

KT-502H

Features

- HART protocol
- 330° rotatable display for environment conditions
- DC4-20mA analog output (2-wire)
- Various input (order 1 input type among 22 types)
RTD: 8 types, Thermocouple: 8 types,
mV: 4 types, Ω: 2 types
- Backlight helps to read easily in the darkness
- Explosion class: Ex d IIC T6
- Protection structure: IP67 (IEC standard)



Hart Field Communications Protocol may depend on several factors, including calibrators, software, or firmware updates.

⚠ Please read "Caution for your safety" in operation manual before using this unit.



Ordering Information

KT — 502H 0 (-270 to 1372, K)^{※1}
① ②

Item	Description
① Mounting bracket	0 Without bracket 1 With bracket
② User temperature range	※ 1: To order this unit, write the temperature sensor type and the temperature range.

Specifications

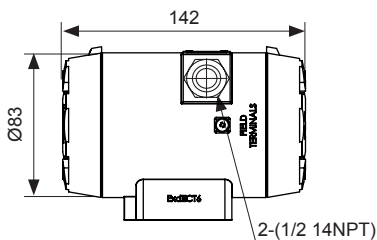
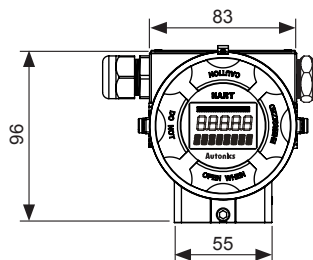
Model	KT-502H	
Power supply	10.5-45VDC (with backlight LCD)	
Display method	PV display part: 7-segment 5-digit (character size: W4×H8mm), Parameter display part: 14-segment 8-digit (character size: W2.6×H4.8mm), 52-bar meter	
Display range	-19999 to 99999	
Setting method	HART-protocol (no setting key)	
Response time	1 sec	
Input type	RTD	DPT100Ω, DPT500Ω, DPT1000Ω, Ni100Ω, Ni500Ω, Ni1000Ω, Cu50Ω, Cu100Ω
	Thermocouple	K, J, T, E, N, S, B, R
	Resistance transmission (Ω)	0 - 400Ω, 0 - 2000Ω
	Voltage transmission (mV)	- 10 - 75mV, - 100 - 100mV, - 100 - 500mV, - 100 - 2000mV
Output	DC4-20mA (2-wire)	
Accuracy	±0.3%	
Alarm	Below 3.8mA, Over 20.5mA/Sensor break 3.6mA	
Load	Max.(V power supply - 7.5V)/0.22A	
Galvanic insulation	2kVAC(input/output)	
Environment	Ambient temperature	-20 to 70°C, storage: 20 to 80°C
	Ambient humidity	0 to 85%RH, storage: 0 to 85%RH
Explosion class	Ex d IIC T6	
Protection structure	IP67 (IEC standard)	
Material	Body: Aluminum (AIDc.8S), Cover O-Ring: Buna N	
Weight ^{※1}	Approx. 1.4kg (approx. 1.2kg)	

※1: The weight includes packaging. The weight in paranthesis is for unit only.

※Environment resistance is rated at no freezing or condensation.

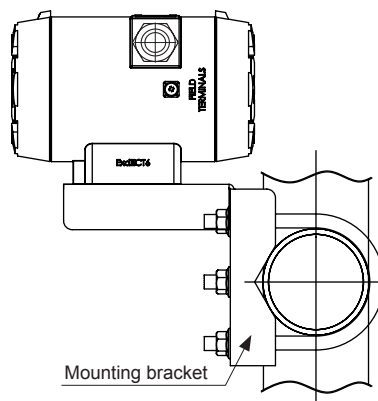
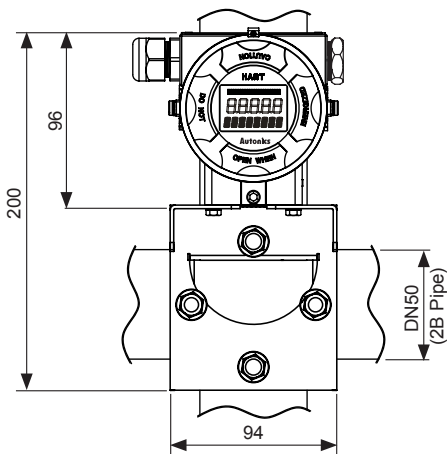
Temperature Transmitter

Dimensions



(unit: mm)

