TommaTech®
Triome R290 Heat Pump
Control Unit Manual

HP-RST-MF-10-TNK-130LT

Contents

1. GENERAL SAFETY PRECAUTIONS

1.1. About The Documentation

The precautions described in this document cover very important topics! Please follow them carefully. All activities described in the installation manual must be performed by an authorized installer.

 WARNING

- WARNING: Indicates a situation that could result in death or serious injury.
- CAUTION: Indicates a situation that could result in minor or moderate injury.
- DANGER: Indicates a situation that cld result in death or serious injury.
- DANGER: RISK OF ELECTROCUTION: Indicates a situation that could result in electrocution.
- DANGER: RISK OF BURNING: Indicates a situation that could result in burning because of extreme hot or cold temperatures.
- NOTE: Indicates a situation that could result in equipment or property damage.
- INFORMATION: Indicates useful tips or additional information.

1.2. For The User

- If you are not sure how to operate the unit, contact your installer.
- The appliance is not intended for use by persons, including children, with reduced physical, sensory or mental capabilities, or lack of experience and knowledge, unless they have been given supervision or instruction concerning use of the appliance by a person responsible for their safety. Children must be supervised to ensure that they do not play with the product.
- Unit are marked with the following symbol:
  This means that electrical and electronic products cannot be mixed with unsorted household waste.
- Do NOT try to dismantle the system yourself: the dismantling of the system, treatment of the refrigerant, of oil and of other parts must be done by an authorized installer and must comply with applicable legislation. Units must be treated at a specialized treatment facility for reuse, recycling and recovery. By ensuring this product is disposed of correctly, you will help to prevent potential negative consequences for the environment and human health. For more information, contact your installer or local authority.
- Install in a location away from radiation.

2. GENERAL OVERVIEW OF USER INTERFACE

When powering on for the first time, after staying in the dynamic interface for 20 seconds, you will be forwarded to the following main interface according to the motherboard mode.
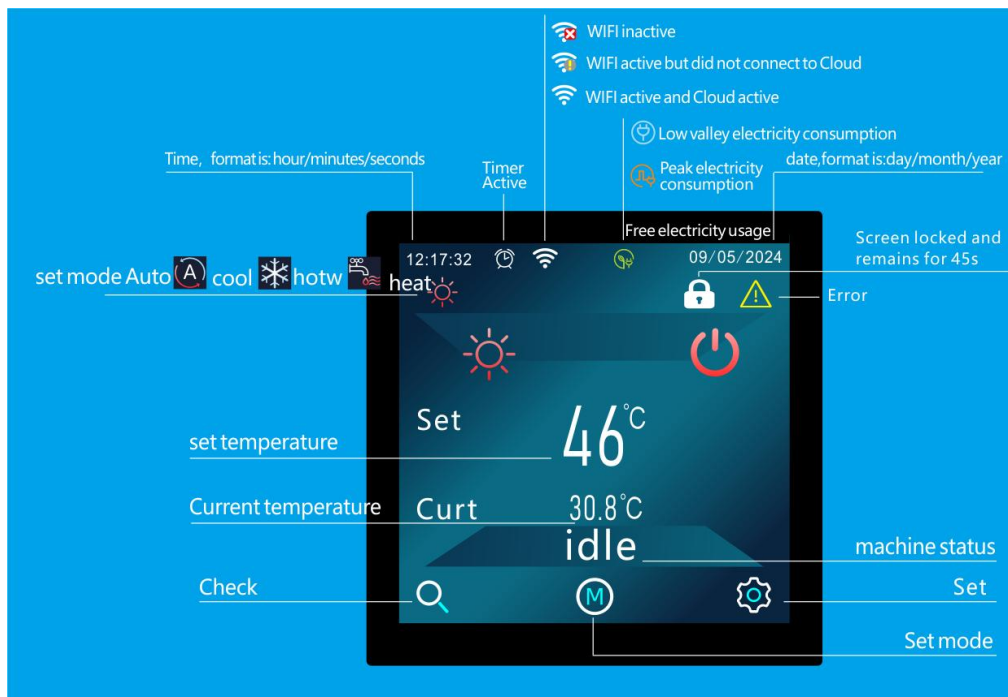
Icon	Meaning	Name
⏻	Turn on/off	【 ON/OFF 】
🔍	Press to enter the query menu	【CHECK】
M	Set mode	【 MODE 】
⚙	Set	【 SET 】

4. MAIN INTERFACE INTRODUCTION

The main interface will vary according to different application configuration. Here are some possible configuration:

Main screen 1 (cooling/heating):

The system is currently heating.

Note: The pictures in the manual are for explanation and may be different from the actual screen display.

Main screen 2 (DHW):

System for DHW.

Main interface 3 (cooling/heating＋DHW):

Installation for heating＋DHW.

5. BASIC USAGE

5.1 ON/OFF Operation

To press M and press ✓ to confirm ON/OFF the Heat pump on the main interface.

Below example, To press M on the main interface, select Heating mode, press ✓ to confirm,

then press ⏻ and press ✓ to confirm to turn on the Heating mode:

5.2 Adjust expected temperature

Setting the 【heat pump】 to "Hot Water" or "Hot Water + Heating/Cooling" is a prerequisite for hot water temperature adjustment. This function is disabled in all other mode selections.

5.2.1 Single zone mode: Cooling、 Heating、 DHW

Press "Set temperature" on the main interface to pop up the parameter setting box. Select the target value by sliding and then press ✓ to modify the set temperature value.
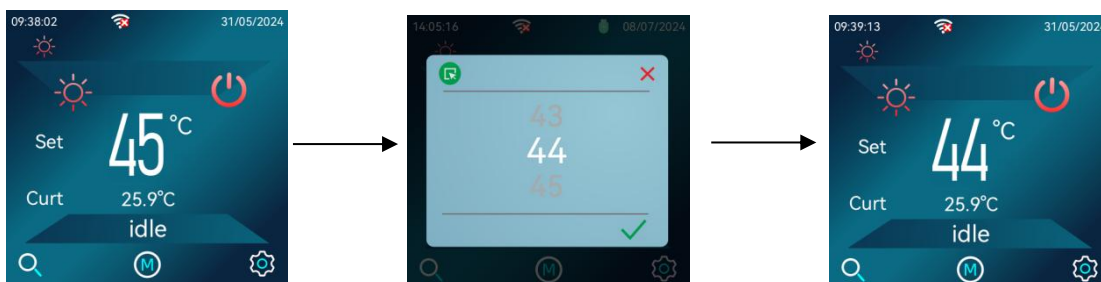
5.2.2 Two-zone mode: Cooling+DHW、 Heating+DHW

On the main interface, please press "Set temperature" of the corresponding area and the parameter setting box of the area will pop up.

Select the target value by sliding and then press ✓ to modify the set temperature value.

5.3 Mode of Zone settings

There are five spatial modes:

1. Cool
2. Heat
3. HotW
4. Cool HW
5. Heat HW

Press M in the main interface to pop up the space mode setting window:

Press on the desired mode in the Set Mode box to change the mode. If you press X , the pop-up window will be closed directly to cancel this mode setting.

5.4 Time and date settings

To update the time and date settings please follow the steps as outlined below. Exemplary, we will show how to modify the year.

Press ⚙ on the main interface to enter the setting menu, and select "Time and date" to enter.

Please refer to 7.2 "Time and date" for the exact path.
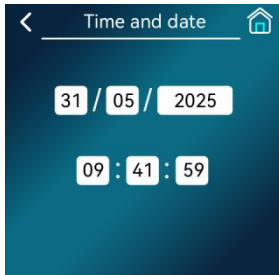
In the above interface, please press the box of the year and the parameter setting box will pop up. Enter the correct year and press ✓ to modify the year value.

www.tommatech.de
mail@tommatech.de
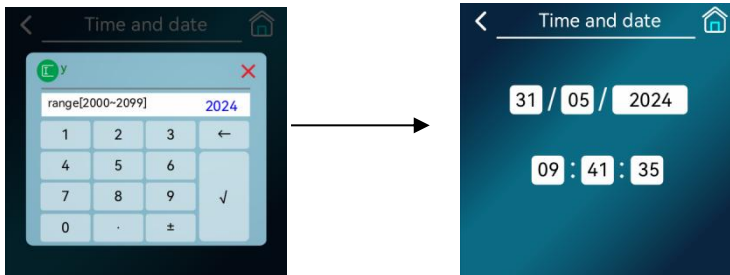
6. QUERY MENU

There are four query menus:
1) Curt.err query
2) Status query
3) Version query
4) ECM query

6.1 Curt.err query

Press 🔍 on the main interface to enter the query interface.
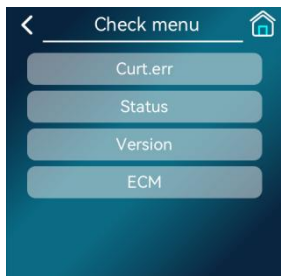
If the heat pump is in fault or error mode, press the "Curt.err" option to view the error.

