

IR-CA SERIES HIGH-SPEED COMPACT RADIATION THERMOMETER



The IR-CA series is a non-contact and high-speed (3ms) compact radiation thermometer covering medium and high temperature range by using the detecting element of InGaAs or Si. The thermometer with converting function has a digital display of temperature, parameter setting keys, and a direct viewfinder.

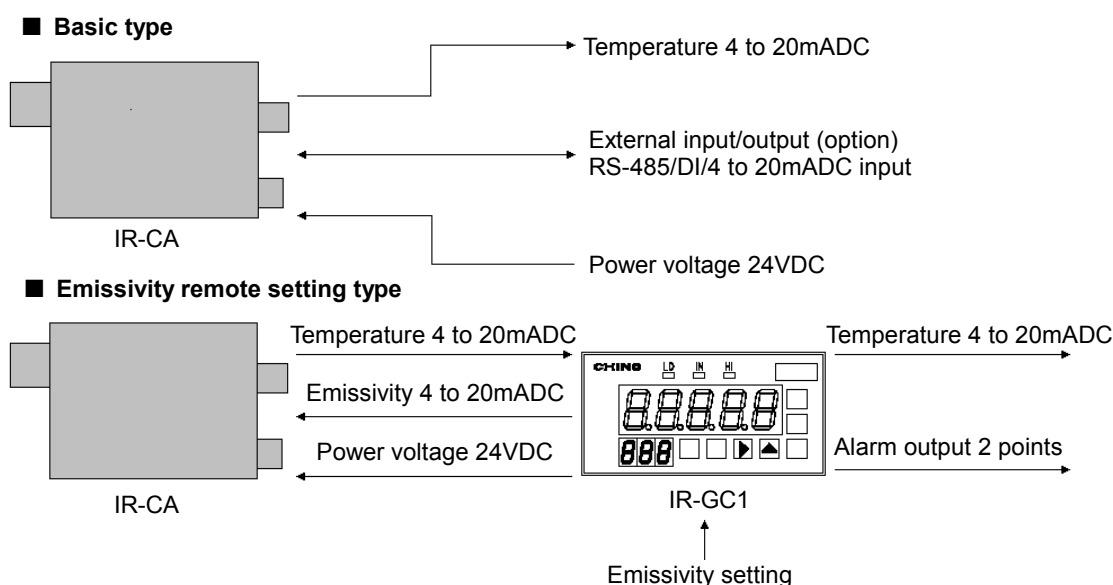
The thermometer can be placed at any place due to a large distance factor.



■ FEATURES

- Functional digital display of temperature and parameter setting keys
- Free installation by a direct viewfinder and a long distance factor
- High-speed response of 3ms
- Wide range
- High accurate type with a short spectral response
- No moving part like as chopper guarantees long reliability
- Various accessories for every kinds of installation atmosphere

■ CONFIGURATION



■ MODELS

IR-CA□□□□

Type

- I: InGaAs Single-color type
- S: Si Single-color type

Distance factor

- 2: 200
- 0: 50 (option)

Connection

- C: Connector
- T: Terminal

External input/output (option)

- N: None
- S: RS-485
- 5: 4 to 20mADC input
- J: Contact input
- K: Contact output

Sighting (option)

- Blank: Viewfinder
- 3: With 300mm close-up lens
- 6: With 600mm close-up lens
- L: Laser spot

■ GENERAL SPECIFICATIONS

Measuring system: Single-color type

Element: InGaAs or Si

Spectral response: InGaAs ... 1.55μm, Si ... 0.9μm

Measuring range: Refer to standard measuring ranges.

Accuracy rating:

Less than 1000°C ... ±5°C

1000°C to less than 1500°C ...

±0.5% of measured value

1000°C to less than 1500°C ...

