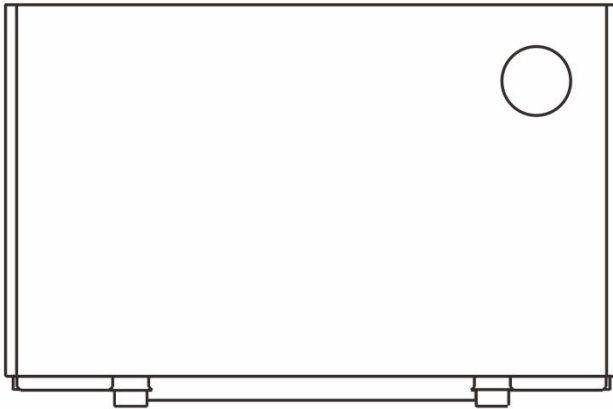


INSTALLATION & OPERATING MANUAL

A COMPLETE GUIDE TO YOUR FULL INVERTER HEAT PUMP



insnrg

CONGRATULATIONS ON PURCHASING YOUR INSNRG LC HEAT PUMP

THIS MANUAL HAS BEEN CAREFULLY DEVELOPED TO GIVE YOU ALL THE INFORMATION YOU NEED TO GET THE BEST VALUE FROM YOUR PURCHASE.

It is important that you read through the manual to identify the key areas you need to understand, particularly the following:

- Health and Safety Concerns
- Installation requirements
- How to operate the major features of the unit
- The importance of maintenance
- If you have a problem, what to trouble shoot before you contact your professional
- Finally, your entitlements under your product warranty.

InsnrG have developed their product to provide you with the ultimate experience and are sure you will be delighted with your purchase.

Please note: This equipment must be installed in a location that allows for regular maintenance and service by the pool owner and service technicians. Insnrg will not put service technicians at risk of injury by servicing difficult to access appliances.

THE IMPORTANT BITS

03 SECTION 1:
We care about your safety

12 SECTION 2:
We want you to be delighted
Installing your heat pump
Clearances
Electrical Connections
Water Connections

17 SECTION 3:
Now to have some Fun
Testing
Thermostat adjustment
Setting Timers

23 SECTION 4:
Oops, something not right?
Fault Codes
Maintenance
Troubleshooting
Warranty

SECTION 1

WE CARE ABOUT YOUR SAFETY



IMPORTANT WARNINGS

Insnrng highly recommend that this product be installed and serviced by professionals who are qualified in pool and spa product installation and a qualified electrician. Improper installation and/or operation can create an unwanted electrical hazard which can cause serious injury, property damage, or death. Improper installation and/or operation will void the warranty.

This manual contains important information about the installation, operation and safe use of this product. This information should be given to the owner/operaequipment.

 **WARNING**

This 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.

 **WARNING**

The refrigerant gas used in this heat pump is highly flammable. Do not install and create an ignition source near the heat pump.

 **WARNING**

If the supply cord is damaged, it must be replaced by the manufacturer, its service agent or similarly qualified persons in order to avoid a hazard.

 **WARNING**

If a refrigerant leak occurs (low pressure warning on heat pump), turn power to heat pump off isolation switch, turn all other pool equipment off, and call Insrng or a refrigeration mechanic immediately.

 **WARNING**

Keep hands and fingers clear of the air vent. Fan running at high speed can cause serious injury.

Do not touch the fins on the evaporator, they are sharp and can cause cuts.

There are no user serviceable parts inside the heat pump, do not disassemble unless qualified.

If high-temperature work is to be performed on this product, appropriate fire extinguishing device, such as dry powder or carbon dioxide fire extinguishers, should be available.



WARNING - RISK OF ELECTRIC SHOCK

All electrical wiring **MUST** be in conformance with applicable local codes, Regulations. Hazardous voltage can shock, burn, and cause death or serious property damage. To reduce the risk of electric shock, do **NOT** use an extension cord to connect unit to electric supply. Provide a properly located electrical isolation switch. Before working on any electrical equipment, turn off power supply to the equipment.



