

Non-Contact Infrared Temperature

IR - 80

Sensor / Transmitter



GASDNA Co.,Ltd 101, Bukhang-ro 193beon-gil, Seo-gu, Incheon, 22856, Republic of Korea
Tell: +82-32-584-7420 Fax: +82-32-584-7424 E-mail: sales@gasdna.com Web: www.gasdna.com

<http://www.gasdna.com>

1. FEATURES

IR-80 non-contact infrared thermometer measures the infrared wavelength emitted from the target and converts it to standard current signal output (4~20mA) and RS-485 communication signal output.

IR-80 is composed of sensor & controller. The measured temperature is displays on LCD of controller in realtime.

It can measure from 500℃ to maximum 1700℃ in the distance of 100:1 D:S (Distance to Spot). Emissivity is 0.10 ~ 0.99 adjustable. Two built-in laser pointers can aim at the target.

*Applications:



Aluminum, Chrome, Copper, Metal, Magnesium, Oxide-nickel, Platinum, Gold, Silver, Oxided-Titanium, Zin, Tin, Steel, Oxided-steel, Oxided-Brass

2. Ordering information

Code Number IR-80-□-□-□

MODEL	Description
IR-80	
Code A	Temperature Range
1	500~1500℃
2	800~2400℃
3	800~2200℃ (Silicon Sensor)
4	150~700℃ (Extend InGaAs 2.6μm)
5	75~400℃
Z	Other
Code B	OutPut
M	DC 0~20mA
N	DC 4~20mA
V	Voltage Output (DC 1~5V)
Z	Other
Code C	Cable Length
1	3M
Z	Other

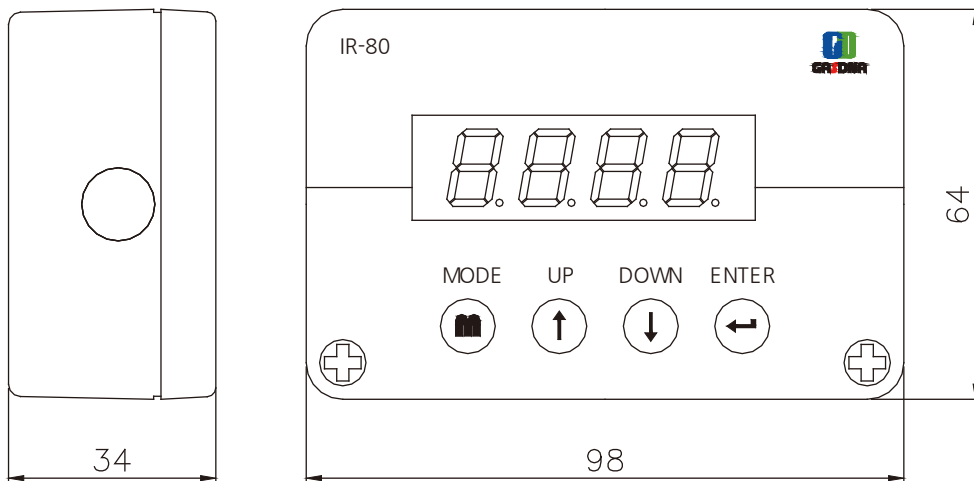
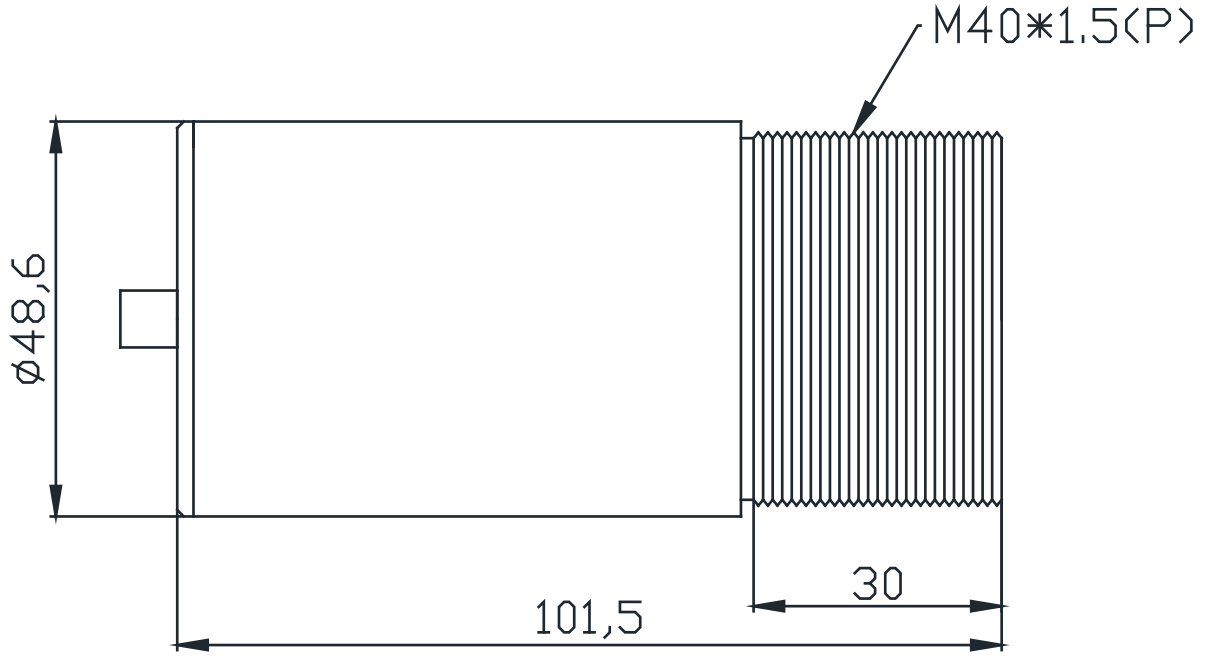
3. Accessories

