IR-SA SERIES

ONLINE INFRARED RADIATION THERMOMETER

PERFORMANCE SPECIFICATION CHINO

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.

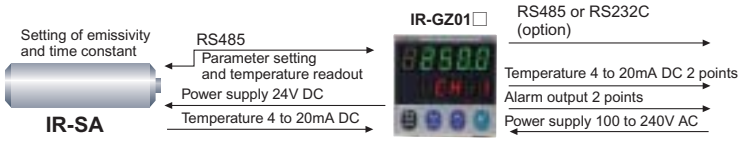
*Telescope (option)

FEATURES

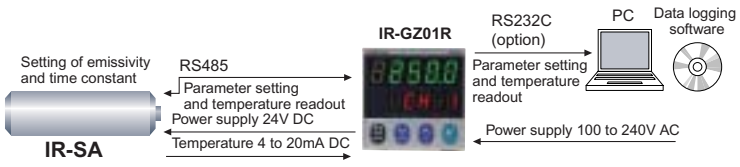
- **Environment resistance, withstand temperature 90℃, IP67 dustproof and waterproof.**
- **High accuracy in the high temperature range by eutectic points of metal carbon scale calibration.**
- **Robust and small size of ϕ50 x 170mm with stainless case.**
- **Fast response of 0.002sec for medium and 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

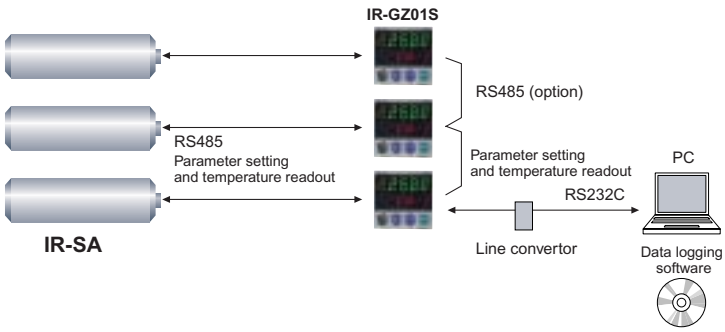
Basic system by IR-GZ



Remote monitoring and data acquisition by PC



Plural units monitoring



MODELS

Low temperature

IR-SAB□□N

Measuring diameter/distance

- 50：ϕ25/500mm
- 51：ϕ40/1000mm
- 52：ϕ80/2000mm
- 55：ϕ200/5000mm (Option)
- 5S：ϕ8/200mm (Option)
- 00：ϕ10/500mm
- 01：ϕ20/1000mm
- 02：ϕ40/2000mm
- 05：ϕ100/5000mm (Option)
- 0S：ϕ4/200mm (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：ϕ5/500mm
- 11：ϕ10/1000mm
- 12：ϕ20/2000mm
- 15：ϕ50/5000mm (Option)
- 1S：ϕ2/200mm (Option)
- 20：ϕ3/500mm
- 21：ϕ5/1000mm
- 22：ϕ10/2000mm
- 25：ϕ25/5000mm (Option)
- 2S：ϕ1/200mm (Option)

SPECIFICATIONS

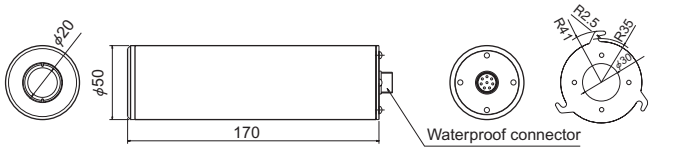
Model	Low temperature	Medium temperature	High temperature	2-color
	IR-SAB	IR-SAI	IR-SAS	IR-SAH
Measuring system	Broadband radiation thermometer	Narrow-band radiation thermometer		Ratio thermometer
Element	PE	InGaAs	Si	Si／InGaAs
Measuring wavelength	8 to 14μm	1.55μm	0.9μm	0.9／1.55μm
Measuring range	0 to 1000℃	300 to 1600℃	600 to 2500℃	900 to 2500℃
Accuracy rating (ε≒ 1.0, reference operation condition : ambient temperature 23±5℃)	200℃ or less --- ±2℃ 200℃ or more --- ±1% of measured value	1000℃ or less: ±0.2% of measured value ±2℃ 1000 to 1500 ℃: ±0.4% of measured value 1500℃ or more: ±0.5% of measured value		1500℃ or less: ±0.5% of measured value 1500℃ or more: ±0.6% of measured value
Repeatability		0.2℃		1℃
Temperature drift	0.1℃/℃	0.1 ℃/℃ or 0.015%/℃ of measured value whichever larger		0.2℃/℃ or 0.02%/℃ of measured value whichever larger
Resolution		0.5℃		1℃
Response time (95%)	0.2s	0.002s		0.01s
Lens aperture	ϕ15mm	ϕ10mm		
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℃	0 to 90℃		
Power consumption	Approx. 5VA	Approx. 2.4VA		

