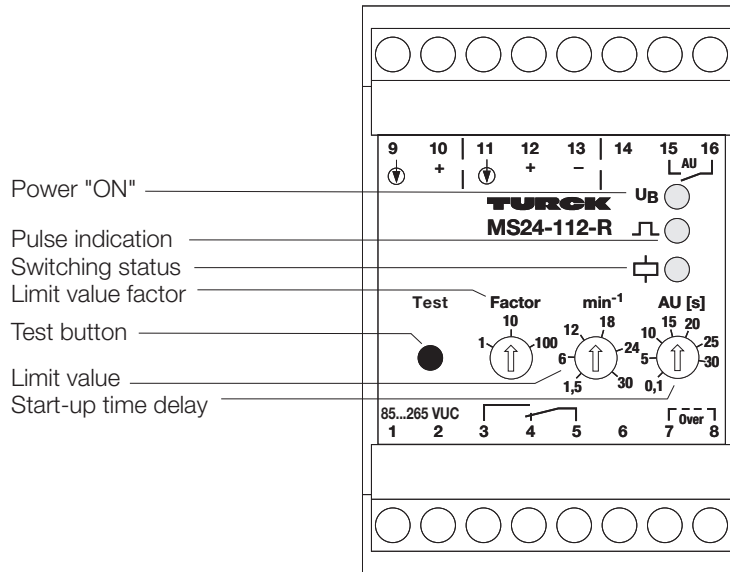


## Rotational Speed Monitor MS24-112-R

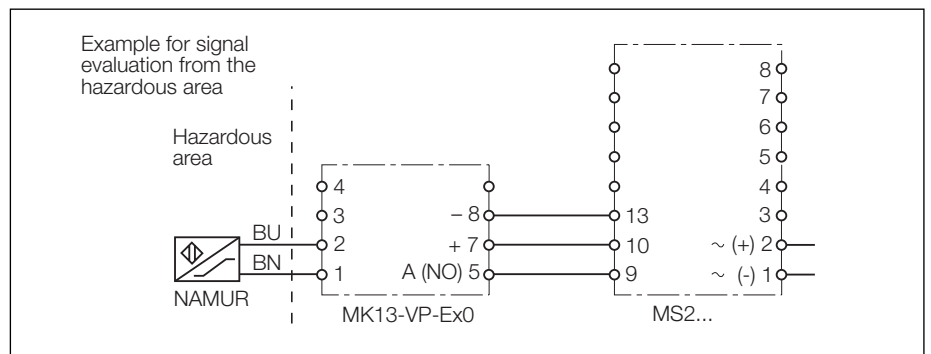


- **Overspeed or underspeed detection**
- **For use with NAMUR sensors according to EN 50227 with input circuit monitoring or 3-wire pnp sensors**
- **Relay output with one SPDT contact**
- **Monitoring ranges from 1.5...3000 min<sup>-1</sup> (3 ranges)**
- **Optional start-up time delay**
- **Sealed relay with hard gold plated contacts**

The rotational speed monitor MS24-112-R/... may be connected to 3-wire pnp sensors, sensors according to EN 50227 (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.

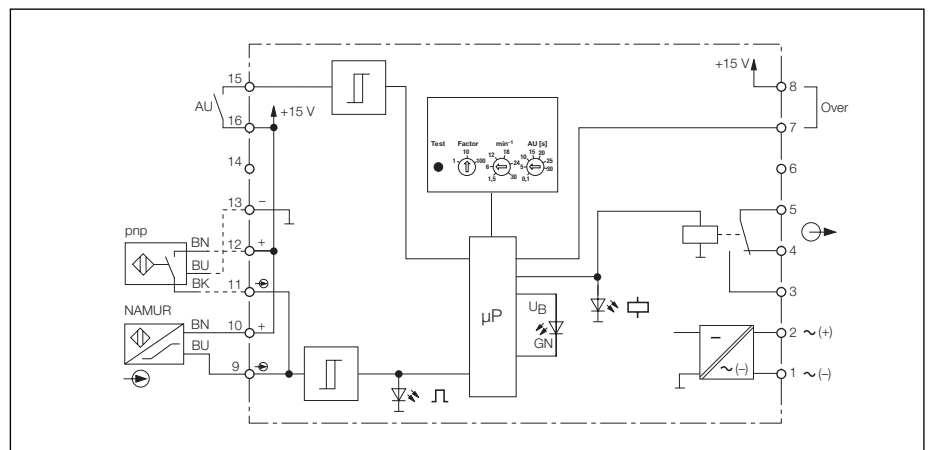
The device features three overlapping measuring ranges and can be easily adapted to the application. A 3-position switch serves to adjust the required measuring range. Then the switch point is adjusted by means of the front panel potentiometer.