WARNING

To reduce the risk of electric shock replace damaged wiring immediately. Locate conduit to prevent abuse from lawn mowers, hedge trimmers and other equipment.



WARNING

Allow 2 minutes after turning power off before handling circuit boards or internal wiring to avoid capacitance discharge resulting in electric shock.



WARNING

The heat pump must be stored and transported vertically.



WARNING

Do not store flammable, explosive and toxic substances in the vicinity of the heat pump.



WARNING

Do not place objects that will obstruct the airflow in or out of the heat pump. Partially blocking the airflow will reduce efficiency significantly and cause a malfunction of the unit.

ELECTRICAL CODES

All electrical work must be performed by a licensed electrician and conform to all national, state, and local codes. Applicable national codes, include but not limited to the following:

- In Australia, AS3000 Wiring Rules

and/or any other local and national installation codes.

GENERAL SAFETY GUIDELINES

Please examine the heat pump carefully and confirm whether the product has arrived in a good shape, with fixed screws, and a full range of accessories after you receive the product.

Unpack the heat pump before formally installation by cutting the packing tape, taking off the packaging, and removing the bottom wooden pallet. Plastic packing bags and tapes should be properly handled, and do not let children play with them.

If you suspect a refrigerant leakage, remove or extinguish all open flames around the equipment.

Installation and maintenance of this product must be carried out in a well-ventilated area.

If a power failure occurs during operation, the heat pump will automatically restart when power is restored.

When the heat pump does not operate properly or reports a fault code, stop operation and contact service personnel.

Ensure you connect to a circuit that is protected by a type B RCD.

EQUIPMENT UNDER PRESSURE

Always turn pump and other equipment off prior to installing or servicing the Insnrg Chlorinator control box and/or cell. Your filtration system operates under pressure and this pressure must be released before you begin work to avoid any serious injuries or equipment damage. Please refer to your Pump and/or Filter instruction manual for further instructions.

To reduce the risk of injury, do not remove the suction fittings of your spa or hot tub. Never operate a spa or hot tub if the suction fittings are broken or missing. Never replace a suction fitting with one rated less than the flow rate marked on the equipment assembly.

PREVENT CHILD DROWNING

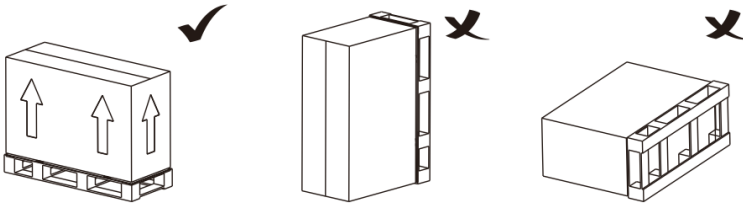
Do not let anyone, especially small children, sit, step, lean or climb on any equipment installed as part of your pool's operational system. Locate the components of your operational system at least 3 metres (10 feet) from the pool so children cannot use the equipment to access the pool and be injured or drown.

This 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.

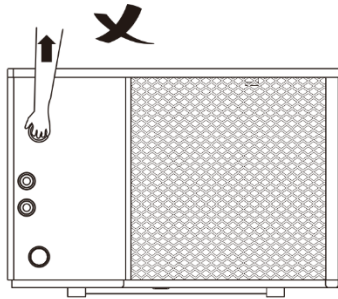
OVERVIEW OF THE HEAT PUMP

Transportation

When storing or moving the heat pump, always keep it in an upright position.

