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POOLSCAPE

PREVIOUSLY Sundance Pools

its™

heat pumps

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INVERTER SWIMMING POOL HEAT PUMP

Installation & Instruction Manual

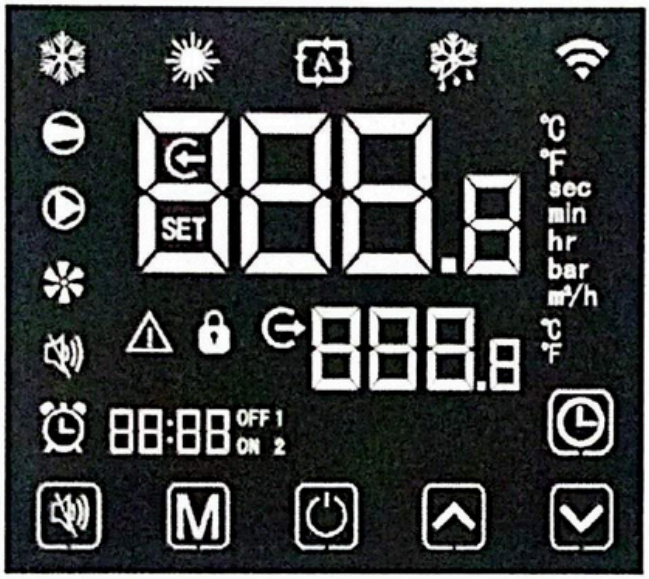
Models: ITS - 7.5HP32i, ITS- 9.5HP32i, ITS -12HP32i, ITS -16HP32i, ITS - 19HP32i, ITS - 25HP32i, ITS - 28HPi3, ITS - 35HPi3



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4. Operating instructions

4.1 Interface display



4.2 Display Keys

Key symbols	Designation	Function
	Mute key	Under the heating mode and heating in automatic mode, the mute key can be used to enter and exit the mute mode with one click.
	Mode key	It is used to switch the unit mode, temperature setting, and parameter setting.
	On-off key	It is used to carry out startup & shutdown, cancel current operation, and return to the last level of operation.
	Up key	It is used to page up and increase variable value.
	Down key	It is used to page down and decrease variable value.
	Clock key	It is used as user clock and to carry out timing setting.

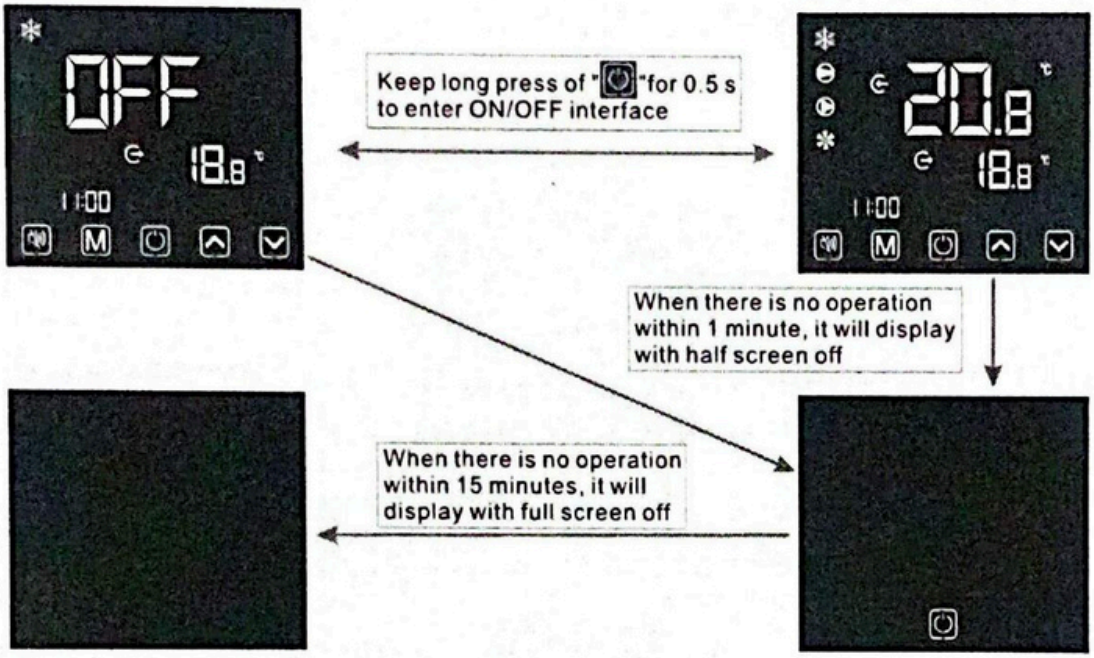
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4.2.2 Icon function instruction

