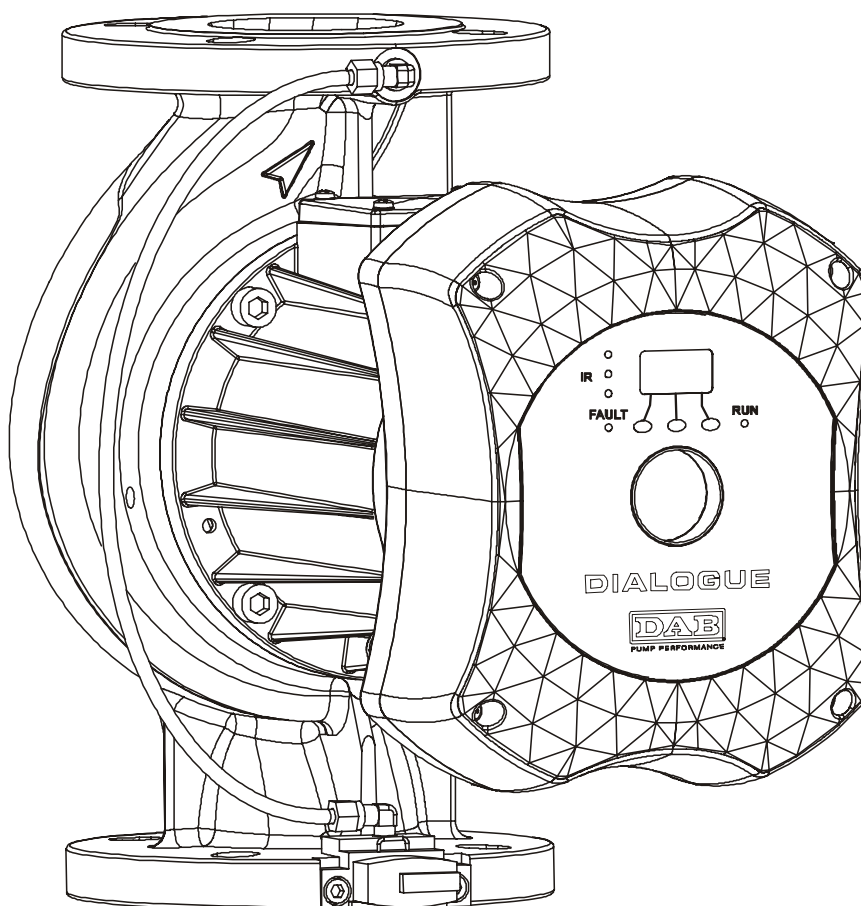


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**ISTRUZIONI PER L'INSTALLAZIONE E LA MANUTENZIONE**  
**INSTRUCTIONS POUR L'INSTALLATION ET LA MAINTENANCE**  
**INSTRUCTIONS FOR INSTALLATION AND MAINTENANCE**  
**INSTALLATIONS- UND WARTUNGSANLEITUNGEN**  
**INSTRUCTIES VOOR INSTALLATIE EN ONDERHOUD**  
**INSTRUCCIONES DE INSTALACIÓN Y MANTENIMIENTO**  
**РУКОВОДСТВО ПО МОНТАЖУ И ТЕХНИЧЕСКОМУ ОБСЛУЖИВАНИЮ**

**BPH-E**  
**DPH-E**



## **BPH-E**

**BPH-E 60/250.40**  
**BPH-E 120/250.40**

**BPH-E 60/280.50**  
**BPH-E 120/280.50**  
**BPH-E 180/280.50**

**BPH-E 60/340.65**  
**BPH-E 120/340.65**  
**BPH-E 150/340.65**

**BPH-E 120/360.80**

## **DPH-E**

**DPH-E 60/250.40**  
**DPH-E 120/250.40**

**DPH-E 60/280.50**  
**DPH-E 120/280.50**  
**DPH-E 180/280.50**

**DPH-E 60/340.65**  
**DPH-E 120/340.65**  
**DPH-E 150/340.65**

**DPH-E 120/360.80**

## **BPH-E / DPH-E**

### **DICHIARAZIONE DI CONFORMITÀ**

La Ditta DAB PUMPS s.p.a. - Via M. Polo,14 - Mestrino (PD) - ITALIA - sotto la propria esclusiva responsabilità dichiara che i prodotti summenzionati sono conformi a:

- Direttiva del Consiglio n° 98/37/CE e successive modifiche.
- Direttiva della Compatibilità elettromagnetica 89/336 e successive modifiche.  
(Normativa di riferimento EN 61800-3)
- Direttiva Bassa Tensione 73/23 e successive modifiche.  
(Normative di riferimento: EN 60335-1 / EN 60335-2-51)

### **DÉCLARATION DE CONFORMITÉ**

La société DAB PUMPS s.p.a. - Via M. Polo,14 - Mestrino (PD) - ITALIE - sous sa propre responsabilité exclusive déclare que les produits susmentionnés sont conformes à :

- Directive du Conseil n° 98/37/CE et modifications successives.
- Directive de la Compatibilité électromagnétique 89/336 et modifications successives.  
(Norme de référence EN 61800-3)
- Directive Basse Tension 73/23 et modifications successives.  
(Normes de référence : EN 60335-1 / EN 60335-2-51)

### **DECLARATION OF CONFORMITY**

The Company DAB PUMPS s.p.a. - Via M. Polo,14 - Mestrino (PD) - ITALIA - under its own exclusive responsibility declares that the products listed above comply with:

- Council Directive n° 98/37/CE and subsequent modifications.
- Directive on Electromagnetic Compatibility 89/336 and subsequent modifications.  
(Reference standard EN 61800-3)
- Directive on Low Voltage 73/23 and subsequent modifications.  
(Reference standards: EN 60335-1 / EN 60335-2-51)

### **KONFORMITÄTSERKLÄRUNG**

Die Firma DAB PUMPS s.p.a - Via Marco Polo, 14 - Mestrino - PD - ITALIEN - erklärt eigenverantwortlich, dass die vorstehend beschriebenen Produkte den folgenden Richtlinien entsprechen:

- Maschinenrichtlinie 98/37/EG und folgende Änderungen.
- Richtlinie zur elektromagnetischen Verträglichkeit 89/336 und folgende Änderungen.  
(Bezugsnorm EN 61800-3)
- Niederspannungsrichtlinie 73/23 und folgende Änderungen  
(Bezugsnorm: EN 60335-1 / EN 60335-2-51)

### **OVEREENKOMSTIGHEIDSVERKLARING**

De firma DAB PUMPS s.p.a. - Via M. Polo,14 - Mestrino (PD) - ITALIË - verklaart onder haar eigen, exclusieve verantwoording dat de hieronder genoemde producten voldoen aan:

- Richtlijn van de raad nr. 98/37/EG en successievelijke wijzigingen.
- Richtlijn elektromagnetische compatibiliteit 89/336 en successievelijke wijzigingen.  
(Referentienorm EN 61800-3)
- Laagspanningsrichtlijn 73/23 en successievelijke wijzigingen.  
(Referentienorm: EN 60335-1 / EN 60335-2-51)

## **BPH-E / DPH-E**

### **DECLARACIÓN DE CONFORMIDAD**

La empresa DAB PUMPS s.p.a - Via Marco Polo, 14 - Mestrino - PD – ITALIA, bajo su propia y exclusiva responsabilidad declara que los productos enumerados anteriormente cumplen las directivas siguientes:

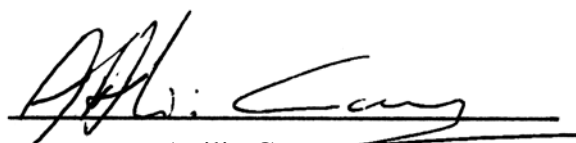
- Directiva de Máquinas nº 98/37/CE y sus modificaciones.
- Directiva de Compatibilidad Electromagnética nº 89/336 y sus modificaciones (Normativa de referencia EN 61800-3).
- Directiva de Baja Tensión nº 73/23 y sus modificaciones (Normativas de referencia: EN 60335-1 / EN 60335-2-51).

### **ЗАЯВЛЕНИЕ О СООТВЕТСТВИИ**

Фирма DAB PUMPS s.p.a. – Вия М. Поло, 14 – Местрино (ПД) – ИТАЛИЯ – под собственную исключительную ответственность заявляет, что вышеуказанные изделия соответствуют:

- Директиве Европейского Совета nº 98/37/CE и последующим изменениям.
- Директиве о электромагнитной совместимости 89/336 и последующим изменениям. (Справочный норматив EN 61800-3)
- Директиве по Низкому напряжению 73/23 и последующим изменениям. (Справочный норматив : EN 60335-1 / EN 60335-2-51)

Mestrino (PD), 14/02/2006



Attilio Conca  
Legale Rappresentante  
Legal Representative

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## 1. GENERAL



**Read this documentation carefully before installation.**

Installation, electrical connection and commissioning must be carried out by specialised personnel in compliance with the general and local safety regulations in force in the country in which the product is installed. Failure to comply with these instructions not only causes risk to personal safety and damage to the equipment, but invalidates every right to assistance under guarantee.



**Ensure that the product has not suffered any damage during transport or storage.**

**Check that the outer casing is unbroken and in excellent conditions.**

### 1.1 Safety

Use is allowed only if the electric system is in possession of safety precautions in accordance with the regulations in force in the country where the product is installed (for Italy CEI 64/2).

### 1.2 Responsibility

**The Manufacturer does not vouch for correct operation of the machine or for any damage that it may cause if it has been tampered with, modified and/or run outside the recommended work range or in contrast with other indications given in this manual.**

## 2. PUMPED LIQUIDS

The machine is designed and built to pump water free from explosive substances and solid particles or fibres, with a density of 1000 Kg/m<sup>3</sup>, kinematic viscosity 1mm<sup>2</sup>/s and non chemically aggressive liquids.

## 3. APPLICATIONS

The circulators of the **BPH-E – DPH-E** series allow, by using the **DIALOGUE** (inverter fitted on the motor), an integrated regulation of the differential pressure which allows the performances of the circulator to be adapted to the actual demands of the system.

This determines considerable energy saving, a greater possibility of control of the system, and reduced noise.

BPH-E – DPH-E circulators are designed for the circulation of:

- hot water in heating systems,
- water in industrial hydraulic circuits.

**They cannot be used for the circulation of domestic water and liquid foodstuffs.**

## 4. TECHNICAL DATA

### 4.1 Electrical data

Supply voltage:	1x230 V 50-60Hz
Absorbed power:	See electrical data plate
Maximum current:	See electrical data plate
Degree of protection:	IP44
Protection class:	H

## 4.2 Operating conditions

Flow rate:	from 13.8 to 59.76 m <sup>3</sup> /h
Head:	see table
Maximum working pressure:	10 bar
Motor construction:	CEI 2-3 – CEI 61-69 ( EN 60335-2-41 )
Noise:	directive EC 89/392/EEC

MODEL	Head H max (m)
BPH-E 60/250.40	7.3
BPH-E 120/250.40	11
BPH-E 60/280.50	7.4
BPH-E 120/280.50	11
BPH-E 180/280.50	17.5
BPH-E 60/340.65	6.9
BPH-E 120/340.65	10.1
BPH-E 150/340.65	13.7
BPH-E 120/360.80	10.9
DPH-E 60/250.40	7.3
DPH-E 120/250.40	11
DPH-E 60/280.50	8.1
DPH-E 120/280.50	11.8
DPH-E 180/280.50	18.2
DPH-E 60/340.65	7.2
DPH-E 120/340.65	10.4
DPH-E 150/340.65	14
DPH-E 120/360.80	11.1

## 4.3 Temperature

Environment temperature:	0 ÷ 40°C
Storage temperature :	-10 ÷ 40°C
Liquid temperature:	up to 110°C according to EN 60335-2-51 T. Max 120°C

## 4.4 EMC – electromagnetic compatibility–

BPH-E, DPH-E circulators respect standard EN 61800-3, in category C2, for electromagnetic compatibility.

- Electromagnetic emissions – Residential environment (in some cases measures to reduce them may be requested).
- Emissions of ducts – Residential environment (in some cases measures to reduce them may be requested).

The models with power lower than 1 kW need a 2.4 mH external filter at input, as requested by standard EN 61000-3-2.

## 5. MANAGEMENT

### 5.1 Storage

All the circulators must be stored in a dry covered place, with possible constant air humidity, free from vibrations and dust.

They are supplied in their original pack in which they must remain until the time of installation.

Otherwise the suction and delivery opening must be accurately closed.

## 5.2 Transport

Avoid subjecting the products to needless impacts and collisions. To lift and transport the circulator use lifting devices with the aid of the pallet supplied with it (if contemplated ).

## 5.3 Weight

The adhesive plate on the package shows the total weight of the circulator.

