

BL67 electronic module

RS485/422 Interface

BL67-1RS485/422



- 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
- Transmission of serial data via RS485/422 interface
- For connection of printers, light screens and bar code scanners e.g.

Functional principle

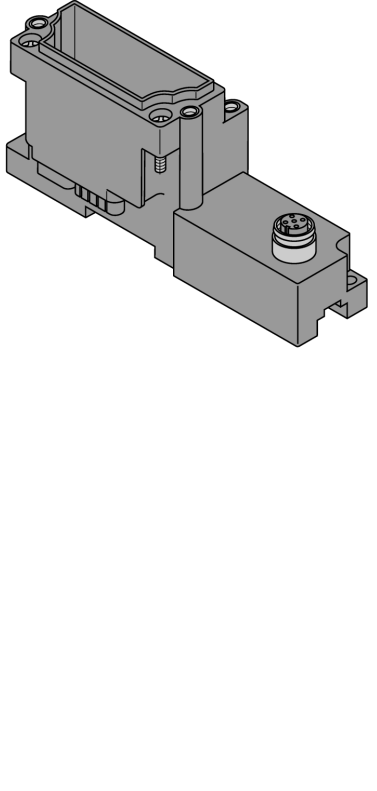
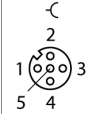
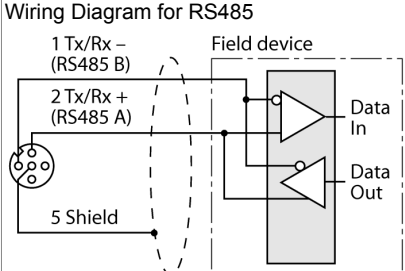
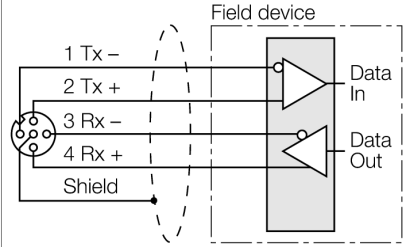
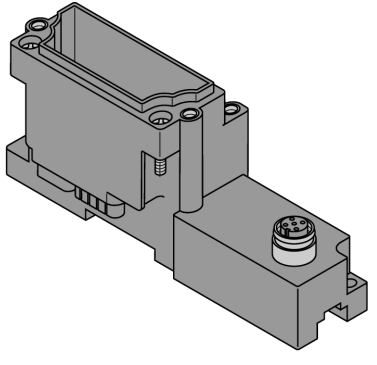
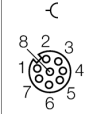
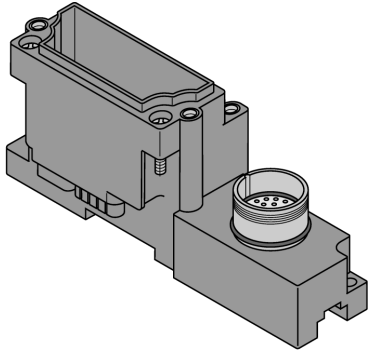

BL67 electronic modules are plugged on the purely passive base modules which in turn are connected to the field devices. The separation of connection level and electronics simplifies maintenance considerably. Flexibility is enhanced because the user can choose between base modules with different connection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

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

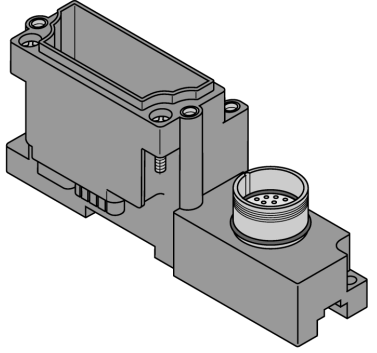

Type	BL67-1RS485/422
ID	6827192
Number of channels	1
Supply voltage	24 VDC
Nominal voltage V_n	24 VDC
Nominal current from field supply	≤ 50 mA
Nominal current from module bus	≤ 60 mA
Power dissipation, typical	≤ 1 W
Inputs/outputs	
Transmission signals	TxD, RxD
Connection type	2-wire half duplex or 4-wire full duplex
Transmission rate	300 to 115,200 bps
Parameters	RS485/422, transmission rate, diagnostics, data bits, stop bits, XON - character, XOFF - character, parity, flow control
Cable length	30 m
Line impedance	120 Ω
Terminating resistor	external
Electrical isolation	isolation of electronics and field level via optocouplers
Output connectivity	
Output connectivity	M12, M23
Number of input bytes	8
Number of output bytes	8

