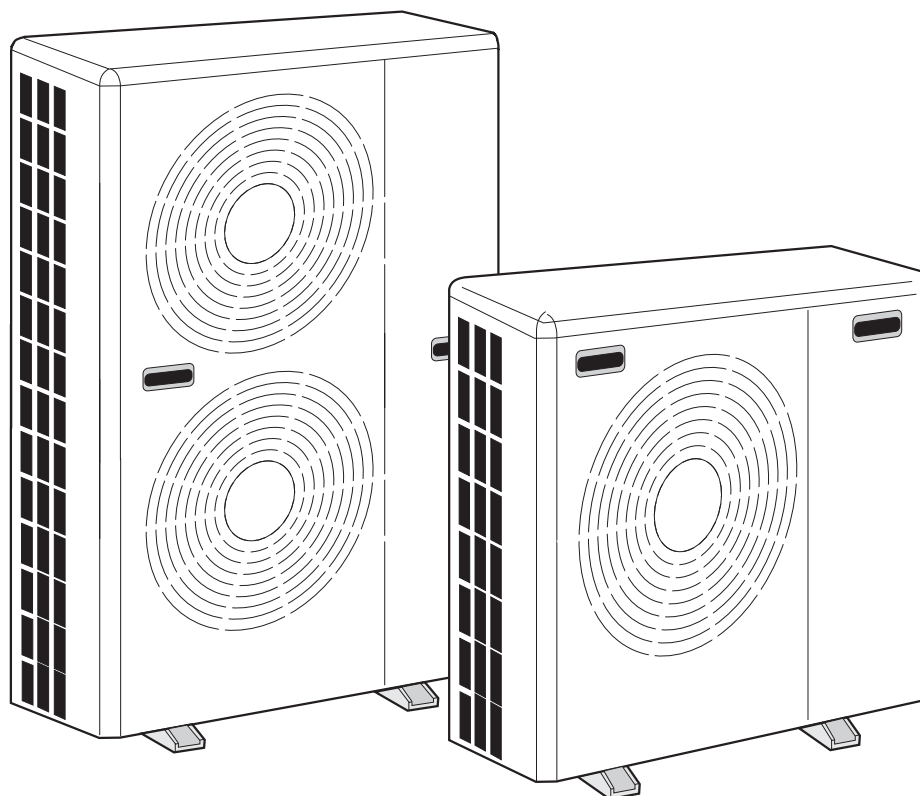




PALM AH, GH SERIES AIR TO WATER HEAT PUMP

Installer Manual



Error Meaning, Reason and Solution

In the event of any malfunction of the unit, the LCD controller will generate an error codes.

* Error codes won't display directly. We need to press once "enter"  button to see the error code.

* Continue to press "Enter" key to see more error code if exist.

The following error code is for Triaqua split heat pump and may be different from other series heat pumps. But the reason and solution is similar.

