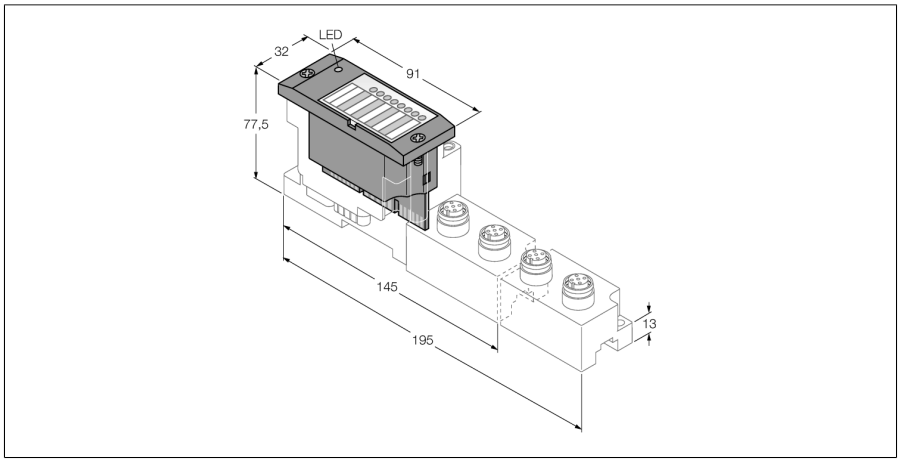
BL67 electronic module
16 Digital Outputs, PNP, 0.1 A
BL67-16DO-0.1A-P



- Independent of the fieldbus and connection technology used
- Protection class IP67
- LEDs indicate status and diagnostic
- Electronics galvanically separated from the field level via optocouplers
- 16 digital outputs, 24 VDC
- 0.1A nominal current
- Imax = 180 mA per channel with 50% simultaneity of the 16 channels
- PNP
- Channel diagnostics
- From version VN 01-07 and higher, the module supports accelerated start-up for applications with Fast Start-Up (FSU) and QuickConnect (QC).

Type	BL67-16DO-0.1A-P
ID	6827221

Number of channels	16
Supply voltage	24 VDC
Nominal voltage V_o	24 VDC
Nominal current from field supply	≤ 100 mA
Nominal current from module bus	≤ 30 mA
Max. sensor supply I_{sens}	4 A electronically limited current supply via gateway or power feed
max. load current I_o	10 A via gateway or power feed
Power dissipation, typical	≤ 1.5 W

Output connectivity	M8, M23

Output type	PNP
Output voltage	24 VDC
Output current per channel	100 mA nominal current (I_{max} = 140 mA version VN 01-05 and higher, I_{max} = 180 mA version VN 01-06 and higher)
Output delay	3 ms
Load type	resistive, inductive
Load resistance, resistive	> 250 Ω
Load resistance, inductive	< 1.2 H
Switching frequency, resistive	< 200 Hz
Switching frequency, inductive	< 2 Hz
Switching frequency, lamp load	< 20 Hz
Short-circuit protection	yes
Simultaneity factor	1 (I_{max} ≤ 120 mA), 0.5 (I_{max} ≤ 180 mA)
Electrical isolation	electronics for the field level

Number of diagnostic bits	16
Number of parameter bytes	2

Functional principle

BL67 electronic modules are plugged on the purely passive base modules which in turn are connected to the field devices. The separation of connection level and electronics simplifies maintenance considerably. Flexibility is enhanced because the user can choose between base modules with different connection technologies.

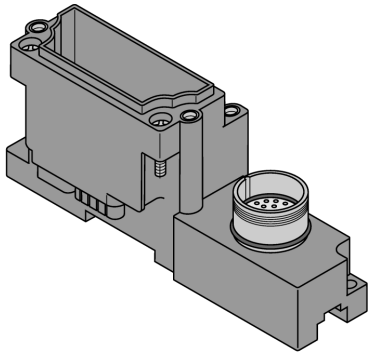
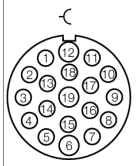
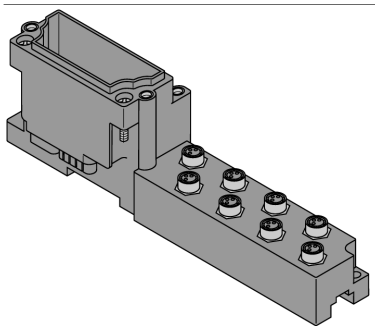
The electronic modules are completely independent of the higher level fieldbus through the use of gateways.

