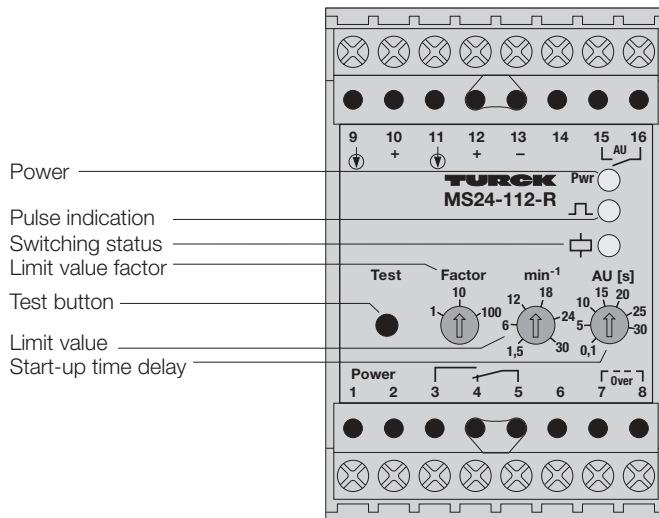
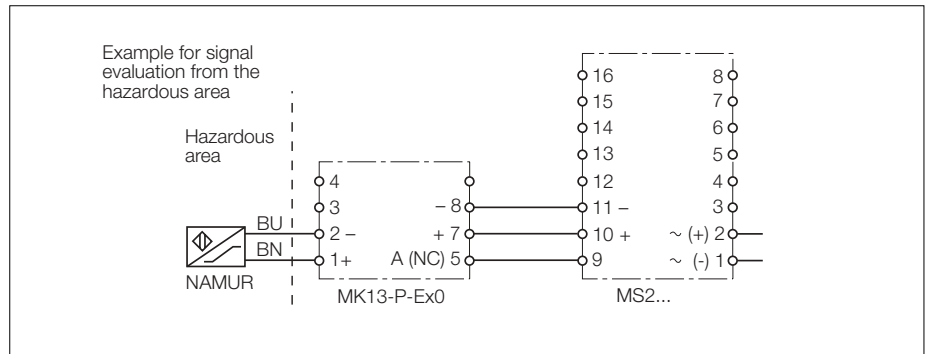


Rotational Speed Monitor MS24-112-R 1-channel



- 1-channel rotational speed monitor
- Overspeed or underspeed detection
- For use with sensors conforming to EN 60947-5-6 (NAMUR), 3-wire pnp sensors and signal sources with pulse levels from 10...30 VDC
- Relay output with one SPDT contact
- Monitoring ranges from 1.5...3000 min⁻¹ (3 ranges)
- Optional start-up time delay
- Sealed relay with hard gold plated contacts
- Universal supply voltage (20...250 VUC)



The device features three overlapping measuring ranges and can be easily adapted to the application. A 3-position switch serves to adjust the required measuring range. Then the switch point is adjusted by means of the front panel potentiometer.

The test button enables adjustment of the switch point during installation without disabling the output relay. When the test

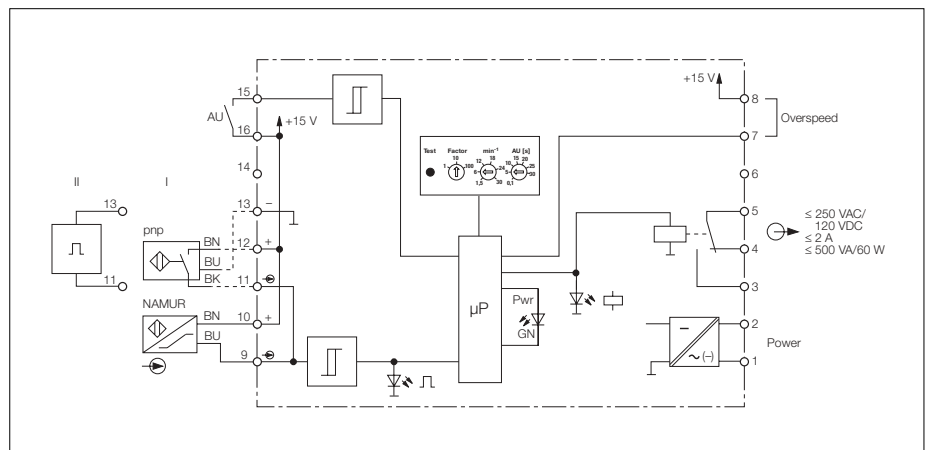
button is pressed, the output relay remains energised.

