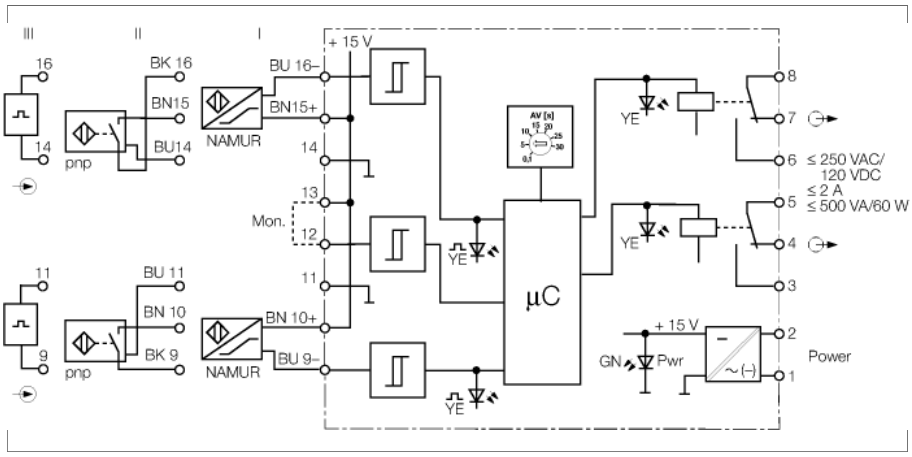
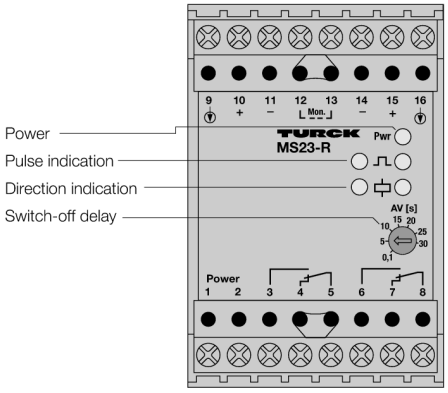
Rotation direction discriminator
1-channel
MS23-R





The MS23-R is controlled via two 3-wire pnp sensors, sensors acc. to EN 60947-5-6 (I) or signal sources with pulse levels of 10…30 VDC.

The device indicates the moving direction of the rotating parts. The direction of rotation is deduced from the damping sequence and the overlap of two sensor signals. The damping element has to be selected such that both sensors are attenuated simultaneously for 1ms. For more technical information please refer to the general information about rotation speed montiors/motion controls and the instruction manual provided with the device.

Depending on the direction of rotation, one output relay with changeover contact is energized for clockwise and one for counter-clockwise rotation. A yellow LED indicates the switching status of the corresponding output relay. A green LED indicates operational readiness. In case of an input signal, the associated LED lights yellow.

Due to the open bridge at the terminals 12/13 the switch-off delay is active. With the adjustable switch-off delay the time lag between the input pulses can be monitored according to *underspeed*.

For this purpose a switch-off delay between 0.1…30 s has to be programmed at the potentiometer. The relay energized most recently during the switch-off delay remains energized.

Moreover, a switch-off delay can be programmed to filter out short-term peaks or dips.

The switch-off delay is deactivated if the terminals 12/13 are bridged. The relays remain in the corresponding switching state until a counter rotation direction is detected .

The device is **not** suited for safe detection of complete system standstill as may be required in safety applications such as centrifuges.

- Rotation direction discriminator
- Adjustable switch-off delay
- Removable terminal blocks
- Complete galvanic isolation
- Input reverse-polarity protected

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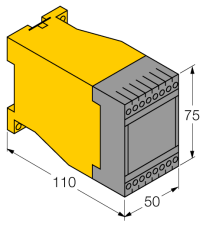
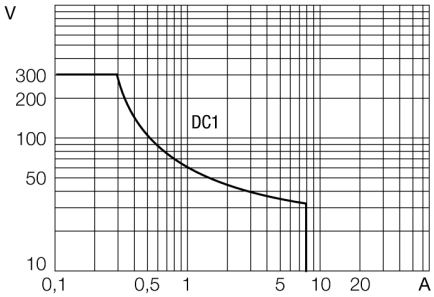
Type	MS23-R
ID	0508112
Nominal voltage	Universal voltage supply unit
Operating voltage	20…250 VAC
Frequency	40…70 Hz
Operating voltage U_B	20…250 VDC
Power consumption	≤ 3 W
Max. input frequency	150000 min^{-1}
Pulse time	≥ 0.02 ms
Pulse pause	≥ 0.02 ms
NAMUR input	
NAMUR	EN 60947-5-6
No-load voltage	8.2 VDC
Short-circuit current	8.2 mA
Input resistance	1 kΩ
Cable resistance	≤ 50 Ω
Switch-on threshold	1.55 mA
Switch-off threshold	1.75 mA
3-wire input	
No-load voltage	15 VDC
Current	≤ 15 mA
0-signal	0...3VDC
1-signal	5...30 VDC
External signal source	
0-signal	0…3 VDC
1-signal	5…30 VDC
Input resistance	26000 Ω
Output circuits	
Output circuits (digital)	2 x relays (change-over)
Output switching voltage relay	≤ 30 VDC / ≤ 250 VAC
Switching current per output	≤ 2 A
Switching capacity per output	≤ 500 VA/60 W
Switching frequency	≤ 10 Hz
Response characteristic	
Temperature drift	≤ 0.02 % of full scale/K
Galvanic isolation	
Test voltage	2.5 kV RMS
Displays/Operating elements	
Pulse input	Yellow
Switching state	Yellow
Mechanical data	
Protection class	IP20
Ambient temperature	-25…+60 °C
Dimensions	75 x 50 x 110 mm
Weight	258 g
Mounting instructions	DIN rail (NS35) or panel
Housing material	Plastic, Polycarbonate/ABS
Electrical connection	2 × 8-pin removable terminal blocks, reverse polarity protected, screw terminal
Terminal cross-section	1 × 2.5 mm²/2 × 1.5 mm²

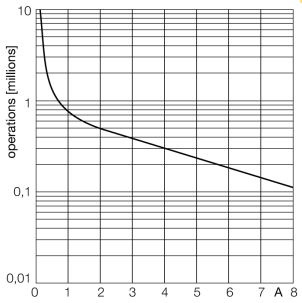
Dimensions



Output relay – Load curve



Output relay – Electrical lifetime



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