SINGLE MONITORED INPUT UNIT – BN-303

Interactive fire detection system
Product Datasheet

Features

- Interactive
- For interfacing switches and 3rd party detectors with relay outputs to Autronica's interactive fire detection systems
- Multi function unit: Function selected by switch setting
- 1 non-isolated input: on/off function with end-of-line monitoring
- With SelfVerify function for reduced maintenance/testing and increased reliability on input for critical alarm functions
- Short-circuit isolator of detection loop in each unit
- Automatic addressing
- Proven technology
- Wall mounted
- Designed to meet the requirement of the major maritime classification societies
- Approved according to EN 54-17 and EN 54-18



Product overview

The Single Monitored Input Unit BN-303 has been designed for use with Autronica's fire detection systems, AutroSafe (version 4.3.1 or newer) and Autroprime (2.1.3 or newer).

IMPORTANT:
Due to an important safety update in Autroprime version 2.1.3 the unit must not be used with Autroprime version older than 2.1.3.

The unit also includes the SelfVerify function. This function ensures the highest grade of reliability and reduces the need for manual testing because the panel is able to continuously and automatically check all units that include this function.

Note: External devices attached to this interface unit require a separate power source (they can not be powered by the detection loop).

SelfVerify: The unit's ability to initiate alarm is regularly checked.

Function Options / Switch Settings

The internal DIP switch S1 selects the function performed by the BN-303. For location of the DIP switch, refer to circuit board drawing on the next page. Refer to detailed descriptions of each function on this datasheet (Descriptions of function options A-E).

The available functions include:

- Function A
  Alarm condition signalling input
- Function B
  Pre Alarm condition signalling input unit
- Function C
  Fault condition signalling input
- Function D
  Uncommitted input unit
- Function E
  Pre Alarm and Alarm condition signalling input unit with configurable input delay
- Function F
  Fault, Pre Alarm and Alarm condition signalling input

Technical Specification	
Dimensions (mm)	112 x 110 x 50
Weight (g)	192
Housing material	Polyamide
Colour	Light grey
Mounting	Wall mounting, 100mm bolt space
Power	Unit connects to AL_Com only
Voltage	Supplied from detection loop
Peak current consumption (during communication)	359µA
Average current consumption	<60µA
Temperature range	-25 to +70 °C
Humidity	10% - 95% RH (non-condensing)
Degree of protection Membrane glands: PG glands (PG-13,5):	 IP54 IP66
Communication loop	Autronica Loop Communication protocol (AL_Com)
Cable terminals	Max 2.5mm² single core wires
Cable requirements AL_Com	Refer to specification for Autroprime or AutroSafe
Maximum input cable length	10m, non-shielded or shielded. End termination 2kohms +/-5%
Maximum cable capacitance	10nF
Response time	<= 1 second
Threshold	Short-circuit: 0-235 Ω Activate: 260-1000 Ω Normal: 1200-4800 Ω Open circuit: 5400-∞ Ω
Approvals	See Autronica's website

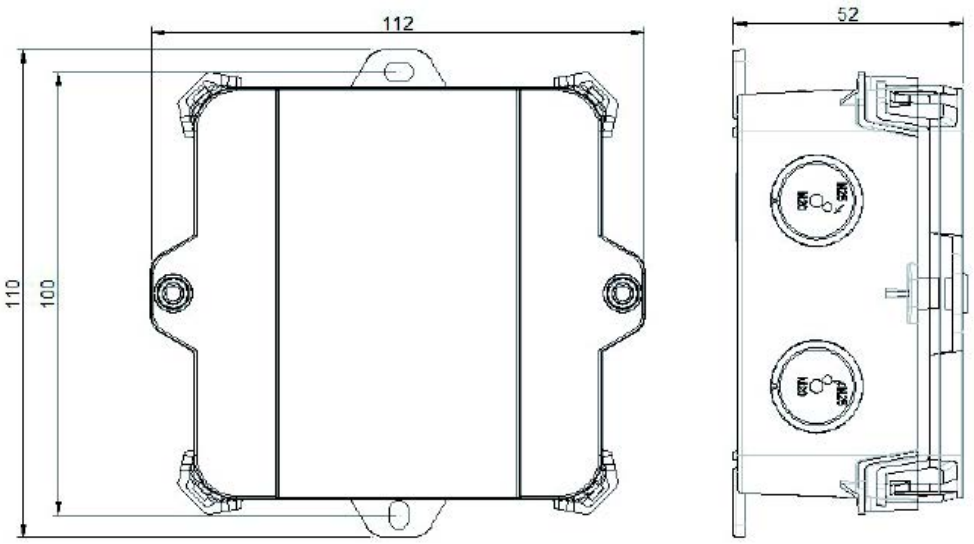
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EN 54-17:2005 Short circuit isolators
EN 54-18:2005 Input/output devices