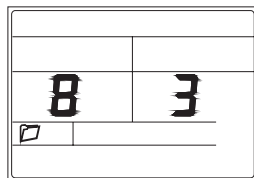
Error code	Error code meaning	Error display	Error Reason	Error Solution	LED1 blinks on outdoor control board
E9	Temp sensor of the of D.H.W water error	The compressor does not work in D.H.W. The heat pump will continue to produce D.H.W. with the heater element. Contact your support service	Sensor is broken or the connection is loose	Change or reconnect the sensor	8 flashes and 5 seconds off
E1	Sensor of water outlet from the heat exchanger of the air conditioning circuit error	The unit will continue to operate. The system uses sensor d5 instead of d3. Contact your support service about the problem.	Sensor is broken or the connection is loose.	Change or reconnect the sensor	7 flashes and 5 seconds off
P3	Sensor of water entering the heat exchanger of the air conditioning circuit error	The unit will continue to operate. The system uses sensor d3 instead of d5. Contact your support service	Sensor is broken or the connection is loose.	Change or reconnect the sensor	6 flashes and 5 seconds off
P1	Outdoor unit coil temperature sensor error	The compressor does not work in D.H.W. The unit will continue to produce D.H.W. with the electric heater. Contact your support service	Sensor is broken or the connection is loose.	Change or reconnect the sensor	14 flashes and 5 seconds off
P7	Outdoor air temperature sensor error	The compressor will stop for 20 minutes. It will then continue operating and will replace, sensor A4 by sensor A3. Contact your support, service about the problem.	Sensor is broken or the connection is loose.	Change or reconnect the sensor	5 flashes and 5 seconds off
PD	Not enough water flow, volume in the air conditioning circuit.	The unit will stop air conditioning mode if this anomaly occurs 3 successive times. When the water flow is resumed, the error should be cleared. If this does not occur, contact your support service.	Water flow switch connection loose or air conditioning water flow volume is too small. Or water filter is blocked by dirt -need to clean the filter as per page 18, figure 7.	1. If with water flow switch on the unit, please check if the connection is loose or the water flow switch is broken or the water pump is too small. 2. If without water flow switch on the unit, please check if the short connection wire is loose.	3 flashes and 5 seconds off
EN	Communication error between the indoor LCD control panel and the control board	The unit will stop operating. Contact your support service about the problem.	Communication wire is loose or control board is error.	Check the communication wires and control board. Reconnect the wires or change wires and control board	25 flashes and 5 seconds off
PA	Outdoor Electric connection missing phase protection	The unit will stop operating. Contact your support service	Power cable connection not Correct	Check the electric connection and reconnection the power cable.	1 flashes and 5 seconds off
PA	Outdoor Electric connection wrong phase.	The unit will stop operating. Contact your support service about the problem.	Power cable connection not correct	Check the electric connection and reconnection the power cable	1 flashes and 5 seconds off
E4	Pressure switch jump in high pressure	The compressor will stop. The unit will operate again when normal conditions are re-established. If this does not start, contact your support service	1. Vacuum is not good enough for refrigerant circuit. 2. There is air get inside of air conditioning water circuit. 3. There is dirt in the air conditioning water circuit. 4. Water flow volume is too small, water pump is too small. 5. High pressure switch is loose or broken	1. Check the refrigerant pressure. 2. Clean and purge the air from the water circuit. 3. Clean the air conditioning water inlet filter (Item 26 in explosion drawing) and other filter in the water circuit. 4. Change a bigger water pump 5. Reconnect high pressure switch or change the switch.	9 flashes and 5 seconds off
E5	Communication error between the indoor and outdoor control board	The unit will continue to produce D.H.W. with the heater element and the water pump. Contact your support service.	Communication wire is loose or Control board is error.	Check the communication wires and control board. Reconnect the wires or change wires and control board	2 flashes and 5 seconds off
P9	Pressure switch jump in low pressure	The compressor will stop. The unit will operate again when normal conditions are re-established. If this does not start, contact your support service	1. Heat expansion valve need to be preheated 2. Low pressure switch is loose or broken 3. Refrigerant leak	1. Power off for minutes and power on again then turn on the unit. May repeat this 2 or 3 times to preheat the expansion valve. 2. Reconnect the low pressure switch or change it 3. Check the whole system to see if the refrigerant is leaked.	12 flashes and 5 seconds off
PB	Solar thermal sensor error	Valve control for solar system will stop	Sensor is broken or the connection is loose	Change or reconnect the sensor	4 flashes and 5 seconds off

PB	Antifreeze protection(d3 or d4 ≤ 1 C)	Compressor stop	4 way valve or compressor contactor or compressor error	Check the 4 way valve, compressor contactor or compressor.	4 flashes and 5 seconds off
E5	Error in the EEPROM memory of inner control board	Unit continue working but without historical record	EEPROM chip loose or error	Check EEPROM on the indoor control board	2 flashes and 5 seconds off
P2	Discharge air temperature sensor error	Unit stop	Sensor is broken or the connection is loose	Change or reconnect the sensor	16 flashes and 5 seconds off
E2	Suction temperature sensor error	Unit stop	Sensor is broken or the connection is loose	Change or reconnect the sensor	15 flashes and 5 seconds off
E3	Compressor High temperature Protection (115 C air discharge)	Compressor stop to protect the unit, when the temp is lower, the unit will start again. If this error occur twice in 30 minutes, the unit will be locked	1. Refrigerant volume is low 2. Thermal expansion valve error 3. Water flow volume is too low	1. Check the refrigerant pressure and check if there is leakage. 2. Check the thermal expansion valve 3. Check the water flow volume and check if the water pump is small or has dust or other problem.	11 flashes and 5 seconds off

