

SenseLive Edge8000

Wireless Busbar Surface Temperature Monitoring System



OVERVIEW

The SenseLive Wireless Busbar Surface Temperature Monitoring System integrates three components into a single, modular solution:

- **Edge8000 Controller:** 96×96×17 mm panel-mount wireless temperature controller with RS-485 Modbus-RTU output and relay alarms.
- **SenseBT222 Sensor:** Strap-secured, battery-powered temperature sensor (–50 °C to 125 °C, ±1 °C) communicating at 470 MHz.
- **SenseCT222 Sensor:** Alloy-clip, CT-powered temperature sensor (–50 °C to 125 °C, ±1 °C) on the same wireless link.

A single Edge8000 can receive data from up to 60 combined BT/CT sensors, providing local display, digital inputs, relay outputs, and Modbus-RTU on RS-485 for SCADA integration.

KEY HIGHLIGHTS

- ▶ **Prevent Overheating & Failures:** Detects hot-spots to avoid insulation damage, arc-flash, and unplanned outages.
- ▶ **Predictive Maintenance:** Real-time alerts and historical trends enable timely interventions.
- ▶ **Safety & Compliance:** Meets NB/T 42086-2016 wireless temp measurement standards; aids IEC 61439, IEEE 1584 compliance.
- ▶ **Energy Efficiency:** Optimizes load distribution by maintaining optimal busbar temperature.

APPLICATIONS

1 SWITCHGEAR & ELECTRICAL PANELS

- Monitor busbar joints, breaker connections and feeder terminations.



Prevents overheating, insulation failure and electrical fires.

2 TRANSFORMER TERMINATION MONITORING

- Monitor HT/LT terminations and bushing connections.



Detect loose connections and prevent transformer failures.

3 MCC & MOTOR FEEDERS

- Monitor motor feeder terminals, contactors and high-current connections.



Predict failures, reduce unplanned shutdowns and ensure continuity.

4 SOLAR & RENEWABLE PLANTS

- Monitor DC combiner boxes, inverters and AC panels.



Ensure system reliability and prevent overheating due to high current.

5 SUBSTATION & POWER DISTRIBUTION

- Monitor bus coupler, incomer and feeder connections in substations.



Continuous thermal monitoring for safe and reliable power distribution.

6 DATA CENTERS & CRITICAL POWER

- Monitor busbar trunking, UPS and power distribution units.



Ensures 24x7 power reliability and prevents critical power failures.

7 INDUSTRIAL PREDICTIVE MAINTENANCE

- Early detection of thermal issues for condition-based maintenance.

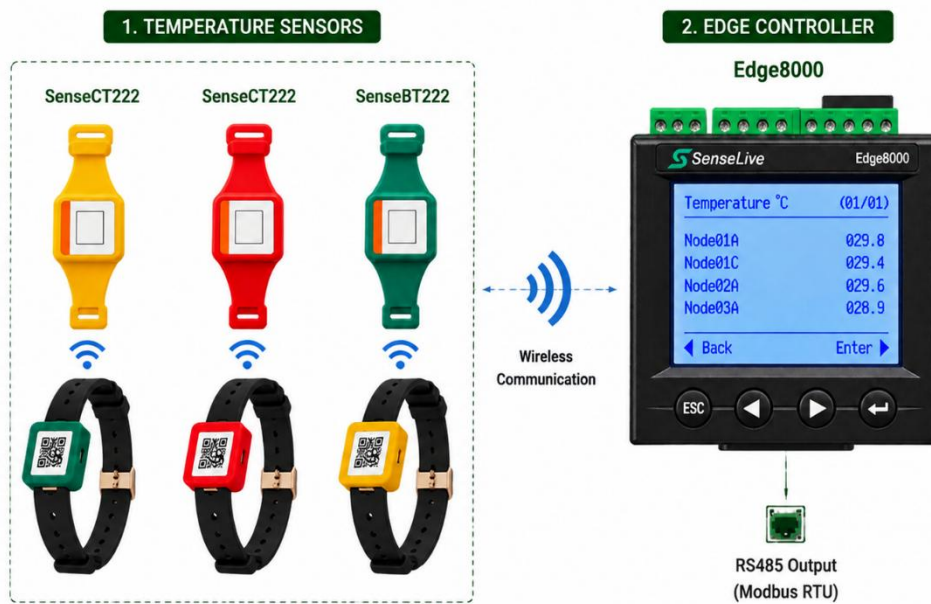


Improve equipment life, reduce maintenance cost and increase productivity.