Product name	Part number	Description
BN-303	116-BN-303	Single monitored input unit
6571-011.6020	116-6571-011.6020	Membrane gland TSS M20, grey
Optional		
6571-011.1920	116-6571-011.1920	Gland IP67
6531-006.1920	116-6531-006.1920	Backnut for gland

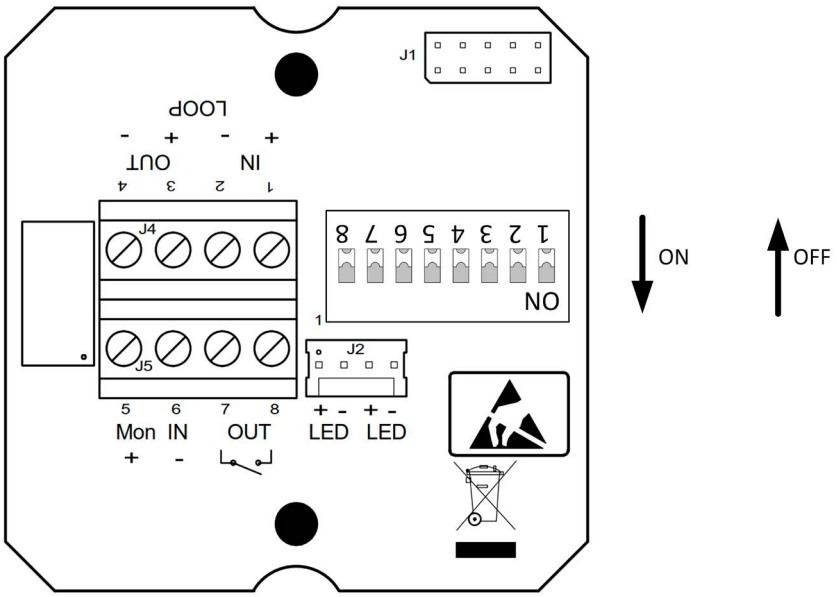
Dimension (mm)



Connectors

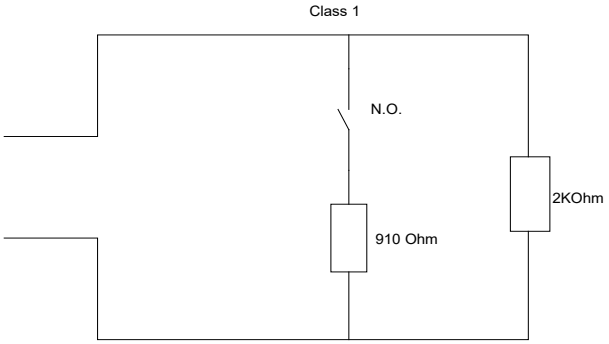
Terminal	Description
1	AL_Com In (+)
2	AL_Com In (-)
3	AL_Com Out (+)
4	AL_Com Out (-)
5	Input (+)
6	Input (common)