## 6 INSTALLATION

### 6.1 Circulator installation

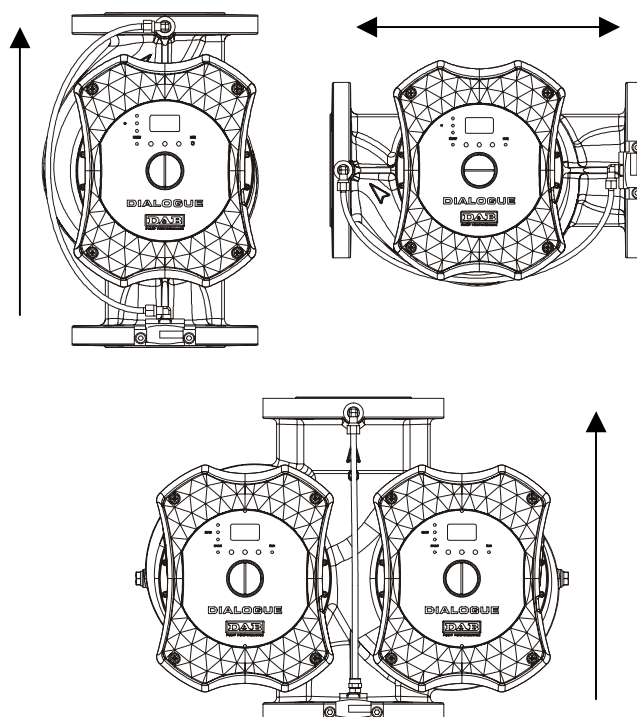
- The circulator may be installed in heating systems either on the delivery pipe or on the return pipe; the arrow on the pump body indicates the direction of flow.
- Install the circulator as much as possible above the minimum boiler level, and as far as possible from curves, elbows and derivations.
- To facilitate control and maintenance operations, install a stop valve both on the suction pipe and on the delivery pipe.
- Before installing the circulator, flush the system accurately with only water at 80°C. Then drain the system completely to eliminate any harmful substance that may have got into circulation.

**Always fit the circulator with the motor shaft in a horizontal position, (fig.1)**



**Always fit the Dialogue in a vertical position (fig.1)**

Fig. 1



- Assemble in such a way as to avoid dripping onto the motor and onto the Dialogue both in the installation phase and in the maintenance phase.
- Avoid mixing additives derived from hydrocarbons and aromatic products with the circulating water. The addition of antifreeze, where necessary, is recommended with maximum percentage 30%.
- **Attention!!** In the event of thermal insulation, ensure that the condensate discharge holes in the motor casing are not closed or partially clogged.



**Never insulate the Dialogue and the pressure sensor!!**

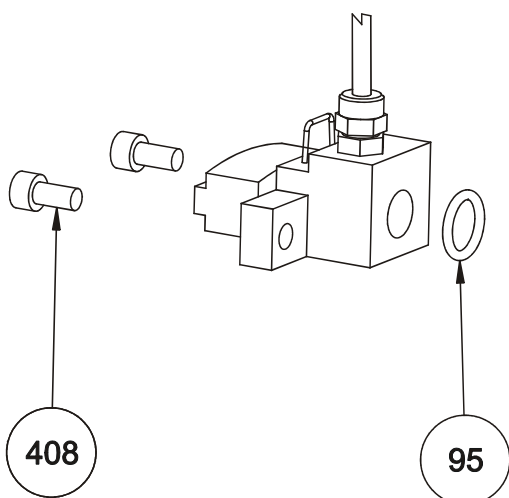
## 6.2 Sensor installation

To install the pressure sensor perform the following operations:

- fit the sensor group only after having installed the circulator in the system,
- fit the O-ring (ref. 95) on the seat of the pump body,
- fit the sensor block, paying attention to the O-ring,
- tighten the 2 screws (ref. 408) to block the sensor group.



**Never clean the sensor with compressed air!!**



## 6.3 Dialogue rotation

The Dialogue is supplied already fixed to the motor casing of the circulator, but it may be necessary to rotate it, if the installation is made with the pipes in a horizontal position.



**Before rotating the Dialogue, ensure that the circulator has been completely emptied.**

To rotate the Dialogue, proceed as follows:

- 1) Slacken the cable clamp of the pressure sensor fitted on the Dialogue.
- 2) Remove the 4 retaining screws of the circulator head.
- 3) Rotate the motor casing with the Dialogue into the correct position, paying particular attention to the connecting cable of the pressure sensor.



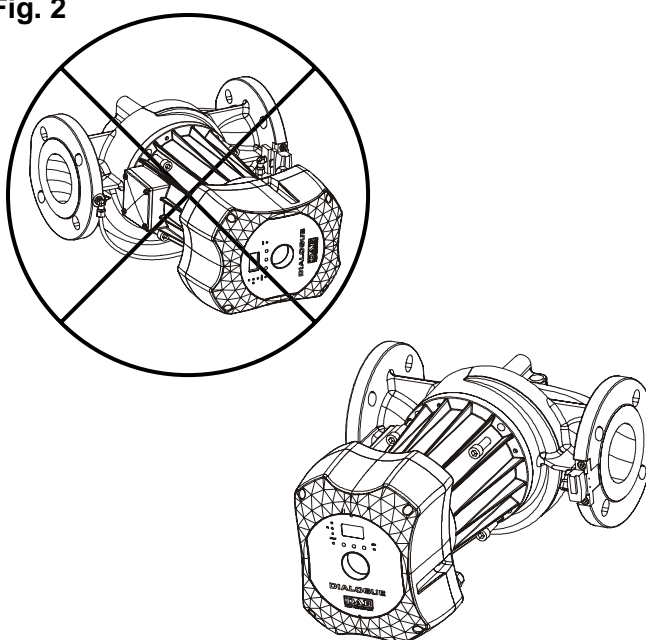
**Attention!! The Dialogue must always remain in a vertical position!**

- 4) Reposition and tighten the 4 screws that anchor the head of the circulator.
- 5) Adapt the cable of the pressure sensor and close the cable clamp again.



**Attention!! Ensure that the connecting cable of the pressure sensor never comes in contact with the motor casing.**

Fig. 2



#### 6.4 Non-return valve

If the system is fitted with a non-return valve, ensure that the minimum pressure of the circulator is always higher than the valve closing pressure.

### 7. ELECTRICAL CONNECTIONS



**ATTENTION!  
ALWAYS OBSERVE THE SAFETY  
REGULATIONS!!**

The electrical installation must be carried out by an expert, authorised electrician who accepts all responsibilities.

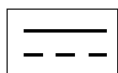
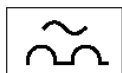


**THE SYSTEM MUST BE  
CORRECTLY AND SAFELY  
CONNECTED TO EARTH!!**

Always turn off the power supply before working on the electric or mechanical part of the system.

Wait at least five minutes after switching off the appliance before opening it.

