MH4936 Z-Wave Thermostat

User Guidance

Introduction

MH4936 thermostat is used to control up to 3 stages heating and 2 stages cooling system with 8 types control system, EM heat activation, adjustable compressor delay time and O/B changeover. With quick connecting terminals to save installer's time. Support S2 function.

Technical Parameters

Power Supply: AC/DC24V / 4*AA dry battery

Self-Consumption: <1W

Resistive Load:＜1A

Temp. Setting Range：10～37℃

Precision：0.1℃(1℉)

Outcase：Tempered glass +PC+ABS

Thermistor: NTC thermistor

Wire Connection: Terminal

Dimension：114*114*22mm

Installation：60.3mm hole pitch

Z-Wave Frequency: Operating frequency range, defined by the regulatory bodies

(for Z-wave in Europe: 868.0 -868.6 MHz, 869.7 - 870.0 MHz)

Features

- **Application range:** gas/fuel boiler, electric heating, water heating, heat pump etc. 8 types control systems.

- Z-Wave 800 series, support S2 encryption function.

- Touch button operation interaction.

- Simpler way to connect wires without screw driver.

- **Declaration of Conformity**

  Hereby, we declare that the device is in compliance with the essential requirements and other relevant provisions of Directive 2014/53/EU.

- **WEEE Directive Compliance**

  The device marked with this symbol should not be disposed of with household waste. It is the user's responsibility to deliver the used appliance to a designated recycling point.

- **Z-Wave Compliance**

  The device is a fully compatible Z-Wave Plus device.

Wires Connection Instruction

⚠ **Read the instructions before starting up the unit!**

⚠ **This product is not a toy. Keep out of reach of children and animals!**

⚠ **Do not expose the device to moisture, water or other liquids. Do not place liquids near or on the device!**

⚠ **Do not attempt to disassemble, repair or modify the device yourself!**

⚠ **This product is for indoor use only. Do not use outdoors!**

⚠ **CAUTIONS!**

Risk of Electric Shock - More than one disconnect switch may be required to de-energize the equipment before servicing.

⚠ **CAUTIONS!**

Compressor protection is bypassed during testing. To prevent equipment damage, avoid cycling the compressor quickly.
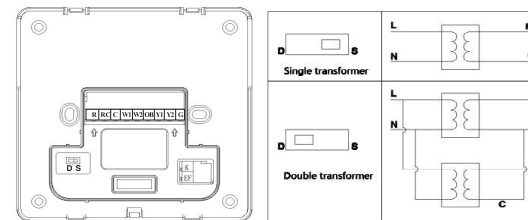
⚠ **MERCURY NOTICE**

If this product is replacing a control that contains mercury in a sealed tube, do not place the old control in the trash. Contact your local waste management authority for instructions regarding recycling and proper disposal.


Wiring diagram

REQUIRED: 24 VAC POWER ("C" WIRE)

| Terminal	Description
C	AC 24V power supply
RH	
RC	
W1	1st stage heating
W2	2nd stage heating or auxiliary heating
G	Fan
Y1	Compressor stage1
Y2	Compressor stage2
O/B	Changeover
K	Wire with 4-5T module
EF	Reserved terminal

Note: A wire saver acts as a splitter for applications that do not include a 24-volt C wire. If your heating/cooling system does not include a C wire,install the wire saver in or near the main unit (furnace, air handler) of your heating/cooling system.

4-5T Module
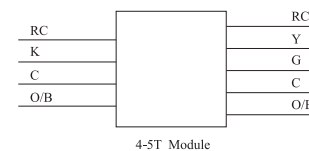
Controlling Type

Item	Description	Terminals need to be wired					
		G	Y1	Y2	W1	W2	O/B
0	Conventional cool only	●	●	○			
1	Conventional heat only	●			●	○	
2	Conventional heat & cool	●	●	○	●	○	
3	Cool in heat pump	●	●	○			○
4	One-stage heat in heat hump (optional:Aux)	●	●			○	○
5	Two-stage heat in heat hump (optional:Aux)	●	●	●		○	○
6	One-stage heat&cool in heat hump (optional:Aux)	●	●			○	●
7	Two-stage heat&cool in heat hump (optional:Aux)	●	●	●		○	●

Display
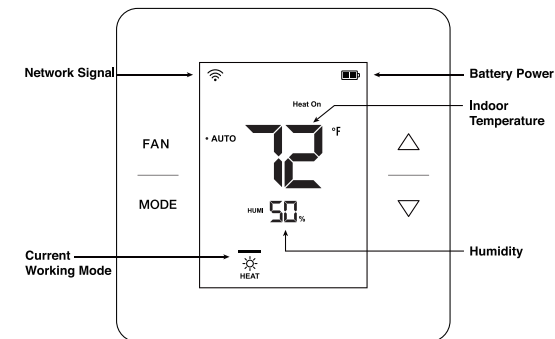
Functions & Settings

Setpoint Setting

Press "∧"or "∨" to set the desired indoor temperature. Setting range: 5~37 ℃ (41~98 ℉) by default.

