Autonics

Intelligent Temperature Transmitter
KT-502H

M A N U A L

Thank you very much for selecting Autonics products.
For your safety, please read the following before using.

▣ Caution for your safety

※ Please keep these instructions and review them before using this unit.
※ Please observe the cautions that follow;
⚠ **Warning** Serious injury may result if instructions are not followed.
⚠ **Caution** Product may be damaged, or injury may result if instructions are not followed.
※ The following is an explanation of the symbols used in the operation manual.
⚠ Caution: Injury or danger may occur under special conditions.

⚠ Warning

1. **In case of using this unit with machinery (Ex: nuclear power control, medical equipment, ship, vehicle, train, airplane, combustion apparatus, safety device, crime/disaster prevention equipment, etc) which may cause damages to human life or property, it is required to install fail-safe device.**
   It may cause a fire, human injury or damage to property.
2. **Check explosion-proof standard(Ex d IIC T6) of this unit and do not use it in place where there are flammable or explosive gas, humidity, direct ray the light, radiant heat, vibration and impact etc.**
   It may cause a fire or explosion.
3. **Do not connect, inspect or repair this unit when power is on.**
   It may cause electric shock.
4. **Wire it properly after checking terminal numbers when connecting power cable and measuring input.**
   It may cause a fire.
5. **Do not disassemble the case. Please contact us if it is required.**
   It may cause electric shock or a fire.

⚠ Caution

1. **Please observe the rated specifications.**
   It may shorten the life cycle of the product and cause a fire.
2. **Do not inflow dust or wire dregs into the unit.**
   It may cause a fire or a malfunction.
3. **In cleaning unit, do not use water or organic solvent. And use dry cloth.**
   It may cause electric shock or a fire.

▣ Model

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

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

▣ Input type and range

Input type		Input range (℃)	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
	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	

※ **The above specifications are subject to change without notice.**

▣ Specification

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 tran. (Ω)	0 to 400 Ω 0 to 2000 Ω
	Voltage trans. (mV)	−10–75 mV −100–100 mV −100–500 mV −100–2000 mV
Output		4–20 mA(2-wire)
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 ℃, storage: 20 to 80 ℃
	Ambient humidity	0 to 85%RH
Explosion class※1		Ex d IIC T6 IP67
Material		Body : Aluminum(AlDc.8S), Cover O-Ring : Buna N
Unit weight		Approx. 1.2 kg

※ **1**: This Explosion class is acquired and managed by Konics Co., Ltd.
※ Environment resistance is rated at no freezing or condensation.

▣ Temperature range setting

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

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

① Press the ⊠ key for 3 sec. Select the **'4. PV LRV'** by ↑, ↓ keys and press the → key.

1. PV LRV
2. URV
HELP | HOME

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

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

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

1. PV LRV
2. URV
HELP | HOME

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

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

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

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

⑥ When the set temperaure range is correct, press the SEND (F2) key.

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

⑦ Press the O K (F4) key.

- WARNING -
Return control 100P To automatic control
O K

⑧ Press the O K (F4) key.

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

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

▣ Current Trim adjustment

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

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

① Select the **'1. Device Setup'** by ↑, ↓ keys and press the → key.

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

② Select the **'2. Diag/Service'** by ↑, ↓ keys and press the → key.

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

③ Select the **'4. D/A trim'** by ↑, ↓ keys and press the → key.

WARN-Loop should be removed from automatic control
ABORT | O K

④ Press the O K (F4) key.

Connect reference meter
ABORT | O K

⑤ Press the O K (F4) key.

Setting fid dev output to 4mA
ABORT | O K

⑥ Press the O K (F4) key.

Enter meter Value 4.000
HELP | DEL | ABORT | ENTER

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

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

Setting fid dev. output to 20mA
ABORT | O K

⑨ Press the O K (F4) key.

Enter meter Value 20.000
HELP | DEL | ABORT | ENTER

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

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

NOTE-Loop may be returned to automatic control
ABORT | O K

⑫ Press the O K (F4) key.

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

⑬ Press the HOME (F3) key.

Device Disconnected
RETRY | QUIT

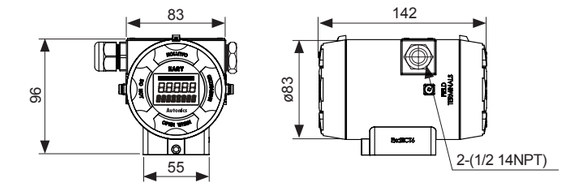
⑭ Press the QUIT (F3) key.

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

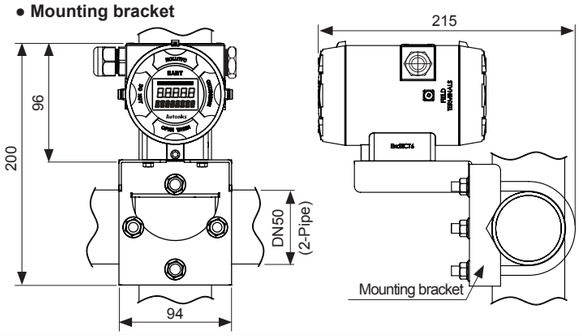
⑮ Press the ⊠ (F3) key to complete the adjustment.

▣ Dimensions

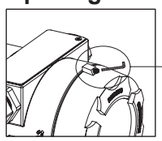
(unit: mm)



● **Mounting bracket**

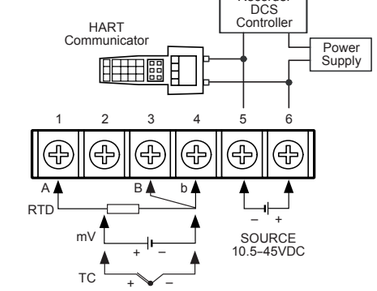


▣ Opening cover



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

▣ Connections



▣ Caution for using

1. For connecting the power, use a crimp terminal(M3.5, min. 7.2 mm).
2. The connection of this unit should be separated from the power line and high voltage line in order to prevent inductive noise.
3. Install a power switch or a circuit breaker to supply or cut off the power.
4. Switch or circuit breaker should be installed nearby users for convenient control.
5. Do not use this unit near the high frequency instruments(high frequency welding machine & sewing machine, large capacity SCR controller).
6. Installation environment.
   ① Indoor / Outdoor ② Altitude max. 2,000 m
   ③ Pollution degree 2 ④ Installation category II

※ **It may cause malfunction if above instructions are not followed.**

▣ Major product

- Photoelectric sensors
- Fiber optic sensors
- Door/Door side sensors
- Area sensors
- Proximity sensors
- Pressure sensors
- Rotary encoders
- Temperature controllers
- Temperature/Humidity transducers
- Switching mode power supplies
- Control switches/lamps/buzzers/sockets
- I/O terminal blocks/cables
- 2/5-phase stepper motors/drivers
- Motion controllers
- Touch Screen/Logic panels
- Field network devices
- Laser marking system (Fiber, CO_2, Nd:YAG)
- Laser welding/soldering system
- SSR/Power controllers
- Counters
- Timers
- Panel meters
- Tacho/Speed/Pulse meters
- Display units
- Sensor controllers
- Recorders
- Indicators
- Converters
- Controllers
- Thyristor units
- Pressure transmitters
- Temperature transmitters

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AEP-E-0609