Then press ↻ to reset the error if it meets the reset conditions.

When selecting a specific error message, you can see the specific meaning of the error code.
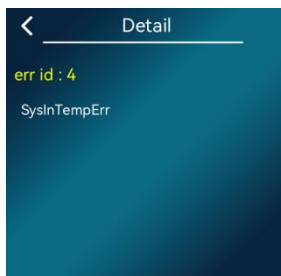
6.2 Status query

When you need to check the current status information of the unit (such as temperature, output of the relays, etc.), you can enter the status query interface to check.

Press < or > to switch between module status and system status.

6.3 Version query

When handling certain after-sales issues, it may be necessary to provide the software information used by the wire controller to help better locate the problem. You can enter the version inquiry interface to check this information.

6.4 ECM query

When you need to check the Power, Capacity and COP(EER) of the unit in the last 24 hours, the last 30 days, the last 12 months or the last 10 years, you can enter the ECM query interface to check.

The operation of this wire controller to check the Power, Capacity and COP(EER) in any time period is the same. However, we will show hot to get the data of the last 30 days as an example:

Press "Last 30 Days" enter the option.

Press < and > to see the Power, Capacity and COP(EER) on other dates.

7. SETTING MENU

In the main interface, press ⚙ to enter the setting menu.

7.1 Display Setting

Under "Display Setting" you can set parameters for daily operations , such as language, screen lock, screen time, etc.
In the display setting interface, you can select different parameters to modify the value.
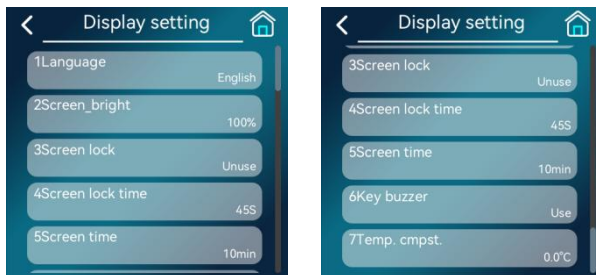
Note: If the value of "Screen time" is "0", the function will be disabled. Then the screen will stay on.

7.2 Time and date setting

If the date and time do not correspond to the reality, you can modify the date and time through the following paths.
" Main interface" >" Set menu" >" Time and Date "
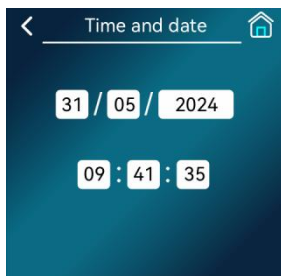
Please refer to 5.4 for time modification.

7.3 Timer setting

You can enter the timer settings through the following paths:

" Main interface" >" Set menu" >" Timer"
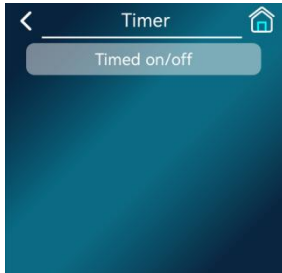
Press "Timer on/off" to enter the Timer on/off interface. In this interface you can set the timing according to your requirements.
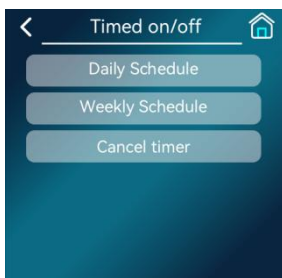
Press to select daily schedule, weekly schedule or Cancel timing to select the corresponding option.

The timer icon will be shown on the main interface when the timer is activated.

The timer icon will not be shown on the main interface when the timer is invalid or inactive..

7.3.1 Daily Schedule

Enter the daily schedule interface, press to use or cancel a specific timer. After that, the corresponding "hour" or "minute" will pop up the parameter setting box. Please enter the target value and press ✓ to save.

Tip:
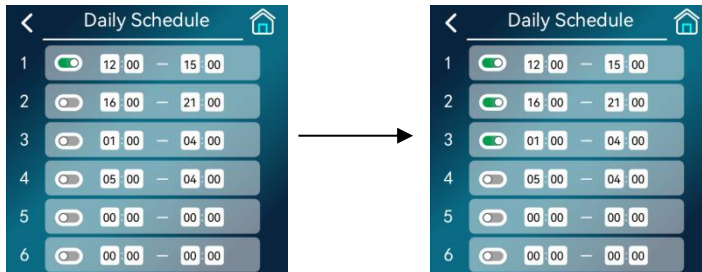
If the start time is later than the end time or cross-day setting, the timer setting will be invalid, and the following interface will appear.
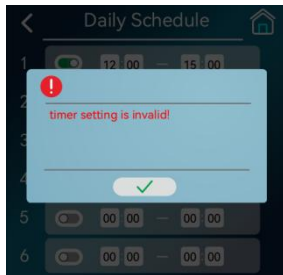
7.3.2 Weekly Schedule

The following operations can set the unit to on or off at a fixed time every week, such as turn on at 8:00 every Monday to Friday and turn off at 22:00.

Enter the weekly schedule interface and press to use or cancel the Monday-Friday timer on/off function..
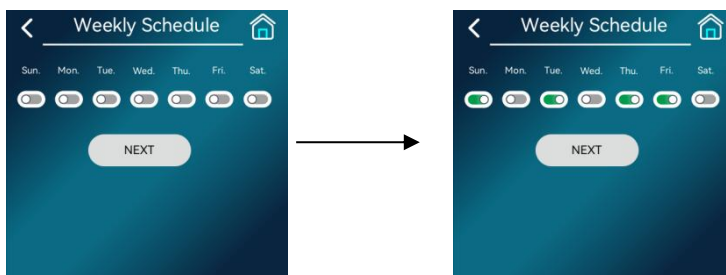
Press "Next" to enter the timer group setting.

Please refer to 7.3.1 for timing group setting.

Tip:

If the start time is later than the end time or cross-day setting, the timing setting will be invalid, and the following interface will appear.
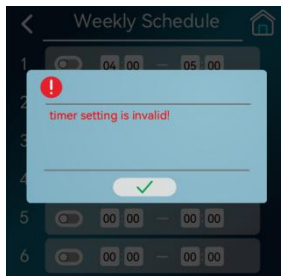
7.3.3 Cancel timer

Enter the interface "cancel timer"and press ✓ to cancel the timer and clear all settings.
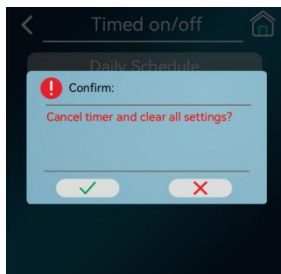
7.4 Network Configuration Guidelines

This wire controller has a built-in WIFI module, which can establish communication with the TommaTech Cloud APP to allow you to operate the unit using your mobile device.
When connecting the wire controller to a WIFI network for the first time, it is necessary to ensure that the wire controller and the mobile phone are in the same WIFI network,, and the signal is strong enough.
Please follow the following path: " Main interface" >" Set menu" >" WIFI setting", to enter the WIFI settings interface. There, you can see the current WIFI status, MAC address and corresponding instructions.
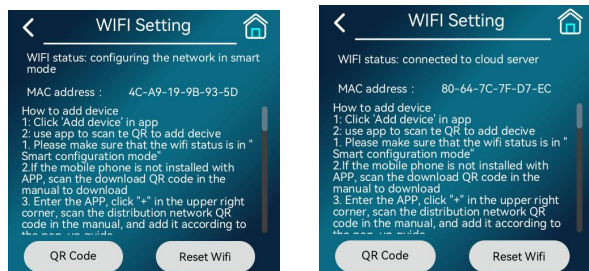
Click **"QR Code"**, and a QR code will pop up for downloading the TommaTech Monitoring App and linking the device.
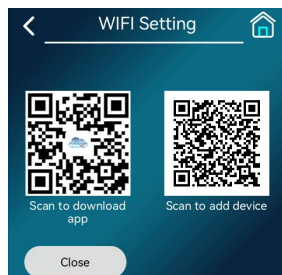
If the WIFI status shows "Connected to cloud server", the wire controller has been configured correctly and can be operated on the account that has been set up before.

If the WIFI status displays other contents or you need to reset the WIFI settings, the following steps can be followed:

(Note: All settings will be deleted. Devices which have been connected to the heat pump before, will not be able to operate it anymore.)

Press "Connected to cloud server" on the first When the WIFI status is "configuring the network in smart mode", you can connect the heatpump to your mobile device and follow the required steps there. .

7.5 User Setting

The user parameters can be set directly by any end-user. Please follow the following path:" Main interface" >' Set menu" >" User para":

Please refer to the table in the appendix for more parameters.(Actual parameters are subject to the display of the wire controller):

7.6 Manual defrost

During normal operation, the unit is equipped with an intelligent (automatic) defrost function. However, in certain situations, the manual defrost function may be required. You can access the manual defrost function through the following path: "Main Interface" > "Settings Menu" >> "Manual Defrost."

