

INSTRUCTION MANUAL FOR INFRARED THERMOCOUPLE RD-401

Thank you for your purchase of our Infrared Thermocouple RD-401 type.
For your confirmation of the model and specifications of the thermocouple, peruse and understand this instruction manual before starting operation.

To prevent the accident by mis-handling of this thermocouple, arrange to give this manual into the hands of the operator who actually uses our product.

No.RD41E1 '97. 05

1. Measuring objects

- Non-problem objects
Food, Paper, Plastic, Coated metal, Stone, Soil, Glass, Liquid, Textile, etc.
- Somewhat difficult objects
Dimly lustrous metal, Thin transparent plastic, etc.
- Difficult objects
Plated lustrous metal, Non-coated metal, etc.

In case measurement is difficult, it is possible by increasing the emissivity using the black tape.

2. Mounting

Notices when it is mounted.

- Top of the RD-401 should be near the measuring objects.
- Ambient temperature of the RD-401 should not exceed 70°C.
- Lens of the RD-401 should not be covered by the particle or dirt.
- The lens of the RD-401 should not be splashed by water, oil or chemicals and their vapor.
- Screws of the mounting bracket must be fastened by approx. 3 to 4 kgf · cm of the torque.

3. External dimension drawing (Unit: mm)

4. Wiring connection



Warning

Turn the power supplied to the instrument OFF before wiring or checking. If working or touching the terminal on the power ON status, there is a possibility of Electric Shock which can cause severe injury or death.

Notes:

- Connect the wires of the RD-401 to Exclusive receiving instrument the Red wire to minus side and the Yellow wire to plus side.
- When the lead wire extension is required, use the K type of compensating lead wire.

Wiring connection example

Input sampling period of the RD-401 is short because the speed of response is fast. If it is connected with the Exclusive infrared receiving instrument, effective performance can be realized.

Our FC type of controllers (Exclusive infrared receiving instrument) are recommended for the receiving instrument to be combined. Inquire us.

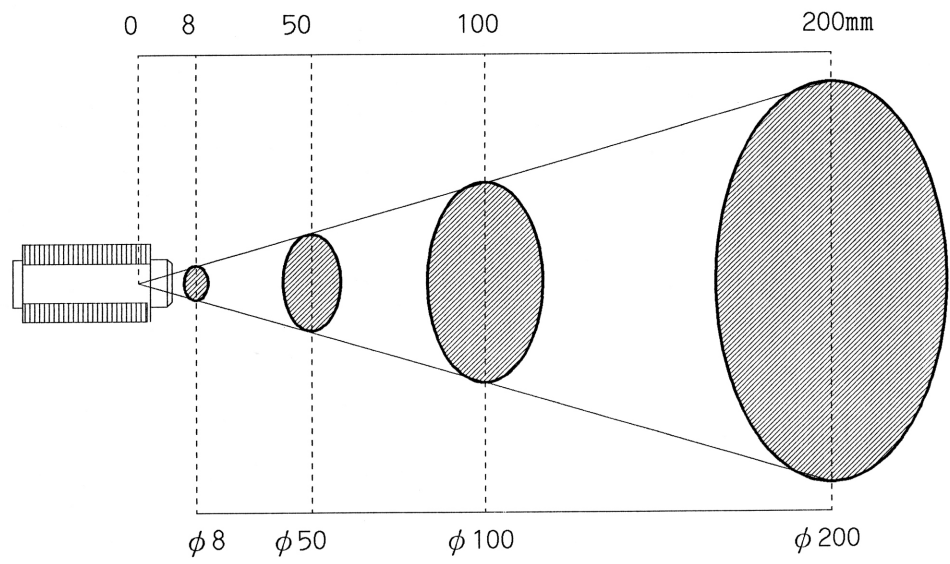
FC type

| | | |
|---------------|--------------|--------|
| • FCS-23A-□/I | (48×48×110mm | W×H×D) |
| • FCR-13A-□/I | (48×96×110mm | W×H×D) |
| • FCR-15A-R/I | (48×96×110mm | W×H×D) |
| • FCD-13A-□/I | (96×96×110mm | W×H×D) |
| • FCD-15A-R/I | (96×96×110mm | W×H×D) |

5. Specification

| | |
|--|---|
| Name | : Infrared Thermocouple (K) |
| Model | : RD-401 |
| Measuring temperature range | : -18 to 250°C |
| Type of temperature range | : -18 to 25°C, 5 to 45°C, 25 to 80°C, 70 to 105°C, 90 to 120°C, 115 to 155°C, 145 to 190°C, 180 to 250°C * * When it is used as the input of the Exclusive infrared receiving instrument, the temperature range is -50 to 500°C. |
| External dimension | : $\phi 18.4 \times 32.5$ mm (Dia. \times Length) |
| Mounting method | : Fixed by L-type mounting bracket |
| Material of light receiving opening | : Silicone lens |
| Case material | : Engineering ABS resin |
| Housing | : Closed and Water-proof structure, IP65 |
| Output cable | : Compensating lead wire, Length 2m (PVC coating, Heat-proof 70°C) |
| Detection element | : Thermopile |
| Measuring wave length | : 6.5 to 14.0 μ m |
| Measuring visual field | : Measuring distance and Visual field diameter, 1 : 1 |
| Field of view | : Approx. 53° |
| Accuracy | : Within $\pm 3\%$ of the indicated value or 3.3°C, whichever is greater. (When the emissivity of the object is 0.9) However, for the range 185 to 250°C, within $\pm 5\%$ of indicated value |
| Repeatability | : Within $\pm 1\%$ of the indicated value |
| Speed of response | : 200ms (at 63.2% response) |
| Output | : Correspond to Electromotive force of the thermocouple K |
| Ambient temperature compensation range | : -18 to 70°C |
| Temperature coefficient | : 0.3°C per ambient temperature change 1°C. |
| Output impedance | : Approx. 2k Ω |
| Weight | : Approx. 50g (including 2m of output cable and mounting bracket) |
| Accessories | : Instruction manual 1 copy L type of mounting bracket 1 pc. (Material: SPCC-SD, Nickel plating) Locking Nut 2 pcs. (Material: Nylon) |

- Measuring distance : Visual field diameter (Unit: mm)
1 : 1 (Visual field diameter is equal magnification of distance.)



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|--------------------------------------|-----------------------------|-------------------------|----------|---------------|--------|----|--------|------|----|----|
| O.D. 0.725"×18 T.P.I. (REF) | (DIN PG 11 THREADS) | 18.4 | 14 | | | | | | | |
| Model name label | Black | ABS resin | Capacity | Polarity | Yellow | | | | | |
| Compensating lead wire | PVC coating | φ12.6 | 6.3 | 26.2 | 34 | | | | | |
| 3.2 | Serial number | Heat shrink tube | White | Letter: black | 2000 | | | | | |
| Accessories | O.D. 0.725"×18 T.P.I. (REF) | (DIN PG 11 THREADS) | | | | | | | | |
| Locking Nut (Black 6/6 Nylon) 2 pcs. | | L type mounting bracket | | | | | | | | |
| R16 | φ21 | 32 | 25 | 41 | 2 | 20 | 2-φ6.5 | 2-C2 | 12 | 25 |
| Supply voltage | FCS-23A-R/I | RD-401 | | | | | | | | |