- To protect the system it is recommended to install a differential switch with correct dimensions, type: Class A, with adjustable dispersion current, selective, protected against sudden tripping.  
The automatic differential switch must be marked with one of the following two symbols:

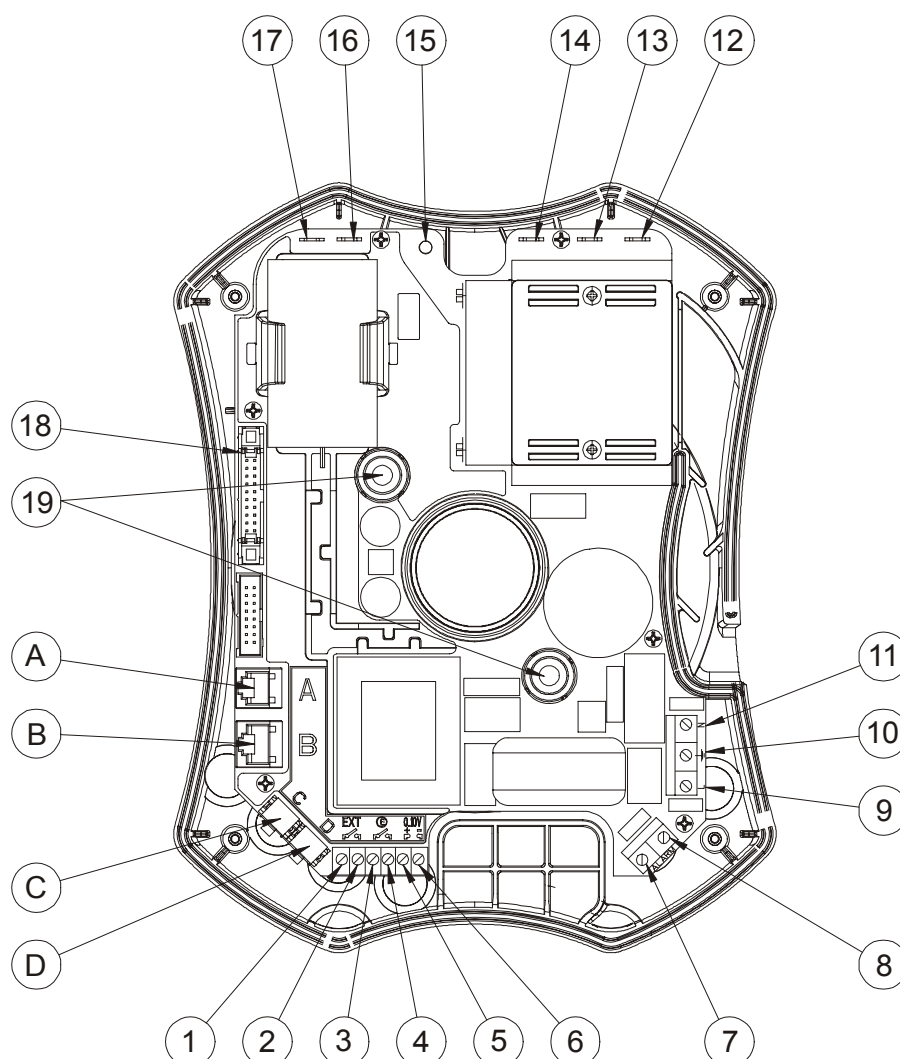


- In the electrical connection to the power line fit a two-pole switch with contact opening distance at least 3 mm and with fuses type AM (motor start) with a current value suitable for the feeding motor.



## 7.1 Wiring diagram

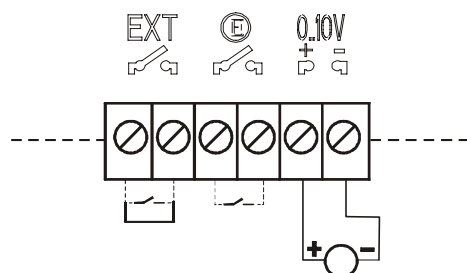
Fig. 3



Ref.	FUNCTION
<b>A</b>	Connector for RS 485 remote serial connection
<b>B</b>	Connector for twin circulators
<b>C</b>	Connector for sensor on the circulator (standard)
<b>D</b>	Connector for remote sensor (optional)
<b>1 - 2 (exit)</b>	Connecting terminals for remote control
<b>3 - 4 (E)</b>	Connecting terminals for economy function input
<b>5 - 6 (0 - 10V)</b>	Connecting terminals for analog input 0-10V dc ref. 5 = +10V ref. 6 = 0V
<b>7 - 8 (ALARM)</b>	Connecting terminals for remote alarm contact 250V ac 5A
<b>9 - 10 - 11</b>	Connecting terminals for power supply line 1x230V 50-60Hz ref. 9 = Line ref. 10 = Earth ref. 11 = Neutral
<b>12 - 13 - 14</b>	Faston for connecting the motor cables ref. 12 = red cable ref. 13 = green cable ref. 14 = white cable
<b>15</b>	Motor earthing screw
<b>16 - 17</b>	Faston for connecting the motor protector – white cable
<b>18</b>	Dialogue display connector
<b>19</b>	Dialogue retaining screw

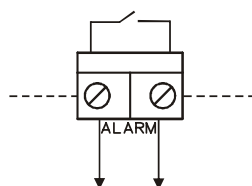
## 7.2 Service terminal board diagram

Fig. 4



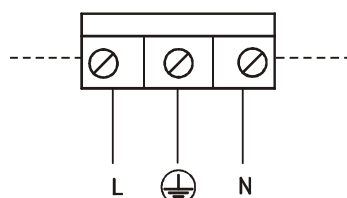
## 7.3 Alarm terminal board diagram

Fig. 5



## 7.4 Power supply terminal board diagram

Fig. 6



The cables connected to the control terminal board must be separated from each other and from the electric power supply with reinforced insulation.

**Before supplying power to the circulator ensure that the cover of the Dialogue is perfectly closed!**

## 8. STARTING



**All the starting operations must be carried out with the cover of the Dialogue closed!**

**Avoid running the circulator with no water in the system!**

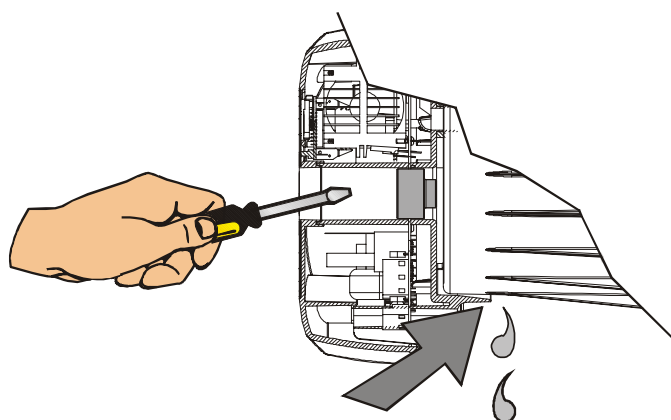
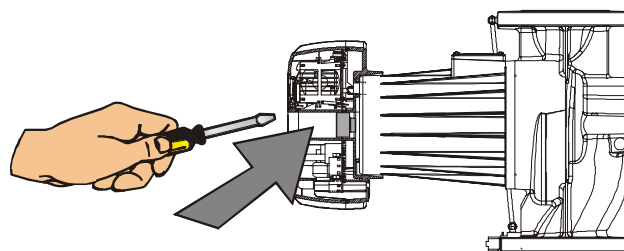
- Fill the system and bleed it before running the circulator (Fig. 7).
- The fluid in the system, as well as being at a high temperature and pressure, may also be in the form of steam.

