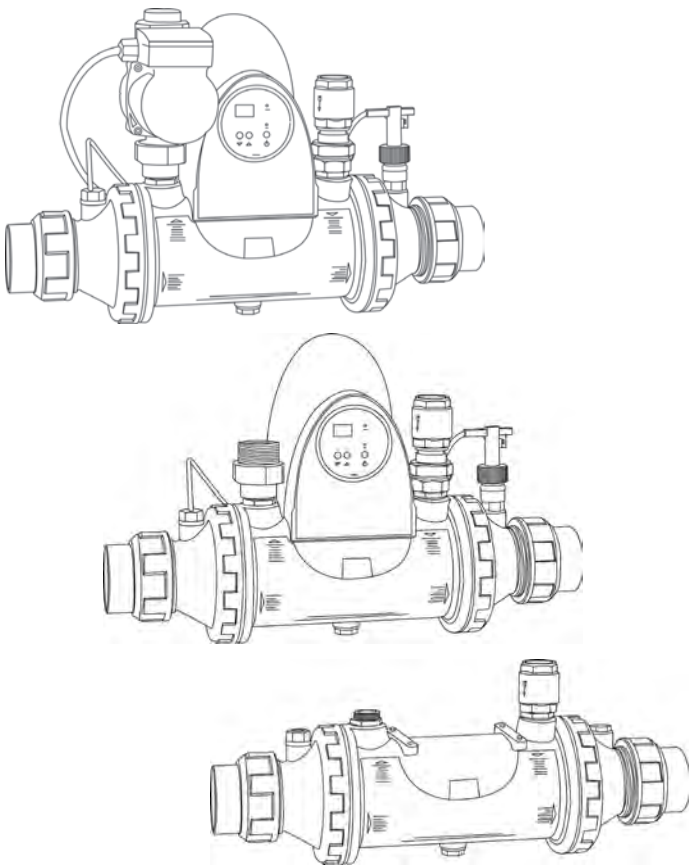


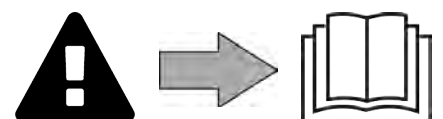
# Heat Line

Instructions for installation and use - English  
Heat exchanger  
Translation of the original instructions in french

EN



More documents on:  
[www.zodiac.com](http://www.zodiac.com)



## WARNINGS



**Carefully read the instructions in this manual before using the unit.**

- Before handling the appliance, it is vital that you read this installation and user manual, as well as the "Warranties" booklet delivered with the appliance. Failure to do so may result in material damage or serious or fatal injury and will void the warranty.
- Keep and pass on these documents for reference during the appliance's service life.
- The distribution or modification of this document in any way is prohibited, without prior authorisation from the manufacturer.
- The manufacturer is constantly developing its products to improve their quality. The information contained herein may therefore be modified without notice.

### **GENERAL WARNINGS**

- Failure to respect the warnings may cause serious damage to the pool equipment or cause serious injury, even death.
- Only a person qualified in the technical fields concerned (electricity, hydraulics or refrigeration) is authorised to carry out maintenance or repair work on the appliance. The qualified technician working on the appliance must use/wear personal protective equipment (such as safety goggles and protective gloves, etc.) in order to reduce the risk of injury occurring when working on the appliance.
- Before handling the appliance, check that it is switched off and isolated.
- The appliance is intended to be used for pools and spas for a specific purpose; it must not be used for any purpose other than that for which it was designed.
- This appliance must not be used by children under 3 or by adults whose reduced physical, sensory or mental capabilities, or whose lack of experience and knowledge, might cause a hazard, unless they have been correctly instructed to understand the safe use and hazards involved and are adequately supervised.
- This appliance is not intended for use by individuals (including children) with impaired physical, sensorial or mental abilities, or persons lacking in knowledge and experience, unless they receive supervision or prior instructions on using the appliance from a person responsible for their safety. Children must be supervised to ensure that they do not play with the appliance.
- This appliance should not be cleaned or maintained by children without supervision.
- The appliance must be installed according to the manufacturer's instructions and in compliance with local and national standards.
- The installer is responsible for installing the appliance and for compliance with national installation regulations. Under no circumstances may the manufacturer be held liable in the event of failure to comply with applicable local installation standards.
- For any work other than the simple user maintenance described in this manual, the product should be referred to a qualified professional.
- If the appliance suffers a malfunction, do not try to repair it yourself; instead contact a qualified technician.
- Refer to the warranty conditions for details of the permitted water balance values for operating the appliance.
- Deactivating, eliminating or by-passing any of the safety mechanisms integrated into the appliance shall automatically void the warranty, in addition to the use of spare parts manufactured by unauthorised third-party manufacturers.
- This appliance is not to be used for a potable water supply.