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. A yellow LED indicates the status of the output relay.

In the underspeed monitoring mode, a built-in start-up time delay is available. During the start-up time delay, the output relay will be 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 by applying power to the device (closing the potential-free contact).



# Rotational Speed Monitors



<b>Type</b>	MS24-112-R/85...265VUC	MS24-112-R/24VDC
Ident-No.	05 158 00	05 180
<b>Supply Voltage</b> $U_B$	85...265 VUC	18...30 VDC
Line frequency/ripple $W_{PP}$	0...62 Hz	$\leq 10\%$
Power/Current consumption	4.5 VA	2.5 W
<b>Rotational Speed Monitoring</b>	overspeed/underspeed	overspeed/underspeed
Speed range	1.5...3000 $\text{min}^{-1}$ (3 ranges)	1.5...3000 $\text{min}^{-1}$ (3 ranges)
– Range 1	1.5...30 $\text{min}^{-1}$	1.5...30 $\text{min}^{-1}$
– Range 2	15...300 $\text{min}^{-1}$	15...300 $\text{min}^{-1}$
– Range 3	150...3000 $\text{min}^{-1}$	150...3000 $\text{min}^{-1}$
Input frequency	$\leq 60\,000\ \text{min}^{-1}$	$\leq 60\,000\ \text{min}^{-1}$
Pause duration	$\geq 0.2\ \text{ms}$	$\geq 0.2\ \text{ms}$
Pulse duration	$\geq 0.2\ \text{ms}$	$\geq 0.2\ \text{ms}$
Hysteresis	approx. 10 %	approx. 10 %
Start-up time delay	0.1...30 s (front panel potentiometer)	0.1...30 s (front panel potentiometer)
Repeat accuracy	$\leq 0.1\%$	$\leq 0.1\%$
Temperature drift	$\leq 0.005\ \%/K$	$\leq 0.005\ \%/K$
<b>Clearances and Creepage Distances</b>		
– Input circuit to output circuit	$\geq 4\ \text{mm}$	$\geq 4\ \text{mm}$
– Input circuit to power supply	$\geq 4\ \text{mm}$	–
– Test voltage	2 kV	500 V
<b>Input Circuits</b>	NAMUR or (3-wire, pnp)	NAMUR or (3-wire, pnp)
NAMUR input	according to EN 50227, terminals 9/10	according to EN 50227, terminals 9/10
– Operating characteristics	$U_0 = 8.2\ \text{V}; I_k = 8.2\ \text{mA}$	$U_0 = 8.2\ \text{V}; I_k = 8.2\ \text{mA}$
– Switching threshold	$1.4\ \text{mA} \leq I_e \leq 1.8\ \text{mA}$	$1.4\ \text{mA} \leq I_e \leq 1.8\ \text{mA}$
3-wire input	pnp, terminals 11...13	pnp, terminals 11...13
– Operating characteristics	$U \leq 15\ \text{VDC}; I \leq 30\ \text{mA}$	$U \leq 15\ \text{VDC}; I \leq 30\ \text{mA}$
– "ON" signal	0...5 VDC	0...5 VDC
– "OFF" signal	10...30 VDC	10...30 VDC
<b>Output Circuits</b>		
Relay output	1 relay output	1 relay output
– Number of contacts	1 SPDT contact, AgCdO + 3 $\mu\text{Au}$	each with 1 SPDT contact, AgCdO + 3 $\mu\text{Au}$
– Switching voltage	$\leq 250\ \text{V}$	$\leq 250\ \text{V}$
– Switching current	$\leq 2\ \text{A}$	$\leq 2\ \text{A}$
– Switching capacity	$\leq 500\ \text{VA}/60\ \text{W}$	$\leq 500\ \text{VA}/60\ \text{W}$
<b>LED Indications</b>		
– Power "ON"	green	green
– Status indication	yellow	yellow
– Input pulses	yellow	yellow
<b>Housing</b>	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	$\leq 2 \times 2.5\ \text{mm}^2$ or $2 \times 1.5\ \text{mm}^2$ with wire sleeves	
Degree of protection (IEC 60529/EN 60529)	IP20	
Operating temperature	-25...+60 °C	

