INSTALLATION & OPERATING MANUAL Insnrg Hi Heat Pump

A COMPLETE GUIDE TO YOUR HEAT PUMP





CONGRATULATIONS ON PURCHASE YOUR INSNRG Hi HEAT PUMP.

THIS MANUAL HAS BEEN CAREFULLY DEVELOPED TO GIVE YOU ALL THE INFORMATION YOU NEED TO GET THEBEST 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: Only a qualified person should install this heat pump. A licensed refrigeration mechanic is required to work on the refrigeration circuit, evacuate or add refrigerant gas.

THE IMPORTANT BITS

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WE CARE ABOUT YOUR SAFETY



Please read this manual carefully BEFORE installing, operating or servicing the Heat Pump.

Insnrg highly recommend the installation of all their equipment by a suitably qualified pool professional who will ensure your high performance Insnrg products are installed your local standards and codes to ensure optimum safety and performance.

WARNING

Do not use means to accelerate the defrosting process or to clean, other than those recommended by the manufacturer. The appliance shall be stored in a room without continuously operating ignition sources (for example: open flames, an operating gas appliance or an operating electric heater.

Do not pierce or burn.

Be aware that refrigerants may not contain an odour

Initial safety checks shall include:

• that capacitors are discharged: this shall be done in a safe manner to avoid possibility of sparking;

• that no live electrical components and wiring are exposed while charging, recovering or purging the system;

• that there is continuity of earth bonding.

Checks to the area

Prior to beginning work on systems containing flammable refrigerants, safety checks are necessary to ensure that the risk of ignition is minimised. For repair to the refrigerating system, the following precautions shall be completed prior to conducting work on the system.

Work procedure

Work shall be undertaken under a controlled procedure so as to minimise the risk of a flammable gas or vapour being present while the work is being performed.

General work area

All maintenance staff and others working in the local area shall be instructed on the nature of work being carried out. Work in confined spaces shall be avoided.

Checking for presence of refrigerant

The area shall be checked with an appropriate refrigerant detector prior to and during work, to ensure the technician is aware of potentially flammable atmospheres. Ensure that the leak detection equipment being used is suitable for use with flammable refrigerants, i.e. non sparking, adequately sealed or intrinsically safe.

Presence of fire extinguisher

If any hot work is to be conducted on the refrigerating equipment or any associated parts, appropriate fire extinguishing equipment shall be available to hand. Have a dry powder or CO2 fire extinguisher adjacent to the charging area.

No ignition sources

No person carrying out work in relation to a refrigeration system which involves exposing any pipe work that contains or has contained flammable refrigerant shall use any sources of ignition in such a manner that it may lead to the risk of fire or explosion.

All possible ignition sources, including cigarette smoking, should be kept sufficiently far away from the site of installation, repairing, removing and disposal, during which flammable refrigerant can possibly be released to the surrounding space. Prior to work taking place, the area around the equipment is to be surveyed to make sure that there are no flammable hazards or ignition risks. "No Smoking" signs shall be displayed.

Ventilated area

Ensure that the area is in the open or that it is adequately ventilated before breaking into the system or conducting any hot work. A degree of ventilation shall continue during the period that the work is carried out. The ventilation should safely disperse any released refrigerant and preferably expel it externally into the atmosphere.

Checks to the refrigeration equipment

Where electrical components are being changed, they shall be fit for the purpose and to the correct specification. At all times the manufacturer's maintenance and service guidelines shall be followed. If in doubt consult the manufacturer's technical department for assistance. The following checks shall be applied to installations using flammable refrigerants:

 the charge size is in accordance with the room size within which the refrigerant containing parts are installed;

- the ventilation machinery and outlets are operating adequately and are not obstructed;

- if an indirect refrigerating circuit is being used, the secondary circuit shall be checked for the presence of refrigerant;

 marking to the equipment continues to be visible and legible. Markings and signs that are illegible shall be corrected;

– refrigeration pipe or components are installed in a position where they are unlikely to be exposed to any substance which may corrode refrigerant containing components, unless the components are constructed of materials which are inherently resistant to being corroded or are suitably protected against being so corroded.

Repairs to sealed components

During repairs to sealed components, all electrical supplies shall be disconnected from the equipment being worked upon prior to any removal of sealed covers, etc. If it is absolutely necessary to have an electrical supply to equipment during servicing, then a permanently operating form of leak detection shall be located at the most critical point to warn of a potentially hazardous situation.

Particular attention shall be paid to the following to ensure that by working on electrical components, the casing is not altered in such a way that the level of protection is affected. This shall include damage to cables, excessive number of connections, terminals not made to original specification, damage to seals, incorrect fitting of glands, etc.

Ensure that the apparatus is mounted securely.

Ensure that seals or sealing materials have not degraded to the point that they no longer serve the purpose of preventing the ingress of flammable atmospheres. Replacement parts shall be in accordance with the manufacturer's specifications.

Repair to intrinsically safe components

Do not apply any permanent inductive or capacitance loads to the circuit without ensuring that this will not exceed the permissible voltage and current permitted for the equipment in use. Intrinsically safe components are the only types that can be worked on while live in the presence of a flammable atmosphere.

The test apparatus shall be at the correct rating.

Replace components only with parts specified by the manufacturer. Other parts may result in the ignition of refrigerant in the atmosphere from a leak.

