

# IR-SA SERIES

## ONLINE INFRARED RADIATION THERMOMETER



IR-SA series are infrared radiation thermometer realized environment resistance under harsh environment, high accuracy and fast response.

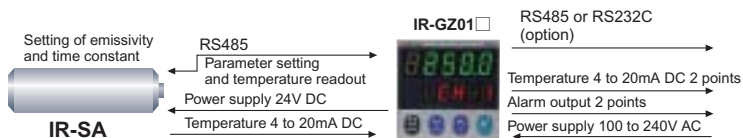
Four models of low temperature, medium temperature, high temperature and 2 colors type are available in various fields like as process line and non-contact temperature measuring.

### FEATURES

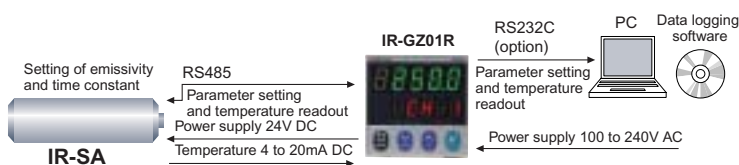
- Environment resistance, withstand temperature 90°C, IP67 dustproof and waterproof.
- High accuracy in the high temperature range by eutectic points of metal carbon scale calibration.
- Robust and small size of  $\phi 50 \times 170\text{mm}$  with stainless case.
- Fast response of 0.002sec for medium and high temperature.
- Communications and RS485 as standard equipment. Remote setting and monitoring on maximum 31 units by connecting setting display or pc are available.
- Telescope or laser pointer for targeting
- Abundant accessories for various applications and setting environment.
- Conformed to RoHS.

### STRUCTURE

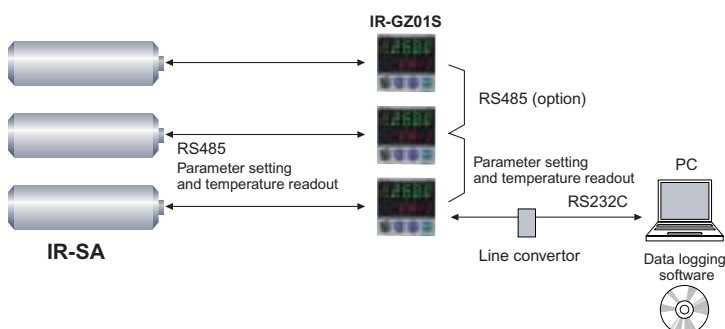
- Basic system by IR-GZ



- Remote monitoring and data acquisition by PC



- Plural units monitoring



### MODELS

- Low temperature

IR-SAB□□N

- Measuring diameter/distance
  - 50 :  $\phi 25/500\text{mm}$
  - 51 :  $\phi 40/1000\text{mm}$
  - 52 :  $\phi 80/2000\text{mm}$
  - 55 :  $\phi 200/5000\text{mm}$  (Option)
  - 5S :  $\phi 8/200\text{mm}$  (Option)
  - 00 :  $\phi 10/500\text{mm}$
  - 01 :  $\phi 20/1000\text{mm}$
  - 02 :  $\phi 40/2000\text{mm}$
  - 05 :  $\phi 100/5000\text{mm}$  (Option)
  - 0S :  $\phi 4/200\text{mm}$  (Option)

- Medium to high temperature, two color type

IR-SA□□□N

- Types/element
  - I : Medium temp·InGaAs
  - S : High temp·Si
  - H : Two color·Si/InGaAs
- Measuring diameter/distance
  - 10 :  $\phi 5/500\text{mm}$
  - 11 :  $\phi 10/1000\text{mm}$
  - 12 :  $\phi 20/2000\text{mm}$
  - 15 :  $\phi 50/5000\text{mm}$  (Option)
  - 1S :  $\phi 2/200\text{mm}$  (Option)
  - 20 :  $\phi 3/500\text{mm}$
  - 21 :  $\phi 5/1000\text{mm}$
  - 22 :  $\phi 10/2000\text{mm}$
  - 25 :  $\phi 25/5000\text{mm}$  (Option)
  - 2S :  $\phi 1/200\text{mm}$  (Option)

