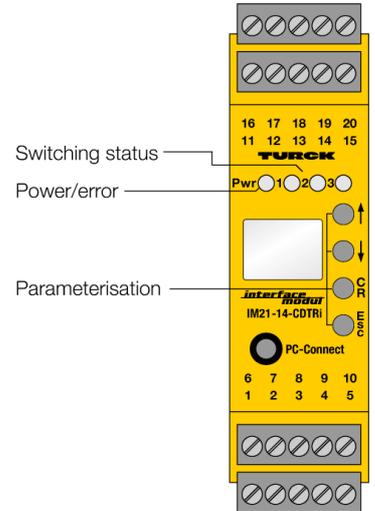
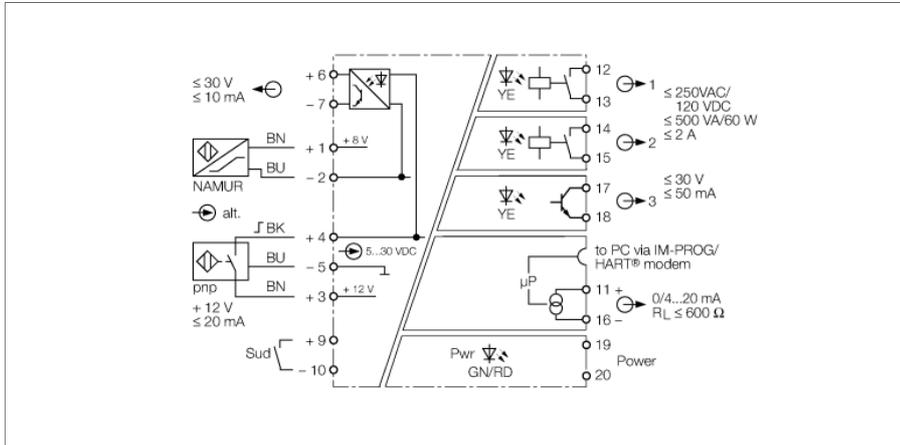


**Rotation speed monitor  
1-channel  
IM21-14-CDTRI**



The rotation speed monitor IM21-14-CDTRI analyzes pulse frequencies, rotation speeds and pulse trains of rotating motor parts, gears or turbines and monitors them for overrange resp. underrange of adjusted 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. For signal detection, connect sensors acc. to EN 60947-5-6 (NAMUR), 3-wire PNP sensors or external signal sources with pulse levels of 5...30 VDC. If NAMUR sensors are connected, the line is monitored according to wire-break and/or short-circuit. In case of input circuit error the relays are de-energized, the transistor is inhibited and the Power-LED (Pwr) changes to red.

PNP 3-wire sensors can be supplied with 12 V (20 mA) from the rotation speed monitor. External signal sources must have a signal level of 5...30 VDC. The input pulse signal is transferred to the potential-free pulse output and from there to further processing units.

In order to achieve short response times for all applications, 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 parameterized via four pushbuttons. The parameters are shown on the display.

At each of the three outputs a predefined setpoint 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.

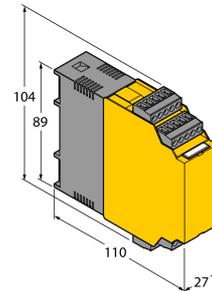
The switching hysteresis is defined by programming the switch-on and switch-off point. Additionally, output cut-off due to sudden frequency changes can be avoided if a switch-off delay is programmed for each output. A locking function prevents the output relay of being switched on again. The outputs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

- **Rotation speed monitor**
- **Line monitored for wire-break/short-circuit**
- **Monitoring of over and underrange of value and window limits**
- **Operating range 0.06...600000 min<sup>-1</sup>**
- **Connection of sensors acc. to EN 60947-5-6 (NAMUR), 3-wire sensors and external power supplies 5...30 VDC**
- **Two relay outputs and one transistor output**
- **Current output 0/4...20 mA, reversible**
- **Pulse output**
- **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**  
**IM21-14-CDTRI**

<b>Type</b>	IM21-14-CDTRI
Ident-No.	7505650
Ident-No (TUSA)	M7505650
<b>Nominal voltage</b>	Universal voltage supply unit
Operating voltage	20...250 VAC
Frequency	40...70 Hz
Operating voltage range	20...250 VDC
Power consumption	≤ 3 W
<b>Monitoring range / setting range:</b>	≤ 0.06...600000 min <sup>-1</sup>
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
3-wire input	
No-load voltage	12 VDC
Current	≤ 20 mA
Input resistance	600 Ω
0-signal	0...3VDC
1-signal	5...30 VDC
External signal source	
0-signal	0...3 VDC
1-signal	5...30 VDC
Input resistance	26000 Ω
<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
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
Pulse output	
Voltage	≤ 30 V
Current	≤ 10 mA
<b>Measuring accuracy</b>	≤ 0.1 % of full scale
<b>Galvanic separation</b>	
Test voltage	2.5 kV
<b>Rated voltage</b>	250 V
<b>Indication</b>	
Operational readiness	green
Switching state	yellow
Error indication	red

**Dimensions**



## Rotation speed monitor

### 1-channel

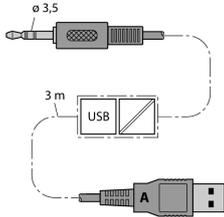
### IM21-14-CDTRI

---

<b>Protection class</b>	IP20
Ambient temperature	-25...+70 °C
Storage temperature	-40...80°C
Dimensions	104 x 27 x 110 mm
Weight	243 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>

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

**Accessories**

Type code	Ident-No.	Short text	Dimension drawing
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.	
IM-CC-5X2BK/2BK	7541219	Cage clamps for IM modules (non-Ex devices, width 27 mm): 4 black, 5-pin, included in delivery	