NOTE The use of silicon sealant can inhibit the effectiveness of some types of leak detection equipment.

Intrinsically safe components do not have to be isolated prior to working on them.

Cabling

Check that cabling will not be subject to wear, corrosion, excessive pressure, vibration, sharp edges or any other adverse environmental effects. The check shall also take into account the effects of aging or continual vibration from sources such as compressors or fans.

Detection of flammable refrigerants

Under no circumstances shall potential sources of ignition be used in the searching for or detection of refrigerant leaks. A halide torch (or any other detector using a naked flame) shall not be used.

Leak detection methods

The following leak detection methods are deemed acceptable for systems containing flammable refrigerants.

Electronic leak detectors shall be used to detect flammable refrigerants, but the sensitivity may not be adequate, or may need re-calibration. (Detection equipment shall be calibrated in a refrigerant-free area.) Ensure that the detector is not a potential source of ignition and is suitable for the refrigerant used. Leak detection equipment shall be set at a percentage of the LFL of the refrigerant and shall be calibrated to the refrigerant employed and the appropriate percentage of gas (25 % maximum) is confirmed.

Leak detection fluids are suitable for use with most refrigerants but the use of detergents containing chlorine shall be avoided as the chlorine may react with the refrigerant and corrode the copper pipe-work.

If a leak is suspected, all naked flames shall be removed/extinguished.

If a leakage of refrigerant is found which requires brazing, all of the refrigerant shall be recovered from the system, or isolated (by means of shut off valves) in a part of the system remote from the leak. Oxygen free nitrogen (OFN) shall then be purged through the system both before and during the brazing process.

Removal and evacuation

When breaking into the refrigerant circuit to make repairs – or for any other purpose – conventional procedures shall be used. However, it is important that best practice is

followed since flammability is a consideration. The following procedure shall be adhered to:

- remove refrigerant;
- purge the circuit with inert gas;
- evacuate;
- purge again with inert gas;
- open the circuit by cutting or brazing.

The refrigerant charge shall be recovered into the correct recovery cylinders. The system shall be "flushed" with OFN to render the unit safe. This process may need to be repeated several times. Compressed air or oxygen shall not be used for this task.

Flushing shall be achieved by breaking the vacuum in the system with OFN and continuing to fill until the working pressure is achieved, then venting to atmosphere, and finally pulling down to a vacuum. This process shall be repeated until no refrigerant is within the system. When the final OFN charge is used, the system shall be vented down to atmospheric pressure to enable work to take place. This operation is absolutely vital if brazing operations on the pipework are to take place.

Ensure that the outlet for the vacuum pump is not close to any ignition sources and there is ventilation available.

Charging procedures

In addition to conventional charging procedures, the following requirements shall be followed.

- Ensure that contamination of different refrigerants does not occur when using charging equipment. Hoses or lines shall be as short as possible to minimise the amount of refrigerant contained in them. Cylinders shall be kept upright.

– Ensure that the refrigeration system is earthed prior to charging the system with refrigerant.

– Label the system when charging is complete (if not already).

- Extreme care shall be taken not to overfill the refrigeration system. Prior to recharging the system it shall be pressure tested with OFN. The system shall be leak tested on completion of charging but prior to commissioning. A follow up leak test shall be carried out prior to leaving the site.

Decommissioning

Before carrying out this procedure, it is essential that the technician is completely familiar with the equipment and all its detail. It is recommended good practice that all refrigerants are recovered safely. Prior to the task being carried out, an oil and refrigerant sample shall be taken in case analysis is required prior to re-use of reclaimed refrigerant. It is essential that electrical power is available before the task is commenced.

- a) Become familiar with the equipment and its operation.
- b) Isolate system electrically.
- c) Before attempting the procedure ensure that:
 - mechanical handling equipment is available, if required, for handling refrigerant cylinders;

- all personal protective equipment is available and being used correctly;
- the recovery process is supervised at all times by a competent person;
- recovery equipment and cylinders conform to the appropriate standards.

d) Pump down refrigerant system, if possible.

e) If a vacuum is not possible, make a manifold so that refrigerant can be removed from various parts of the system.

f) Make sure that cylinder is situated on the scales before recovery takes place.

g) Start the recovery machine and operate in accordance with manufacturer's instructions.

- h) Do not overfill cylinders. (No more than 80 % volume liquid charge).
- i) Do not exceed the maximum working pressure of the cylinder, even temporarily.
- j) When the cylinders have been filled correctly and the process completed, make sure that

the cylinders and the equipment are removed from site promptly and all isolation valves on the equipment are closed off.

k) Recovered refrigerant shall not be charged into another refrigeration system unless it has been cleaned and checked.

Labelling

Equipment shall be labelled stating that it has been de-commissioned and emptied of refrigerant. The label shall be dated and signed. Ensure that there are labels on the equipment stating the equipment contains flammable refrigerant.