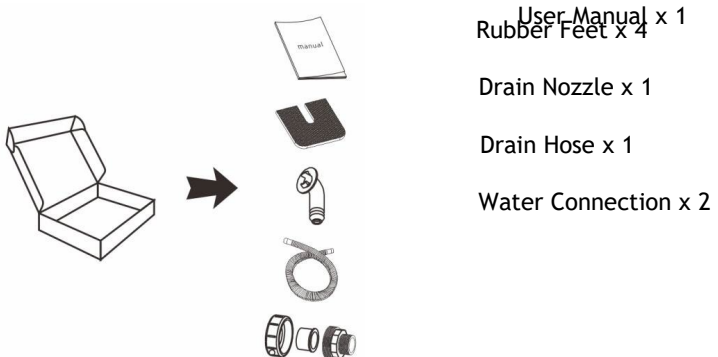


Do not lift up the water union when there is a need to move the heat pump, as it will damage the internal titanium heat exchanger.



Accessories

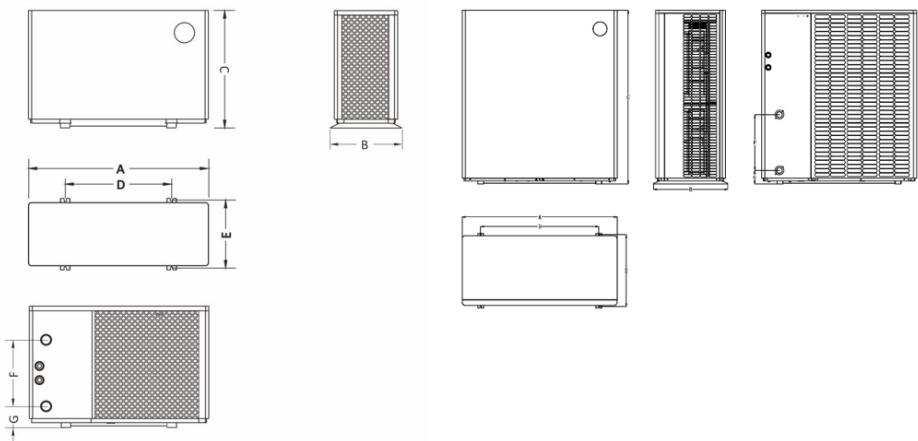
After opening the package, please check that you have all of the following accessories.



SPECIFICATIONS

Model No.		LC 35	LC 55	LC 72	LC 110	LC 140T	
Advised Pool Volume	m ³	20~45	40~70	40~80	70~130	90~170	
Performance Condition: Air Temperature: 27°C, Inlet / Outlet Water Temperature: 26°C / 28°C, Humidity 80%							
Heating Capacity	kW	1.98~9.54	3.68~15.56	4.54~18.34	6.95~31.80	8.81~40.07	
Power Consumption	kW	0.12~1.33	0.22~2.12	0.28~2.57	0.43~4.51	0.54~5.69	
COP	W/W	16.50~7.17	16.72~7.33	16.21~7.13	16.16~7.05	16.31~7.04	
Performance Condition: Air Temperature: 15°C, Inlet Water Temperature: 26°C, Humidity 70%							
Heating Capacity	kW	1.72~7.46	2.78~11.62	3.64~13.42	4.83~22.04	6.05~28.80	
Power Consumption	kW	0.20~1.40	0.33~2.13	0.44~2.48	0.60~4.19	0.74~5.69	
COP	W/W	8.60~5.33	8.42~5.45	8.27~5.41	8.05~5.26	8.18~5.06	
Power Supply	/	220-240V~/50Hz				380-415V/3N~/50Hz	
Operating Air Temperature	°C	-15~43					
Refrigerant	/	R32					
Compressor	/	Mitsubishi					
Fan Motor Type	/	DC					
Water Connection	mm	48.3					
Noise Level (1m)	dB(A)	35~45	38~47	38.5~47.5	41.5~51	42.5~52	
Max. Power Input	kW	2.4	3.8	4.2	7.8	16.1	
Max. Current	A	10	15	18	25	10A/phase (30 A)	
Advised Water Flow	LPM	68	110	130	228	286	
Water Pressure Drop	kPa	13	18	20	40	43	

DIMENSIONS



Dimension Indication (unit: mm)