Edition • 2023-11-01T00:54:40+01:00

Dimensions (W x L x H)	32 x 91 x 59 mm
Approvals	CE, cULus
Ambient temperature	-40…+70 °C
Temperature derating	
> 55 °C Steady ambient air	Simultaneity factor 0.5
Storage temperature	-40…+85 °C
Relative humidity	5…95 % (internal), level RH-2, no condensation (when stored at 45 °C)
Vibration test	Acc. to EN 61131
- up to 5 g (at 10 to 150 Hz)	for mounting on DIN rail no drilling according to EN 60715, with end bracket
- up to 20 g (at 10 up to 150 Hz)	for mounting on base plate or machinery Therefore every second module has to be mounted with two screws each.
Shock test	Acc. to IEC 60068-2-27
Drop and topple	acc. to IEC 68-2-31 and free fall to IEC 68-2-32
Electromagnetic compatibility	Acc. to EN 61131-2
Protection class	IP67
Tightening torque fixing screw	0.9…1.2 Nm

Edition • 2023-11-01T00:54:40+01:00

Compatible base modules

Dimension drawing	Type	Pin configuration
	**BL67-B-1M23-19** 6827216 1 x M23, 19-pole, female **Comments** field-wireable connector (for example): FW-M23ST19Q-G-LT-ME-XX-10 Ident-No. 6604208	Pin Assignment  1 = Output 14 2 = Output 10 3 = Output 6 4 = Output 3 5 = Output 2 6 = GND 7 = Output 1 8 = Output 5 9 = Output 9 10 = Output 13 11 = Output 12 12 = PE 13 = Output 11 14 = Output 7 15 = Output 0 16 = Output 4 17 = Output 8 18 = Output 15 19 = V_{SENS}
	**BL67-B-8M8-4-P** 6827384 8 x M8, 4-pin, female, paired	Pin Assignment  1 = V_{SENS} 2 = Signal A 3 = GND 4 = Signal B

Edition • 2023-11-01T00:54:40+01:00

LED display

LED	Color	Status	Meaning
D		OFF	No error message or diagnostics active.
	RED	ON	Failure of module bus communication. Check if more than 2 adjacent electronic modules are pulled. Relevant modules are located between gateway and this module.
	RED	FLASHING (0.5 Hz)	Upcoming module diagnostics
DO channels 0…15		OFF	Output status x/y = 0 (OFF), no active diagnostics
	GREEN	ON	Output status x/y = 1 (ON)
	RED	ON	Short-circuit/overload at output x/y

Attention

The channel-LEDs of this module indicate the status of two outputs per channel:

- LED 0 = Status channel 0 / 1

…

- LED 7 = Status channel 14 / 15

The red LED is always ON, meaning the channel diagnostics is constantly indicated!

Edition • 2023-11-01T00:54:40+01:00

Data mapping

DATA	BYTE	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
Output	m	DO 7	DO 6	DO 5	DO 4	DO 3	DO 2	DO 1	DO 0
	m+1	DO 15	DO 14	DO 13	DO 12	DO 11	DO 10	DO 9	DO 8

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

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.

Pin assignment at corresponding base module:

DATA	BYTE	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
BL67-B-1M23-19									
Output	m	C0 P14	C0 P3	C0 P8	C0 P16	C0 P4	C0 P5	C0 P7	C0 P15
	m+1	C0 P18	C0 P1	C0 P10	C0 P11	C0 P13	C0 P2	C0 P9	C0 P17

C… = slot no., P… = pin no.

Edition • 2023-11-01T00:54:40+01:00