Z-Wave Heating Thermostat

ROB_100-040-0

Z-Wave PLUS CE RoHS COMPLIANT

Important: *Read All Instructions Prior to Installation*

Function introduction

LED Display

Home Interface

TIME/SHIFT button, to set time schedule of the device quickly and move the cursor

Function button, to confirm, save setting

Move up and move down buttons

Mode button, to switch operation modes and quit

F

Front side

10 mm · 10 mm · 31 mm

80 mm
59 mm
80 mm
59 mm

ROB_100-040-0

NTC   L L N N

Floor temp sensor

Output

AC Power input

Back side

Product Data

Z-Wave Frequency	868.42MHz (EU)
Input Voltage	EU: AC200-240V, 50/60Hz
Output Voltage	EU: AC200-240V
Max Load	3680W @ 230V (resistive load)
Max Current	16A
Power Consumption	<2W
Ambient Temperature	0°C to 40°C (during operation)
Set Temperature Range	0°C to 40°C
Hysteresis	0.5°C to 2°C (default 0.5°C)
Floor sensor type	1. NTC/10K B(25/50°C)=3950 (default) 2. NTC/15K B(25/50°C)=3950 3. NTC/50K B(25/50°C)=3950 4. NTC/100K B(25/50°C)=3950
Control Mode	OFF, HEAT, ENERGY HEAT, AWAY, DRY
Control Type	Control type means which temperature sensor the device refers to when it adjust temperature. **Room sensor**: adjust temperature refers to room temperature (factory default type). **Floor sensor**: adjust temperature refers to floor temperature. **Room+Floor sensor**: adjust temperature refers to both room temperature and floor temperature.
Wiring Requirement	Current ≤ 13A - 1.5mm² solid core wire Current > 13A to 16A - 2.5mm² solid core wire
IP Rating	IP21
Control Pollution Degree (Method D)	pollution degree 2
Rated Impulse Voltage (Method D)	4kV
Relative Humidity	8% to 80%
Dimensions	80x80x52mm
Approvals	**Z-Wave Plus**, **CE**, **LVD**: EN 60730-1:2016;A1, EN IEC 60730-2-9:2019;A1 **EMC & RF**: EN IEC 61000-3-2:2019, EN 61000-3-3:2013+A1:2019, EN 60730-1:2016+A1:2019, EN 60730-2-19:2019+A1:2019+A2:2020, EN 50663:2017;ETSI EN 301 489-1V2.2.3, ETSI EN301 489-3V2.1.1 ETSI EN300 220-1 v3.1.1., ETSI EN300 220-2 V3.2.1 **RED certificate**: 2014/53/EU

• The Z-Wave HVAC controller is a wireless thermostat for heating system, which complies to Z-Wave Plus wireless protocol standards. The thermostat has 4 operation modes which can be controlled manually and locally or through remote controlled through Z-Wave primary controller (gateway).

• The thermostat can be included and operated in any Z-Wave network with other Z-Wave certified devices from other manufacturers and/or other applications. All non-battery operated nodes within the network will act as repeaters regardless of vendor to increase reliability of the network.

• The encryption mode that the thermostat supports are S0, S2 Unauthenticated. When the thermostat is being included into a Z-Wave network, you can use your primary controller/gateway to enable encryption mode or disable encryption. (The primary controller/gateway shall support encryption mode configuration). The thermostat supports OTA and can update firmware wirelessly.

• This device must be used in conjunction with a Security Enabled Z-Wave Controller in order to fully utilize all implemented functions.

• Sensors: Air temperature
• THERMOSTAT MODE: OFF, HEAT, ENERGY HEAT, AWAY, DRY
• Measurement range: −10°C to +60°C
• Accuracy: ±0.1°C
• WARNING: Electrical power must be switched off during installation

Home Interface
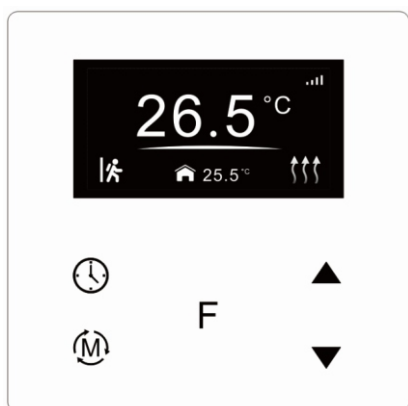
Already included to a Z-Wave network:

Child Lock enabled:

Week display: MON, TUE, WED, THU, FRI, SAT, SUN

The set temperature: Set 28.5℃

Room temperature: 25.5℃

Floor temperature:

Operation modes: (AWAY), (Automatic), (Manual), (Drying) , (OFF)

Heating status: (Heating), (Locked: heating forbidden), (Door is opened, heating forbidden)

Button Description

 : TIME/SHIFT button, to set time schedule of the device quickly and move down the cursor

F : Function button, to confirm, save setting

 : Mode button, to switch operation modes and quit

▲ ▼ : Move up and move down buttons

Standby Interface
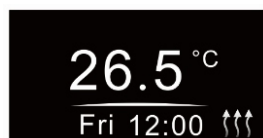
If there is no operation within 2 minutes, the device will go to this standby interface.

Safety & Warnings

• DO NOT install with power applied to device.
• DO NOT expose the device to moisture.

Basic Function Introduction

1. Switch Operation modes

Short press button on Home interface to switch operation modes: the icons of Away, Manual (Comfort), Automatic (Energy Save), Drying, OFF modes will be displayed alternatively for 3 seconds and last displayed mode will be selected, or just short press F button to select a desired mode when the modes' icon displayed alternatively.Press and hold button on Home interface for over 3 seconds to select Away mode directly, then press and hold button for 3 seconds to quit Away mode.

OFF Mode: this mode means that the device is under idle status.

Manual (Comfort Mode): the device will control the heating system according to current set temperature. The temperature can be set by move up and move down button on the Home interface, or configured by Z-Wave gateway.

Automatic (Energy Save Mode): the device will control the heating system according to the configured time schedule or Z-Wave protocol Energy_Save_Heating Setpoint.

Away (Away Mode): the device will control the heating system according to the set temperature within the set period.

Drying (Drying Mode): The device will judge the set temperature for heating within a short period of time.

2. Z-Wave Set Interface

Under Home interface, meanwhile the device is at OFF mode , press and hold move up and move down buttons ▲ ▼ at the same time for over 5 seconds to enter into Z-Wave Set Interface as follows:
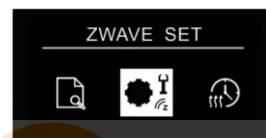
Quit: on Z-Wave Set Interface short press button to go back to Home interface.

Enter into set interface of each setting item: short press move up ▲ or move down button ▼ to select a setting item, then short press button F to enter into set interface of the selected item.

3. Preview of Device Information

On Home Interface, user can enter into **PREVIEW** interface, the interface will display some basic configurations, energy consumption, date, floor temperature etc.
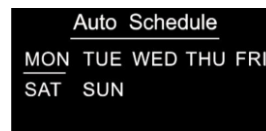
4.Auto Mode Schedule
Note:
1.When configuration parameter 8 value set as 1, the device will control the temperature of energy save mode according to the temperature set by Command Class Energy_Save_Heating Setpoint or set by using the move up and move down buttons, following mentioned schedule will be invalid.

2.When configuration parameter 8 value set as 0, the temperature set by Command Class Energy_Save_Heating Setpoint and set by using the move up and move down buttons will both be invalid, Energy Save Mode will control temperature according to following user schedule.

For instance, if user would like to keep room temperature at 18 degree Celsius during 18:00-23:00 on every Monday, and keep room temperature at 20 degree Celsius after 22:30 on every Monday, then user can set schedule by himself.

Schedule setting method 1: user can enters into schedule on Z-Wave Set Interface, the schedule interface is as follows:


Short press button to select "Auto Schedule", then short press button F to enter into Auto Mode Schedule weekly setting interface.

Schedule setting method 2: on Home Interface, meanwhile the device is under Auto Mode (A), short press button (🕐) to enter into Auto Mode Schedule weekly setting interface quickly:

On Auto Mode Schedule weekly setting interface, use buttons (🕐) and F to enter into schedule setting of a certain week as follows:

```
Auto Day Schedule(°C)
        MON
07:30 25° , 12:00 16°
18:00 18° , 22:30 20°
```

On Auto Day Schedule interface, short press button (🕐) to select the time or temperature that you would like to modify, then short press move up and move down buttons ▲ ▼ to modify value, then short press button F to save and quit, short pressing button (M) only quits without saving.

For each schedule, the latter time should be later than the former time, otherwise saving will fail with the error remind "Time setting error!!!". The default time schedules are as follows:

Monday ~ Friday
7:30,24℃ ~ 12:00,20℃
18:00,16 ~ 22:30,18
Saturday~Sunday
7:30,24 ~ 12:00,20
18:00,18 ~ 22:30,18

5.Away Mode Schedule

User can set time to leave home and time to go home according to the requirements of themselves, and set how the device will control the temperature during this period.