±1% of measured value

2000°C or more ... ±2% of measured value

(at ε□1.0 and reference operation condition)

Repeatability: Within 0.2°C

Temperature drift: 0.1°C/°C or 0.015% of measured value/°C, whichever is larger

Resolution: 0.5°C

Response time: 3ms

Emissivity compensation: Emissivity setting ... 1.999 to 0.050

Signal modulation:

DELAY ... Tracing of average value

(Modulation ratio 0.0 to 99.9s,

1s increments)

For less than 1s,

0.01s increments)

Modulation ratio 0 = Real

PEAK ... Tracing maximum value

(Modulation ratio 0, 2, 5 or 10°C/s)

Modulation ratio 0 = Peak hold

Display: Temperature ... LCD 4 digits

Parameter... LCD 4 digits

Unit ... °C/°F (by key)

Optics: Focusable type

Distance factor: 200, 50 (option)

Measuring distance: 0.5m to ∞

Measuring diameter: Measuring distance/Distance factor

Sighting: Direct viewfinder or laser spot

Lens aperture: ø20mm

Analog output:

4 to 20mADC Isolate output

Load resistance ... lower than 500Ω

Accuracy rating ... ±0.2% of output range

Resolution: 0.04% of output range

Scaling ... within measuring temperature range

Dummy output ... within 0 to 100% of analog output

Setting key:

Operator mode ... Settings of emissivity, signal modulation, alarms, etc.

Engineering mode ... Setting of display unit, output scaling, zero/span, reference temperature input for automatic emissivity computation, output correction, etc.

Settings of optional functions

Computation function:

Zero/span adjustment, automatic emissivity computation, output correction

Self diagnosis:

Thermometer temperature abnormal, parameter error

Working temperature: 0 to 50°C

Power supply:

24VDC (allowable voltage fluctuation ... 22 to 28V)

Recommended power supply unit IR-ZFEP)

Power consumption: Maximum 3VA

Connection: Terminal or connector

Case material: Aluminum

Weight: About 1.3kg

■ STANDARD MEASURING RANGES

| Distance factor | Element | |
|-----------------|---------------|---------------|
| | InGaAs | Si |
| 200 | 300 to 1600°C | 600 to 3000°C |
| 50 (option) | 200 to 1000°C | 500 to 2000°C |

■ OPTIONS

| Option | Contents |
|----------------------------|---|
| Contact output * | 1 point, High (low) limit or error signal Photo-coupler 30VDC, Max. 500mA |
| Contact input * | 1 pint, Peak hold reset or sample hold Dry-contact or open collector |
| Analog input * | Input signal ... 4 to 20mADC Emmisivity remote setting or automatic emissivity computation (selectable) |
| Communications interface * | RS-485 Measured data (1 decimal place) transmission, Transmission and receiving of parameters |
| Laser spot function | Semi-conductor laser spot built-in Laser: 1mW or lower (645nm), Class 2 |
| Close-up lens | 300mm type ... Measuring distance 100 to 300mm 600mm type ... Measuring distance 270 to 600mm |

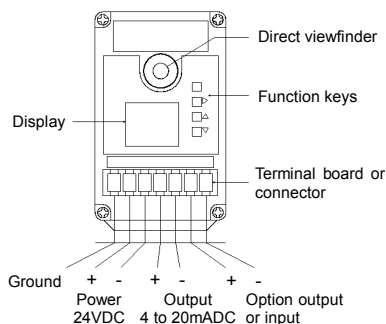
* Either 1 is to be selected.



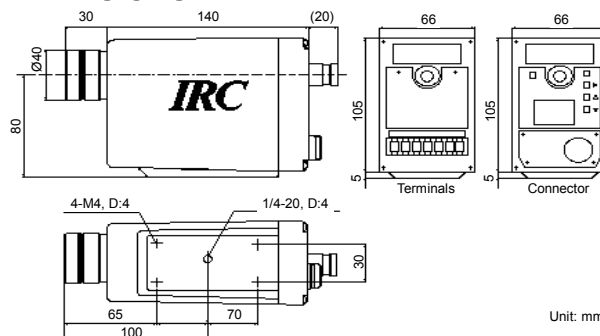
CAUTION

- Please do not aim or direct laser toward faces.
- On measurement of targets like as glossy metal, be careful with influences by the reflection from it.