**WARNINGS ASSOCIATED WITH ELECTRICAL APPLIANCES**

- The power supply to the appliance must be protected by a dedicated 30 mA Residual Current Device (RCD), complying with the standards and regulations in force in the country in which it is installed.
- Do not use any extension lead when connecting the appliance; connect the appliance directly to a suitable power supply.
- Before carrying out any operations, check that:
  - The required input voltage indicated on the appliance information plate corresponds to the mains voltage;
  - The mains supply is compatible with the appliance's electricity needs and is correctly grounded.
- In the event of abnormal operation or the release of odours from the appliance, turn it off immediately, unplug it from its power supply and contact a professional.
- Before servicing or performing maintenance on the appliance, check that it is powered off and completely disconnected from the power supply.
- Do not disconnect and reconnect the appliance to the power supply when in operation.
- Do not pull on the power cord to disconnect it from the power supply.
- If the power cord is damaged, it must be replaced by the manufacturer, an authorised representative or a repair facility only.
- Do not perform maintenance or servicing operations on the appliance with wet hands or if the appliance is wet.
- Before connecting the appliance to the power supply, check that the connection unit or socket to which the appliance will be connected is in good condition and shows no signs of damage or rust.
- For any component or sub-assembly containing a battery: do not recharge or dismantle the battery, or throw it into a fire. Do not expose it to high temperatures or direct sunlight.
- In stormy weather, disconnect the appliance from the power supply to prevent it from suffering lightning damage.
- Do not immerse the appliance in water or mud.

**Recycling**

This symbol is required by the European directive DEEE 2012/19/EU (directive on waste electrical and electronic equipment) and means that your appliance must not be thrown into a normal bin. It will be selectively collected for the purpose of reuse, recycling or transformation. If it contains any substances that may be harmful to the environment, these will be eliminated or neutralised. Contact your retailer for recycling information.

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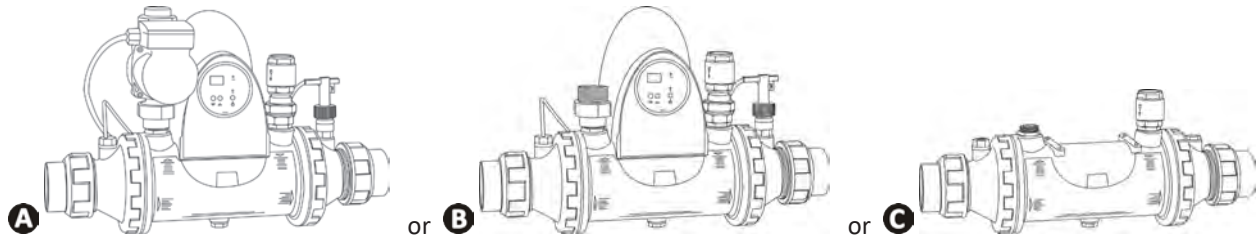
**Tip: to make it easier to contact the retailer**

- Write down the retailer's contact details to help you find them more easily and fill in the "product" information on the back of the manual: the retailer will ask for this information.



# 1 Specifications

## 1.1 I Description



<b>A</b>	Heat Line Plus
<b>B</b>	Heat Line Plus without circulating pump
<b>C</b>	Bare Heat Line

EN

## 1.2 I Technical specifications

Heat Line	20	40	70
Power with primary circuit at 90°C (kW)	20	40	70
Power with primary circuit at 60°C (kW)	8.5	26	26
Power with primary circuit at 45°C (kW)	4	8	14
Primary circuit flow rate (m <sup>3</sup> /h)	0.9	1.7	3
Secondary circuit flow rate (m <sup>3</sup> /h)	10	15	20
Primary circuit head loss (bar)	0.015	0.02	0.03
Secondary circuit head loss (bar)	0.05	0.08	0.1
Primary connection	$\varnothing$ 26/34 female, screw type (Heat Line Plus and without circulating pump) $\varnothing$ 26/34 male, screw type (Bare Heat Line)		
Secondary connection	PVC $\varnothing$ 50 or $\varnothing$ 63		
Primary circuit operating temperature (°C)	45 - 90		
Secondary circuit operating temperature (°C)	2 - 40		
Primary circuit service pressure	200 000 Pa		
Primary circuit maximum pressure	300 000 Pa		
Absorbed power	33 W		