Mode Setting

This device supports OFF, HEAT, COOL, AUTO mode and EM mode (not enabled by default). Press the "MODE" button to switch the working mode.

Fan Mode Setting

Short press the "FAN" key to switch the working mode of the fan.

Fan On

In this mode, the fan is always running when it is turned on, and stops when it is turned off.

Fan Auto

In this mode, the fan runs both in cooling and heating state ; the fan stops when cooling or heating is stopped, when the device is in shutdown state, the fan stops.

Secret Menu

Under "OFF" interface，long press "MODE" button for 3 sec to enter into parameter setting interface. Short press "MODE" button to switch the parameter number, press ∧"or∨"to modify the corresponding setting value, and then press "FAN" to confirm and then exit.

Menu Number	Item	Setting Range	Default	Description
01	Restore factory setting	0~99	53	Default 53, change to 55 to restore factory setting
02	Device state after power failure	0~1	1	0 : device turn to OFF state 1: device return to last stat before power failure
04	Beep volume	1~5	5	1：Mute 2：Low 3：Medium 4：High 5：Normal
06	Temp. setting upper limit	1~99	37℃/98F	gap=1
07	Temp. setting bottom limit	0~98	5℃/41F	gap=1
08	Indoor temperature calibration	-9.9~+9.9	0	-9.9~+9.9
09	Indoor humidity calibration	-20~+20	0	-20~+20
11	Temp. deadband	0~9.0	1.0℃/2.0 F	0 - 9.0。 gap=0.5
12	Temp. format	0~1	1	0：Celsius 1：Fahrenheit
13	Controlling type	00~07	07	Conventional cooling/heating system 0= cool only 1= heat only 2= cool or heat Heat pump cooling/heating system 3= cool only 4= heat only 5= two stages heat 6= single cooling/single heating + AUX 7= two stages cooling / two stages heating + AUX
14	Changeover valve logic	0~1	0	00=When the heat pump cooling starts，O/B turned on，but turned off when heating 01=When the heat pump heating starts，O/B turned on，but turned off when cooling
15	Compressor protection time	0~10 unit：minute	1	Indicates the setting of compressor delay time from shutdown to startup
16	EM emergency heating mode	ON/OF	OF	ON=turn on emergency heating mode OF=turn off emergency heating mode **Only available for heat pump system with heating function**

Z-Wave Setting

1. Include into Z-Wave network

Under the normal working interface，long press"∧"and"∨"button synchronously for 3sec, the device will enter Z-WAVE MENU interface，if long press"∧"and"∨" button synchronously for 3sec again or without any operation for 10sec, it will back to the homepage. Before the device included into network, "---" will display on the screen. Then short press "∧" button, device will enter learning mode to get a node ID. If inclusion is success, a node ID will display on the screen in a few seconds.

Note: A node ID can always inform us whether the device is in the network or not.

Exclude from Z-Wave network

Under the normal working interface，long press"∧"and"∨"button synchronously for 3sec, the device will enter Z-WAVE MENU interface，if long press"∧"and"∨" button synchronously for 3sec again or without any operation for 10sec, it will back to the homepage. Current ID displays on the screen, short press "∧" button, device will enter learning mode, current ID will flash, once "---" display on the screen, the device has excluded from Z-Wave network.

2. Z-WAVE supported Command Class：

Support S2：

COMMAND_CLASS_VERSION,   COMMAND_CLASS_MANUFACTURER_SPECIFIC,   COMMAND_CLASS_DEVICE_RESET_LOCALLY,
COMMAND_CLASS_POWERLEVEL,   COMMAND_CLASS_BATTERY,   COMMAND_CLASS_SENSOR_MULTILEVEL_V5,
COMMAND_CLASS_THERMOSTAT_SETPOINT,   COMMAND_CLASS_THERMOSTAT_MODE,
COMMAND_CLASS_THERMOSTAT_OPERATING_STATE,   COMMAND_CLASS_THERMOSTAT_FAN_MODE,
COMMAND_CLASS_THERMOSTAT_FAN_STATE,   COMMAND_CLASS_CONFIGURATION,
COMMAND_CLASS_ASSOCIATION_V2,   COMMAND_CLASS_MULTI_CHANNEL_ASSOCIATION_V2,
COMMAND_CLASS_ASSOCIATION_GRP_INFO,   COMMAND_CLASS_FIRMWARE_UPDATE_MD_V5

Not support S2：

COMMAND_CLASS_ZWAVEPLUS_INFO,   COMMAND_CLASS_TRANSPORT_SERVICE_V2,
COMMAND_CLASS_SECURITY_2,   COMMAND_CLASS_SUPERVISION

