



# ZODIAC

# RE/U



**GB** Electric heater..... Instructions for installation and use



Cette notice d'installation fait partie intégrante du produit et doit être impérativement remise à l'utilisateur.

Lire attentivement les avertissements contenus dans le présent livret car ils fournissent des indications importantes au niveau de la sécurité d'utilisation et de manutention. Conserver ce livret afin de pouvoir toujours le consulter.

L'installation doit être effectuée, conformément aux normes en vigueur et en respectant les instructions du fabricant, par une personne professionnellement qualifiée.

Par "personne professionnellement qualifiée", il s'entend une personne ayant les compétences techniques dans le secteur des composants ZPCE et des installations de chauffage.

Un défaut dans l'installaton peut entraîner des dommages sur des personnes, animaux ou objets pour lesquels le fabricant ne saurait être tenu responsable.

Après avoir retiré l'emballage de l'appareil, s'assurer de l'état du contenu.

Avant de raccorder l'appareil, s'assurer que les données fournies par ZPCE sont compatibles avec l'installation à réaliser dans les limites maximales autorisées du produit concerné.

Au préalable de toute opération d'entretien, de manutention ou de réparation sur l'appareil, couper l'alimentation électrique sur ce dernier.

En cas de panne et/ou de fonctionnement anormal de l'appareil n'envisager aucune tentative de réparation sur celui-ci, couper l'alimentation électrique sur ce dernier.

L'éventuelle intervention de réparation devra être effectuée par un service d'assistance autorisé qui utilisera exclusivement des pièces de remplacement d'origine. Le non respect des clauses décrites ci-dessus peut compromettre la sécurité d'utilisation de l'appareil.

Pour garantir l'efficacité de l'appareil et pour son fonctionnement correct, il est indispensable de faire effectuer un entretien périodique de ce dernier en se conformant aux instructions fournies par ZPCE.

Dans le cas où l'appareil devrait être vendu ou transféré chez un utilisateur différent, s'assurer que ce livret accompagne le matériel afin que le nouveau propriétaire ou l'installateur puisse le consulter.

Cet appareil devra être destiné exclusivement à l'usage pour lequel il a été conçu; toute autre utilisation aléatoire devra être considérée comme impropre et dangereuse.

Sont exclues toutes responsabilités contractuelles ou extracontractuelles de ZPCE pour des dommages causés suite à des erreurs d'installation ou d'utilisation, ou par un non respect des instructions fournies par ZPCE ou des normes d'installation en vigueur concernant le matériel en objet.

**IMPORTANT - CAUTION - IMPORTANT**

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This manual is an integral part of the product and must be supplied to the installer and the end user.

The advice included in this manual must be carefully read as they supply important indications about safety and maintenance. Keep this manual in order to consult it if necessary.

The appliance must be installed according to the standards in force, by qualified personnel, this means by personnel having skill to care of ZPCE products and heating installations.

A failing installation can cause damages to persons, pets or items. In any case, the manufacturer can be considered as responsible of such damages.

When unpacking the unit, check its state.

Before connecting the unit, make sure that the advice supplied by this manual are in accordance with the installation and its conditions of use.

Before any servicing, maintenance and repair, switch off the main supply.

In event of failure or abnormal operation, switch off the unit before any repair.

Any repair shall be performed by ZPCE authorized service personnel with genuine spare parts. The use of non-genuine parts can be harmful to the unit and to the persons.

In order to ensure a long-lasting efficiency of the unit, it shall be maintained in accordance with the instructions included in this manual.

In event of sale or transfer of this unit to another user, make sure this manual is supplied as well.

This unit must be exclusively used for the use it was designed to. Any other use shall be considered as improper and hazardous.

In event of damages due either to an improper installation or use or if the instructions provided by ZPCE or the standards in force are improperly applied, all ZPCE responsibilities will be void.

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# 1. GENERAL

## 1.1 General terms of delivery

Any equipment, even CARRIAGE and PACKING FREE, travels at the consignee's risk. The consignee shall make reserves in writing on the carrier's delivery bill if he notes damage caused during the transport (confirmation to be sent to the carrier within 48 hours by registered mail and Acknowledgement of Receipt).

