

# Non-Contact Infrared Temperature Sensor/Transmitter

Temperature Range: 0~600 °C

## 6-IRman



*Best Detectors, Best Service*



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# 1. FEATURES

6-IRMAN non-contact infrared thermometer measures the amount of infrared energy emitted from object and transmits standard current output signal (4~20mA) or RS-485 communication output signal. Also, it transmits relay contacts for alarm signal.

As 6-IRMAN is composed of infrared sensor head & LCD display with keypad, you can check the temperature value in real-time at the installation site.

Adapting optical lens offers improved measuring accuracy and 10:1 Field of View offers accurate measurement for long distance object.

You can measure the temperature ranged from -20 to max. 600°C with adjustable measurable temperature range.

Emissive rate can be adjusted 0.10 ~ 0.99.

## ※ Applications:


Plastics, Fluids, Rubber, Coated components, Asphalt, Wood, Paper, Ceramics, Textiles, Glass, Food etc.


# 2. Ordering information

Code Number 6-IRMAN-□-□-□

MODEL	Description
6-IRMAN	
Code A	Temperature Range
1	-20~600 °C
2	0~600 °C
Z	Other
Code B	OutPut
M	0~20Ma
N	4~20mA
Z	Other
Code C	Cable Length
1	3m Cable
Z	Other

# 3. Accessories

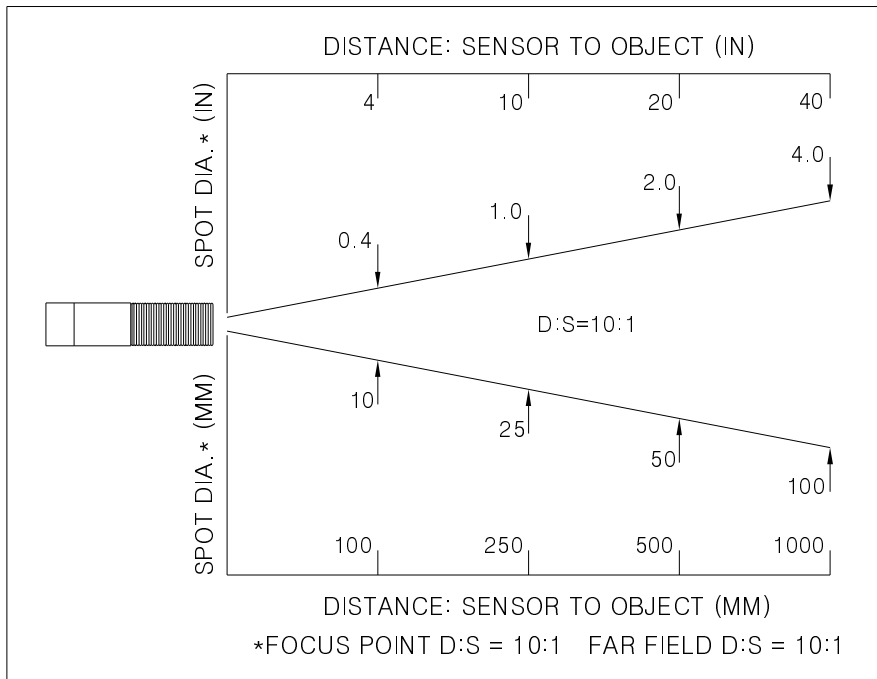
Description	Shape	Usage	Remark
Fixing nut		Sensor fixing nut	Basic accessory