Recovery

When removing refrigerant from a system, either for servicing or decommissioning, it is recommended good practice that all refrigerants are removed safely. When transferring refrigerant into cylinders, ensure that only appropriate refrigerant recovery cylinders are employed. Ensure that the correct number of cylinders for holding the total system charge are available. All cylinders to be used are designated for the recovered refrigerant and labelled for that refrigerant (i.e. special cylinders for the recovery of refrigerant). Cylinders shall be complete with pressure relief valve and associated shut-off valves in good working order. Empty recovery cylinders are evacuated and, if possible, cooled before recovery occurs. The recovery equipment shall be in good working order with a set of instructions concerning the equipment that is at hand and shall be suitable for the recovery of flammable refrigerants. In addition, a set of calibrated weighing scales shall be available and in good working order. Hoses shall be complete with leak-free disconnect couplings and in good condition. Before using the recovery machine, check that it is in satisfactory working order, has been properly maintained and that any associated electrical components are sealed to prevent ignition in the event of a refrigerant release. Consult manufacturer if in doubt. The recovered refrigerant shall be returned to the refrigerant supplier in the correct recovery cylinder, and the relevant Waste Transfer Note arranged. Do not mix refrigerants in recovery units and especially not in cylinders.

If compressors or compressor oils are to be removed, ensure that they have been

evacuated to an acceptable level to make certain that flammable refrigerant does not remain within the lubricant. The evacuation process shall be carried out prior to returning the compressor to the suppliers. Only electric heating to the compressor body shall be employed to accelerate this process. When oil is drained from a system, it shall be carried out safely.

The symbol description of the device

	WARNING	The symbol shows that this appliance uses a flammable refrigerant. If the refrigerant is leaked and exposed to an external ignition source, there is a risk of fire.	
	WARNING	The symbol shows that this appliance uses a low burning velocity material.Please keep away from fire source.	
CAUTION This syn read car		This symbol shows that the operation manual should be read carefully.	
	CAUTION	This symbol shows that a service personnel should be handling this equipment with reference to the installation manual.	
i	CAUTION	This symbol shows that information is available such as the operating manual or installation manual.	



THIS HEAT PUMP HAS POWER-OFF MEMORY FUNCTION. WHEN THE POWER IS RECOVERED, THE HEAT PUMP WILL RESTART



All components of the filtration system including Pumps, Filters, Heaters must be positioned so to prevent being used as means of access to the pool by young children. To reduce risk of injury, do not permit children touse or climb on this product. Closely supervise children at all times.

WARNING - HAZARDOUS PRESSURE

Pool and Spa water circulation systems operate under hazardous pressureduring start up, normal operation, and after pump shut off. Stand clear of circulation system equipment during pump start-up. Failure to follow safety and operation instructions could result in violent separation of the pump housing and cover, and/or filter housing and clamp due to pressure in the system, which could cause property damage, severe personal injury,or death. Before servicing pool and spa water circulation systems, all system and pump controls must be in the off position and filter manual relief valve must be in open position. Before starting system pump, all system valves must be set in a position that allows system water to return back to the pool. Do not change filter control valve position whilst systempump is operating. Before starting system pump, fully open filter manual air relief valve. Do not close filter manual air relief valve until a steady stream of water (not air) is discharged.

WARNING - RISK OF ELECTRICAL SHOCK OR ELECTROCUTION.

Ensure that you position the filter to allow for the air/water bleed valve located in the lid to safely direct water drainage and purged air or water. Water discharged from an improperly position filter can create an electrical hazard that can cause severe personal injury as well as damage property.

UNIT PARAMETERS



To keep users under safe working condition and property safety, please follow the instructions below.

- Wrong operation may result in injury or damage;
- Please install the unit in compliance with local laws, regulations and standards;
- Confirm power voltage and frequency;
- The unit is only used with grounding sockets;
- Independent switch must be offered with the unit. The following safety factors need to be considered:
- Please read the following warnings before installation;
- Be sure to check the details that need attention, including safetyfactors;
- After reading the installation instructions, be sure to save them forfuture reference.



- Make sure that the unit is installed safely and reliably.
- If the unit is not secure or not installed, it may cause damage. The minimum support weight required for installation is 21g/mm2.
- If the unit is to be installed in a closed area or limited space, please consider the size of room and ventilation to prevent suffocation caused by refrigerant leakage.
- Use a specific wire and fasten it to terminal block so that the connection will prevent pressure from being applied to parts.
- Wrong wiring will cause fire. Please connect power wire accurately according to wiring diagram on the manual to avoid burnout of the unit or fire.
- Be sure to use correct material during installation. Wrong parts or wrong materials may result in fire, electric shock, or falling of the unit.
- Install on the ground safely, please read installation instructions. Improper installation may result in fire, electric shock, falling of theunit, or water leaking.
- Use professional tools for doing electrical work. If power supply capacity is insufficient or circuit is not completed, itmay cause fire or electric shock.
- The unit must have grounding device. If power supply does not have grounding device, be sure not toconnect the unit.
- The unit should be only removed and repaired by a professional technician.

Improper movement or maintenance of the unit may cause water leakage, electric shock, or fire. Please find a professional technicianto carry out work.

- Don't unplug or plug power during operation. It may cause fire orelectric shock.
- Don't touch or operate the unit when your hands are wet. It may cause fire or electric shock.
- Don't place heaters or other electrical appliances near the powerwire. It may cause fire or electric shock.
- The water must not be poured directly from the unit. Do not allowwater to permeate into the electrical components.



