Cylindrical Temperature Transmitters with HART protocol

▣ Features

- HART protocol
- Multi-input
  - Thermocouple 8 types
  - RTD 8 types
  - mV 4 types
  -Resistor 2 types
- Small size (Φ44 x 24H)
- High accuracy ±0.3% F.S.

⚠ Please read "Safety Considerations" in the instruction manual before using.

CE HART FIELD COMMUNICATIONS PROTOCOL

▣ Ordering Information

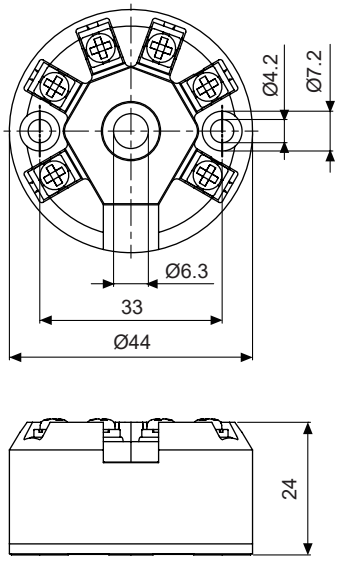
CN	—	50	2	H

Mounting type

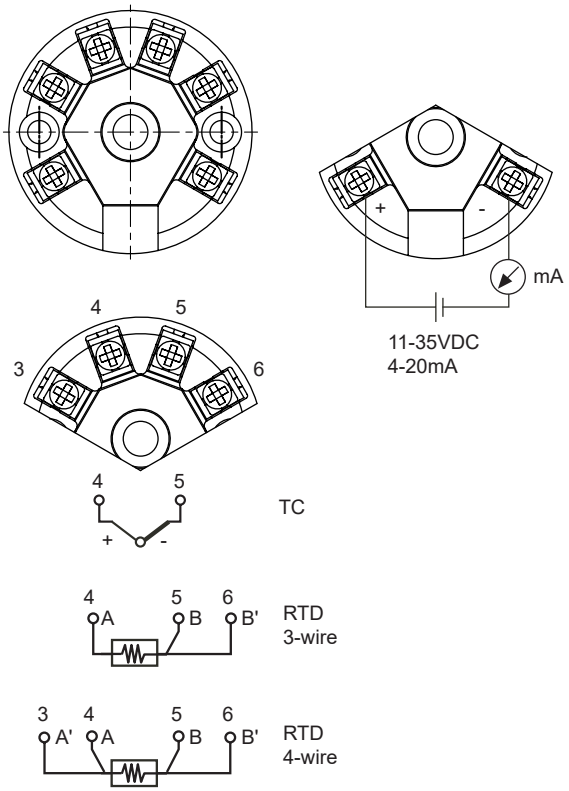
2	Head mounting

▣ Dimensions

(unit: mm)



▣ Connections



▣ Specifications

Model		CN-502H
Power supply		11-35VDC⎓
Power consumption		Max. 1W
Display method※1		None
Input type	RTD	DPt100Ω, DPt500Ω, DPt1000Ω Ni100Ω, Ni500Ω, Ni1000Ω JPt100Ω
	Thermocouple	K, J, T, E, N, S, B, R
	Resistance trans. (Ω)	0-400Ω, 0-2000Ω
	Voltage trans. (mV)	-10-75mV, -100-100mV, -100-500mV, -100-2000mV
	Input accuracy	±0.1% F.S.
Measurable current		50μA (3-wire), 100μA (4-wire)
Resistance		Max. 5Ω
Output		DC4-20mA (2-wire)
Output accuracy		±0.1% F.S.
Response time		1 sec (10 to 90% of output)
Load		Max. (power supply - 11VDC)/0.023A
Setting method		HART-protocol (no setting key)
Alarm		Below 3.8 mA, over 21.0 mA / sensor break 22mA or 3.6mA
Sampling period		500ms
Dielectric strength		1000VAC 50/60Hz 1 minute (between all terminals and case)
Noise immunity		IEC 61326-1
Vibration		0.75mm amplitude at frequency of 5 to 55Hz (for 1 min) in each X, Y, Z direction for 2 hours
Insulation resistance		Over 100MΩ (500VDC megger)
Memory protection		Approx. 10 years (when using non-volatile semiconductor memory)
Environ-ment	Ambient temp.	-40 to 85℃, storage: -40 to 85℃
	Ambient humi.	5 to 95%RH, storage: 5 to 95%RH
Protect structure		Housing: IP40 (IEC standard), terminal: IP00 (IEC standard)
Tightening torque		Housing: 1N·m, terminal: 0.9N·m
Galvanic insulation		1kVAC (input/output)
Approval		CE
Material		Case: polycabonate
Weight※2		Approx. 66g (approx. 26g)