KEY BENEFITS

- Real-time temperature monitoring of critical electrical connections
- Early warning & instant alerts on overheating
- Enhances safety and prevents fire hazards
- Data-driven insights for better decision making
- Lower downtime, maintenance cost & longer asset life

FUNCTIONAL BLOCK DIAGRAM



Technical Specification

GENERAL

Model Number	Edge8000
Product Type	Controller
Enclosure	ABS / Polycarbonate, IP20 (IP65 optional)
Rating Input	Wiring mode 3p3l or 3P4L, Voltage 100V, Current 5A, Frequency 50Hz
Mounting	Pannel Mount
Accuracy Rating	Current & Votage 0.5 classs, Active ower 0.5 Class, Energy 0.5 Classs
Installation Location	Electrical Panels, Switchgear, MCC Panels, Control Panels

POWER

Input Voltage	230V AC
Power Consumption	≤ 8 W (typical)
Protection	Reverse polarity, over-voltage, surge

COMMUNICATION

Wireless	Wireless Communication
Supported Sensors	SenseBT222 / SenseCT222
Communication Range	40 Meter
Antenna	470 MHz
Wired Communication	RS485, Modbus RTU
Input channel	4 × Digital Inputs (auxiliary breaker contacts; opto isolated; DI= “1” when closed)
Relay Outputs	2 channel DO's; valid only when Node Enable=ON)

ENVIRONMENTAL

Operating Temp.	−10 °C to +55 °C
Humidity	≤95%
Atmosperic pressure	86kPa-106kPa

ACTIVE WIRELESS TEMPERATURE SENSOR

Wireless frequency	470MHz
Communication distance	40 Meter
Sampling frequency	25 sec
Transmitting frequency	25s~5min

PASSIVE WIRELESS TEMPERATURE SENSOR

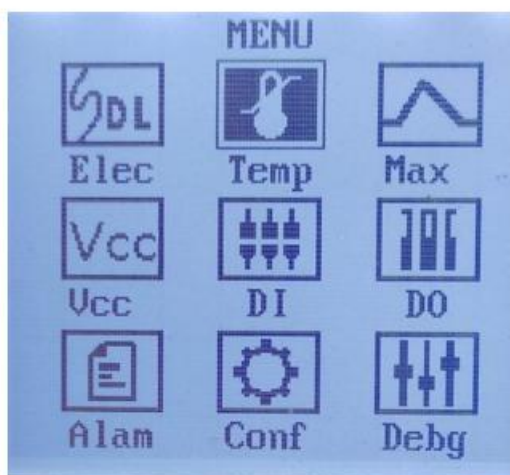
Wireless frequency	470MHz
Communication distance	150m in an open area
Sampling frequency	15s
Sampling frequency	15s
Transmission frequency	15s
Power source	CT-powered, starting current≥5A

MECHANICAL	
Dimensions (L×W×H)	94x 96 x 17mm
Weight	≈ 500 g
Indicators	Power, Network, Data LEDs
COMPLIANCE	
Certifications	CE, FCC, RoHS, BIS (where applicable)
Warranty	12 months from invoice date(Only on manufacturing defect)