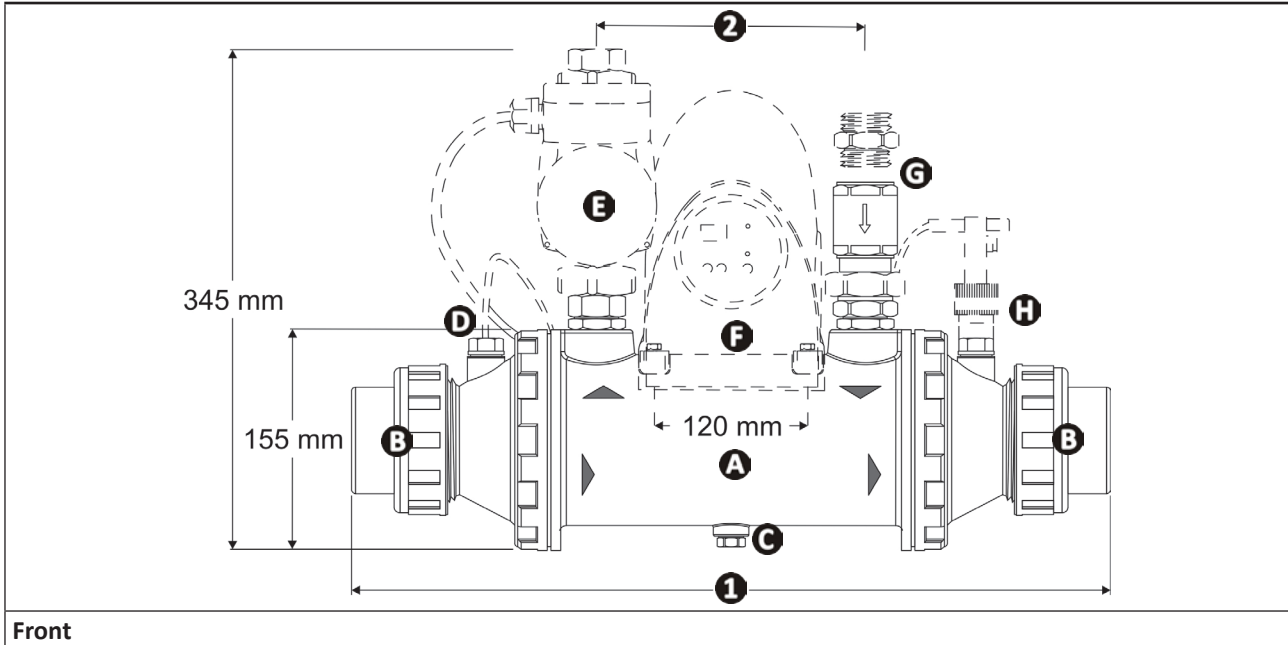
### Electrical characteristics (Heat Line Plus and Heat Line without circulating pump)

Heat Line	20	40	70
Voltage	230V to a 2-pin+Earth socket ~ 50 Hz		
Protection rating	IP44		

### Characteristics of the circulating pump only

Heat Line Plus	20	40	70
Spacer	130 mm		
Intensity	0.36 A		
Power	33 W		

### ➤ 1.3 I Dimensions and marking



Heat Line	20-40	70
<b>1</b>	535 mm	665 mm
<b>2</b>	198 mm	328 mm

	Heat Line	Plus with circulating pump	Plus without circulating pump	Bare
<b>A</b>	Multi-tube exchanger body	✓	✓	✓
<b>B</b>	½ union PVC connector Ø63 to be glued	✓	✓	✓
<b>C</b>	Primary circuit drainage cap	✓	✓	✓
<b>D</b>	Glove finger	✓	✓	✓
	Regulation sensor	✓	✓	
<b>E</b>	Circulating pump	✓		
<b>F</b>	Exchanger body attachment			✓
	Switch box attachment	✓	✓	
<b>G</b>	Male/male Ø26/34 nipple			✓
	Check valve	✓	✓	
<b>H</b>	Cap			✓
	Booster + flow switch	✓	✓	



## 2 Installation

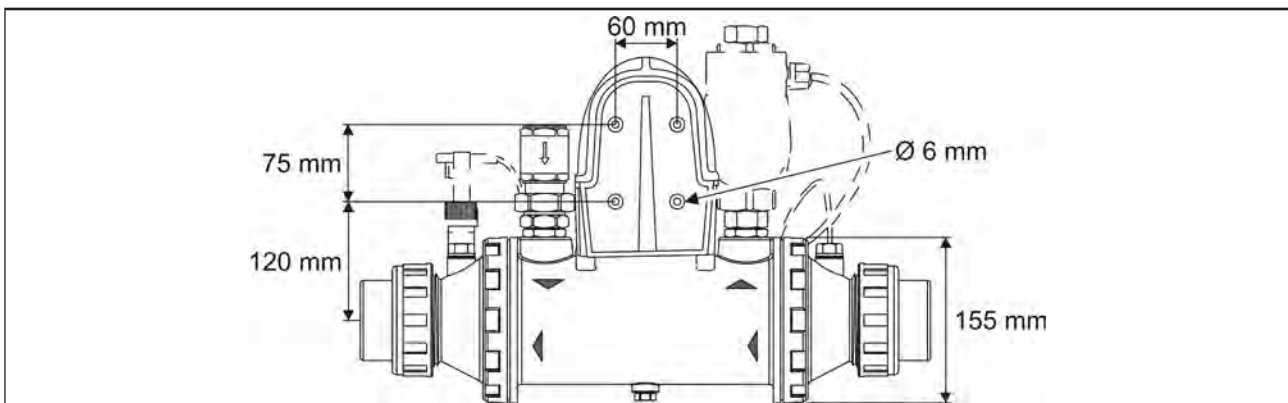
### 2.1 | Selecting the location



- The appliance must be installed in a technical room ventilated, dry and without stored pool treatment products.
- The appliance must be installed before any water treatment system.