# IR-SA SERIES

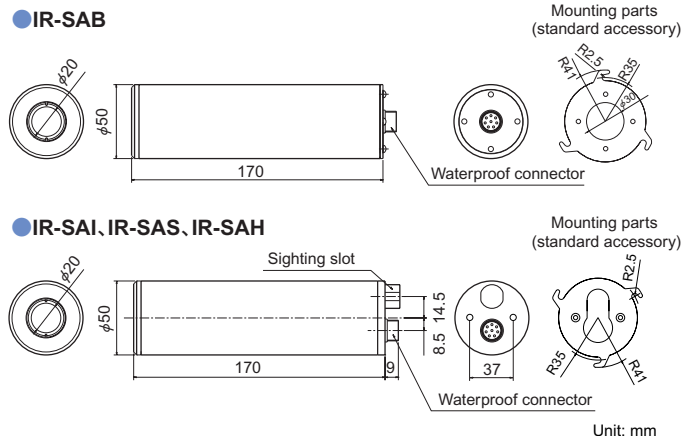
## SPECIFICATIONS

Model	Low temperature	Medium temperature	High temperature	2-color
	IR-SAB	IR-SAI	IR-SAS	IR-SAH
Measuring system	Broadband radiation thermometer	Narrow-band radiation thermometer		Ratio thermometer
Element	PE	InGaAs	Si	Si/InGaAs
Measuring wavelength	8 to 14 $\mu$ m	1.55 $\mu$ m	0.9 $\mu$ m	0.9/1.55 $\mu$ m
Measuring range	0 to 1000°C	300 to 1600°C	600 to 2500°C	900 to 2500°C
Accuracy rating ( $\epsilon \approx 1.0$ , reference operation condition : ambient temperature 23 $\pm$ 5°C)	200°C or less --- $\pm 2^\circ\text{C}$ 200°C or more --- $\pm 1\%$ of measured value	1000°C or less: $\pm 0.2\%$ of measured value $\pm 2^\circ\text{C}$ 1000 to 1500°C: $\pm 0.4\%$ of measured value 1500°C or more: $\pm 0.5\%$ of measured value		1500°C or less: $\pm 0.5\%$ of measured value 1500°C or more: $\pm 0.6\%$ of measured value
Repeatability		0.2°C		1°C
Temperature drift	0.1°C/°C	0.1°C/°C or 0.015%/°C of measured value whichever larger		0.2°C/°C or 0.02%/°C of measured value whichever larger
Resolution		0.5°C		1°C
Response time (95%)	0.2s	0.002s		0.01s
Lens aperture	$\phi 15\text{mm}$	$\phi 10\text{mm}$		
Distance factor	25, 50	100, 200		
Sighting	Laser unit	Telescope or laser pointer		
Emissivity adjustment	1.999 to 0.200	1.999 to 0.050		1.250 to 0.750 (emissivity ratio)
Working temperature	0 to 50°C	0 to 90°C		
Power consumption	Approx. 5VA	Approx. 2.4VA		

## COMMON SPECIFICATIONS

Optics:	Fixed focus lens type
Setup:	Setting in the setting display unit by using communication RS485
Signal modulation:	Delay --- first order lag Modulation time constant 0 to 99.9s (time constant 0 = real) Peak --- Peak tracing Decay time 0, 2, 5, 10 °C/ sec (Decay time 0 = peak hold)
Analog output:	4 to 20 mA DC isolated output Allowable load resistance --- 780 $\Omega$ or less (530 $\Omega$ or less for IR-SAB) Scaling --- Optional setting in the measuring range
Communications:	RS485
Power supply:	24V DC $\pm$ 10%
Connection:	Connector (exclusive cable)
Case:	Stainless steel
Dimensions:	$\phi 50 \times \text{D}170\text{mm}$
Weight:	Approx. 0.7kg
Protection:	IP67
CE marking:	Conformity standards --- EN61326-1: 2006 class A Conformity condition --- Connecting cable 30m or less (inside installation) *Stability under test environment requested by EMS directive --- $\pm 1\%$ of measuring range