※1: Parameter setting and state monitoring are possible through an external device such as HART communicator or loader.
※2: The weight includes packaging. The weight is parenthesis is for unit only.
※Environment resistance is rated at no freezing or condensation.

▣ Input Type and Range

Input type		Input range(℃)	Input range(°F)	Min. span(℃)
RTD	DPt100Ω	-200 ~ 850	-328 ~ 1562	10
	DPt500Ω	-200 ~ 250	-328 ~ 482	
	DPt1000Ω	-200 ~ 250	-328 ~ 482	
	Ni100Ω	-60 ~ 180	-76 ~ 356	
	Ni500Ω	-60 ~ 180	-76 ~ 356	
	Ni1000Ω	-60 ~ 150	-76 ~ 302	
	JPt100Ω	-200 ~ 600	-328 ~ 1112	
Thermocouple	K(NiCr-Ni)	-270 ~ 1372	-454 ~ 2501	50
	J(Fe-CuNi)	-210 ~ 1200	-346 ~ 2192	
	T(Cu-CuNi)	-270 ~ 400	-454 ~ 752	
	E(NiCr-CuNi)	-270 ~ 1000	-454 ~ 1832	
	N(NiCrSi-NiSi)	-270 ~ 1300	-454 ~ 2372	
	S(PtRh10-Pt)	-50 ~ 1768	-58 ~ 3214.4	500
	B(PtRh30-PtRh6)	0 ~ 1820	32 ~ 3308	
	R(PtRh13-Pt)	-50 ~ 1768	-58 ~ 3214.4	
Resistance transmitter		0-400Ω		10Ω
		0-2000Ω		
Voltage transmitter		-10-75mV		5mV
		-100-100mV		
		-100-500mV		10mV
		-100-2000mV		20mV

※Input range excluded from the ±0.1% F.S. of input accuracy
Thermocouple: K (below -190℃), T (below -200℃), S, B, R (below 400℃)

▣ Environmental Influence

Cold Junction Compensation (CJC) error		±1℃
Temperature influence	Output error	0.1% F.S. / 10℃ (18°F)
	Input error (Thermocouple)	0.015% F.S. / 1℃ (1.8°F)
	Input error (RTD)	0.015% F.S. / 1℃ (1.8°F)
Power supply voltage fluctuations		0.002% F.S. / V
Load fluctuations		0.002% F.S. /100Ω

※This is based on the state of 24VDC power supply, 250Ω load, 25℃ ambient temperature, and 10 min warming up time.

▣ Proper Usage

- Follow instructions in 'Cautions during Use'.
  Otherwise, it may cause unexpected accidents.
- Power supply should be insulated and limited voltage/current or Class 2, SELV power supply device.
- Keep away from high voltage lines or power lines to prevent inductive noise.
  Do not use near the equipment which generates strong magnetic force or high frequency noise.
- Install a power switch or circuit breaker in the easily accessible place for supplying or disconnecting the power.
- In case of connecting RTD temperature sensor, must use 3-wire or 4-wire system in which all wires have same length and thickness.
  In case of extending wire of thermocouple (TC) temperature sensor, must use designated compensation wires.
- This unit may be used in the following environments.
  ①Indoors (in the environment condition rated in 'Specifications')
  ②Altitude max. 2,000m
  ③Pollution degree 2
  ④installation Category II