Model	A	B	C	D	E	F	G
LC 35	1000	460	656	752	436	300	97
LC 55	1055	490	750	820	470	430	97
LC 72	1160	530	800	874	510	520	107
LC 110	1250	600	1400	953	580	450	109
LC 140T							

SECTION 2

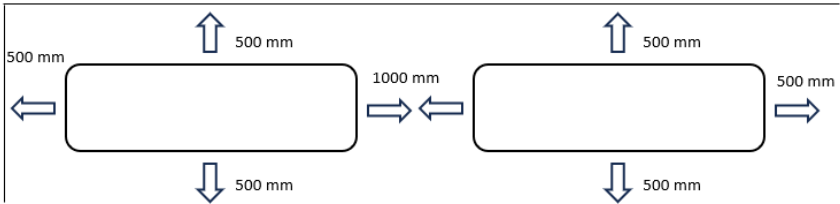
WE WANT YOU TO BE
DELIGHTED WITH YOUR
PURCHASE. CORRECT
INSTALLATION WILL PROLONG
LIFE AND MAXIMISE THE
PERFORMANCE OF THIS UNIT.

Insnrng highly recommend the use of qualified service technicians to ensure the best performance as well as the health and safety of your family.

LOCATION OF THE HEAT PUMP

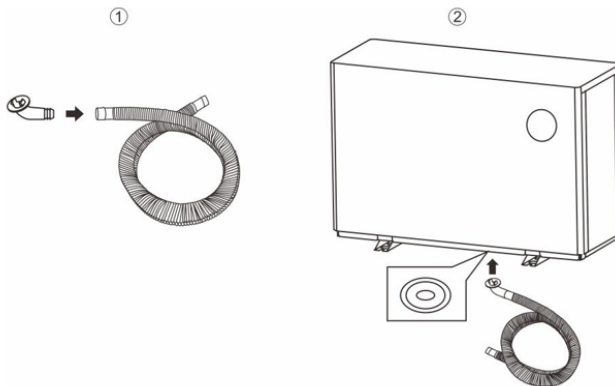
CLEARANCES

The Heat Pump should be in a well ventilated area. For best and most efficient performance maintain the following clearances.

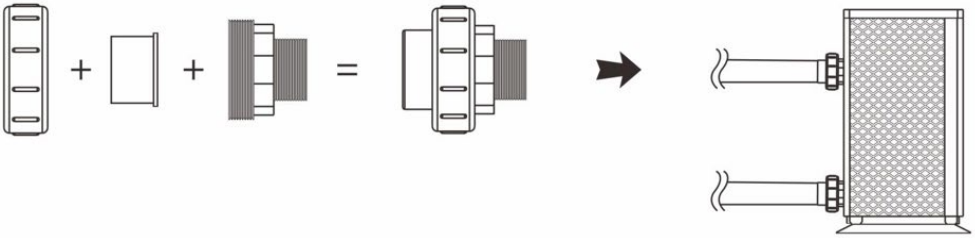


Installation of Drain Hose

The drain hose needs to be installed in the following manner to the location of the corresponding drainage outlet at the bottom of the heat pump.

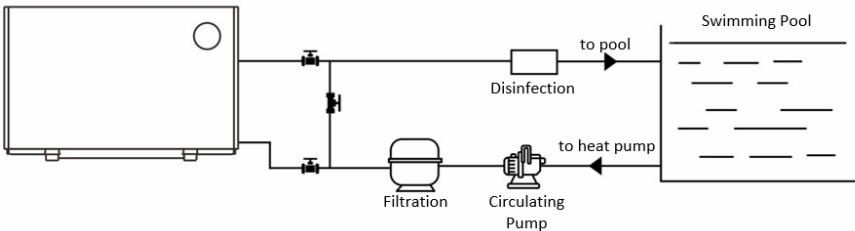


WATER CONNECTIONS



Use rigid PVC rather than soft pipes to connect the water union. Soft pipes will increase the resistance to water flow.