- Install the appliance as close as possible to the heating source (boiler, heat pump, geothermal, solar-powered heating, etc.),
- If the appliance cannot be installed beside the heating source:
  - Provide for the dimensioning of the pipes and primary and secondary circuits in relation to the water flow rate, the losses of load and the distance, and insulate them thermally.
  - Install a more powerful circulating pump (contact a qualified professional for its dimensioning).
- If the exchanger is a long way from the filter, for the pool circuit use a system of  $\varnothing 50$  or  $\varnothing 63$  pipes (if the overall length of the circuit is greater than 30 metres). If the pipes are installed underground, they should be in protective sleeves.
- Preferably, the exchanger should be installed at the low point so that it is always full of water.
- The water treatment system must be installed at a low point to avoid chlorine being returned to the exchanger.
- Leave at least 80 cm free space around the appliance to facilitate its installation and maintenance,
- The pipes must not be supported by the exchanger.
- The appliance must be secured horizontally to the wall of the technical room:
  - Bare Heat Line: using brackets (not included).
  - Heat Line Plus and without circulating pump: using the holes at the back of the switch box and 4 screws (not included).

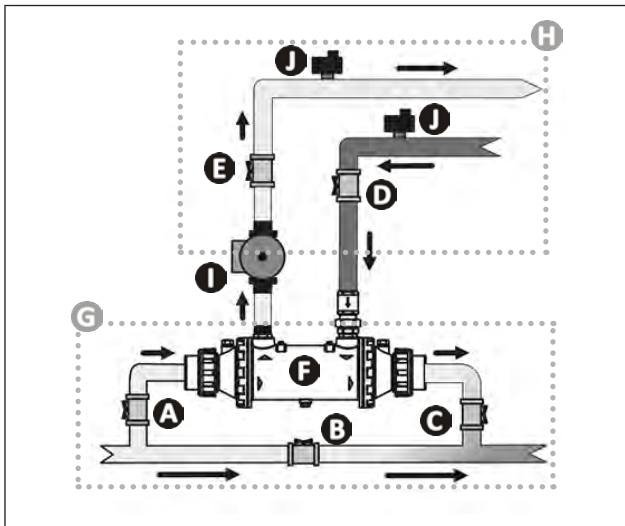
**IMPORTANT:** Do not attach the appliance using adhesive tape.



Dimensions for attachment of Heat Line Plus and Heat Line without circulating pump

## 2.2 I Hydraulic connections

- Respect the hydraulic connection direction (see the indications on the exchanger tank).
- Correctly tighten the hydraulic connections and check for leaks.
- Check that the pipe system is cleaned before connecting anything.



- A**: Pool water inlet valve
- B**: Pool bypass valve
- C**: Pool water outlet valve
- D**: Heating water inlet valve
- E**: Heating water outlet valve
- F**: Exchanger body
- G**: Pool circuit secondary
- H**: Heating circuit (primary)
- I**: Circulating pump
- J**: Automatic purge

### Tip: calorie exchange optimisation



- The water from the heating source must be at constant temperature.
- Respect the water flow direction in the exchanger. If the installation requires it, you may reverse the pool's water circulation direction in the exchanger, see § « 2.2.3 Adapting the heat exchanger to the direction of water flow (depending on the model) ».

### 2.2.1 Connection of the heating system connection (i.e. primary circuit)



- **The primary circuit's spur must be upstream of any valves or pumps.**
- **Bare Heat Line:** if the heating source is equipped with a circulating pump, an accumulator or relay logic can be added to switch off the circulating pump and the heating source. If this is not possible, provide a system to prevent any primary circuit water from returning to the exchanger when there is no water circulating in the secondary circuit.

- The connection must be:
  - Made in insulated pipes,
  - Fitted with a safety valve (pressure limited to 3 bars) and a correctly-dimensioned expansion chamber,
  - Use pipes fitted with automatic drains at their high points.

### 2.2.2 Pool system connection (a.k.a. secondary)



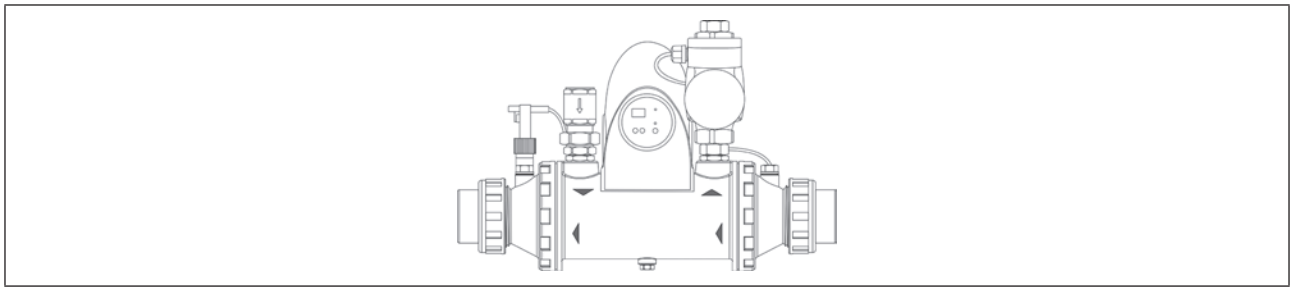
- **No 90° bend is to be directly fitted to the input or the output of the exchanger.**
- **Leave at least 25 cm of straight pipe to prevent any chatter of the flow switch armature.**

