

# IR-SA SERIES

## ON-LINE INFARED RADIATION THERMOMETER



The IR-SA series of Infrared Radiation Thermometer provides broad selection of small & robust units to match your on-line applications for non-contact temperature measurement from 0 to 2500°C under harsh environment. Four models are available with modbus connectivity for parameter setup through remote setting unit or PC.



### FEATURES

- Small but robust on-line thermometer
- Withstand temperature 90°C, IP67, CE approval
- Fast response time of 0.002sec for IR-SAI/IR-SAS
- RS485 modbus connectivity
- Telescope or laser pointer for targeting
- IR-GZ enables remote monitoring and parameter setup
- Abundant mountings and accessories for on-line applications

### MODELS

#### Low Temperature

IR-SAB□□N

Measuring diameter/distance

- 50: ø25/500mm
- 51: ø40/1000mm
- 52: ø80/2000mm
- 55: ø200/5000mm (option)
- 5S: ø8/200mm (option)
- 00: ø10/500mm
- 01: ø20/1000mm
- 02: ø40/2000mm
- 05: ø100/5000mm (option)
- 0S: ø4/200mm (option)

#### Medium to High Temperature, Two-Color

IR-SA□□□N

Types

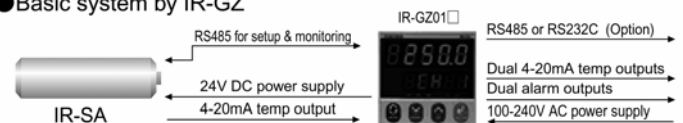
- I: Medium Temp - InGaAs
- S: High Temp - Si
- H Two-Color - Si/InGaAs

Measuring diameter/distance

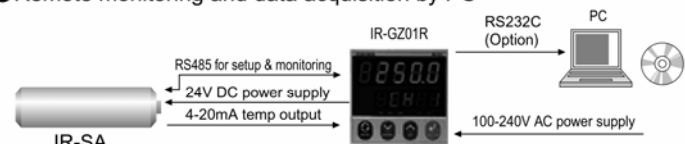
- 10: ø5/500mm
- 11: ø10/1000mm
- 12: ø20/2000mm
- 15: ø50/5000mm (option)
- 1S: ø2/200mm (option)
- 20: ø3/500mm
- 21: ø5/1000mm
- 22: ø10/2000mm
- 25: ø25/5000mm (option)
- 2S: ø1/200mm (option)

### CONNECTIVITY

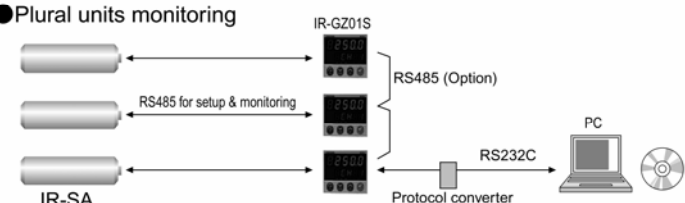
#### Basic system by IR-GZ



#### Remote monitoring and data acquisition by PC



#### Plural units monitoring

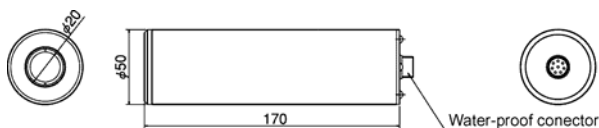


## ■ SPECIFICATIONS

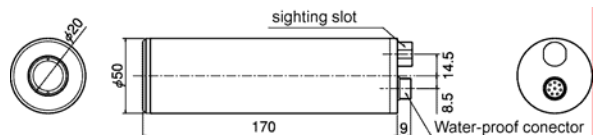
	Low temperature	Medium temperature	High temperature	2-color
Model	IR-SAB	IR-SAI	IR-SAS	IR-SAH
Measuring system	Broadband radiation thermometer	Narrow-band radiation thermometer		Ratio thermometer
Element	PE	InGaAs	Si	Si/InGaAs
Measuring wavelength	8 to 14 $\mu$ m	1.55 $\mu$ m	0.9 $\mu$ m	0.9/1.55 $\mu$ m
Measuring range	0 to 1000°C	300 to 1600°C	600 to 2500°C	900 to 2500°C
Accuracy rating	200°C or less: $\pm 2^\circ\text{C}$ 200°C or more: $\pm 1\%$ of measuring value	1000°C or less: $\pm 0.2\%$ of measuring value $\pm 2^\circ\text{C}$ 1000 to 1500°C: $\pm 0.4\%$ of measuring value 1500°C or more: $\pm 0.5\%$ of measuring value		1500°C or less: $\pm 0.5\%$ of measuring value 1500°C or more: $\pm 0.6\%$ of measuring value
Repeatability	0.2°C			1°C
Temperature drift	0.1 °C/°C	0.1°C/°C or 0.015%/°C of measuring value whichever larger		0.2°C/°C or 0.02%/°C of measuring value whichever larger
Resolution	0.5°C			1°C
Response time (95%)	0.2s	0.002s		0.01s
Optics	Fixed focus lens type			
Lens aperture	Diameter: 15mm	Diameter: 10mm		
Sighting	Laser unit	Telescope or laser pointer		
Parameter setup	Through RS485			
Emissivity adjustment (2-color: emissivity ratio)	1.9999 to 0.200	1.9999 to 0.050		1.250 to 0.750
Signal modulation	DELAY: First-order lag (Time constant: 0 to 99.9s) Real must be set at 0s. PEAK: Peak tracing (Attenuation factor 0, 2, 5, 10°C/sec selectable) Peak hold must be set at 0°C/sec.			
Analog output	4 to 20mA DC isolated output (Load resistance: less than 780 $\Omega$ ) Output scaling: Programmable in measuring range			
Communications	RS485 Modbus			
Working temperature	0 to 50 °C	0 to 90°C		
Power supply	24V DC $\pm 10\%$			
Power consumption	Approx. 5.0VA	Approx. 2.4VA		
Connection	Plug connection (exclusive cable IR-ZYRC)			
Housing	Stainless Steel			
Protection	IP67			
Weight	Approx. 0.7Kg			
Standards	CE approval, RoHS directive			