SEQUENCE OF POOL APPLIANCES



ELECTRICAL CONNECTION

For safe operation and to maintain the integrity of the electrical system, the equipment must be connected to a common power supply in accordance with the following provisions:

The heat pump must be connected to a suitable circuit breaker and Residual Current Device

The supply cable must be adapted to the rated power of the equipment and the wiring length required for the installation. The cable must be suitable for outdoor use.

For three-phase systems, the phases must be connected in the correct sequence. If the phases are reversed, the compressor of the heat pump will not work. In hardwired units, a isolation switch must be installed within reach of the heat pump to isolate power in the event of service, failure or refrigerant leak.

Model	Power Supply	Cable Specification
LC 35	220-240V~/ 50Hz	3G 2.5mm ²
LC 55		3G 2.5mm ²
LC 72		3G 2.5mm ²
LC 110		3G 6.0mm ²
LC 140T	380-415V/3N~/50Hz	5G 2.5mm ²

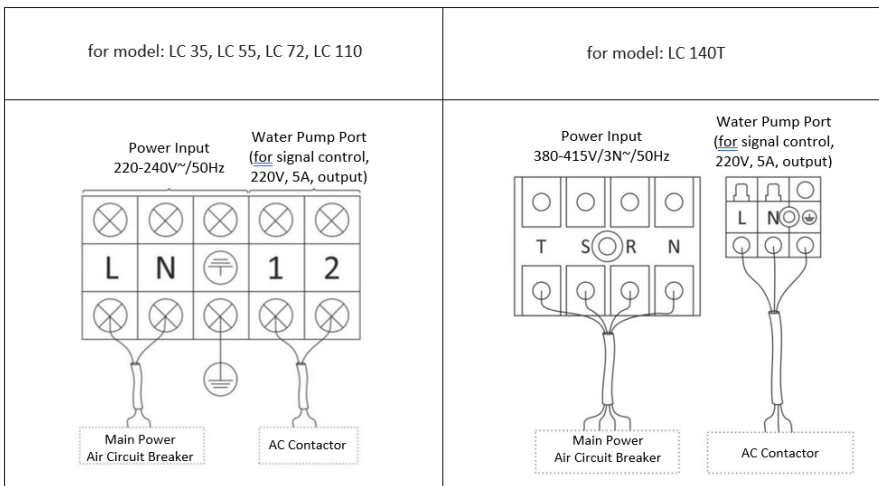
Electricity Connection

WARNING: The heat pump must be disconnected from the power supply before any operation.

Please follow the instructions below to connect the heat pump.

Step 1: Remove the side panel of the equipment with a screw driver for wire connection.

Step 2: Connect the cable wires to the corresponding ports of the heat pump according to the diagram below. (Water pump port rarely used - circulation usually provided by filter pump or externally controlled pump)



TESTING

WARNING: Check all wiring carefully before turning on the heat pump.

INSPECTION

Before trial running, verify that the following items are complied with.

The heat pump is installed on a solid, flat and level base, clearances are complied with and water connections are secure.

The power supply voltage is the same as the rated voltage of the unit.

RCD and fuse are suitable for the heat pump and operation is correct.

Plumbing and Wiring are connected correctly.

The earth wire is connected correctly.

The air inlet and outlet of the unit are unobstructed.

Correct drainage for the condensate drain.

TEST OPERATION

1. Turn the water (circulating) pump on first, then turn the heat pump on.
2. Set Temperature on heat pump above current water temperature
3. Check electrical current is normal
4. Check for any errors on heat pump control screen
5. Check for abnormal vibrations or noise
6. Check the condensate drain hose is draining correctly.

SECTION 3

HAVE FUN AND GET THE MOST OUT OF YOUR PURCHASE










Your Insnrg Heat Pump will help you get the most out of your pool.