1.If away mode has already been activated, the end time for away mode is valid, the device will execute Away Mode Temperature Schedule before the end time.

2.If away mode has already been activated, the values of end time for away mode are set as 0, the device will always execute current set temperature with no time limitation. The device will consider the mode as anti-freeze mode, the recommended temperature setting is 4-10℃.

```
Away Schedule

    D M Y
END : 00/00/00
 (Always working)
```

D means date, M means month, Y means year (2019-2099).
Start and end mean away time.
To enter into the setting interface and setting method, please refer to the 1.4 Auto Mode (Energy Save Mode) Schedule.

6.Dry Mode Schedule

For example, in order to quickly dry the water in the bathroom, the device can be set to quickly heat in a short time to dry the floor. Enter the configuration interface as follows:

Duration: set how long the dry mode lasts
After Mode: set the mode after the drying mode ends
Remain: shows the remaining time of the drying mode

```
Dry Schedule

Duration:059 Mins
After Mode :Auto
Remain:059 Mins
```

For configuration method and modification, please refer to Automatic Mode (Energy Save Mode) Schedule:

7. MONITOR SET

The function of monitor set is real time monitor of over current, over heat and freezing, on Home interface, short press (M) MONITOR SET to enter into monitor set interface as follows:

```
MONITOR SET
1.MAX current -----15A
2.RoomTemp alarm --45°
3.Hysteresis -------- 0.5°
4.WinOpenDiff ------1.5°
```

Short press button (🕐) to select the item would like to modify, then short press move up and move down buttons ▲ ▼ to modify value of selected item, then short press button F to save and quit, short pressing button (M) only quits without saving.

Max Current (16A by default)

If current is over the set value, the relay will be forced to off by the device, and the state will be reported to the gateway. The over current alarm function can be disabled, which can be set directly through the device. Or can be configured through Advance Config parameter 2 by setting the value as 0 to disable the function, please refer to the part "Advance Config".

RoomTemp Alarm (45°C by default)

If room temperature is over the set value, the relay will be forced to off by the device, and over heat alarm will be reported to the associated devices, meanwhile the buzzer or vibrator will beep 3 times every 10 seconds. The over heat alarm function can be disabled, which can be set directly through the device. Or can be configured through Advance Config parameter 6 by setting the value as 0 to disable the function, please refer to the part "Advance Config".

Over heat alarm interface is as follow:

```
⚠ Alarm: Air Temp
Hold Mode K to cancel
```

Note: to cancel over current alarm or over heat alarm, just press and hold button (M) for over 3 seconds or reset power of the device. After cancel manually, the relay will show heating forbidden icon within 120 seconds, but other operations are allowed.

Hysterersis (0.5°C by default)

To prevent the undulation of sensor temperature when the sensor temperature is approaching the set temperature, which will cause that the controller may keep switching on/off the relay. Here hysterersis enables the controller to control the relay only when the sensor temperature is a little bit lower than the set temperature, this value can be set. This hysterersis only valid when the control type is single sensor, please refer to the part Control Type.

For instance, when hysterersis is set as 0.5 degree, then only when current sensor temperature is 0.5 degree lower than the set temperature, will the controller heat, if the sensor temperature >= set temperature, the controller will not heat.

Window Open Detect (disabled by default)

Once the device is powered on and stable, referring to the room temperature sensor, if the temperature decreases to the threshold of this setting, the window open mark will be enabled, the relay will be forced to turn off to save energy, then the icon will appear.

After window open mark is enabled, if the temperature increases to the threshold of this setting in 3 minutes, the window open mark will be disabled.

Once the window open mark is enabled, it will be disabled after 10 minutes, and the working mode will change to (OFF mode).

The threshold value of this parameter can also be configured through Advance Config parameter [26]. 0 means this function is disabled.

Note: this function will work better when the device is installed beside the window or door.

8.TIME/DATE SET

Select TIME/DATE on Home Interface to enter into TIME/DATE SET interface as follow:
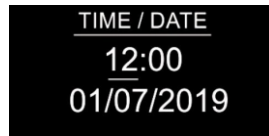
TIME / DATE
12:00
01/07/2019

Short press button 🕐 to select the item would like to modify, then short press move up and move down buttons ▲ ▼ to modify value of selected item, then short press button F to save and quit, short pressing button Ⓜ only quits without saving.

