

5.9.5 Diagnostic and status messages

LED status displays

Table 5-26:
LED-displays

LED	Display	Meaning	Remedy
DIA	Red	Module bus communication failure	Check if more than two ad-joining electronics modules have been pulled. Check the supply of the module bus.
	OFF	No error messages or diagnostics	–
11	Green	Status channel 1 = 1	
	OFF	Status channel 1 = 0	
...			
161	Green	Status channel 16 = 1	
	OFF	Status channel 16 = 0	



NOTE

The numbering of the channel LEDs corresponds to the numbering of the connectors at the base module.

5.9.6 Module parameters

none

5.10 Digital input module, BL20 Economy, 16 DI, 24 V DC, positive switching (sinking)

Figure 5-45:
BL20-E-16DI-
24VDC-P

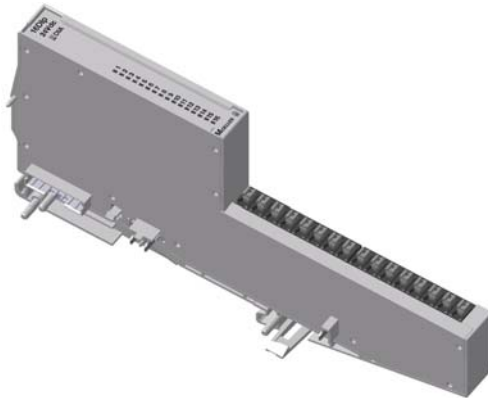
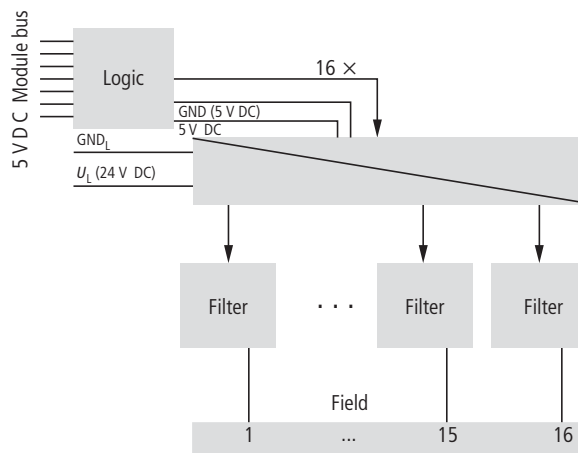


Figure 5-46:
Block diagram



5.10.1 Technical data

Table 5-27: Technical data	Designation	BL20-E-16DI-24VDC-P
	Number of channels	16
A The total current needed for every module is the sum of all partial currents.	Nominal voltage from supply terminal U_L	24 V DC
	Current from supply terminal (for supply of module electronic - the inputs are switches off - maximum)	3 mA A
	Nominal current from module bus I_{MB}	< 15 mA
	Input voltage, nominal value at 24 V DC	
	Low level U_L	- 30 V to +5 V
	High level U_H	11 V to 30 V
	Input current	
	Low level I_{Lo}	-1 mA to 1.5 mA
	High level I_H	2 mA to 5 mA
	Input delay	
	t_{ON}	< 150 μs
	t_{OFF}	< 300 μs
	Isolation voltage	
	Module bus/ channels	500 V _{rms}

