

HART-protocol Temperature transmitter

03 Head Mounted CN - 502H / DIN Rail Mounted CN - 501H

Universal head transmitter for resistance thermometers (RTD), thermocouples (TC), resistance and voltage transmitters, settable via HART-protocol



Head Mounted
CN - 502H

DIN Rail Mounted
CN - 501H



Application areas

- Temperature head transmitter with HART-protocol for converting various input signals into a scalable 4 to 20 mA analogue output signal
- Input
 - Resistance thermometer (RTD)
 - Thermocouple (TC)
 - Resistance transmitter (Ω)
 - Voltage transmitter (mV)

Performance

- Universal settings with HART-protocol for various input signals
- 2 wire technology, 4 to 20mA analogue output
- High accuracy in total ambient temperature range
- Galvanic isolation
- An internal temperature sensor for active temperature compensation (For T/C)
- Wide voltage supply range
- Customer specific measurement range settings
- No external power supply for configuration
- Simple and user friendly software

Technical data

Input

	Type	Measurement ranges	Min.meas. Ranges
Resistance thermometer (RTD)	Pt100	-200 °C to 850 °C (-328 °F to 1562 °F)	10K
	Pt500	-200 °C to 250 °C (-328 °F to 482 °F)	10K
	Pt1000	-200 °C to 250 °C (-328 °F to 482 °F)	10K
	Cu50	-50 °C to 150 °C (-58 °F to 302 °F)	10K
	Cu100	-50 °C to 150 °C (-58 °F to 302 °F)	10K
	*Ni100	-60 °C to 180 °C (-76 °F to 356 °F)	10K
Resistance transmitter	*Ni500	-60 °C to 180 °C (-76 °F to 356 °F)	10K
	*Ni1000	-60 °C to 150 °C (-76 °F to 302 °F)	10K
	Resistance(Ω)	0 to 400 Ω 0 to 2000 Ω 0 to 10000 Ω	10 Ω 20 Ω 100 Ω
* α = 5000ppm/K or 6180ppm/K Connection type : 2-, 3- or 4-wire connection Sensor current : 0.5 mA			
Thermocouples (TC)	B(PtRh30-PtRh6)	0 to 1820 °C (32 to 3308 °F)	500K
	E(NiCr-CuNi)	-270 to 1000 °C (-454 to 1832 °F)	50K
	J(Fe-CuNi)	-210 to 1200 °C (-346 to 2192 °F)	50K
	K(NiCr-Ni)	-270 to 1372 °C (-454 to 2501 °F)	50K
	N(NiCrSi-NiSi)	-270 to 1300 °C (-454 to 2372 °F)	50K
	R(PtRh13-Pt)	-50 to 1768 °C (-58 to 3214.4 °F)	500K
	S(PtRh10-Pt)	-50 to 1768 °C (-58 to 3214.4 °F)	500K
	T(Cu-CuNi)	-270 to 400 °C (-454 to 752 °F)	50K
Voltage transmitters (mV)	Millivolt transmitter(mV)	-10 to 75mV	5mV
		-100 to 100mV	5mV
		-100 to 500mV	6mV
		-100 to 2000mV	20mV

Output

Output signal	4 to 20 mA
Signal on alarm	Underranging Linear drop to 3.8 mA
	Overranging linear rise to 20.8 mA
	Sensor break; sensor open-circuit 3.8 mA
Load	max.(V _{power supply} - 7.5 V)/0.0208 A
Linearisation/transmission behaviour	Temperature linear, resistance linear, voltage linear
Galvanic isolation	U=2 KV AC (input/output)

Power supply

Supply voltage	7.5 to 45 VDC(without display) , polarity protected
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Performance characteristics

Response time	1 s		
Reference operating conditions	Calibration temperature: 23℃ (73.4°F) ±5K		
Long term stability	≤ 0.05%/year		
Switchon delay	≤ 5s		
Influence of ambient	Negligible		
Load influence	Negligible		
Power supply influence	Negligible		
Self stability configuration	0 to 2%		
Filter configuring	0 to 160 μA		
Resolution	0.3 μA		
Maximum measured error		Type	Measurement accuracy
	Resistance thermometer(RTD)	Pt100, Ni100	0.2K or 0.08%
		Pt500, Ni500	0.5K or 0.20%
		Pt1000, Ni1000	0.3K or 0.12%
		Cu50	0.2K or 0.08%
		Cu100	0.3K or 0.12%
	Thermocouple(TC)	K, J, T, E	typ.0.5K or 0.08%
		N	typ.1.0K or 0.08%
		S, B, R	typ.2.0K or 0.08%
	Resistance transmitter(Ω)	0 to 400Ω 0 to 2000Ω 0 to 10000Ω	±0.1Ω or 0.08% ±1.5Ω or 0.12% ±7.5Ω or 0.20%
Voltage transmitters(mV)	-10 to 75mV -100 to 100mV -100 to 500mV -100 to 2000mV	±20μV or 0.08% ±20μV or 0.08% ±30μV or 0.08% ±50μV or 0.08%	