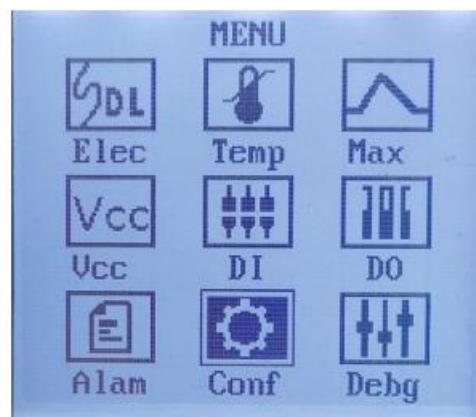
Parameter Configuration

1. Temperature Configuration:-

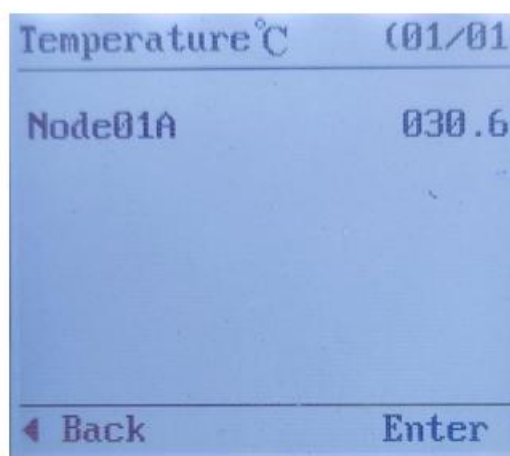
There are some steps to configuration Temperature.



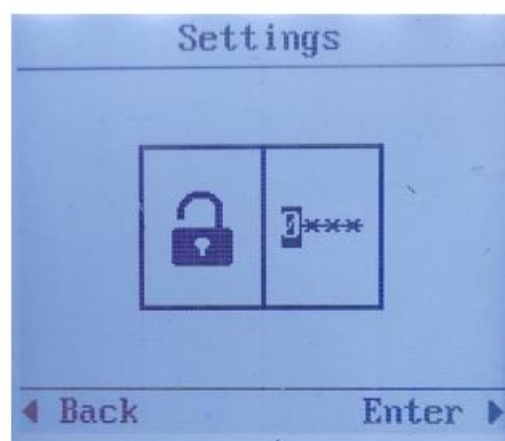
Step 1. select temp.



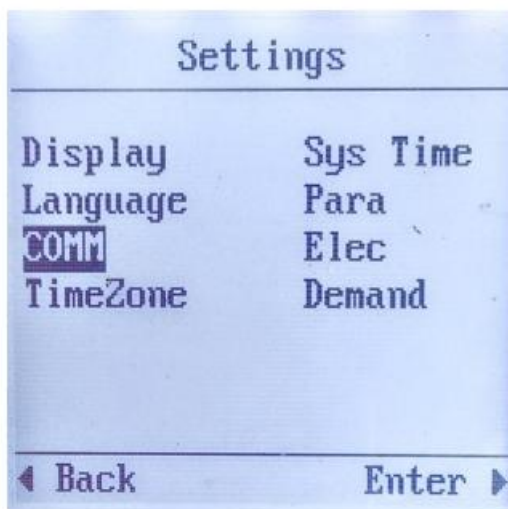
Step 3. Select config.



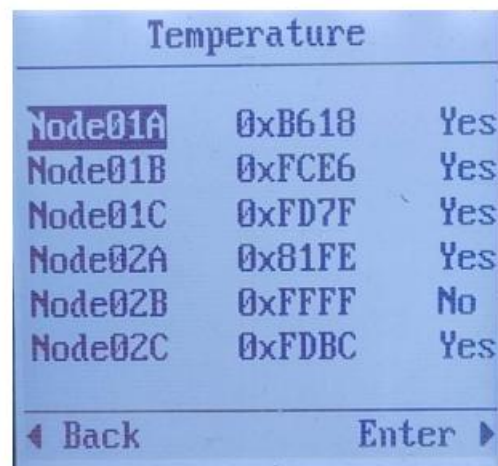
Step 2. Node status



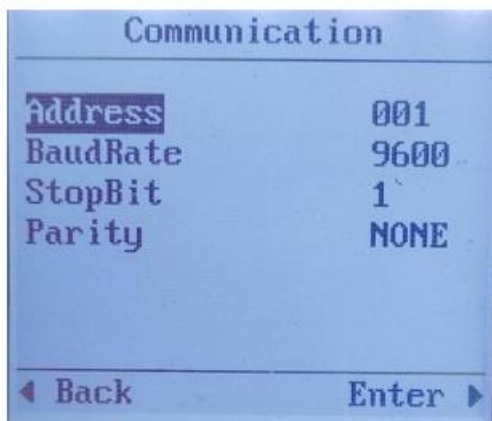
Step 4. Enter password (0008).



