

Switching module with EEx-i circuit and integral time relay, for binary signals in Ex-areas, Zone 0, 1, 2, 20, 21, 22 – 24 VAC/DC

Serie EX-LINE

Type EXL-IRU-1

APPLICATION

Switching modules with intrinsic safe circuit to transmit binary signals, like thermostats, contacts, frost protection, hygrostats, filter protection, other on-off signals, from the hazardous area to the safe area. For fan-belt protection an integral time running relay is available. For electronic fan-belt protection an inductive Namur sensor can be adapted. For this type of application two different NamurKits as accessories are available.

TECHNICAL DATA

Type	EXL-IRU-1
Supply voltage	24 VDC and 24 VAC/50..60 Hz, +/- 20 %
Power consumption	~ 3 VA
Integral time running relay	adjustable from 30 to 120 sec.
Input signal	Intrinsic safe, potential free contact or Namur sensor DIN 19234, or EN 60947-5-6, or PTC sensor
Output signal	potential free contact
Contact	230 VAC, 3 A, 60 W, 125 VA, max. 15x10 ⁶ cycles
Display 2 x LED	green constant = operation, yellow constant = failure, green blinking = timer running
Ambient temperature	-10... 50 °C
Housing material	Polycarbonat
Dimension h x b x t	75 x 22,5 x 110 mm
Mounting	Rail mounting EN 50022
Protection in acc. with	EN60529, IP 20
Certification	Type examination certificate PTB 02 ATEX 2195
Protection class	II(1)GD [EEx ia] IIC in acc. with EN 50014/ EN 50020 module with intrinsic safe circuit
Application for	sensors zone 0, 1, 2, 20, 21, 22
CE 0158	94/9/EG (ATEX), 89/336/EG (EMV)

Included in price EXL-IRU-1: EEx i module with integral time running relay
Installation area Module in the safe area, sensors in the hazardous area

II(1)GD [EEx ia] IIC
Zone 0, 1, 2, 20, 21, 22

PTB-tested in acc. with ATEX



EEx-i CIRCUITS - TABLE 1

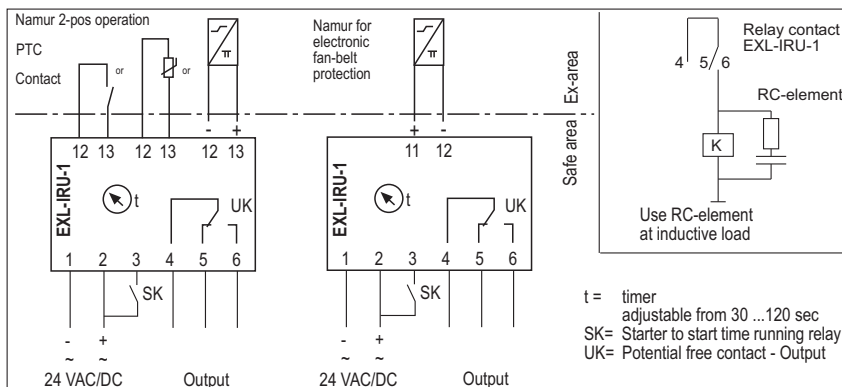
Operation values Maximum values at terminals

Terminals	II(1)GD [EEx ia] IIC		II(1)GD [EEx ia] IIB	
	11-12	12-13	11-12	12-13
Voltage U ₀	13,5 V	13,5 V	13,5 V	13,5 V
Currency I ₀	23 mA	23 mA	23 mA	23 mA
Power P ₀	76 mW	76 mW	76 mW	76 mW
Capacity C ₀	420 nF	420 nF	1,7 μF	1,7 μF
Induktivity L ₀	2 mH	2 mH	10 mH	10 mH

SWITCH POSITIONS IN ACC. TO SENSOR

Sensor operation	Sensor	Contact	Sensorfunction	Sensor	Contact	Sensor	Contact
Contact on-off	12 13	4 5 6	Namur Sensor DIN 19234			PTC > 3,5 K Ω	
							< 3,5 K Ω
Contact with time running relay	12 13	4 5 6	Namur sensor DIN 19234 with time running relay	11 12	4 5 6		
Starter "SK" active Time running	12 13	4 5 6	Starter "SK" active Time running	11 12	4 5 6		
Time over Rotation of motor o.k. Switch position "operation"	12 13	4 5 6	Time over Rotation of motor o.k. Switch position "operation"	11 12	4 5 6	n > 150 min ⁻¹	
Time over Rotation of motor not o.k. Switch position "failure"	12 13	4 5 6	Time over Rotation of motor not o.k. Switch position "failure"	11 12	4 5 6	n < 150 min ⁻¹	

WIRING DIAGRAM



The maximum values must not be exceeded!

Please check your external capacities and inductivities in acc. with the length of the cable and the method of installation.

ATTENTION!

- For installation, use and maintenance the official standards and rules must be applied.
- The energy of intrinsic safe circuits is below the level to start an explosion in case of a spark
- Intrinsic safe circuits must be installed with light blue coloured cable and separated from non intrinsic safe circuits. Distance between Terminals of intrinsic safe circuit and non intrinsic safe circuits must be minimum 50 mm.
- The EXL-IRU-1 modules must be installed in the safe area. Sensors must be passive and potential free for use in hazardous areas zone 0, 1, 2 and 20, 21, 22.
- For applications in zone 20 and 21 you may use only sensors which apply the category 1 D or 2 D, in zone 0 only sensors which apply the category 1 G.
- Pay attention to the max values for sensors and wiring, listed in table 1.
- At switching an inductive load could be activate unintended the timer. Use a RC-element. Connection see left side.

ACCESSORIES FOR FAN-BELT PROTECTION

- Namurkit 1** 1 inductive Namursensor in acc. with EN 60947-5-6 incl. mounting bracket and metal strap for fans up to 20.000 m³/h.
- Namurkit 2** 1 inductive Namursensor in acc. with EN 60947-5-6 incl. mounting bracket and metal strap for bigger fans > 20.000 m³/h.

subject to change