COMMON SPECIFICATIONS

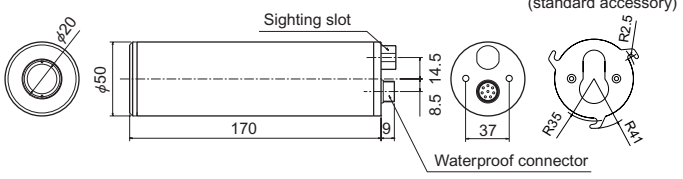
Optics: Fixed focus lens type
Setup: Setting in the setting display unit by using communication RS485
Signal modulation: Delay --- first order lag
Modulation time constant 0 to 99.9s (time constant 0 = real)
Peak --- Peak tracing
Decay time 0, 2, 5, 10 ℃/ sec (Decay time 0 = peak hold)
Analog output: 4 to 20 mA DC isolated output
Allowable load resistance --- 780Ω or less (530Ω or less for IR-SAB)
Scaling --- Optional setting in the measuring range
Communications: RS485
Power supply: 24V DC±10%
Connection: Connector (exclusive cable)
Case: Stainless steel
Dimensions: ϕ50 x D170mm
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 --- ±1% of measuring range

DIMENSIONS

IR-SAB



IR-SAI、IR-SAS、IR-SAH



Unit: mm

MEASURING DIAMETER & DISTANCE

IR-SAB

Code	Measuring diameter & distance	Code	Measuring diameter & distance
50	ϕ55 ϕ25 ϕ15 / 1000 500 0	00	ϕ35 ϕ10 ϕ15 / 1000 500 0
51	ϕ95 ϕ40 ϕ15 / 2000 1000 0	01	ϕ55 ϕ20 ϕ15 / 2000 1000 0
52	ϕ180 ϕ80 ϕ15 / 4000 2000 0	02	ϕ100 ϕ40 ϕ15 / 4000 2000 0
55 (Option)	ϕ420 ϕ200 ϕ15 / 10000 5000 0	05 (Option)	ϕ220 ϕ100 ϕ15 / 10000 5000 0
5S (Option)	ϕ31 ϕ8 ϕ15 / 400 200 0	0S (Option)	ϕ23 ϕ4 ϕ15 / 400 200 0

IR-SAI,IR-SAS,IR-SAH

Code	Measuring diameter & distance	Code	Measuring diameter & distance
10	ϕ20 ϕ5 ϕ10 / 1000 500 0	20	ϕ15 ϕ3 ϕ10 / 1000 500 0
11	ϕ30 ϕ10 ϕ10 / 2000 1000 0	21	ϕ20 ϕ5 ϕ10 / 2000 1000 0
12	ϕ50 ϕ20 ϕ10 / 4000 2000 0	22	ϕ30 ϕ10 ϕ10 / 4000 2000 0
15 (Option)	ϕ110 ϕ50 ϕ10 / 10000 5000 0	25 (Option)	ϕ60 ϕ25 ϕ10 / 10000 5000 0
1S (Option)	ϕ14 ϕ2 ϕ10 / 400 200 0	2S (Option)	ϕ12 ϕ1 ϕ10 / 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.