**BEWARE OF SCALDING!**

- It is dangerous to touch the circulator.
- BEWARE OF SCALDING!**

- If it should be necessary to bleed air from the motor, slowly slacken the venting cap and let the fluid flow out for a few seconds (Fig. 7)
- It is dangerous to unscrew the cap rapidly: the high temperature and high pressure fluid can cause scalding.

Fig. 7



## 9. FUNCTIONS

### 9.1 Regulating modes

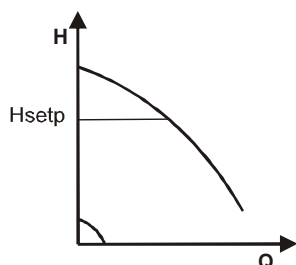
With the Dialogue, the circulators BPH-E – DPH-E may be set to operate with different regulating modes depending on the necessities of the system:

- Regulation with constant differential pressure.
- Regulation with constant differential pressure depending on the temperature.
- Regulation with proportional differential pressure.
- Regulation with proportional differential pressure depending on the temperature.
- Regulation with constant curve.
- Regulation with constant curve with analog input.

## 9.2 Regulation with constant differential pressure.

This is set by means of the control panel on the cover of the Dialogue.

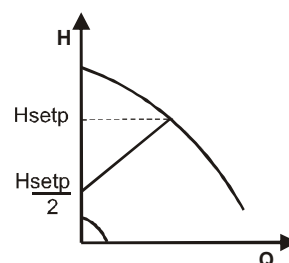
The head remains constant, irrespective of the demand for water.



## 9.3 Regulation with proportional differential pressure.

This is set by means of the control panel on the cover of the Dialogue.

The pressure is reduced or increased as the demand for water falls or rises.



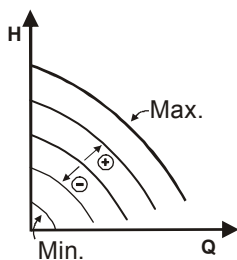
Regulation	Type of system	Examples
Proportional pressure	In systems with relatively high load losses in the boiler circuits and in the pipes.	<ol style="list-style-type: none"> <li>Heating systems with two pipes with thermostatic valves and with: <ul style="list-style-type: none"> <li>head higher than 4 metres,</li> <li>very long pipes,</li> <li>valves with wide operating range,</li> <li>differential pressure regulators,</li> <li>high load losses in those parts of the system where the total quantity of the water flows.</li> <li>low differential temperature.</li> </ul> </li> <li>Underfloor heating systems and systems with thermostatic valves and large load losses in the boiler circuit.</li> <li>Systems with primary circuit pumps with high load losses.</li> </ol>
Constant pressure	In systems with relatively low load losses in the boiler circuits and in the pipes.	<ol style="list-style-type: none"> <li>Heating systems with two pipes with thermostatic valves and with: <ul style="list-style-type: none"> <li>head lower than 2 metres,</li> <li>natural circulation,</li> <li>low load losses in those parts of the system where the total quantity of the water flows.</li> <li>high differential temperature (centralised heating).</li> </ul> </li> <li>Underfloor heating systems with thermostatic valves.</li> <li>Single-pipe heating systems with thermostatic valves and calibrating valves.</li> <li>Systems with primary circuit pumps with low load losses.</li> </ol>

#### 9.4 Regulation with constant curve.

This is set by means of the control panel on the cover of the Dialogue or by means of the analog input 0-10V (ref. terminals 5-6).

The circulator works like a conventional uncontrolled circulator, on constant standard curves.

Its rotating speed is kept at a constant number of revs, between  $n_{\min}$  and  $n_{\max}$ .



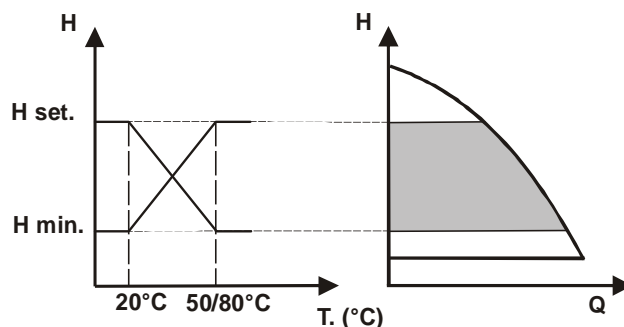
This type of regulation is particularly indicated when replacing circulators already existing in the systems.

#### 9.5 Regulation with constant and proportional differential pressure depending on the water temperature

This is set by means of the control panel on the cover of the Dialogue.

The set point for the head of the circulator is reduced or increased depending on the water temperature.

The temperature of the liquid may be set at 80°C or at 50°C.