■ REAR VIEW



■ DIMENSIONS



Indicator with power supply

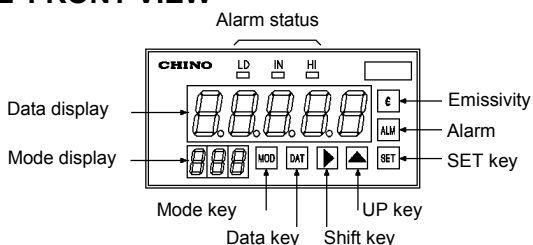


■ MODELS

IR-GC1

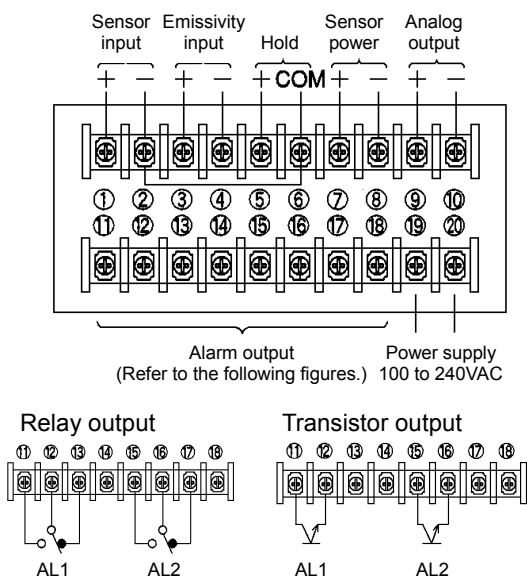
Output
Blank: Relay output
T: Transistor output

■ FRONT VIEW



■ TERMINAL BOARD

Note) Sensor: Radiation thermometer



■ GENERAL SPECIFICATIONS

Emissivity setting: 2.000 to 0.000, by function keys (0.001 increment)

Emissivity setting signal: 4 to 20mADC

Scaling: By function keys (Setting according to measuring range of a radiation thermometer)

Input signal: 4 to 20mADC (output from a radiation thermometer), Input resistance: 50Ω

Input sampling cycle: 8 to 206ms, selection from 9 kinds of setting values

Modulator:

Average ... Tracing of average value between sections

Setting of count between sections ... 1 to 9999 times

Data renewal cycle ... Input sampling time x count value

Hold ... Output hold by holding signal (external "a" contact)

Sampling hold, Peak hold, bottom hold

Display: Data, modem alarm status signal

Analog signal: 4 to 20mADC, Isolate output

Load resistance ... 750Ω or lower

Output renewal cycle: Display ... 0.1 to 25.5s

Analog signal ... 16 to 214ms (depending on input cycling time)

Accuracy rating: Display accuracy ... $\pm 0.1\% \pm 1$ digit

Analog output accuracy: $\pm 0.2\% \pm 1^\circ\text{C}$ (at input sampling time 46ms)

Alarm output: High/low independent setting, relay output or transistor output

Relay output (2 points, 1ab)

Contact rating 125VA (250VAC), 60VA (30VDC)

Transistor output (open collector)

Rating load voltage 24VDC

Maximum load current 50mA

Response time ... 11 to 209ms (depending on input sampling time)

Alarm setting ... Output at before or after modulation is selectable.

Dummy output: 4 to 20mADC, Setting by function keys

Output correction: Broken line setting type

Sensor power source: 24VDC 100mA

Power supply: 100 to 240VAC, 50/60Hz

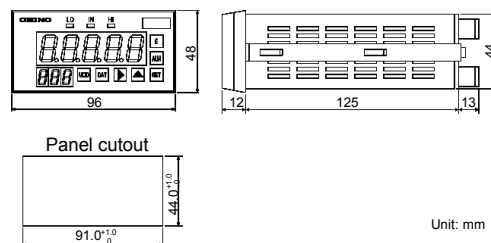
Power consumption: About 20VA

Working temperature: 0 to 50°C

Working humidity: 90%RH or lower (no dew condensation)

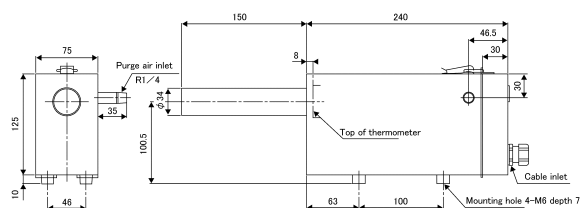
Weight: About 0.4kg

■ DIMENSIONS

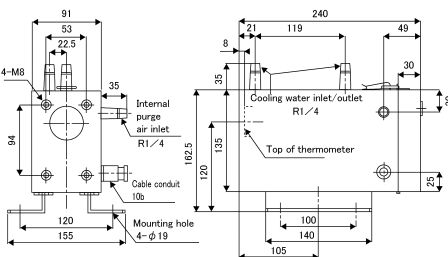


Accessories

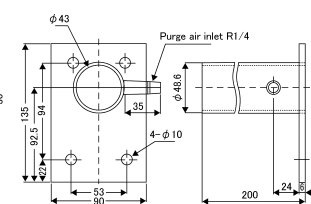
- **Soft protective case IR-ZCCST**
(For terminal-connection type thermometer)



