

# MM 5012

Intrinsically safe relay (switching amplifier)

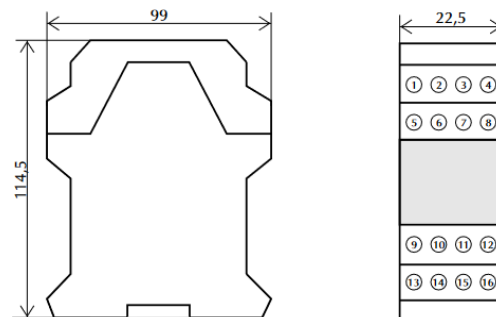
Single Channel

Intrinsically  
Safe  
Security Systems



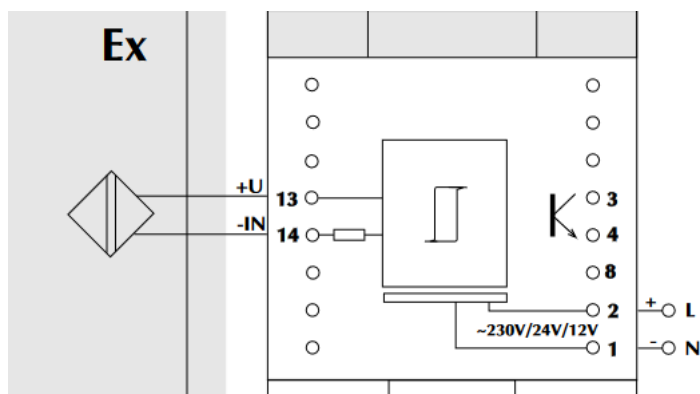
## DESCRIPTION:

The MM5012 devices are single-channel switching amplifiers with input circuits in accordance with DIN 19234 (NAMUR) for the connection of magnetic, inductive or capacitive sensors, alternating and switching resistors or mechanical contacts without voltage. The switching amplifiers are equipped with the LFD function - forward state monitoring with LED indicator in the event of an open or short circuit on the cable. The LFD function can block (deactivate) the output transistor until the fault is rectified. By connecting the sensor according to the diagram, the output transistor switches to the operating mode powered by the current sensor. If you request to switch the output transistor in standby mode powered by a current sensor, you must provide the appropriate code when placing your order (see specifications). The presence of supply voltage is signaled by a green LED, the activation of the output transistor is signaled by a yellow LED, and a failure is indicated by a red LED.



## PRODUCT FEATURES

- Single Channel Switching Amplifier
- intrinsically safe entrance
- input circuit according to DIN 19234 (NAMUR)
- galvanic separation of input and output circuits
- galvanic separation of the supply voltage from the input and output circuits
- output - transistor (open collector)
- forward fault detection with LED indicator, output relay deactivation possible



## CONNECT:

- 1 - -UCC/N
  - 2 - +UCC/L
  - 3 - Collector
  - 4 - emitter
  - 13 - + In 1 (input)
  - 14 - - In 1 (in)
- Supply voltage  
DC 12 - 80 Vss AC 120 - 253 V/50 Hz

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## TECHNICAL DATA:

Exemplary marking	MM 5012 AC (230 V)	MM 5012 DC (24 V)	MM 5012 DC (12 V)
<b>Identification code</b>			
Relay in operation mode - shorted contacts	5012 230 01 00	5012 024 01 00	5012 012 01 00
Relay in the idle mode – shorted contacts	5012 230 00 00	5012 024 00 00	5012 012 00 00
Relay in operation mode - open contacts	5012 230 01 01	5012 024 01 01	5012 012 01 01
Relay in the idle mode – open contacts	5012 230 00 01	5012 024 00 01	5012 012 00 01
<b>Power</b>			
Supply voltage	196 - 253 V AC	19 - 28 V DC	11 - 15 V DC
Frequency	48 - 52 Hz	N/A	N/A
Power	1.3 VA	0.9 watts	0.9 watts
Galvanic separation	Input from output and power	Input from output and power	Input from output and power
<b>Contacts</b>			
Safe zone output	Open Transistor Collector	Open Transistor Collector	Open Transistor Collector
Rated voltage	35 V DC	35 V DC	35 V DC
Rated power	0.7 watts	0.7 watts	0.7 watts
Contact frequency	50 kHz	50 kHz	50 kHz
<b>Input From Hazardous Zone</b>	NAMUR 19234	NAMUR 19234	NAMUR 19234
<b>Operating parameters</b>			
Voltage	8 V	8 V	8 V
Current	8 mA	8 mA	8 mA
<b>Relay thresholds</b>			
Pull-in Current/Resistance	$I_{in} > 2.1 \text{ mA}$ or $R_{in} < 2 \text{ k}\Omega$	$I_{in} > 2.1 \text{ mA}$ or $R_{in} < 2 \text{ k}\Omega$	$I_{in} > 2.1 \text{ mA}$ or $R_{in} < 2 \text{ k}\Omega$
Pull-out Current/Resistance	$I_{in} < 1.2 \text{ mA}$ or $R_{in} > 10 \text{ k}\Omega$	$I_{in} < 1.2 \text{ mA}$ or $R_{in} > 10 \text{ k}\Omega$	$I_{in} < 1.2 \text{ mA}$ or $R_{in} > 10 \text{ k}\Omega$
Hysteresis	$250 \pm 100 \mu\text{A}$	$250 \pm 100 \mu\text{A}$	$250 \pm 100 \mu\text{A}$
<b>Control Failure Detection (LFD):</b>	YES	YES	YES
<b>LFD Control Input Impedance:</b>	Series: 500 to 1000 $\Omega$ , Parallel: 20 to 25k $\Omega$	Series: 500 to 1000 $\Omega$ , Parallel: 20 to 25k $\Omega$	Series: 500 to 1000 $\Omega$ , Parallel: 20 to 25k $\Omega$
<b>LED indication</b>			
Power Supply	Green	Green	Green
Output Status	Yellow	Yellow	Yellow
Fault	Red	Red	Red
<b>Environmental Class</b>	II 2 G /EEx ia/ IIC, II 1 G /EEx ia/ IIC, I M1 /EEx ia/ I	II 2 G /EEx ia/ IIC, II 1 G /EEx ia/ IIC, I M1 /EEx ia/ I	II 2 G /EEx ia/ IIC, II 1 G /EEx ia/ IIC, I M1 /EEx ia/ I
<b>Housing</b>			
Dimensions	99 mm x 22.5 mm x 114.5 mm (HxWxD)	99 mm x 22.5 mm x 114.5 mm (HxWxD)	99 mm x 22.5 mm x 114.5 mm (HxWxD)
Housing type	16-Contacts	16-Contacts	16-Contacts
Material	polycarbonate/ABS	polycarbonate/ABS	polycarbonate/ABS
Flammability standard	V-0 according to UL94	V-0 according to UL94	V-0 according to UL94
Mount	DIN 35	DIN 35	DIN 35
Connect	Screws/ Contacts	Screws/ Contacts	Screws/ Contacts
Max. Cable diameter	2 x 2.5 mm <sup>2</sup>	2 x 2.5 mm <sup>2</sup>	2 x 2.5 mm <sup>2</sup>
IP Rating	IP20	IP20	IP20