Description	Shape	Usage	Remark
Fixing nut		Sensor fixing nut	Basic accessory
Mounting bracket		Sensor mounting bracket	Basic accessory

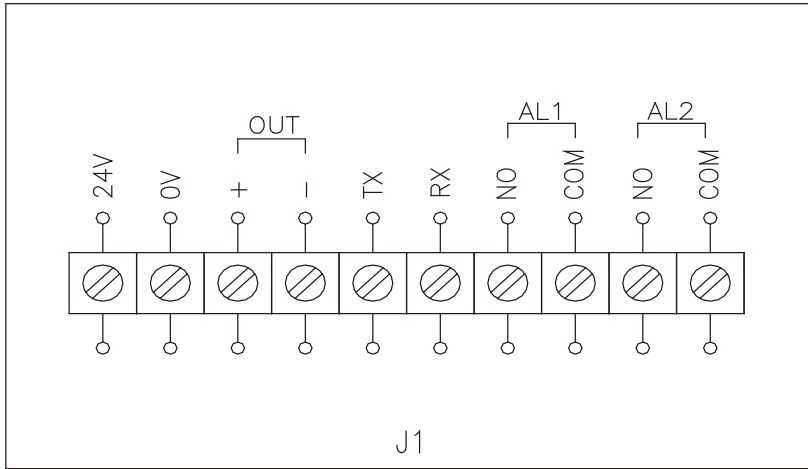
4. Specifications

segment	specifications	
Range	150~700℃	500~1700℃
Device	InGaAs, Silicon	
Accuracy	±1%/F.S or 1℃	
Repeatability	±1% of reading	
Field of view (D:S)	100:1	
Optical spectrum wave	0.85~1.1μm, 1~1.6μm, 2.0μm	
Responsive time	50msec below	
Emissivity rate	0.10~0.99	
Analog output	4~20mA	
communication output signal	RS-485	
Relay output	2 Step - Relay Contact (AL1, AL2)	
Power	DC 20~24V (Max 50mA)	
Ambient temperature	0~80℃	
Temperature Resolution	0.1℃	
Operating relative humidity	5~90%	
storage Ambient temperature	-30~85℃	
waterproof	IP65, NEMA4	
laser pointer	630~670nm(red)	
dimensions	Body Control : 98x64 Sensing Head : 27xØ10	
casting material	aluminium alloy	
weight	650g	
cable length	3m, other	

