IR-BAT SERIES

HIGH-SPEED COMPACT RADIATION THERMOMETER

PS PERFORMANCE SPECIFICATION
CHINO

The IR-BA Series is a compact, fast response time, non-contact Infrared Thermometer. In spite of it's compact design (about the size of a deck of cards) the IR-BA internally handles all the signal processing necessary to provide a 4 to 20mA DC linear output over its measuring range. The compact size allows this on-line unit to be installed in tight spaces and on small production equipment. This full-featured product line provides 50ms response times and spot sizes as small as 5mm. The IR-BA's infrared spectral selectivity allows it to be used on application specific process such as; glass, semiconductor processing and measurement of thin plastics (down to 25mm thick) such as PE & PET.

■ FEATURES
- Fast response time of 50ms
- Compact and light-weight
- 4 to 20mA DC linear output
- Accurate emissivity setup
- Abundant mountings & accessories

■ MODELS
- **General Purpose Models**

  IR- BAT□□□
  - **Spot size & distance**
    1: Standard Φ40/500mm
    2: Small spot/short distance Φ5/80mm
    S: Small spot/long distance Φ40/1000mm
  - **Measuring range & response time**
    A: 0 to 300°C, 100ms
    B: 0 to 600°C, 100ms*
    M: 0 to 300°C, 50ms
    P: 0 to 600°C, 50ms*
    *Only available for standard and small spot/long distance models
  - **Cable**
    Blank: Standard 2m
    E: Extension cable connectable model

- **Application Specific Models**

  IR- BAX□□
  - **Application**
    G1: Glass Temperature
    L1: Lamp Anneal
    F1: Polyethylene Film
    F2: Polyester Film
    H1: Combustion Gas
  - **Cable**
    Blank: Standard 2m (5m for IR-BAXH1)
    E: Extension cable connectable model
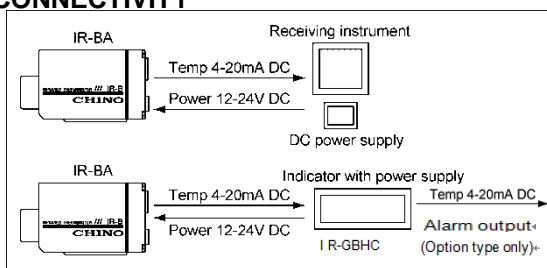
- **Extension cable**

  IR- ZBRA□□□
  - Cable lengeth (m)
  - □□□: Max 200m

■ CONNECTIVITY

■ SPECIFICATIONS FOR GENERAL PURPOSE MODELS

Measuring system:	Broadband radiation thermometer
Measuring wavelength:	8 to 14μm
Element:	Thermopile
Resolution:	0.2°C (at 0 to 300°C)
	0.5°C (at 0 to 600°C)
Repeatability:	±0.2°C (at 0 to 300°C)
	±0.3°C (at 0 to 600°C)
Optics:	GE lens
Emissivity compensation:	
	ε =1.99 to 0.10 (digital switch)
Analog output:	4 to 20mA DC (load resistance 280Ω or less)
Working temperature:	0 to 50°C
Power supply:	12 to 24V DC
Current consumption:	60mA or less
Cable length:	Φ4.5 4-core shielded cable
	Non-CE approval --- Max 200m with extension cable
	CE approval --- Standard 2m
	Max length 30m on order (indoor use only) IR-ZBRA is not applicable.
Casing:	Aluminum die-cast
Protection:	IPX2
Mounting:	M4 screws (2 pcs) or tripod
Weight:	Approx 220g
CE approval:	EMC directive EN61326+A1 Class A, EN61326+A1 Annex A1
	Notes) 1. Connecting cable up to 30m (IR-ZBRA is not applicable.)
	2. One-by-one DC power supply unit must be used.
Stability:	±10°C under EMC test environment

■ SPECIFICATIONS FOR APPLICATION SPECIFIC MODELS (Non-CE approval)

Measuring system:	Narrow band radiation thermometer
Measuring wavelength:	4.6 to 5.2μm (IR-BXG1)
	3.43μm (IR-BAXL1, IR-BAXF1)
	7.6 to 8.4μm (IR-BAXF2)
	4.3μm (IR-BAXH1)
Element:	Thermopile
Resolution:	0.5°C (0.2°C for IR-BAXG1)
Repeatability:	0.6°C (0.3°C for IR-BAXG1)
Optics:	GE lens (Ge/Si lens for IR-BAXH1)
Cable:	Φ4.5 4-core shielded cable
	Standard length 2m, 5m for IR-BAXH1
	Max 200m with extension cable

*Other specifications are same as General Purpose Models.