OPERATION

Icon and Key Description of Wire Controller








Thermostat Icon Description







No.	Icon	Meaning of Icon	Function Description
1		Smart Mode	It will display under Smart Mode.
2		Silent Mode	It will display under Silent Mode.
3		Boost Mode	It will display under Boost Mode.
4		Heating Mode	It will display under Heating Mode.
5		Cooling Mode	It will display under Cooling Mode.
6		Defrosting Mode	It will display under Defrosting Mode.
7		Auto Mode	It will display under Auto Mode.
8		Clock/Timer/Parameter	Clock Display/Timing On-Off/Parameter
9		Fault Display	It will display when faults occur.

10		Electric Heater Icon	It will display when electric heating is on.
11		Wi-Fi Connection	It will flash during Wi-Fi connecting and display after successfully connected.
12		Locked	It will display if the wire controller is locked.
13		Degree Celsius	It will display when the temperature is set to be in Degree Celsius.
14		Degree Fahrenheit	It will display when the temperature is set to in Degree Fahrenheit.

Thermostat Button Description




No.	Key	Key Meaning	Function Description
1		Mode 1	Short press to switch between auto/cooling/heating modes when the power is on.
2		Mode 2	Switch to Smart/Silent/Boost Mode
3		Up	Increase the Setting Value
4		Down	Decrease the Setting Value
5		Power	Short press to turn <u>On</u> /Off the heat pump. Long press 3 seconds to lock/unlock the wire controller.

Thermostat Button Description

No.	Combination Keys	Function Description
1	Long Press “  ” and “  ” for 2 Seconds	Enter Parameter Checking Interface
2	Long Press “  ” and “  ” for 2 Seconds	Enter Timer Setting Interface
3	Long Press “  ” and “  ” for 3 Seconds	Search for a Wi-Fi Signal and Connect to Wi-Fi


THERMOSTAT CONTROL OPERATION






Power

Short press the “” key to turn the heat pump on or off. Long press the “” for 3 seconds to lock/unlock the wire controller. The wire controller locking mode activates automatically after 120 seconds of inactivity. When the wire controller is locked, the icon “” appears.









Mode

Heating/Cooling/Auto





When the heat pump is on, short press “” key to select the operating modes (Auto, Cooling and Heating). The circular selecting sequence is Auto→Cooling→Heating→Auto...

Note: The icon “” will be displayed under Auto mode. The heat pump intelligently chooses the most appropriate operating mode according to the setting temperature: When it is running into Auto Heating mode, “” and “” will be displayed; When it is running into Auto Cooling mode, “” and “” will be displayed.



Smart/Silent/Boost

When the heat pump is on, short press “” to switch between Boost/ Silent / Smart mode.  Boost→  Silent→  Smart→  Silent (modes switch in circular sequence).




Temperature Setting

When the heat pump is on, short press “” or “” keys to adjust the setting temperature under current mode. Press “” or “” keys and hold longer than 0.5 seconds for rapid adjustment.

Check Operating Parameters

(1) Enter Parameter Checking Interface: Long press “” and “” together for 2 seconds to enter the parameter checking interface.

Parameter code is shown in the timing display area, and parameter content is shown in the temperature display area.


(2) Parameter Checking Method: After entering the parameter interface, short press “” or “” to check the operating parameters. Short press “” to exit the interface, or it exits automatically if no operation for 60 seconds.

Operating Parameter List

Code	Parameter Name	Unit	Scope	Remark
01	Practical frequency of inverter compressor	Hz	0~150	
02	AC current	A	0~50	
03	AC voltage	V	0~300	
04	DC voltage	V	0~500	
05	Inlet water temperature	°C	-30~150	
06	Outlet water temperature	°C	-30~150	
07	Water tank temperature	°C	-30~150	Not for pool heat pump
08	Tube in shell heat exchanger temperature	°C	-30~150	Not for pool heat pump
09	Outdoor coil temperature	°C	-30~150	
10	Outdoor ambient temperature	°C	-30~150	
11	Gas suction temperature	°C	-30~150	
12	Gas exhaust temperature	°C	0~150	
13	Water inlet temperature of plate heat exchanger	°C	-30~150	Not for pool heat pump
14	Outlet water temperature of titanium heat exchanger	°C	-30~150	Not for pool heat pump
15	Step of electronic expansion valve in main circuit	P	0~500	Number of pulses
16	Step of electronic expansion valve in auxiliary circuit	P	0~500	Not for pool heat pump
17	IPM (driver module) temperature	°C	0~150	Reserved (default value: -30)
18	DC fan motor speed	RPM	0~900	