Icon symbol	Designation	Function
	Cooling symbol	Displayed if cooling mode is active
	Heating symbol	Displayed if heating mode is active
	Automatic symbol	Displayed if auto mode is active. Unit can do both heating and cooling to maintain the setpoint while in this mode.
	Defrosting symbol	Displayed during the defrosting process of the unit.
	Compressor symbol	Displayed when compressor is on.
	Water pump symbol	Displayed when water pump output is on.
	Fan symbol	Displayed when fan is on.
	Mute symbol	Displayed when the timing mute function is started. When it is in mute state, it will flash. Or else, it is off.
	Timing symbol	Displayed if the user activated the timer function. Multiple time windows can be set.
	Water outlet symbol	Displayed when the axillary display area is displaying the water outlet temperature.
	Water inlet symbol	Displayed when the main display area is displaying the water inlet temperature.
	Locking key symbol	Displayed when the keyboard is locked.
	Fault symbol	Displayed when there is an unit fault.
	Wireless signal symbol	When the unit is connected to a WIFI module, it will display the strength of the WIFI signal.
	Degrees Celsius symbol	Displayed when unit display is set to degrees Celsius.
	Degrees Fahrenheit symbol	Displayed when unit display is set to degrees Fahrenheit.
	Setting symbol	Displayed when the parameter is adjustable.
	Second symbol	Displayed when main display area displays "second" digit.
	Minute symbol	Displayed when main display area displays "minute" digit.
	Hour symbol	Displayed when main display area displays "hour" digit.
	Pressure symbol	Displayed when main display area displays pressure.
	Flow symbol	Displayed when main display area displays flow rate.

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4.3 Startup & shutdown



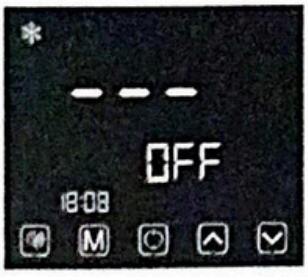
Notes:

Startup & shutdown operation can only be conducted in the main interface.

When it displays with half screen off or full screen off, click any key for returning to ON/OFF main interface.

When the unit is started under the control of wire controller, if using the emergency switch to shut down, the wire controller will display as follows:

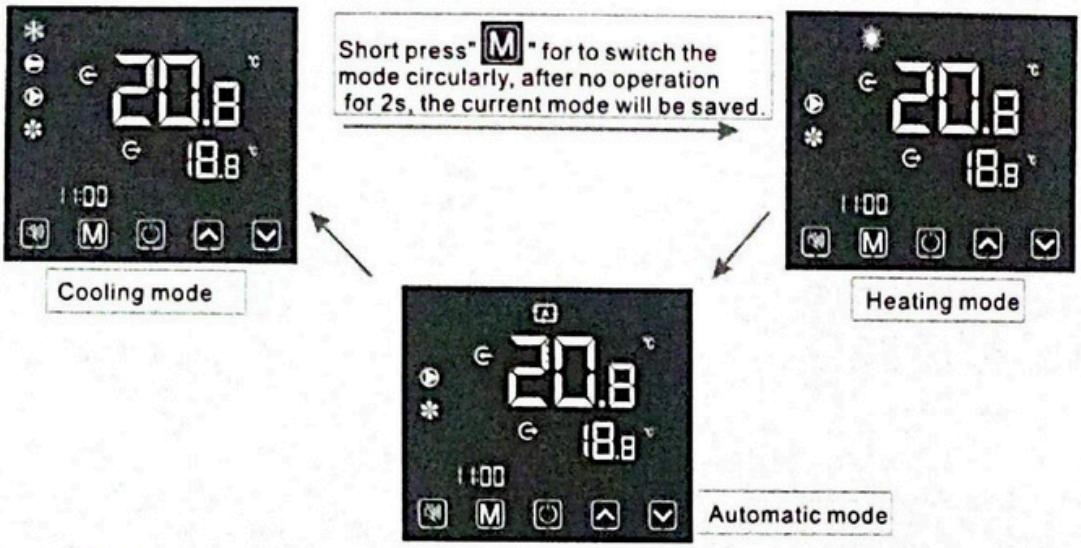
Operations are the same as under ON/OFF main interface.



