

# HART Protocol Cylindrical Temperature Transmitters



## CN-502H Series CATALOG

For your safety, read and follow the considerations written in the instruction manual, other manuals and Autonics website.

The specifications, dimensions, etc. are subject to change without notice for product improvement. Some models may be discontinued without notice.

### Features

- HART protocol
- Multi-input
  - RTD 8 types
  - Thermocouple 7 types
  - mV 4 types
  - Resistor 2 types
- Small size:  $\varnothing 44 \times 24H$
- High accuracy:  $\pm 0.3\%$  F.S.

### Specifications

<b>Model</b>	<b>CN-502H</b>
<b>Power supply</b>	11-35 VDC $\equiv$
<b>Power consumption</b>	$\leq 1$ W
<b>Display method<sup>01)</sup></b>	No mark
<b>Measurable current</b>	50 $\mu$ A (3-wire), 100 $\mu$ A (4-wire)
<b>Resistance</b>	$\leq 5 \Omega$
<b>Input specification</b>	Refer to 'Input Specifications'
<b>Input accuracy</b>	$\pm 0.1\%$ F.S.
<b>Output</b>	DC 4-20 mA (2-wire)
<b>Output accuracy</b>	$\pm 0.1\%$ F.S.
<b>Response time</b>	1 sec (10 to 90 % of output)
<b>Load</b>	$\leq$ (Power supply-11 VDC $\equiv$ ) / 0.023 A
<b>Setting method</b>	HART-protocol (no setting key)
<b>Alarm</b>	$\leq 3.8$ mA, $> 21.0$ mA, sensor break 22 mA or 3.6 mA
<b>Sampling period</b>	500 ms
<b>Unit weight (Packaged)</b>	$\approx 26$ g ( $\approx 66$ g)

01) Parameter setting and state monitoring are available through an external device such as HART communicator or loader.

<b>Dielectric strength</b>	1000 VAC $\sim$ 50/60 Hz 1 min (between all terminals and case)
<b>Noise immunity</b>	IEC 61326-1
<b>Vibration</b>	0.75 mm amplitude a frequency of 5 to 55 Hz (for 1 min) in each X, Y, Z direction for 2 hours
<b>Insulation resistance</b>	$\geq 100$ M $\Omega$ (500VDC $\equiv$ megger)
<b>Memory protection</b>	$\approx 10$ years (when using non-volatile semiconductor memory)
<b>Tightening torque</b>	Housing: 1 N m, Terminal: 0.9 N m
<b>Galvanic insulation</b>	1 kVAC $\sim$ (Input/Output)
<b>Ambient temperature</b>	-40 to 85 °C, Storage: -40 to 85 °C (rated at no freezing or condensation)
<b>Ambient humidity</b>	5 to 95 %RH, Storage: 5 to 95 %RH (rated at no freezing or condensation)
<b>Protection structure</b>	Housing: IP40 (IEC standard), Terminal: IP00 (IEC standard)
<b>Material</b>	Case: PC
<b>Approval</b>	<b>CE</b> <b>MARVA</b>

### Environmental Influence

- This is based on the state of 24 VDC $\equiv$  power supply, 250  $\Omega$  load, 25 °C ambient temperature and 10 min warming up time.

<b>CJC error</b>	$\pm 1^\circ$ C
<b>Temperature influence</b>	Input error (TC), Input error (RTD), Output error
Input error (TC)	0.015 % F.S. / 1 °C (1.8 °F)
Input error (RTD)	0.015 % F.S. / 1 °C (1.8 °F)
Output error	0.1 % F.S. / 10 °C (18 °F)
<b>Power supply voltage fluctuations</b>	0.002 % F.S. / V
<b>Load fluctuations</b>	0.002 % F.S. / 100 $\Omega$

### Input Specifications

- Input accuracy excluded range  
Thermocouple: K ( $\leq -190^\circ$  C), T ( $\leq -200^\circ$  C), S, B, R ( $\leq 400^\circ$  C)

Input type		Input range (°C)	Input range (°F)	Min. span (°C)
Thermocouple	K (NiCr-Ni)	-270 to 1372	-454 to 2501.6	50
	J (Fe-CuNi)	-210 to 1200	-346 to 2192	
	E (NiCr-CuNi)	-270 to 1000	-454 to 1832	
	T (Cu-CuNi)	-270 to 400	-454 to 752	
	N (NiCrSi-NiSi)	-270 to 1300	-454 to 2372	500
	B (PtRh30-PtRh6)	0 to 1820	32 to 3308	
	R (PtRh13-Pt)	-50 to 1768	-58 to 3214.4	
RTD	S (PtRh10-Pt)	-50 to 1768	-58 to 3214.4	10
	DPt100 $\Omega$	-200 to 850	-328 to 1562	
	DPt500 $\Omega$	-200 to 250	-328 to 482	
	DPt1000 $\Omega$	-200 to 250	-328 to 482	
	Ni100 $\Omega$	-60 to 180	-76 to 356	
	Ni500 $\Omega$	-60 to 180	-76 to 356	
	Ni1000 $\Omega$	-60 to 150	-76 to 302	
Resistance transmitter	Resistance ( $\Omega$ )	-200 to 600	-328 to 1112	10 $\Omega$
		0 to 400 $\Omega$	-	
Analog	Voltage	0 to 2000 $\Omega$	-	5 mV 10 mV 20 mV
		-10 - 75 mV	-	
		-100 - 100 mV	-	
		-100 - 500 mV	-	
		-100 - 2000 mV	-	

## Dimensions

- Unit: mm, For the detailed drawings, follow the Autonics website.

