# Non-Contact Infrared Temperature

# IR - 22

## Sensor / Transmitter
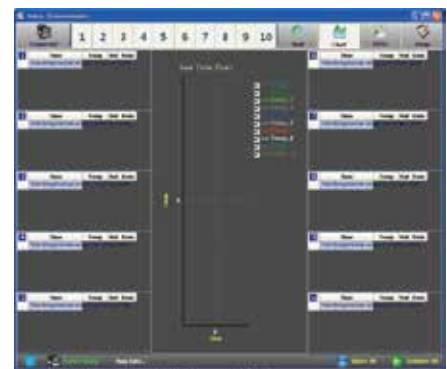
# 1. Features

IR-22 non-contact infrared thermometer measures the infrared wavelength emitted from the target spot and converts it to standard current signal output (4~20mA) and RS-485 communication signal output.

It can measure from -60℃ to maximum 380℃ and RS-485 communication enables to store data in computer.

IR-22 has a high precision by adopting optical lens which can enable to measure target exactly at a long distance through its 10:1 D:S (Distance to Spot).

## ● Applications

Plastics, Fluids, Rubber, Coated components, Asphalt, Wood, Paper, Ceramics, Textiles, Glass, Food etc.

# 2. Ordering information

## Code Number IR-22-□-□-□

| MODEL | Description |
|---|---|
| IR-22 | |
| Code A | Temperature Range |
| 1 | -60~380℃ |
| 2 | 0~200℃ |
| Z | Other |
| Code B | Output |
| M | DC 0~20mA |
| N | DC 4~20mA |
| Z | Other |
| Code C | Cable Length |
| 1 | 1M |
| Z | Other (OPTION) |

# 3. Accessory

| Name | Picture | Usage | Remark |
|---|---|---|---|
| Fixing nut |  | Sensor fixing nut | Basic accessory |
| Mounting bracket |  | Sensor mounting bracket | Basic accessory |

# 4. Specification

| Segment | Specification |
|---|---|
| Measurement Range | -60~380℃ |
| Device | Thermopile |
| Accuracy | ±1% / full scale |
| Repeatability | ±1% of reading |
| Field of View (D:S) | 10:1 |
| Optical spectrum wave | 8~14㎛ |
| Responsive Time | 0.1sec or below |
| Emissive rate | 0.95 fixed<br>((Changeable when using PC software program) |
| Analog Output | 4~20mA, |
| Communication output signal | RS-485 |
| Power | DC 12~24V(Max 50mA) |
| Ambient temperature | -20~70℃ |
| Temperature Resolution | 0.1℃ |
| Operating Relative Humidity | 5~90% |
| Storage temperature | -30~85℃ |
| Dimension | Ø16 ×70.5(L) |
| Casing material | SUS |
| Weight | 75g |
| Cable length | 1m, other(option) |

## 5. Optical Field of View (D:S 10:1)

DISTANCE: SENSOR TO OBJECT (IN)

SPOT DIA. * (IN)

4      10      20      40

4.0

2.0

1.0

0.4

D:S=10:1

SPOT DIA. * (MM)

10     25     50     100

100    250    500    1000

DISTANCE: SENSOR TO OBJECT (MM)