4.4. Mode switch

Under the main interface, short press" M "to switch the unit among heating, cooling and automatic mode.

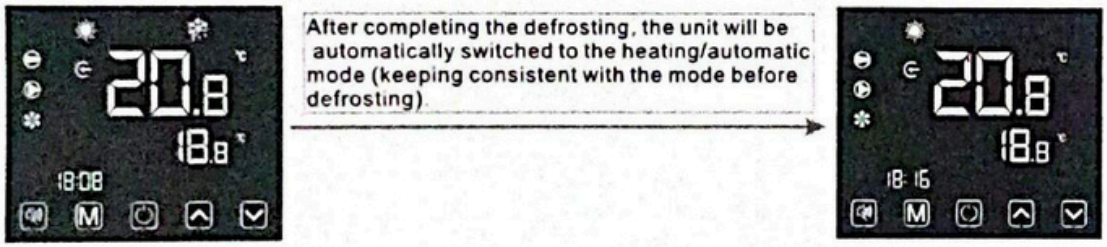
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Operation descriptions:

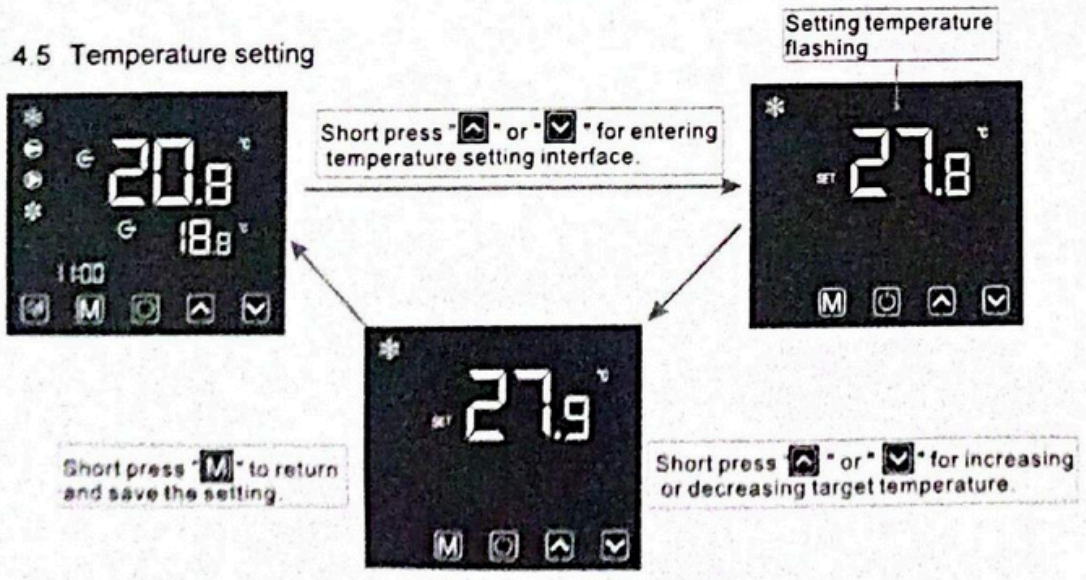
1). Mode switch operation can only be conducted in the main interface.