## 1.2 Voltage

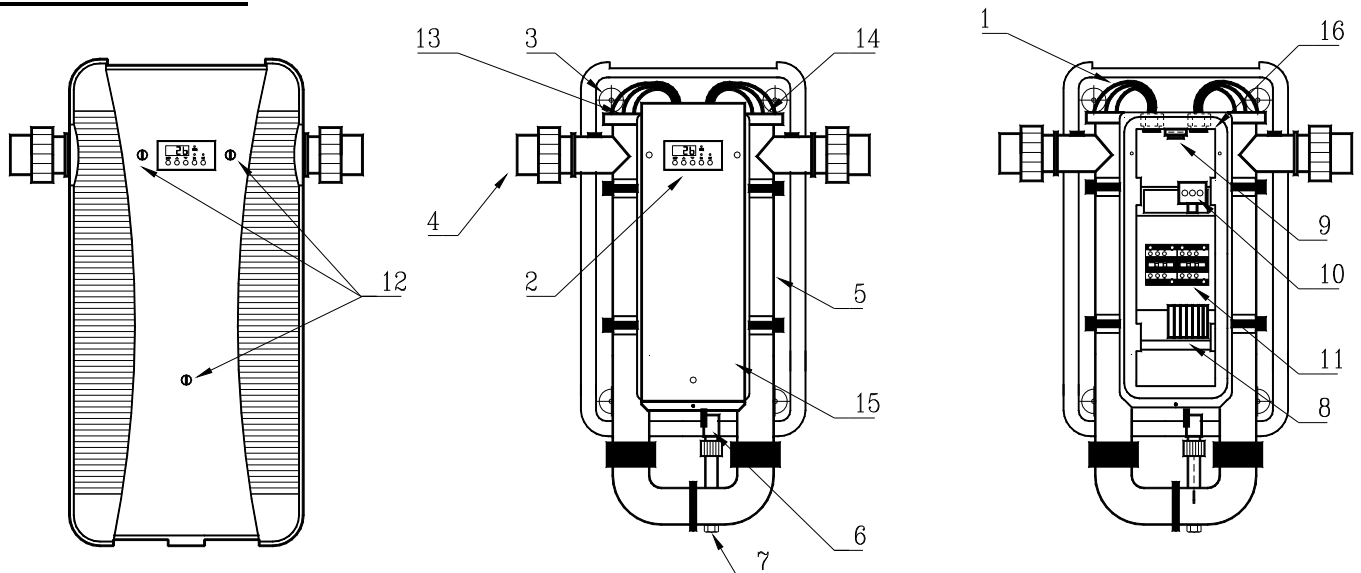
Prior to any operation, check that the voltage on the identification plate of the appliance corresponds to the mains voltage provided on site.

## 1.3 Water treatment

In order to use our appliances in the best conditions, swimming pool water shall comply with the following values: free chlorine: maximum 2.5 mg/L, total bromine: maximum 5.5 mg/L, pH between 6.9 and 8.0. For any other treatment, the fitter and the user shall apply to the supplier of the planned disinfection process (chemical, electrochemical or electrophysical) for the compatibility with the materials of our appliances. In any case, treatment shall be installed downstream the heating equipment.

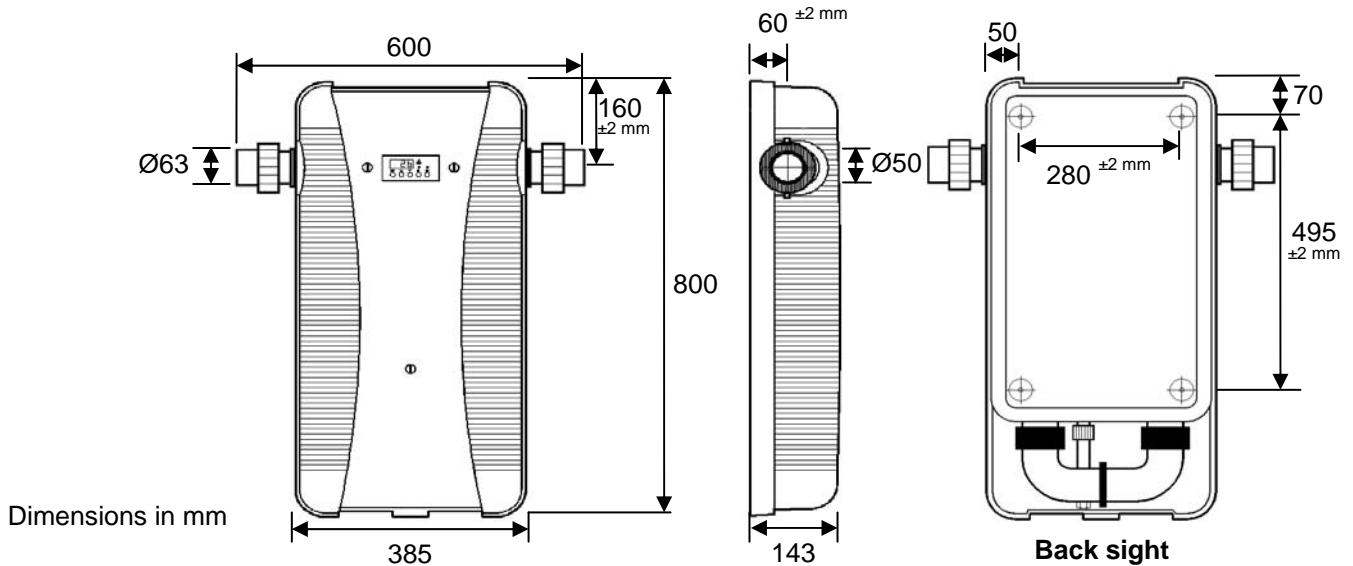
# 2. DESCRIPTION

## 2.1 Presentation



1. power supply cables for the titanium electric resistance
2. digital display regulator
3. heater fixing support (4 point)
4. 1/2 union fitting  $\varnothing 50$  inside/ $\varnothing 63$  outside
5. injected body
6. flow rate controller
7. drain plug
8. electric terminal board
9. high limit thermostat
10. start point terminal
11. power contacteur
12. cover fixing screw
13. digital thermostat sensor (factory position for where the water passes from left to right)
14. high limit thermostat sensor (factory position for where the water passes from left to right)
15. electric box
16. stuffing box