*FOCUS POINT D:S = 10:1    FAR FIELD D:S = 10:1

## 6. Dimension

70.5

25

M16*1.5P

50
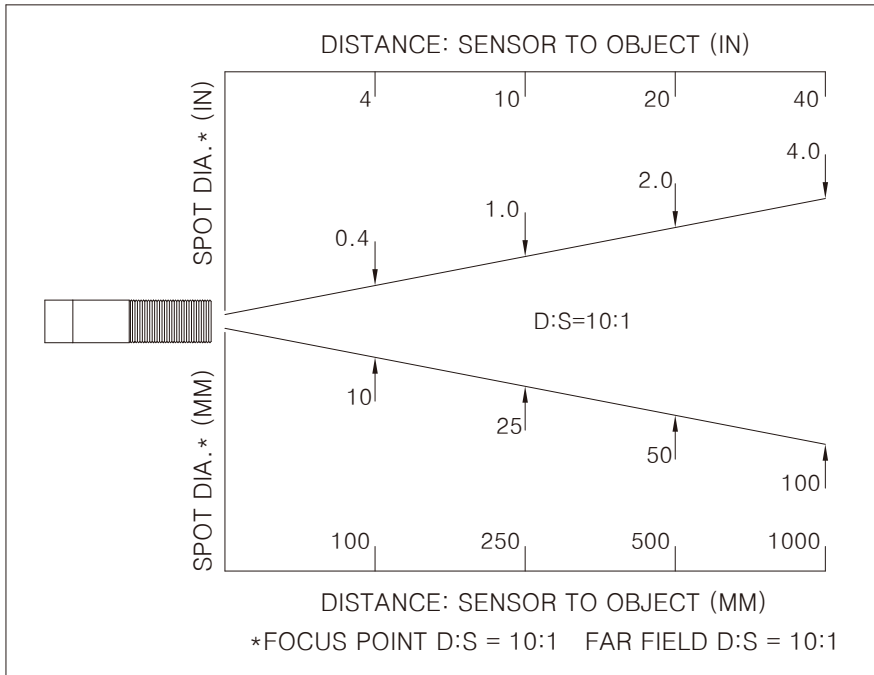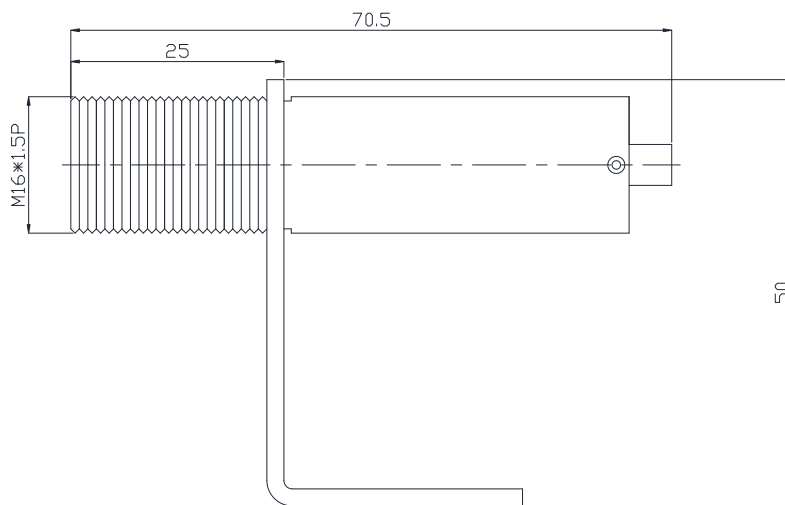
# 7. Wiring

| No. | Cable color | Usage |
|-----|-------------|-------|
| 1 | Black | Power 24VDC(+) |
| 2 | Red | Power 0V(-) |
| 3 | Yellow | mA (Current) Analog output |
| 4 | Green | TX+ |
| 5 | White | TX- |

# 8. Communication specification and Software
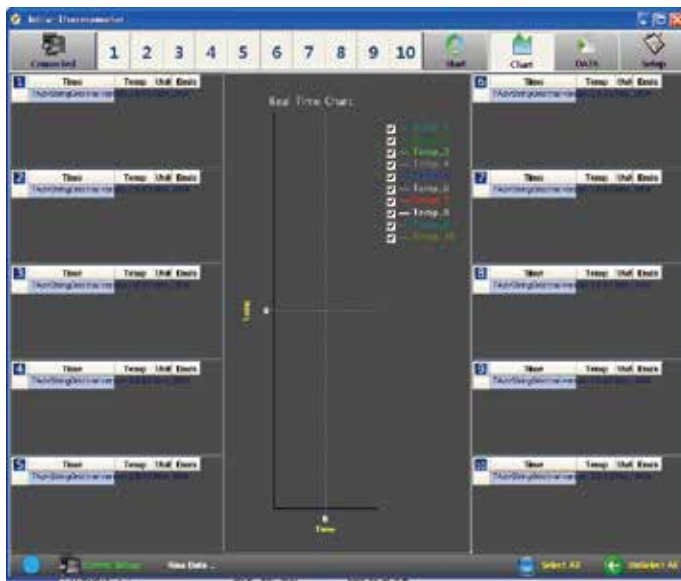


# 9. Emissivity Table

| Material | Emissivity |
|----------|------------|
| Black body | 0.95 |
| Asphalt | 0.90~0.98 |
| Textiles, Fabric | 0.98 |
| Concrete | 0.94 |
| Ascon | 0.95 |
| Skin | 0.98 |
| Leather | 0.75 |
| Sand | 0.90 |
| Soil | 0.92~0.96 |
| Paint | 0.8~0.95 |
| Water | 0.92~0.96 |
| Ice | 0.96~0.98 |
| Rubber | 0.94 |
| Snow | 0.83 |
| Plastic | 0.85~0.95 |
| Wood | 0.90 |
| Ceramic | 0.90~0.94 |
| Glass | 0.90~0.94 |
| Marble | 0.94 |
| Chromic Oxide | 0.78 |
| Iron Oxide | 0.78~0.82 |
| Brick | 0.93~0.96 |
| Copper oxide | 0.78 |
| Mortar | 0.89~0.91 |