2). When the unit is under the defrosting state, the defrosting symbol is on, with the display interface as follows:



Notes: During the defrosting, mode switch is available. And when switching the mode, the unit won't work under a new mode until defrosting is completed.

4.5 Temperature setting



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Notes: Under the temperature setting interface, if short press " ",

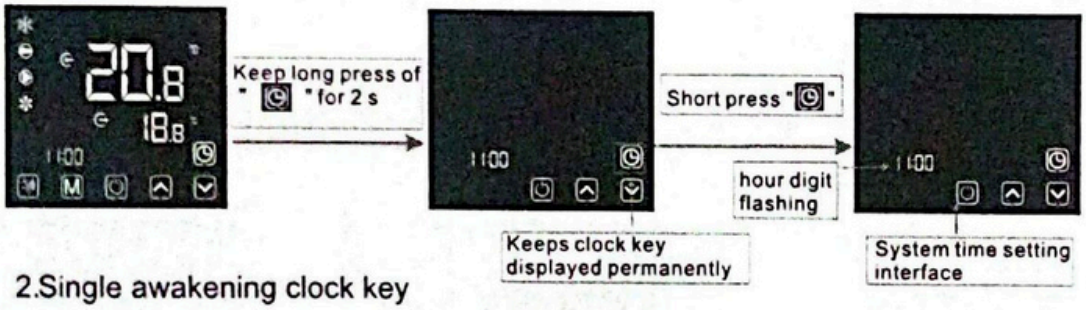
the system will return to

the main interface without any changes saved; If there is no operation for 5 s,
the system will automatically memorize users setting, and return to the main interface.