## 2.2 Dimensions



## 3. INSTALLATION OF THE UNIT

The heater shall be placed in a technical equipment area (ventilated, dry and without stored pool maintenance substances), close to the filter of the pool. It shall be fixed to the wall by means of 4 screws (see points of fixing on back sight §2.2).

## 4. CONNECTIONS

### 4.1 Hydraulic connections

The electric heater shall be connected in line to the return circuit downstream the filtration process, with a minimum flow rate of 5m<sup>3</sup>/h up to 22m<sup>3</sup>/h. Plan for a by-pass fitting if the filter is above 22 m<sup>3</sup>/h or to facilitate the maintenance of the appliance.

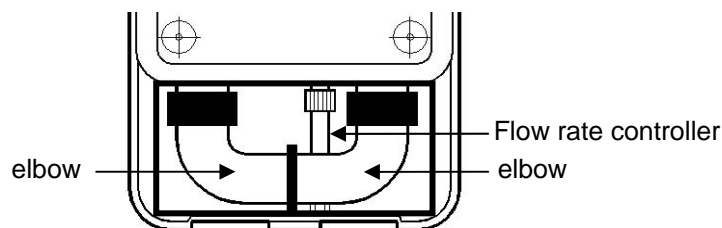
1/2 unions ( $\varnothing 50$  female inside and  $\varnothing 63$  male outside) are designed to make a connection with the filtering circuit with a  $\varnothing 50$  or  $\varnothing 63$  PVC pipe.

**Warning:** with a  $\varnothing 63$  pool circuit, to connect the device, provide a sleeve ( $\varnothing 63$  inside).

**Advised fitting:** if possible, the heater connection should be carried out so that it is on load as compared with the filtration system or the pool.

**Direction of circulation:** the heater is arranged for water circulation from left to right. If necessary, reverse the direction of circulation by making the following changes:

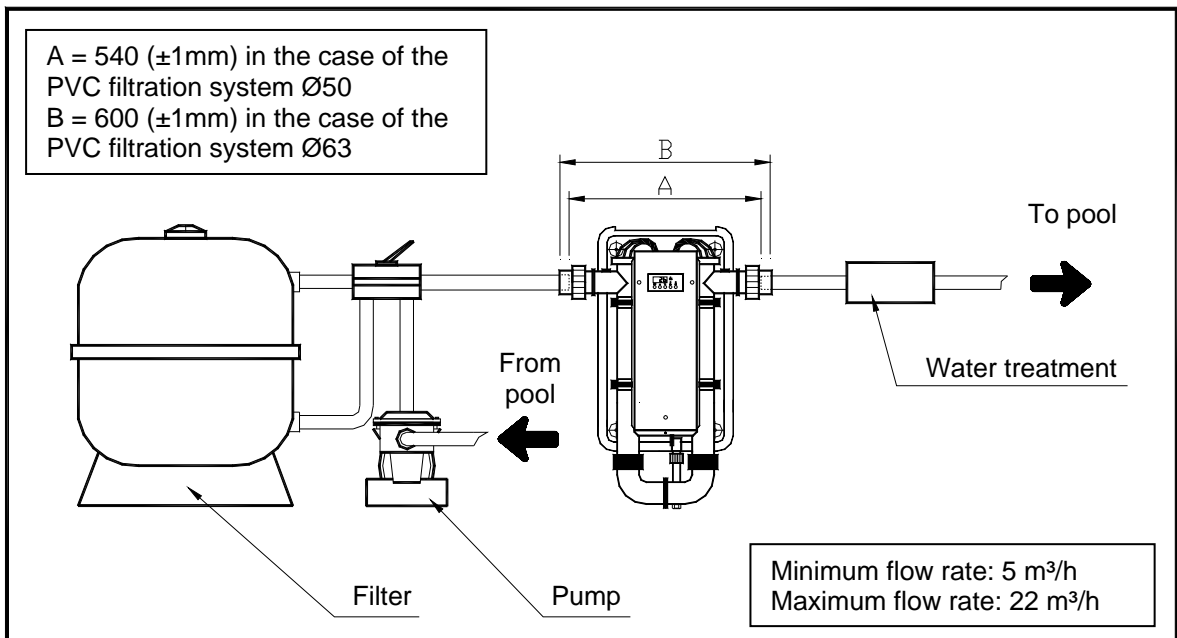
- reverse the digital regulation thermostat and safety thermostat sensors. The regulation thermostat sensor must be at the heater input and the safety sensor at the output.
- turn the 2 elbows + flow switch unit by half a turn:



- Test pressure: 4 bars

- Service pressure: 2 bars

**The heater shall be installed before any water treatment system.**



### 4.2 Electric connections

- the electrical supply of the heater must come from a protection and switching device (not supplied) complying with the standards and regulations in force in the country where it is installed (in France, refer to standard NF C 15100). The RE/U from 3 to 9 kW may be supplied by single-phase (230V/1N/50Hz) see figure 1, or in three-phase (400V/3N/50Hz), see figure 2. The 21 and 24 kW RE/U **must** be supplied with three-phase current (400V/3N/50Hz).