## DIMENSIONS



## MEASURING DIAMETER & DISTANCE

IR-SAB			
Code	Measuring diameter & distance	Code	Measuring diameter & distance
50	$\phi 55$ $\phi 25$ $\phi 15$ 1000 500 0	00	$\phi 35$ $\phi 10$ $\phi 15$ 1000 500 0
51	$\phi 95$ $\phi 40$ $\phi 15$ 2000 1000 0	01	$\phi 55$ $\phi 20$ $\phi 15$ 2000 1000 0
52	$\phi 180$ $\phi 80$ $\phi 15$ 4000 2000 0	02	$\phi 100$ $\phi 40$ $\phi 15$ 4000 2000 0
55 (Option)	$\phi 420$ $\phi 200$ $\phi 15$ 10000 5000 0	05 (Option)	$\phi 220$ $\phi 100$ $\phi 15$ 10000 5000 0
5S (Option)	$\phi 31$ $\phi 8$ $\phi 15$ 400 200 0	0S (Option)	$\phi 23$ $\phi 4$ $\phi 15$ 400 200 0

IR-SAI, IR-SAS, IR-SAH			
Code	Measuring diameter & distance	Code	Measuring diameter & distance
10	$\phi 20$ $\phi 5$ $\phi 10$ 1000 500 0	20	$\phi 15$ $\phi 3$ $\phi 10$ 1000 500 0
11	$\phi 30$ $\phi 10$ $\phi 10$ 2000 1000 0	21	$\phi 20$ $\phi 5$ $\phi 10$ 2000 1000 0
12	$\phi 50$ $\phi 20$ $\phi 10$ 4000 2000 0	22	$\phi 30$ $\phi 10$ $\phi 10$ 4000 2000 0
15 (Option)	$\phi 110$ $\phi 50$ $\phi 10$ 10000 5000 0	25 (Option)	$\phi 60$ $\phi 25$ $\phi 10$ 10000 5000 0
1S (Option)	$\phi 14$ $\phi 2$ $\phi 10$ 400 200 0	2S (Option)	$\phi 12$ $\phi 1$ $\phi 10$ 400 200 0

\*Distance from front lens of IR-SA

## SETTING DISPLAY UNIT IR-GZ (Option)

IR-GZ is combined with IR-SA for enabling parameters setup, data display and 24V DC power supply to IR-SA. Wall-hanging box is also prepared.

### Model

IR-GZ  1

- Analog input
  - 0 : None
  - 1 : Remote emissivity setup
- Communications interface
  - N : None (standard)
  - R : RS232C
  - S : RS485