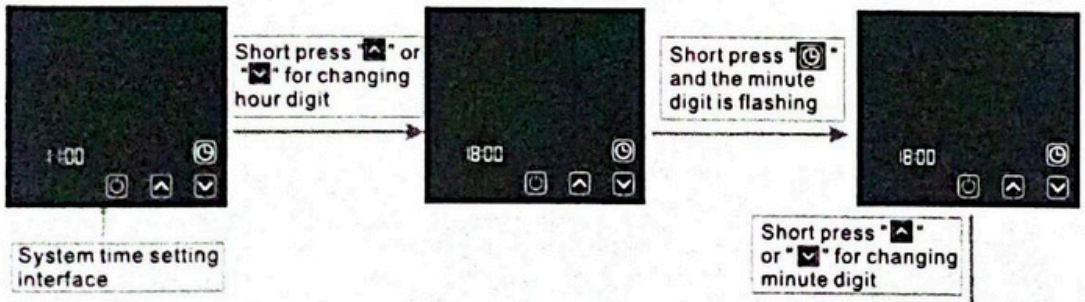
4.6.Clock setting

4.6.1 System time setting

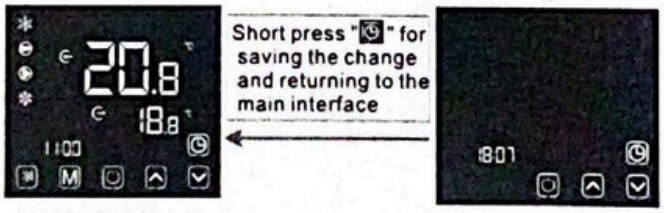
1.Permanent awakening clock key



2.Single awakening clock key



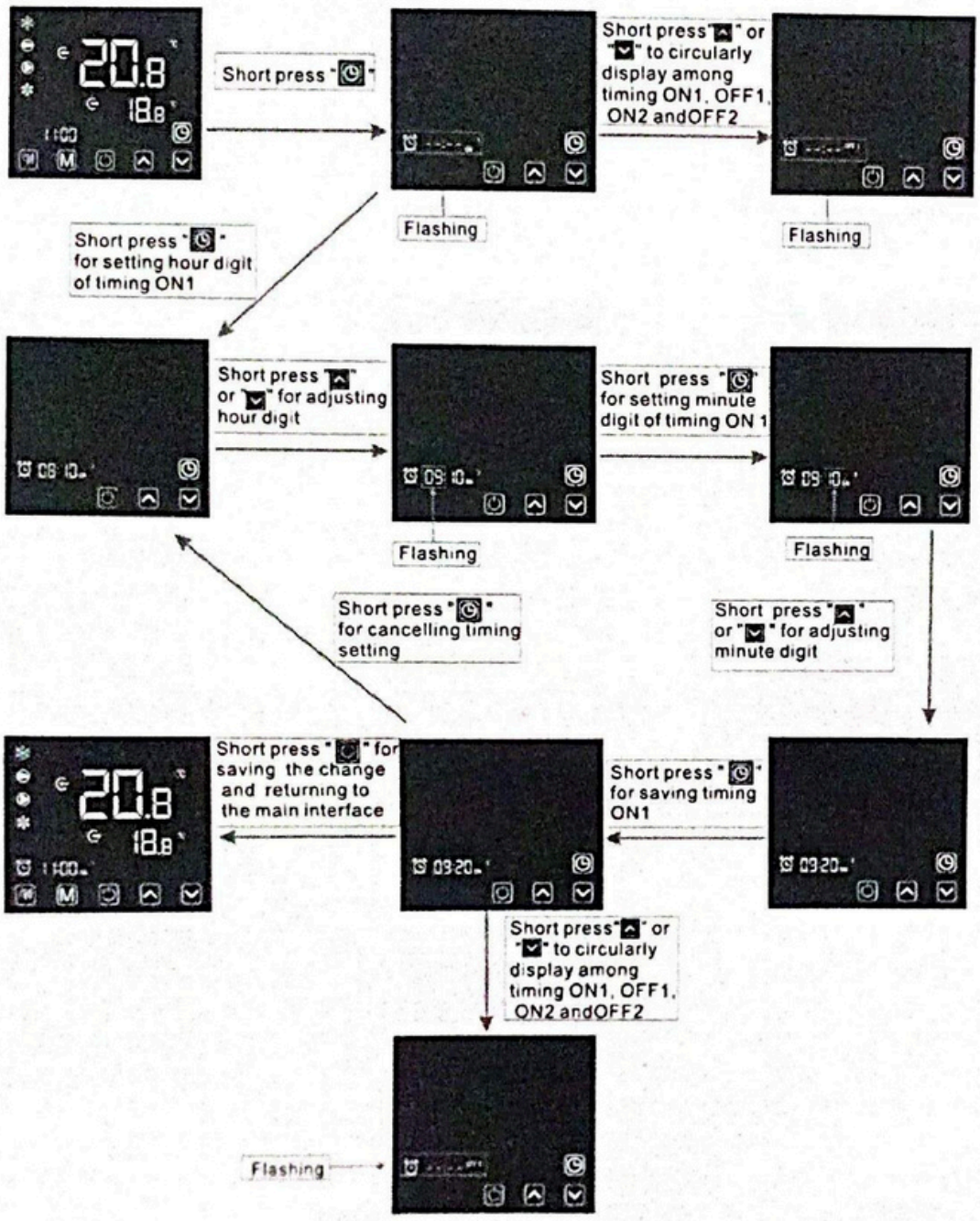
3.System time setting



Notes: After the permanent awakening of clock key, if it is not cancelled by user, the main interface will display the clock key permanently. Under the clock setting interface, if short press " " , the change will not be saved and return to the main interface; if there is no operation for 20s, the system will automatically memorize user's setting, and return to the main interface.

