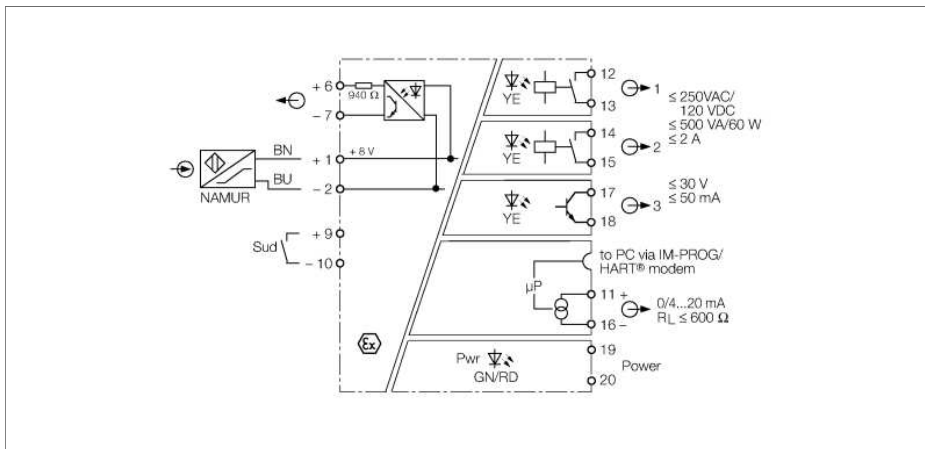


**Rotation speed monitor  
1-channel  
IM21-14EX-CDTRI**



The rotation speed monitor IM21-14EX-CDTRI monitors frequencies, rotation speeds and pulse trains of rotating motor, gear or turbine parts according to over or undershoot of adjusted limit values. A display at the front indicates the current value.

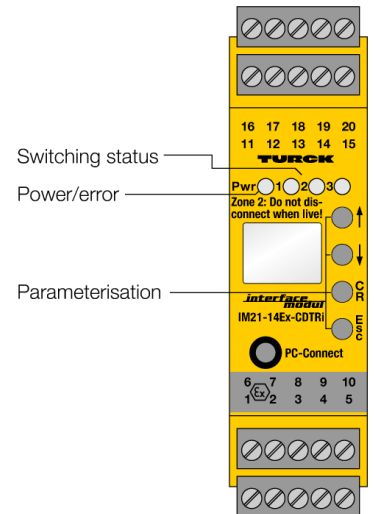
Intrinsically safe sensors acc. to EN 60947-5-6 (NAMUR) can be connected. The line is monitored according to wire-break and/or short-circuit depending on the settings made. In case of input circuit errors the relays drop out, the transistor is inhibited and the Power LED (Pwr) changes to red.

The device can be parametrized and configured via PC (FDT/DTM). For this, connect the device to the PC via the 3.5 mm jack plug at the front (the matching transmission cable IM-PROG III can be ordered separately from TURCK). A basic scope of parameters can be set via buttons and display at the front or remotely via the current interface and HART®.

At each of the two relay outputs a predefined switching limit value can be monitored. The two relays also monitor overshoot/undershoot of window limits. The transistor output can also be used as a pulse divider. The measured value is permanently written to a ring memory with space for 8000 values. The writing process is stopped with a predefined trigger event, like for example "excess of limit value". After that, the stored signal sequence can be read out.

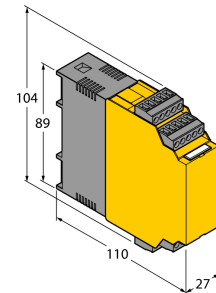
A switching hysteresis is defined by setting a switch-on and off point. A switch-off delay can also be set to avoid shut down due to sudden frequency hops.

- Intrinsically safe input circuits Ex ia
- Installation in zone 2
- Application area acc. to ATEX: II (1) G, II (1) D; II 3 G
- Line monitoring
- Monitors over and underrange of limit values and window limits
- Operating range 0.06 ... 600000 min<sup>-1</sup>
- Control of sensors acc. to EN 60947-5-6 (NAMUR)
- 2 x relay outputs and 1 x transistor output
- Current output 0/4...20 mA reversible
- Pulse output Ex nL II C/II B
- Parametrized via PC (FDT/DTM), front panel switch or HART®
- Ring memory for up to 8000 measured values
- Display
- Complete galvanic separation