AG identifier	Max Node ID	Command Classes	Trigger Situation
0x01	1	COMMAND_CLASS_SENSOR_MULTILEVEL_V5, SENSOR_MULTILEVEL_REPORT_V5	1. The gap of the value of current temperature and that of last reporting temperature to gateway is greater than setting value of parameter 2. 2. The gap of the value of current humidity and that of last reporting humidity to gateway is greater than setting value of parameter 3.
		COMMAND_CLASS_THERMOSTAT_MODE_V2, THERMOSTAT_MODE_REPORT	Device mode changes
		COMMAND_CLASS_THERMOSTAT_OPERATING_STATE, THERMOSTAT_OPERATING_STATE_REPORT	Device status changes
		COMMAND_CLASS_THERMOSTAT_FAN_MODE, THERMOSTAT_FAN_MODE_REPORT	Device mode changes
		COMMAND_CLASS_THERMOSTAT_FAN_STATE, THERMOSTAT_FAN_STATE_REPORT	Device status changes
		COMMAND_CLASS_THERMOSTAT_SETPOINT_V2, THERMOSTAT_SETPOINT_REPORT_V2	Setpoint value changes
		COMMAND_CLASS_DEVICE_RESET_LOCALLY, DEVICE_RESET_LOCALLY_NOTIFICATION	Restore factory setting
		COMMAND_CLASS_BATTERY, BATTERY_REPORT	The change in battery power is greater than 5%

4. Z-Wave Parameters Settings

Number	Function	Size	Description	Default	Possible Values
1	Secret menu E12: Temp Unit	1	0: Celsius 1: Fahrenheit	1	0-1
2	Upload temperature difference	2	Unit: 0.1℃ 0: Disabled 3-255:n*0.1℃; A temperature value greater than this will be uploaded to the gateway automatically	5	0, 3-255
			Unit: 0.1F 0, 3-255 0: Disabled 3-255:n*0.1F; A temperature value greater than this will be uploaded to the gateway automatically	10	
3	Upload humidity difference	1	0: OFF 1-99: A humidity value greater than this will be uploaded to the gateway automatically.	6	0-99
12	Secret menu E02: device state after power failure	1	0 : device turn to OFF state 1: device return to last stat before power failure	0	0-1
14	Secret menu E04:BEEP	1	1：Mute 2：Low 3：Medium 4：High 5：Normal	5	1-5
16	Secret menu E06: Temp.setting upper limit	1	Set temperature upper value,upper>lower(Temperature unit follows the device's unit setting)	37(Celsius) 98(Fahrenheit)	1-99
17	Secret menu E07: Temp.setting bottom limit	1	Set temperature lower value,upper>lower(Temperature unit follows the device's unit setting)	5(Celsius) 41(Fahrenheit)	0-98
18	Secret menu E08: Indoor temperature calibration	1	Temperature calibration value (Temperature unit follows the device's unit setting), precision: 0.1 (n*0.1)	0	(-99 ~ +99)Celsius (-99 ~ +99)Fahrenheit
19	Secret menu E09: Indoor humidity calibration	1	Humidity calibration value	0	-20~ +20
22	Secret menu E11:Temp. deadband	1	Precision: 0.1(n*0.1)	10(Celsius) 20(Fahrenheit)	(0 ~ 99)Celsius (0 ~ 99)Fahrenheit

Number	Function	Size	Description	Default	Possible Values
23	Secret menu E13:controlling type	1	Conventional cooling/heating system 0= cool only 2C　　　　1= heat only 2H 2= cool or heat 2C/2H Heat pump cooling/ heating system 3= cool only (2C=Y1+Y2) 4=heat only(2H=Y1+W2 "AUX") 5=two stages heat (3H=Y1+Y2+W2"AUX") 6= single cooling/single heating +AUX 7= two stages cooling / two stages heating + AUX	7	0-7
24	Secret menu E14: changeover valve logic	1	00=When the heat pump cooling starts，O/B turned on，but turned off when heating 01=When the heat pump heating starts，O/B turned on，but turned off when cooling	0	0-1
25	Secret menu E15: compressor protection time	1	Indicates the setting of compressor delay time from shutdown to startup	1	0-10
26	Secret menu E16: EM Emergency Heating Mode	1	ON=turn on emergency heating mode OF=turn off emergency heating mode **Only available for heat pump system with heating function**	0	0-1
255	Secret menu E01: RESET FACTORY	1	Write 85: restore the factory setting (write only)	0	0, 85

1-Year Limited Warranty

We warrant this product to be free from defects in material and workmanship under normal and proper use for one year from purchase date of the original purchaser. We will, at its option, either repair or replace any part of its products that prove defective by reason of improper workmanship or materials. THIS LIMITED WARRANTY DOES NOT COVER ANY DAMAGE TO THIS PRODUCT THAT RESULTS FROM IMPROPER INSTALLATION, ACCIDENT, ABUSE, MISUSE, NATURAL DISASTER, INSUFFICIENT OR EXCESSIVE ELECTRICAL SUPPLY, ABNORMAL MECHANICAL OR ENVIRONMENTAL CONDITIONS, OR ANY UNAUTHORIZED DISASSEMBLY, REPAIR OR MODIFICATION. This limited warranty shall not apply if: (i) the product was not used in accordance with any accompanying instructions, or (ii) the product was not used for its intended function. This limited warranty also does not apply to any product on which the original identification information has been altered, obliterated or removed, that has not been handled or packaged correctly, that has been sold as second-hand or that has been resold contrary to Country and other applicable export regulations.