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4.6.2 Setting and cancellation of timing ON and OFF

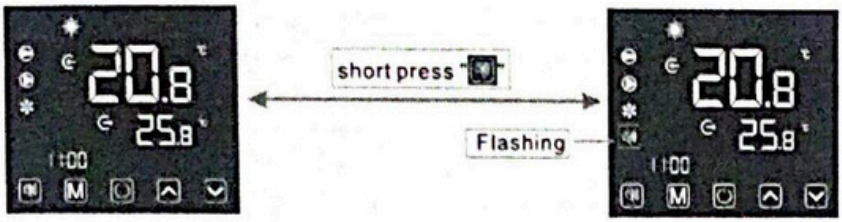


Notes: If there is no operation for 20 s, the system will automatically memorize user's setting, and return to the main interface;
If the timing symbol and entire time digits flash at the same time, click "⏲" for returning to the main interface.

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4.7. Mute setting

4.7.1 One-click mute



Notes:

1). If one-click mute and timing mute are stared at the same time, short press "" for canceling one-click mute and quitting the timing mute for this time.

2). At night or the rest time, user can start one-click mute or timing mute function to reduce the noise.

4.7.2 Setting and cancellation of timing mute



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Notes:

1). When the mute icon" [ ] " is lighten:The timing mute has been set, but it 's not under mute status.

2). When the mute icon" [ ] " flash:It's under the mute status.

3). When the mute icon" [ ] "disappear: The timing mute is not set.

4.8. Keyboard lock

To avoid others' misoperation, please lock the wire controller after completing the setting.



Notes:

1).Under the locked screen interface, only unlocking operation is available, and the screen will be lighten after other operations conducted.

2).Under the OFF interface, locking operation is available , and the operation method is the same as locking screen under the ON interface.

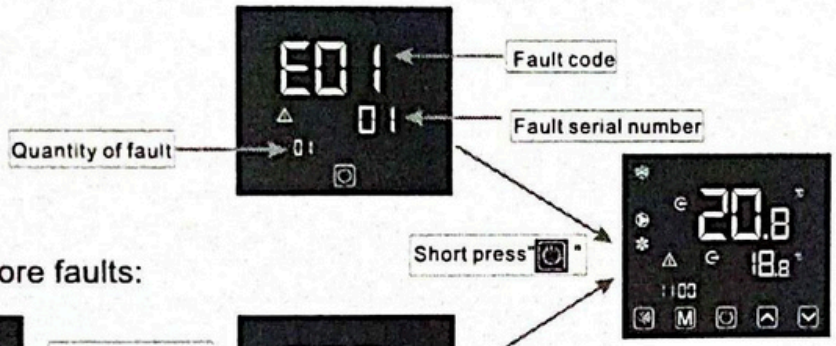
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4.9. Fault interface

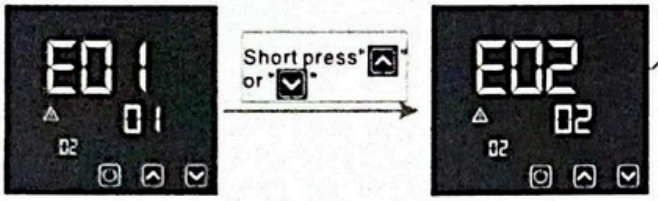
When the unit fails, the wire controller can display the corresponding code according to the fault reason. Refer to the fault table for the specific definition of the fault codes.

For example:

1).Single fault:



2).Two or more faults:



Remark:

The wire controller can display the temperature unit as " ℉ " or " ℃ " according to the unit model you bought.

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4.10 Controller parameter and fault code table