## ■ EXTERNAL DIMENSIONS

### ● IR-SAB



### ● IR-SAI, IR-SAS, IR-SAH



Unit: mm

## MEASURING DIAMETER & DISTANCE

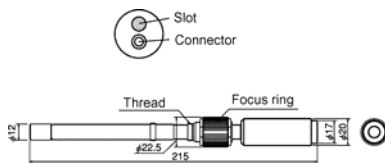
IR-SAB		IR-SAI,IR-SAS,IR-SAH	
Code	Measuring diameter & distance	Code	Measuring diameter & distance
50		00	
51		01	
52		02	
55 (Option)		05 (Option)	
5S (Option)		0S (Option)	
10		20	
11		21	
12		22	
15 (Option)		25 (Option)	
1S (Option)		2S (Option)	

## SIGHTING

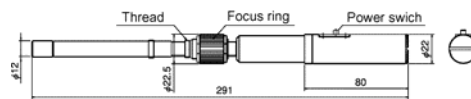
To insert telescope or laser pointer, you can get the target when thermometer installation. Either unit can be utilized with your plural units.

Models	Description	Applicable model
IR-ZYTS	Telescope	IR-SAI, IR-SAS, IR-SAH
IR-ZYLZ1	Laser pointer	
IR-ZYLZ2	Laser unit (same size as IR-SA)	IR-SAB