- Do not install the unit in a location where there may be flammable gas.
- Do NOT install so that the fan is blowing on pumps or other heaters. Cold air from the fan will cause significant condensation inside heat producing appliances shortening life span.
- Flammable gas near the unit may cause an explosion. Install drainage, plumbing and electrical connections in accordance with these instructions and local regulations. If drainage system or plumbing is defective, water leakage will occur.
- Do not clean the unit while power is on. Turn off power before cleaning the unit to avoid injury from high speed fan or electric shock.
- Stop operating the unit once there is a problem or a fault code.Please turn off power and stop running the unit. Otherwise, it may cause electric shock or fire.
- Be careful when the unit is not packed or not installed. Pay attention to sharp edges and fins of heat exchanger.
- After installation or repair, please confirm refrigerant is not leaking. Use a qualified refrigeration mechanic to confirm refrigerant level and correct operation of unit.



Don't put your fingers into fan and evaporator.

High speed running fan will result in serious injury.

• This device is not designed for people who are infirmed (including children) and who do not have experience and knowledge of heating and cooling systems unless it is used under direction and supervision of a professional technician, or has received training on the use of this unit. Children must use it under supervision of an adult to ensure they use the unit safely. If power wire is damaged, it must be replaced by a professional technician to avoid danger.

SECTION 2

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

The following section will outline how to install your Heat Pump to get the best results. To operate correctly, your Heat Pump needs a reliable supply of Water, Air and Electricity.

By adhering to the following instructions, you will ensure the best combination.

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

HOW IT WORKS

Your Insnrg Hi Heat Pump is a perfect investment to get the most value and enjoyment out of your backyard swimming oasis. Correctly sized and installed your Heat Pump can provide year round swimming. Heat Pumps are an extremely efficient way to heat your pool water as they utilise existing power source and absorb the heat from the surrounding air conditions to heat your water at minimal energy costs.

The inverter technology built-in to your Insnrg Hi Heat Pump takes this saving to the next level by reducing the speed of your motor as the desired set point temperature is approached. It maintains your pool water at your desired temperature using up to 80% less power. This technology has been used in the Air Conditioning market for many years with great results.

Follow these instructions to get the most benefit out of your Insnrg Hi Heat Pump and ensure your family and friends enjoyyour pool all year round.

UNIT DIMENSIONS



Water Outlet	, ioi	
Water Inlet	F G G	
	•	

Model	Α	В	С	D	E	F	G
Hi35	910	355	620	591	330	280	98
Hi55	1000	1000 400 660	601	275	200	0.9	
Hi72		400	000	001	3/3	300	90
Hi96	1130	445	775	652	420	470	109
Hi120		445	//5	000	430	470	100

INSTALLATION INSTRUCTIONS



WARNING: Installation must be carried out by a qualified person. This section is provided for information purpose only and must be checked and adapted if necessary according to actual installation condition.

Location

Please comply with the following rules about heat pump location:

- 1. The unit's location must be convenient for operation and maintenance and service.
- Do Not Install in a manner where the fan is blowing on pumps, other heaters or other appliances with motors or heat generating circuit boards. Significant Condensation will develop within the other appliances causing premature failure.
- 3. It must be installed on flat concrete floor. The floor is stable and constructed to support the weight of the unit.
- 4. A water drainage device must be provided close to the unit in order to protect the area where it is installed.
- 5. If necessary, mounting pads could be used to support the weight of the unit.
- 6. Confirm the unit is under well-ventilated condition; air outlet port is not facing to the windows of nearby buildings and the outlet air cannot be recirculated through the unit. In addition, provide enough space around the unit for repair and maintenance.
- 7. The unit must not be installed in an area exposed to oil, flammable gases, corrosive products, sulphurous compounds or close to high frequency equipment.
- 8. To prevent mud splashes, do not install the unit near road or track.
- **9**. To avoid noise to neighbours, please make sure the unit is installed in less noise sensitivity area or good sound isolation area.
- 10. Keep the unit as far as possible away from children.



Installation space

UNIT: mm



DO NOT place anything within at least 1,000mm in front of heat pump. DO leave at least 500mm of empty space around the sides and rear of heat pump. DO NOT put anything on or in front of heat pump!

Installation Layout



The filter must be cleaned regularly to ensure that water in the system is clean and avoid blocking of filter. It is necessary that drainage valve is fixed on the lower water pipe. If the unit is not running during winter months, please disconnect power supply and let out drain water from unit through drainage valve. If ambient temperature of running unit isbelow 0°C, please keep water pump running.

Electrical Connection

Model	Power Supply Wires					
	Electricity Supply	Cable Diameter	Specification			
Hi35		3×2.5mm ²	AWG 14			
Hi55	220V-240V~/50Hz	3×2.5mm ²	AWG 14			
Hi72		3×4.0mm ²	AWG 12			
Hi96		3×4.0mm ²	AWG 12			
Hi120	380V-415V/3N~/50Hz	5×2.5mm ²	AWG 14			

WARNING: Power supply of heat pump must be disconnected before any operation. Please comply with the following instruction to connect heat pump.

- Step 1: Detach electrical side panel by a screwdriver to accesselectrical terminal block.
- Step 2: Insert cable into heat pump unit port.
- Step 3: Connect power supply cable to terminal block according to the diagram below.