Protection/fault	Fault display	Reason	Solution
Inlet temperature sensor fault	P01	The temperature sensor or related wiring is faulty.	Check/replace the specific sensor.
Outlet temperature sensor fault	P02	The temperature sensor or related wiring is faulty.	Check/replace the specific sensor.
Ambient temperature sensor fault	P04	The temperature sensor or related wiring is faulty.	Check/replace the specific sensor.
Coil temperature sensor fault	P05	The temperature sensor or related wiring is faulty.	Check/replace the specific sensor.
Suction temperature sensor fault	P07	The temperature sensor or related wiring is faulty.	Check/replace the specific sensor.
Discharge temperature sensor fault	P081	The temperature sensor or related wiring is faulty.	Check/replace the specific sensor.
High pressure protection	E01	High gas pressure occurred or faulty pressure switch.	Could happen if output temperature from the unit goes too high. Make sure the water flow rate through the unit is sufficient (dirty pool filter or other blockages). Check the pressure switch.
Low pressure protection	E02	Low gas pressure occurred or faulty pressure switch.	Possible gas leak or faulty pressure switch. Switch off the power to the unit and contact your local ITS dealer.
Flow switch protection	E03	No or insufficient water flow.	This will always be displayed during the times the pool filter pump is off and will automatically recover once there is sufficient water flow again. If this occurs while the pool pump is on it means that the water flow through the heat pump is not sufficient (dirty pool filter, air locks or similar). If the flow is good and the error persists, check the flow switch.
Anti-freeze protection	E07	Outlet water temperature ≤ 2℃.	Unit will switch on pump output till outlet water temp ≥ 8℃.
Winter primary anti-freeze protection	E19	Ambient temperature ≤ ℃ and inlet water temperature or outlet water temperature ≤ 4℃.	Unit will switch on pump output till inlet water temp ≥ 8℃ or ambient temperature >1℃.
Winter secondary anti-freeze protection	E29	Ambient temperature ≤ 0℃ and inlet water temperature or outlet water temperature ≤ 2℃.	Unit will start heating till inlet water temp ≥ 15℃ or ambient temperature >1 ℃.
Inlet/outlet temperature difference too big	E06	Water flow is not enough.	Water flow through the heat pump is not sufficient (dirty pool filter, air locks or similar).
Low temperature protection	Non	Ambient temperature ≤ -15℃	Unit will power down till ambient temperature ≥ -13℃.
Compressor over-current protection	E051	Compressor overload.	Contact your local ITS dealer.
Discharge gas overtemperature protection	P082	Discharge gas temperature from the compressor is too high.	Evaporator dirty or low gas situation. Unit needs a service or has a gas leak. Contact your local ITS dealer.
Communication fault	E08	Communication failure between the display and controller.	Check the wire connection between display and controller PCB.

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Protection/fault	Fault display	Reason	Solution
Anti-freeze temperature sensor fault	P09	Anti-freeze temperature sensor is faulty.	Check/replace the specific sensor.
Anti-freeze protection.	E05	Outlet water temperature ≤ 4℃ while in cooling mode.	Unit will switch on pump output till outlet water temp ≥ 8℃.
Fan fault	F051	There is something wrong with fan motor.	Check if fan blade is obstructed/locked. Contact your local ITS dealer.
Pressure sensor fault	PP	The pressure sensor is faulty.	Check/replace the specific sensor.
Fan motor 1 fault	F031	1. Motor is in locked-rotor state. 2. The wire connection between DC-fan motor module and fan motor is faulty.	Check/replace the fan motor 1.
Low ambient temperature protection	TP	Ambient temperature ≤ -15℃.	Unit will power down till ambient temperature ≥ -13℃.
Fan motor 2 fault	F032	1. Motor is in locked-rotor state. 2. The wire connection between DC-fan motor module and fan motor is faulty.	Check/replace the fan motor 2.
Communication fault (speed control module)	E081	Speed control module and main board communication failure.	Check cabling between boards.

4.11 Inverter board fault code table

Protection/fault	Fault display	Reason	Elimination methods
Drv1 MOP alarm	F01	MOP drive alarm.	Will auto-recover after 150s if possible.
Inverter offline	F02	Frequency conversion board and main board communication failure.	Contact your local ITS dealer.
IPM protection	F03	IPM modular protection.	Will auto-recover after 150s if possible.
Compressor driver failure	F04	Lack of phase, step or drive hardware damage.	Contact your local ITS dealer.
DC fan fault	F05	Motor current feedback open circuit or short circuit.	Contact your local ITS dealer.
IPM overcurrent	F06	IPM Input current is too high.	Contact your local ITS dealer.
Inverter DC overvoltage	F07	DC bus voltage>DC bus over-voltage protection value.	Contact your local ITS dealer.
Inverter DC low voltage	F08	DC bus voltage<DC bus over-voltage protection value.	Contact your local ITS dealer.
Inverter input low voltage	F09	The input voltage is low, causing the input current to be high.	Check the supply voltage.
Inverter input overvoltage	F10	The input voltage is too high.	Check the supply voltage.
Inverter sampling voltage	F11	Input voltage sampling fault.	Contact your local ITS dealer.
Communication error DSP-PFC	F12	DSP and PFC connection fault.	Contact your local ITS dealer.
Input over current	F26	Input current too high.	Contact your local ITS dealer.
PFC fault	F27	PFC circuit protection.	Contact your local ITS dealer.
IPM overheating	F15	The IPM module is overheating.	Contact your local ITS dealer.