The unit operates on the digital pulse principle. This method provides a fast response and is ideal for applications with relatively low speed.

For *underspeed* monitoring, a built-in start-up time delay (AU) is available. During the start-up time delay, the output relay will be

The rotational speed monitor MS24-112-R may be connected to 3-wire pnp sensors, sensors according to EN 60947-5-6 (NAMUR) or voltage sources with a signal level between 10 and 30 VDC.

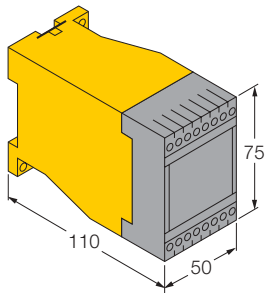
Linking terminals 7/8 selects the *overspeed* monitoring mode. If the preset limit value is exceeded, the relay is de-energised. Leaving terminals 7/8 open activates the *underspeed* monitoring mode. If the speed is below the preset limit value, the relay is de-energised.



Rotational Speed Monitor MS24-112-R

energised to prevent that the system is brought to a stop when the input rate is less than the preset limit value. The start-up time delay is triggered under two conditions: upon connection of a potential-free contact between terminals 15 and 16 while the device is powered; or by linking terminals 15 and 16 first and then applying power to the device.

The switching state of the output relay is indicated by the yellow LED; the device operation is indicated by a green LED. If an input pulse is present, the respective yellow LED lights.



Type	MS24-112-R
Ident-no.	0518003
Supply voltage U_B	20...250 VUC
Line frequency (AC)	40...70 Hz
Power consumption	≤ 3 W
Galvanic isolation	between input circuit, output circuit and supply voltage for 250 V _{rms} , test voltage 2.5 kV _{rms}
Rotational speed monitoring	overspeed/underspeed
Speed range	1.5...3000 min ⁻¹ (3 ranges)
– Range 1	1.5...30 min ⁻¹
– Range 2	15...300 min ⁻¹
– Range 3	150...3000 min ⁻¹
Input frequency	$\leq 60\,000$ min ⁻¹
Pause duration	≥ 0.2 ms
Pulse duration	≥ 0.2 ms
Hysteresis	approx. 10 %
Start-up time delay	0.1...30 s (front panel potentiometer)
Repeat accuracy	≤ 0.1 %
Temperature drift	≤ 0.005 %/K
Clearances and creepage distances	
– Input circuit to output circuit	≥ 4 mm
– Input circuit to power supply	≥ 4 mm
Input circuits	NAMUR or (3-wire, pnp)
NAMUR input	according to EN 60947-5-6, terminals 9/10
– Operating characteristics	$U_0 = 8.2$ V; $I_k = 8.2$ mA
– Switching threshold	1.4 mA $\leq I_e \leq 1.8$ mA
3-wire input	pnp, terminals 11...13
– Operating characteristics	$U \leq 15$ VDC; $I \leq 30$ mA
– "ON" signal	0...5 VDC
– "OFF" signal	10...30 VDC
Output circuits	
Relay output	1 relay output
– Number of contacts	1 SPDT contact, silver-alloy + 3 μ m Au
– Switching voltage	≤ 250 V
– Switching current	≤ 2 A
– Switching capacity	≤ 500 VA/60 W
LED indications	
– Power	green
– Switching status	yellow
– Pulse indication	yellow
Housing	50 mm wide, Polycarbonate/ABS
Mounting	panel mounting or snap-on clamps for top-hat rail (DIN 50022)
Connection	2 x 8 self-lifting pressure plates
Connection profile	$\leq 2 \times 2.5$ mm ² or 2×1.5 mm ² with wire sleeves
Degree of protection (IEC 60529/EN 60529)	IP20
Operating temperature	-25...+60 °C