5.10.2 Wiring diagram

Figure 5-47:
Wiring diagram

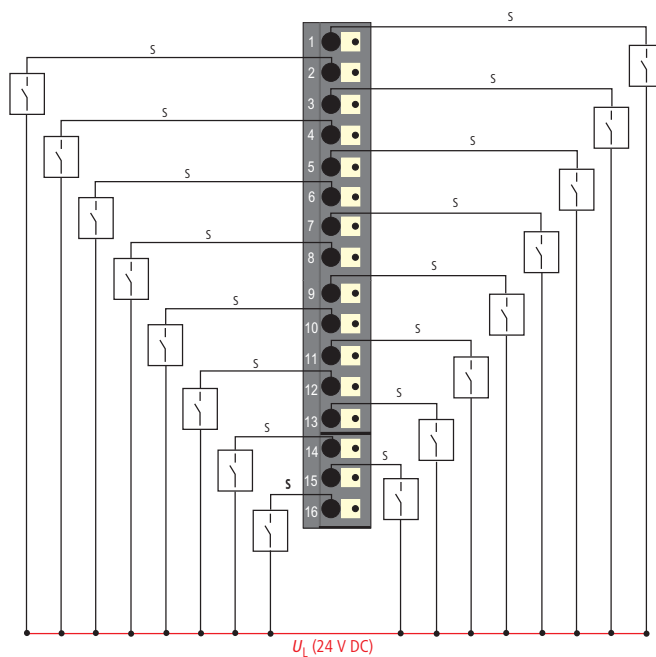
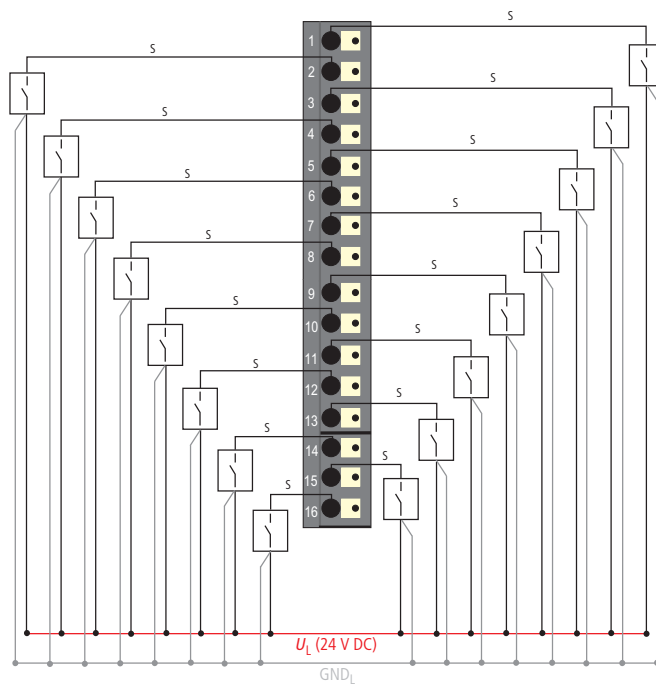


Figure 5-48:
Wiring diagram
with sensor supply



5.10.3 Process data mapping

Data	Byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
Input	n	DI8	DI7	DI6	DI5	DI4	DI3	DI2	DI1
	n + 1	DI16	DI15	DI14	DI13	DI12	DI11	DI10	DI9

n = offset of input data; depending on extension of station and the corresponding fieldbus.



NOTE

With PROFIBUS, PROFINET and CANopen, the I/O data of this module is localized within the process data of the whole station via the hardware configuration tool of the fieldbus master. With DeviceNet™, EtherNet/IP™ and Modbus TCP a detailed mapping table can be created with the TURCK configuration tool I/O-ASSISTANT V3 (PACTware™ + BL20-DTM).

Table 5-28:
Process data bits

Process data	Value	Meaning
DIx	0	Digital input inactive
	1	Digital input active

5.10.4 Diagnostic and status messages

LED status displays

Table 5-29:
LED-displays

LED	Display	Meaning	Remedy
DIA	Red	Module bus communication failure	Check if more than two ad-joining electronics modules have been pulled. Check the supply of the module bus.
	OFF	No error messages or diagnostics	–
1	Green	Status channel 1 = 1	
	OFF	Status channel 1 = 0	
...	
16	Green	Status channel 16 = 1	
	OFF	Status channel 16 = 0	

