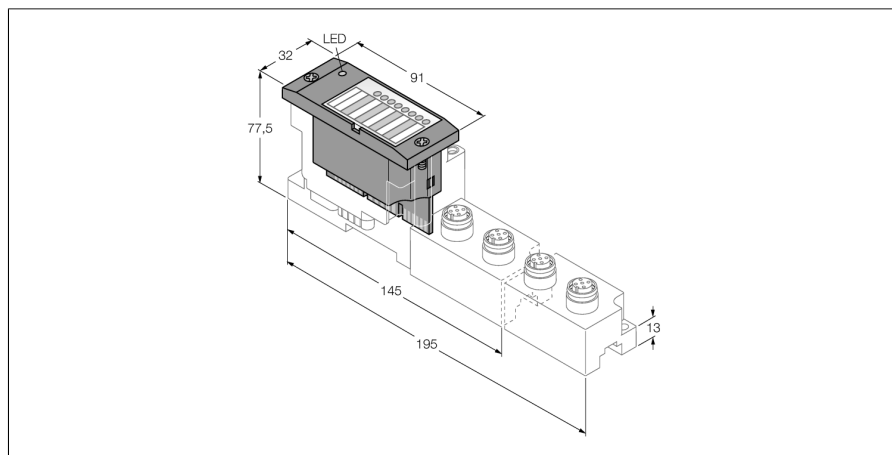


# BL67 electronic module

## 8 Configurable Digital Channels, PNP, 0.5 A

### BL67-8XSG-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
- 8 configurable digital channels
- 24 VDC, PNP
- Max. 0.5 A
- Adjustable filter times
- Invertible inputs
- From version VN 01-01 and higher, the module supports accelerated start-up for applications with Fast Start-Up (FSU) and QuickConnect (QC).

|                                   |                                                                     |
|-----------------------------------|---------------------------------------------------------------------|
| Type                              | BL67-8XSG-P                                                         |
| ID                                | 6827310                                                             |
| Number of channels                | 8                                                                   |
| Supply voltage                    | 24 VDC                                                              |
| Nominal voltage $V_s$             | 24 VDC                                                              |
| Nominal current from field supply | $\leq 100$ mA                                                       |
| Nominal current from module bus   | $\leq 30$ mA                                                        |
| Max. sensor supply $I_{sens}$     | 4 A electronically limited current supply via gateway or power feed |
| max. load current $I_L$           | 10 A via gateway or power feed                                      |
| Power dissipation, typical        | $\leq 1.5$ W                                                        |
| Input type                        | PNP                                                                 |
| Type of input diagnostics         | group diagnostics                                                   |
| Low-level signal voltage          | $< 4.5$ V                                                           |
| High level signal voltage         | 7...30 V                                                            |
| Low level signal current          | $< 1.5$ mA                                                          |
| High level signal current         | 2.1...3.7 mA                                                        |
| Input delay                       | 0.25; 2.5 ms                                                        |
| Electrical isolation              | electronics for the field level                                     |
| Output connectivity               | M8, M12, M23                                                        |
| Output type                       | PNP                                                                 |
| Output voltage                    | 24 VDC                                                              |
| Output current per channel        | 0.5 A                                                               |
| Output delay                      | 3 ms                                                                |
| Load type                         | resistive, inductive, lamp load                                     |
| Load resistance, resistive        | $> 48 \Omega$                                                       |
| Load resistance, inductive        | $< 1.2$ H                                                           |
| Lamp load                         | $< 3$ W                                                             |
| Switching frequency, resistive    | $< 200$ Hz                                                          |
| Switching frequency, inductive    | $< 2$ Hz                                                            |
| Switching frequency, lamp load    | $< 20$ Hz                                                           |
| Simultaneity factor               | 1                                                                   |
| Electrical isolation              | electronics for the field level                                     |

#### Functional principle

BL67 electronic modules are plugged into the purely passive base modules which are needed for connection of 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.

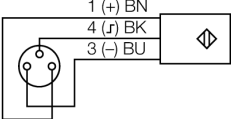
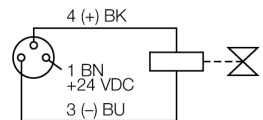
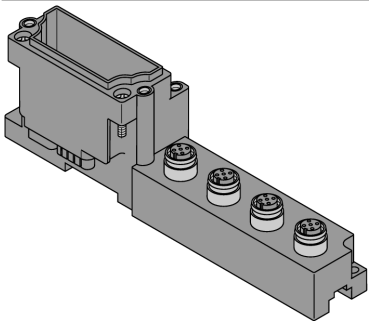
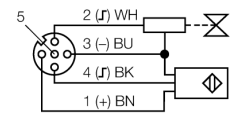
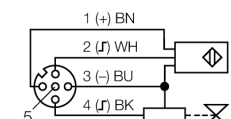
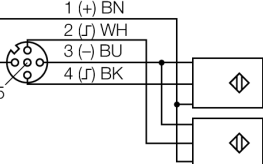
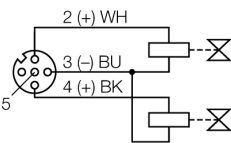
#### Note

The inputs and outputs of the digital combi-module are supplied via a common GND. Therefore, we recommend **not** to use this module for safety or emergency stop applications.