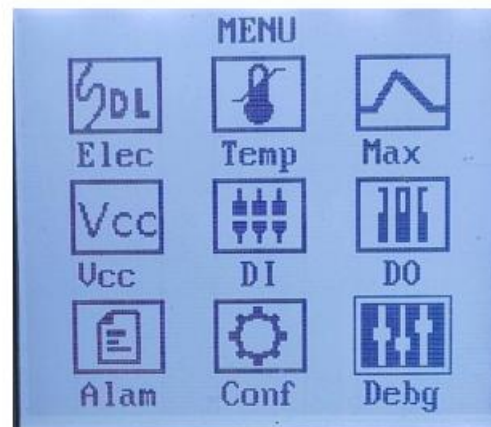
Step 5. select comm and enter.



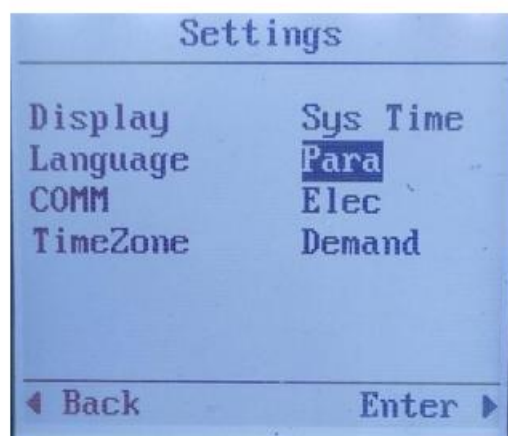
Step 8. click config.



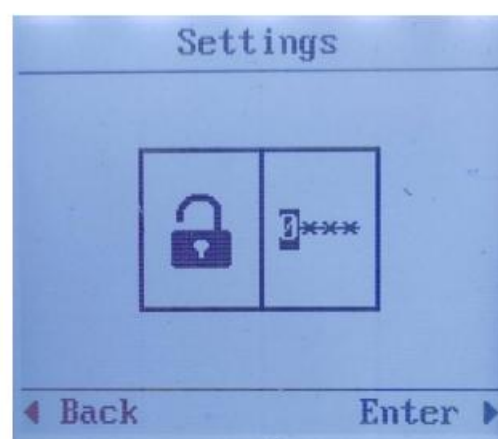
Step 6. Parameters.



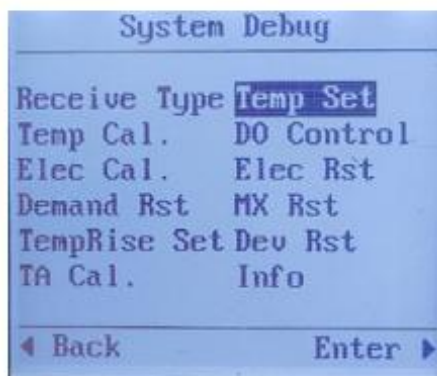
Step 9. click config.



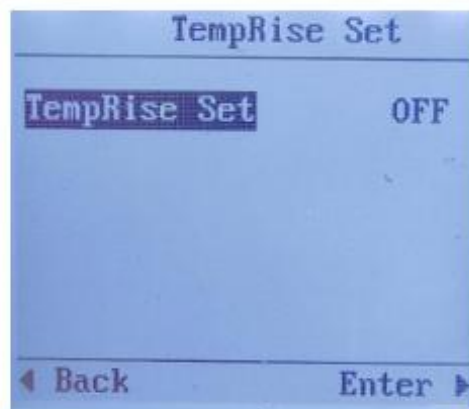
Step 7. select para and enter.



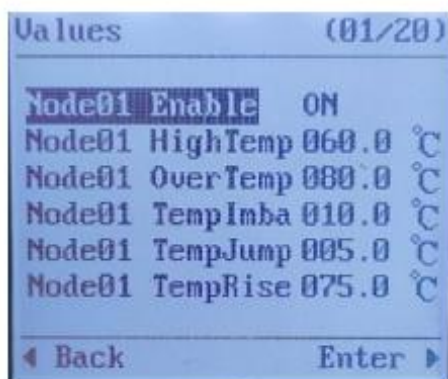
Step 10. Enter password.