Mounting bracket		Sensor mounting bracket	Basic accessory
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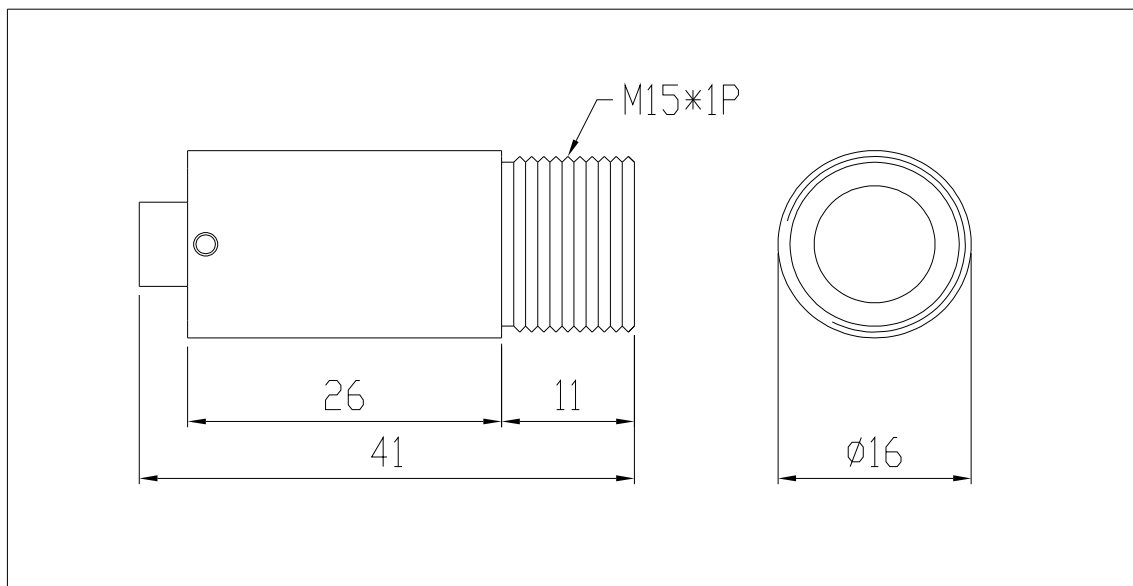
## 4. SPECIFICATIONS

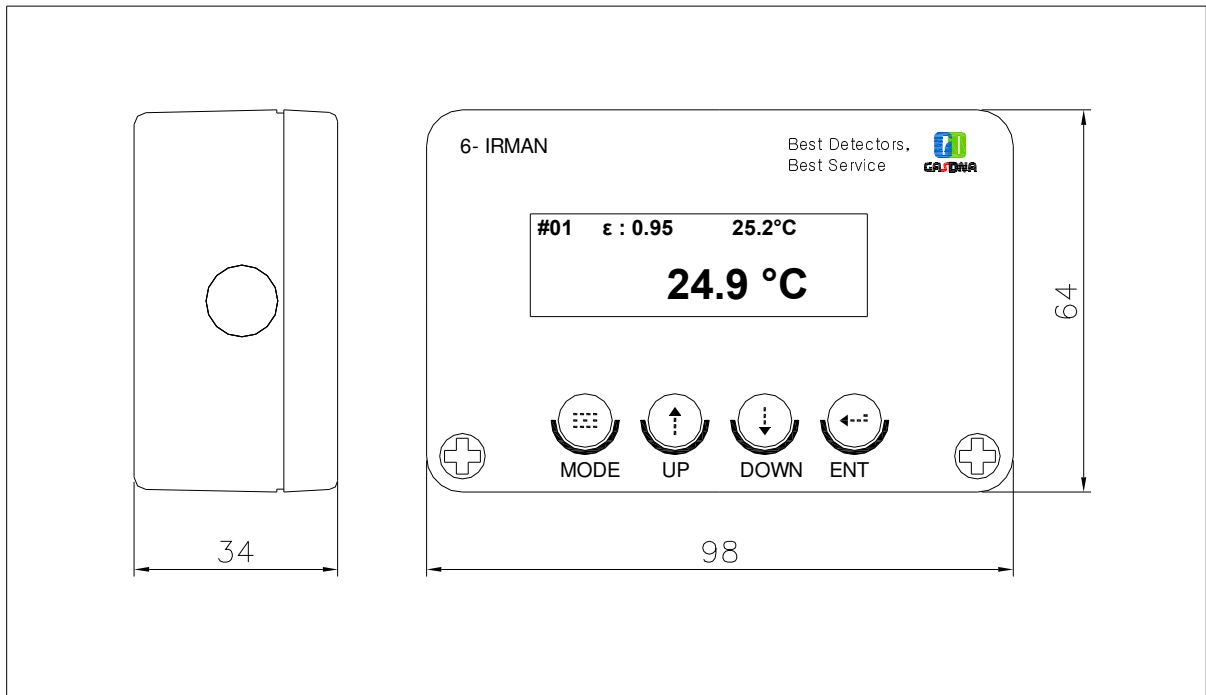
Segment	Specification
Temperature Range	-20~600 °C
Device	Thermopile
Accuracy	±1%/F.S
Repeatability	±1% of Rdg
Field of View(D:S)	10:1
Optical spectrum wave	8~14 μm
Responsive Time	0.5 sec or below
Emissive rate	0.10~0.99
Analog Output	4~20mA, 1~5V(option)
Communication output signal	RS-485 communication signal
Relay Output	2 step- Relay Contact (High/Low)
Power	DC 12~24V(Max 100mA)
Ambient temperature(no water cooling)	0~70 °C
Temperature Resolution	0.1 °C
Operating Relative Humidity	5~90%
Storing Ambient Temperature	-30~85 °C
Waterproof	IP65,NEMA 4
Dimensions	Signal Process Module: 98 × 64 Sensor Head: 41 × Ø16
Casing material	SUS
Weight	285g
Cable length	3m, other