- The connection must be made:
  - Using PVC pipes  $\varnothing 50$  minimum,
  - Via a bypass (recommended to simplify maintenance and mandatory if the water flow rate of the pool system is greater than 22 m<sup>3</sup>/h).

### 2.2.3 Adapting the heat exchanger to the direction of water flow (depending on the model)

- Remove the cover from the switch box and disconnect the regulator's two connectors to remove the cover,
- Unscrew the 4 retaining screws from the switch box's support.
- Rotate the heat exchanger and circulating pump 180 °.
- Position and secure the switch box support using the 4 retaining screws.
- Reconnect the two connectors to the regulator.
- Reposition the switch box cover and secure it with the screw.





## 2.3 I Electricity supply connections (depending on the model)



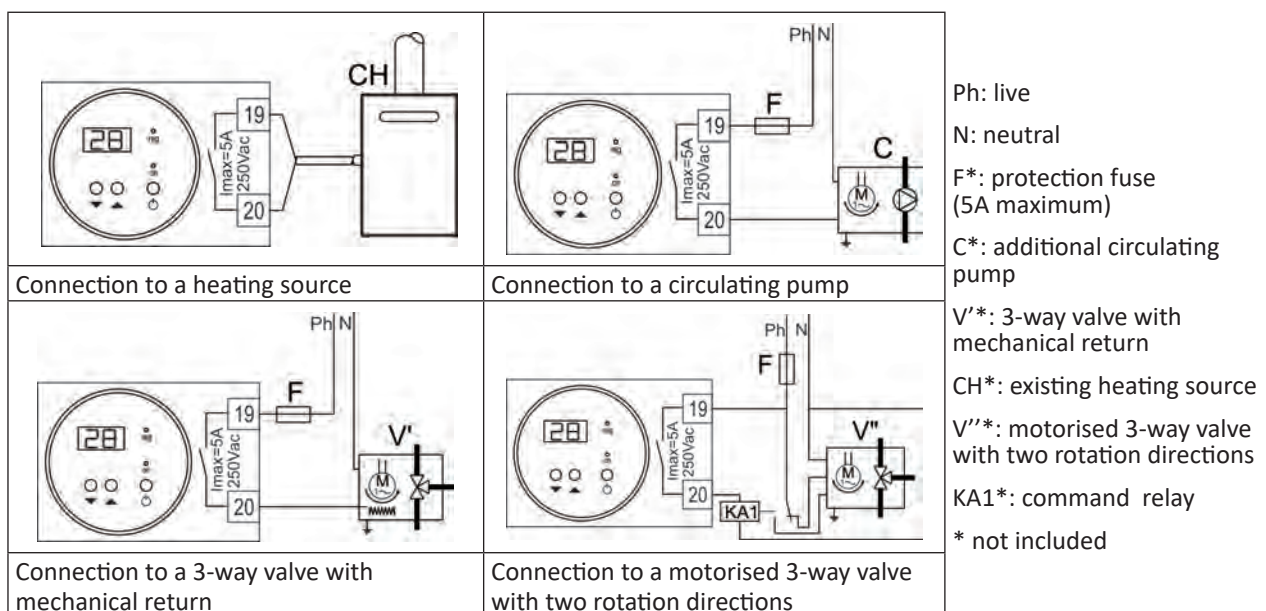
- Incorrectly tightened terminals may cause the terminal unit to heat up and invalidate the warranty.
- The appliance must be connected to an earth socket.
- Before any work inside the appliance, you must cut the electricity supply as there is a risk of electric shock which may cause material damage, serious injury or even death.
- Only a qualified and experienced technician is authorised to carry out cabling work within the appliance or to replace the power cord.

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- The exchanger's electrical supply must be provided through a protection and circuit breaking device (not supplied) complying with the standards and regulations in force in the country where it is installed.
- Electrical protection: via 30 mA residual-current circuit breaker.
- The power supply must correspond to the voltage indicated on the appliance's information plate.
- Use the power cord delivered with the appliance.
- All extension cables or multisocket connects are prohibited. Request the installation of a protected power socket near the appliance from a qualified technician.
- If the power cord is not long enough, it must be replaced by a qualified technician.
- The power cord must not be exposed to elements that are sharp, hot or represent a crush hazard.
- The electrical connection lines must be fixed.

