

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

- 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.
- 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.
- Do not connect, inspect or repair this unit when power is on. It may cause electric shock.
- Wire it properly after checking terminal numbers when connecting power cable and measuring input. It may cause a fire.
- Do not disassemble the case. Please contact us if it is required. It may cause electric shock or a fire.

Caution

- Please observe the rated specifications. It may shorten the life cycle of the product and cause a fire.
- Do not inflow dust or wire dregs into the unit. It may cause a fire or a malfunction.
- In cleaning unit, do not use water or organic solvent. And use dry cloth. It may cause electric shock or a fire.
- The explosion-proof standard of this unit is Ex d IIC T6 IP67 and the range of max. surface temperature is below 85°C.

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

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

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	
Resistance transmitter	Resistance(Ω)	0 to 4000Ω		
		0 to 2000Ω		
	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	
Thermocouple	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 °C, storage: 20 to 80 °C
	Ambient humidity	0 to 85%RH
Explosion class ^{※1}	Ex d IIC T6 IP67	
Material	Body : Aluminum(AIDc.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	1. Press the <input checked="" type="checkbox"/> key for 3 sec.
	2. PV	Select the '4. PV LRV' by ↑, ↓ keys and press the <input checked="" type="checkbox"/> key.
	3. PV Ao	
	4. PV LRV	
	5. URV	SAVE

1. PV LRV	2. URV
HELP	HOME

PV LRV	0.000 deg C		
HELP	DEL	ESC	ENTER

1. PV LRV	2. URV
HELP	HOME

PV URV	100.000 deg C		
HELP	DEL	ESC	ENTER

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

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

- WARNING -
Return control 100P To automatic control

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

Current Trim adjustment

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

1. Device Setup	1. Select the '1. Device Setup' by ↑, ↓ keys and press the <input checked="" type="checkbox"/> key.
2. PV	
3. PV Ao	
4. PV LRV	
5. URV	

1. Process Variables	2. Select the '2. Diag/Service' by ↑, ↓ keys and press the <input checked="" type="checkbox"/> key.
2. Diag/Service	
3. Basic Setup	
4. Detailed Setup	
5. Review	

1. Test device	3. Select the '4. D/A trim' by ↑, ↓ keys and press the <input checked="" type="checkbox"/> key.
2. Loop test	
3. Calibration	
4. D/A trim	

WARN-Loop should be removed from automatic control	4. Press the <input checked="" type="checkbox"/> (F4) key.
ABORT	OK

Connect reference meter	5. Press the <input checked="" type="checkbox"/> (F4) key.
ABORT	OK

Setting fid dev output to 4mA	6. Press the <input checked="" type="checkbox"/> (F4) key.
ABORT	OK

Enter meter Value 4.000	7. Press the <input checked="" type="checkbox"/> (F4) key to set 4 mA display value.		
HELP	DEL	ABORT	ENTER

Fid dev output 4.000 mA equal to reference meter ?	8. If output display value is correct, select '1. Yes' and press the <input checked="" type="checkbox"/> (F4) key. If not, select '2. No' and press the <input checked="" type="checkbox"/> (F4) key and re-set the display value.
1. Yes	Ex) If output display value is 3.89mA, select 3.89 and press the <input checked="" type="checkbox"/> (F4) key.
2. No	
ABORT	ENTER

Setting fid dev. output to 20mA	9. Press the <input checked="" type="checkbox"/> (F4) key.
ABORT	OK

Enter meter Value 20.000	10. Press the <input checked="" type="checkbox"/> (F4) key to set 20mA display value.		
HELP	DEL	ABORT	ENTER

Fid dev output 20.000 mA equal to reference meter ?	11. If output display value is correct, select '1. Yes' and press the <input checked="" type="checkbox"/> (F4) key. If not, select '2. No' and press the <input checked="" type="checkbox"/> (F4) key and re-set the display value.
1. Yes	
2. No	
ABORT	ENTER