Fault Display

When a fault occurs, the corresponding fault codes flash in the timing area and the


icon “” appears. After the fault is eliminated, the fault codes and icon






“” disappear.

Fault code	Description	Remark
E01	IPM (driver module) protection	
E02	AC voltage over/shortage protection	Input voltage inspection
E03	AC current over high protection	
E04	Gas exhaust temperature over high protection	
E05	Outside coil temperature over high protection	
E06	Compressor drive protection	
E07	Ambient temperature sensor fault	
E08	Outside coil temperature sensor fault	
E09	Gas exhaust temperature sensor fault	
E10	Bus voltage over/shortage protection	Voltage protection after rectification
E11	Current sensor fault	
E12	Compressor driver communication fault	
E13	DC fan motor fault	
E14	Gas suction temperature sensor fault	
E15	Driver's EE fault	
E16	Main control board's EE fault	
E17	Low pressure protection	
E18	High pressure protection	
E19	IPM temperature over high protection	
E20	Power off suddenly	Automatic power on after recovery
E21	Evaporation temperature (T2) over low protection	
E22	Communication error between wired controller and main control board	
E23	Phase-shortage protection	
E24	Inlet water temperature sensor fault	
E25	Outlet water temperature sensor fault	

E26	Water flow switch fault	
E27	Inadequate water flow protection	
E28	Outlet water temperature over high protection at heating mode	
E29	Outlet water temperature over low protection at cooling mode	
E30	Evaporation temperature sensor (T2) fault	
E33	PFC hardware F0 error	Driver error
E34	PFC software over current protection	Driver error
E35	Compressor step-lost	
E37	Compressor startup failure	

Clock Setting







(1) Enter Clock Setting: Long press the “” key for 3 seconds till the digit in hour part flashes, and then it will enter the clock setting interface.





(2) Clock Setting Method: Flashing means adjustable. When the digit in hour area is flashing, press “” or “” to adjust Hour; Press “” to switch to Minute part and repeat above actions. When finishing setting, press “” to save the setting and press “” to exit setting interface.



Power ON/OFF Timer Setting


(1) Users can set up two groups of ON/OFF timers with adjustable ON and OFF time respectively. If the timer of power ON and OFF are set to the same, the setting will become invalid.


(2) Power ON/OFF Timer Setting Method

Long press “” and “” for 3 seconds till the icons “” and “1” are displayed on the right side of the screen. When the icon “1” is flashing, press “” or “” to select group no.1 or group no.2, and then press “” to confirm.

When the digit in Hour area is flashing and the “ON” icon is displayed, press “” or “” to set the hour of timing ON of group no.1(or no.2). Press “” to confirm and turn to set the minute while the digit in Minute area is flashing. Repeat above actions and press “” to confirm.

Note: Short pressing the “” key during the operation will exit the timing setting and the setting parameters will no longer be saved. Or long press the “” key for 3 seconds during operation, then the current timing setting will be canceled.

(4) Exit Timing ON/OFF Setting: During setting, short press “” will abandon the current setting and exit the setting interface.

(5) Cancel Timing ON/OFF Setting: When entering timer group no.1(or no.2) setting interface, long press “  ” for 3 seconds to cancel the timer group no.1(or no.2).

MAINTENANCE

WARNING: Make sure the power supply is cut off before any maintenance work is performed on the unit.

