Remote Sensor System
User's Guide

Remote Sensor system /Analog signal
Thermocouple / 2 signal transmission

Transmitter: **RS02T-018-J___ (type-J)**
RS02T-018-K___ (type-K)

Output Sensor : **RS02E-018E-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.

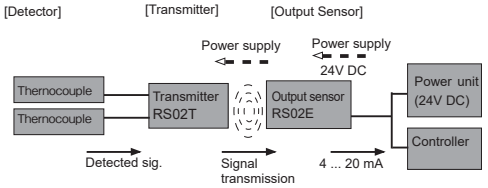
◆ Ensure the power is switched off during installation or maintenance operations.

◆ 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



【Function of each component】

Detector : A thermocouple type J or K is used as a detector and it detects temperature.

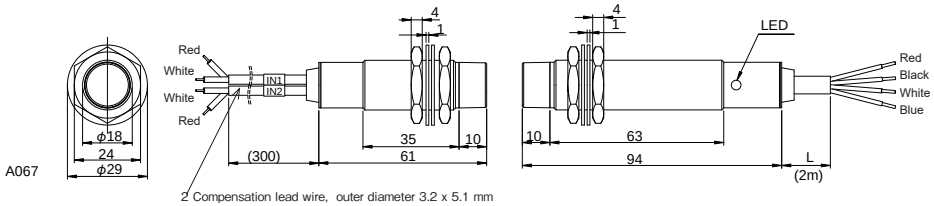
Transmitter : (1) Detects the voltage of thermocouples which changes depending on temperature.
(2) The internal CPU converts the temperature data of (1) into digital signals and transmits the signals to the Output Sensor.

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-018-J___**
RS02T-018-K___

Output Sensor: **RS02E-018E-PU**



2 Compensation lead wire, outer diameter 3.2 x 5.1 mm
2 conductor, phi 0.9 mm
RS02T-018-J : outer sheath color Yellow (JX-G:7/0.3x2 J)
RS02T-018-K : outer sheath color Blue (VX-G:7/0.3x2 K)

The temperature range is shown on ___.

Specification

Transmitter		
Type code	type J	RS02T-018-J___ (__ stands for temperature range.)
	type K	RS02T-018-K___ (__ stands for temperature range.)
Applicable Output sensor		RS02E-018E-PU-__ (__ stands for cable length.)
Rated transmitting distance		1 ... 4 mm
Center off-set		+/- 2.5 mm
Input channel		2 (IN 1, IN 2)
Applicable thermal sensor		Thermocouple per JIS, J or K
Measuring temperature range		Displayed at the end of type code (see below)
Compensated cold junction		+/- 0.5 deg. C
Cable		Compensation lead wire(JIS) phi 0.9 mm x 2 All heat-resistant vinyl (90 deg. C)

Output Sensor	
Type code	RS02E-018E-PU-__ (__ stands for cable length.)
Applicable Transmitter	For thermocouple J :RS02T-018-J
	For thermocouple K :RS02T-018-K
Supply voltage	24V DC +/- 5 % (include ripple)
Current consumption	<= 150 mA
LED	INZONE (data valid)
Output	4 ... 20 mA × 2 ch (current source)
Load resistance	<= 400 Ohm
Resolution	<= 0.04 % full schale range
Responce speed	<= 0.5 sec.
Linearity	<= +/- 0.8 % full schale range
Cable	PUR, Phi 5 mm/4x0.25 mm^2

Transmitter and Output sensor	
OperatingTemperature	0...+80 degree C
Protection class	IP67
Material Housing	Nickel plated brass
Active surface	Nylon12

- For a detector, please use a thermocouple J or K that meets JIS.
- The measurement temperature should be lower than upper limit of the temperature shown at the code end.
  example : RS02T-018-J300 : 0...300 degree C
  RS02T-018-K100 : 0...100 degree C
  RS02T-018-K1000 : 0...1000 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.

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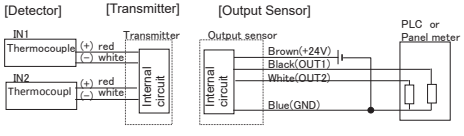
Wiring diagram



Cable length
Transmitter (RS02T-018-xxxx) : max.3m
Output sensor (RS02E-018E-PU) : max.10m

OUT1and 2 are 4···20mA current source.

【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 infuluence by the static electricity on RS02.

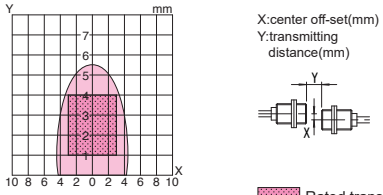
Current output

Output sensor S02E 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】

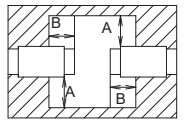


X:center off-set(mm)
Y:transmitting distance(mm)

Rated transmitting range

Influence of surrounding metal

To avoid influence of surrounding metal, keep minimum spacing as described below;

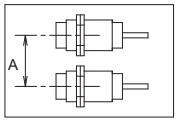


Non-flush mounting

Type number	A (mm)	B (mm)
RS02T-018-xxxx	20	15
RS02E-018E-PU		

Mutual interference

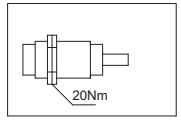
In order to prevent mutual interference between parallel-mounted sensors, keep minimum spacing as described below;



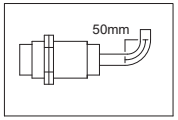
Type number	A (mm)
RS02T-018-xxxx	110
RS02E-018E-PU	

Installation

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.

B & PLUS K.K.
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