Test Operation

Inspection Before Test Operation

- a. Operation test can begin after completing all installation;
- **b.** Before testing unit operation, confirm below items and write 🖌 in block;
- Correct unit installation . Power supply voltage is the same as unit rated voltage Correct piping and wiring . Air inlet & outlet port of unit is unblocked . Drainage and venting is unblocked and no water leaking . Leakage protector is working Piping insulation is working Ground wire is connected correctly •
- All wiring and piping should be connected well and carefully checked, check pool and spa water level and the filter, skimmer or other strainers are clean of leaves and debris

c. Emptying all air within pipes and water tank, press "on-off" button on control panel to run the unit at set point temperature

d. Items to check during operation test:

- During the first operation, unit current is normal
- Each function button on control panel is normal
- Display screen is normal
- Is there any leakage in the whole heating circulation system
- Condensate drain is eliminating condensate
- Is there any abnormal sound or vibration during operation?

SECTION 3

HAVE FUN AND GET THE MOST OUT OF YOUR PURCHASE

Now that your Insnrg Hi Heat Pump is installed and operating, it is important to understand how to keep it in the best condition and give you the best results for many years to come.

CONTROL FUNCTION DESCRIPTION

1. Operation Description

Control Panel Diagram



• Key Operating Instruction

No.	Item	Operation Way
1	ON/OFF	At the main interface, press " \bigcup " to control system on / off.
2	Query System Status	 At the main interface, press " " "for 3s to enter the system status interface.Press " " and " " to adjust. Press " " or 1 minute without key operation, this interface will exit.
3	Select Mode	At the main interface, short press " M " to select mode between heating mode and cooling mode.
4	Set Temper ature	 At the main interface, press" "to set the temperature drop adjustment, press " "to set the temperature rise adjustment. Press" " or " " " ress" " rest the setting value.
5	Set Clock	 Press" " at the main interface to enter the current time hour setting. The hour part flash. Press " " and " " " to adjust. Then press " " enter the current time minute setting. The digital pipe minute part flash. Press " " and " " " to adjust. Press " " or 1 minute without operation, this interface will exit.
6	Lock/U nlock	Press " () + () " at the same time for 3s to lock/unlock. When the lock icon appears on the screen, it means that the display is locked.

7	Timer	 Press " + "for 3s at the main interface to enter timer 1 ON setting. The "ON" icon will display, Press " " at the main interface to enter timer setting. The hour part will flash. Press " " and " " " to adjust. Then press " " " ad " " " to set the minute part. The minute part will flash. Press " " and " " " to adjust. And then press " again to confirm this setting. After timer 1 ON is completed, it will automatically enter the timer 1 OFF setting state, and the "OFF" icon will display. Press" + " to enter the timer 2 setting state. The following steps are same as timer 1. Press" + " the setting exit and will not be saved. Press" + " the setting will make this setting exit and will not be saved.
8	Wi-Fi	 Press" + ""for 3s to enter the Wi-Fi network configuration mode. At this time, the interface displays AF, which means that you have successfully entered the AP network configuration mode. Press" + "for 3s to enter the Wi-Fi network configuration mode. At this time, the interface displays AF, which means that you have successfully entered the EZ network configuration mode.
9	Manual Defrosti ng	At the main interface, press" (M) + 🔐 "for 3s to enter the manual defrosting function. The main board will determine whether to enter the manual defrosting function according to the conditions.

2. System Status

Code	Description	Range	Unit
01	Compressor frequency	0~120	Hz
03	Inlet water temp.	-99~999	°C
04	Outer coil temp.	-99~999	°C
05	Exhaust temp.	-99~999	°C
06	Suction temp.	-99~999	°C
07	Inter coil temp.	-99~999	°C
08	Ambient temp.	-99~999	°C
11	Outlet water temp.	-99~999	°C
17	Main valve step	0~999	р
25	Driver AC voltage	0~999	V
26	Driver AC current	0~99.9	А
27	Driver DC voltage	0~999	V
28	Driver phase current	0~99.9	А
29	Driver IPM temp.	-99~999	°C
30	Driver DC fan 1 speed	0~999	rpm
31	Driver DC fan 2 speed	0~999	rpm

SECTION 4

OOPS, SOMETHING'S NOT RIGHT?

Maintenance, Trouble Shooting, Replacement Parts, Warranty & Contact Section

MAINTENANCE

Your new Insnrg Hi Heat Pump has been designed to withstand harsh outdoor conditions and withstand high velocity water with chemicals. Some of these parts will wear in the normal course of use and require regular checks and maintenance. A well thought out pro-active maintenance schedule will identify faults early and extend the lifespan of your Heat Pump.

A good tip for all outdoor Filtration Equipment including your HeatPump is to ensure that the equipment area is protected from any insects and vermin with a regular treatment of Surface Spray or suitable Insecticide. Most of the electronics in Pumps, Chlorinators or Heaters are well vented to protect against extremes of temperature, however this creates a popular environment for ants and other insects who are attracted to the warmer, dry environments inside the enclosures. We recommend that, with power turned off to all equipment, you spray a surface insecticide on the surfaces surrounding the equipment to prevent ant and insect ingress. Repeat every three months or asnecessary to ensure no nasty surprises.