The time zone that the time parameter command adopts is UTC standard time, the corresponding value range for the time zone range from UTC+12 ~ UTC-12 shall be current UTC standard time+12 ~ UTC standard time-12. This parameter can also be configured through Advance Config parameter [24].

9.OTHER SET

Select ≋ OTHER SET on Home Interface to enter into OTHER SET interface as follow:
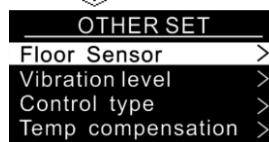
OTHER SET
Floor Sensor >
Vibration level >
Control type >
Temp compensation >

Short press button 🕐 to select the item would like to modify, then short press move up and move down buttons ▲ ▼ to modify value of selected item, then short press button F to save and quit, short pressing button Ⓜ only quits without saving.

Floor Sensor (NTC 10K by default)

If external sensor is broken, the user can buy NTC sensor by themselves, the available sensor types are as follows:

NTC 100K/25 (3m,NTC,R25=100KΩ±1%@25℃, B25/50=3950K±1%)

NTC 50K/25 (3m,NTC,R25=50KΩ±1%@25℃, B25/50=3950K±1%)

NTC 15K/25 (3m,NTC,R25=15KΩ±1%@25℃, B25/50=3950K±1%)

NTC 10K/25 (3m,NTC,R25=10KΩ±1%@25℃, B25/50=3950K±1%)

Key vibration level (Low by default)

Set the level of vibration sensor under the buttons or buzzer level.

OFF: vibration or buzzer off

Low Level, High Level: low vibration or buzzer level, high vibration or buzzer level

The level can also be configured through Advance Config parameter 03.

Control type (Room sensor by default)

Control type means which temperature sensor the device refers to when it adjust temperature.

Room sensor: adjust temperature refers to room temperature (factory default type)

Floor sensor: adjust temperature refers to floor temperature

Room+Floor sensor: adjust temperature refers to both room temperature and floor temperature. Turn on heat valve under other circumstances. This mode is to prevent the device from continuous heating that caused by malfunction of either sensor. When the floor sensor temperature is >= the set temperature minus 1 or when the room sensor is >= the set temperature, either of the conditions is achieved, the controller will stop heat, otherwise the controller will heat.

This parameter can also be configured through Advance Config parameter [10].

Temp compensation (0 by default)

The displayed temperature may has big tolerance caused by the sensor or other factors, so it is necessary to do temp compensation to room sensor and floor sensor.

Compensation range is -5 ~ +5℃, stepping is 0.5℃.

This parameter can also be configured through Advance Config parameter [11] and [12] .

RePower status(last status by default)

Device state after reset power of the device.

If set as "last status", device will go to the status before power failure after power on again.

If set as "default", device will go to default mode after power on again.

This parameter can also be configured through Advance Config parameter [4].

Display Temp type (Home Temp by default)

This parameter defines which sensor temperature will be displayed on Home page.

Floor Temp: floor temperature (external sensor).

Home Temp: indoor air temperature.

This parameter can also be configured through Advance Config parameter [23].

Operate Brightness (Mid Level by default)

The OLED display brightness when operate the device.

High Level, Mid Level, Low Level.

This parameter can also be configured through Advance Config parameter [22].

Child Lock

On the Home Interface, press and hold both F and ▼ buttons for over 10S, the Child Lock can be enabled or disabled, when the Child Lock is enabled, the icon 🔒 will appear at the upper right corner, otherwise the icon will not appear.

Internal Over Heat Protection

To ensure the safety of the device, if the internal temperature of the device (not displayed on the interface) is over a certain value during heating process, the device will execute a short temporary action to turn off the relay, and the icon 🌡 will appear on the interface , after the temperature decreases to a certain value, the device will recover to work.

Z-Wave Set Introduction

1.Z-Wave Network Management

Select ⚙ ZWAVE INFO on Home Interface to enter into Z-Wave network management interface as follow:

ZWAVE INFO
SELECT :
1 Add   2 Remove   3 Reset
Z wave ID : 015
Status : Inclusion
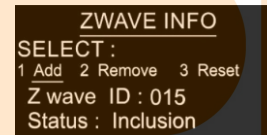
Adding to a Z-Wave Network (Inclusion)

Method 1: Select "Add", then short press button F , the device will send out inclusion request, "Status" will show "Inclusion…". If there is no response from a gateway within 30 seconds, or inclusion failed, "Status" will show "Fail". If included successfully, "Status" will show "Inclusion OK" and device ID.