### 2.3.1 Connecting an external command to supply the primary circuit

- This function is provided via the dry contact without polarity "normally open at rest" (maximum intensity 5A under 250Vac 50-60Hz) available on the terminal 19-20 regulator,
- Use a 3G1 cable (section 1 mm<sup>2</sup>),
- The wire connected to terminals 19-20 must go through the additional discharge "grommet" (supplied) to be installed on the base of the box.





### 3 Use



- Never run the circulating pump (depending on the model) without water. The circulating pump is very quiet when it starts up; you may not hear it running.

#### 3.1 I Operating principle

The heat pump uses the calories (heat) from the home's heating to heat up the pool's water. The heat is exchanged through a series of pipes: the home's heating water circulates through the exchanger's body and the pool water circulates through the pipes.



##### **Tips: improve the pool's temperature rise and maintenance**

- Cover the pool with a sheet (bubble canopy, canvas, etc.) to prevent heat loss. The closer the heat source is to the exchanger, and the exchanger is to the pool, the less heat will be lost.
- Anticipate the commissioning of your pool far enough in advance before you use it.
- For the temperature rise, set the filtration pump to continuous operation (24/24).
- To maintain the temperature throughout the season, run "automatic" circulation for at least 12 hours/day (the longer this time the longer the appliance will have enough operating range to heat up)

#### 3.2 I User interface presentation (depending on the model)



Display screen (default: water temperature measured)



"On/off" button



Value setting buttons

		Steady	Flashing	Off
	"On/off" "On/off"	Appliance powered up	/	No electrical supply
	Heating light	Heating in progress	<ul style="list-style-type: none"> <li>• Timed before operation</li> <li>• No water circulation in the secondary circuit (less than 1.1m<sup>3</sup>/h)</li> </ul>	No need for heating



##### **Tips: using the user interface**

- The temperature is regulated by degrees.
- Hold down the buttons to scroll through the values quickly.
- The setpoint adjustment range is between 2° and 40°C.
- The maximum temperature may be lowered to protect the pool liner (see § 3.2.1 "Modifying the maximum setpoint").

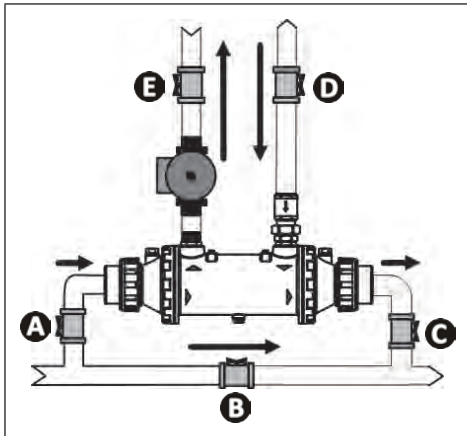
#### 3.2.1 Modifying the maximum setpoint

- Switch off the regulator (the "ON" light goes off and the pool water temperature is displayed),
- Press and simultaneously for 5 seconds: "PA" is displayed,
- Press , then enter the value "80" with or (code to access the "Settings" menu),
- Press to confirm: "PA" is displayed,
- Press and simultaneously for 5 seconds: "/1" is displayed,
- Press to scroll through each parameter until "r2" is displayed,
- Press , the current "r2" parameter value is displayed,
- Press or to modify the maximum setpoint value, then press to validate this new value,
- Press the and keys at the same time for 5 seconds to return to the pool water temperature display.

### ➤ 3.3 | Operation



- Never run the circulating pump (depending on the model) without water. The circulating pump is very quiet when it starts up; you may not hear it running.
- Never run water through the primary circuit when there is no water running through the secondary circuit.
- The flow rate must be adjusted slowly to avoid hammering.



- Ⓐ: Pool water inlet valve (secondary circuit)
- Ⓑ: Pool water bypass valve (secondary circuit)
- Ⓒ: Pool water outlet valve (secondary circuit)
- Ⓓ: Heating water inlet valve (primary circuit)
- Ⓔ: Heating water outlet valve (primary circuit)

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- Check that the hydraulic connections are correctly tightened and that there are no leaks.
- Check that the appliance is stable.
- Position the valves as follows: valves A and C fully open, valve B closed.
- Start the filtration pump.
- Check that the pool water is flowing through the exchanger,
- Open valves D and E fully,
- Check that the heating circuit is filled and vented,
- Connect the regulation to the power supply and turn it on,
- Adjust the temperature setpoint..
- After the start-up steps for your exchanger:
  - Check that there are no leaks,
  - Check that the circulating pump stops working in case the setpoint temperature is reduced, the regulation is stopped or the filtration is stopped.
  - Check that the exchanger is no longer irrigated with water by the heating circuit when the filtration is stopped and that there are no pool water heating requests.

**Tip: Tips: choosing the regulation module for a Bare Heat Line**



- It must reference the input temperature of the pool water in the appliance.
- It must give the command to irrigate the primary circuit only if heating is requested and filtration is operational,
- It must stop irrigating the primary circuit once the pool has reached the desired temperature.