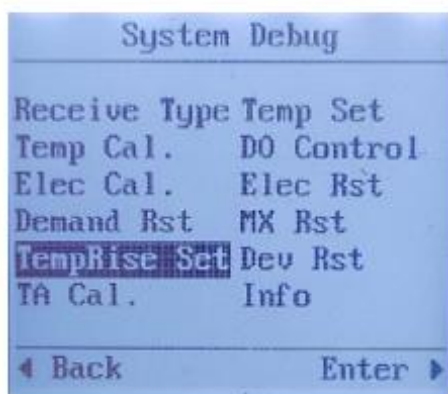
Step 11. select Temp set.



Step 14.



Step 12. click Node01 enable and enter



Step 13. Node status.

1. Modscan Testing:-

- After completing the hardware connection and configuration we need to test it using ModScan.
- If the output appears on ModScan, it means the connection is correct; if not, it means the connection was not established properly.
- Go to modscan click on connection. Set a parameters as per fig 2.

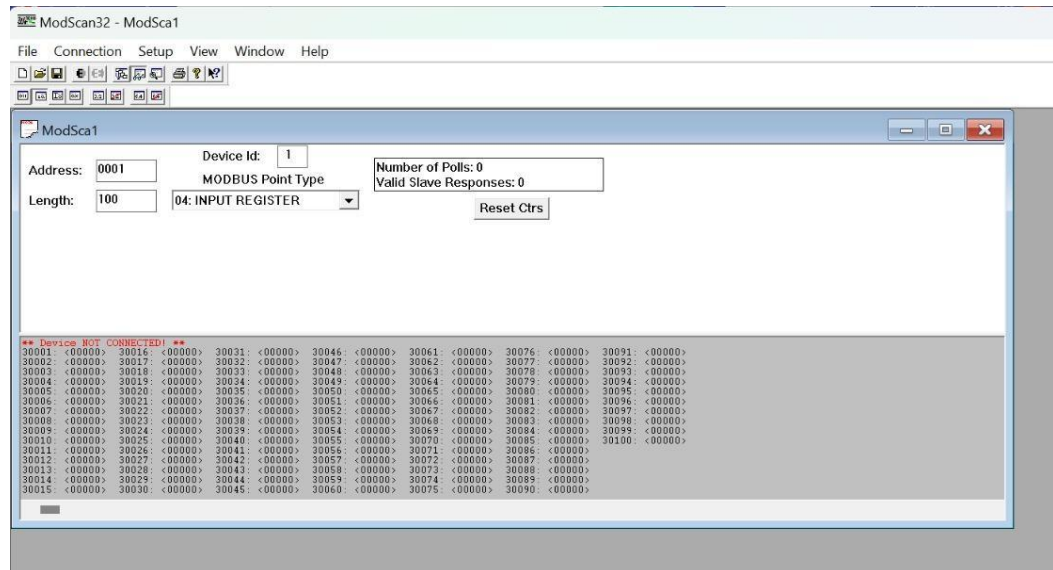
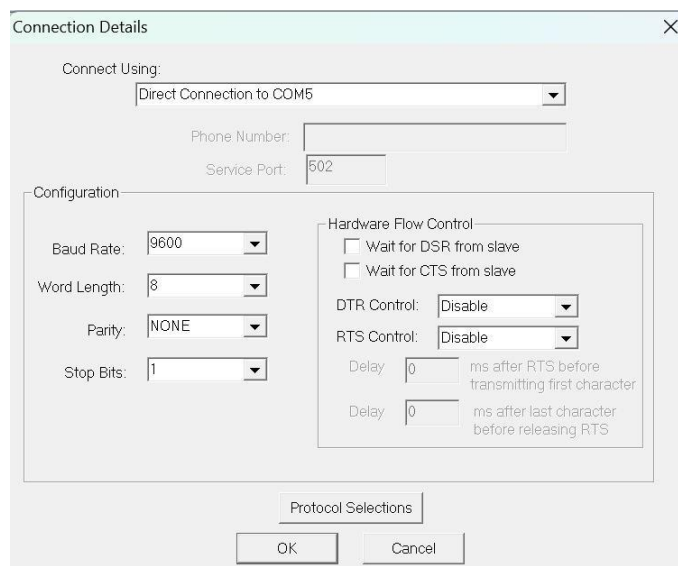