Dimensions (W x L x H)	32 x 91 x 59 mm
Approvals	CE, cULus
Ambient temperature	-40...+70 °C
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>BL67-B-1M12 6827185 1 x M12, 5-pole, female</p> <p>Comments Shielded connection cable (for example): RKC5.501T-2-RSC5.501T/TXL Ident-No. 6628831</p>	<p>Pin Assignment</p>  <p>1 = Tx - (RS485 B) 2 = Tx + (RS485 A) 3 = Rx - 4 = Rx + 5 = shield</p> <p>Wiring Diagram for RS485</p>  <p>Wiring diagram for RS422</p> 
	<p>BL67-B-1M12-8 6827193 1 x M12, 8-pole, female</p> <p>Comments Pin configuration see above. matching connection cable (for example) BS8181-0 Ident no. 6901004</p>	<p>Pin Assignment</p>  <p>1 = Rx + 5 = Rx - 2 = Tx + (RS485 A) 6 = GND_{ISO} 3 = Tx - (RS485 B) 7 = n.c. 4 = n.c. 8 = shield</p>
	<p>BL67-B-1M23 6827213 1 x M23, 12-pole, female</p> <p>Comments Pin configuration see above. matching connection cable (for example): FW-M23ST12Q-G-LT-ME-XX-10 Ident no. 6604070</p>	<p>Pin Assignment</p>  <p>1 = Rx + 7 = n.c. 2 = Tx + (RS485 A) 8 = shield 3 = Tx - (RS485 B) 9 = n.c. 4 = n.c. 10 = n.c. 5 = Rx - 11 = Tx - 6 = GND (iso) 12 = n.c.</p>

Compatible base modules

Dimension drawing	Type	Pin configuration												
	<p>BL67-B-1M23-VI 6827290 1 x M23, 12-pole, female</p> <p>Comments Pin configuration comparable with BL67-B-1M12 (see above). Additionally with 24 VDC sensor supply.</p>	<p>Pin Assignment</p>  <table border="0"> <tr> <td>1 = Rx +</td> <td>7 = n.c.</td> </tr> <tr> <td>2 = Tx + (RS485 A)</td> <td>8 = shield</td> </tr> <tr> <td>3 = Tx - (RS485 B)</td> <td>9 = V_{SENS}</td> </tr> <tr> <td>4 = n.c.</td> <td>10 = V_{SENS}</td> </tr> <tr> <td>5 = Rx -</td> <td>11 = V_{SENS}</td> </tr> <tr> <td>6 = GND (iso)</td> <td>12 = GND</td> </tr> </table>	1 = Rx +	7 = n.c.	2 = Tx + (RS485 A)	8 = shield	3 = Tx - (RS485 B)	9 = V _{SENS}	4 = n.c.	10 = V _{SENS}	5 = Rx -	11 = V _{SENS}	6 = GND (iso)	12 = GND
1 = Rx +	7 = n.c.													
2 = Tx + (RS485 A)	8 = shield													
3 = Tx - (RS485 B)	9 = V _{SENS}													
4 = n.c.	10 = V _{SENS}													
5 = Rx -	11 = V _{SENS}													
6 = GND (iso)	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
TxD		OFF	Data is currently not transferred.
	GREEN	ON	Data is currently transferred
RxD		OFF	Data is currently not received.
	GREEN	ON	Data is currently received

Data mapping

DATA	BYTE	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
Input	n	STAT	TX_CNT_ACK		RX_CNT		RX_BYTE_CNT		
	n+1	Buf Ovfl	Frame Err	HndSh Err	HW Failure	Prm Err	reserved		
	n+2	Data byte 0							
	n+3	Data byte 1							
	n+4	Data byte 2							
	n+4	Data byte 3							
	n+6	Data byte 4							
	n+7	Data byte 5							
Output	m	STATRES	RX_CNT_ACK		TCX_CNT		TX_BYTE_CNT		
	m+1	reserved						RXBUF FLUSH	TXBUF FLUSH
	m+2	Data byte 0							
	m+3	Data byte 1							
	m+4	Data byte 2							
	m+4	Data byte 3							
	m+6	Data byte 4							
	m+7	Data byte 5							

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.

Note:

A software function module is available for simple handling of the serial interfaces (RS232, RS485 and RS422). Such a function module is available for the CoDeSys programmable BL67 gateway and for the S7 PLC systems.

The actual sequence of the data of the RSxxx modules in the process data of the higher-level control system may vary from that shown here. The sequence in Profibus systems is generally the reverse (byte 0 complies with byte 7 etc.).