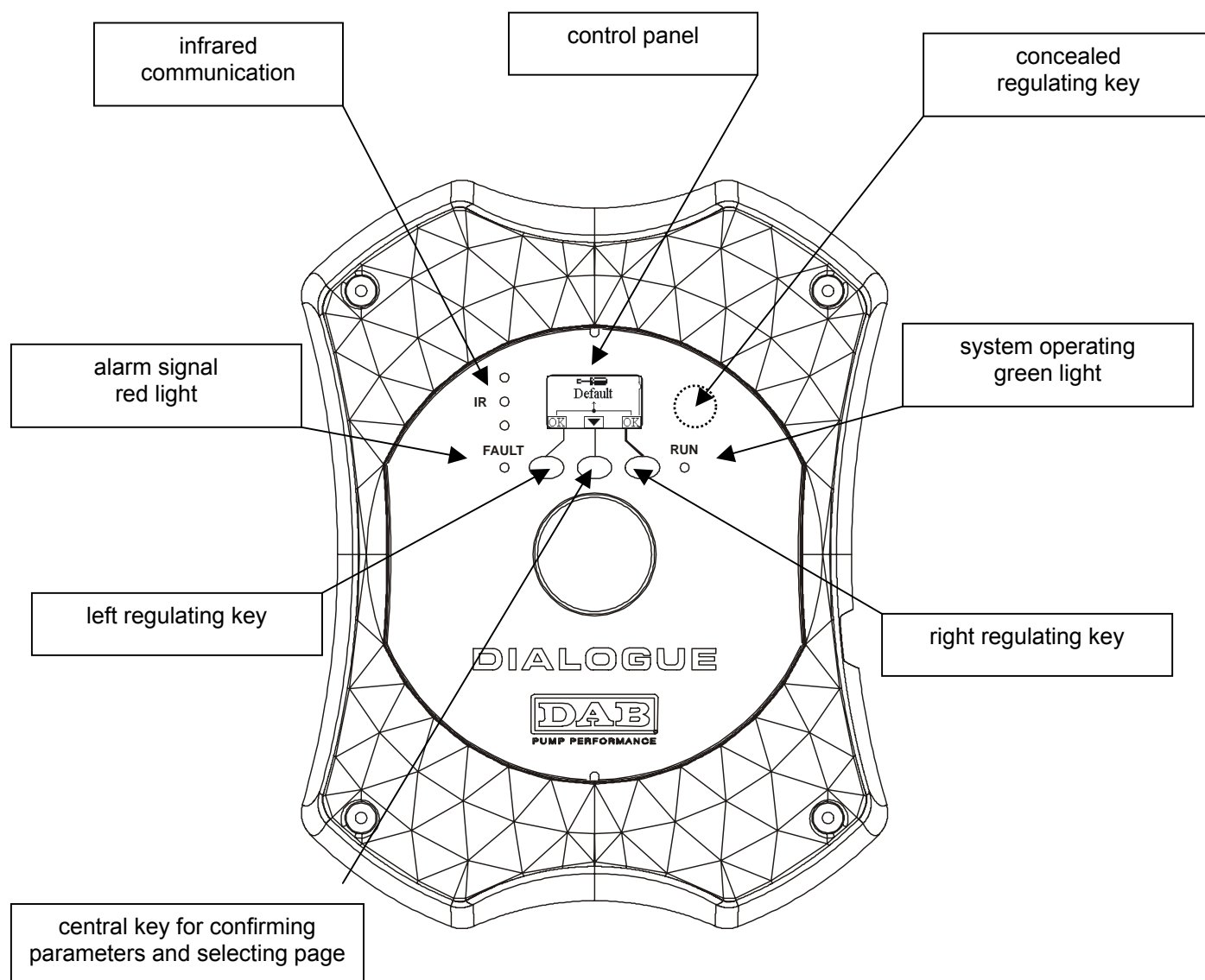
This type of regulation is particularly indicated:

- in systems with a variable flow rate (two-pipe heating systems), where a further reduction of the circulator performance is ensured depending on the lowering of the temperature of the circulating liquid, when there is a lower demand for heating.
- In systems with a constant flow rate (systems with single-pipe and underfloor heating), where the performance of the circulator can be regulated only with the function influenced by temperature.

## 10. ESTABLISHING THE PARAMETERS OF THE CONTROL PANEL

The circulators of the BPH-E and DPH-E series must be configured by means of the control panel on the cover of the Dialogue.

Fig. 8



### Alarm signal red light:

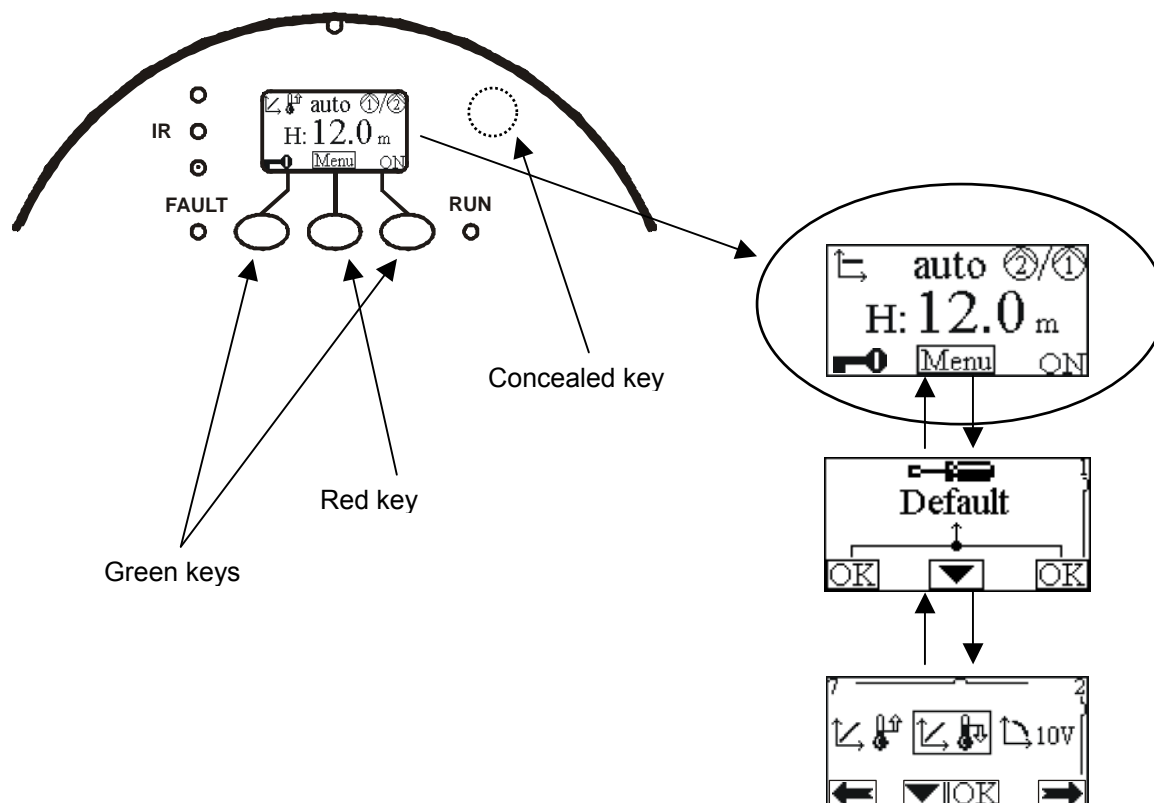
If the red light of the alarm signal is blinking the circulator continues operating even when signalling the presence of an error.

If the red light of the alarm signal remains fixed the circulator is blocked.

### System operating green light:

The correct operation of the circulator is indicated by the lighting of the green light.

## 10.1 How to enter the Dialogue menu



Pressing the GREEN KEY + the CONCEALED KEY unlocks the Dialogue.

Pressing the RED KEY moves into the various submenu windows as indicated on page 41.