Fig.1



2. DI configuration:-

- The device provides 4 digital inputs, that can connect to the auxiliary contact of the breaker.
- The device works after the power is on. If the digital input contact is closed, the DI is “1” on the DI Status interface.
- When the digital input contact is open, the DI is “0” on the DI Status interface.

3. Relay configuration:-

Relay output includes sensor group 1 high temperature, sensor group 1 over temperature, sensor group 2 high temperature, sensor group 2 over temperature, sensor group 3 high temperature, sensor group 3 over temperature, sensor group 4 high temperature, sensor group 4 over temperature, sensor group 5 high temperature, sensor group 5 over temperature, sensor group 6 high temperature, sensor group 6 over temperature. The high-temperature alarm is the first relay output, and the over-temperature alarm is the second relay output.

➤ Notice: it is valid only when the “Node Enable” of the sensor group is “ON”!

4. Wireless Receiver:-

Set the high-temperature values and over-temperature values of wireless temperature sensor groups. When measured temperature values exceed the setting values, the relay output contact will be closed.

5. RS485 communication

- **Read State (Function code 02H):-**

For example, the master send the data frame:

		Register Addr	Register Count	CRC16
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		Hi	Lo	Hi	Lo	Hi	Lo
01H	02H	00H	00H	00H	30H	78H	1EH

Slave answer data frame:

Addr	Fun	Byte count	Data 1		Data 2		Data 3		CRC16	
			Hi	Lo	Hi	Lo	Hi	Lo	Hi	Lo
01H	02H	06H	00H	00H	00H	00H	00H	FCH	E0H	F8H

- Read Data (Function code 03H/04H):-

For example, master send data frame:

Addr	Fun	Register Addr		Register Count		CRC16	
		Hi	Lo	Hi	Lo	Hi	Lo
01H	03H	00H	30H	00H	03H	05H	C4H

Slave answer data frame:-

Addr		Fun	Byte count	Data 1		Data 2		Data 3		CRC16	
				Hi	Lo	Hi	Lo	Hi	Lo	Hi	Lo
01H		02H	06H	00H	00H	00H	00H	00H	00H	21H	75H

- Preset Single Register (Function code 06H):-**

For example, the master send the data frame:-

Addr	Fun	Register Addr		Value		CRC16	
		Hi	Lo	Hi	Lo	Hi	Lo
01H	06H	00H	03H	03H	E8H	74H	79H

Slave answer data frame:-

Addr	Fun	Register Addr		Value		CRC16	
		Hi	Lo	Hi	Lo	Hi	Lo
01H	06H	00H	03H	03H	E8H	74H	79H

- **Preset Multi Registers (Function code 10H):-**

For example, the master sends the data frame:-

Addr	Fun	Register Addr		Register Count		Byte Count	Value 1		Value 2		CRC16	
		Hi	Lo	Hi	Lo		Hi	Lo	Hi	Lo	Hi	Lo
01H	10H	00H	03H	00H	02H	04H	00H	28H	00H	64H	59H	32H

Slave answer data frame:-

Addr	Fun	Register Addr		Register Count		CRC16	
		Hi	Lo	Hi	Lo	Hi	Lo
01H	10H	00H	03H	00H	02H	B1H	C8H

6. Parameter Address Table:-

Sensor Code (controller Code)	Address
Node-1A	57
Node-1B	58
Node-1C	59

Node-2A	60
Node-2B	61
Node-2C	62
Node-3A	63
Node-3B	64

Node-3C	65
Node-4A	66
Node-4B	67
Node-4C	68
Node-5A	69
Node-5B	70
Node-5C	71

Node-15A	99
Node-15B	100
Node-15C	101
Node-16A	102
Node-16B	103
Node-16C	104
Node-17A	105