Figure 1

Single-phase main supply 230V-1N-50Hz + Earth

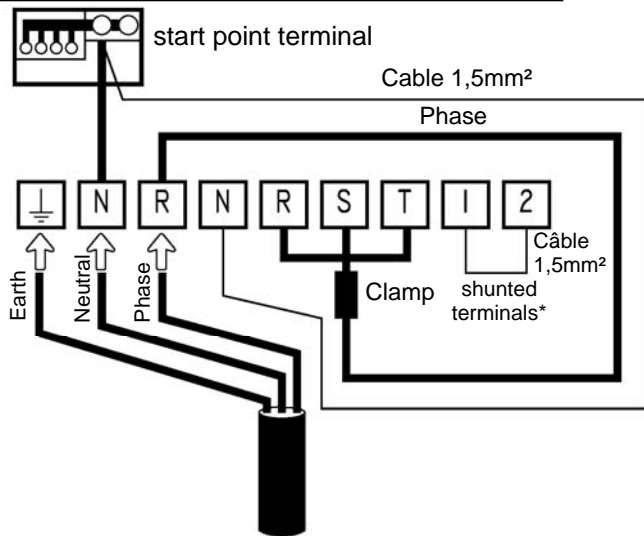
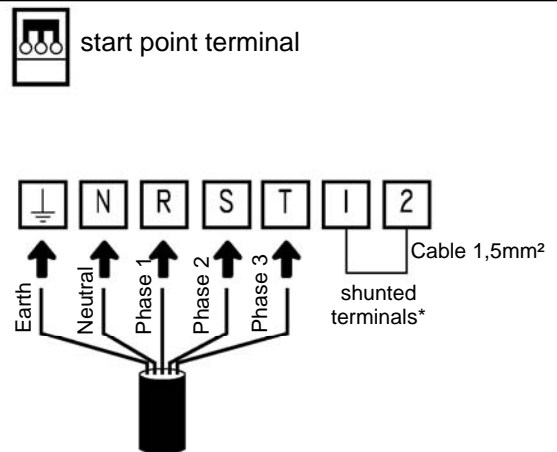


Figure 2

Three-phase main supply 400V-3N-50Hz+Earth



\* waiting for the connection of a remote control

**WARNING! The appliance shall be connected to ground.**

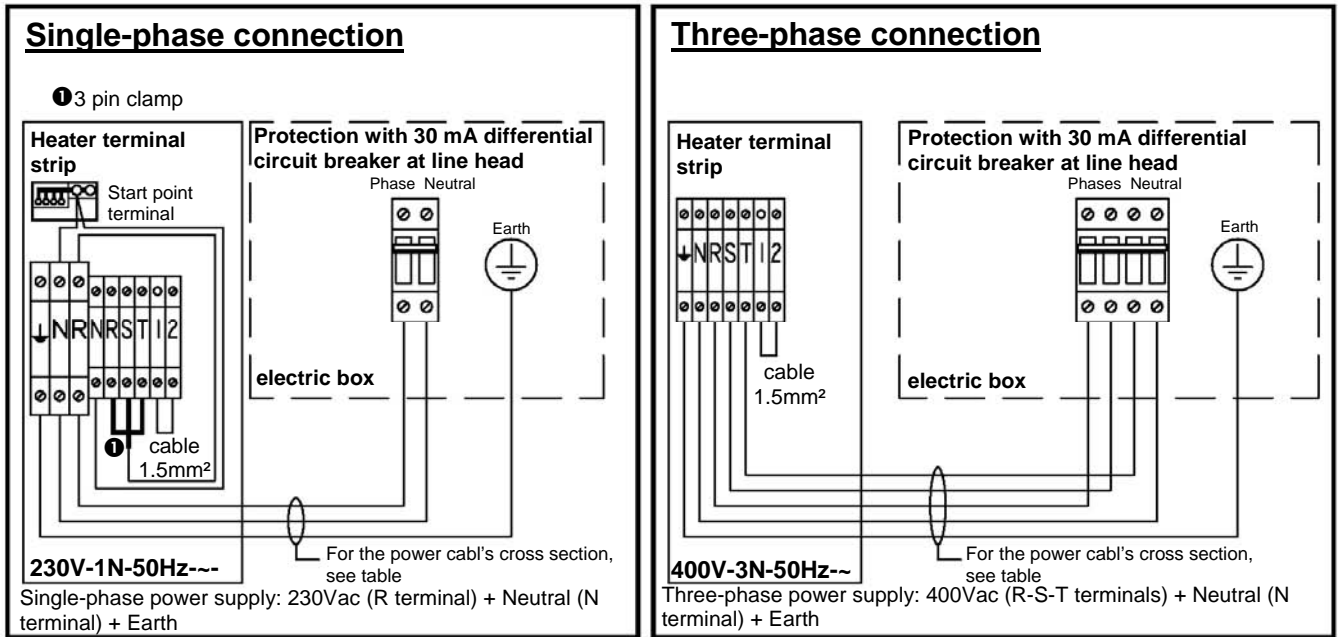
- supply cable section: this section is recommended for cables of a maximum length of 20 metres, with a calculation base of 5A/mm<sup>2</sup>. It must be checked and adapted if necessary, depending on installation conditions:

Power	Current consumption		Cable section			
	Single-phase 230V-1N-50Hz-	Three-phase 400V-3N-50Hz-	Single-phase 230V-1N-50Hz-		Three-phase 400V-3N-50Hz-	
9 kW	40 A	13 A	3 x 10 mm <sup>2</sup>	3G10	5 x 4 mm <sup>2</sup>	5G4
12 kW	53 A	18 A	3 x 16 mm <sup>2</sup>	3G16	5 x 4 mm <sup>2</sup>	5G4
15 kW	66 A	22 A	3 x 16 mm <sup>2</sup>	3G16	5 x 6 mm <sup>2</sup>	5G6
18 kW	79 A	26 A	3 x 16 mm <sup>2</sup>	3G16	5 x 6 mm <sup>2</sup>	5G6
21 kW		31 A			5 x 10 mm <sup>2</sup>	5G10
24 kW		35 A			5 x 10 mm <sup>2</sup>	5G10

- electrical protection: 30 mA differential circuit breaker (at the head of the line).

**Note :**

- option of connecting a remote “on/off” signal (terminals 1 and 2), with a 2 x 1.5mm<sup>2</sup> power supply cable, see diagram below and wiring diagram (for example: in France: EJP or time delay contact, remote control contact, or telephone modem contact...),
- the acceptable tolerance of tension variation is ± 10% while working,
- electric cables shall be fixed.

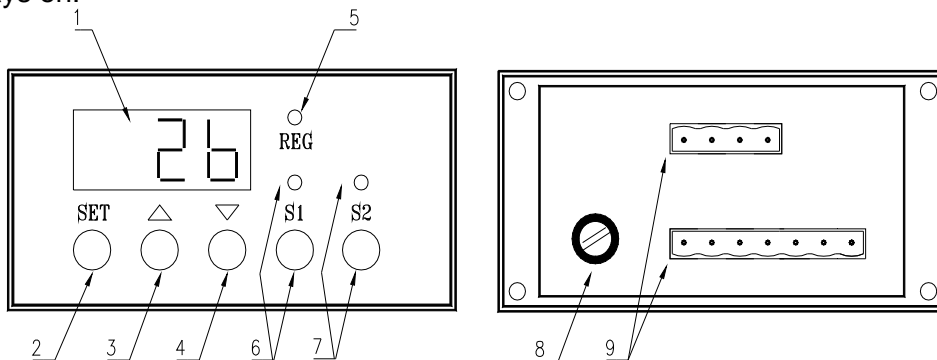


**5. USE OF THE CONTROL DISPLAY**

**5.1 Presentation**

The digital regulation thermostat is supplied installed on the heater, including its electrical connections, and is factory preset for a swimming pool heating application.

**Principle:** a regulation sensor placed at the point where the water enters the swimming pool from the heater measures the pool temperature (with the filtration system running), and compares this value with the set temperature. If the temperature of the pool drops or is below the set temperature, the thermostat switches the heating on (power to the primary heating circuit circulation pump). The "REG" indicator flashes then stays on.



1. digital display to see both the pool water temperature and the set temperature,
2. “SET”: key to read or change the set temperature
3. ▲ : touch sensitive button to increase the set temperature
4. ▼ : touch sensitive button to reduce the set temperature (or switch off the “beep” sound indicating a fault)
5. “REG”: regulation indicator: on = digital thermostat in “on demand” mode or flashing = activation of the time delay before primary heating circuit pump switched on
6. “S1”: switch “on/off” for the 1<sup>st</sup> heating stage (+indicator)
7. “S2”: switch “on/off” for the 2<sup>nd</sup> heating stage (+indicator)
8. thermostat fuse housing
9. electrical connectors

**5.2 Setting the required temperature**

Press the “SET” key to display the set temperature, then keep it pressed and press the ▲ key to increase it or the ▼ key to reduce it. Then release the “SET” key in order to return to the pool temperature display.