To confirm the parameter hold down the RED KEY until the arrow turns black.

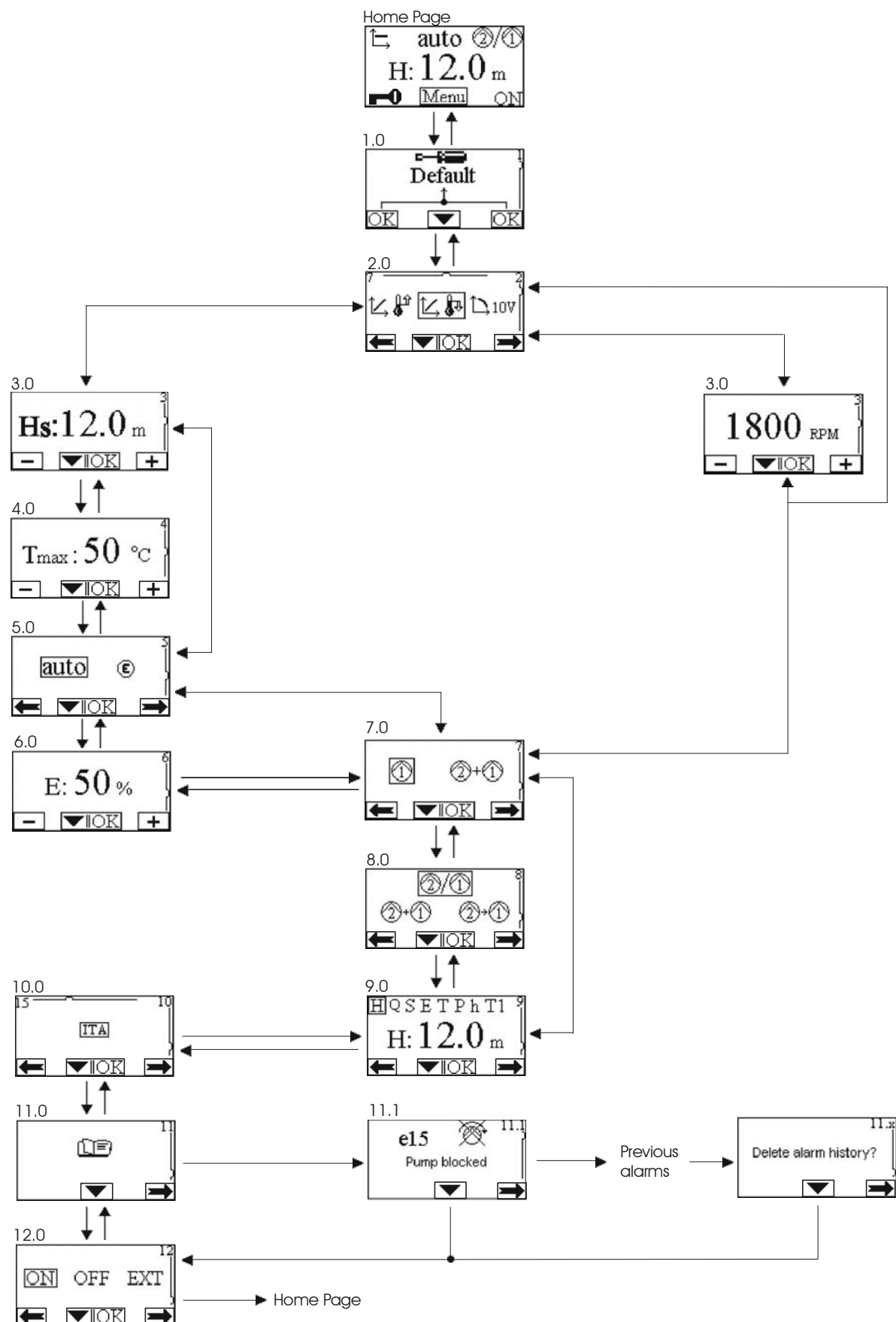
Pressing the GREEN KEYS (right and left) moves inside the menu window.

## Regulating the Display contrast

- The page is accessible from the Home Page of any setting (Master, Slave, Blocked, Not Blocked).
- Press the **concealed key** at bottom right until a half-moon appears on the display. Hold down the **right key** for more than 5 seconds to access the display contrast regulating function. Access occurs on releasing the key.
- The page has a central number and a scroll bar which indicates the percentage at which the display contrast is set:
  - press “+” or “-” to change the regulation,
  - to store the setting, hold down the **central key** for 3 seconds,
  - to return to the Home Page press the **central key**.

The settings are made when passing from one page to another, in the circulator configuration menu.

Fig. 9



## 10.2 Description of symbols

### Displayable quantities:

Symbol	Description
H Q S E T P h T1	Shows parameters
H:	Head in metres
Q:	Flow rate in m <sup>3</sup> /h <b>Q &lt; Qmin</b> : when Q is less than 30% of Qmax. <b>Q = 0</b> : only when the Dialogue is switched off.
S:	Speed in revs/minute (rpm)
E:	Analog input 0-10V
T:	Liquid temperature in °C – input D
P:	Power in kW
h:	Working hours
T1:	Liquid temperature in °C – input C
T <sub>max</sub> :	Maximum liquid temperature in °C depending on regulation









### Circulator status:

Symbol	Description
①	Single circulator or nr. 1
②	Circulator nr. 2
②/①	Alternate twin circulators
②+①	Principal/reserve twin circulators
②+①	Simultaneous twin circulators
ON	Circulator on
OFF	Circulator off
EXT	Circulator controlled by remote signal (ref. terminals 1-2)


### Type of operation:

Symbol	Description
auto	Auto function
Ⓔ	Economy function

### Types of regulation:

Symbol	Description
	Regulation with Δp-c (constant pressure)
	Regulation with Δp-c depending on temperature with positive increase
	Regulation with Δp-c depending on temperature with negative increase
	Regulation with Δp-v (variable pressure)
	Regulation with Δp-v depending on temperature with positive increase
	Regulation with Δp-v depending on temperature with negative increase
	Servomotor regulation with speed set on the display.
	Servomotor regulation with speed set by remote signal 0-10V

### Various:

Symbol	Description
	Control panel blocked
▼  OK / ▲  OK	Multifunction key for confirming parameters and scrolling pages



### 10.3 Control panel settings

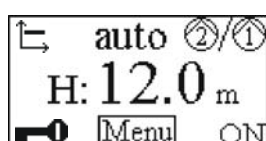
By means of the control panel it is possible to block or release the circulator settings by holding down simultaneously, for 1-2 seconds, the left key and the concealed key (see fig. 8).