• Mounting bracket

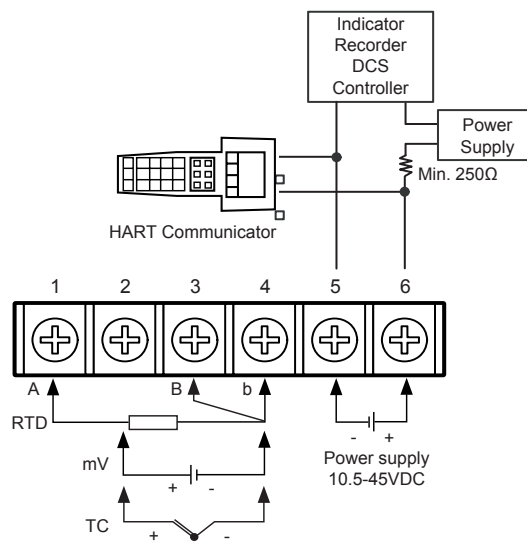


- A. Recorder
- B. Indicator
- C. Converter
- D. Controller
- E. Thyristor unit
- F. Pressure transmitter
- G. Temp. transmitter
- H. Accessories

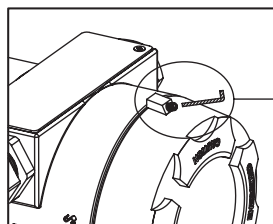
Input Type And Range

Input type		Input range(°C)	Input range(°F)
RTD	DPt100Ω	-200 to 850	-328 to 1562
	DPt500Ω	-200 to 250	-328 to 482
	DPt1000Ω	-200 to 250	-328 to 482
	Cu50Ω	-50 to 150	-58 to 302
	Cu100Ω	-50 to 150	-58 to 302
	Ni100Ω	-60 to 180	-76 to 356
	Ni500Ω	-60 to 180	-76 to 356
	Ni1000Ω	-60 to 150	-76 to 302
Resistance transmitter	Resistance (Ω)	0 to 400Ω	—
		0 to 2000Ω	—
Thermocouple	B (PtRh30-PtRh6)	0 to 1820	32 to 3308
	E(NiCr-CuNi)	-270 to 1000	-454 to 1832
	J(Fe-CuNi)	-210 to 1200	-346 to 2192
	K(NiCr-Ni)	-270 to 1372	-454 to 2501.6
	N(NiCrSi-NiSi)	-270 to 1300	-454 to 2372
	R(PtRh13-Pt)	-50 to 1768	-58 to 3214.4
	S(PtRh10-Pt)	-50 to 1768	-58 to 3214.4
	T(Cu-CuNi)	-270 to 400	-454 to 752
Analog	Voltage	-10 - 75mV	—
		-100 - 100mV	
		-100 - 500mV	
		-100 - 2000mV	

Connections



• Opening cover



To open the cover, unscrew the M3×6L headless bolt using a 1.5 hexagon wrench and rotate the cover.

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Current Trim Adjustment

Connect a HART communicator and adjust current trim as below by a HART communicator.

- ① Select the '**1. Device Setup**' by \uparrow , \downarrow keys and press the \rightarrow key.

1. Device Setup
2. PV
3. PV Ao
4. PV LRV
5. URV

- ② Select the '**2. Diag/Service**' by \uparrow , \downarrow keys and press the \rightarrow key.

1. Process Variables
2. Diag/Service
3. Basic Setup
4. Detailed Setup
5. Review

- ③ Select the '**4. D/A trim**' by \uparrow , \downarrow keys and press the \rightarrow key.

1. Test device
2. Loop test
3. Calibration
4. D/A trim

- ④ Press the **OK** (F4) key.

WARN-Loop should be removed from automatic control
ABORT **OK**

- ⑤ Press the **OK** (F4) key.

Connect reference meter
ABORT **OK**

- ⑥ Press the **OK** (F4) key.

Setting fid dev output to 4mA
ABORT **OK**

- ⑦ Press the **ENTER** (F4) key to set 4 mA display value.

Enter meter Value
4.000
HELP **DEL** **ABORT** **ENTER**

- ⑧ If output display value is correct, select '**1. Yes**' and press the **ENTER** (F4) key. If not, select '**2. No**' and press the **ENTER** (F4) key and re-set the display value.

Ex) If output display value is 3.89mA, select 3.89 and press the **ENTER** (F4) key.