Click to enter the manual defrost settings interface, where the current status of each module will be displayed, such as Stopped, Running, or Defrosting.

If you need to defrost manually, first select on the corresponding module and the manual defrost approval box will pop up. Please select ü to start the defrosting.
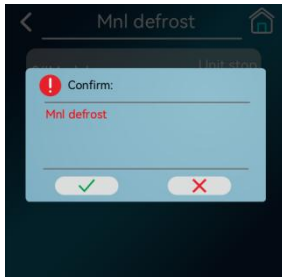
To manually start the defrost cycle, the heat pump must be actively running, and the water and fin temperatures must meet the necessary conditions. Once initiated, the unit status will change to "Unit Defrost." Otherwise, the unit will maintain its original operating status.

7.7 History error

Errors that have occurred to the unit (including those that have been reset) will be recorded in the controller. The history error interface can be accessed as follows:
" Main interface" >" Set menu' >" His err".

In this interface, you can see the code and occurrence time of each error in the past. Pressing

 will clear the error history. If you select a specific error, you can see the specific meaning of the error code.
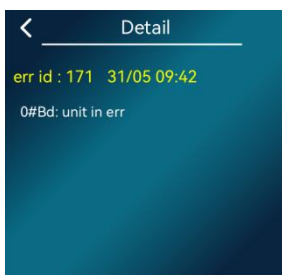
8. APPENDIX FOR SETTINGS

Appendix 1: Parameter Table

Before the first startup, please make sure the parameters are suitable for your unit!

The numbers 1, 3, 4 represent parameter operation permissions (corresponding to User, Service, and Manufacturer levels). The larger the number, the higher the level. Operators with higher-level permissions can modify lower-level parameters.

	Setting Item	Setting Range	Default Value	Unit	Level	Remarks
01>User Parameters						
1	Control Mode	[1] Constant temperature mode [2] Cooling mode [3] Heating mode [4] Hot water mode [5] Hot water & Cooling mode [6] Hot water & Heating mode	Heating mode	/	1	Can be changed during operation and switched automatically.
2	Cooling Set Temperature	-15...35	12	℃	1	The setting range is specified by **[Cooling Lower Limit], [Cooling Upper Limit],**
3	Heating Set Temperature	16...85	45	℃	1	**[Heating Lower Limit],** and **[Heating Upper Limit].**
4	Hot Water Set Temperature	30...80	50	℃	1	The setting range is specified by **[Hot Water Upper Limit].**
5	Set Constant Temperature	10...60	25	℃	1	
6	Power Mode	[0] Standard [1] Powerful [2] Energy-saving [3] Auto	Standard	/	1	
7	Silent Mode	[0] Disable [1] Night silent [2] All-day silent	Disable	/	1	
8	Night Silent On (hour)	0...23	22	h	1	
9	Night Silent On (minute)	0...59	0	min	1	
10	Night Silent Off (hour)	0...23	7	h	1	
11	Night Silent Off (minute)	0...59	0	min	1	
12	Standby Function	[0] Disable [1] Enable	Disable	/	1	Within the set time period, **[Heating Standby Temperature] or [Cooling Standby Temperature]** will be used as the target temperature.
13	Heating Standby Temperature	16...85	30	℃	1	The setting range is specified by **[Cooling Lower Limit], [Cooling Upper Limit], [Heating Lower Limit], and [Heating Upper Limit].**
14	Cooling Standby Temperature	-15 … 35	17	℃	1	
15	Standby On (hour)	0 … 23	20	h	1	

16	Standby On (minute)	0 … 59	0	min	1	
17	Standby Off (hour)	0 … 23	5	h	1	
18	Standby Off (minute)	0 … 59	0	min	1	
19	Heating 2-way Valve Interlock	[0] Disable; [1] Enable	Enable	/	1	
20	Alarm Sound Setting	[0] Off; [1] Continuous; [2] 10 seconds only; [3] 10-second cycle	10 seconds only	/	1	Set the buzzer alarm mode. Cyclic 10 seconds: sounds for 10 seconds every half hour.
21	Water Pump Operation Mode	[0] Continuous; [1] Stop at set temperature; [2] Intermittent	Intermittent	/	1	Intermittent operation: after reaching the temperature, the water pump operates intermittently.
22	Terminal Pump	[0] Disable; [1] Enable	Enable	/	1	
23	Maximum Continuous Operation	0 … 999	30	min	1	0: means disable this logic;X: after reaching the temperature, the compressor continues to run for up to X minutes.
24	Minimum Cooling Time	0 … 999	30	min	3	
25	Minimum Heating Time	0 … 999	30	min	3	
26	Maximum Hot Water Time	0 … 999	240	min	3	
27	Heat Pump Set Temperature	30 … 80	45	℃	3	
28	Number of Modules	1 … 8	1	/	3	1.When performing module cascading,first set the module address of each board according to the wiring diagram. Then set the Number of Modules in the main module. 2.Each module can be set individually as "Enable" or "Disable". 0 = Disable, 1= Enable.
29	Module #00 Setting	[0] Disable; [1] Enable	Enable	/	3	
30	Module #01 Setting	[0] Disable; [1] Enable	Enable	/	3	
31	Module #02 Setting	[0] Disable; [1] Enable	Enable	/	3	
32	Module #03 Setting	[0] Disable; [1] Enable	Enable	/	3	
33	Module #04 Setting	[0] Disable; [1] Enable	Enable	/	3	
34	Module #05 Setting	[0] Disable; [1] Enable	Enable	/	3	
35	Module #06 Setting	[0] Disable; [1] Enable	Enable	/	3	
36	Module #07 Setting	[0] Disable; [1] Enable	Enable	/	3	
37	Full Compressor On Differential Temperature	0 … 20	6	℃	4	

38	Energy Control Cycle	0 … 999	60	s	4	
39	Sterilization Start (day of week)	[0] Sunday; [1] Monday; [2] Tuesday; [3] Wednesday; [4] Thursday; [5] Friday; [6] Saturday	Sunday	/	1	
40	Sterilization Start (hour)	0 … 23	0	h	1	
41	Sterilization Start (minute)	0 … 59	0	min	1	

Appendix 2: Fault Table

There are four types of fault reset methods:

1. Power-On Reset

   After the fault is cleared, the unit must be powered on again to reset.

   Faults requiring power-on reset: see Fault Table.

2. Restricted Automatic Reset (A/M)

   After a fault alarm occurs, once the fault is cleared, the system will automatically reset after a delay of a specific Fault Reset Time, provided the same fault does not occur again within this period.

   Within the set Automatic Reset Allowable Time, the system can automatically reset up to two times. On the third alarm, the system will lock and require a shutdown for a "specified time" before it can automatically reset again.

   "Specified time": starts at 30 minutes, increasing by 30 minutes with each lockout, up to a maximum of 4 hours.After a manual reset, the fault count will be recalculated, and the "specified time" will restart from 30 minutes.

3. Automatic Reset A

   After the fault is cleared, the system resets automatically.

   No limit on the number of automatic resets.

4. Manual Reset M

   After the fault is cleared, it can only be reset manually via the controller.

   Faults in categories (2) and (3) can also be reset manually.

	Fault Code	Reset Method	Detection	Alarm Action	Fault Clearance
Controller Fault					
EEPROM Data Error	2	Power-On Reset	Detected after power-on.	Alarm, unit cannot start	(1) Initialize system maintenance settings. (2) If the fault still cannot be cleared after initialization, please contact us!
System Maintenance Data Error	6	Power-On Reset	Detected after power-on.	Alarm, unit cannot start	(1) Initialize system maintenance settings. (2) If the fault still cannot be cleared after initialization, please contact us!
Inverter Communication Fault	124	A	Detected after power-on.	Compressor stops	Check whether the communication cable is properly connected and in good conditions. .
EC1 Communication Fault	120				
EC2 Communication Fault	122				
Inverter Fault	125	A/M	Detected after power-on.	Compressor stops	Check the corresponding inverter fault. Refer to the inverter manual for specific fault details.
EC1 Fault	121	A	Detected after power-on.	Compressor stops	Check the corresponding inverter fault. Refer to the inverter manual for specific fault details.
EC2 Fault	123				
Inverter Model Setting in Progress	126	A	Detected after power-on.	Compressor stops	When the inverter is connected for the first time, this fault may appear. If the fault cannot be cleared automatically, restart the unit. If it still cannot be cleared, it indicates that the corresponding compressor model is not available in the inverter driver.