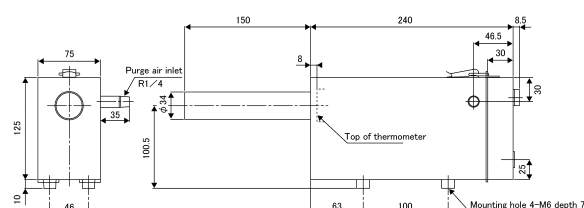
- **Hard protective case IR-ZCCHT**
(For terminal-connection type thermometer)



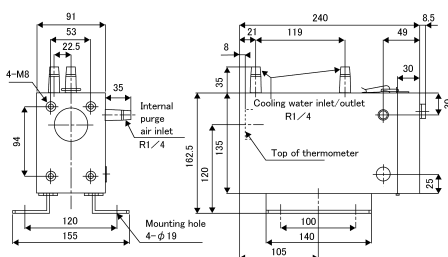
- Air purge hood IR-ZCAP
(For hard protective case only)



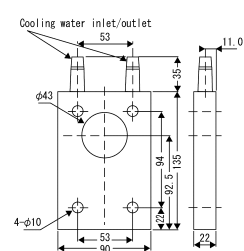
- **Soft protective case IR-ZCCSC**
(For connector-connection type thermometer)



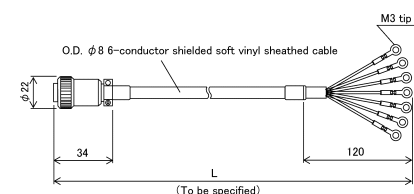
- **Hard protective case IR-ZCCHC**
(For terminal-connection type thermometer)



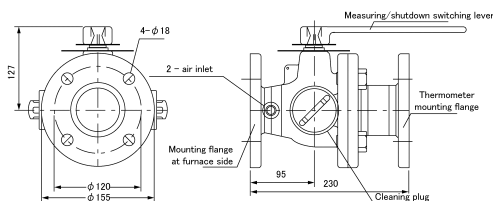
- **Water-cooling plate IR-ZCWC**
(For hard protective case only)



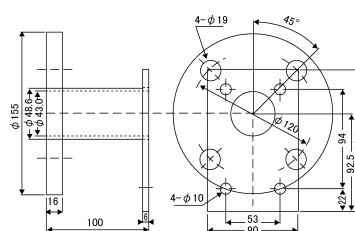
- Connection cable
IR-ZCRC



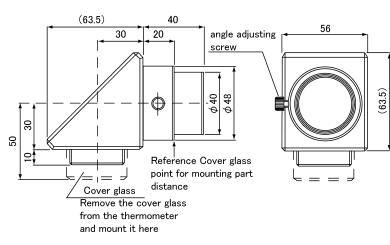
- **Sealing window IR-ZW**



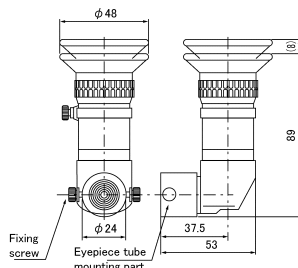
- Flange mounting plate IR-ZCAF
(For hard protective case only)



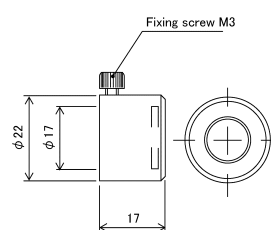
- **Mirror IR-ZCLM**



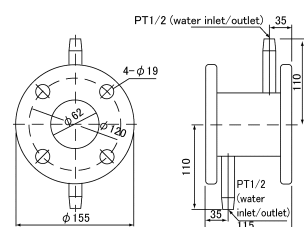
- **Angle finder IR-ZCLA**



- Eyepiece filter IR-ZCLF



- **Water cooling flange IR-VSW**



Unit: mm

Specifications subject to change without notice. Printed in Japan (I) 2001.11