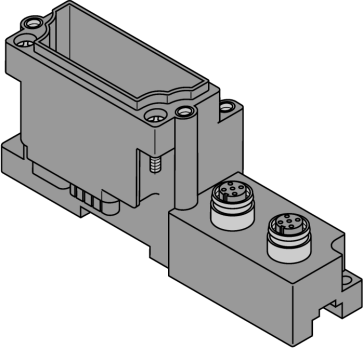
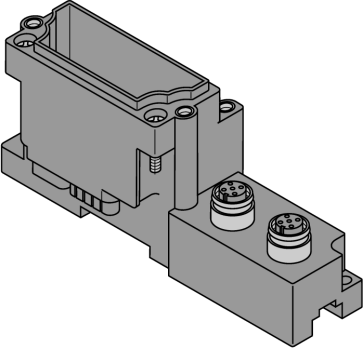
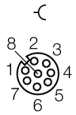
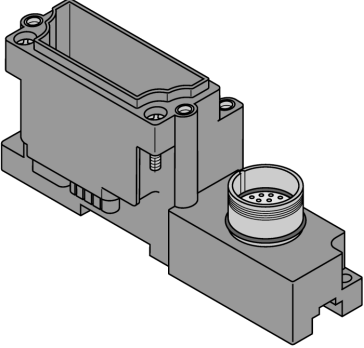
Otherwise, it must be ensured that  $V_i$  and  $V_o$  at the gateway or power feeding module are all-pole disabled.

|                                   |                                                                                                               |
|-----------------------------------|---------------------------------------------------------------------------------------------------------------|
| Number of diagnostic bits         | 12                                                                                                            |
| Number of parameter bytes         | 8                                                                                                             |
| 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                                                                                                  |

Compatible base modules

| Dimension drawing                                                                  | Type                                                                                                                                                                                                                                                                                                                                                                                  | Pin configuration                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|   | <p><b>BL67-B-8M8</b><br/>6827188<br/>8 x M8, 3-pole, female</p> <p><b>Comments</b><br/>Matching connection cable (for example):<br/>PKG3M-2-PSW3M/TXL<br/>Ident-No. 6625668</p>                                                                                                                                                                                                       | <p><b>Pin Assignment</b></p> <p>⌋</p> <p>4<br/>3 1</p> <p>1 = V<sub>SENS</sub><br/>3 = GND<br/>4 = Signal A</p> <p><b>Wiring Diagram</b></p>  <p><b>Wiring diagram</b></p>                                                                                                                                                                                                                                                                                |
|  | <p><b>BL67-B-4M12</b><br/>6827187<br/>4 x M12, 5-pole, female</p> <p><b>Comments</b><br/>Matching connection cable (for example):<br/>RKC4.4T-2-RSC4.4T/TXL<br/>Ident-No. 6625608</p> <p><b>BL67-B-4M12-P</b><br/>6827195<br/>4 x M12, 5-pole, female, paired</p> <p><b>Comments</b><br/>Matching connection cable (for example):<br/>RKC4.4T-2-RSC4.4T/TXL<br/>Ident-No. 6625608</p> | <p><b>Pin Assignment</b></p> <p>⌋</p> <p>2<br/>1 3<br/>5 4</p> <p>1 = V<sub>SENS</sub><br/>2 = Signal B<br/>3 = GND<br/>4 = Signal A<br/>5 = PE</p> <p><b>Wiring Diagram</b></p>  <p><b>Wiring diagram</b></p>  <p><b>Wiring diagram</b></p>  <p><b>Wiring diagram</b></p>  |