Unit Fault

Insufficient Water Flow	169	A/M	Detection of insufficient water flow begins 30 seconds after the pump starts. If the switch remains off for [Water Flow Insufficient Detection Delay], an alarm is triggered.	Stops the unit and the air-conditioning pump. End-point pumps continue running. When not in antifreeze mode, if [Pump On with Insufficient Water Flow] is enabled and the ambient temperature is below 2 °C, the air-conditioning pump will not be stopped.	Check whether the corresponding input point is closed.
Power Supply Fault	176	M	The "Power Supply Fault" input point is checked after power-on.	Alarm, unit cannot start and Non-Derating Shutdown	
Fan Protection	170	M	The "Fan Overload" input point is checked after power-on.	Alarm, compressor stops	Check whether the fan overload input status is normal.
Compressor High Pressure	98	A/M	Detection begins after the compressor starts running. If the unit is currently defrosting, defrosting will be canceled and no alarm will be triggered.	Compressor stops Non-Derating Shutdown	Check whether the high-pressure input status is normal.
Discharge Pressure Too High	107	A/M			Check the high-pressure value.
Compressor Low Pressure	97	A/M	After the compressor has been running for [Low Pressure Detection Delay] (or if [Standby Low Pressure Detection] is enabled during standby), low pressure detection begins. If low pressure persists for [Cooling Low Pressure Delay] or [Heating Low Pressure Delay], an alarm is triggered. If the compressor is currently defrosting, low pressure is not detected. Low pressure detection will resume only after defrost ends and [Post-Defrost Low Pressure Detection Delay] has elapsed.	Compressor stops	Check whether the low-pressure input status is normal.
Discharge Pressure Too Low	106	A/M			Check the low-pressure value.
Discharge Temperature Too High	103	A/M	If [Discharge Temperature Setpoint] is enabled, the higher value between "Compressor Top Temperature" and "Discharge Temperature" is used for evaluation: When the discharge temperature > [Discharge Temperature Too High], an alarm is triggered. When the discharge temperature ≤ [Discharge Temperature Too High] – [Discharge Temperature Recovery Difference], the unit can be restarted.	Compressor stops and Non-Derating Shutdown	Check whether the temperature sensor is functioning properly. Check for refrigerant shortage.
Air-Conditioning Supply Temperature Too Low	166	A/M	During cooling mode detection: When the water supply temperature ≤ [Cooling Supply Temperature Too Low], an alarm is triggered. When the water supply temperature > [Cooling Supply Temperature Too Low] + [Exit Temperature Protection Hysteresis], the unit can be restarted.	Compressor stops and Non-Derating Shutdown	Check the supply and return water temperature.

Air-Conditioning Return Temperature Too Low	116	A/M	During cooling mode detection: When the water return temperature ≤ [Cooling Supply Temperature Too Low] + 1°C, an alarm is triggered. When the water return temperature > [Cooling Supply Temperature Too Low] + [Exit Temperature Protection Hysteresis] + 1°C, the unit can be restarted.	Compressor stops and Non-Derating Shutdown	Check the supply and return water temperature.
Air-Conditioning Supply Temperature Too High	167	A/M	During heating mode detection: When the water supply temperature ≥ [Heating Supply Temperature Too High], an alarm is triggered. When the water supply temperature < [Heating Supply Temperature Too High] – [Exit Temperature Protection Hysteresis], the unit can be restarted.	Compressor stops	Check the supply and return water temperature.
Air-Conditioning Return Temperature Too High	117	A/M	During heating mode detection: When the water return temperature ≥ [Heating Supply Temperature Too High] – 1°C, an alarm is triggered. When the water return temperature < [Heating Supply Temperature Too High] – [Exit Temperature Protection Hysteresis] – 1°C,the unit can be restarted.		
Supply-Return Temperature Difference Too Large	174	A/M	Detection when the compressor is running and not in defrost: When the supply-return temperature difference exceeds [Supply-Return Temperature Difference Too Large] and persists for 1 minute, an alarm is triggered. When the supply-return temperature difference is less than [Supply-Return Temperature Difference Too Large] – 5°C, automatic reset is allowed.	Compressor stops	Check the supply and return water temperature sensors. Check the water flow and other related parameters.
Supply-Return Temperature Difference Abnormal	175	A/M	Detection when the compressor is running and not in defrost: When the supply-return temperature difference is reversed and exceeds [Supply-Return Temperature Difference Abnormal] for 10 minutes, an alarm is triggered. Automatic reset is allowed after the compressor stops.	Compressor stops	Check the supply and return water temperature sensors. Check the water flow and other related parameters.
Anti-Freeze Temperature Too Low	172	A/M	Detection with anti-freeze temperature enabled during cooling mode: When the anti-freeze temperature < 3 °C, an alarm is triggered. When the anti-freeze temperature > 7 °C, the unit can be restarted.	Compressor stops and Non-Derating Shutdown	Check the refrigerant level.

Frequent Emergency Defrost	111	M	Emergency defrost occurred 3 times within 2 hours.	Compressor stops	Check the refrigerant level.
Suction Temperature Too Low	110	A/M	Within 3 minutes after the compressor starts, if the suction temperature < [Suction Temperature Too Low] – 5°C and persists for 30 seconds, an alarm is triggered. After 3 minutes of compressor operation, if the suction temperature < [Suction Temperature Too Low] and persists for 30 seconds, an alarm is triggered. If the suction temperature > [Suction Temperature Too Low] + 2°C, the unit can be restarted.	Compressor stops and Non-Derating Shutdown	Check the refrigerant level.
Fan 1 Speed Abnormal	118	M	This fault is only detected when [Inverter Fan Setting] is set to PWM fan. After the fan starts, if the fan speed remains below [PWM Fan Speed Too Low] for [PWM Fan Speed Detection Delay], an alarm is triggered.	Compressor stops	Check whether the PWM fan wiring is normal.
Fan 2 Speed Abnormal	119				
Suction-Discharge Temperature Difference Abnormal	112	M	If [Suction-Discharge Abnormal Detection Delay] is set to 0, the function is disabled. Detection is not performed during defrost. After the compressor starts and [Suction-Discharge Abnormal Detection Delay] has elapsed, if the suction temperature > discharge temperature + 5°C, an alarm is triggered.	Compressor stops and Non-Derating Shutdown	
Cooling Evaporation Temperature Too Low	113	A/M	During cooling operation: Within 3 minutes before the compressor starts, if the valve outlet temperature < [Cooling Evaporation Temperature Too Low] – 3 °C and persists for 30 seconds, or after 3 minutes of compressor operation, if the valve outlet temperature < [Cooling Evaporation Temperature Too Low] and persists for 30 seconds, an alarm is triggered. When the valve outlet temperature > [Cooling Evaporation Temperature Too Low] + 2°C, the unit can be restarted.	Compressor stops and Non-Derating Shutdown	
Derating Switch	114	A	When the "Derating Switch" is triggered, the compressor enters forced derating protection; when the "Derating Switch" is restored, the compressor resumes normal frequency control.		
Inverter Water Pump Fault	181	M		Compressor stops and Non-Derating Shutdown	

| R290 Leak | 186 | M | This fault is only detected when [R290 Sensor Code] is not "0." When the sensor detects an excessive R290 concentration, an alarm is triggered. | The compressor stops (Non-Derating Shutdown). The auxiliary electric heating turns off. The chassis electric heating turns off. The crankcase electric heating turns off. The fan runs at minimum speed. | Check the unit's refrigerant piping. |

	Fault Code	Reset Method	Detection	Alarm Action	Fault Clearance
Sensor Fault					
Ambient Temperature Sensor Fault	3	A	Detected after power-on	Compressor stops	Check whether the sensor is properly connected. Check whether the temperature sensor is functioning properly.
Return Water Temperature Sensor Fault	4	M			
Supply Water Temperature Sensor Fault	5	M			
Water Tank Temperature Sensor Fault	9	A			
Buffer Tank Temperature Sensor Fault	10	A			
Flow Sensor Fault Fin Temperature Sensor Fault	182	A			
Fin Temperature Sensor Fault	101	M			
Discharge Temperature Sensor Fault	102	M			
Suction Temperature Sensor Fault	108	M			
Valve Outlet Temperature Sensor Fault	109	M			
Anti-Freeze Temperature Sensor Fault	173	A			
Economizer Inlet Temperature Sensor	127	A			
Economizer Outlet Temperature Sensor	128	A			
Low-Pressure Discharge Pressure Sensor Fault	104	M			
High-Pressure Discharge Pressure Sensor Fault	105	M			
R290 Sensor Fault	185	A			Check whether the sensor wiring is normal. Check whether the sensor communication address is correct. Check whether the sensor hardware is functioning properly.