① Cleaning

- a. Please clean the machine with household cleaners or water. Do not use gasoline, thinner or any similar fuel.
- b. The finned-tube heat exchanger at the rear of the heat pump must be carefully cleaned using a vacuum cleaner and soft brush.

② Annual Maintenance

The following operations must be performed by qualified personnel at least once a year. Do not attempt to work on the equipment by yourself. Improper operation may cause danger.

- a. Conduct safety checks.
- b. Check the connection and integrity of the wires.
- c. Check the bolts and screws for looseness.
- d. Check the ground connection.
- e. Monitor for refrigerant leaks.

WARRANTY

Insnrng products are designed and manufactured to the highest possible standards of performance.

Australian Consumer Law

Our goods come with guarantees that cannot be excluded under the Australian Consumer Law. You are entitled to a replacement or refund for a major failure and for compensation for any other reasonably foreseeable loss or damage. You are also entitled to have the goods repaired or replaced if the goods fail to be of acceptable quality and the failure does not amount to a major failure.

Warranty Period and Conditions

Insnrng Techne Pty. Ltd. (hereinafter “the Company”) is pleased to warrant to the original retail purchaser that this product shall be free of manufacturing and material defects for the following periods: Titanium Heat Exchanger 10 years. Compressor and evaporator coil 3 years. Fan, sensors and electronics 1 year under the following conditions:

1. The product is purchased new from an authorised Insnrng dealership in Australia, New Zealand or North America.
2. This warranty is not assignable and applies to the original retail purchaser only and the original receipt, invoice or any other proof of purchase must be retained and produced if requested by the Company.
3. Nothing in this warranty shall apply to any defects caused by misuse or abuse, neglect, accident, extremes of climate, dampness, humidity, reasonable fair wear and tear and/or any causes other than defects in manufacturing and materials. Proper care and maintenance information is detailed in the Owner’s Manual for this product which you must follow.
4. Where a defect is physically visible or otherwise affects the exterior surfaces of the product, you must notify the Company of such defect within fourteen (14) days from the date of your purchase.

5. If the product is bought as a demonstration, refurbished, ex-rental, discontinued or otherwise previously unboxed unit, the warranty applicable shall be limited to twelve (12) months only.

Warranty Claim Procedure

To exercise your rights under this warranty, you must:

Within fourteen (14) days of you becoming aware of any defect, report the following details to the dealership from which the product was purchased:

- Your name, address and contact information;
- Model, and serial number of the product; and
- A detailed description of the defect.

On receipt of the above information, the Company will allocate to your dealership an Insnrng Authorisation Number (IAN).

Depending on the model type, how it is installed, and the defect reported, your nominated dealership will advise on how the warranty service will be performed. This could include, but not limited to, return of product to the dealership, return of product to the company, or a visit by qualified service technician to your poolside.

If advised to return the product, place the defective product in secure packaging, clearly label it with the IAN number allocated and send it to the address of the authorised service agent which will be advised by your dealership.

The Company will not be liable for any transportation costs, or in the event that a poolside call is arranged with an authorised service technician, costs of technician's travel time if the defect is found not to be covered by the consumer guarantees.

In the case of returned product, the authorised service technician or dealership will contact the purchaser when the product has been repaired and is ready for collection.

The Company will repair or replace at its absolute discretion your product

at no cost for parts or labour in accordance with the terms stated in this warranty provided that the reported defect is able to be located by the technical staff assigned to the product. If the technical staff is unable to locate the defect, you may be liable to pay for the cost of the technician's travel time and labour.



We know that you will get many years of enjoyment from this product.

We pride ourselves on developing products that are specifically created for your backyard lifestyle. We are continuously developing new products and ideas to make pool ownership easier and fun.

Should you wish to keep updated with our progress and hear first hand our new products and developments, please feel free to stay in touch by using any or all of the below methods:

MAIL

57-59 Nantilla Road,
Clayton, VIC, 3168

LANDLINE

1800 INSNRG (1800 467674)

WEBSITE

www.insnrg.com