5. Dimension

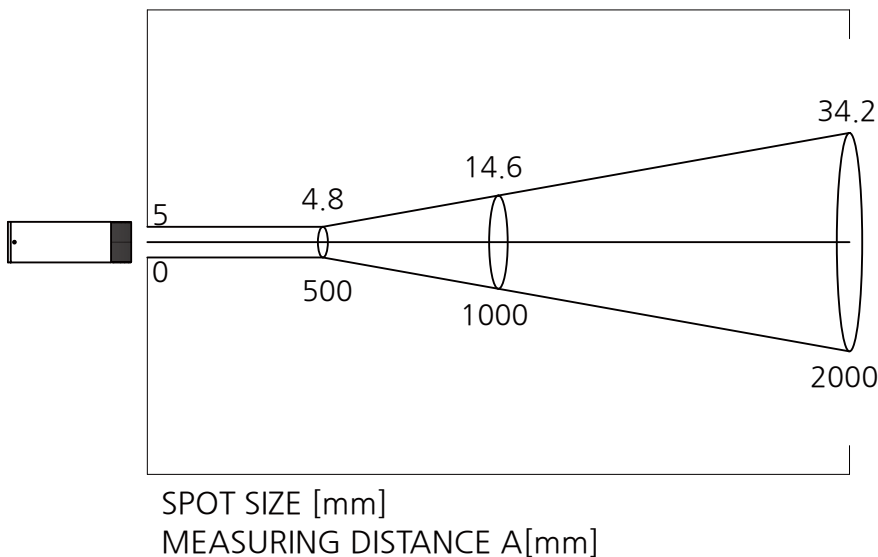


6. WIRING

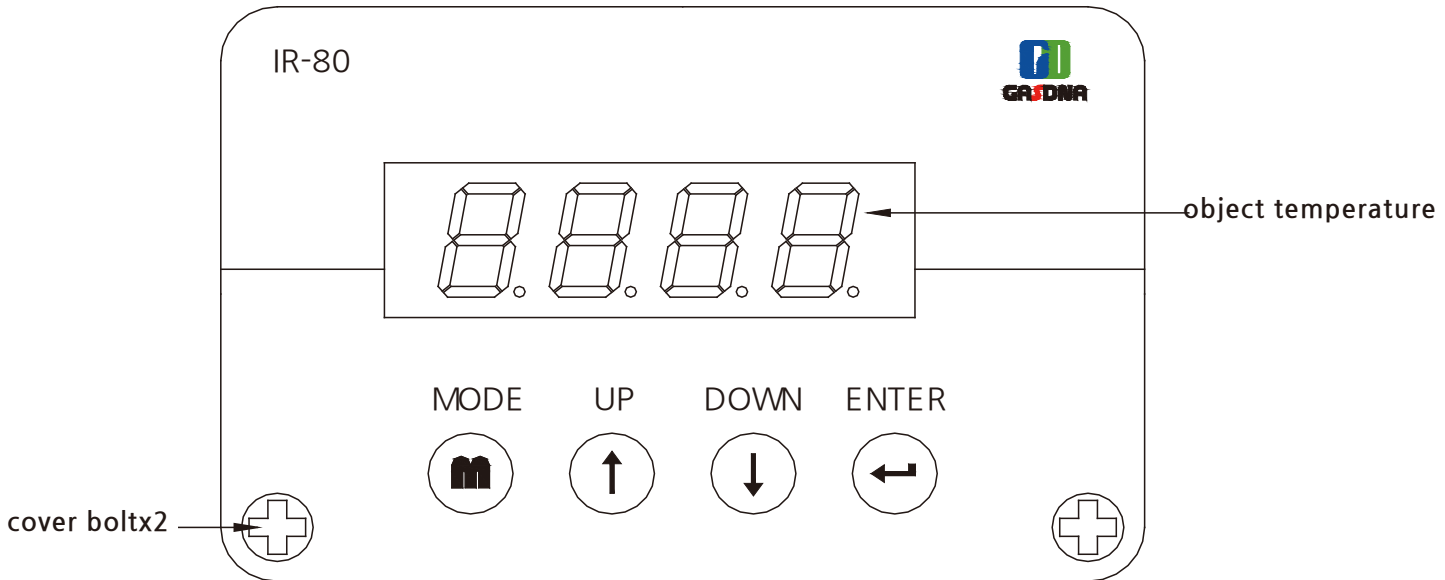


NO.	Letters	Usage
1	24V	Power 24V DC(+)
2	0V	Power 0V (-)
3	Out +	4~20mA Analog Output(+)
4	Out -	4~20mA Analog Output (-)
5	TX	RS485 TX+
6	RX	RS485 TX-
7	AL1 [NO/COM]	Alarm1 Relay Contact
8		
9	AL2 [NO/COM]	Alarm2 Relay Contact
10		