Inverter-type faults:

Fault Code	Fault Name	Possible Causes	Troubleshooting Steps
193	Over current at start-up	Compressor model parameters mismatch with actual specifications	Check compressor model and model parameters
		Restarting the rotating compressor	Restart after the compressor has completely stopped
		Short circuit between UVW output lines or short circuit to ground	Check if UVW output lines are short-circuited
		Inverter module damaged	Contact TommaTech Service
194	Over current during acceleration	Compressor model parameters mismatch with actual specifications	Check compressor model and model parameters
		Grid voltage too low	Check input power supply
		Inverter power too small	Select an inverter with a higher power rating
		Acceleration time too short	Extend acceleration time settings
195	Over current during deceleration	Compressor model parameters mismatch with actual specifications	Check compressor model and model parameters
		Inverter power too small	Select an inverter with a higher power rating
		Deceleration time too short	Extend deceleration time settings
196	Over current during constant-speed operation	Compressor model parameters mismatch with actual specifications	Check compressor model and model parameters
		Grid voltage too low	Check input power supply
		Abnormal load	Perform load inspection
		Inverter power too small	Select an inverter with a higher power rating
197	Over voltage during acceleration	Input voltage too high	Check input power supply
		Restarting the rotating compressor	Restart after the compressor has completely stopped
		Compressor model parameters mismatch with actual specifications	Check compressor model and model parameters
198	Over voltage during deceleration	Input voltage too high	Check input power supply
		Compressor model parameters mismatch with actual specifications	Check compressor model and model parameters
		Deceleration time too short	Extend deceleration time settings
199	Over voltage during constant-speed operation	Input voltage too high	Check input power supply
		Compressor model parameters mismatch with actual specifications	Check compressor model and model parameters
		Acceleration and deceleration time setting too short	Appropriately extend acceleration and deceleration time settings
200	Over voltage in standby state	Input voltage too high	Check input power supply
		DC bus voltage circuit fault detected	Contact TommaTech Service
201	Under voltage during running	Abnormal input voltage or power failure during operation	Check input power supply and wiring
		Input phase loss	Check input power supply and wiring
		Charging contactor damaged	Inspect and replace if required
202	Input phase loss (only for three-phase input)	Phase loss in three-phase input	Check installation wiring
		Input three-phase imbalance	Check input voltage
		Severe output oscillation	Adjust parameters to eliminate oscillation
203	Output phase loss	Phase loss in output U, V, W	Check output wiring, inspect motor and cables
204	Power device protection	Compressor model parameters mismatch with actual specifications	Check compressor model and model parameters
		Short circuit between UVW output lines or short circuit to ground	Rewire
		Cable between compressor and inverter too long	Add output reactor or filter

Fault Code	Fault Name	Possible Causes	Troubleshooting Steps
		Severe interference or inverter damaged	Contact TommaTech Service
205	Inverter overheating	Ambient temperature too high	Reduce ambient temperature
		If the fault occurs immediately after power-on: possible temperature probe damaged or disconnected	Contact TommaTech Service
		Air duct blocked or fan damaged	Clean the air duct or replace the fan
		Excessive load	Check the load or select a high-power inverter
206	Inverter overload (PFC overheating)	Inverter temperature too high	Check the fan, air duct, and ambient temperature
		Acceleration time too short	Extend acceleration time settings
		Input voltage too low	Check input voltage
		Compressor model parameters mismatch with actual specifications	Check compressor model and model parameters
207	Motor overload	Compressor model parameters mismatch with actual specifications	Check compressor model and model parameters
		Compressor locked-rotor or excessive sudden load change	Check compressor model and model parameters
		Input voltage too low	Check input voltage
208	PFC startup failure	After starting the system, the input grid voltage remains too low for several seconds, causing PFC failure to start	Check input voltage
		PFC module self-protection or circuit abnormality	Please shut down for a few minutes, then power on again to restart, or seek service
209	Excessive motor load	Current exceeds the overload detection level or the detection time	Check compressor model and model parameters
210	Motor over speed	Compressor operating speed exceeds 1.1 times the upper speed limit	Check whether the compressor phase sequence is reversed, or the compressor is not connected
211	Motor D-axis over current	Compressor model parameters mismatch with actual specifications	Check compressor model and model parameters
		Restarting the compressor after too short shutdown time	Check compressor model and model parameters
		Current detection circuit abnormality	Shut down for a few minutes, then restart
		PMSM motor demagnetization	Contact TommaTech Service
		Compressor stator winding disconnection	Replace the motor
212	Motor Q-axis over current	Compressor model parameters mismatch with actual specifications	Check the motor stator resistance and replace the motor
		Restarting the compressor after too short shutdown time	Check compressor model and model parameters
		Current detection circuit abnormality	Shut down for a few minutes, then restart
		PMSM motor demagnetization	Contact TommaTech Service
		Motor stator winding disconnection	Replace the motor
213	Parameter saving failure	Error occurred during parameter writing	Check the motor stator resistance and replace the motor
214	Communication error	Communication line between control board and inverter drive board is incorrectly connected or disconnected	Power off and then power on again to retry; if the problem persists, please seek service
		Improper communication parameter settings	Check the control board, inverter drive board, and wiring
		Severe communication interference	Check communication loop wiring and grounding
215	Current detection fault	Current sensor damaged or circuit abnormality	Shut down and then power on again to retry; if the problem persists, please contact TommaTech service
216	PFC temperature detection fault	If the fault occurs immediately after power-on: possible PFC temperature probe damage or disconnection, or circuit abnormality	Shut down and then power on again to retry; if the problem persists, please contact TommaTech service

| Fault Code	Fault Name	Possible Causes	Troubleshooting Steps
217	Motor locked-rotor during startup	Motor rotor rotation fluctuation exceeds the limit, resulting in motor out-of-step	Check compressor model and model parameters
		Restarting the motor after too short shutdown time	Shut down for a few minutes, then restart
		Improper parameters for motor startup and locked-rotor detection	Check compressor model and model parameters
		PMSM motor demagnetization	Replace the motor
		Motor stator winding disconnection	Check the motor stator resistance and replace the motor
		Excessive operating load	Check the motor load
218	Motor locked-rotor during operation	Motor rotor rotation fluctuation exceeds the limit, resulting in motor out-of-step	Check compressor model and model parameters
		Restarting the motor after too short shutdown time	Shut down for a few minutes, then restart
		Improper parameters for motor startup and locked-rotor detection	Check compressor model and model parameters
		PMSM motor demagnetization	Replace the motor
		Motor stator winding disconnection	Check the motor stator resistance and replace the motor
		Excessive operating load	Check the motor load
219	Heat dissipation temperature detection fault	If the fault occurs immediately after power-on: possible temperature probe damage or disconnection, or circuit abnormality	Shut down and then power on again to retry; if the problem persists, please contact TommaTech service
220	Stall error (zero speed)	Motor fails to operate as instructed	Check compressor model and model parameters
221	Interrupt overflow 1	Internal fault	Contact TommaTech Service
222	Interrupt overflow 2	Internal fault	Contact TommaTech Service
223	Excessive rotor shake during startup	Restarting the motor after too short shutdown time	Shut down for a few minutes, then restart
		Improper parameters for motor startup and locked-rotor detection	Check compressor model and model parameters
		PMSM motor demagnetization	Replace the motor
		Motor stator winding disconnection	Check the motor stator resistance and replace the motor
		Excessive operating load	Check the motor load
224	Excessive rotor shake during operation	Restarting the motor after too short shutdown time	Shut down for a few minutes, then restart
		Improper parameters for motor startup and locked-rotor detection	Check compressor model and model parameters
		PMSM motor demagnetization	Replace the motor
		Motor stator winding disconnection	Check the motor stator resistance and replace the motor
		Excessive operating load	Check the motor load
225	PFC over current	Low input grid voltage during overload operation	Check input power supply
		Short circuit between PFC inductor lines or short circuit to ground, or PFC circuit fault	Check PFC inductor lead wires or inductor coil for short circuit, or contact TommaTech service
226	Excessive PFC peak current	Low input grid voltage and overload operation	Check input power supply
		Short circuit between PFC inductor lines or short circuit to ground, or PFC circuit fault	Check PFC inductor lead wires or inductor coil for short circuit, oror contact TommaTech service
227	Excessive PFC RMS current	Low input grid voltage during overload operation	Check input power supply
		Excessive compressor load or abnormal compressor refrigerant	Check the mechanical system, compressor refrigerant, etc., or or contact TommaTech service

Appendix 3: Curves

Table 1 Heating low temp curve (Heating Ambient Temp-Set Temp) Unit: °C

Ambient temp(TA)	≤-20	-19	-18	-17	-16	-15	-14	-13	-12	-11	-10	-9	-8	-7	-6	-5	-4	-3	-2	-1	0
Curve 1	38	38	38	38	38	37	37	37	37	37	37	36	36	36	36	36	36	35	35	35	35
Curve 2	37	37	37	37	37	36	36	36	36	36	36	35	35	35	35	35	35	34	34	34	34
Curve 3	36	36	36	35	35	35	35	35	35	34	34	34	34	34	34	33	33	33	33	33	33
Curve 4	35	35	35	34	34	34	34	34	34	33	33	33	33	33	33	32	32	32	32	32	32
Curve 5	34	34	34	33	33	33	33	33	33	32	32	32	32	32	32	31	31	31	31	31	31
Curve 6	32	32	32	32	31	31	31	31	31	31	31	31	30	30	30	30	30	30	30	30	29
Curve 7	31	31	31	31	30	30	30	30	30	30	30	30	29	29	29	29	29	29	29	29	28
Curve 8	29	29	29	29	28	28	28	28	28	28	28	28	27	27	27	27	27	27	27	27	26