Fid dev output 4.000 mA equal to reference meter ?
1. Yes
2. No **ABORT** **ENTER**

- ⑨ Press the **OK** (F4) key.

Setting fid dev. output to 20mA
ABORT **OK**

- ⑩ Press the **ENTER** (F4) key to set 20 mA display value.

Enter meter Value
20.000
HELP **DEL** **ABORT** **ENTER**

- ⑪ If output display value is correct, select '**1. Yes**' and press the **ENTER** (F4) key. If not, select '**2. No**' and press the **ENTER** (F4) key and re-set the display value.

Fid dev output 20.000 mA equal to reference meter ?
1. Yes
2. No **ABORT** **ENTER**

- ⑫ Press the **OK** (F4) key.

NOTE-Loop may be returned to automatic control
ABORT **OK**

- ⑬ Press the **HOME** (F3) key.

Diag/Service
1. Test device
2. Loop test
3. Calibration
4. D/A trim
HELP **SAVE** **HOME**

- ⑭ Press the **QUIT** (F3) key.

Device Disconnected
RETRY **QUIT**

- ⑮ Press the \square (F3) key to complete the adjustment.

1. Offline
2. Online
3. Frequency Device
4. Utility

Temperature Transmitter

Temperature Range Setting

Connect a HART communicator and set temperature range as below by a HART communicator.

- ① Press the key for 3 sec.

Select the '4. PV LRV' by , keys and press the key.

```

Online (Generic)
1. Device Setup
2. PV
3. PV Ao
4. PV LRV
5. URV          SAVE
    
```

- ② Select '1. PV LRV'(Low temperature range) and press the key.

```

1. PV LRV
2. URV
HELP  HOME
    
```

- ③ Set Low temperature range and press the **ENTER** (F4) key.

```

PV LRV
0.000 deg C
0.000
HELP  DEL  ESC  ENTER
    
```

- ④ Select '2. URV'(High temperature range) and press the key.

```

1. PV LRV
2. URV
HELP  HOME
    
```

- ⑤ Set High temperature range and press the **ENTER** (F4) key.

```

PV URV
100.000 deg C
100.000
HELP  DEL  ESC  ENTER
    
```

- ⑥ When the set temperature range is correct, press the **SEND** (F2) key.

```

1. PV LRV 0.000 deg C
2. URV 100.000 deg C
HELP  SEND  HOME
    
```

- ⑦ Press the **OK** (F4) key.

```

- WARNING -
Pressing ' OK ' will
change device output
put 100P in manual
    
```

- ⑧ Press the **OK** (F4) key.

```

- WARNING -
Return control 100P
To automatic control
      OK
    
```

- ⑨ Check the set temperature range. Press the **HOME** (F3) key. HART communication is OFF.

```

1. PV LRV 0.000 deg C
2. URV 100.000 deg C
HELP  HOME
    
```

Error Display And Troubleshooting

Display	Error	Troubleshooting
Err05	Temperature sensor A, B or all sensors are disconnected.	Check the temperature sensor.
Err06	Temperature sensor B is disconnected.	
Err07	When PV is lower than the low-limit value of set temperature range.	Check low-limit value of the set temperature range.
Err08	When PV is higher than the high-limit value of set temperature range.	Check high-limit value of the set temperature range.

Proper Usage

■ Cautions During Use

- For connecting the power, use a crimp terminal (M3.5, max. 7.2mm).
- The connection of this unit should be separated from the power line and high voltage line in order to prevent inductive noise.
- Install a power switch or a circuit breaker to supply or cut off the power.
- Switch or circuit breaker should be installed nearby users for convenient control.
- Do not use this unit near the high frequency instruments (high frequency welding machine & sewing machine, large capacity SCR controller).
- Installation environment.
 - ① Indoor / Outdoor
 - ② Altitude max. 2,000m
 - ③ Pollution degree 2
 - ④ Installation category II
- Use the verified explosion-proof electric connection (cable gland or sealing fitting) (explosion proof standard: over Ex d IIC T6, IP rating: over IP67 protection structure).
- Use the dedicated external terminal for earth. For connecting earth, use a spring washer and earth cable which is over 4mm².
- **We are not responsible for any damages and claims for careless. Must read the cautions for your safety and using.**
- **This explosion-proof unit is certified and the same specifications which is reported to Korea Gas Safety Corporation.**
- **If there are any problems with the unit, contact the head office.**
- **Failure to follow these instructions may result in product damage.**

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