation is guaranteed only between the inputs and outputs

The system side (rack including 24 V power supply) is safely isolated from hazardous voltages on plant side (8 output signals).

The output circuits are only isolated galvanically.

The output circuits on plant side are only isolated galvanically. Circuits consisting of combinations of safety extra-low voltage and hazardous voltages are not allowed.

Green LED

The SIMATIC TDC / FM458-1DP-side voltage supply is indicated by a green LED (P).

Red LED

The SIMATIC TDC / FM458-1DP-side voltage supply (1P, 1M) is short-circuited (fault).

Test socket

The SIMATIC TDC / FM458-1DP-side supply voltage is applied at the double test socket X5 (G; +):

Double test socket X5	Voltage on SIMATIC TDC / FM458-1DP side
+ (1P of X3)	+24 V
G (1M of X3)	0 V

3.4.1 Signals

Yellow LED

The status of each of the 8 signals (1...8) is displayed by means of a yellow LED.

Terminal block for digital signals

Terminal block X2 provides three screw terminals for each signal to the plant side:

- Terminals 14, 24 ... to 84 for NO contacts
- Terminals 12, 22 ... up to 82 for NC contacts

Terminals 11, 21 ... to 81 as center contact. The corresponding relay contacts are determined as follows:

Idle state	Connections (screw terminals)
Contact closed (normally closed contact)	n2 - n1 [1)]
Contact open (normally open contact)	n4 - n1
[1)] n: 1...8, depending on the channel number	

Note

For connection of the signal voltage to the relay contacts, observe the information in section Installation and EMC guidelines (Page 7).

3.4.2 Application notes

The interface module is suitable for vertical and horizontal mounting positions

Other information

For more information on EMC and ambient conditions, refer to section General technical specifications (Page 26).

The following figure shows a typical application:

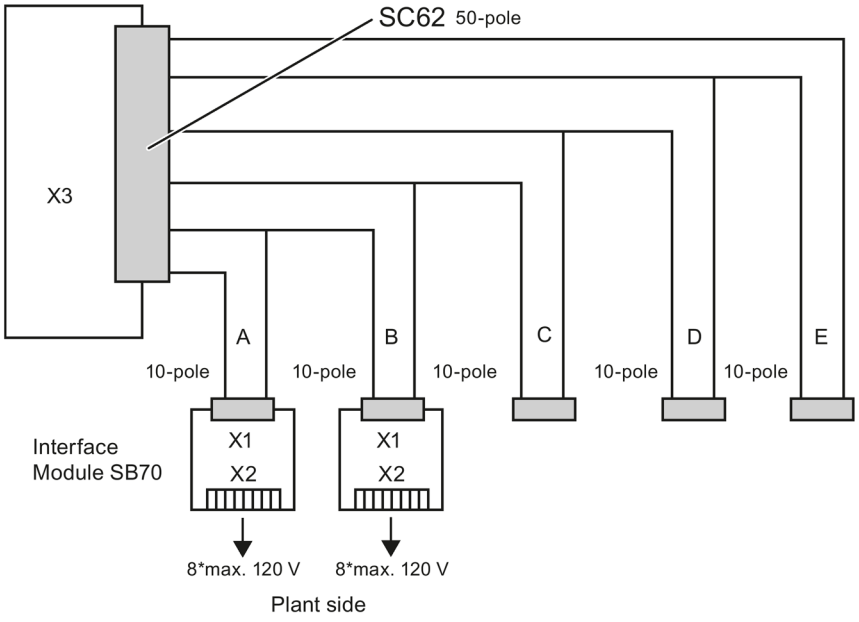


Figure 3-9 Application example of an SB70 interface module on digital I/O module SM500

The digital inputs of the interface module are connected to the outputs of SIMATIC TDC / FM458-1DP via the cable SC62.

3.4.3 Technical specifications

General data

Mounting system	Housing can be snapped onto mounting rails
Dimensions W x H x D [mm]	45 x 129 x 160 mm
Weight	0.3 kg

Ambient temperatures

Ambient temperatures	max. 60 °C

Power supply

Rated supply voltage (V_s)	24 V DC
Valid range	20.4 V to 28.8 V DC
Briefly t<500 ms	1.5 x V_{rated}
Rated current consumption	150 mA

The maximum current of 1 A may not be exceeded on connector X3 if the supply of several terminal blocks is routed via this connector.

Digital outputs

Number		8
Switching characteristics of the relay contacts		
	AC 120 V	2 A
	DC 120 V	0.4 A
	DC 60 V	1 A
	< DC 35 V	2 A
Switching frequency		Max. 20 Hz
Dielectric strength		Safety isolation guaranteed: - between inputs and outputs Electrical isolation guaranteed: - between input circuits 1125 V AC test voltage

3.4.4 Pin assignment

Flat connector X1

The cable SC62 is used to connect the interface modules to the SIMATIC TDC / FM458-1DP components (for more information, refer to the SIMATIC TDC / FM458-1DP documentation).

Digital inputs, terminal block X2

Table 3- 5 Pin assignment of the digital inputs of interface module SB70, terminal block X2

Terminal	120 V	Channel No.
11	Center contact	Channel 1
21	Center contact	Channel 2
31	Center contact	Channel 3
41	Center contact	Channel 4
51	Center contact	Channel 5
61	Center contact	Channel 6
71	Center contact	Channel 7
81	Center contact	Channel 8
12	NC contact	Channel 1
22	NC contact	Channel 2
32	NC contact	Channel 3
42	NC contact	Channel 4
52	NC contact	Channel 5
62	NC contact	Channel 6
72	NC contact	Channel 7
82	NC contact	Channel 8
14	NO contact	Channel 1
24	NO contact	Channel 2
34	NO contact	Channel 3
44	NO contact	Channel 4
54	NO contact	Channel 5
64	NO contact	Channel 6
74	NO contact	Channel 7
84	NO contact	Channel 8

Conductor cross-section

The minimum conductor cross-section for the terminal block X1 is 0.2mm² and the maximum is 2.5 mm².

3.4.5 Block diagram

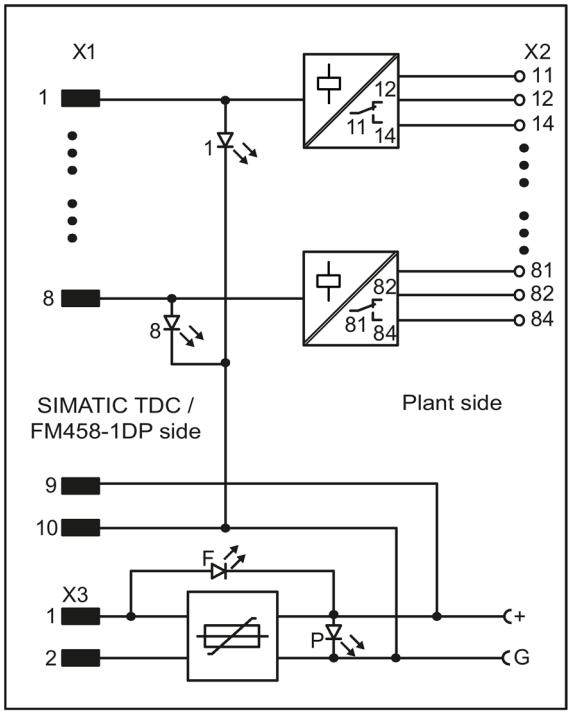


Figure 3-10 Block diagram of interface module SB70