Connectors and DIP switches on circuit board

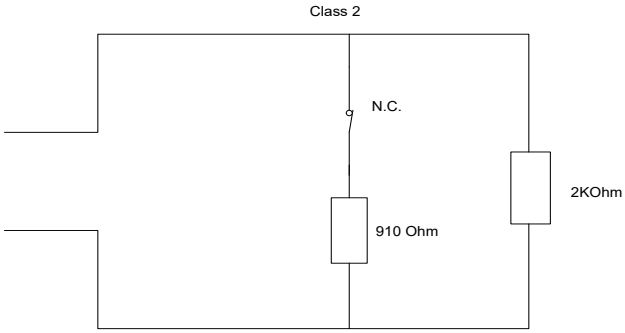


Descriptions of connection options

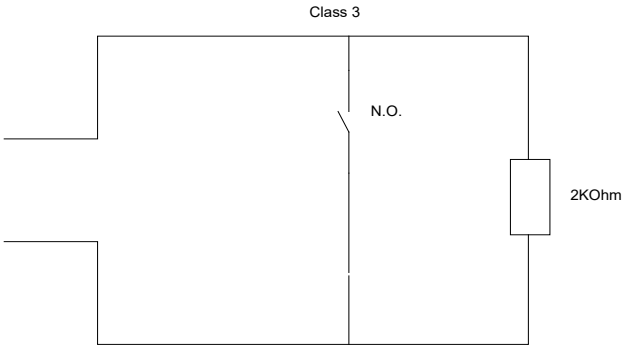
Input configuration A



Input configuration B



Input configuration C



Input configuration D

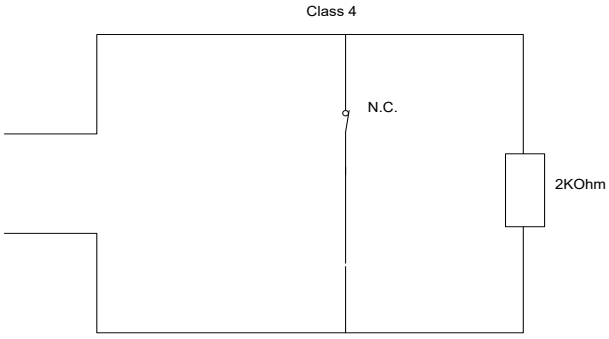


Figure 1

The electrical connection options for the input to the unit are shown in Figure 1. The various electrical input configurations allow a user to select under what condition the unit will be 'triggered' to provide a signal the fire alarm system indicating the selected condition.

The four different behaviours can be configured by DIP switch 5 and 6 in order to be able to monitor different setups of the input contact (s). (Switch 7 and 8 are not used).



(See location of DIP switch S1 on the circuit board drawing)

The following table summarizes the expected state:

Confi-guration	Measured resistance (Ω)			
	0	910 (625)	2000	High
A	Fault: SHORT	Active	Normal	Fault: OPEN
B		Normal	Active	
C	Active	-	Normal	
D	Normal	-	Active	

Input configuration A: Normally Open contact with 'activate' resistor that activates when the contacts are closed. Fault monitored for an electrical wiring fault in the form of an open or short-circuit, between the contacts and the unit.

S1.5	S1.6
OFF	OFF

Input configuration B: Normally Closed contact with 'activate' resistor that activates when the contacts are opened. Fault monitored for an electrical wiring fault in the form of an open or short-circuit, between the contacts and the unit.

S1.5	S1.6
OFF	ON

Input configuration C: Normally Open contact without 'activate' resistor that activates when the contacts are closed. Fault monitored for an electrical wiring fault in the form of an open circuit (but not short-circuit). A short-circuit in the wiring will activate the unit.

S1.5	S1.6
ON	OFF

Input configuration D: Normally Closed contact without 'activate' resistor that activates when the contacts are opened. Fault monitored for an electrical wiring fault in the form of an open circuit (but not short-circuit).

S1.5	S1.6
ON	ON

Descriptions of function options



(See location of DIP switch S1 on the circuit board drawing)

Function A

S1.1	S1.2	S1.3	S1.4
OFF	OFF	OFF	OFF

Function: Alarm condition signaling input.

Number of addresses: 1

Application include:
- Fire alarm push buttons
- Flame, heat or beam detectors with relay contacts

Function B

S1.1	S1.2	S1.3	S1.4
ON	OFF	OFF	OFF

Function: Pre Alarm condition signaling input.

Number of addresses: 1

Application include:
- Manual input for Pre Alarm
- Pre Alarm input from a detector with relay output

Function C

S1.1	S1.2	S1.3	S1.4
OFF	ON	OFF	OFF

Function: Fault condition signalling input.

Number of addresses: 1

Application include:
- Monitoring of associated equipment for faults
- Monitoring of detectors with relay contacts

Function D

S1.1	S1.2	S1.3	S1.4
ON	ON	OFF	OFF

Function: Uncommitted input.

Number of addresses: 1

Applications:
A typical application is monitoring of the power fault contact in the power supply or a fire pump. This unit can be used for:

- Monitoring of water level detection systems
- Monitoring of smoke control damper systems
- Monitoring of extinguishing systems
- General Alarm Push Button (GAPB)
- Autroprime: Supervisory condition

Function E

S1.1	S1.2	S1.3	S1.4
OFF	OFF	ON	OFF

Function: Delayed Alarm condition signalling input unit with feedback function.
Input delay 2 seconds (configurable in AutroSafe).
Configurable delays for entering Pre Alarm and Alarm condition.
Default delays: Pre Alarm 10 seconds, Alarm 20 seconds (timers are configurable).

Number of addresses: 1

Application include:

- Sprinkler contacts, etc.

Function F

S1.1	S1.2	S1.3	S1.4
ON	OFF	ON	OFF

Function: Fault, Pre Alarm and Alarm condition.

Number of addresses: 1

Applications include:

- Fire detectors with two-level output (Pre Alarm and Alarm).