7.6 Digital input module, BL20 Economy, 8 DO, 0.5 A, positive switching (sourcing)

Figure 7-25:
BL20-8DO-
24VDC-0.5A-P

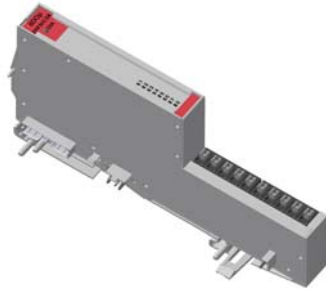
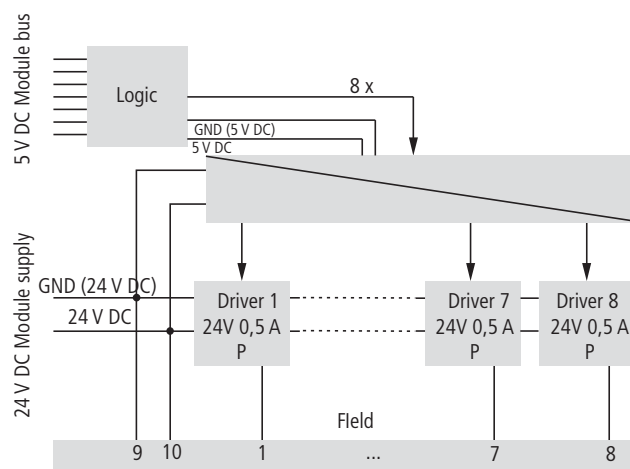


Figure 7-26:
Block diagram

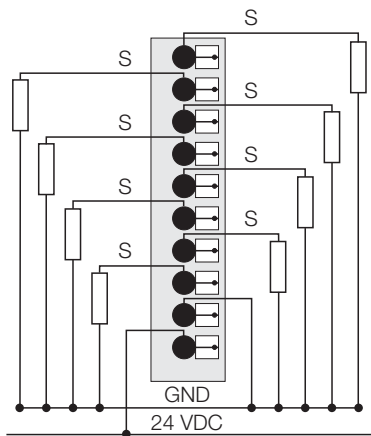


7.6.1 Technical data

Table 7-14: Technical data	Designation	BL20-E-8DO-24VDC-0.5A-P
	Number of channels	8
A The total current needed for necessary for each module is the sum of all partial currents.	Nominal voltage from supply terminal U_L	24 V DC
	Nominal current from supply terminal I_L (for supplying the module electronic with inactive outputs/maximum)	< 10 mA A
	Nominal current from module bus I_{MB}	< 15 mA
	Output voltage (loaded)	
	High level U_H	min. L+ (-1 V)
	Output current	
	High level (nominal)	0.5 A
	permissible (max. for 5 minutes)	1 A
	Delay at signal change and resistive load ($R_{LO} < 1 \text{ k}\Omega$)	
	From low to high level	300 μs
	From high to low level	300 μs
	Simultaneity factor	100 %
	Resistive, inductive and lamp loads can be connected	
	Load impedance, resistive R_{LO}	$\geq 48 \Omega$
	Load impedance, inductive R_{LI}	Category DC 13 according to EN 60 947-5-1
	Lamp load R_{LL}	< 6 W
	Switching frequency	
	Resistive load	< 100 Hz
	Inductive load	category DC 13 according to EN 60 947-5-1
	Lamp load	< 10 Hz
	Isolation voltage	
	Module bus/ channels	500 V _{rms}
	Short-circuit proof	according to EN 61131-2
	Reset after eliminating a short circuit	automatic

7.6.2 Wiring diagram


Figure 7-27:
Wiring diagram



7.6.3 Process data mapping

Data	Byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
Output	m	DO8	DO7	DO6	DO5	DO4	DO3	DO2	DO1

m = Offset of output data; depending on extension of station and the corresponding fieldbus.



NOTE

With PROFIBUS, PROFINET and CANopen, the I/O data of this module is localized within the process data of the whole station via the hardware configuration tool of the fieldbus master. With DeviceNet™, EtherNet/IP™ and Modbus TCP a detailed mapping table can be created with the TURCK configuration tool I/O-ASSISTANT.

Process data	Value	Meaning
DOx	0	Digital output inactive
	1	Digital output active