Parameter setting and DIP switch setting

1. Parameter checking and setting

Parameters to enter: press **↓** for 6 seconds, then enter the parameter setting status: as figure:



The "8" as a parameter code, "3" indicates the parameter values. Other project parameters meaning is the same as the previous figure.

Parameter list cannot be modified: (as following table)

No.	Code	Name	Range / meaning	Default	State
1	8	Outer tube temperature	-9~79°C	no	only check
2	9	Exhaust gas temperature	6~129°C	no	only check
3	10	Ambient temperature	-9~79°C	no	only check
5	12	Function parameters	Total days since last virus killing(HEX)	no	only check
6	13	Compressor shutdown point code		no	only check
8	29	Compressor return gas temperature	-9~79°C	no	only check
10	31	Solar water temperature	-9~79°C	no	only check
11	32	Target temperature of hot water		no	only check
12	33	Target temperature of air conditioning		no	only check
13	35	Compressor electric current value		no	only check
14	36	Outdoor fan output	82 ~ FF (the larger number , the outdoor fan to run faster)	no	only check
	37	Water source water inlet temp	-9~79°C	no	only check
	54	Water source water outlet temp	-9~79°C	no	only check
15	49	Air conditioning water outlet temperature	-9~79°C	no	only check
16	50	DHW water inlet temperature	-9~79°C	no	only check

At this point, press **↓** could access the next parameter, press on/off key to find the posterior 10 parameters.

Note: 4: said the air conditioning heating mode; 3, said the hot water heating mode; 2, said air-conditioning cooling mode

For example, the 43: 4 said the setting mode is air conditioning heating, 3 said that is currently running for the domestic hot water mode. The meaning of 44,33,23,22 followed analogy.

Parameter setting and DIP switch setting

Parameter setting method

Press **↓** for 6 seconds, enter the parameters inquiry and settings, press **↓** key to find the items you want to set the parameters, press **M** key to enter the setting (parameter values flashing), press **▲** or **▼** key to adjust parameter values, press **↓** key to confirm.

No.	Code	Name	Range / meaning	Default
1	0	Power-down recovery function position	0: not recovery; 1: recovery	1
2	2	Hot water outlet temp differential	2 ~ 15 °C, negative differential	2°C
3	3	Air conditioning return water temp differential	2 ~ 15 °C, negative differential	2°C
4	5	Defrost entering temperature	-20~5°C	0°C
4	5	Outside Antifreeze entering temperature	-20~5°C (Only for water source type)	2°C
5	6	Defrost exit temperature	10~35°C	30°C
6	7	Exhaust protection temperature	100~129°C	115
7	24	DHW electric heater validation	0: invalid 1:valid	1
8	40	Forcing virus kill function validation	0: invalid 1:valid	0
9	97	Assistant electric heater start ambient temperature	-20~20°C	0 °C
10	53	Reset system parameters	0: indicated do not restore the factory setting; 1: indicated to restore factory setting	0
11	83	Black box data type	Not applicable	
12	92	Hot water automatic temperature control validation	0: is invalid; 1; is valid	0
13	93	Heating automatic temperature control validation	0: is invalid; 1; is valid	0
14	4	Defrost Interval	15~99 minutes	35
15	86	Black box data clear	Not applicable	0

16	85	E4 working as air heating electric heater control port or heating source switching port selection parameter	0: E4 is electric heater port 1: E4 is heating sources switching port	0
17	43	Heating sources switching air temp when E4 working as heating sources switching control port	-30~ 15 °C	-5 °C
18	39	Electric heater active air temp when E4 working as electric heater port	-30~ 15 °C	0 °C

The above codes 85, 43, 39 utilize E4 port of our indoor control board as two usage.