PRO-ACTIVE MAINTENANCE PROGRAM

When?	What you can look for?	Maintenance you can do?	
Weekly	Check around the unit for leaves/debris or signs of flooding.	Remove any debris that is restricting air circulation around the Heat Pump. If in a flood prone location, rectify.	
Quarterly	Check all Gaskets	Isolate and turn off the Heat Pump. Remove all Gaskets and turn over. You can also apply a silicone based grease t extend the life. If dry, then contact your local pool professional to replace.	
	Check for any Insects / Ants etc	It is a good practice to use a good quality surface spray around your equipment. Make sure all units are turned off and then spray around all units to eliminate any insect/ants etc	
	Check for any leaks	If you notice any water leaking from the Heat Pump. Check gaskets first and reseal. If continues, contact your local pool professional to assess and rectify. Note, your heat pump will produce a large amount of condensate during operation.	
Annually	Clean the Evaporative Coil and Fan	Isolate unit from power and use a soft cloth with water containing asmall amount of household detergent to carefully clean the entire outside of the unit, especially the evaporative coils and fan.	

SYSTEM SPECIFICATION

1. Specification

	Model	Hi35	Hi55	Hi72	
Ambient Temperature: (DB/WB) 27°C/24.3°C;		Water Inlet/Outlet Temperature: 26°C/28°C.			
Heating capacity (kW)		1.8~9.1	3.5~15.1	4.35~18	
Power input (k)	N)	0.133~1.475	0.259~2.479	0.335~2.958	
COP		13.5~6	13.5~6.05	13~6.1	
Deast made	Heating capacity (kW)	9.1	15.1	18	
BOOSL MODE	COP	6	6.05	6.1	
Cmart mode	Heating capacity (kW)	7.45	11.03	13.38	
Smart mode	COP	7.29	7.45	7.28	
Cilont modo	Heating capacity (kW)	3.34	7.02	8.31	
Silent mode	COP	11.83	10.3	9.7	
Ambient Tempe	erature: (DB/WB) 15°C/12°C; V	Vater Inlet Temperatur	e: 26°C.		
Heating capacit	ty (kW)	1.5~7.4	2.8~11	3.25~13.5	
Power input (k)	N)	0.197~1.510	0.355~2.259	0.418~2.779	
COP		7.6~4.91	7.6~4.78	7.65~4.7	
Roost mode	Heating capacity (kW)	7.4	11	13.5	
boost mode	COP	4.91	4.78	4.7	
Smort modo	Heating capacity (kW)	5.83	8.26	10.08	
Smart mode	COP	5.77	5.55	5.51	
Silont modo	Heating capacity (kW)	2.39	5.3	6.42	
Silent mode	COP	6.71	6.35	6.31	
Power supply			220V-240V~/50Hz		
Max power inpu	ut (kW)	1.75	3.2	3.9	
Max current(A)		7.95 14.5 17.7			
Heating water	temperature range		5°C~40°C		
Running ambie	nt temperature range	-10°C~43°C			
Advised swimm	ing pool size	20m ³ ~40m ³ 30m ³ ~60m ³ 35m ³ ~70m ³		35m ³ ~70m ³	
Refrigerant		R32			
Compressor		MITSUBISHI ELECTRIC (DC inverter)			
Air side heat ex	changer	Hydrophilic fin exchanger			
Water side hea	t exchanger	Titanium tube heat exchanger		iger	
Water flow(m3)	/h)	4.1	6.6 7.7		
Net dimension	LxWxH (mm)	910×355×620 1000×400×660			
Water pipe con	nection (mm)		48.3		
Net weight (kg)		37	46	46	
Noise level dB(A)	33~46	34~48	34~48	
Max./Min. Wate	er operating pressure (Mpa)	0.6/0.1			
Max./Min. Wate	er inlet pressure (Mpa)		0.6/0.1		
Fuse specification		65TS/25A/250VAC 65TS/30A/250VAC			

Model		Hi96	Hi120	
Ambient Temperati	26°C/28°C.			
Heating capacity (k	:W)	4.7~25.1	4.8~28.2	
Power input (kW)		0.354~4.167	0.381~4.828	
COP		13.5~5.9	13.2~5.8	
Roact mode	Heating capacity (kW)	25.1	28.2	
boost mode	COP	5.9	5.8	
Smart mode	Heating capacity (kW)	19.48	21.59	
Smart mode	COP	7.18	7.2	
Cilont mode	Heating capacity (kW)	11.75	13.28	
Slient mode	COP	9.89	11.45	
Ambient Temperati	ure: (DB/WB) 15°C/12°C; Water I	nlet Temperature: 26°C.		
Heating capacity (k	W)	3.9~16.8	4.2~19.3	
Power input (kW)		0.494~3.677	0.544~4.196	
COP		7.7~4.65	7.54~4.6	
De esta una da	Heating capacity (kW)	16.8	19.3	
Boost mode	COP	4.65	4.6	
Consultance de	Heating capacity (kW)	12.89	13.97	
Smart mode	COP	5.66	5.55	
	Heating capacity (kW)	7.93	8.89	
Slient mode	COP	6.32	6.31	
Power supply		220V-240V~/50Hz	380V-415V/3N~/50Hz	
Max power input (k	(W)	4.5	5.4	
Max current(A)		23.0	10.2	
Heating temperatur	re range	5°	C~40°C	
Running temperatu	ire range	-10°C~43°C		
Advised swimming	pool size	55m ³ ~90m ³	65m ³ ~100m ³	
Refrigerant	•		R32	
Compressor		MITSUBI	SHI ELECTRIC	
Air side heat excha	nger	Hydrophili	c fin exchanger	
Water side heat exe	changer	Titanium tub	e heat exchanger	
Water flow(m3/h)	<u> </u>	10.8	12	
Net dimension LxW	/xH (mm)	1130	×445×775	
Water pipe connect	tion (mm)		48.3	
Net weight (kg)	× /	73	73	
Noise level dB(A)		35~55	36~55	
Max./Min. Water or	perating pressure (Mpa)	(0.6/0.1	
Max./Min. Water in	let pressure (Mpa)	0.6/0.1		
Fuse specification	/	65TS/5A/250VAC	65TS/20A/250VAC	

The technical specification of our heat pumps is provided for information purposeonly. We reserve the right to make change without notice in advance.

