

The **MS13-22Ex0-R** is a two-channel switching amplifier with intrinsically safe input circuits. Each output circuit consists of a SPDT relay.

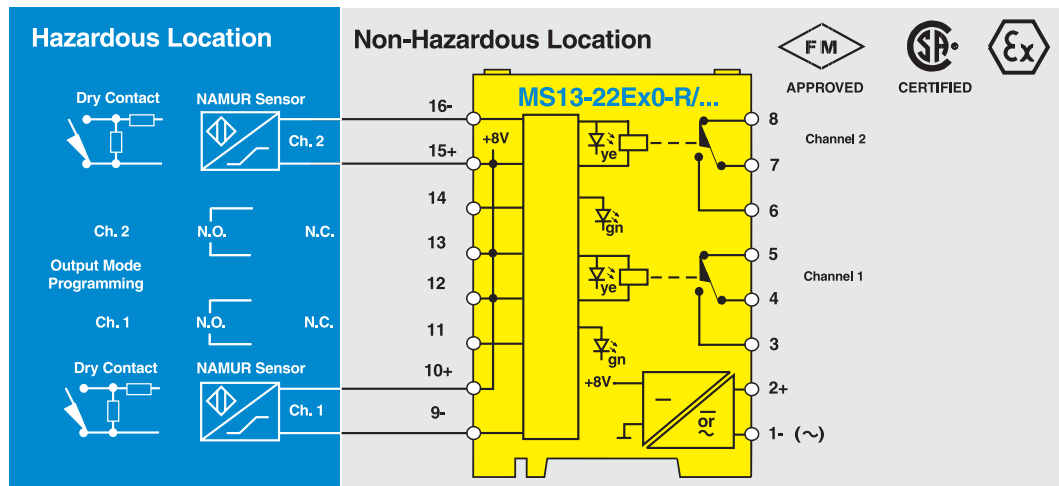
The output function of each channel is programmable for direct mode (N.O.) or inverse mode (N.C.). Program channel 1 for N.O. mode with a jumper between terminals 11 and 12. Leave terminals 11 and 12 open for N.C. Mode. Terminals 13 and 14 perform the same function on channel 2.

The device monitors the input circuits for wire-break and short-circuit conditions. During an input fault, the respective output de-energizes and its corresponding green LED turns off.

If mechanical contacts are used as inputs, resistors must be added with the contacts. This will prevent the monitoring circuit from recognizing the mechanical contacts as a wire-break or short-circuit.

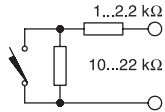
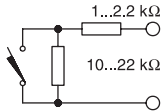
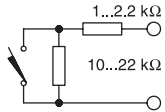
**MS13-22Ex0-R/24VDC**  
**MS13-22Ex0-R/115VAC**  
**MS13-22Ex0-R/230VAC**

### Connection Diagram



















## Two-Channel Relay Output Programmable Line Monitoring MS13-22Ex0-R...(24VDC/115VAC/230VAC)

Switching Amplifiers

Type	MS13-22Ex0-R/24VDC	MS13-231Ex0-R/115VAC	MS13-231Ex0-R/230VAC
ID Number	M5322800	M5322400	M5322200
<b>Power Supply</b>			
Supply Voltage - 24 VDC	20-28 VDC, ≤10% ripple	98-126 VAC, 48-62 Hz	196-250 VAC, 48-62 Hz
Power consumption	≤3.6 W	≤3.5 VA	≤3.5 VA
Galvanic isolation	between hazardous and non-hazardous circuits, test voltage 2.5 kVrms	between hazardous and non-hazardous circuits, test voltage 2.5 kVrms	between hazardous and non-hazardous circuits, test voltage 2.5 kVrms
<b>Input Circuit</b>			
Nominal operating characteristics (per DIN 19 234)			
- Voltage	8.0 V	8.0 V	8.0 V
- Current	8 mA	8 mA	8 mA
Switching threshold	1.55 mA	1.55 mA	1.55 mA
Hysteresis	0.2 mA	0.2 mA	0.2 mA
Wire-break threshold	≤0.1 mA	≤0.1 mA	≤0.1 mA
Short-circuit threshold	R≈200 Ω	R≈200 Ω	R≈200 Ω
<b>Intrinsic Safety Parameters</b>	See page K14	See page K14	See page K14
<b>Contact Configuration</b>			
<b>Output Circuit</b>	two SPDT relays Contact material AgCdO	two SPDT relays Contact material AgCdO	two SPDT relays Contact material AgCdO
Switching voltage	≤250 VAC/60 VDC	≤250 VAC/60 VDC	≤250 VAC/60 VDC
Switching current	≤4 A	≤4 A	≤4 A
Switching power	≤1000 VA/60 W	≤1000 VA/60 W	≤1000 VA/60 W
Switching frequency	10 Hz	10 Hz	10 Hz
<b>LED Indications</b>			
- Output energized	yellow	yellow	yellow
- Power "ON" and valid input	green on	green on	green on
- Fault indication	green off	green off	green off
<b>Housing Style</b>	Diagram E (page A18)	Diagram E (page A18)	Diagram E (page A18)

### Truth Table

Programming	Input Ch. 1 term. 9-10, Ch. 2 term. 15-16			Output			
				Normal		Short or Wire-Break	
Ch. 1 Term. 11-12 Ch. 2 Term. 13-14	Dry Contacts	Inductive NAMUR	Capacitive NAMUR	Channel 1 Channel 2	LED	Channel 1 Channel 2	LED
				De-energized	Off	De-energized	Off
					On	De-energized	Off
				Energized	On	De-energized	Off
					On	De-energized	Off
				Energized	On	De-energized	Off
					On	De-energized	Off
				De-energized	Off	De-energized	Off
					On	De-energized	Off