When code 85 is set to 0, E4 will work as electric heater auto starting port ;

It is to control the indoor air conditioning electric heaters, the working theory is as following,

When the ambient temp is higher than set temp in parameter 39. The electric heater is deactivated and won't start. When the ambient temp is lower than set temp in parameter 39, the assistant heater will be active for assistant heating if compressor heating is not sufficient enough.

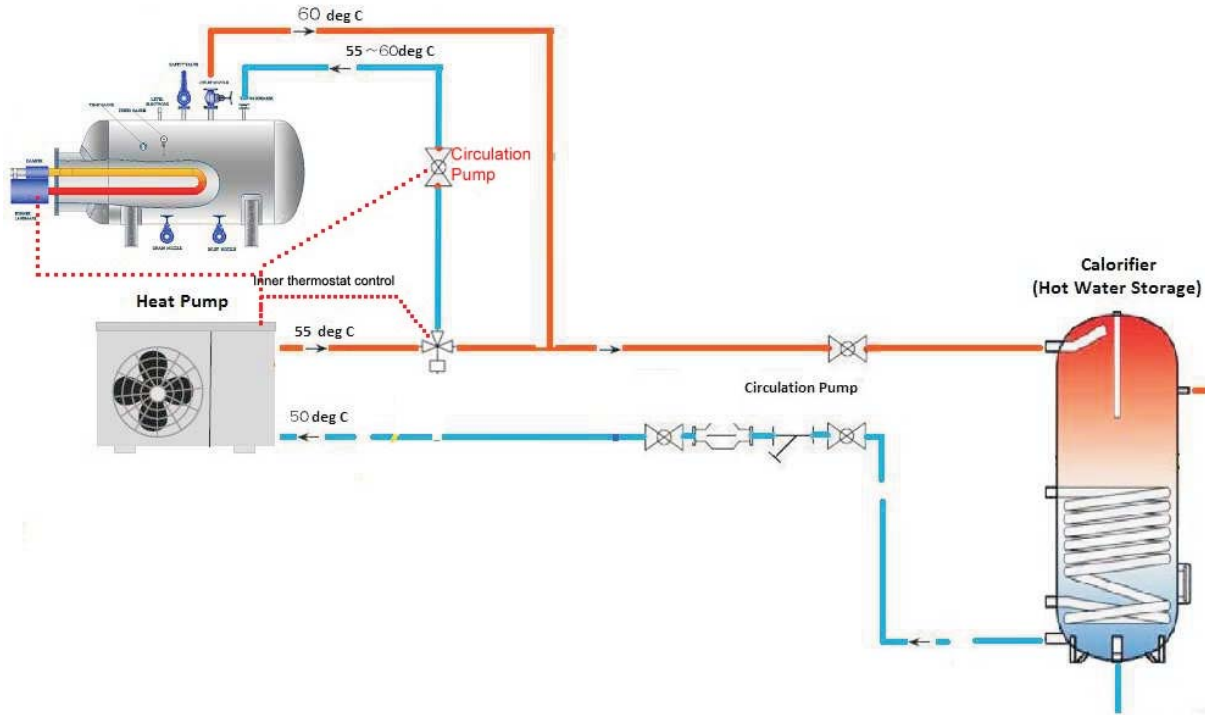
When code 85 is set to 1, E4 will work as second heating sources switching port.

1. When the outdoor ambient temp is lower than set temp in parameter 43. The heat pump automatically go into standby mode. The E4 will start 230V electricity supply. When the ambient temp- set temp in parameter 43 $\geq 5^{\circ}\text{C}$, E4 will stop electricity supply. The heat pump will switch on.

The connect method is according to the wiring diagram

Recommended connection with second heat source such as gas boiler and oil kettle.