Wall-hanging box IR-ZGBW

Model

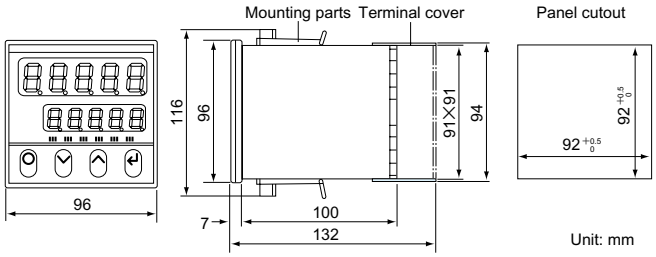
IR-GZ□1□

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

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℃/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℃
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

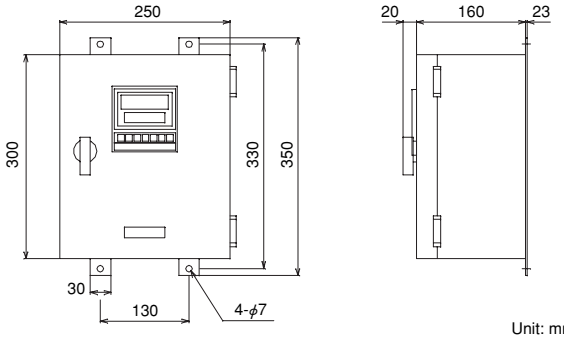
DIMENSIONS



Unit: mm

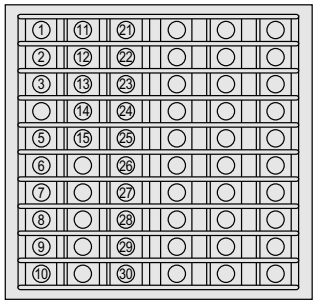
ACCESSORIES

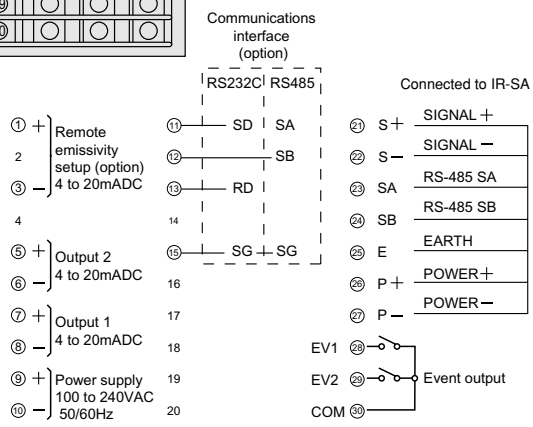
Wall-hanging box IR-ZGBW



Unit: mm

TERMINAL DIAGRAMS



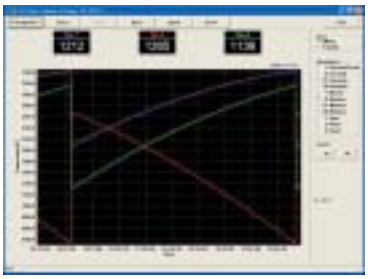


DATA LOGGING SOFTWARE (OPTION)

MODEL

IR-VXS1E

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



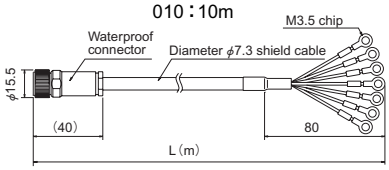
Environment	OS	Windows 2000 / XP / Vista
	Hard drive	Capacity: 20MB or more
	Drive	CD-ROM (use when installation)
Functions	· Real time trend display · Data storage (CSV type) / replay / printing · Parameter setup and readout	
Option	· Protocol convertor · Communication cable (for protocol convertor and PC)	

■ACCESORRIES

●Connecting cable
Model: IR-ZYRC□□□

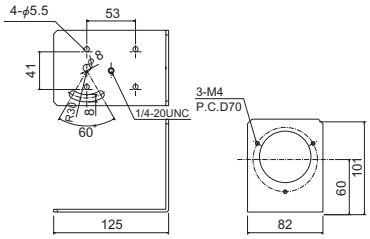
For connecting IR-SA with setting display unit