Ambient temp(TA)	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	≥20
Curve 1	35	35	34	34	34	34	34	34	33	33	33	33	33	33	32	32	32	32	32	32
Curve 2	34	34	33	33	33	33	33	33	32	32	32	32	32	32	31	31	31	31	31	31
Curve 3	32	32	32	32	32	32	31	31	31	31	31	31	30	30	30	30	30	30	29	29
Curve 4	31	31	31	31	31	31	30	30	30	30	30	30	29	29	29	29	29	29	28	28
Curve 5	30	30	30	30	30	30	29	29	29	29	29	29	28	28	28	28	28	28	27	27
Curve 6	29	29	29	29	29	29	28	28	28	28	28	28	27	27	27	27	27	27	26	26
Curve 7	28	28	28	28	28	28	27	27	27	27	27	27	26	26	26	26	26	26	25	25
Curve 8	26	26	26	26	26	26	26	25	25	25	25	25	25	25	25	25	24	24	24	24

Table 2 Heating high temp curve (Heating Ambient Temp-Set Temp) Unit: ℃

Ambient temp (TA)	≤-20	-19	-18	-17	-16	-15	-14	-13	-12	-11	-10	-9	-8	-7	-6	-5	-4	-3	-2	-1	0
Curve 1	55	55	55	55	54	54	54	54	54	54	54	54	53	53	53	53	53	53	53	53	52
Curve 2	53	53	53	53	52	52	52	52	52	52	52	52	51	51	51	51	51	51	51	51	50
Curve 3	52	52	52	52	51	51	51	51	51	51	51	51	50	50	50	50	50	50	50	50	49
Curve 4	50	50	50	50	49	49	49	49	49	49	49	49	48	48	48	48	48	48	48	48	47
Curve 5	48	48	48	48	47	47	47	47	47	47	47	47	46	46	46	46	46	46	46	46	45
Curve 6	45	45	45	45	44	44	44	44	44	44	44	44	43	43	43	43	43	43	43	43	42
Curve 7	43	43	43	43	42	42	42	42	42	42	42	42	41	41	41	41	41	41	41	41	40
Curve 8	40	40	40	40	39	39	39	39	39	39	39	39	38	38	38	38	38	38	38	38	37

Ambient temp (TA)	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	≥20
Curve 1	52	52	52	52	52	52	52	51	51	51	51	51	51	51	51	51	50	50	50	50
Curve 2	50	50	50	50	50	50	50	49	49	49	49	49	49	49	49	48	48	48	48	48
Curve 3	49	49	49	49	49	49	49	48	48	48	48	48	48	48	48	47	47	47	47	47
Curve 4	47	47	47	47	47	47	47	46	46	46	46	46	46	46	46	45	45	45	45	45
Curve 5	45	45	45	45	45	45	45	44	44	44	44	44	44	44	44	43	43	43	43	43
Curve 6	42	42	42	42	42	42	42	41	41	41	41	41	41	41	41	40	40	40	40	40
Curve 7	40	40	40	40	40	40	40	39	39	39	39	39	39	39	39	38	38	38	38	38
Curve 8	37	37	37	37	37	37	37	36	36	36	36	36	36	36	36	35	35	35	35	35

The heat production curve 9 is an automatic setting curve (linear curve generated by setting parameters), calculated as below:
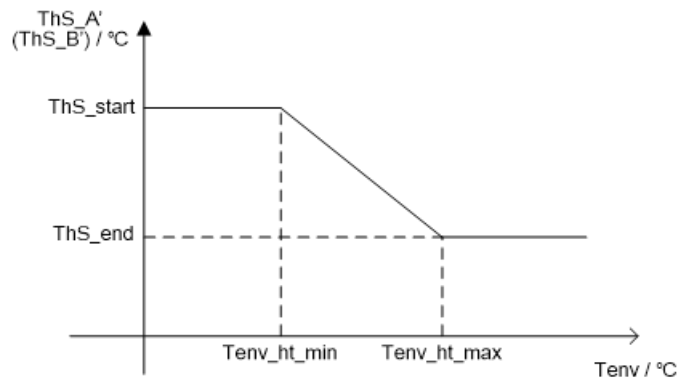
Index 1:Tenv_ht_max: MAX(【Heating ambient temp 1],[Heating ambient temp 2])

Tenv_ht_min: MIN(【Heating ambient temp 1],[Heating ambient temp 2])

ThS_end: MIN([Curve 9 Heating Target Water Temperature 2],

[Curve 9 Heating Target Water Temperature 1])

ThS_start: MAX([Curve 9 Heating Target Water Temperature 2],

[Curve 9 Heating Target Water Temperature 1])

Index 2: MAX(A,B)Take the larger of A and B

MIN(A,B)Take the smaller of A and B

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Table 3 Cooling low temp curve (Cooling Ambient Temp-Set Temp) Unit: °C

Ambient temp(TA)	-10≤TA＜15	15≤TA＜22	22≤TA＜30	30≤TA
Curve 1	16	11	8	5
Curve 2	17	12	9	6
Curve 3	18	13	10	7
Curve 4	19	14	11	8
Curve 5	20	15	12	9
Curve 6	21	16	13	10
Curve 7	22	17	14	11
Curve 8	23	18	15	12

Table 4 Cooling high temp curve (Cooling Ambient Temp-Set Temp) Unit: °C

Ambient temp(TA)	-10≤TA＜15	15≤TA＜22	22≤TA＜30	30≤TA
Curve 1	20	18	17	16
Curve 2	21	19	18	17
Curve 3	22	20	19	17
Curve 4	23	21	19	18
Curve 5	24	21	20	18
Curve 6	24	22	20	19
Curve 7	25	22	21	19
Curve 8	25	23	21	20

The cooling curve 9 is an automatic setting curve (linear curve generated by setting parameters), calculated as below:
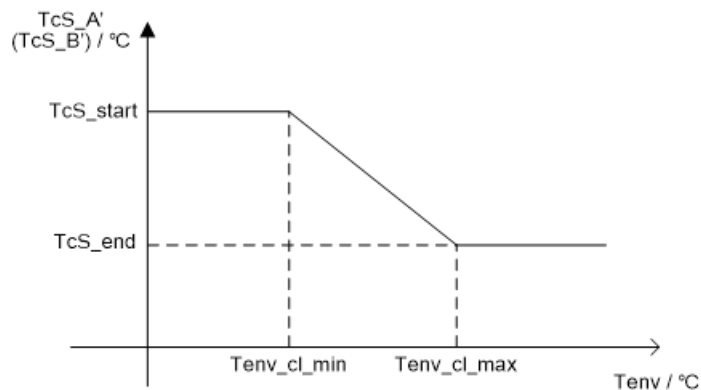
Index 1:Tenv_cl_max: MAX([Cooling ambient temp 1],[Cooling ambient temp 2])

Tenv_cl_min: MIN([Cooling ambient temp 1],[Cooling ambient temp 2])

TcS_end: MIN([Curve 9 Cooling Target Water Temperature 1],

[Curve 9 Cooling Target Water Temperature 2])

TcS_start: MAX([Curve 9 Cooling Target Water Temperature 1],

[Curve 9 Cooling Target Water Temperature 2])

Index 2: MAX(A,B)Take the larger of A and B
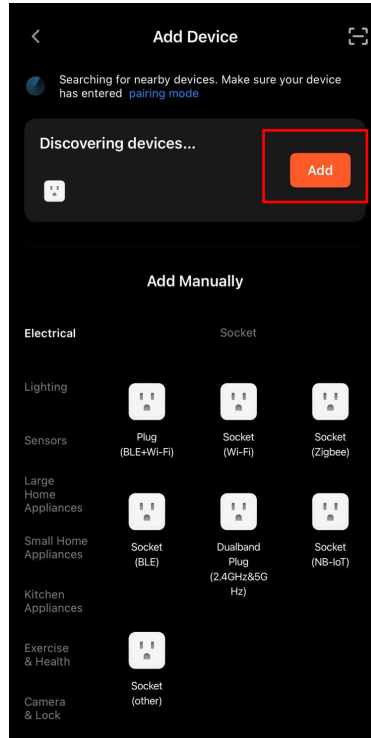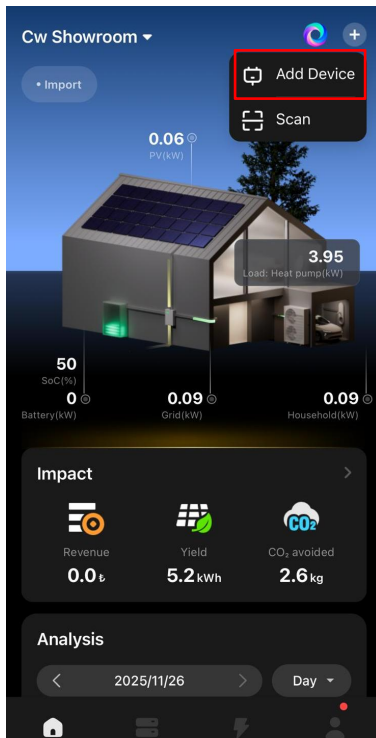
MIN(A,B)Take the smaller of A and B