## Compatible base modules

| Dimension drawing                                                                   | Type                                                                                                                                                                          | Pin configuration                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|    | <b>BL67-B-2M12-8</b><br>6827336<br>2 x M12, 8-pole, female<br><br><b>Comments</b><br>Field-wireable connector (for example):<br>BS8181-0<br>Ident. no. 6901004                | <b>Pin Assignment Port 0</b><br> 1 = Signal 0 5 = V <sub>SENS</sub><br>2 = Signal 2 6 = V <sub>SEN0</sub><br>3 = Signal 4 7 = GND<br>4 = Signal 6 8 = PE<br><br><b>Pin Assignment Port 1</b><br> 1 = Signal 1 5 = V <sub>SENS</sub><br>2 = Signal 3 6 = V <sub>SEN1</sub><br>3 = Signal 5 7 = GND<br>4 = Signal 7 8 = PE  |
|   | <b>BL67-B-2M12-8-P</b><br>6827337<br>2 x M12, 8-pole, female, paired<br><br><b>Comments</b><br>Customizable connectors (for example):<br>BS8181-0<br>Ident-No. 6901004        | <b>Pin Assignment Port 0</b><br> 1 = Signal 0 5 = V <sub>SENS</sub><br>2 = Signal 1 6 = V <sub>SEN0</sub><br>3 = Signal 4 7 = GND<br>4 = Signal 5 8 = PE<br><br><b>Pin Assignment Port 1</b><br> 1 = Signal 2 5 = V <sub>SENS</sub><br>2 = Signal 3 6 = V <sub>SEN1</sub><br>3 = Signal 6 7 = GND<br>4 = Signal 7 8 = PE |
|  | <b>BL67-B-1M23</b><br>6827213<br>1 x M23, 12-pole, female<br><br><b>Comments</b><br>field-wireable connector (for example):<br>FW-M23ST12Q-G-LT-ME-XX-10<br>Ident-No. 6604070 | <b>Pin Assignment</b><br> 1 = Signal 0 7 = Signal 6<br>2 = Signal 1 8 = Signal 7<br>3 = Signal 2 9 = V <sub>SENS</sub><br>4 = Signal 3 10 = V <sub>SEN0</sub><br>5 = Signal 4 11 = V <sub>SEN1</sub><br>6 = Signal 5 12 = GND                                                                                                                                                                              |

# 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                                                                                                                                     |
| XSG channels<br>0...7 |       | OFF               | Status channel x = 0 (OFF),<br>no active diagnostics                                                                                                            |
|                       | GREEN | ON                | Status channel x = 1 (ON)                                                                                                                                       |
|                       | RED   | ON                | Short-circuit at output                                                                                                                                         |

# Data mapping

| DATA   | BYTE | Bit 7 | Bit 6 | Bit 5 | Bit 4 | Bit 3 | Bit 2 | Bit 1 | Bit 0 |
|--------|------|-------|-------|-------|-------|-------|-------|-------|-------|
| Input  | n    | XSG 7 | XSG 6 | XSG 5 | XSG 4 | XSG 3 | XSG 2 | XSG 1 | XSG 0 |
| Output | m    | XSG 7 | XSG 6 | XSG 5 | XSG 4 | XSG 3 | XSG 2 | XSG 1 | XSG 0 |

## Note:

Simultaneous feedback of status at the input and the digital output.

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 |
|-------------------------|------|-------|-------|-------|-------|-------|-------|-------|-------|
| <b>BL67-B-8M8</b>       |      |       |       |       |       |       |       |       |       |
| Input                   | n    | C7 P4 | C6 P4 | C5 P4 | C4 P4 | C3 P4 | C2 P4 | C1 P4 | C0 P4 |
| Output                  | m    | C7 P4 | C6 P4 | C5 P4 | C4 P4 | C3 P4 | C2 P4 | C1 P4 | C0 P4 |
| <b>BL67-B-4M12</b>      |      |       |       |       |       |       |       |       |       |
| Input                   | n    | C3 P2 | C2 P2 | C1 P2 | C0 P2 | C3 P4 | C2 P4 | C1 P4 | C0 P4 |
| Output                  | m    | C3 P2 | C2 P2 | C1 P2 | C0 P2 | C3 P4 | C2 P4 | C1 P4 | C0 P4 |
| <b>BL67-B-4M12-P</b>    |      |       |       |       |       |       |       |       |       |
| Input                   | n    | C3 P2 | C3 P4 | C2 P2 | C2 P4 | C1 P2 | C1 P4 | C0 P2 | C0 P4 |
| Output                  | m    | C3 P2 | C3 P4 | C2 P2 | C2 P4 | C1 P2 | C1 P4 | C0 P2 | C0 P4 |
| <b>BL67-B-2M12-8</b>    |      |       |       |       |       |       |       |       |       |
| Input                   | n    | C1 P4 | C1 P3 | C0 P4 | C0 P3 | C1 P2 | C1 P1 | C0 P2 | C0 P1 |
| Output                  | m    | C1 P4 | C1 P3 | C0 P4 | C0 P3 | C1 P2 | C1 P1 | C0 P2 | C0 P1 |
| <b>BL67-B-1M23(-VI)</b> |      |       |       |       |       |       |       |       |       |
| Input                   | n    | C0 P8 | C0 P7 | C0 P6 | C0 P5 | C0 P4 | C0 P3 | C0 P2 | C0 P1 |
| Output                  | m    | C0 P8 | C0 P7 | C0 P6 | C0 P5 | C0 P4 | C0 P3 | C0 P2 | C0 P1 |

C... = slot no., P... = pin no.