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Protection/fault	Fault display	Reason	Elimination methods
Weak magnetic warning	F16	Compressor magnetic strength is not enough.	Contact your local ITS dealer.
Inverter input missing phase	F17	Missing input voltage phase.	Check the supply voltage and phase.
IPM sampling current	F18	IPM sampling fault.	Contact your local ITS dealer.
Inverter temperature probe failure	F19	Sensor is short/open circuit.	Contact your local ITS dealer.
Inverter overheating	F20	The transducer is overheating.	Contact your local ITS dealer.
Inverter overheating warning	F22	Transducer temperature is too high.	Contact your local ITS dealer.
Compressor overcurrent warning	F23	Compressor current too high.	Contact your local ITS dealer.
Input overcurrent warning	F24	Input current is too high.	Contact your local ITS dealer.
EEPROM error warning	F25	MCU error.	Contact your local ITS dealer.
V15V over/undervoltage fault	F28	The V15V is over or under voltage.	Contact your local ITS dealer.

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5. Maintenance

ITS heat pumps are designed to be maintenance free but due to external factors (water/air quality, accumulation of dirt/leaves on the evaporator and more) the unit needs to be serviced at least once a year. The service mostly entails cleaning the heat exchangers and making sure all parameters are within specification. When it comes to the servicing of an ITS heat pump, this must be done by an accredited ITS installer. Failure to have the unit serviced may result in poor performance, premature failure and the warranty being made null and void.

5.1 Looking after your heat pump

The following can be done by the owner to ensure the best possible performance and lifespan of the machine. Always remember to switch the machine off before working at the machine.

- Always ensure that your heat pump is free of leaves and other items which may obstruct the inlet / outlet vents.
- Keep shrubs pruned back at least 50cm around all sides of the heat pump. The area around the unit should be dry, clean and well ventilated.
- Rinsing your heat pump's evaporator (the aluminum fins that makes up most of the back of the unit) with slow flowing fresh water once a month will help reduce corrosion in corrosive air environments
- We can't re-iterate it enough how important it is for you to have your heat pump serviced at least once a year. In fact, anytime the unit's evaporator appears to be dirty and cannot be successfully cleaned by rinsing it with low pressure water, a service is required. This will prolong the life of the heat pump ensuring you get years of water heating pleasure and savings.

5.2 Advanced rust protection

For installations near to the ocean (20-50km radius) and in other corrosive air environments the heat pump should be coated with an ITS approved anti-corrosion coating.

For more information on one of these products please visit: www.bluchem.co.za.

Please note that even an anti-corrosion coated unit must be washed every few months with an appropriate cleaning agent to remove salt buildup etc.

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5.3 Heat pump error codes

Should the unit go into an error mode, please consult the error code table in this manual.

The unit may only be repaired by an ITS authorized person. Failure to comply with this could void the warrantee.

5.4 Freeze protection

The unit has electronic freeze protection build in. Should the unit be without power during sub-zero winters or not be in use for an extended period of time, the water in the unit should be discharged.

5.5 Swimming Pool Chemistry

Special attention should be given to the chemical balance of the pool water. The chemical levels should always remain within the following limits:

	MIN	MAX
pH	7	7.4
Free Chlorine (mg/L)	0.5	1.2
TAC (mg/L)	80	120
Salt (g/L)		3

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