**TR**

HART® Transmitters TRH

- ♦ **100% HART® - compatibility up to 1500 m**
- ♦ **Programmable by a HART-communicator or a WIN - software**
- ♦ **Input and output programming (select input)**
- ♦ **Sensor calibration**
- ♦ *SmartSence* **monitoring for sensor electrical insulation leaks**
- ♦ **Built in programmable digital filter**
- ♦ **Input to output isolation up to 1500 VAC**
- ♦ **Ex - version**

The **TRH** intelligent transmitters produced by the Swedish company INOR are distributed by COMECO Ltd. and provide communication by a **HART - protocol** directly through the 4...20mA two-wire output line. TRN transmitter programming ad reading is possible by means of a portable **HART communicator or a modem connected to a PC**. TRH transmitters allow the user to:
- **select sensor type** (10 thermoresistances and 11 thermocouples)
- **create an input for a custom sensor** (mA, mV, Ω)
- enter **calibration corrections** of the sensor
- specify input ranges and output type (4 …20 mA/20…4mA)
- select output state at **sensor break**
- monitor sensor electrical insulation by means of **SmartSense system**
- adjust the "zero" (the offset), the **digital filter** and the sampling time
TRH transmitters are available in **various mounting options**: in sensor protection head type "B", in IP65 box or on rail. Communication capabilities of TRH transmitters make them a unique solution in certain industrial conditions.
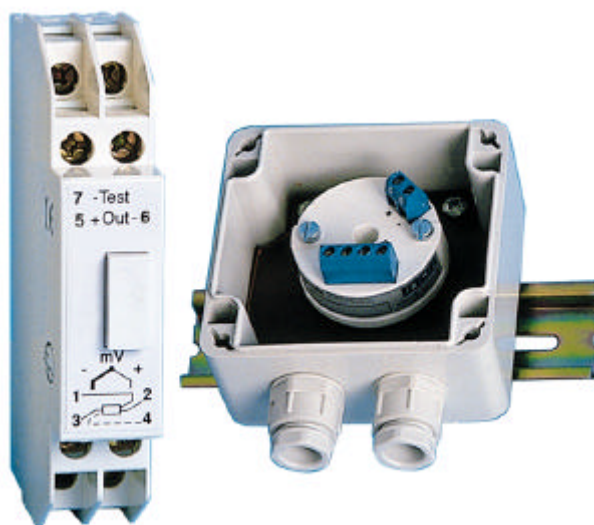
Technical specifications

Input	Programmable
PtX (w=1.385), 3(4) wire	fm min. -200 to max. +1000 °C
RTD resistance at 0 °C	10Ω ≤ X ≤ 1000Ω
Pt100 (w=1.391), 3(4) wire	min. -200 to max. +1000 °C
Ni100, 3(4) wire	from min. -60 to max. +250 °C
Ni1000, 3(4) wire	from min. -60 to max. +150 °C
RTD selectable range	programmable in the ranges above
RTD minimal range width	10 Ω
Thermocouples (11 types)	AE, B, E, J, K, L, N, R, S, T, U
TC input range	from min. -10 to max. +500 mV
TC selectable range	programmable in the ranges above
TC minimal range width	2 mV
Resistive, 3(4) wire [3]	from min. 0 to max. 2000 Ω
Other custom input	mV/Ω within the ranges above
Custom input linearization	50 points or 3-rd order polynomial
Zero (offset) adjustment	within input ranges
Input isolation	1500 VAC for 1 min

Input monitoring	Programmable
Sensor break reaction	Programmable: 3.6÷22.8 mA
SmartSence monitoring	3.6÷22.8 mA

Output	Programmable
Signal type	4 to 20 mA or 20 to 4 mA
Linearly proportional to	measured value
Resolution	5 µA
Current limits	Low=3.6 mA, High=23 mA
Output refresh time	0.8 s
Digital filter:	programmable
Suppression time	0 to 10 s

ABBREVIATIONS: RTD - thermoresistance; TC - thermocouple

Accuracy	
Measurement error	0.2 % from span
Nonlinearity	within measurement error
Temperature drift	0.01 °C for 1 °C
Cold junction compensation	Automatic software: ± 0.5 °C

Power supply	
Voltage	10÷42 or 12÷30 [1] VDC
Admissible variations	4 Vp-p @ 50Hz
Max line load	610Ω or 520Ω [1] @24V/23mA

Interface	
Interface type	RS-232
Software (optional)	For Windows 3.11, 9x and NT
HART-modem (optional)	RS232 modem for PC

Ex-option	
Classification	class EEx ia IIC T4, T5, T6
Norm	CENELEC

Operating conditions	
Operating temperature	-40 to 85 °C
Operating humidity	0 to 95 %RH, non-condensing

Design and materials			
Case material			Plastic
Wiring			Screw terminals
Mounting	In head[2]	On rail	In box
Dimensions [mm]	∅44x26	90x58x18	80x80x60
Weight	50 g	70 g	190 g
Protection: case/terminals	IP 56/10	IP 20/20	IP 65

Ordering code → TRH - G12 - #1#2#3

Code	Feature or option	Code values
G12	Mounting	**B** - For mounting in a head type "B" [2], **C** - for mounting on a rail, **D** - for mounting in a box IP-65
#1	Ex-approved version	**X** - none, **E** - EEx ia IIC T4…T6 approved version
#2	Software	**X** - none, **S** - plus a software package for programming, monitoring and a cable to PC
#3	HART - modem	**X** - none, **M** - HART modem to PC via RS232

[1] With Ex - option
[2] May be mounted on rail by a special snap on accessory which is ordered separately
[3] 4-wire RTD input can also be ordered by a special request

COMECO reserves the right of changing specifications without prior notice!