## 6. STARTING UP

### **Additional technical characteristics:**

RE/U 9	RE/U 12	RE/U 15	RE/U 18	RE/U 21	RE/U 24
3 kW* + 6 kW**	6 kW* + 6 kW**	6 kW* + 9 kW**	9 kW* + 9 kW**	9 kW* + 12 kW**	12 kW* + 12 kW**
12 kg	12 kg	12 kg	12 kg	12 kg	12 kg

\* 1st stage on the left seen from the front

\*\* 2nd stage on the right seen from the front

- each electric resistance has a manufacturer's tolerance of  $\pm 5\%$  concerning its power restitution,
- appliance protection index: IP 45

### **6.1 Operating conditions**

The temperature of the water circulating in the heater must be between 2°C and 40°C.

Before switching the device on, you need to make sure:

- the hydraulic fittings are correctly tightened,
- there is no leak,
- the appliance is correctly fixed to the wall,
- the connections of the electric cables are correctly tightened,

**Incorrectly tightened cables may cause overheating of terminals,**

- the appliance is correctly connected to the Earth,
- the water contained in the appliance is not frozen,

**In this case, it is interdict to put the heater under operation.**

### **6.2 Starting up**

- run manually the filtering pump for an operational test of the heater and at the time of the first rise in temperature in the pool (once the pool is at the right temperature, put the filtering back on automatic),
- purge the air from circuit and make sure no air remains in the appliance,
- check the flow rate is between 5 and 22 m<sup>3</sup>/h,
- switch on the mains supply circuit breaker,  
**if the flow rate is higher than 22m<sup>3</sup>/h per hour, fit by by-pass,**
- switch on the 30 mA différentiel circuit breaker, at the head of the line,
- Adjust the digital thermostat temperature to be "on demand" ("REG" indicator flashing),
- press the key(s) "on/off" ("S1" and/or "S2"),

If the heater has been switched on for over 15 seconds, engaging one or more of the heating stages will be simultaneous ("REG" indicator on). If not a time delay will be active ("REG" indicator flashing), before indicator is "on" heating operation (stage 1 and/or 2 engaged).

### **Warning:**

- if the water flow in the heater is less than 5 m<sup>3</sup>/h the heater will not work (flow controller "CD" remains open). If the device is "on demand" with regard to heat the "REG" indicator will flash.

### **When the heater is operating:**

- if the flow controller opens then closes, there will be a 15 second time delay before restarting.
- if there is a failure of the mains power supply, when it comes back on again there will be a 15 second time delay before restarting.

**Observation:** when the pool reaches the desired temperature, the "REG" indicator goes out, and the heater stops heating.

### **6.3 Checking**

Make sure that the heater stops when:

- decreasing the required temperature on the control thermostat,
- filtration is switched off or a valve is closed,
- when pressing key "S1" and/or "S2".

**Important!** Before any intervention, make sure the unit is switched off.



## **6.4 Failure**

In the event of abnormal heating, the heater stops automatically by the positive overheating safety thermostat (TS) placed at the top of the appliance: re-arm by pressing the central button of this thermostat.

In case of a visual and sound defect on the regulator (in order to stop the "beep" sound press the key): ▼

- if "E0" is displayed (flash and beep):
  - regulation sensor is not working (cut or short-circuited or disconnected).
  - reconnect or replace the sensor.
  - the defect display corrects itself automatically.
- if "E2" is displayed (flash and beep):
  - the regulator is not working (damaged electronics).
  - replace the digital display regulator.

If the regulator display does not work, check that:

- the mains supply is live,
- the regulator protection fuse is not blown

## **6.5 Winter storage**

- presse keys "S1" and "S2" to stop the heating stages,
- switch off the power supply (by disengaging of the 30 mA differential circuit breaker at the head of the heater line),
- drain the heater by removing the stopper located at the low point of the injected body (see part 7 §2.1) and unscrew the fittings (**risk of frost**),

**The guarantee will be cancelled in event of frost of the appliance due to an improper winter storage.**

## **6.6 Restart**

- refer to the procedures described in paragraphs 6.1, 6.2, 6.3 and 6.7.

## **6.7 Maintenance**

**To be done once a year by an approved and qualified person:**

- visual check of the condition of the various electrical components,
- retighten cables and supply terminal board shunts and the switch,
- Check the state of titanium electric resistance:
  - If it's scaled, make a chemical cleaning while plunging it in a 10% acid solution,
  - If it's damaged (bluish or deformation), replace it.