Method 2: Operate the gateway into inclusion mode, make sure the device is already removed from previous network, reset power of the device, the device will be included to the gateway automatically.

SMART START

If the user's gateway also supports smartstart, add the device by scanning the QR code,Smartstart allows users to quickly add devices to the gateway by scanning the device's QR code.

After scanning to add the device, reset power of the device or waiting for a while, the device will be added to the gateway automatically. Please find the QR code on the casing of the device.

Removing from a Z-Wave Network (Exclusion)

Select "Remove", then short press button F , the device will send out exclusion request, "Status" will show "Exclusion…". If there is no response from a gateway within 30 seconds, or exclusion failed, "Status" will show "Fail". If excluded successfully, "Status" will show "Exclusion OK" and device ID will be showed as 0.

Factory Reset (Reset)

Factory resetting will reset all Advance Config parameters to default value, and the device will be removed from the Z-Wave network.

Select "Reset", then short press button F , the device will start reset, "Status" will show "Reset…". If there is

no response from a gateway within 6 seconds, or exclusion failed, "Status" will show "Fail". If reset successfully, "Status" will show "Reset OK".

Note 1: if the device is excluded or reset successfully, the Auto Mode Schedule will be reset to default value.

Note 2: the sent frame of inclusion and exclusion is INFO frame.

2.Basic set command class

Set the device operation mode as Comfort Mode (Manual Mode) by sending command class basic set = 0XFF.

Set the device operation mode as OFF mode by sending command class basic set = 0x00.

Z-Wave Technical Specifications

1.Supported Notification Repoert and Sensor Type

notifcation Type	Triggering Event	Description
POWER_MANAGEMENT	POWER_MANAGEMENT_OVERCURRENT_DETECTED	Over Current Alarm
Heat Alarm	Overheat detected	Over Heat Alarm

SENSOR MULTILEVEL Type support	Scale
Air temperature	Celsius (℃)

2. Technical Specifications

Item	Definition
SDK	6.82.00
Explorer Frame Support	Yes
Device Type	Thermostat(HVAC)
Generic Device Class	GENERIC_TYPE_THERMOSTAT
Specific Device Class	SPECIFIC_TYPE_THERMOSTAT_HEATING
Role Type	Always On Slave (AOS))
Routing	Yes

Thermostat Related Specifications

Command	Support
ThermostatMode	ThermostatMode_OFF(off) ThermostatMode_HEAT(UI displays Manual) ThermostatMode_DRY ThermostatMode_EnergyHeat(UI displays Auto) ThermostatMode_Away(UI displays Away)
ThermostatSetPoint	ThermostatSetPointType_Heating(set manual temperature) ThermostatSetPointType_Energy_Save_Heating(set auto temperature) ThermostatSetPointType_DRY ThermostatSetPointType_Away_Heating(set away temperature)

3. Supported Command Class

Root Device   RootEp:
GENERIC_TYPE_THERMOSTAT
SPECIFIC_TYPE_THERMOSTAT_GENERAL_V2

Suppourt Command class		Support S2/s0
COMMAND_CLASS_ZWAVEPLUS_INFO	V2	
COMMAND_CLASS_SECURITY	V1	
COMMAND_CLASS_SECURITY_2	V1	
COMMAND_CLASS_TRANSPORT_SERVICE	V2	
COMMAND_CLASS_SUPERVISION	V1	

COMMAND_CLASS_THERMOSTAT_MODE	V3	YES
COMMAND_CLASS_THERMOSTAT_OPERATING_STATE	V1	YES
COMMAND_CLASS_THERMOSTAT_SETPOINT	V2	YES
COMMAND_CLASS_ASSOCIATION	V2	YES
COMMAND_CLASS_MULTI_CHANNEL_ASSOCIATION	V3	YES
COMMAND_CLASS_ASSOCIATION_GRP_INFO	V1	YES
COMMAND_CLASS_VERSION	V3	YES
COMMAND_CLASS_MANUFACTURER_SPECIFIC	V2	YES
COMMAND_CLASS_DEVICE_RESET_LOCALLY	V1	YES
COMMAND_CLASS_POWERLEVEL	V1	YES
COMMAND_CLASS_TIME_PARAMETERS	V1	YES
COMMAND_CLASS_CONFIGURATION	V1	YES
COMMAND_CLASS_NOTIFICATION	V8	YES
COMMAND_CLASS_METER	V3	YES
COMMAND_CLASS_MULTI_CHANNEL	V4	YES
COMMAND_CLASS_FIRMWARE_UPDATE_MD	V4	YES
COMMAND_CLASS_SENSOR_MULTILEVEL	V5	YES

Controlled command class		
COMMAND_CLASS_THERMOSTAT_MODE	V3	YES
COMMAND_CLASS_THERMOSTAT_SETPOINT	V2	YES

Note: the EndPoint01 mirrors equivalent effect root endpoint.