9. WI-FI FUNKTION

9.1 Download App

（1）1. Scan dwnload the TommaTech Monitoring app

2. Please enter your region and email when registering.
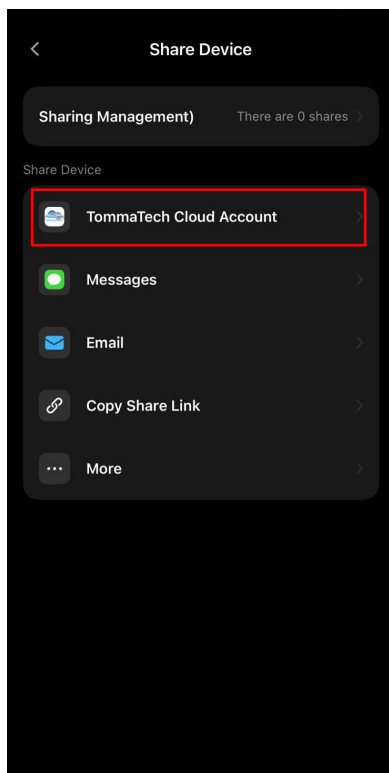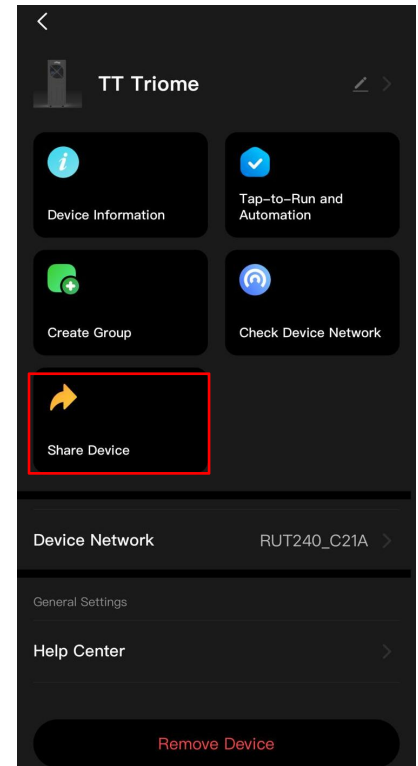
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mail@tommatech.de
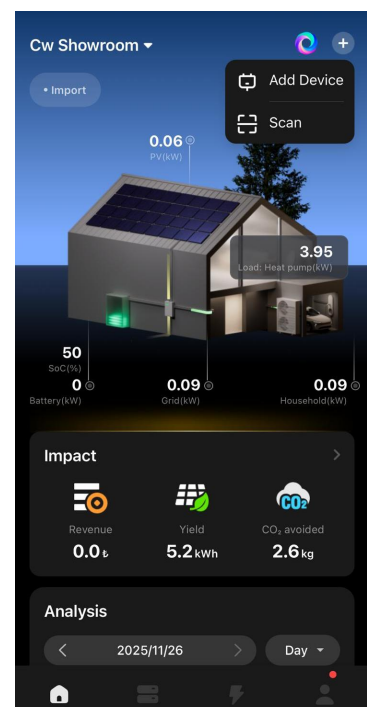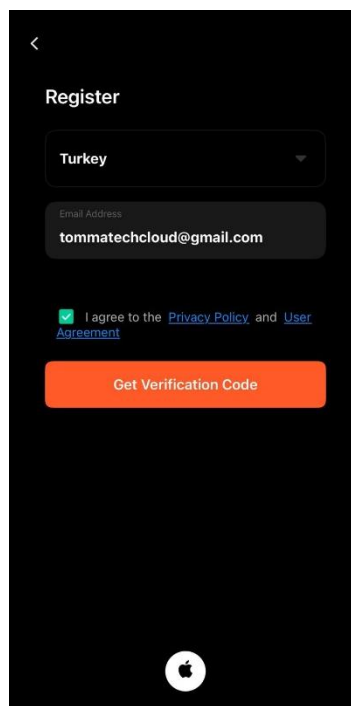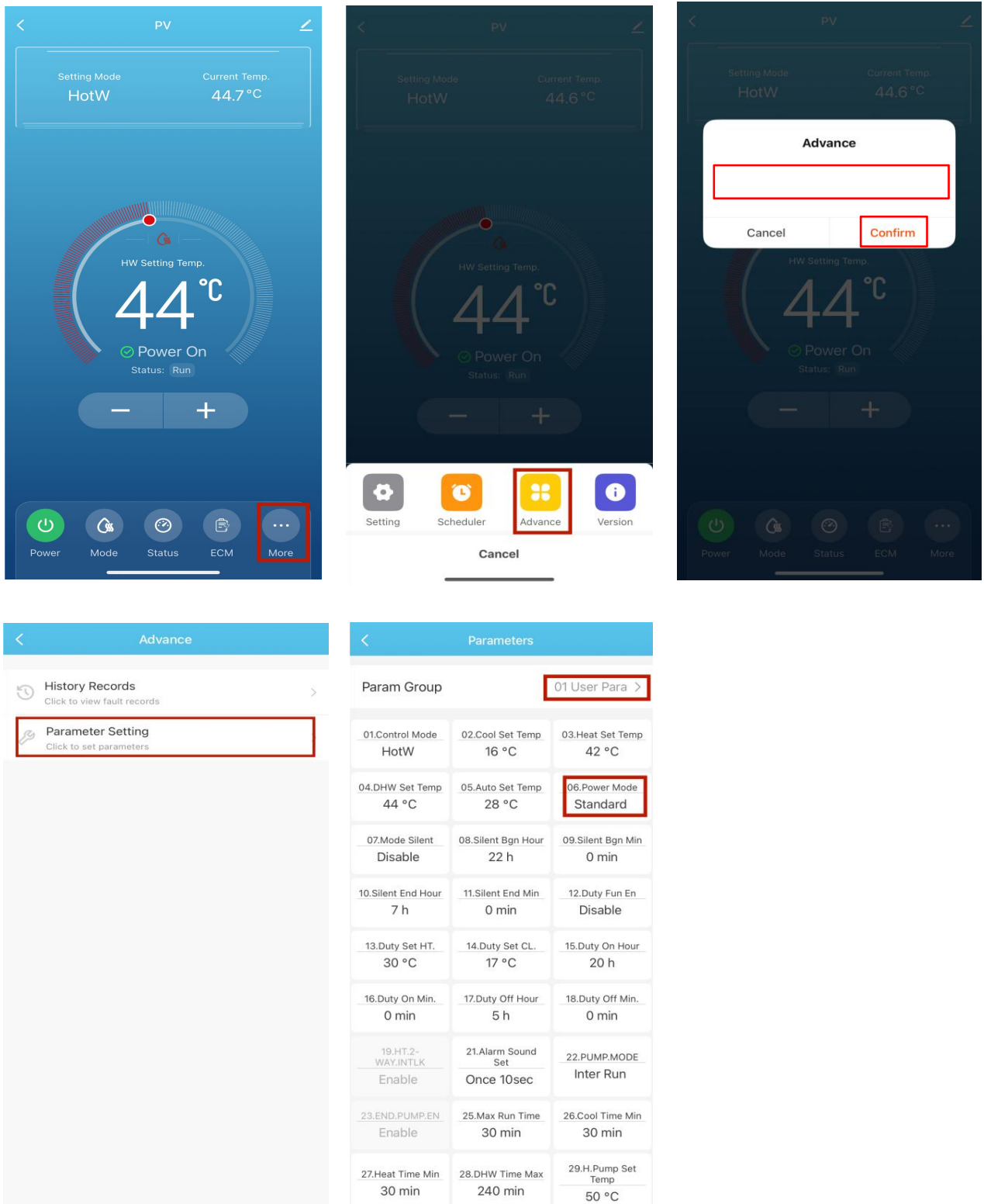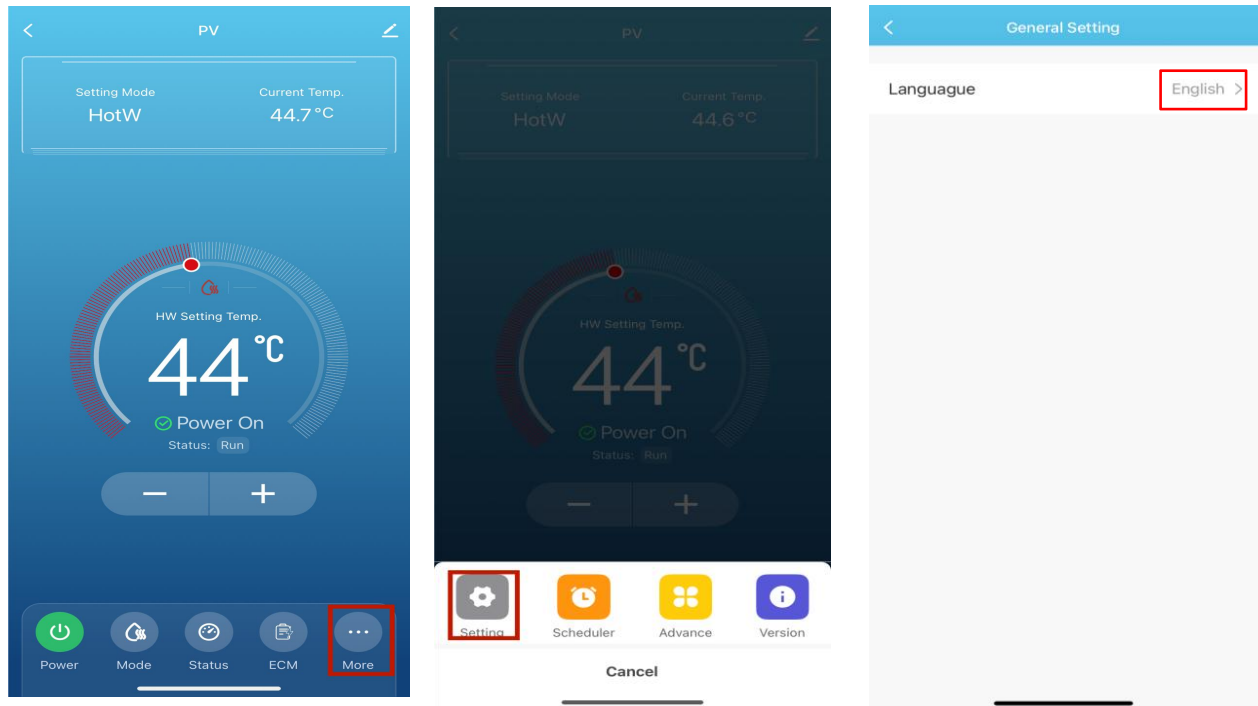