## **7. PRECAUTIONS**

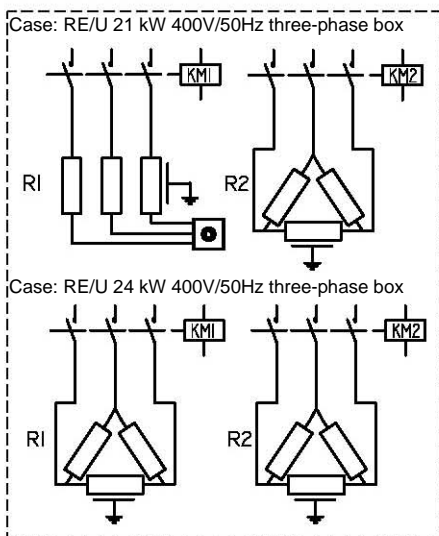
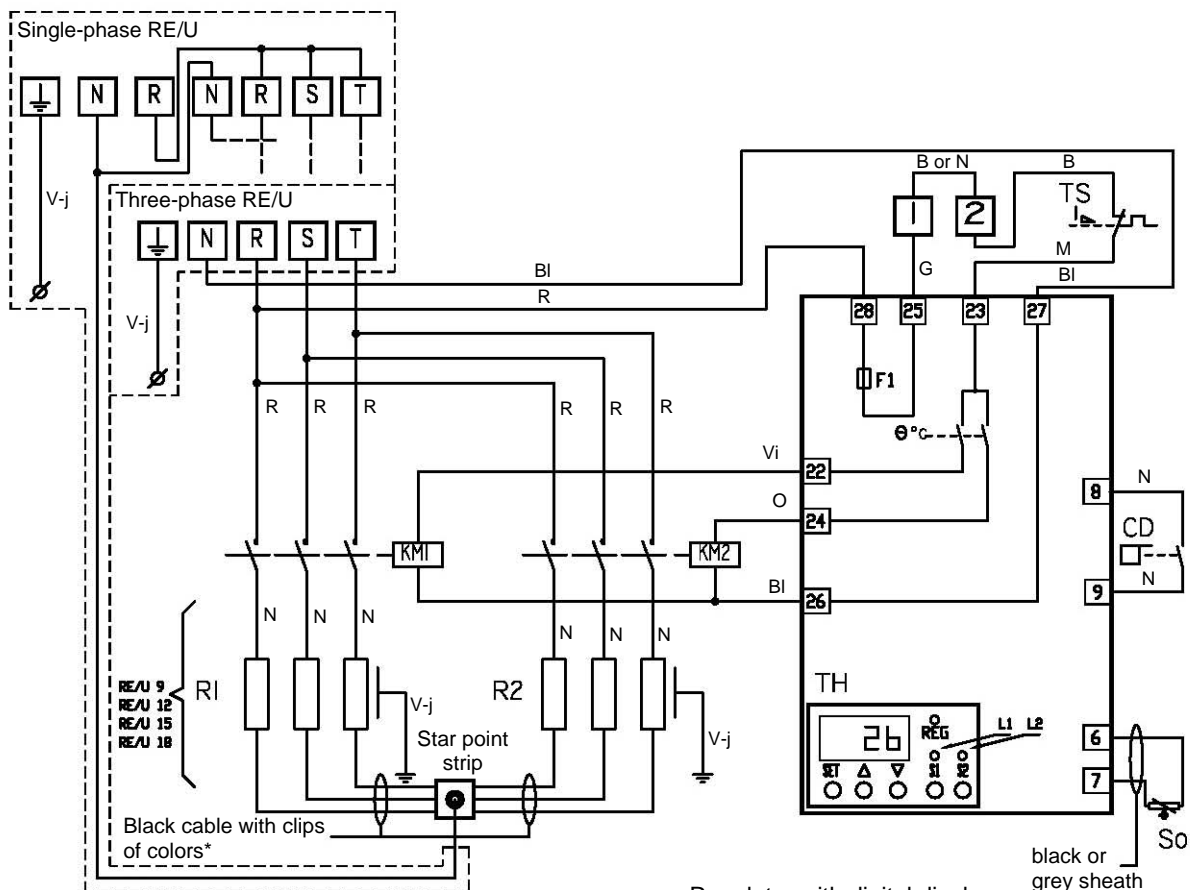
### **ATTENTION!**

**Make sure the appliance is disconnected from mains supply before any intervention. Any intervention shall be qualified and authorised personnel only.**

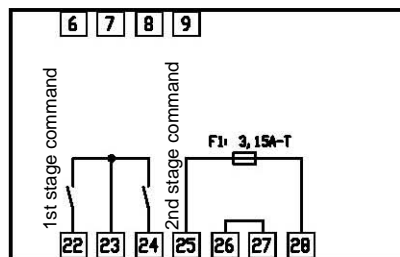
## **8. RECYCLING THE PRODUCT**

Please refer to the paragraph with the  symbol at the end of the instructions.

## 9. ELECTRIC DIAGRAM RE/U



Regulator with digital display  
reference: EC P230



V-j: green-yellow  
 BI: blue  
 M: brown  
 B: white  
 N: black  
 R: red  
 Vi: violet  
 O: orange  
 G: grey

### LEGEND:

CD: flow rate controller  
 F1: protection fuse 3,15 A-T  
 L1: "on/off" led 1° stage  
 L2: "on/off" led 2° stage  
 REG: led blinking when temporisation in process, steady while operating  
 S1: "on/off" switch 1° stage  
 S2: "on/off" switch 2° stage  
 So: pool water regulation probe  
 TH: control thermostat with digital display  
 KM1-KM2: power contactor 1° and 2° stage  
 R1-R2: titanium electric resistance 1° and 2° stage  
 TS: safety thermostat positive (triggering at 63°C, manual reset)

\* power engraved on the metal resistance cup

### Electronic connections:

1-2: shunted terminals (waiting for the connection of a remote control)  
 N-R (N-R-S-T): single-phase main supply 230V-1N-50Hz  
 N-R-S-T: three-phase main supply 400V-3N-50Hz  
 ↓ : Earth

**IMPORTANT:** elimination or shunting of one of the safety or remote control organs leads automatically to the **cancellation of the guarantee**

For ongoing improvement, our products are subject to change without notice.

