

BL67 electronic module

Connection of CANopen nodes

BL67-1CVI



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.

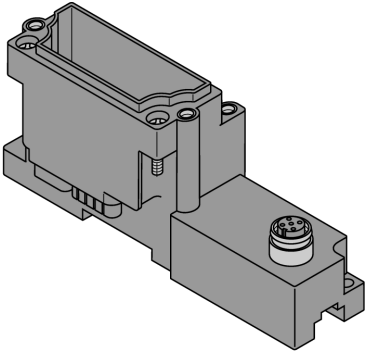
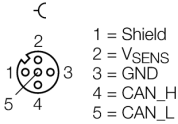
Type designation	BL67-1CVI
Ident-No.	6827223
Number of channels	1
Supply voltage	24 VDC
Nominal voltage V_i	24 VDC
Nominal current from field supply	≤ 100 mA
Nominal current from module bus	≤ 30 mA
Max. sensor supply I_{sens}	1 A electronically limited current supply
Power dissipation, typical	≤ 1 W
Transmission signals	CAN high, CAN low
Connection type	CANopen
Transmission rate	10 kbps up to 1 Mbps
Parameters	transmission rate, diagnostics, terminating resistor, range of I/O data
Terminating resistor	internal
Electrical isolation	isolation of electronics and field level via optocouplers
Output connectivity	M12
Number of diagnostics bytes	6
Number of parameter bytes	16
Number of input bytes	8
Number of output bytes	8
Dimensions (W x L x H)	32 x 91 x 59mm
Operating temperature	-40...+70 °C
Storage temperature	-40...+85 °C
Relative humidity	5 to 95 % (internal), Level RH-2, no condensation (at 45 °C storage)
Vibration test	acc. to EN 61131
Extended vibration resistance	
- 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 68-2-27
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

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Compatible base modules

Dimension drawing	Type	Pin configuration
	BL67-B-1M12 6827185 1 x M12, 5-pole, female Comments Matching connection cable (for example): RSC RKC 572-2M Ident no. U0323	Pin Assignment  1 = Shield 2 = VSENS 3 = GND 4 = CAN_H 5 = CAN_L

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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
BUS	ORANGE	OFF	Not all configured CANopen devices are online and in normal operation (operational).
	GREEN	ON	All configured CANopen devices are online and in normal operation (operational).
ERROR		OFF	Communication between CVI and the other bus nodes OK.
	RED	ON	Communication error between CVI and the other bus nodes:- CAN BusOff- Heartbeat error- Guarding error- Transmit timeout
VE	GREEN	ON	Valve supply ON
	RED	ON	Overload/short-circuit valve supply Clear the overload/short-circuit error.
VC		OFF	Valve supply ON
	RED	ON	Overload/short-circuit valve supply Clear the overload/short-circuit error.
Note The green LEDs VE resp. VC do not indicate the actual presence of voltages. They only indicate overcurrent shutdown.			

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Data mapping

DATA	BYTE	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
Input	n								
	n+1								
	n+2								
	n+3								
	n+4								
	n+4								
	n+6								
	n+7								
Output	m								
	m+1								
	m+2								
	m+3								
	m+4								
	m+4								
	m+6								
	m+7								

Reference to internal splitting of process data of this module:

The CVI module (CANopen valve interface module) features 8 bytes of I/O data, which can be split flexibly in 4-bit steps and distributed to the connected CAN-nodes.

One node can be assigned up to 32 bits I/O data. The exact number of bits can be parameterized for each node separately; 0, 4, 8, 12, 16, 24 or 32 bits. The number of input and output bits need not be identical.

The sum of the input resp. output data of all nodes (max.8) should not exceed 64 bits (8 bytes).

Sample configuration:

CAN slave node	CAN address	Number of input data	Number of output data
node 1	1	0 bit	16 bit
node 2	2	8 bit	8 bit
node 3	3	8 bit	0 bit
node 4	4	0 bit	32 bit

Mapping result:

DATA	BYTE	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
Input	n	8 bit - Input data, node 2							
	n+1	8 bit - Input data, node 3							
	n+2	The remaining 6 byte are unused!							
	n+3								
	n+4								
	n+4								
	n+6								
	n+7								
Output	m	16 bit - Output data, node 1							
	m+1								
	m+2	8 bit - Output data, node 2							
	m+3	32 bit - Output data, node 4							
	m+4								
	m+4								
	m+6								
	m+7	The last byte is unused!							

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.