Node-6A	72
Node-6B	73
Node-6C	74
Node-7A	75
Node-7B	76
Node-7C	77
Node-8A	78
Node-8B	79
Node-8C	80
Node-9A	81
Node-9B	82
Node-9C	83
Node-10A	84
Node-10B	85
Node-10C	86
Node-11A	87
Node-11B	88
Node-11C	89
Node-12A	90
Node-12B	91
Node-12C	92
Node-13A	93
Node-13B	94
Node-13C	95
Node-14A	96
Node-14B	97
Node-14C	98

Node-17B	106
Node-17C	107
Node-18A	108
Node-18B	109
Node-18C	110
Node-19A	111
Node-19B	112
Node-19C	113
Node-20A	114
Node-20B	115
Node-20C	116

Address	Parameter	Attribute	Range	Data type
10001~10002	Relay Output	R	D01, D02	bit*2
10003~10006	Digital Input	R	DI1, DI2, DI3, DI4	bit*4
10007~10066	High temperature	R	0-normal, 1-alarm, Node1A~Node 20C high temperature	bit*60
10067~10126	Over temperature	R	0-normal, 1-alarm, Node1A~Node 20C over temperature	bit*60

10127~ 10146	Node Enable	R	0-OFF, 1-ON, Node 1~Node 20 enable for relay output alarm	bit*20
10147~ 10152	Reserved	R	Reserved for filling full byte	bit*6
30001	Address	R/W	001-247	Word
30002	Baud rate	R/W	2400、4800、9600、19200	Word
30003	Backlight time	R/W	000-999s, 000 is for lighting on all the time	Word
30004	cycling time	R/W	000-999s, 000 is for normal display	Word
30005	Relay Output	R/W	bit0~bit1: high temperature alarm, over temperature alarm	word
30006	Digital Input	R	bit0-bit3: DI1-DI4。	Word
30007	High temperature Alarm state 1	R	0-normal, 1-alarm. bit0~bit14: Node1A~Node 5C high temperature	Word
30008	High temperature Alarm state 2	R	0-normal, 1-alarm. bit0~bit14: Node6A~Node	Word
			10C high temperature	
30009	High temperature Alarm state 3	R	0-normal, 1-alarm. bit0~bit14: Node11A~Node 15C high temperature	Word
30010	High temperature Alarm state 4	R	0-normal, 1-alarm. bit0~bit14: Node16A~Node 20C high temperature	Word
30011	Over temperature Alarm state 1	R	0-normal, 1-alarm. bit0~bit14: Node1A~Node 5C over temperature	Word

30012	Over temperature Alarm state 2	R	0-normal, 1-alarm. bit0~bit14: Node6A~Node 10C over temperature	Word
30013	Over temperature Alarm state 3	R	0-normal, 1-alarm. bit0~bit14: Node11A~Node 15C over temperature	Word
30014	Over temperature Alarm state 4	R	0-normal, 1-alarm.bit0~bit14: Node16A~Node 20C over temperature	Word
30015	Node Enable 1	R/W	Node enable for relay output alarm: 0-OFF, 1-ON; bit0~bit9: Node 1~Node 10.	Word
30016	Node Enable 2	R/W	Node enable for relay output alarm: 0-OFF, 1-ON; bit0~bit5: Node 11~Node 20.	Word
30017 ~30056	Wireless temperature sensor alarm temperature value	R/W	Alarm temperature value: Node1 HighTemp, Node1 OverTemp ~ Node20 OverTemp, Node20 OverTemp, default: HighTemp 60.0, OverTemp 80.0; Range: 0~125.0 (×10)	Word*4 0
30057~ 30116	Wireless temperature sensor value	R	Node temperature value: Node1A~Node20C; range: 0~125.0 (×10)	Word*6 0
30117[4]	Ambient temperature	R	Ambient temperature: ATC300 ambient temperature value; Range: -50~85.0 (×10)	Word
30118~			Time : year, month, day, hour, minutes, second, millisecond; Range: year 2000~2050, other parameters are normal	