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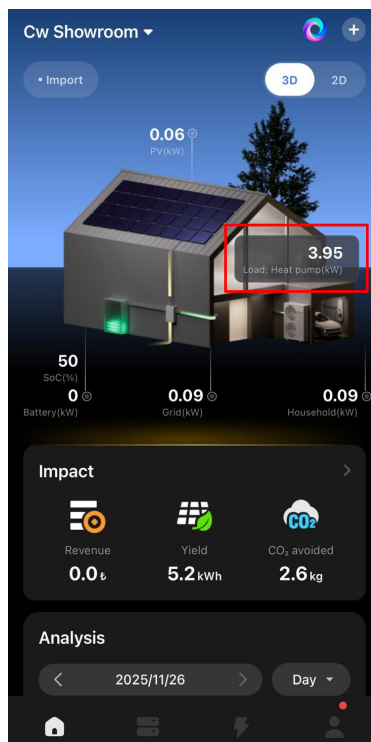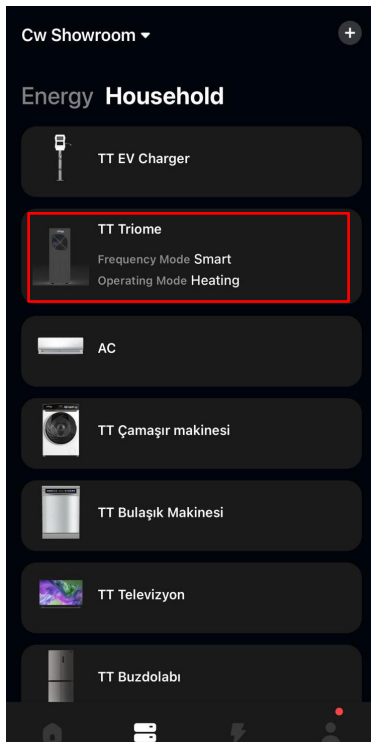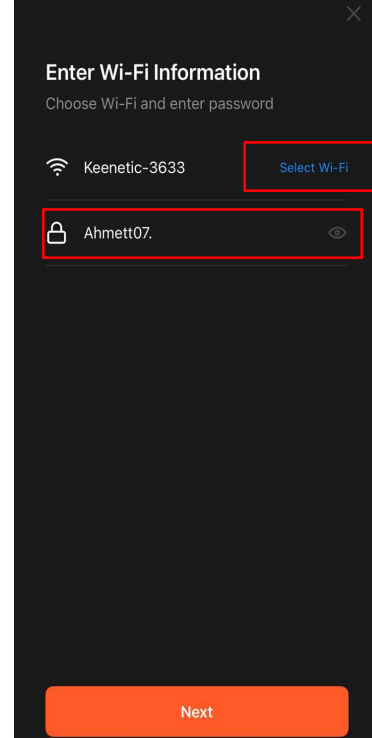
9.3 Device Sharing
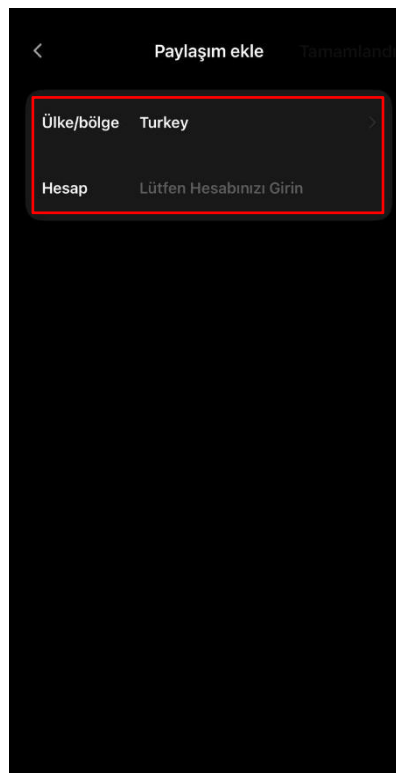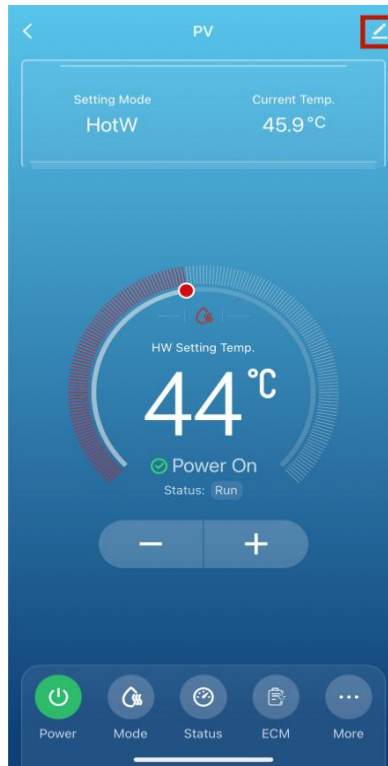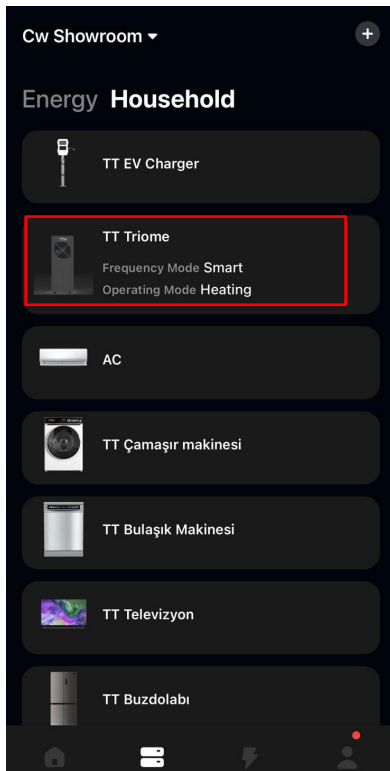
9.4 Modify parameters

9.5 Switch Language

You can access the Wi-Fi connection details by scanning the QR code below.

TOMMATECH CLOUD

TommaTech®
Triome R290 Heat Pump
Control Unit Manual

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