**Tip: Restarting the circulating pump after a long shutdown period**

- In the event of a blockage, an indicator lights up (see § « 5.2 | Error code display »). In this case, use a screwdriver to manually release the blockage through the central hole provided in the circulating pump.

## ➤ 3.4 I Additional functions

### 3.4.1 Setting the setpoint on Heat Line Plus with and without circulating pump

To display and modify the set point value, press ▲ or ▼.

### 3.4.2 Operation of the circulating pump on Heat Line Plus

#### Tip: Choosing the right operating mode



- By default, the circulating pump is programmed to "Proportional speed 3 pressure". We recommend that you keep this mode, which is suitable for most installations.
- If, however, your appliance is close to the boiler, you may lower the speed to speed 1 or 2 (see § « 3.4.2 Operation of the circulating pump on Heat Line Plus »).

- Press ➤ to scroll through the operating modes and the speeds associated with them.

Number of presses ➤	Mode	Speed	Indicator lights
0	Proportional pressure	Automatic "Auto adapt" (adapts the pressure and the flow rate)	
1		1	
2		2	
3		3	
4	Constant pressure	Automatic "Auto adapt" (adapts the flow rate)	
5		1	
6		2	
7		3	
8	Constant curve	1	
9		2	
10		3	

- Press ➤ to exit the menu.



## 4 Maintenance

### 4.1 I Winterising



- Winterising is vital to prevent breakage due to freezing. This is not covered by the warranty.
- To avoid damaging the switch box with condensation, do not fully cover it.
- Only the plug's gasket ensures water tightness. Replace it without using hemp.
- To ensure good water tightness, do not tighten the plug + gasket set excessively and do not damage the thread.

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- Power down the regulation,
- Cut the water circulation in the primary and secondary circuits,
- Drain the primary circuit (pay **attention to the water temperature**; wait until it cools down to avoid any risk of burns):
  - Close the isolation valves D and E (see § « 2.2 I Hydraulic connections »),
  - Open the drainage valve,
- Drain the secondary circuit:
  - Close valves A and C (see § « 2.2 I Hydraulic connections »),
  - Unscrew the connectors to drain the exchanger,
  - Tighten the connectors slightly again when the exchanger is empty.



**Tip: Restarting the circulating pump after a long shutdown period (depending on the model)**

- If a blockage occurs, lights appear on the circulating pump, see § « 5.2 I Error code display ».

### 4.2 I Maintenance



- It is recommended that the appliance undergo general servicing at least on a yearly basis to ensure proper operation, maintain performance levels and prevent any possible failures. These operations are carried out at the user's expense, by a qualified technician.
- Never disassemble the exchanger body.


#### 4.2.1 Maintenance to be carried out by a qualified technician

- Make sure that the appliance's pipe fittings are property tightened.
- Only for Heat Line Plus and Heat Line without circulating pump:
  - Check the electrical mechanism.
  - Check the ground connection,
  - Check that the electrical cables are correctly tightened and connected and that the switch box is clean.







## 5 Troubleshooting












- Before you contact the retailer, carry out these few simple checks using the following tables if a problem occurs.
- If the problem is not resolved, contact your retailer.
-  : Actions to be performed by a qualified technician only

### 5.1 I Appliance behaviour

The appliance does not start heating straight away	<ul style="list-style-type: none"> <li>• When the setpoint temperature is reached, the appliance stops heating: the water temperature is higher than or equal to the setpoint temperature.</li> <li>• When the water flow rate is zero or is not enough, the appliance stops: check that the water is circulating correctly in the exchanger and that the hydraulic connections are correct.</li> <li>• The appliance may have detected an operating fault (see § « 5.2 I Error code display »).</li> <li>• If you have checked these points and the problem persists: contact your retailer.</li> </ul>
The appliance is not working	<ul style="list-style-type: none"> <li>•  If there is no display, check the supply voltage and the fuse. If necessary, replace it (see § « 5.3 I Replacing the switch box fuse (depending on the model) »).</li> <li>• When the setpoint temperature is reached, the appliance stops heating: the water temperature is higher than or equal to the setpoint temperature.</li> <li>• When the water flow rate is zero or is not enough, the appliance stops: check that the water is circulating correctly in the appliance.</li> <li>• The appliance may have detected an operating fault (see § « 5.2 I Error code display »).</li> </ul>
The appliance is working but the water temperature does not increase	<ul style="list-style-type: none"> <li>• The appliance may have detected an operating fault (see § « 5.2 I Error code display »).</li> <li>• Check that the automatic filling valve is not stuck in open position; this will keep supplying cold water into the pool and will prevent the temperature from rising.</li> <li>• There is too much heat loss as the air is cool. Install a heat insulated cover on your pool.</li> <li>•  Check that the appliance is the right size for this pool and its environment.</li> </ul>
There is noise in the circuit	<ul style="list-style-type: none"> <li>• Identify whether the noise is coming from the circuit or the circulating pump.</li> <li>• If the noise is coming from the circuit: <ul style="list-style-type: none"> <li>- Air is trapped in the circuit: purge the installation.</li> <li>- The water flow rate is too high; reduce the operating speed: (see § « 3.4.2 Operation of the circulating pump on Heat Line Plus »).</li> </ul> </li> <li>• If the noise is coming from the circulating pump: <ul style="list-style-type: none"> <li>- There is air in the circulating pump; let it run. It will bleed itself.</li> <li>- The water flow is too low: increase the pressure in the primary circuit and/or check the air volume in the expansion chamber (if installed).</li> </ul> </li> </ul>
The pool water is hotter than requested	<ul style="list-style-type: none"> <li>• The circulating pump is not operating correctly: Check that it stops when the setpoint temperature is reached.</li> <li>• Another circulating pump is pushing on the primary circuit: provide a solenoid valve on the outlet of the primary circuit managed by terminals 19-20 (see § « 2.3.1 Connecting an external command to supply the primary circuit »).</li> </ul>
The appliance trips the circuit breaker	<ul style="list-style-type: none"> <li>•  Check that the circuit breaker is correctly dimensioned and that the cable section used is correct (see § « 1.2 I Technical specifications »).</li> <li>•  The supply voltage is too low; contact your electricity supplier.</li> </ul>