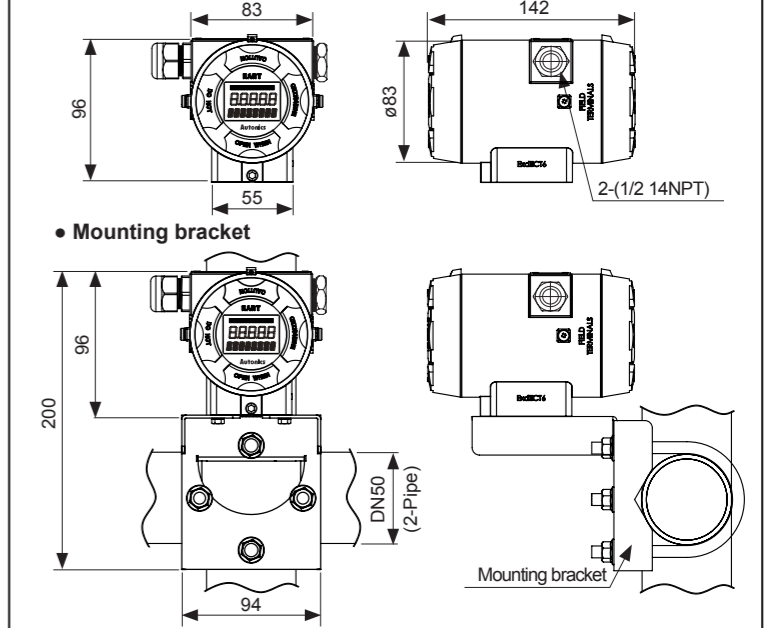
NOTE-Loop may be returned to automatic control	12. Press the <input checked="" type="checkbox"/> (F4) key.
ABORT	OK

Diag/Service	13. Press the <input checked="" type="checkbox"/> (F3) key.	
1. Test device		
2. Loop test		
3. Calibration		
4. D/A trim		
HELP	SAVE	HOME

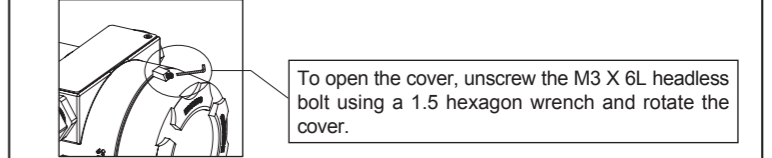
Device Disconnected	14. Press the <input checked="" type="checkbox"/> (F3) key.
RETRY	QUIT

1. Offline	15. Press the <input checked="" type="checkbox"/> (F3) key to complete the adjustment.
2. Online	
3. Frequency Device	
4. Utility	

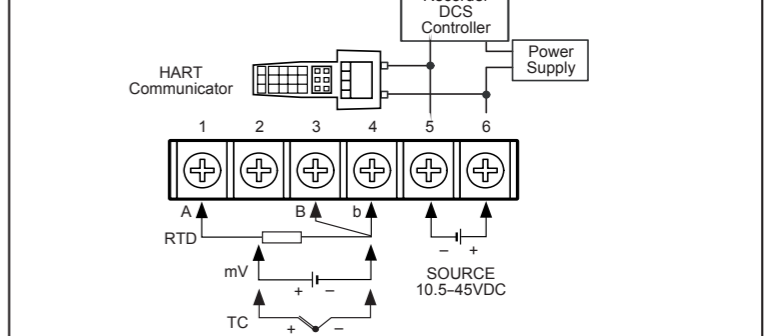
Dimensions



Opening cover



Connections



Caution for using

- For connecting the power, use a crimp terminal(M3.5, min. 7.2 mm).
 - 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.
 - Indoor / Outdoor
 - Altitude max. 2,000 m
 - Pollution degree 2
 - Installation category II
 - Use the verified explosion-proof electric connection (cable gland or sealing fitting) (over Ex d IIC T6 IP67).
 - 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 or A/S center.
 ※ 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, CO₂, Nd:YAG)
- Laser welding/soldering system
- AEPE-0609A
- SSR/Power controllers
- Counters
- Timers
- Panel meters
- Tacho/Speed/Pulse meters
- Pressure transmitters
- Sensor controllers
- Recorders
- Indicators
- Converters
- Controllers
- Thyristor units
- Pressure transmitters
- Temperature transmitters

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