PSE-412F

■ SPECIFICATIONS

		Models	Measuring range	Response time (95% response)	Spot size/measuring distance	Accuracy rating	Measuring wavelength
General models	Standard	IR-BAT1A	0 to 300°C	100ms	Φ40/500mm	300°C or less: ±3°C 300°C or more: ±1% of measured value (at ε =1 under reference operation conditions)	8 to 14µm
		IR-BAT1B	0 to 600°C				
	Small spot & short distance	IR-BAT2A	0 to 300°C	100ms	Φ5/80mm		
	Small spot & long distance	IR-BATSA	0 to 300°C	100ms	Φ40/1000mm		
		IR-BATSB	0 to 600°C				
High-speed models	Standard	IR-BAT1M	0 to 300°C	50ms	Φ40/500mm		
		IR-BAT1P	0 to 600°C				
	Small spot & short distance	IR-BAT2M	0 to 300°C	50ms	Φ5/80mm		
	Small spot & long distance	IR-BATSM	0 to 300°C	50ms	Φ40/1000mm		
		IR-BATSP	0 to 600°C				
Glass Temperature		IR-BAXG1	100 to 400°C	1s	Φ20/150mm	±4°C	4.6 to 5.2µm
Lamp Anneal		IR-BAXL1	400 to 1300°C	1s	Φ40/500mm	1% of measured value	3.43µm (half-value width 120mm)
Polyethylene Film		IR-BAXF1	80 to 250°C	1s (63% response)	Φ40/500mm	±4°C	
Polyester Film		IR-BAXF2	50 to 150°C	1s	Φ40/500mm	±4°C	7.6 to 8.4µm
Combustion Gas		IR-BAXH1	500 to 1300°C	10s	Φ100/1000mm	1.5% of measured value	4.3µm

Note) Normal operation condition: Temperature --- 23°C±5°C, Humidity --- 35-75%RH

■ RELATION BETWEEN MEASURING DIAMETER AND DISTANCE

Models	Measuring diameter and distance (Unit: mm)
IR-BAT1 IR-BAT1M IR-BAXL1 IR-BAXF1 IR-BAXF2	
IR-BAT2 IR-BAT2M	
IR-BATS IR-BATSM	
IR-BAXG1	
IR-BAXH1	

■ WIRING
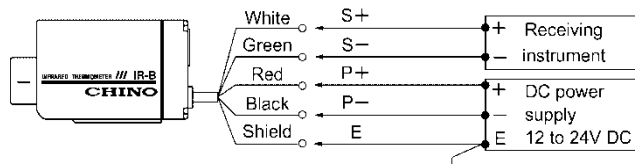
INDICATOR WITH POWER SUPPLY
IR-GBHC□

■ MODELS

IR- GBHC□
— **Alarm output**
K: With Alarm
N: None

■ SPECIFICATIONS

Input signal: 4 to 20mA DC
Display: Red and Green 7 segments LED
                   Character height 18mm
Analog output: 4 to 20mA DC isolated output
                   Load resistance 550Ω or less
Alarm output: Photo coupler open collector output (NPN) 3 points,
                   30VDC, 50mA or less (option)
Power supply to IR-BA:
                   12V DC 100mA
Working temperature: -5 to 50°C
Working humidity:
                   35 to 85%RH (no dew condensation)
Power supply: 100 to 240V AC ±10%, 50/60Hz
Power consumption:
                   Max. 12VA at 100V AC
                   Max. 15VA at 240V AC
Weight: Approx. 250g

■ EXTERNAL DIMENSIONS
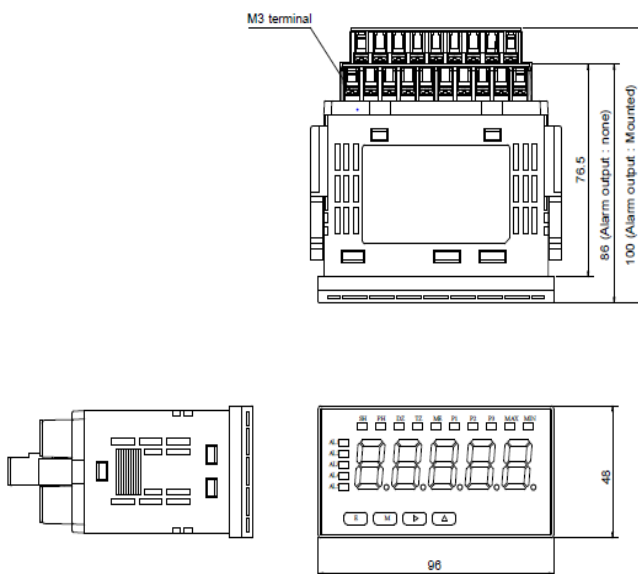
Unit: mm

■ TERMINAL DIAGRAMS

●Lower terminal connections (input / power supply)
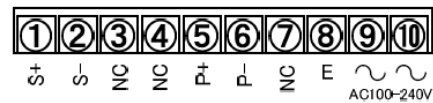
Terminal	Name	Description
1	S+	Input + terminal current range
2	S-	Input - terminal current range
3, 4	NC	No connection (Intermediate terminal cannot be used)
5	P+	Built in excitation output + terminal(sensor power supply)
6	P-	Built in excitation output - terminal(sensor power supply)
7	NC	No connection (Intermediate terminal cannot be used)
8	E	Ground
9,10	AC POWER	AC Power supply terminal

