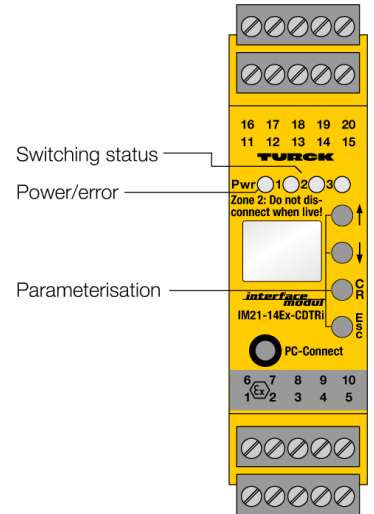
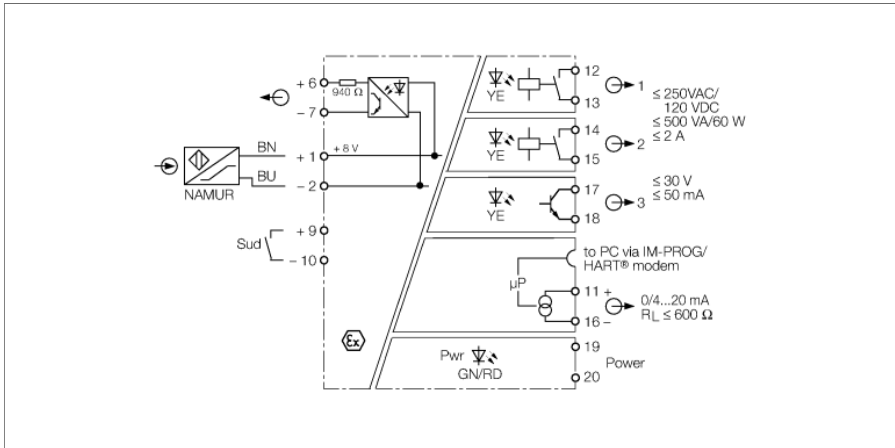


**Rotation speed monitor
1-channel
IM21-14EX-CDTRI**



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 the event of an input circuit error the relays drop out, the transistor is blocked 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). In addition, a basic scope of parameters can be set via buttons and display at the front as well as via the HART®capable power interface

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.

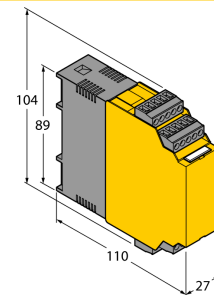
A switching hysteresis is defined by setting a switch-on and off point. A switch-off delay can also be set to avoid shut down due to sudden frequency hops.

- ATEX, IECEx, FM, NEPSI, TIIS, GOST
- Monitors over and underrange of limit values and window limits
- Operating range 0.06 ... 600000 min⁻¹
- Pulse output Ex [ic Gc] 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 isolation

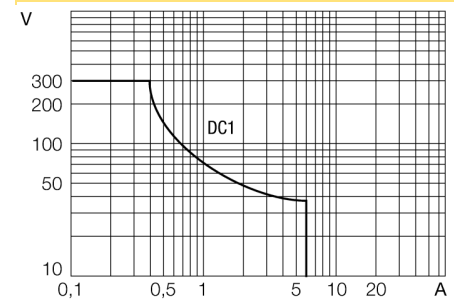
**Rotation speed monitor
1-channel
IM21-14EX-CDTRI**

| | |
|--|--|
| Type code | IM21-14EX-CDTRI |
| Ident no. | 7505651 |
| Flammability class acc. to UL 94 | V-0 |
| 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 |
| max. 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 |
| 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 |
| Measuring accuracy | ≤ 0.05 % of full scale |
| Reference temperature | 23 °C |
| Temperature drift analogue output | 0.0025 %/K |
| Galvanic isolation | |
| Test voltage | 2.5 kV |

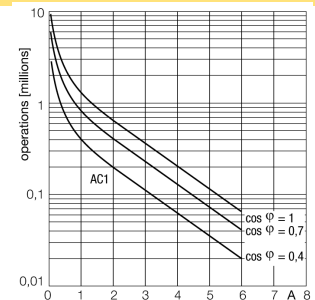
Dimensions



Load curve



Output relay electrical lifetime



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

Ex approval acc. to conformity certificate

Application area IBEU 07 ATEX 1132
 Protection type II (1) G, II (1) D
 [Ex ia Ga] IIC, [Ex ia Da] IIC
 Max. values: terminal connection 1+2; 6+7; 9+10
 Max. output voltage U_o ≤ 9.6 V
 Max. output current I_o ≤ 10.7 mA
 Max. output power P_o ≤ 25 mW
 Internal resistance R_i 900 Ω
 Characteristic linear
 Max. values: terminal connection 6+7
 Max. input voltage U_i ≤ 20 V
 Max. input current I_i ≤ 21.3 mA
 Max. input power P_i ≤ 400 mW
 Rated voltage 250 V
 Internal inductance/capacitance L/C, negligibly small
 External inductance/capacitance L/C_e

| Ex ia | IIC | | | | IIB | | | |
|---------------|------|------|-----|------|-----|-----|-----|------|
| L_o [mH] | 100 | 5.0 | 1 | 0.01 | 100 | 5 | 1 | 0.01 |
| C_o [μF] | 0.51 | 0.84 | 1.2 | 3.6 | 2.7 | 4.4 | 6.3 | 26 |

Ex approval acc. to conformity certificate

Application area IBEU 07 ATEX B010 X
 Protection type II 3 G
 Ex nA nC [ic Gc] IIC/IIB T4 Gc
 Max. values: terminal connection 1+2; 6+7; 9+10
 Max. output voltage U_o ≤ 9.6 V
 Max. output current I_o ≤ 10.7 mA
 Max. output power P_o ≤ 25 mW
 Internal resistance R_i 900 Ω
 Characteristic linear
 Max. values: terminal connection 6+7
 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, negligibly small
 External inductance/capacitance L/C_e

| Ex ic | IIC | | | | IIB | | | |
|---------------|-------|-----|-----|------|-----|-----|-----|------|
| L_o [mH] | 100 | 5.0 | 1 | 0.01 | 100 | 5 | 1 | 0.01 |
| C_o [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

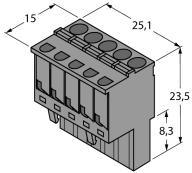
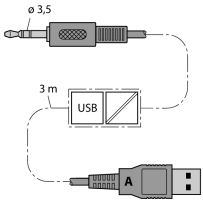
Indication

Operational readiness green
 Pulse input yellow
 Error indication red

Protection class

IP20
 Ambient temperature -25...+70 °C
 Storage temperature -40...+80 °C
 Relative humidity ≤ 95%
 Dimensions 104 x 27 x 110 mm
 Weight 249 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
 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. |  |