## 5. OPTICAL FIELD OF VIEW (D:S = 10:1)

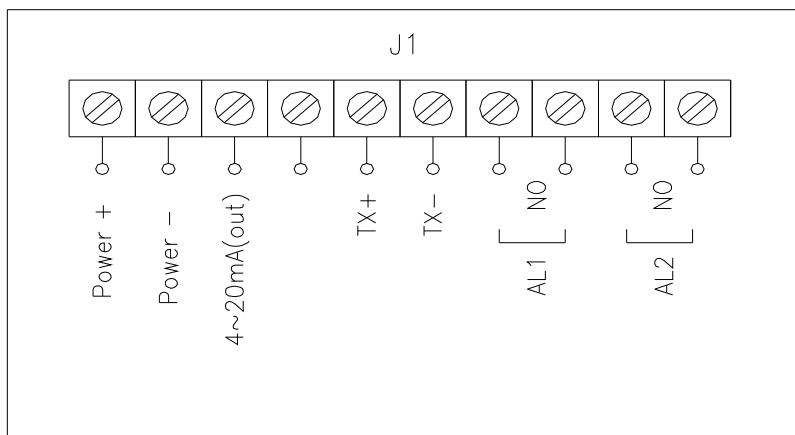


## 6. DIMENSION





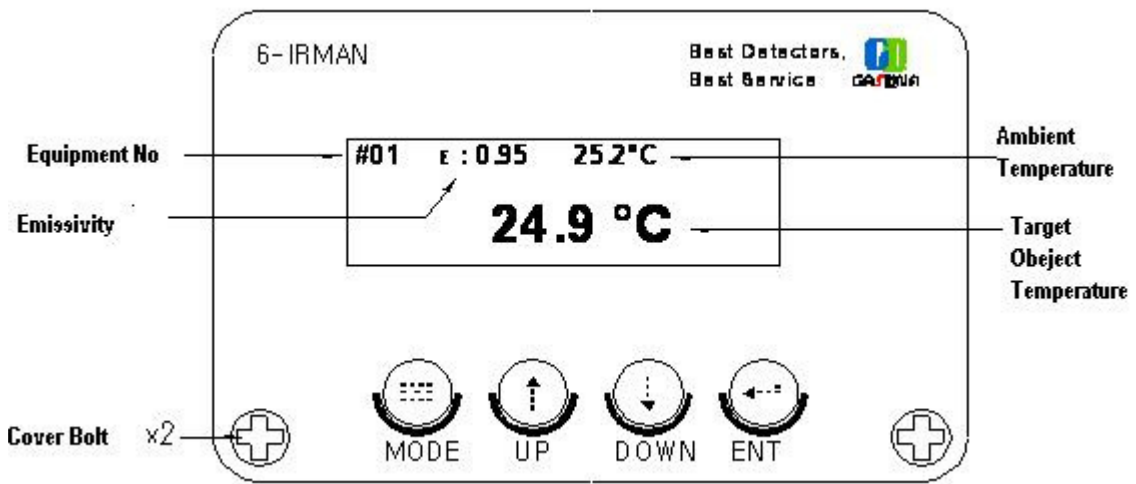
## 7. ELECTRICAL CONNECTION



No.	Printed Name	Usage
1	Power+	Power 24VDC(+)
2	Power-	Power 0V(-)

3	4~ 20mA	Analogue Signal Output (+)
4		Analogue Signal Output (- )
5	TX+	RS485 TX+
6	TX-	RS485 TX-
7	NO[ AL1]	Alarm #1 Relay Contact Terminal
8		
9	NO[ AL2]	Alarm #2 Relay Contact Terminal
10		