Edition of 03/2009



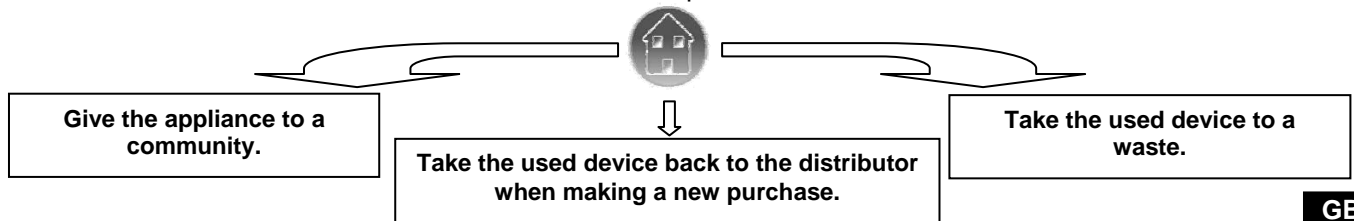
**Your appliance is reaching the end of its working life.** You would like to get rid of it or replace it.  
**Please do not throw it into the dustbin** or into your local council's selective sorting containers.

**When this symbol appears on a new appliance, it means that the equipment must not be thrown away and that it will be collected selectively so that it can be reused, recycled or recovered. Any substances it may contain which are potentially dangerous to the environment will be eliminated or neutralised.**

You can give it to a community association who will be able to repair it and put it back into circulation.  
If you buy a new one, you can take the old one to the store or ask the delivery man to take it back.

This is known as a **"One-for-One"** exchange.

Otherwise please take it to a waste collection centre, if your local council has set up a selective collection system for these products.



Handwriting practice lines consisting of 20 horizontal dashed lines.

Handwriting practice lines consisting of 20 horizontal dashed lines.

Handwriting practice lines consisting of 20 horizontal dashed lines.

# DECLARATION C E DE CONFORMITE

**déclare que les produits ou gammes ci-dessous :**

*declares that the herewith products or ranges*

## **RECHAUFFEURS ELECTRIQUES DE PISCINES**

**ELECTRIC HEATERS FOR POOLS**

**RE/U**

**sont conformes aux dispositions :**

*are in conformity with the provisions*

↻ **de la directive COMPATIBILITE ELECTROMAGNETIQUE 89/336/CEE  
amendée par 93/068/CEE.** Contrôlés par le laboratoire AEMC Mesures - rapport  
technique N° P96047T.

↻ *of the ELECTROMAGNETIC COMPATIBILITY directive 89/336/EEC, as amended 93/068/EEC.  
Controlled by AEMC Mesures laboratory - technical report N° P96047T.*

**Les normes harmonisées suivantes ont été appliquées : EN 55014 - EN 55104**

*The harmonized standards have been applied : EN 55014 - EN 55104*

**EN 55011  
EN 55022  
CEI 801-4  
CEI 801-2  
CEI 801-3**

↻ **de la directive BASSE TENSION 73/23/CEE.**

↻ *of the LOW VOLTAGE directive 73/23/EEC.*

**Les normes harmonisées suivantes ont été appliquées :**

*The harmonized standards have been applied*

**EN 60335-2-35**

Votre installateur - Your installer

## Zodiac, la maîtrise des éléments.

Mondialement reconnu pour la qualité et la fiabilité de ses produits dans les secteurs de l'aéronautique et du nautisme, Zodiac engage son nom dans l'univers de la piscine pour vous offrir toute une gamme de piscines, nettoyeurs automatiques, systèmes de traitement d'eau, systèmes de chauffage et de déshumidification de piscines. En s'appuyant sur le savoir-faire technologique et l'expérience de PSA, Zodiac vous apporte la garantie d'appareils de très haut niveau tant dans leur conception que dans leurs performances.

Un véritable gage d'efficacité et de tranquillité !

## Zodiac, mastering the elements.

Renowned worldwide for the quality and reliability of its products in the aeronautical and marine sectors, Zodiac has now brought its expertise to swimming pools, to bring you a full range of pools, automatic pool cleaners, water treatment systems, heating and dehumidification units.

Backed by PSA technology, expertise and experience, Zodiac brings you the reassurance of top quality equipment in terms of both design and performance.

A real guarantee of efficiency and peace of mind !



### **Chauffage et déshumidification de piscines - Heating and dehumidification of pools**

**ZPCE** - Boulevard de la Romanerie BP 90023 - 49180 Saint Barthélemy d'Anjou Cedex - France

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