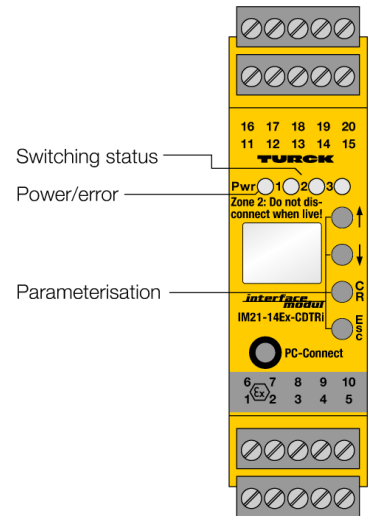
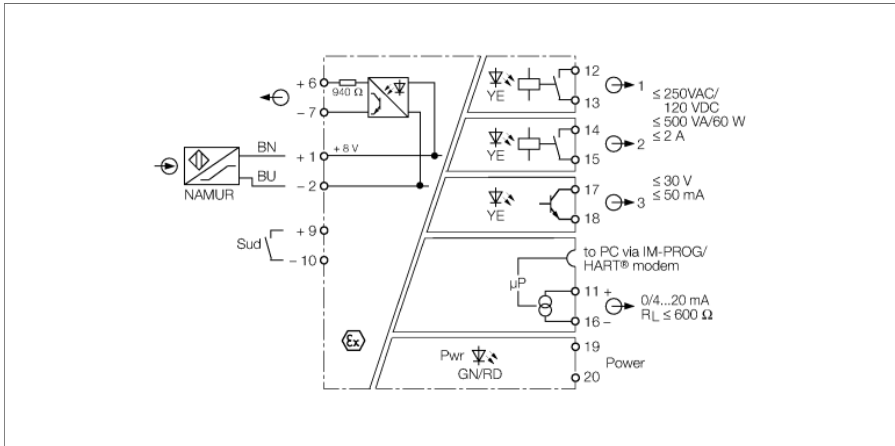


**Rotation speed monitor
1-channel
IM21-14EX-CDTRI**



The rotation speed monitor IM21-14EX-CDTRI monitors pulse sequences, rotation speed and pulse trains of rotating motor, gear or turbine parts for over and underrange of programmed limit values. A display integrated in the front cover indicates the current value.

The switching status of the corresponding output relay or transistor is indicated by a yellow LED and operational readiness by a green LED. Input pulses are shown on the display. Intrinsically safe sensors acc. to EN 60947-5-6 (NAMUR) can be used for signal detection. The line is monitored according to wire-break and/or short-circuit depending on the setting. In case of input circuit errors the relays are de-energized, the transistor is inhibited and the Power-LED (Pwr) changes to red. The input pulse signal is transmitted to the potential-free pulse output and from there to further processing units.

In order to achieve short response times, low frequencies are monitored according to the principle of period duration measurement and high frequencies are monitored with a time window. In case of low frequencies the response time depends only on the period duration of the signal. The device is programmed with four push buttons. The parameters are shown on the display.

At each of the three outputs a predefined set-point value can be monitored according to overshoot/undershoot. In addition, the two relays monitor overshoot/undershoot of window limits which are defined as a tolerance around the setpoint value. 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.

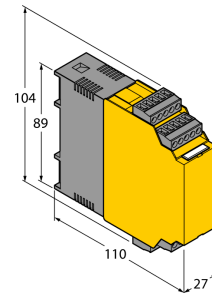
The switching hysteresis is defined by programming the switch-on and switch-off point. Additionally, output cut-off due to sudden frequency changes can be avoided if a switch-off delay is programmed for each output. Select the interlocking function to avoid accidental switch-on of the output. The outputs are operated in NO mode; in "good-condition" the corresponding output is in switched state.

- Intrinsically safe input circuits Ex ia
- Installation in zone 2
- Application area acc. to ATEX: II (1) G, II (1) D; II G 3
- Rotation speed monitor
- Line monitored for wire-break/short-circuit
- Monitoring of limit values and window limits according to over and underrange
- Operating range 0.06...600000 min⁻¹
- 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
- Analog output adjustable in the event of input circuit errors
- Parametrized via PC (FDT/DTM); with diagnostic messaging function
- HART®
- Ring memory for up to 8000 measured values
- Universal operating voltage
- Removable terminal blocks
- Galvanic separation of input circuits, output circuits and power supply

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

Type	IM21-14EX-CDTRI
Ident-No.	7505651
Ident-No (TUSA)	M7505651
Nominal voltage	Universal voltage supply unit
Operating voltage	20...250 VAC
Frequency	40...70 Hz
Operating voltage range	20...125 VDC
Power consumption	≤ 3 W
Monitoring range / setting range:	≤ 0.06...600000 min ⁻¹
Input frequency	600000 min ⁻¹
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
Output current	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
Voltage drop	≤ 2.5 V
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
Galvanic separation	
Test voltage	2.5 kV

Dimensions



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

Ex approval acc. to conformity certificate IBEU 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
 Internal inductance/capacitance L/C, negligibly small
 External inductance/capacitance L_s/C_s

Ex ia	IIC				IIB			
L _s [mH]	100	5,0	1	0,01	100	5	1	0,01
C _s [μF]	5100	8400	1,2	3,6	2700	4400	6,3	26

Ex approval acc. to conformity certificate IBEU 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
 External inductance/capacitance L/C, negligibly small
 External inductance/capacitance L_s/C_s

Ex nL	IIC				IIB			
L _s [mH]	100	5,0	1	0,01	100	5	1	0,01
C _s [μF]	7650	1,2	1,8	5,4	4,0	6,6	9,4	10

Indication

Operational readiness green
 Pulse input yellow
 Error indication red

Protection class

IP20
 Ambient temperature -25...+70 °C
 Storage temperature -40...80 °C
 Dimensions 104 x 27 x 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 mm² / 2 x 1.5 mm²

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

Accessories

Type code	Ident-No.	Short text	Dimension drawing
IM-CC-5X2BU/2BK	7504031	Cage clamp terminals for IM modules (Ex devices; width 27 mm); 2 blue/2 black, 5-pin	<p>The dimension drawing shows two components. The top component is a cage clamp terminal block with five pins. Its dimensions are: a total width of 25.1 mm, a height of 23.5 mm, and a depth of 8.3 mm. The top surface has a width of 15 mm. The bottom component is a USB programming adapter consisting of a 3m cable with a 3.5mm diameter connector on one end and a USB-A connector on the other.</p>
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.	