Remote Sensor system /Analog signal
Thermocouple / 2 signal transmission

Transmitter : RS02T-030-K300 (type-K)

Output Sensor : RS02E-030E-PU

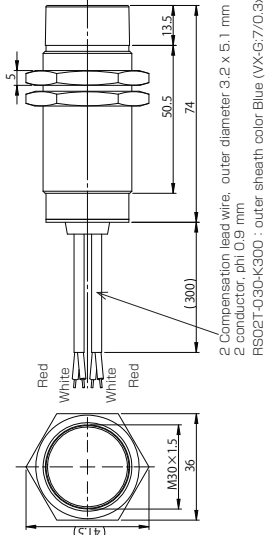## Attention for Installation

(Read this section thoroughly before installation.)

Before using the Remote Sensor, read this manual carefully.
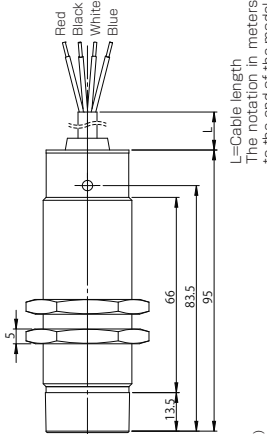During installation and operation, pay close attention to the safety aspect.

◆ Ensure the power is switched off during installation or maintenance operations.

◆ Use a regulated power supply, e.g. switch-model type.
Simpler power supplies, such as a full-wave rectification type, will cause the permissible ripple rating to be exceed and may cause malfunction.

◆ Ensure correct connections by reference to the wiring diagram.

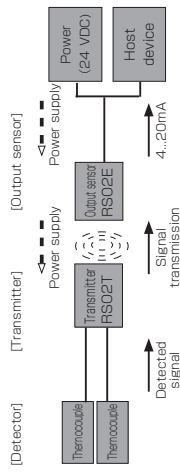◆ To avoid malfunction caused by induction noise, cable should be kept apart from motor or other power cable.

Construction of the system

[Detector]　[Transmitter]　[Output sensor]
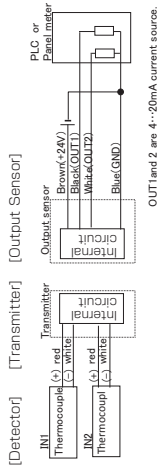

[Function of each component]

Detector : Two thermocouples type K are used as a detector and it detects temperature.

Transmitter : (1) Detects the voltage of thermocouples which changes depending on temperature.
(2)The internal CPU converts the temperature data of (1) into digital signals and transmits the signals to the Output Sensor.

Output Sensor: Change the temperature data to analog signal (4...20mA) and output to external unit and supplies power for operation of Transmitter at the same time.

Dimension

Transmitter : **RS02T-030-K300**

Output sensor : **RS02E-030E-PU-__**

L=Cable length
The notation in meters to the end of the model
···PU-01 ⇒ 1m

2 Compensation lead wire, outer diameter 3.2 x 5.1 mm
2 conductor, phi 0.9 mm
RS02T-030-K300 : outer sheath color Blue (VX-G:7/0.3x2 K)

Specification

		Transmitter	Output Sensor
Type code	type K	RS02T-030-K300	RS02E-030E-PU-__
Applicable Output sensor		RS02E-030E-PU-__	
Applicable Transmitter			For thermocouple K :RS02T-030-K300
Rated transmitting distance		2...6 mm	
Supply voltage			24V DC +/- 5 % (include ripple)
Center off-set		+/- 4 mm	
Current consumption			<= 150 mA
Input channel		2　(IN 1, IN 2)	
LED			INZONE (data valid)
Applicable thermal sensor		Thermocouple per K	
Output			4 ... 20 mA × 2 ch (current source)
Measuring temperature range		0...300 deg.C	
Load resistance			<= 400 Ohm
Compensated cold junction		+/- 0.5 deg. C	
Resolution			<= 0.04 % full scahle range
Responce speed			<= 0.5 sec.
Linearity			<= +/- 0.8 % full scahle range
Cable		Compensation lead wire(JIS) phi 0.9 mm x 2 All heat-resistant vinyl (90 deg. C)	PUR, Phi 5 mm/4x0.25 mm²
			Transmitter and Output sensor
Operating Temperature			0...+80 degree C
Protection class			IP67
Material	Housing		Nickel plated brass
	Active surface		Nylon 12

- For a detector, please use a thermocouple K that meets JIS.

- The measurement temperature should be lower than upper limit of the temperature shown at the code end.
 example : RS02T-030-K300 : 0...300 degree C

- Output is current source , therefore please connect the load between output and GND.

- Please note that the signal may become unstable (false signal or chattering) when the transmission distance and the center offset are outside the specification range.

- The Inzone signal is a preliminary signal for confirming that the output signal is established within the specification range. Please note that it does not guarantee signals output outside the specification range.

Wiring diagram

[Detector]　[Transmitter]　[Output Sensor]

OUT1 and 2 are 4···20mA current source.

Cable length
Transmitter (RS02T-030-K300) : max.3m
Output sensor (RS02E-030E-PU) : max.10m

[Causion]
- Measure to surge
Please note that the cable length of an output sensor may not longer than 10m. The CE marking verifies that our products comply with the requirements of EMC directive. The surge test to an output sensor is not carried out.
When using RTT or RTE with cable length longer than10 m a measure to protect the sensor from surge current should be taken.

- Measure to static electricity
When using RS02 in environment with the electrostatic discharge, take the ground to prevent influuence by the static electricity on RS02.

Current output

Output sensor RS02E outputs the electric current as described below.

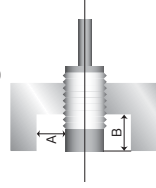| status		Output current
Without Transmitter	0 mA	
Receiving the temperature data from Transmitter	4 ... 20 mA (at 0 deg. C : 4mA, at the hightest temperature of the measurement range : 20 mA)	
Thermocouple is not connected, though the transmitter is in the transmitting range.	21 mA	

Typical Transmitting Diagram

[Example: Supply voltage at 24V DC]

X:Center off-set(mm)
Y:Transmitting distance(mm)

Rated transmitting range
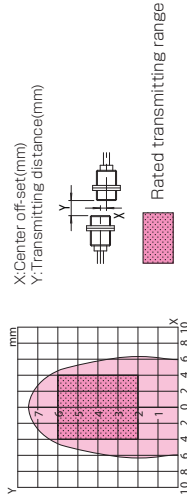
Influence of surrounding metal

In order to avoid influence of surrounding metal, or to avoid mutual influence between parallel-mounted sensors, provide the minimum free zone as described below.
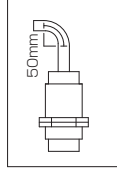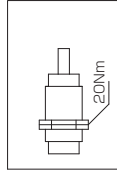
■ Surrounding metal　　■ Parallel installation

型式	A(mm)	B(mm)	C(mm)
RS02T-030-K300	30	20	200
RS02E-030E-PU			

Mutual interference

Tightening troque for attached nut is 20Nm(200kgf·cm).

The minimum bending radius for Output sensor is 50mm.

* Never pull the cable strongly in installing.