EndPoint1 command list: Ep1:
GENERIC_TYPE_THERMOSTAT
SPECIFIC_TYPE_THERMOSTAT_GENERAL_V2

Support command class		Support S2/s0
COMMAND_CLASS_ZWAVEPLUS_INFO	V2	
COMMAND_CLASS_SECURITY	V1	
COMMAND_CLASS_SECURITY_2	V1	
COMMAND_CLASS_SUPERVISION	V1	
COMMAND_CLASS_SENSOR_MULTILEVEL	V5	YES
COMMAND_CLASS_ASSOCIATION	V2	YES
COMMAND_CLASS_MULTI_CHANNEL_ASSOCIATION	V3	YES
COMMAND_CLASS_ASSOCIATION_GRP_INFO	V1	YES
COMMAND_CLASS_THERMOSTAT_MODE	V3	YES
COMMAND_CLASS_THERMOSTAT_OPERATING_STATE	V1	YES
COMMAND_CLASS_THERMOSTAT_SETPOINT	V2	YES

EndPoint2 (floor temperature sensor) command list:

Ep2:
GENERIC_TYPE_SENSOR_MULTILEVEL
SPECIFIC_TYPE_ROUTING_SENSOR_MULTILEVEL

Support command class		Support S2/s0
COMMAND_CLASS_ZWAVEPLUS_INFO	V2	
COMMAND_CLASS_SECURITY	V1	
COMMAND_CLASS_SECURITY_2	V1	
COMMAND_CLASS_SUPERVISION	V1	
COMMAND_CLASS_SENSOR_MULTILEVEL	V5	YES
COMMAND_CLASS_ASSOCIATION	V2	YES
COMMAND_CLASS_MULTI_CHANNEL_ASSOCIATION	V3	YES
COMMAND_CLASS_ASSOCIATION_GRP_INFO	V1	YES

5.Association

Root device

Group ID	NAME	Profile	Max nodes	description
1	Lifeline	AGI_LIFE_LINE (0x0001)	5	1.Send Command Class DEVICE_RESET_LOCALLY_NOTIFICATION to associated devices of this group when factory reset the device. 2.Send Command Class THERMOSTAT_SETPOINT_REPORT, THERMOSTAT_MODE_REPORT, THERMOSTAT_OPERATING_STATE_REPORT to associated devices of this group When operation mode and temperature change. 3.Send Command Class NOTIFICATION_REPORT to associated devices of this group when over current, over heat detected 4.Send Command Class METER_REPORT to associated devices of this group to report metering parameters. 5. sensor multilevel report
2	Heat Set	AGI_CONTROL_KEY01 (0x2001)	5	Transfer Command Class THERMOSTAT_SETPOINT_SET THERMOSTAT_MODE_SET to control other temperature control devices when operation changes

EndPoint01:

GroupID	NAME	Profile	Max nodes	description
1	Lifeline	AGI_LIFE_LINE (0x0001)	0	Lifeline

Note: the EndPoint01 has equivalent effect of root function.

EndPoint02

GroupID	NAME	Profile	Max nodes	description
1	Lifeline	AGI_LIFE_LINE (0x0001)	0	Lifeline