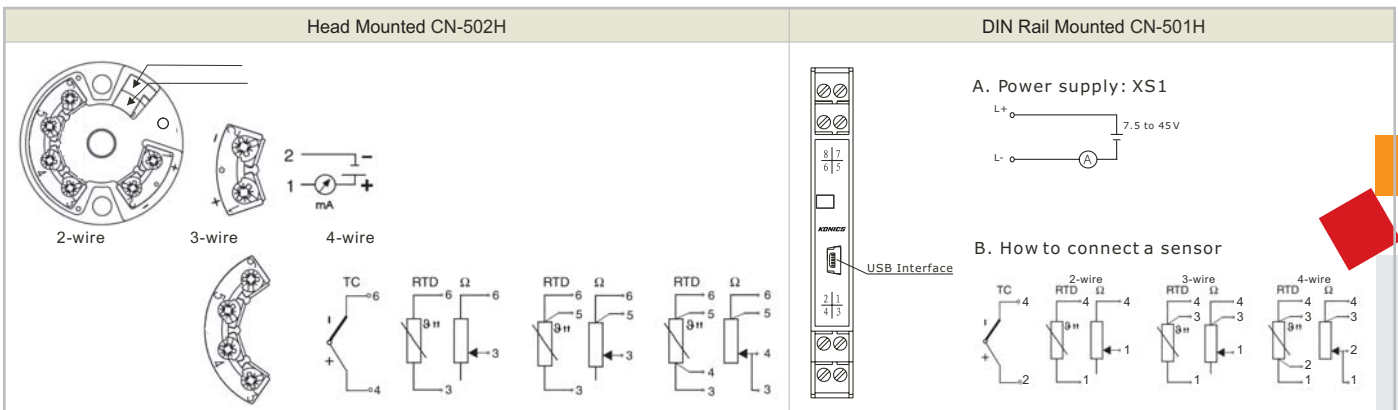
Environment conditions

Ambient temperature limits	-40 to 85°C (-40°F to 185°F)
Storage temperature	-40 to 100°C (-40°F to 212°F)
Condensation	Allowable
Shock and vibration resistance	4g/2 to 150Hz as per IEC 60 068-26
Electromagnetic compatibility(EMC)	Interference immunity and interference emission according to GB/T17626.2-1998), compliance with IEC 61000-4-3: 1995.

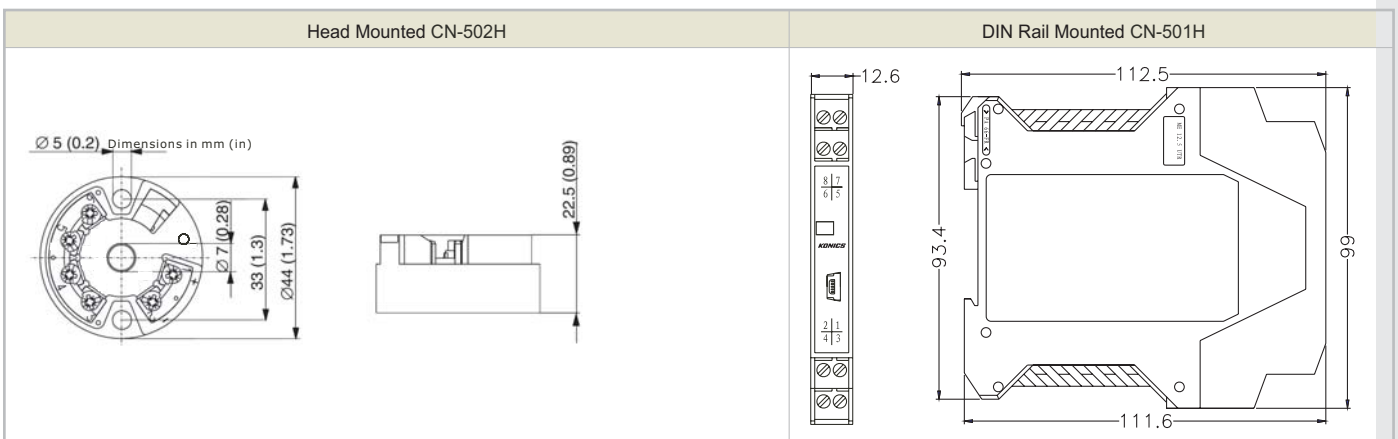
Others

	Head Mounted CN-502H	DIN Rail Mounted CN-501H
Dimensions	Dia. 44 X 22.5 mm	12.5 X 99 X 112.5 mm
Weight	Approx. 33.5g	Approx. 90g
Material	Housing: PC Potting: epoxy	PA 66-FR

Connections



Dimensions



Ordering codes

CN-502H (Head Mounted)
CN-501H (DIN Rail Mounted)