**Rotation speed monitor  
1-channel  
IM21-14EX-CDTRI**

**Dimensions**



<b>Type code</b>	IM21-14EX-CDTRI
Ident no.	7505651
<b>Nominal voltage</b>	Universal voltage supply unit
Operating voltage	20...250 VAC
Frequency	40...70 Hz
Operating voltage range	20...125 VDC
Power consumption	≤ 3 W
<b>Monitoring range / setting range:</b>	≤ 0.06...600000 min <sup>-1</sup>
max. input frequency	600000 min <sup>-1</sup>
Pulse time	≥ 0.02 ms
Pulse stop	≥ 0.02 ms
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
Wire breakage threshold	≤ 0.1 mA
Short-circuit threshold	≥ 6 mA
<b>Output current</b>	0/4...20 mA
Load resistance current output	≤ 0.6 kΩ
Fault current	0 / 22 mA adjustable
Output circuits (digital)	2 x relays (NO)
Relay switching voltage	≤ 250 VAC/120 VDC
Switching current per output	≤ 2 A
Switching capacity per output	≤ 500 VA/60 W
Switching frequency	≤ 10 Hz
Contact quality	AgNi, 3μ Au
Semiconductor output circuit(s)	
Output circuits (digital)	1 x transistor (potential-free, short-circuit protected)
Switching voltage	≤ 30 VDC
Switching current per output	≤ 50 mA
Switching frequency	≤ 10000 Hz
Voltage drop	≤ 2.5 V
Pulse output	
Voltage	≤ 30 V
Current	≤ 10 mA
<b>Measuring accuracy</b>	≤ 0.05 % of full scale
Reference temperature	23 °C
Temperature drift analogue output	0.0025 %/K
<b>Galvanic separation</b>	
Test voltage	2.5 kV

**Rotation speed monitor  
1-channel  
IM21-14EX-CDTRI**

<b>Ex approval acc. to conformity certificate</b>	IBExU 07 ATEX 1132
Application area	II (1) GD
Protection type	[Ex ia] IIC
Max. output voltage $U_o$	≤ 9.6 V
Max. output current $I_o$	≤ 10.7 mA
Max. output power $P_o$	≤ 25 mW
Rated voltage	250 V
Characteristic	linear
Max. input voltage $U_i$	≤ 20 V
Max. input current $I_i$	≤ 21.3 mA
Max. input power $P_i$	≤ 400 mW
Internal inductance/capacitance L/C <sub>i</sub>	negligibly small
External inductance/capacitance L <sub>e</sub> /C <sub>e</sub>	

Ex ia	IIC				IIB			
L <sub>e</sub> [mH]	100	5.0	1	0.01	100	5	1	0.01
C <sub>e</sub> [μF]	0.51	0.84	1.2	3.6	2.7	4.4	6.3	26

<b>Ex approval acc. to conformity certificate</b>	IBExU 07 ATEX B010 X
Application area	II 3 G
Protection class for belonging equipment	Ex nA nC [nL] IIC/IIB T4
Max. output voltage $U_o$	≤ 9.6 V
Max. output current $I_o$	≤ 10.7 mA
Max. output power $P_o$	≤ 25 mW
Characteristic	linear
Internal inductance/capacitance L/C <sub>i</sub>	negligibly small
External inductance/capacitance L <sub>e</sub> /C <sub>e</sub>	

Ex nL	IIC				IIB			
L <sub>e</sub> [mH]	100	5.0	1	0.01	100	5	1	0.01
C <sub>e</sub> [μF]	0.765	1.2	1.8	5.4	4.0	6.6	9.4	39

**MTTF** 100 years acc. to SN 29500 (Ed. 99) 40 °C

<b>Indication</b>	
Operational readiness	green
Pulse input	yellow
Error indication	red

<b>Protection class</b>	IP20
Ambient temperature	-25...+70 °C
Storage temperature	-40...+80 °C
Relative humidity	≤ 95%
Dimensions	104x 27x 110 mm
Weight	241 g
Mounting instruction	For mounting on DIN rail or mounting panel
Housing material	Polycarbonate/ABS
Electrical connection	4 x 5-pole removable terminal blocks, reverse polarity protected, screw connection
Terminal cross-section	1 x 2.5 mm <sup>2</sup> / 2 x 1.5 mm <sup>2</sup>
Tightening torque	0.5 Nm

**Accessories**

Type code	Ident no.	Description	Dimension drawing
IM-CC-5X2BU/2BK	7504031	Cage clamp terminals for IM modules (Ex devices; width 27 mm); 2 blue/2 black, 5-pin	
IM-PROG III	7525111	The programming adapter IM-PROG III is used for parametrization of TURCK IM and IMB devices via FDT/DTM and for galvanic separation.	