7. Optical Field of view (DS 100:1)

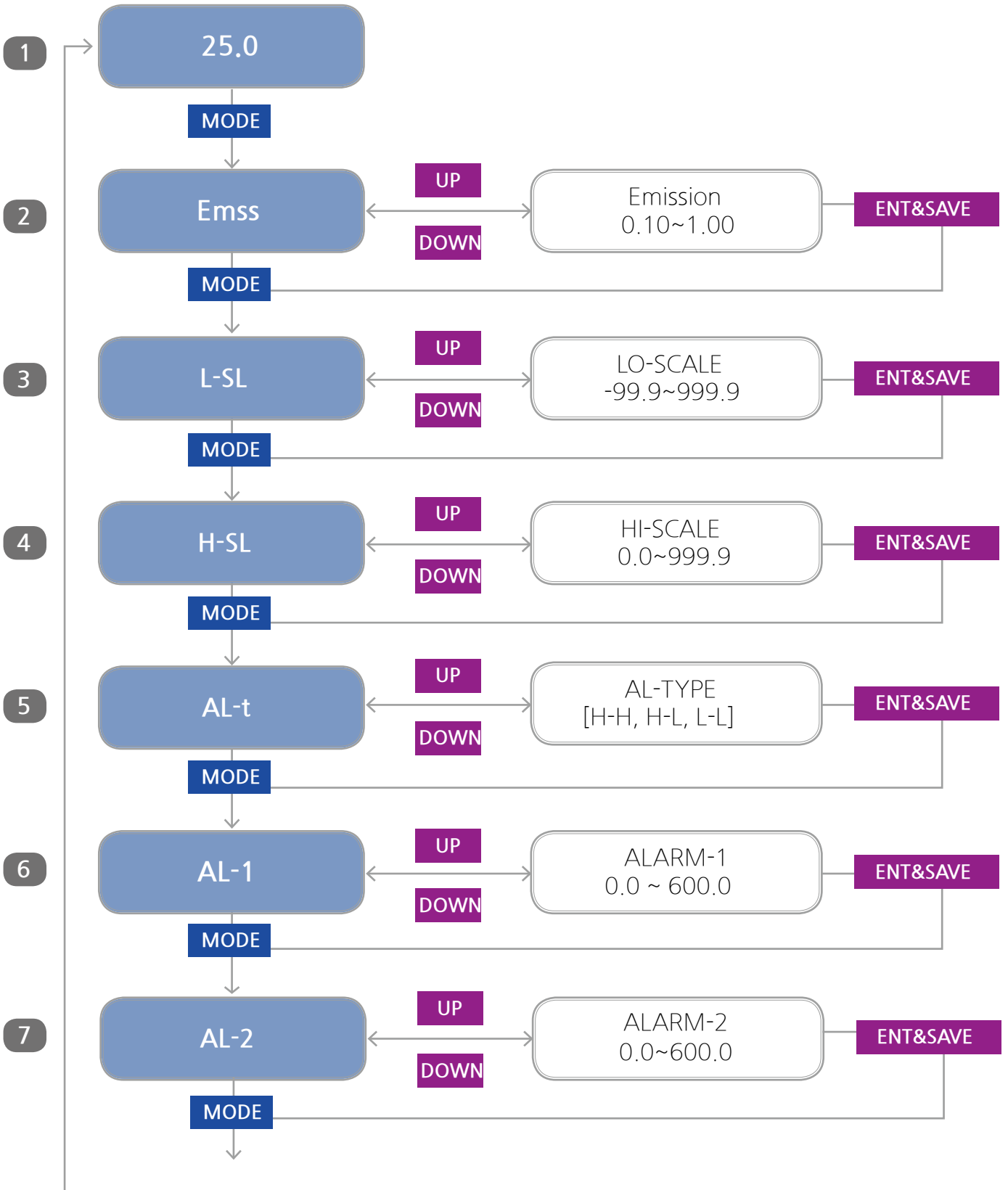


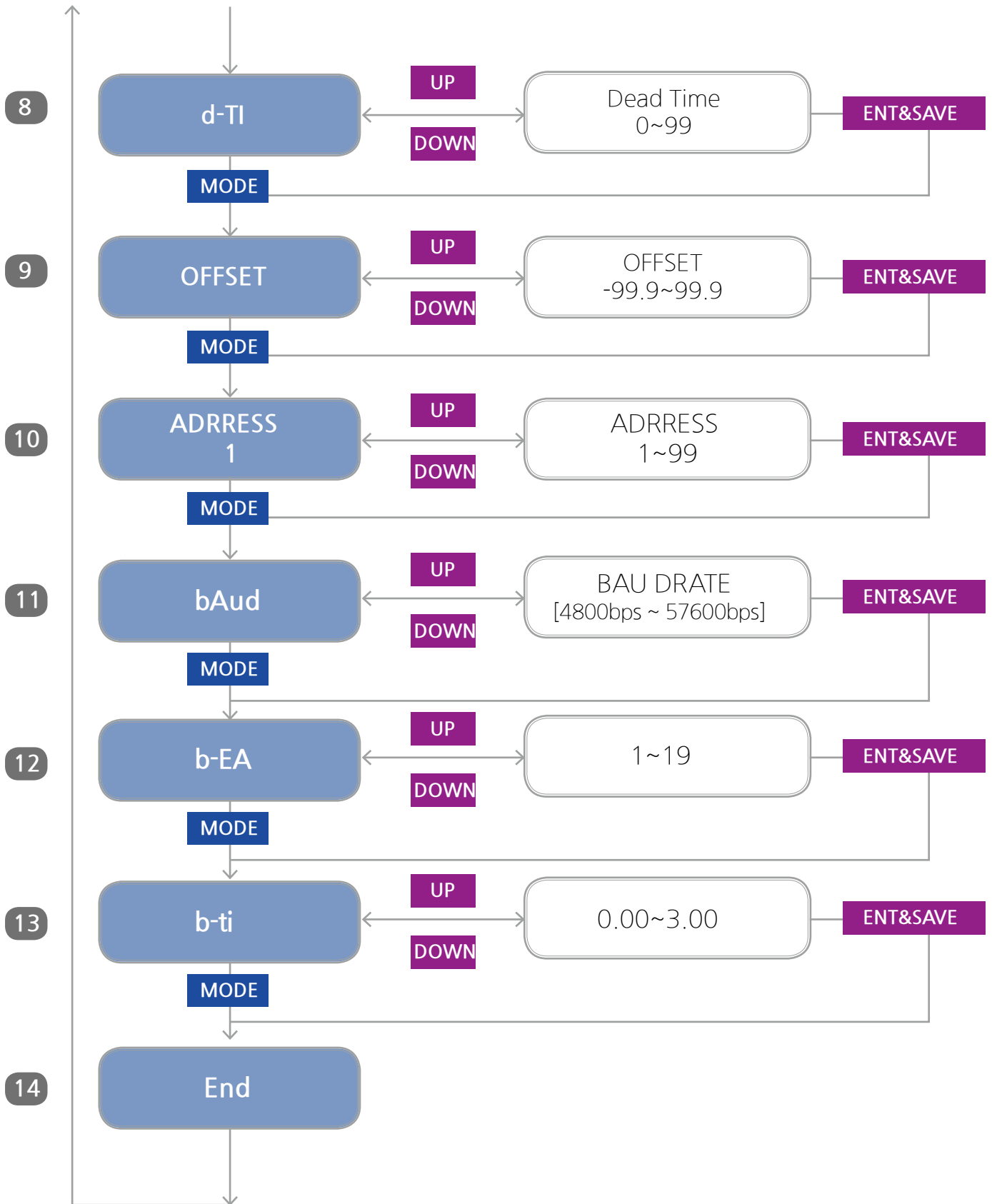
8. Controller overview



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

9. 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 Emission

- adjust Emission of objects

3 LO-SCALE

- 4mA for Full scale.

4 HI-SCALE

- 20mA for FULL SCALE
 - (ex) If you set HI-SCALE as 10.0:
- | | | |
|--------------------------|------|----------|
| 4mA Analog Output ----- | 0.0 | Display. |
| 12mA Analog Output ----- | 5.0 | Display. |
| 20mA Analog Output ----- | 10.0 | Display |

5 AL-TYPE(ALARM-TYPE)

- 3 types of alarm settings.(H-H,H-L,L-L)
- two (2) alarm relays Alarm-1,Alarm-2
- ex) If you set H&L
 - ALARM-1: HIGH ALARM
 - ALARM-2: LOW ALARM