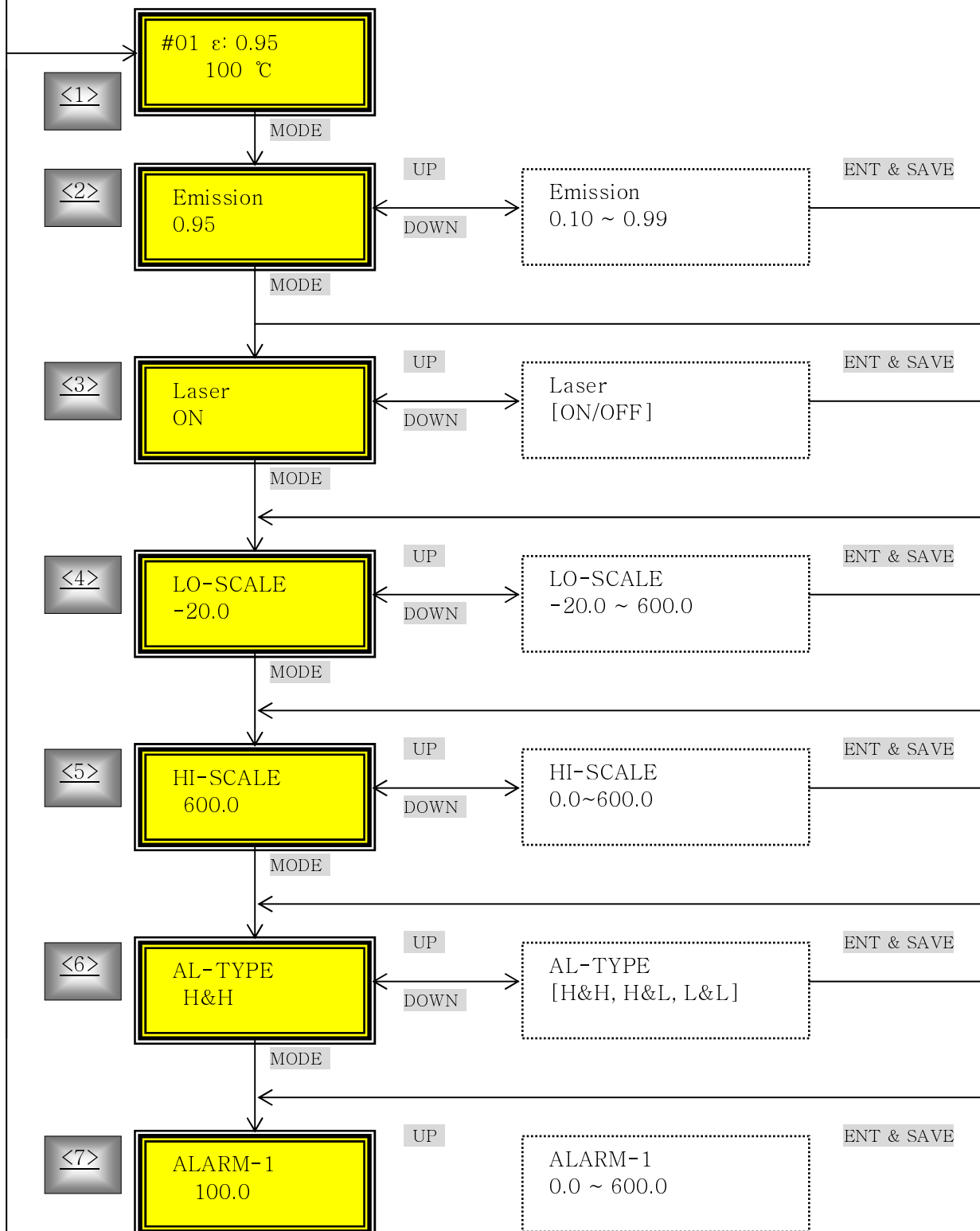
## 8. LCD DISPLAY & KEYPAD

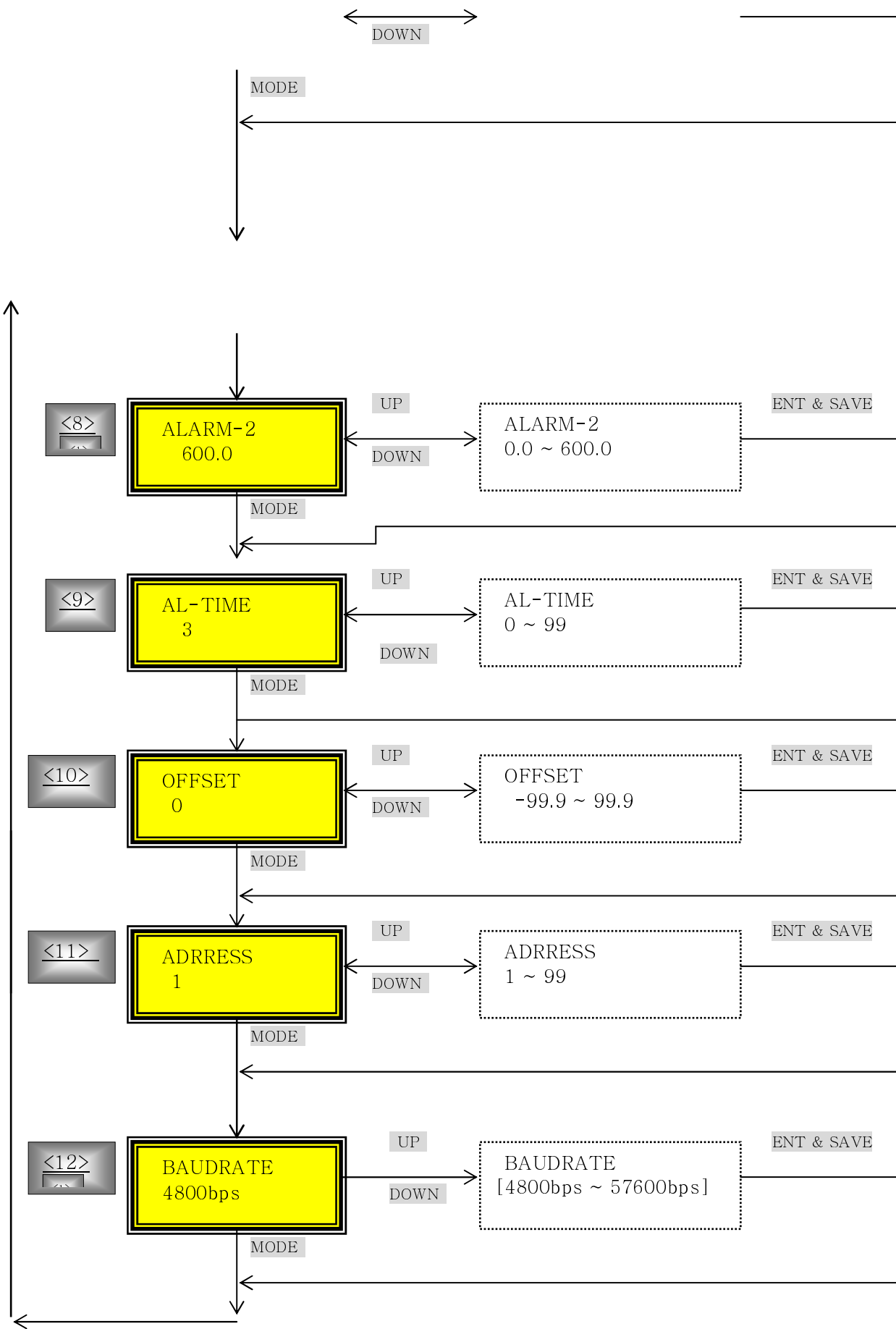


Label	Function
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<b>MODE</b>	- Enter into Set-up Mode. - In Set-up Mode, move the setting area.
<b>UP</b>	Increase the value of measuring range by 1 unit. ※ When you keep touching it during 5 sec, the value increases fast.
<b>DOWN</b>	Decrease the value of measuring range by 1 unit. ※ When you keep touching it during 5 sec, the value decreases fast.
<b>ENT</b>	Store the set value.

## 9. Menu (PARAMETERIZING)





<1> Measuring Mode

- Measure the temperature of object and display it on LCD in real time.
- When you push MODE during 2 seconds, you can enter into Set-up Mode.

<2> Adjust Emissivity

- When the surface of object is highly reflexible, you have to adjust the emissivity.
- You can adjust the emissivity rate from 0.10 to 0.99.

<3> Laser Pointer

- Operate Laser Pointer to aim at object.

<4> LO-SCALE

- 4mA for FULL SCALE

(ex) if you set LO-SCALE as 500:

4mA Analogue Output ----- 500 Display.