## ➤ 5.2 | Error code display

Regulator display	Possible causes	Solutions
 Flashing	The regulation sensor is out of service or disconnected	 Reconnect or change the sensor
Circulating pump display (first LED red)	Possible causes	Solutions
	<ul style="list-style-type: none"> <li>The circulating pump has detected an electrical problem</li> <li>The circulating pump is defective</li> </ul>	<ul style="list-style-type: none"> <li>  Check the power supply voltage</li> <li>  Replace the circulating pump</li> </ul>
	The circulating pump is supplied with electricity	 Check the power supply voltage
	The circulating pump is blocked	 Use a screwdriver to manually release the blockage through the central hole provided in the circulating pump.

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## ➤ 5.3 | Replacing the switch box fuse (depending on the model)



- Turn the appliance off.

- Remove the cover.
- Disconnect the regulator.
- Remove the regulator cover (1).
- Remove the protection fuse (T3,15AH250V) (2).

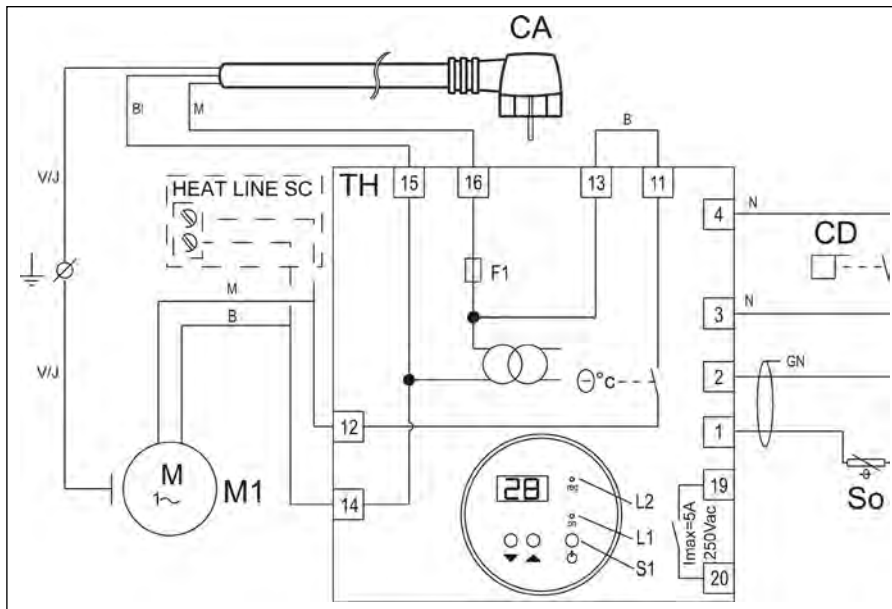
1



2



## 5.4 I Wiring diagram



19-20	Dry command contact "Normally Open"
CA	Power cable: 2L+E 10/16A 3G1
CD	Flow switch
F1	3.15 A-T protection fuse
GN	Black duct
L1	"On/off" LED
L2	"REG" LED flashing when timed or fixed heating in progress
M1	Circulating pump motor
S1	"On/Off" switch

So	Pool water regulation sensor (PTC)
HL	Regulation thermostat with digital display
B	White
Bl	Blue
M	Brown
N	Black
V-J	Green - Yellow
⊕	Earth



Votre revendeur  
*Your retailer*

Modèle appareil  
*Appliance model*

Numéro de série  
*Serial number*


Pour plus d'informations, enregistrement produit et support client :  
*For more information, product registration and customer support:*

**[www.zodiac.com](http://www.zodiac.com)**