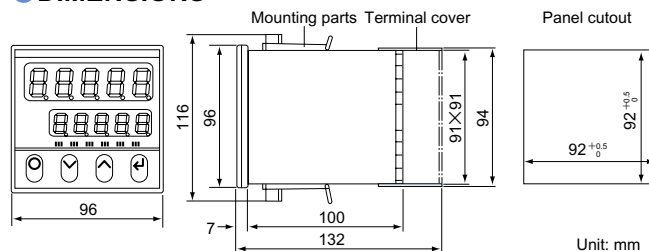


Wall-hanging box IR-ZGBW

### SPECIFICATIONS

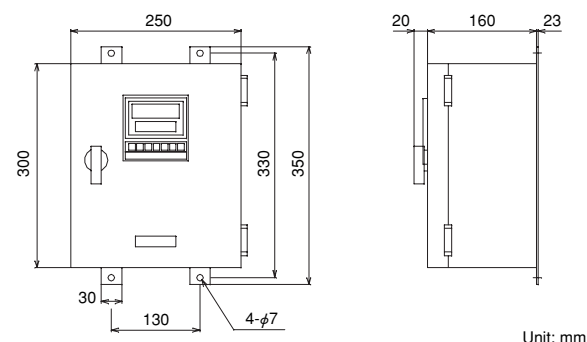
- Emissivity (ratio) setting: 1.999 to 0.050
- Thermometer input: RS485
- Signal modulation:
  - DELAY --- First-order lag
    - Time constant: 0.0 to 99.9sec with 0.1sec increment or 0.00 to 9.99sec with 0.01 sec increment
    - Optional setting (time constant 0 = real)
  - PEAK --- Peak tracing
    - Decay time 0, 2, 5, 10°C/sec selectable (Decay time 0 = peak hold)
- Display: Temperature, thermometer number being connected, status display
- Analog output:
  - Output 1: 4 to 20 mA DC (IR-GZ output, load resistance: less than 500Ω)
  - Output 2: 4 to 20 mA DC (IR-SA output, load resistance: less than 780Ω, less than 530Ω for IR-SAB)
- Output renewal cycle:
  - Output 1: 100ms
  - Output 2: Depending on the model of IR-SA
- Output accuracy ratings: ±0.2% of output range
  - Stability under the test environment required by EMC directive --- ±1%
- Event output:
  - 2 points ---
  - Select 2 points from "high temperature alarm", "high-high temperature alarm", "low temperature alarm" and "low-low temperature alarm".
  - Relay a contact output (common)
  - Contact capacity 240V AC 1.5A
  - 30V DC 1.5A
- Analog input: 4 to 20 mA DC (Remote emissivity setup)
- Communications interface:
  - RS232C, RS485 (option)
- Power supply to IR-SA: 24V DC 0.45A
- Power supply: 100 to 240V AC universal power supply, 50Hz/60Hz
- Power consumption: Maximum 20VA
- Working temperature: -10 to 50°C
- Working humidity: 20 to 90%RH (No dew condensation)
- Case: Fire-retardant polycarbonate resin
- Installation: Panel mounting
- Weight: Approx. 0.5kg
- CE marking: EMC EN61326 + A1
- Low voltage EN61010-1 + A2
- Overvoltage category II, pollution level 2

### DIMENSIONS

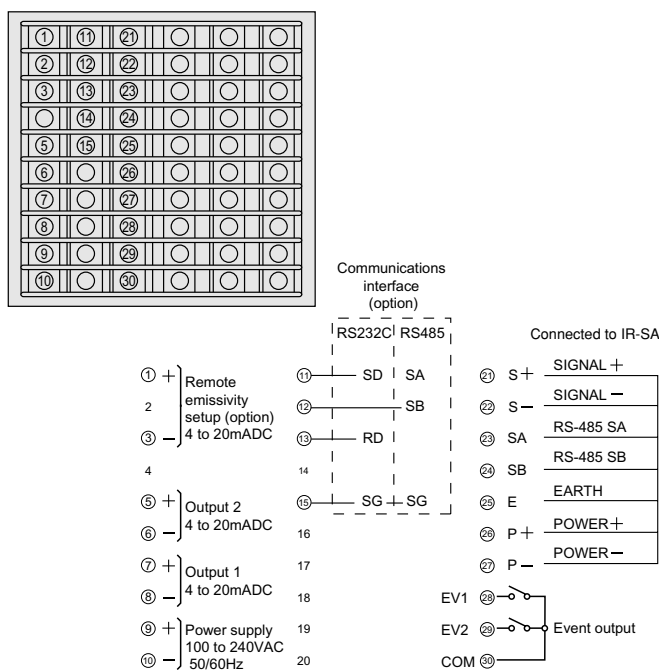


### ACCESSORIES

#### Wall-hanging box IR-ZGBW



### TERMINAL DIAGRAMS

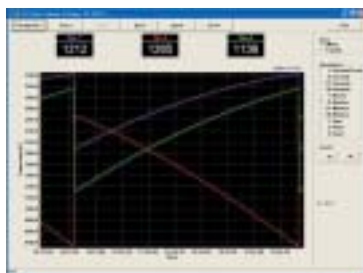


## DATA LOGGING SOFTWARE (OPTION)

### MODEL

IR-VXS1E

Measured value trend display and parameter settings available by connecting to maximum 3 units of IR-SA.



Environment	OS	Windows 2000 / XP / Vista
	Hard drive	Capacity: 20MB or more
	Drive	CD-ROM (use when installation)
Functions	<ul style="list-style-type: none"> <li>· Real time trend display</li> <li>· Data storage (CSV type) / replay / printing</li> <li>· Parameter setup and readout</li> </ul>	
Option	<ul style="list-style-type: none"> <li>· Protocol convertor</li> <li>· Communication cable (for protocol convertor and PC)</li> </ul>	

