SecuriFire

BX-IOM

Input/output module for SecuriLine eXtended

from edition 20-2100002-01-01[1]

The BX-IOM input/output module has a monitored output and a monitored input.

It meets the specifications of SecuriLine eXtended for operation on the ring circuit of the SecuriFire fire detection system.

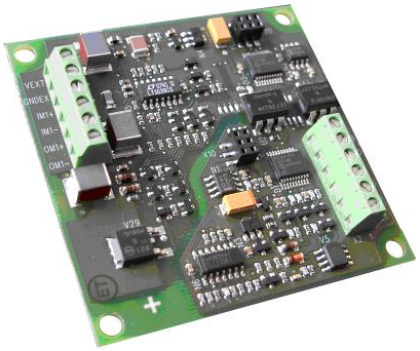

Fig. 1 BX-IOM

Description

The BX-IOM can be connected to the SecuriLine eXtended ring circuit of the SecuriFire fire detection systems.
The BX-IOM has a galvanically separated output for actuating monitored consumers (e.g. sirens) which are supplied with power from external sources. The input can be used for polling power sources which are equipotentially bonded.

The monitored output is divided into three load ranges and can actuate and monitor a load of between 20 Ω and 1 kΩ.
Addressing and assigning BX-IOM parameters are performed with PC software via the fire alarm control panel.

The BX-IOM includes a short-circuit isolator. In the event of wire breakage or short-circuit, this functionality ensures that the fault is localised and that operation of the ring circuit remains fully functional.

Design and function

The BX-IOM input/output module can be used where consumers such as sirens are to be monitored and actuated. The opto-isolator input can either monitor the external power supply or it can be used as an additional input. Because the BX-IOM can be connected at any position of a ring circuit, the lines for the monitored actuation or input do not have to be conveyed to the fire alarm control panel. This means that greater distances to the control unit are possible.

The adjustment of the monitoring current of the monitored outputs and inputs is done electronically using parameterisation in the SecuriFire-Studio (loop configuration). After Power Up the line and load resistance are measured and saved. A fault is reported if they are outside the configured tolerance limits. Also in the actuated state they are checked whether appropriate current is flowing to the consumer.

Features of the input:
- Measurement of the load resistance
- Programmable monitoring and triggering ranges

Features of the current monitoring:
- Measurement of the current – programmable monitoring range
- Programmable monitoring range

Features of the monitored output:
- Automatic and manual adjustment of the quiescent current value
- Programmable load range
- Programmable sensitivity of the fault evaluation
- Current measurement with fault message in the active state
- Programmable “Fail save position” in the event of a fault: “no change”, “open” or “closed”
- Wire breakage detection when triggered (actuated output remains actuated if there is wire breakage).

Interfaces

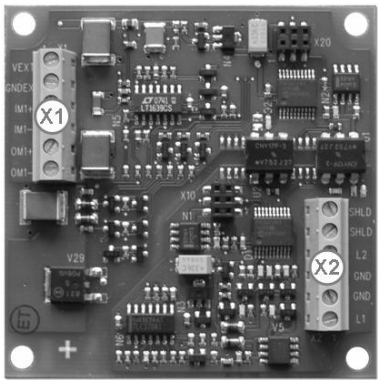

Fig. 2 BX-IOM interfaces

Input/output (X1)

Terminal	Designation	Description
1	VEXT	External voltage supply
2	GNDEXT	External ground
3	IM1 +	Input +
4	IM1 -	Input -
5	OM1 +	Output +
6	OM1 -	Output -

SecuriLine eXtended (X2)

Terminal	Designation	Description
1	L1	Data A
2	GND	GND A
3	GND	GND B
4	L2-	Data B
5	SHLD	Screen
6	SHLD	Screen

Power requirement

For mixed operation of detectors and modules on the ring circuit, it is important to know that the BX-IOM has the power consumption of about 5 detectors. This reduces the number of detectors that can be connected by 5 for each BX-IOM; 32 BX-IOMs maximum are permitted per ring circuit.

A tool is available for calculating the maximum possible ring length and the maximum number of participants.

Connection example

Here we describe the connection of a consumer with electronic input switching. When the measurement voltages are low, they have no regular resistance value for detecting line breaks, which is why the consumer is loaded directly on its terminals with ohmic resistance (e.g. 680 Ω or 1 kΩ, 1 W).

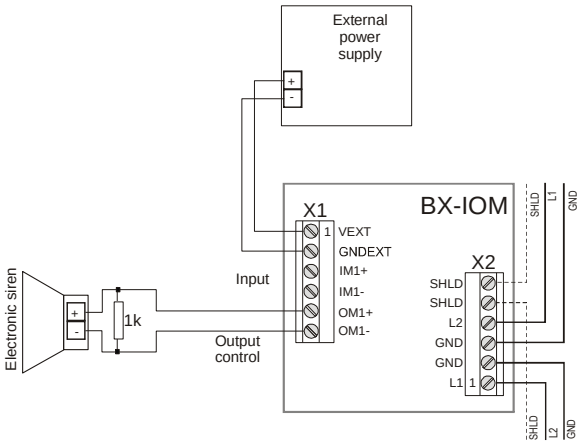

Fig. 3 BX-IOM connection example

Requirement for external power supply

The requirement for external power supply is dependent on the power consumption of the consumer and its operating voltage. Depending on the consumer and use, a buffered power supply unit may be required.
It is recommended using the BE-PSE buffered power supply unit. Alternatively, the internal power supply unit of SecuriFire can be used.. When that is the case, a current requirement calculation must be performed.

The relevant applicable standards and directives must be observed.

Article numbers / spare parts

Short designation		Art. number, CH	Art. number
BX-IOM	Input/output module	115.249 705	20-2100002-01-06
GEH MOD IP66	IP66 housing for BX-IOM	403.239 917	FG020234
MM SM M20	M20 step nipple	428.242 578	MM000181
MM ANB M16	M16 mounting screw union	--	MM000185
MM GM M16	M16 counternut	--	MM000186

Technical data

Function		Input/output module	
Operating voltage		12 to 30	VDC
Current consumption		0.43	mA
Signal transmission		Serial data transmission, 2-conductor technology	
Protection type		66 with housing	IP
Ambient temperature		-20 to +60	°C
Connection		Screw terminals, max. 1.5	mm^2
VdS approval		G210132	
EU certificate of conformity (EN 54-17/18)		0786-CPD-21010	
Dimensions (H x W x D)		67 x 67 x 20	mm
Dimensions with housing (H x W x D)		94 x 94 x 57	mm
Monitored output		1 transistor	
Switching voltage		20 – 30	VDC
Switching current		max. 1.3	A
Output characteristics		Short-circuit proof, bounce-free	
Short-circuit current		1,45 to 2,76	A
Switching frequency		max. 0.5	Hz
Loads		20 – 1,000	Ω
Load range (adjustable with software)	Load range	Line resistance	
Range 1	160 – 1,000	max. 50	Ω
Range 2	57 – 375	max. 20	Ω
Range 3	20 – 75	max. 5	Ω
Quiescent current		1, 3, 15	mA
Monitored input			
Monitoring voltage		20 to 30	VDC
Monitoring power		typ. 3.1	mA
Termination resistance		220	Ω
Line resistance		max. 50	Ω
Line length		max. 30	m
Galvanical separation		by opto-isolator	
External power supply			
Voltage range		20 to 30	VDC
Power requirement		depending on consumer, max. 3	A
Line length		max. 1,000	m
Galvanical separation		by opto-isolator	

Changes to index e: new article number

[1] Reference document: B-HB-035DE_X-LINE-HB - V 1.2 (SRK)

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