6.Advance Config Parameters

Parameter	Size	Description	Default Value	Parent Menu
0x02(2)	1	Over current detection max. value, unit is A. When detected current is over this value, the device will turn off the relay and send NOTIFICATION CC. 0, disable over current detection 5-16, over current detection max. value	16	Monitor Set
0x03(03)	1	Vibration level and buzzer level triggered by pressing buttons 0, disable vibration and buzzer 1, Low Level 2, High Level	1	Other Set
0x04(4)	1	Whether to recover to settings before power failure or power reset 0, use default settings 1, recover to settings before power failure or power reset	1	Other Set
0x06(6)	1	High temperature detection max. value, unit is ℃ , when either temperature sensor is higher than this value, the device will turn off the relay and send NOTIFICATION CC. 0, disable this function 20-60, the high temperature value	45	Monitor Set
0x07(7)	1	Temperature control hysteresis value setting, setting range 0.5℃~2℃ 5-20, unit is 0.1℃	5	Monitor Set
0x08(8)	1	Auto mode (Energy save mode) temperature schedule 0, use schedule set by user 1, use Energy_Save_Heating temperature set by THERMOSTAT_SETPOINT_SET	0	None
0x09(9)	1	Select floor temperature sensor type 1, NTC/10K B(25/50℃)=3950 2, NTC/15K B(25/50℃)=3950 3, NTC/50K B(25/50℃)=3950 4, NTC/100K B(25/50℃)=3950	1	Other Set
0x0A(10)	1	Temperature control reference selection 1, room sensor 2, floor sensor 3, room+floor sensor	1	Other Set
0x0B(11)	1	ROOM SENSOR temperature compensation setting -10~10, unit is 0.5	0	Other Set
0x0C(12)	1	FLOOR SENSOR temperature compensation setting -10~10, unit is 0.5	0	Other Set
0x0D(13)	1	Set how long the drying mode lasts 5~100, unit is minute	5	Dry Mode Schedule
0x0E(14)	1	Set the mode after the drying mode ends 0x00 = OFF 0x01 = Manual mode (comfort mode) 0x02 = Auto mode (energy save mode) 0x03 = Away mode	2	Dry Mode Schedule
0x10(16)	1	When to report temperature relative change threshold value actively, unit is 0.1 0, disable to report 2-10, report when the threshold value is 2-10	2	None
0x11(17)	2	Time interval value for periodic report of temperature, humidity, unit is S 0, disable to report 30~28800, report when time interval value is 30~28800	300 (5mins)	None
0x12(18)	1	When to report power change absolute threshold, unit is W 0, disable to report 1~100, report when absolute threshold is 1~100	5	None
0x13(19)	1	When to report current change absolute threshold, unit is 0.1A 0, disable to report 1~10, report when absolute threshold is 1~10	10	None
0x14(20)	1	When to report voltage change absolute threshold, unit is 1 V 0, disable to report 1~10, report when absolute threshold is 1~10	2	None
0x15(21)	4	Time interval value for periodic active report of Meter 60-2678400 (31 days), unit is S	600 (10mins)	None
0x16(22)	1	The OLED display brightness when operate the device. 0, low level 1, mid level 2, high level	1	Other Set

|		This parameter defines which sensor temperature will be displayed on Home page. 0x00: indoor air temperature 0x01: external temperature (floor temperature)		
0x17(23)	1		0	Other Set
0x18(24)	1	The time zone that the time parameters command adopts is UTC, the time zone need to be set: +12 ~ -12	0	Other Set
0x1A(26)	1	Window open detect function temperature threshold: the Celsius degrees that the temperature decreases within 3 minutes, unit is 0.1 Celsius degree. 0, disbaled 15, 20, 25, 30, 35, 40, the set temperature threshold	0	Monitor Set

Wiring diagram

This device should be installed by a licensed electrician in a manner that conforms to local regulations and building codes. Provide these instructions to the licensed electrician who is installing the device.

**WARNING: Electrical power must be switched off during installation.**

1. Placement of the device is of utmost importance for proper operation and must be away from sunlight and sources of direct heat. We recommend installing the device approximately 1.5 meters above the floor.

2. Remove the display unit and backplate of the device from the packaging.
3. FIRST ENSURE THE POWER IS OFF at the main circuit breaker, and then test the wires with a probe or multimeter to verify. Insert the power and heater wires to the correct device terminals by inserting a small Phillips-head screwdriver in the slot beneath each terminal to open. Follow the connection diagram and instructions below:
• **Power wires:** connect Line & Neutral wires to L & N terminals labeled "IN"
• **Heater wires:** connect Line & Neutral wires to L & N terminals labeled with "heating element" graphic