Length
002：2m　020：20m　*Please ask for the length other than options.
005：5m　100：100m
010：10m



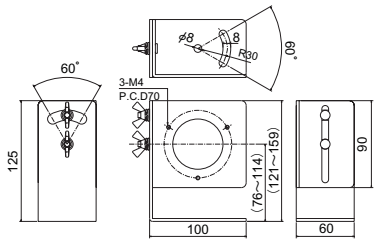
●Mounting bracket
Model: IR-ZYHG1

Horizontal adjustment of measuring spot is available. It can be fixed to universal head IR-ZMSS.

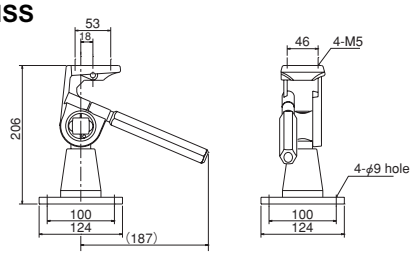


●Adjustable bracket
Model: IR-ZYHG2

Horizontal and vertical adjustment of measuring spot.

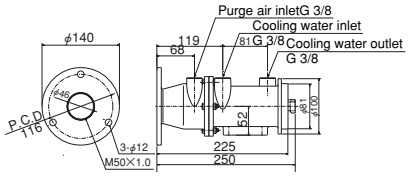


●Heat resistance universal head
Model: IR-ZMSS



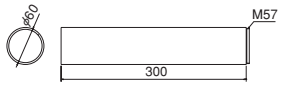
●Protecting case
Model: IR-ZYCH

Case for housing IR-SA when measuring in a harsh environment like as smoke, oily smoke and dust. It also has water cooling and air purge functions.



●Air purge hood
Model: IR-ZYSS

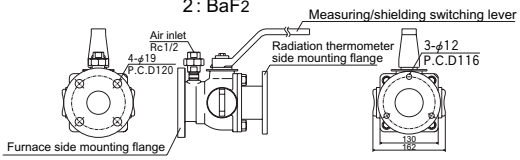
Blocking off the light by using with a protecting case IR-ZYCH and keeping measuring light path by air guide



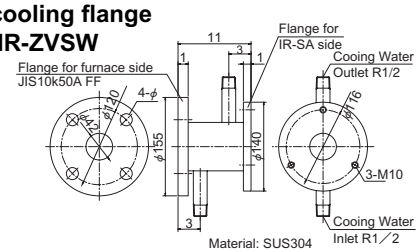
●Sealing window
Model: IR-ZW□C

Window materials
0 : Quartz
2 : BaF_2

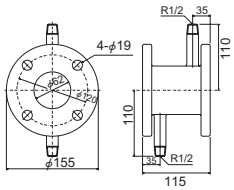
Installing in the furnace wall for sealing between inside of furnace and outside of furnace when furnace inner presser is high. Sealing glasses is replaced easily while keeping sealing.



●Water-cooling flange
Model: IR-ZVSW

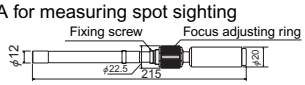


●Water-cooling flange
Model: IR-VSW



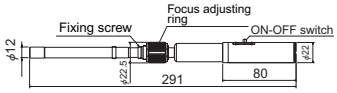
●Telescope
Model: IR-ZYTS　Applicable models: IR-SAI、IR-SAS、IR-SAH

Installed to IR-SA for measuring spot sighting



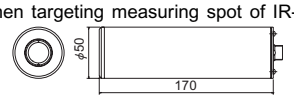
●Laser pointer
Model: IR-ZYLZ1　Applicable models: IR-SAI、IR-SAS、IR-SAH

Installed to IR-SA for targeting measuring spot by laser beam



●Laser unit (for protecting case storage)
Model: IR-ZYLZ2

Replacement when targeting measuring spot of IR-SAB and housed by a protecting case.



* A telescope and a laser pointer can be used for multiple units as they are removable.

Unit: mm

Specifications subject to change without notice. Printed in Japan (I) 2009. 11

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