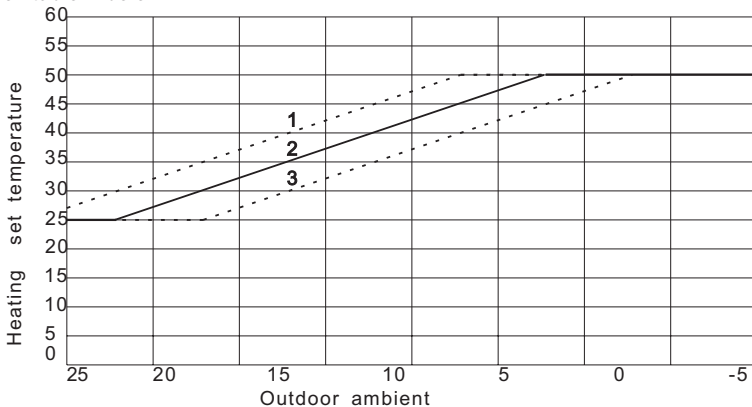
Connect E4 signal to start boiler, 3 way valve and circulation pump in the same time.



Enable AC auto temp curve working. Please do following procedure.

1. Set parameter 93 to value 1 to active AC auto temp function .
2. Set parameter 25 according to following to set the offset value.

In some areas, air conditioning built-in automatic temperature curve may be not ideal for local users, installed by professional installers of automatic parameter adjustment curve, Adjust the range of -5°C~+5°C as the table below:



Automatic temperature curve factory setting is curve 2, user can offset automatic temperature curve by setting Parameter "25"

- Curve1: parameters "25" = 10
- Curve2: parameters "25" = 5
- Curve3: parameters "25" = 0

2. DIP switch setting meaning

The DIP switch can only be set at factory or by authorized engineer. Any improper setting may cause unrecoverable damage or malfunction.



AH series

SW4-1: OFF: Single phase, ON: Three phase.

SW4-2: OFF: air source heat pump, On: Water source heat pump

SW4-3/SW4-4 OFF/OFF: Only DHW(domestic hot water) function; ON/OFF: Room heating and cooling function;

OFF/ON: Multifunctional function(Heating,Cooling & DHW) HC series

If SW5-2 is set to ON, it will disable cooling mode

Illustrated as following,

Sw4

- Single phase air source DHW only heat pump
- Three phase air source DHW only heat pump
- Single phase air source Heating & Cooling heat pump
- Three phase air source Heating & Cooling heat pump
- Single phase air source Multifunction Heating & Cooling+DHW heat pump HC series
- Three phase air source Multifunction Heating & Cooling+DHW heat pump HC series

AH- R series(air source heat recovery heat pump) can only select single phase or Three phase at Sw4. Other switch of Sw4 is not settable.

GH series

SW4-1: OFF: Single phase, ON: Three phase.

SW4-2: OFF: air source heat pump, On: Water source heat pump

SW4-3/SW4-4 ON/OFF: Room heating and cooling function; OFF/ON: Multifunctional function(Heating,Cooling & DHW) HC series

If SW5-2 is set to ON, it will disable cooling mode

Illustrated as following,

Sw4

- Single phase water source Heating & Cooling heat pump
- Three phase water source Heating & Cooling heat pump
- Single phase water source Multifunction Heating & Cooling+DHW heat pump HC series
- Three phase water source Multifunction Heating & Cooling+DHW heat pump HC series
- Single phase water source Heat recovery heat pump
- Three phase water source Heat recovery heat pump

Sw5 is Applicable for AH and GH series

SW5-1: Selection between 2 valve control modes (G2 terminal port works for seasonal valve or solar fuzzy logic valve)
off: Seasonal switch solenoid valve On: Solar fuzzy logic auto switch solenoid valve (NOT applicable for AH-R series)

SW5-2: Selection between air conditioning heating mode and air conditioning cooling mode
off: air conditioning heating and cooling mode on: air conditioning heating only mode (NOT applicable for AH-R series)

SW5-3: Selection for air conditioning water pump mode

off: water pump is always running never stop

on: water pump will stop one minute after compressor stop. (This need a air conditioning water tank and put the returning water temp sensor in the water tank, heat pump only recycle with the water tank) as illustrated at following scheme

Connection method for lowest water pump consumption)
 Need to set DIP switch Sw5 to ON

ROOM Heating and Cooling All Water pumps auto stop function

----- Control signal
 _____ Water circulation