30124[5]	Time parameter	R/W		Word*7
30125[6]	Compare temperature Alarm state 1	R	0-normal, 1-alarm. bit0~bit14: Node1A~Node 5C compare temperature	Word
30126[6]	Compare temperature Alarm state 2	R	0-normal, 1-alarm. bit0~bit14: Node6A~Node 10C compare temperature	Word
30127[6]	Compare temperature Alarm state 3	R	0-normal, 1-alarm. bit0~bit14: Node11A~Node 15C compare temperature	Word
30128[6]	High temperature Alarm state 4	R	0-normal, 1-alarm. bit0~bit14: Node16A~Node 20C compare temperature	Word
30129~ 30148[6]	Wireless temperature sensor alarm temperature value	R/W	Alarm temperature value: Node1 Compare Temp~ Node20 Compare Temp, default: High Temp 10.0,	Word*20
30149~ 30208	ID Wireless temperature sensor ID	R	Node1A~Node20C wireless temperature sensor ID, in hexadecimal number	Word*60
30209- 30210[7]	Phase voltage	R	Primary Side:0.0~99999999.99KV (V) [8]	Float
30211- 30212[7]	Phase voltage	R	Primary Side:0.0~99999999.99KV(V) [8]	Float

30213- 30214[7]	Phase voltage	R	Primary Side:0.0~99999999.99KV (V) [8]	Float
30215- 30216[7]	Line voltage UAB	R	Primary Side:0.0~99999999.99KV(V) [8]	Float
30217- 30218[7]	Line voltage UAB	R	Primary Side:0.0~99999999.99KV (V) [8]	Float
30219- 30220[7]	Line voltage UCA	R	Primary Side:0.0~99999999.99 KV(V) [8]	Float
30221- 30222[7]	Ia	R	Primary Side:0.0~99999999.99	Float
30223- 30224[7]	Ib	R	Primary Side:0.0~99999999.99	Float
30225- 30226[7]	Ic	R	Primary Side:0.0~99999999.99	Float
30227- 30228[7]	PA	R	0.0~99999999.99KW(W)[8]	Float
30229- 30230[7]	PB	R	0.0~99999999.99KW(W)[8]	Float
30231- 30232[7]	PC	R	0.0~99999999.99KW(W)[8]	Float
30233- 30234[7]	P P total	R	0.0~99999999.99KW(W)[8]	Float

30235- 30236[7]	QA	R	0.0~99999999.99Kvar(var)[8]	Float
30237- 30238[7]	QB	R	0.0~99999999.99Kvar(var)[8]	Float
30239- 30240[7]	QC	R	0.0~99999999.99Kvar(var)[8]	Float
30241- 30242[7]	Q Q total	R	0.0~99999999.99Kvar(var)[8]	Float
30243- 30244[7]	PFA	R	0.0~1.0	Float
30245- 30246[7]	PFB	R	0.0~1.0	Float
30247- 30248[7]	PFC	R	0.0~1.0	Float
30249- 30250[7]	PF PF total	R	0.0~1.0	Float
30251- 30252[7]	SA	R	0.0~99999999.99KVA(VA)[8]	Float
30253- 30254[7]	SB	R	0.0~99999999.99KVA(VA)[8]	Float
30255- 30256[7]	SC	R	0.0~99999999.99KVA(VA)[8]	Float

30257- 30258[7]	S S total	R	0.0~999999999.99KVA(VA)[8]	Float
30259- 30260[7]	Frequency Freq	R	45.0~65.0	Float
30261- 30262[7]	Electrical energy (Hi16)	R	0.0~999999999.99KWh	Float
30263[7]	Electric unit set	R/W	Electric unit setting : 0-KV,1-V	Word
30264[7]	Line mode set	R/W	Electric unit setting : 0-3P3W,1-3P4W	Word

1. Installation:-

SenseLive SenseCT-222 Work-site Application



● Installed on Cable Joint of GCK Drawer



● Installed on Copper Busbar of Switchgear

SenseLive SenseBT-222 Work-site Application



● Installed on Cable Joint of GCK Drawer



● Installed on Copper Busbar of Switchgear



● Installed on Arm of Moving Contact



● Installed on Fixed Contact of Circuit Breaker