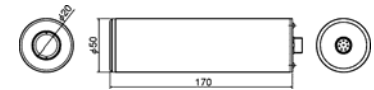
### Telescope: IR-ZYTS



### Laser pointer: IR-ZYLZ1



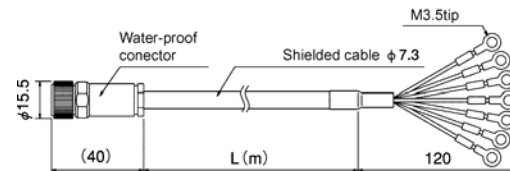
### Laser unit: IR-ZYLZ2



## CONNECTING CABLE

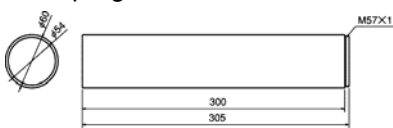
Model: IR-ZYRC□□□

Length: 002, 005, 010, 020, 100m

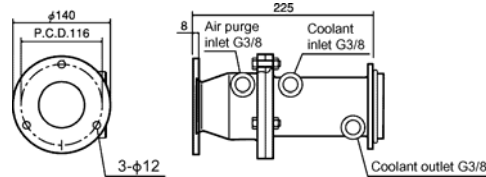


## ACCESSORIES

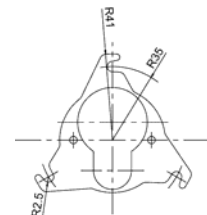
### Air purge hood: IR-ZYSS



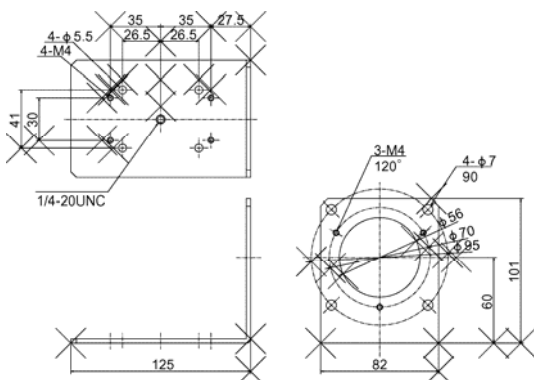
### Protective case: IR-ZYCH



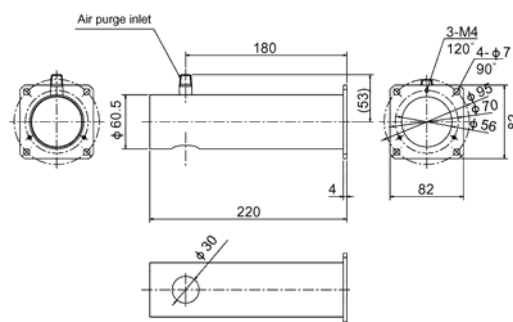
### Mounting metal: IR-ZYHAW



### L-type mounting bracket: IR-ZYHG



### Air purge case: IR-ZYCP



Unit: mm

■ **SETTING DISPLAY UNIT IR-GZ**

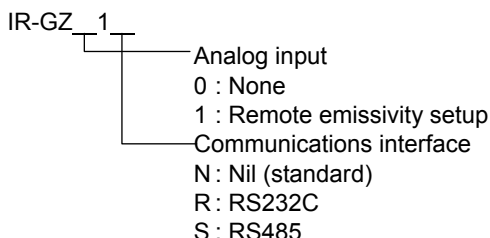


Setting display unit IR-GZ

Wall-mount box IR-ZGBW

The IR-GZ is combined with the IR-SA for enabling parameters setup, data display and 24V DC power supply to the IR-SA.

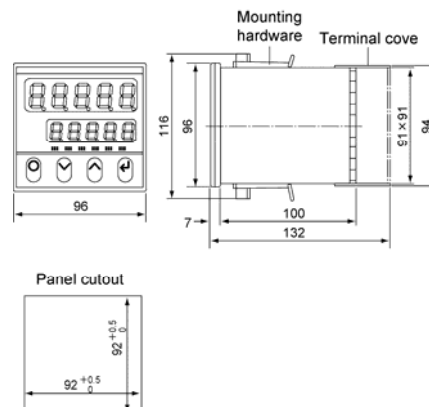
■ **Model**



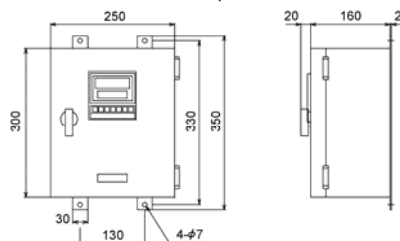
■ **SPECIFICATIONS**

- Emissivity (ratio) setting: 1.999 to 0.000
- Thermometer input: RS485
- Signal modulation: DELAY --- First-order lag (Time constant: 0.0 to 99.9 sec with 0.1 sec increment or 0.00 to 9.99 sec with 0.01 sec increment) Real signal must be set at 0 sec.
- PEAK --- Peak tracing (attenuation factor 0, 2, 5, 10°C /sec selectable) Peak hold must be set at 0°C.
- Display: Temperature, Thermometer number being connected, Status display
- Analog output: Output 1: 4 to 20mA DC (IR-GZ output, Load resistance: less than 500Ω)  
Output 2: 4 to 20mA 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
- Event output: 2 points  
Select 2 points within "High temperature alarm", "High-high temperature alarm", "Low temperature alarm" and "Low-low temperature alarm".  
Relay a-contact  
Contact capacity 240V AC 1.5A  
30V DC 1.5A
- Analog input: 4-20mA DC (Remote emissivity setup)
- Communications interface: RS232C (Optional) or RS485 (Optional)
- Power supply to IR-SA: 24V DC
- Power supply: 100 to 240V AC, 50/60Hz
- Power consumption: Maximum 20VA
- Working temperature: -10 to 50°C
- Working humidity: 20 to 90%RH (No dew condensation)
- Installation: Panel mount type
- Weight: Approx 0.5Kg
- EMC directive EN61326+A1
- Low voltage EN61010-1+A2
- Overvoltage category II,
- Pollution level 2

■ **External dimensions**

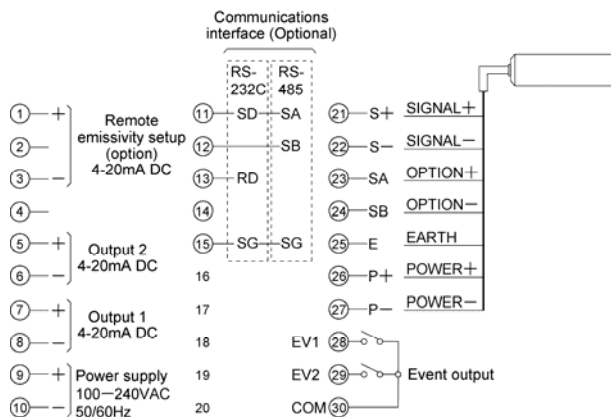
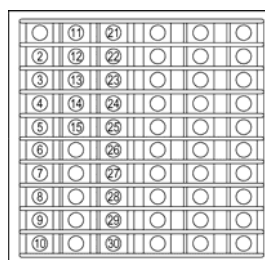


Wall-mount box IR-ZGBW (Purchase IR-GZ separately)



Unit: mm

■ **Terminal diagrams**



Specifications subject to change without notice. Printed in Japan (I) 2007. 8 Recycled Paper

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