**If no key is pressed, the settings are blocked automatically after 5 minutes of inactivity.**

This mode is graphically represented by the presence, on each page, of a key at bottom left, **which disappears once the panel is activated**, and by the absence of the choice and confirmation symbols.

Also, the following pages are not displayed: page 1.0 – page 8.0 – page 10.0 – page 11.0.

#### Home page:



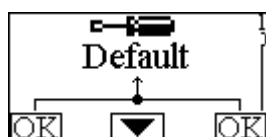
The Home page graphically sums up the principal settings of the circulator.

The icon at top right indicates the presence of a single ① or twin ②/① circulator.


The movement of the icon ① or ② indicates which circulator is operating.

Press the "Menu" key to move on to page 1.0.

#### Page 1.0:



On Page 1.0 the default settings are restored by pressing the two outside left and right keys simultaneously for 1-2 seconds.

The keys will be highlighted and the following symbol will appear at top left: 

Press the central key to move on to page 2.0.

#### Page 2.0:



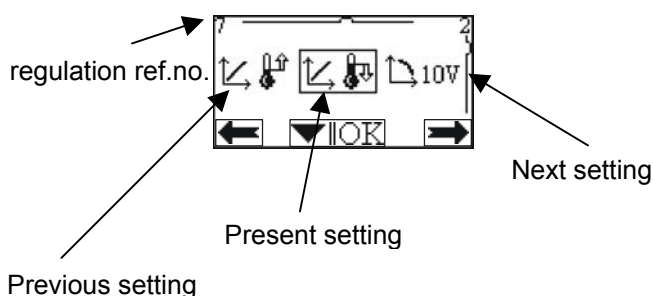
Page 2.0 sets the regulating mode. There are 8 different modes to choose from (considering also the regulations depending on temperature) :

1.  $\Delta p$ -c
2.  $\Delta p$ -c depending on temperature with positive increase.
3.  $\Delta p$ -c depending on temperature with negative increase.

4.  $\Delta p$ -v
5.  $\Delta p$ -v depending on temperature with positive increase.
6.  $\Delta p$ -v depending on temperature with negative increase.
7. Servomotor with speed set on the display.
8. Servomotor with speed set by remote signal 0-10V.


Page 2.0 shows three icons which represent:

- the central icon, the setting currently selected;
- the icon on the right, the setting that can be selected next;
- the icon on the left, the setting selected previously.



Pressing the outside left or right key selects the different types of regulation available, the reference number of which will appear at top left of the display.

This operation will take place cyclically, so after 8 repeats it will return to the initial mode.

Hold down for a few seconds the central key "OK", which will be highlighted -  -, to confirm the chosen regulation.

Press the central key to move on to page 3.0.

#### Page 3.0:




Page 3.0 sets the regulating set-point.

Depending on the type of regulation chosen on the previous page, the set-point may be set either according to head (H) or to the number of motor revs (RPM).

The screen on the page will therefore show **H** or **RPM** depending on the regulation chosen on page 2.0.

The value may be decreased or increased by pressing the outside left and right keys.

Hold down for a few seconds the central key "OK", which will be highlighted -  -, to confirm the value selected.

Press the central key to move on to page 4.0.

## Page 4.0:



Page 4.0 is displayed only if the regulating mode  $\Delta p$ -c or  $\Delta p$ -v with set-point depending on temperature has been chosen.

On page 4.0, press the outside left and right keys to set the Tmax. (50°C or 80°C) with which to establish dependence on temperature.

Hold down for a few seconds the central key "OK", which will be highlighted - ▼|OK - , to confirm the regulation chosen.

Press the central key to move on to page 5.0.

## Page 5.0:



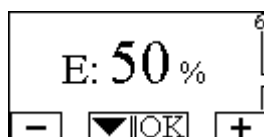
Page 5.0 is displayed in all the pressure regulating modes ( $\Delta p$ ).

On page 5.0, press the outside left and right keys to set "auto" or "economy" operating mode.

Hold down for a few seconds the central key "OK", which will be highlighted - ▼|OK - , to confirm the regulation chosen.

Press the central key to move on to page 6.0.

## Page 6.0:



Page 6.0 is displayed if "economy" mode has been chosen on page 5.0.

On page 6.0, press the outside left and right keys to set the percentage value of reduction of the set point.

This reduction will be carried out if a contact is closed between terminals 3-4 (E).

Hold down for a few seconds the central key "OK", which will be highlighted - ▼|OK - , to confirm the value selected.

Press the central key to move on to page 7.0.

## Page 7.0:



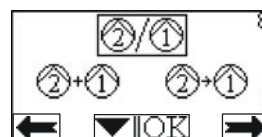
On page 7.0, operation with a single or twin circulator can be set.

The choice is made by pressing the outside left and right keys.

Hold down for a few seconds the central key "OK", which will be highlighted - ▼|OK - , to confirm the choice made.

Press the central key to move on to page 8.0.

## Page 8.0:



Page 8.0 is displayed only if operation with twin circulators has been chosen.

On page 8.0, press the outside left and right keys to set one of the 3 possible operating modes:

- Alternate every 24h: ②/①
- Simultaneous: ②+①
- Principal/Reserve: ②+①

Hold down for a few seconds the central key "OK", which will be highlighted - ▼|OK - , to confirm the regulation chosen.

Press the central key to move on to page 9.0.

## Page 9.0:



On page 9.0, press the left and right keys to choose the parameter to be displayed on the Home Page.

Hold down for a few seconds the central key "OK", which will be highlighted - ▼|OK - , to confirm the regulation chosen.

Press the central key to move on to page 10.0.

## Page 10.0:



On page 10.0, press the left and right keys to choose the language in which the messages are to be displayed.

Hold down for a few seconds the central key "OK", which will be highlighted - ▼||OK - , to confirm the regulation chosen.

Press the central key to move on to page 11.0.

### Page 11.0:



Page 11.0 shows the alarm history.

Press the central key to move on to page 12.0.

### Page 12.0:





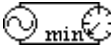






On page 12.0, press the left and right keys to set the circulator in ON or OFF status, or controlled by a remote signal EXT.

Hold down for a few seconds the central key "OK", which will be highlighted - ▼||OK - , to confirm the regulation chosen.

Press the central key to return to the Home Page.

You can go from one page to another of the control panel by pressing the central key. To return to the previous page, press the concealed key and the central key.

## 10.4 Dialogue display and alarms

Alarm Symbol	Type of Alarm
	E01 "Pump blocked"
	E02 "Internal error V18"
	E03 "Low mains voltage" (LP)
	E04 "High mains voltage" (HP)
	E06 "Critical overheating of electronic parts"
	W01 "Sensor signal absent"
	W02 "Twin communication absent"
	W03 "Overheating of electronic parts"
	W04 "Fault in cooling systems"