- 1. Noise at 1 m, at 4 m and at 10 m in accordance with Directives EN ISO 3741 and ENISO 354
- 2. Calculate according to an in-ground private swimming pool covered with bubble

2. Explosion View



1	Top cover	8	Front plate	15	Middle plate
2	Left handle	9	Wind mask	16	Copper pipes
3	Motor support	10	Chassis	17	EEV
4	Left plate	11	Right plate	18	Motor
5	Fan	12	Wire controller	19	Evaporator
6	Fixed plate 1	13	Compressor	20	Electrical box
7	Fixed plate 2	14	Titanium heat exchanger	21	Back net

3. Trouble Shooting - System protection / error indication

Fault Code	Fault Details	State	Remedy
EE	Inlet and outlet water temp.sensor fault	Stop	Check the connection, change the sensor if necessary.
E01	Wire controller communication protection	Stop	1.Check if the communication connection wire between display and PCB is well . Change or mend the wire if necessary . 2.Check the PCB or display. If damaged, Change the corresponding part .
E02	Driver communication protection	Stop	Change the PCB.
E03	AC current protection	Stop	 The compressor is temporarily overloaded (for example, liquid compression) The program does not match the compressor The U, V, and W lines of the compressor are inversely connected, and the compressor reverses Compressor wear (lack of oil, liquid compression lead to wear cylinder block)
E04	AC voltage protection	Stop	 Check the power connection. Cut Power and restart the unit. Finally, you can try to change the PCB.
E05	DC voltage protection	Stop	 Check the power connection. Cut Power and restart the unit. Finally, you can try to change the PCB.
E06	Phase current protection	Stop	1.Check the power connection. 2.Check the input current. 3.Check the driver board. 4.Check the compressor.
E07	IPM over temp. protection	Stop	 Check the power connection. Check the input current. Check the driver board. Check the compressor.

E08	DC current protection	Stop	 Check the power connection. Check the input current. Check the driver board. Check the compressor.
E09	High exhaust temp. prote ction	Stop	 Replace the compressor exhaust temp. sensor. Reconnect or clean compressor exhaust temp. sensor and wrap it with insulation tape. Replace the controller or PC Board.
E10	Ambient temp. protection	Stop	Wait for the ambient temp. drops and restart the unit.
E14	Low outlet water temp. protection (Cooling)	Stop	Check the water flow and water system, mend it if necessary.
E15	High coil temp.protection (Cooling)	Stop	 Check the driver board.Change it if damaged. Check the compressor. Access a stable and reliable power supply. Check if the refrigerant is overcharged, if so the refrigerant quantity should be adjusted.
E16	High outlet water temp. p rotection (Heating)	Stop	Check the water flow and water system, mend it if necessary.

			1.The connection between water flow switch and main board is poor.Reconnect the water flow
E17	Water flow protection	Stop	 switch cable. 2. The water flow switch is installed wrong.Install the water flow switch in the correct way. 3. Water flow switch problem.Need to replace the water flow switch 4. Main board problem.Need to replace the main board. 5. The water system is blocked.Clean or replace the blocked part. 6. Water pump is not suitable.Change the pump according to the water flow and water head. 7. Water pipe is small.Need to change the water pipe. 8. The water flow switch is stuck and cannot be reset.Reset the water flow switch manually. 9. The valve is not open.Open the valve. 10. Turn on the pump. 11. The water pump is not working.Need to replace the water pump.
E18	High pressure protection	Stop	 Loose wiring or poor connection of high pressure switch. There is something wrong with high pressure switch. Main board is broken. Water temp. is too high (over range operation). The valve in water system is not open. Waterway blockage, may appear in the heat exchanger or valve part. Improper water pump selection 8. The water pump is broken . Refrigerant system blockage, may appear in the throttle part. Refrigerant system is mixed with air, maybe the vacuum is not enough.

E19	Low pressure protection	Stop	 The connection between low pressure switch and main board is poor. There is something wrong with low pressure switch Main board is broken. Improper installation position. Dust, foreign body blockage on the fin heat exchanger, etc. Low ambient temp. Fan causes abnormal air inlet. Refrigerant system blockage, may appear in the throttle part. Leakage happen, and refrigerant is not enough .Repair the leakage, and refill the refrigerant according to the namenlate
E20	Wrong phase fault	Stop	1.Check power cable connections, 2.Power off and restart.
E21	Power supply phase A lost fault	Stop	1.Check power cable connections, 2.Power off and restart.
E22	Inlet and outlet temp. diff erence protection	Stop	 Check if the water flow of the water pump meets the requirements Replace the water pipe. Clear the blockage. Replace the Inlet and outlet temp.sensor.
E23	Low ambient temp. protection (Heating)	Stop	Wait for the ambient temp. raise and restart the unit.
E24	Low ambient temp. protection (Cooling)	Stop	Wait for the ambient temp.drops and restart the unit.
E25	Low inside coil temp. protection (Cooling)	Stop	Check DC fan motor. Change it if damaged.
E26	DC-Fan fault (No feedback speed)	Stop	1.Check DC fan motor. Change it if damaged. 2.Check output port of DC fan motor on PCB. Change the PCB if there is no output.
E27	Power supply phase B lost fault	Stop	1.Check power cable connections, 2.Power off and restart.
E28	Power supply phase C lost fault	Stop	1.Check power cable connections, 2.Power off and restart.