<5> HI-SCALE

- 20mA for FULL SCALE

(ex) If you set HI-SCALE as 100:

4mA Analogue Output ----- 0.0 Display.

12mA Analogue Output ----- 50.0 Display.

20mA Analogue Output ----- 100.0 Display

<6> AL-TYPE(ALARM-TYPE)

- 3 types of alarm settings - H&HH, H&L, or L&LL
- two(2) alarm relays – ALARM-1 & ALARM-2

ex) If you set H&L:

➔ ALARM-1: ALARM-1(If more than set value, relay on)

➔ ALARM-2: ALARM-2(If less than set value, relay on)

<7> ALARM-1

- ALARM-1 alarm relay output (according to ALARM TYPE, alarm on)

<8> ALARM-2

- ALARM-2 alarm relay output(according to ALARM TYPE, alarm on)

<9> AL-TIME(ALARM TIME)

- This menu is to prevent abrupt malfunction affected by shock or noise from outside.

<10> OFFSET(Compensate measured value)

- compensate the error of measured value which happened by sensor.

ex) OFFSET: If you set -5:

→ When the sensor output error is +5, display shows 0 after it compensates -5.

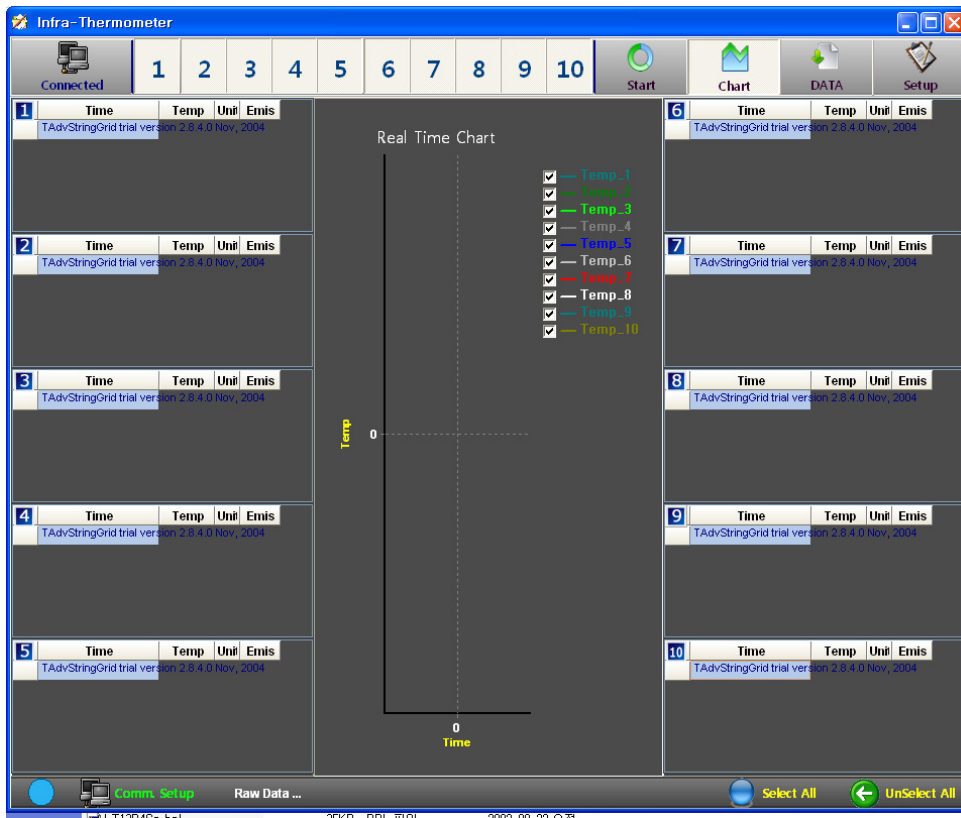
<11> ADDRESS

- RS-485 address set

<12> BAUDRATE

- RS-485 Baudrate set

## **10. Communication specification and Software**



The screenshot shows the 'Infra-Thermometer' software interface in the 'Setup' mode. The interface is divided into several sections for configuring the device:

- Model:** A list of models including 6irman, IR-21, IR-40, and IR-80.
- Communication Address:** Fields for 'Comm. ID' (set to 1) and 'Change ID' (set to 1), with 'Read' and 'Write' buttons.
- Communication Baudrate:** A dropdown menu set to '4800' baudrate, with 'Read' and 'Write' buttons.
- Laser:** A dropdown menu set to 'OFF', with 'Read' and 'Write' buttons.
- Data Request Time:** A numeric field set to '2.0' sec, with a 'Read' button.
- Ambient Temperature:** A numeric field set to '20' °C, with a 'Read' button.
- Emissivity:** A numeric field set to '0.95', with 'Read' and 'Write' buttons.
- Emissivity Set-Up:** A dropdown menu set to 'Rotary Switch', with 'Read' and 'Write' buttons.
- DB Save Temperature:** Fields for 'Low Temperature' (-60 °C) and 'High Temperature' (150 °C), with explanatory text: 'If lower than set temperature, shall be failed to save DB.' and 'If higher than set temperature, shall be failed to save DB.'.
- Alarm:** Fields for 'Low Alarm' (-60 °C) and 'High Alarm' (4000 °C), with explanatory text: 'If lower than set temperature, boundary line of low alarm on strip chart shall turn green.' and 'If higher than set temperature, boundary line of high alarm on strip chart shall turn red.'.

A 'Save' button is located at the bottom left of the configuration area.

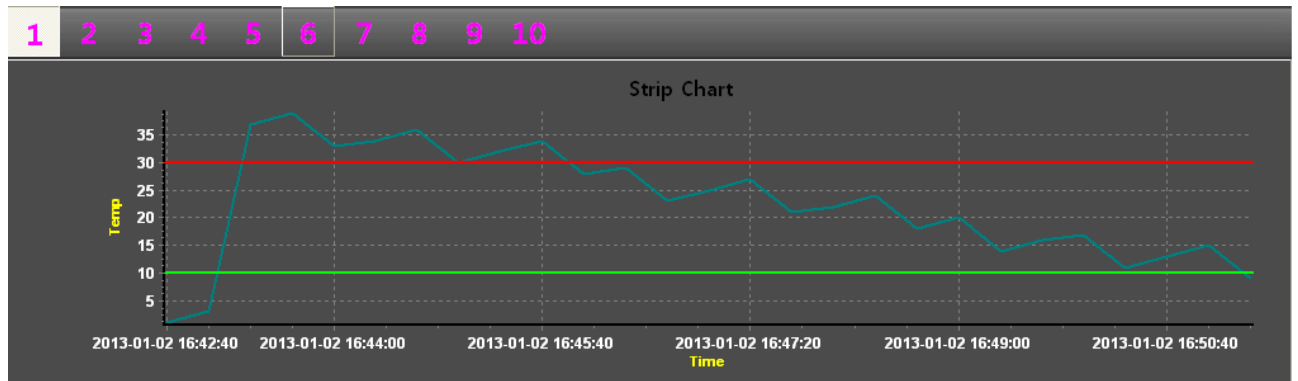
### Serial Interface(Initial value setting )

- Baud Rate: 4800, 9600 setting
- Data Request time: data reading speed setting
- Ambient temperature: Ambient Temperature
- Emissivity: Emissivity setting
- DB Save Temperature: storage temperature setting

Alarm: setting when you want to see temperature transition in detail by graph within measured temperature

range,

EX> Set low alarm to 10°C (Green) and Set High Alarm to 30°C (Red) for No 1 Thermometer as below.



♣ **Caution: After setting value, Please do not forget to press 'Save' button**

## 11. Option

<p>6-IRMAN-CF-10</p>	<p>D:S Unit:mm</p>
<p>6-IRMAN-CF-40</p>	<p>D:S Unit:mm</p>
<p>Air-purge</p>	

485 To RS232 converter	
Up and down adjustable Bracket	
Indicator (Model No. DI-20)	
2 Inch LED Display	

## 12. Emissivity Table

Material	Emissivity
Black body	0.95
Asphalt	0.90~0.98
Textiles, Fabric	0.98
Concrete	0.94
Ascon	0.95
Skin	0.98
Leather	0.75
Sand	0.90
Soil	0.92~0.96

Paint	0.8~0.95
Water	0.92~0.96
Ice	0.96~0.98
Rubber	0.94
Snow	0.83
Plastic	0.85~0.95
Wood	0.90
Ceramic	0.90~0.94
Glass	0.90~0.94
Marble	0.94
Chromic Oxide	0.78
Iron Oxide	0.78~0.82
Brick	0.93~0.96
Copper oxide	0.78
Mortar	0.89~0.91