



PARTS NAME : HIGH TEMP. THERMISTOR

PARTS No. : PAC-TH012HT-E

SALES MODEL CODE : 7H1THR7

MITSUBISHI ELECTRIC CORPORATION

INSTALLATION MANUAL

- Before starting installation, read the following description together with the installation manual included with the unit.
- Please read carefully and observe fully the following safety precautions.

⚠ WARNING Precautions that must be observed to prevent injuries or death.

- After installation carry out a test run to ensure correct operation, then explain operation method and safety precautions to the end user. Tell your customers to keep this installation manual together with the operation manual, and when they give or sell this machine to any other person include this installation manual and operation manual with it.

⚠ WARNING

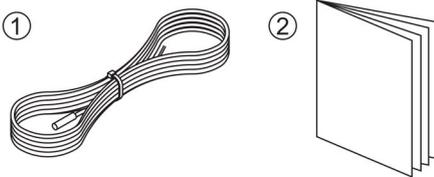
- Before installing any accessories on the unit ensure the unit is isolated from the power supply.
- Connections must be made securely and without tension on the terminals.
- All electrical work should be performed by a qualified technician according to local regulations and the instructions given in this manual.
- The flow temperature from boiler MUST NOT exceed 70 °C (*1).
- Before running Floor Dry-up function, disconnect IN4, IN5, IN11 and IN12 wirings. (*2)

*1 When the temperature sensed by flow temp. thermistor or return temp. thermistor exceeds 80°C, FTC will detect it as overheat error.
*2 High-temperature water produced by boiler operation could flow in and this could cause a big damage to the floor.

- Make sure to install the boiler that has overheat protection and output flow temperature control.

Optional parts

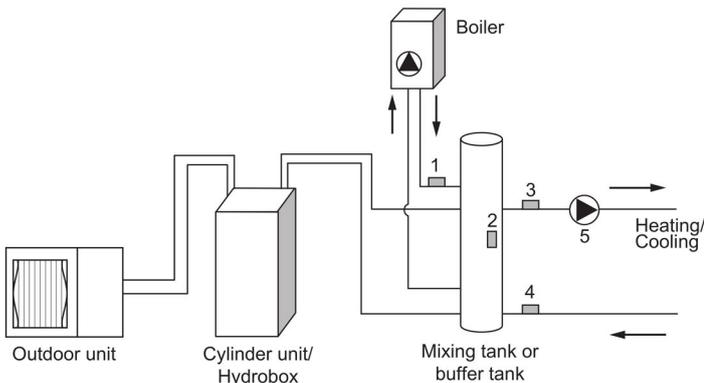
<Included items>



	Item	Piece
①	High temp. thermistor 5 m, color: black	1
②	Installation manual	1

■ Local system

The high temp. thermistor is used as the boiler flow temp. thermistor (THWB1) or the mixing tank temp. thermistor (THW10).



Number	Component
1	Boiler flow temp. thermistor (THWB1)
2	Mixing tank temp. thermistor (THW10)
3	Flow temp. thermistor (THW6) (option)
4	Return temp. thermistor (THW7) (option)
5	Circulation pump (local supply)

1. Boiler operation

FTC can control boiler only in space heating mode.

When boiler is running, the heating operation is regulated by the room thermostat connected to FTC.

IMPORTANT NOTE: Be sure to connect room thermostat to FTC.

1.1 Wiring for boiler control

<Thermistor inputs>

Name	Terminal block	Item	Optional part model
THW6	TBI.5 7-8	Thermistor (Zone1 flow water temp.) (Option)	PAC-TH011-E
THW7	TBI.5 5-6	Thermistor (Zone1 return water temp.) (Option)	
THWB1	TBI.6 7-8	Thermistor (Boiler flow water temp.)	PAC-TH012HT-E

<Outputs>

Connect OUT10 to boiler external input (Room thermostat).

Name	Terminal block	Item	OFF	ON	Signal/Max current
OUT10	TBO.3 1-2	Boiler output	OFF	ON	non-voltage contact • 220 - 240V AC (30V DC) 0.5 A or less • 10 mA 5V DC or more

Note: • OUT10 is separated by basic insulation from other external output signals in FTC.

- Connect the surge absorber according to the load at site.
- When the wires are wired to adjacent terminals, use ring terminals and insulate the wires.
- Do not splice the wiring to extend or shorten it, or this could affect correct monitoring of each temperature. If the wiring is too long, bundle it with a strap to adjust the length.

1.2 Dip switch setting

Set Dip SW1-1 and SW2-6 to ON .

Dip switch	Function	OFF	ON
SW1-1	Boiler	WITHOUT Boiler	WITH Boiler
SW2-6	Mixing tank	WITHOUT Mixing tank	WITH Mixing tank

1.3 Main controller setting

<Service menu> → "Heat source setting"

→ "Operation settings" → "Boiler operation"

	Menu	Description
Heat source setting	Hybrid	Automatically switch "Heat pump" and "Boiler".
Hybrid settings	Outdoor ambient temp.	Set the ambient temperature to switch to Boiler operation.
	Priority mode	Set which one to prioritize (Ambient or Cost or CO ₂).
	Outdoor ambient temp. rise	Difference in temperature to switch to Heat pump operation.
Intelligent settings	Energy price	Enter unit prices of electricity, and gas or oil (depending on boiler type) per 1 kWh.
	CO ₂ emission	Enter CO ₂ emission amount from electricity or boiler (gas or oil).
	Heat source	Enter outdoor unit capacity, electric heater capacity, and boiler efficiency.

2. Buffer tank control

Buffer tank control operates when heating (or cooling) function is active in the smart grid ready*.

* Refer to the installation manual of indoor unit.

2.1 Wiring for buffer tank control

<Thermistor inputs>

Name	Terminal block	Item	Optional part model
THW6	TBI.5 7-8	Thermistor (Zone1 flow water temp.) (Option)	PAC-TH011-E
THW7	TBI.5 5-6	Thermistor (Zone1 return water temp.) (Option)	
THW10	TBI.6 5-6	Thermistor (Mixing tank water temp.)	PAC-TH012HT-E

<Signal inputs>

Name	Terminal block	Item	OFF (open)		ON (short)
			IN11	IN12	Meaning
IN11	TBI.3 3-4	Smart grid ready input	OFF (open)	OFF (open)	Normal operation
			ON (short)	OFF (open)	Switch-on recommendation
IN12	TBI.3 1-2		OFF (open)	ON (short)	Switch-off command
			ON (short)	ON (short)	Switch-on command

2.2 Dip switch setting

Set Dip SW2-6 to ON.

Dip switch	Function	OFF	ON
SW2-6	Mixing tank	WITHOUT Mixing tank	WITH Mixing tank

2.3 Main controller setting

<Service menu> → "Operation settings" → "Smart grid ready"

Name		Description
Heating	Target temp.	 Target temp. of "Switch-on recommendation".
		 Target temp. of "Switch-on command".
Cooling	Target temp.	 Target temp. of "Switch-on recommendation".
		 Target temp. of "Switch-on command".
Pump cycles	On/Off	When set to "On", the water circulation pump is operated intermittently according to the heat storage temp. of the buffer tank.
	Interval	Re-judgment of the pump on/off time.