E38	Driver module protection	Stop	Check the driver board.Change it if damaged.
E49	Inlet water sensor fault	Use out sensor for logic	Check the connection, change the sensor if necessary.
E50	Coil sensor fault	Keep running	Check the connection, change the sensor if necessary.
E51	Exhaust sensor fault	stop	Check the connection, change the sensor if necessary.
E52	Suction sensor fault	Keep running	Check the connection, change the sensor if necessary.
E53	Inside coil sensor fault	Keep running	Check the connection, change the sensor if necessary.
E54	Ambient sensor fault	Keep running	Check the connection, change the sensor if necessary.
E57	Outlet sensor fault	Use in sensor for logic	Check the connection, change the sensor if necessary.
D17	Driver IPM over current protection	Stop	 Check the power connection. Check the input current. Check the driver board. Check the compressor.
D18	Driver compressor fault (except IPM fault)	Stop	 Check the power connection. Check the input current. Check the driver board. Check the compressor.
D19	Driver compressor over current protection	Stop	 Check the power connection. Check the input current. Check the driver board. Check the compressor.
D22	Driver IPM high temp. protection	Stop	 Check the power connection. Check the input current. Check the driver board. Check the compressor.
D23	Driver PFC fault	Stop	 Check the power connection. Check the input current. Check the driver board. Check the compressor.
D24	Driver DC bus high voltage protection	Stop	 Check the power connection. Check the input current. Check the driver board. Check the compressor.
D25	Driver DC bus low voltage protection	Stop	 Check the power connection. Check the input current. Check the driver board. Check the compressor.

D26	Driver AC low voltage protection	Stop	 Check the power connection. Check the input current. Check the driver board. Check the compressor.
D27	Driver AC over current protection	Stop	 Check the power connection. Check the input current. Check the driver board. Check the compressor.
D32	Driver communication fault	Stop	 Check the connection. Check the PCB. Change it if damaged. Check the driver board.Change it if damaged. Replacement of the connection signal cable.
D33	Driver IPM temp. protecti on	Stop	 Check the power connection. Check the input current. Check the driver board. Check the compressor.
D34	Driver DC fan 1 fault	Stop	 Check the fan motor connection. Check the fan motor.Change it if damaged. Check the fan motor driver board. Check the PCB.Change it if damaged.
D35	Driver DC fan 2 fault	Stop	 Check the fan motor connection. Check the fan motor.Change it if damaged. Check the fan motor driver board. Check the PCB.Change it if damaged.
D36	Driver transformer input 15V low voltage protection	Stop	 Check the power connection. Check the input current. Check the driver board. Check the compressor.

Other Malfunctions and Solutions (No display on LED wire controller)

Malfunctions	Observation	Reasons	Remedy
Heat pump is not running	LED wire controller shows nothing	No power supply	Check whether cable and circuit breaker are connected
	LED wire controller displays the actual time	Heat pump under standby status	Startup heat pump to run
	LED wire controller displays the actual water temperature	 Water temperature is reaching set value, heat pump under constant temperature status Heat pump starts run Under defrosting 	 Verify water temperature setting Startup heat pump after a few minutes LED control should display "Defrosting"
Water temperature is cooling when heat pump runs under heatingmode	LED wire controller displays actual water temperature and no error code displays	 Chose the wrong mode Figures show defects Controller defect 	 Adjust the mode Replace the defect LED wire controller, and then check the status after changing the running mode, verifying the water inlet and outlet temperature Replace or repair the heat pump
Short running	LED displays actual water temperature, no error code displays	 Fan NOT running Not enough air ventilation Not enough refrigerant 	 Check the cable connections between the motor and fan, if they should be replaced Check the location of the heat pump, and eliminate all obstaclesto assure a good air ventilation Replace or repair the heat pump
Water stains	Water stains on heat pump unit	1. Concreting 2. Water leakage	 No action Check the titanium heat exchanger carefullyif it shows any defects
Too much ice on evaporator	Too much ice on evaporator	-	 Check the location of heat pump, eliminate all obstaclesto assure a good air ventilation Replace or repair the heat pump

WARRANTY

Insnrg 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

Insnrg 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
- Compressor and Evaporator Coil
- Controls and Circuit Boards
- o Infield Labour

2 years 1 year

5 years

Lifetime warranty

1. The product is purchased new from an authorised Insnrg 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 detects 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 Insnrg 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.

insnrg

Thanks for purchasing our high performance Hi Heat Pump.

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

Insnrg has been founded by persons with over 120 years experience in the Pool and Spa industry.

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

(03) 8578 5633

WEBSITE

www.insnrg.com

insnrg

POOL AND SPA EQUIPMENT

Hi Heat Pump 01_10_22_touchscreen