6 ALARM-1

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

7 ALARM-2

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

8 AL-TIME(ALARM TIME)

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

9 OFFSET(Compensate measured value)

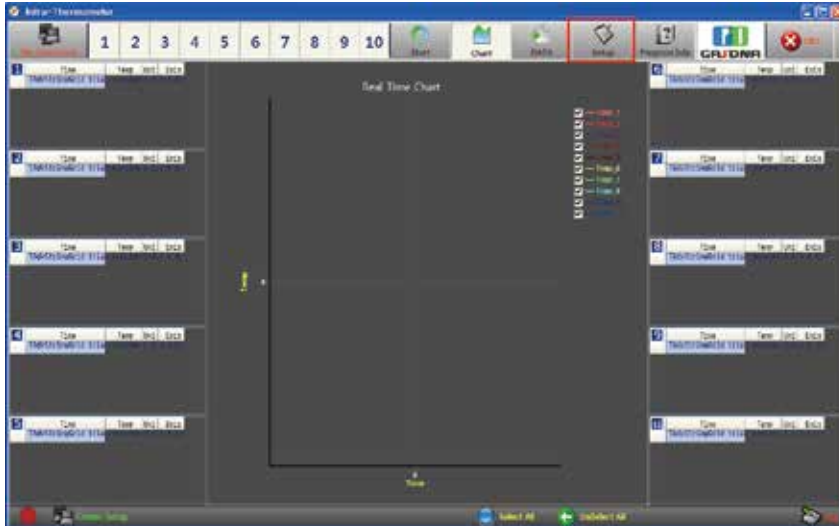
- compensate the error of measured value which happened by sensor.
- ex) OFFSET: If you set -5
 - > When the sensor output error is +5, display shows 0 after it compensates -5

10 ADDRESS

- RS-485

- 11 ▶ **BAUDRATE**
- 4,800 or 9,600 setting
- 12 **b-EA (sampling buffer numbers)**
- 1~19 range.
- 13 **b-tl (sampling delay time)**
- 0.00~3.00sec range.
- 14 **End**

10. communication specification and software.



11. option



indicator(DI-20)

12. Emissivity Table

Appendix A – Emissivity Table for Metals

Material		Typical Emissivity
Aluminium	Non oxidized	0,02-0,1
	Polished	0,02-0,1
	Roughened	0,1-0,3
	Oxidized	0,2-0,4
Brass	Polished	0,01-0,05
	Roughened	0,3
	Oxidized	0,5
Copper	Polished	0,03
	Roughened	0,05-0,1
	Oxidized	0,4-0,8
Chrome		0,02-0,2
Gold		0,01-0,1
Haynes	Alloy	0,3-0,8
Inconel	Electro polished	0,15
	Sandblast	0,3-0,6
	Oxidized	0,7-0,95
Iron	Non oxidized	0,05-0,2
	Rusted	0,5-0,7
	Oxidized	0,5-0,9
	Forged, blunt	0,9
Iron, casted	Non oxidized	0,2
	Oxidized	0,6-0,95
Lead	Polished	0,05-0,1
	Roughened	0,4
	Oxidized	0,2-0,6
Magnesium		0,02-0,1
Mercury		0,05-0,15
Molybdenum	Non oxidized	0,1
	Oxidized	0,2-0,6
Monel (Ni-Cu)		0,1-0,14
Nickel	Electrolytic	0,05-0,15
	Oxidized	0,2-0,5
Platinum	Black	0,9
Silver		0,02
Steel	Polished plate	0,1
	Rustless	0,1-0,8
	Heavy plate	0,4-0,6
	Cold-rolled	0,7-0,9
	Oxidized	0,7-0,9
Tin	Non oxidized	0,05
Titanium	Polished	0,05-0,2
	Oxidized	0,5-0,6
Wolfram	Polished	0,03-0,1
Zinc	Polished	0,02
	Oxidized	0,1

Appendix B – Emissivity Table for Non Metals

Material		Typical Emissivity
Asbestos		0,95
Asphalt		0,95
Basalt		0,7
Carbon	Non oxidized Graphite	0,8-0,9 0,7-0,8
Carborundum		0,9
Ceramic		0,95
Concrete		0,95
Glass		0,85
Grit		0,95
Gypsum		0,8-0,95
Ice		0,98
Limestone		0,98
Paint	Non alkaline	0,9-0,95
Paper	Any color	0,95
Plastic >50µm	Non transparent	0,95
Rubber		0,95
Sand		0,9
Snow		0,9
Soil		0,9-0,98
Textiles		0,95
Water		0,93
Wood	Natural	0,9-0,95