## 10. Installation

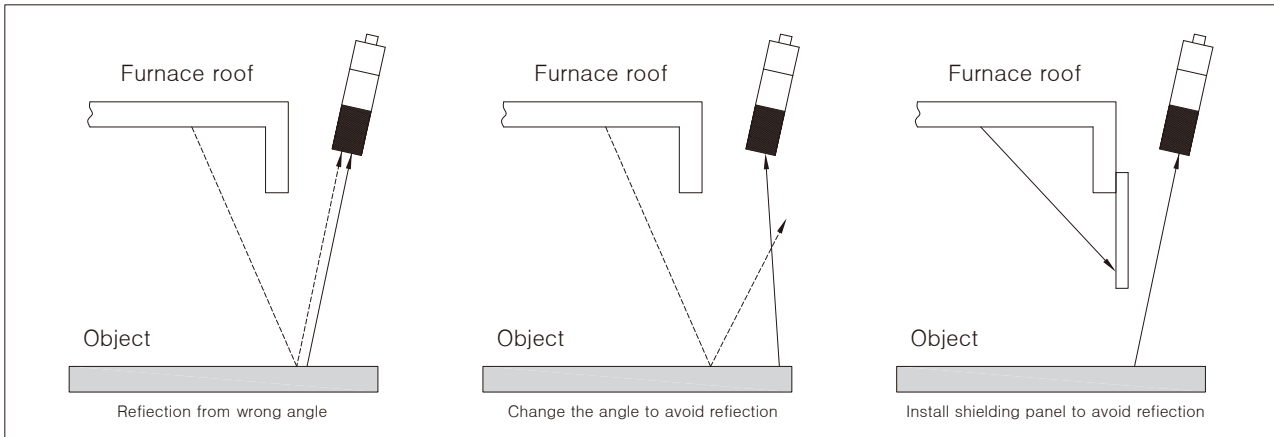● **Please make sure the target area is larger than the field of view.**
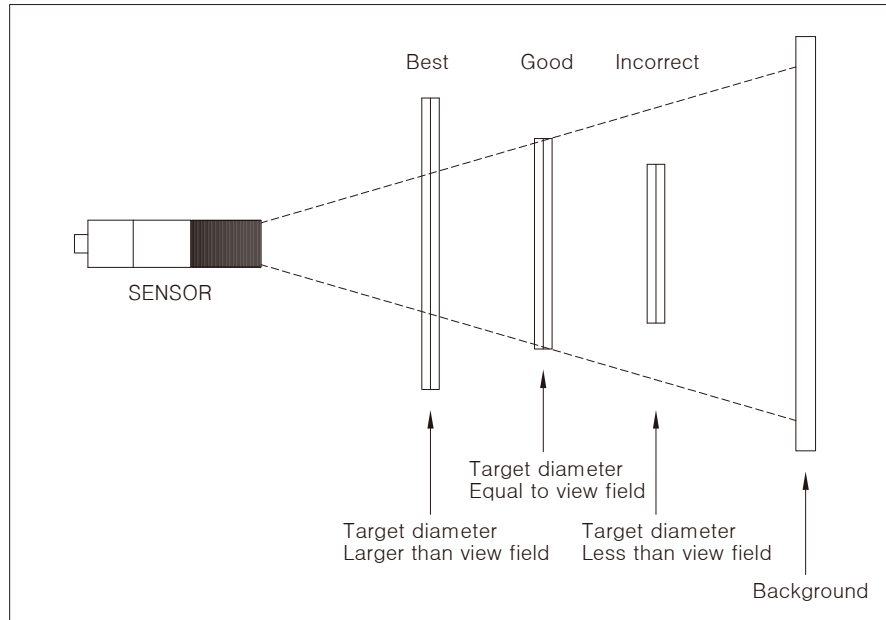


- The spot size is decided by the distance from the sensor to the target.
- Please refer to the 'section 5. Optical field of view' and make sure your target area is larger than the field of view.

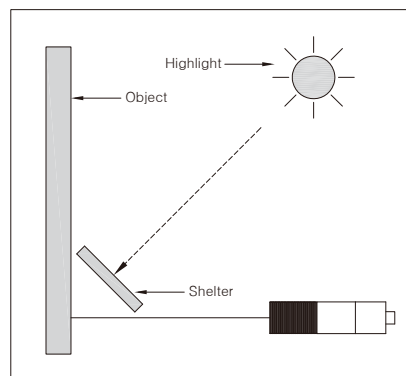● **Please locate the sensor vertical against the target.**
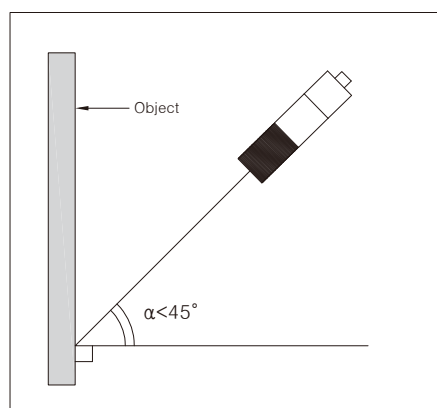


- It is the best for you to install the sensor vertical against the target area or object. If it is not available, the sensor should be more than 45°against the target area. Otherwise, it can affect the measuring accuracy.

● **Please avoid the heat reflection from other high temperature materials**



| Furnace roof — Object | Furnace roof — Object | Furnace roof — Object |
|---|---|---|
| Reflection from wrong angle | Change the angle to avoid reflection | Install shielding panel to avoid reflection |

● **Please avoid highlight.**



● **Please avoid electronic noise.**

Please avoid the high frequency or high voltage area such as motor, pump, power line, and so on.