WARNING: The wire size shall be in compliance with regulations, using wire with insufficient size for big load will cause severe temperature rising.
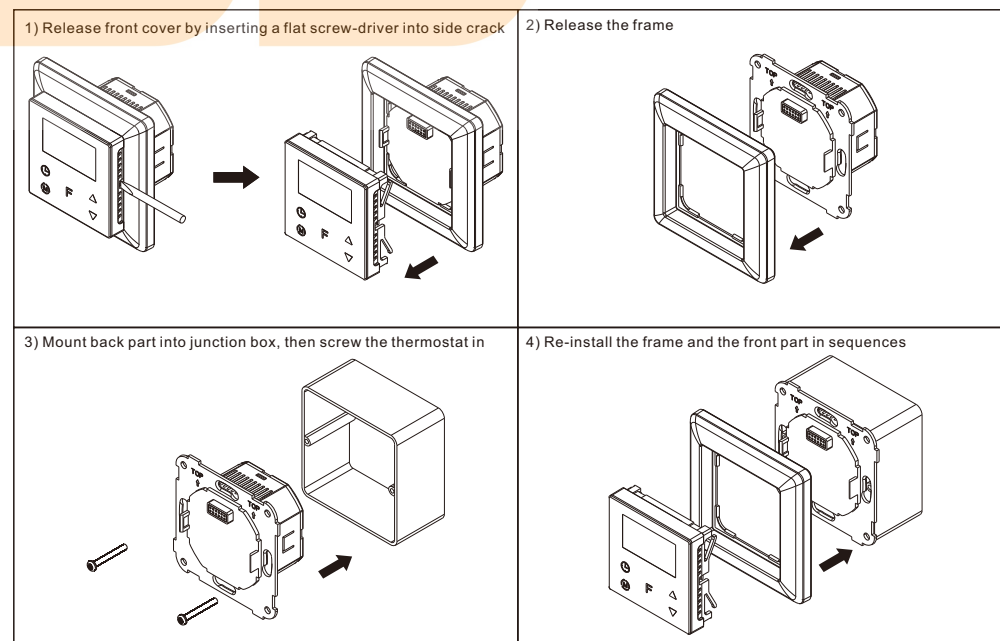
Connection diagram 1
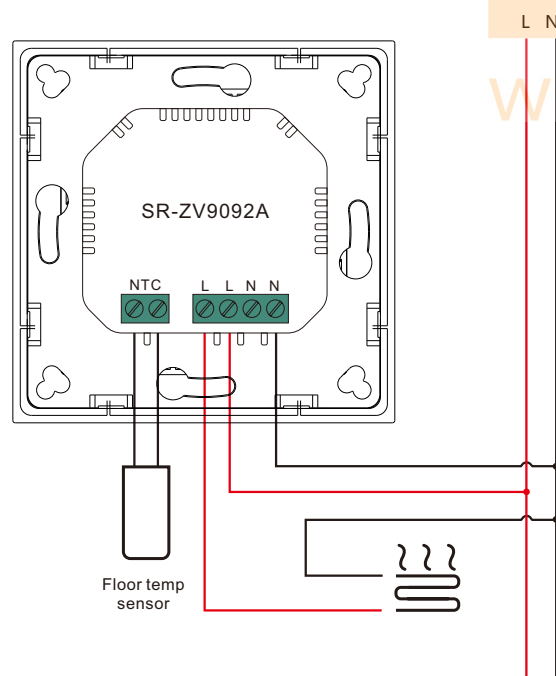
Floor temp sensor

Connection diagram 2
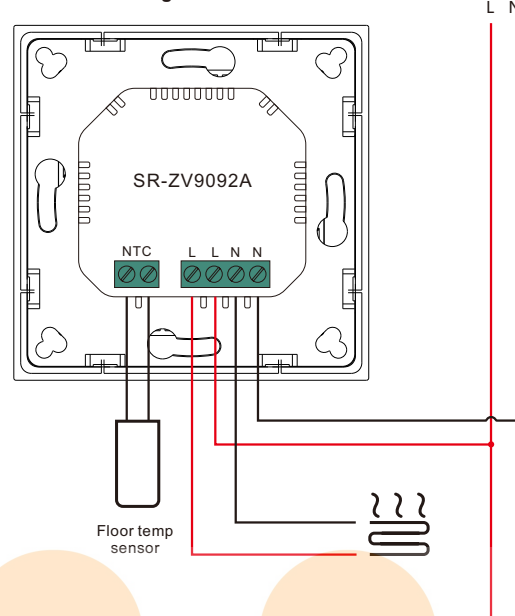
Floor temp sensor

Troubleshooting:

1. External (floor) sensor temperature tolerance is too big.
Possible reason: the selected sensor type is not correct.

2. The gateway can not set temperature when energy save.
The temperature schedule (parameter 8) of auto mode (energy save mode) is not configured correctly.

3. Current temperature is not executed when away mode is selected.
Check whether away mode time is set as 0 or within valid time range.

4. Device time is not the same as the gateway controller after included in the network.
Set the device time and time zone manually after included to the gateway network.

5. The tolerance of the indoor temperature sensor is high after powered on.
Possible reason: due to temperature effect, we need to wait for a while.

Installation

1) Release front cover by inserting a flat screw-driver into side crack

2) Release the frame

3) Mount back part into junction box, then screw the thermostat in

4) Re-install the frame and the front part in sequences