●Upper terminal connections (external control / analog output)
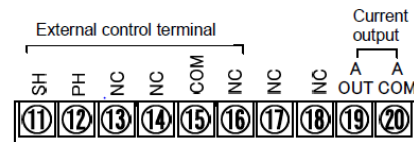
Terminal	Name	Description
11	SH	External control terminal : Sample hold
12	PH	External control terminal : Peak hold
13, 14	NC	No connection (Intermediate terminal cannot be used)
15	COM	External control common terminal
16, 17, 18	NC	No connection (Intermediate terminal cannot be used)
19	A OUT	Analog current output + terminal
20	A COM	Analog current output – terminal *1

●Middle terminal connections (alarm output, option model IR-GBHCK)
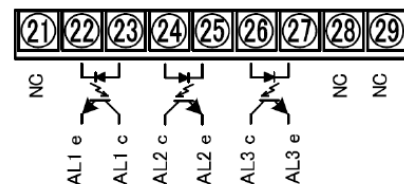
| Terminal	Name	Description	Photo coupler output
21	NC	No connection (Intermediate terminal cannot be used)	-
22	AL1 e	AL1 Output common terminal	Emitter
23	AL1 c	AL1 Output terminal	Collector
24	AL2 c	AL2 Output terminal	Collector
25	AL2 e	AL2 Output common terminal	Emitter
26	AL3 c	AL3 Output terminal	Collector
27	AL3 e	AL3 Output common terminal	Emitter
28,29	NC	No connection (Intermediate terminal cannot be used)	-

■ EXTERNAL DIMENSIONS
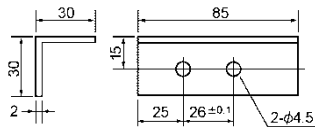
● **Radiation Thermometer**
  ·IR-BAT□□
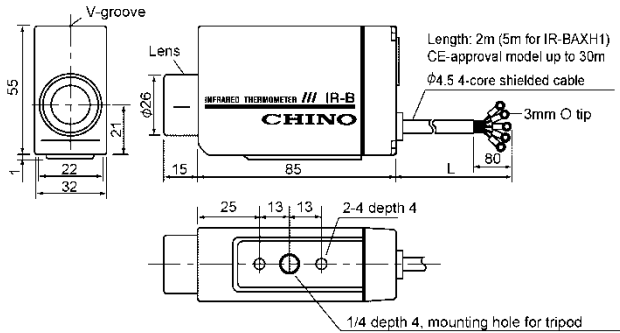
  ·IR-BAT□□E
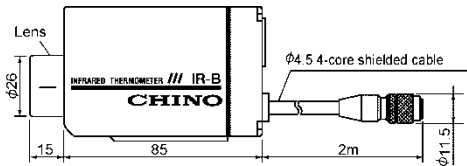
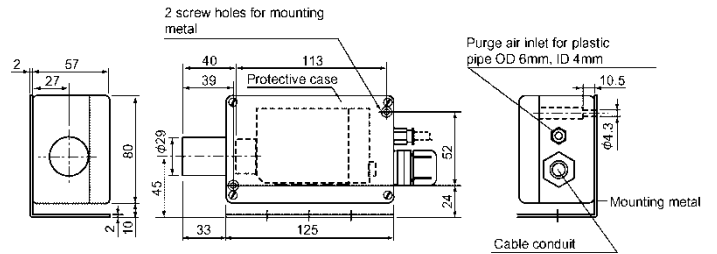
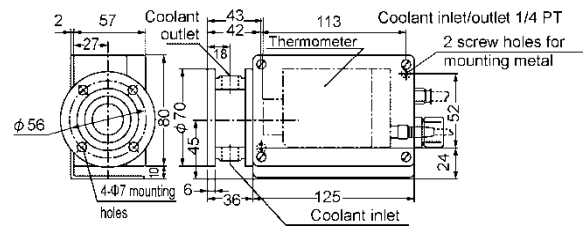● **Extension cable**
  ·IR-ZBRA□□□
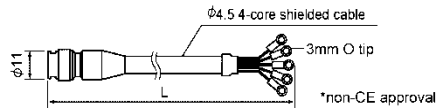
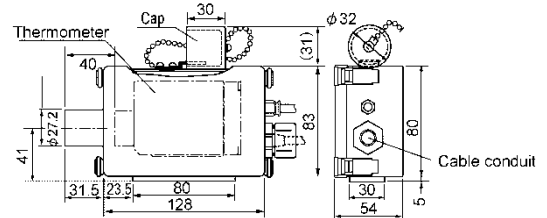● **Mounting metal**
  ·IR-ZBML

● **Protective case**
  ·General type IR-ZBCSH

  ·Water cooling protective case IR-ZBCWH

  ·Sanitary case IR-ZBCAH

Unit: mm