



AHW AHW(S) Hot water circulator pump

INSTALLATION AND OPERATING INSTRUCTIONS



| HIGH-EFFICIENCY BLDC-MOTOR CIRCULATORS |

EC Declaration of Conformity

Declare that machinery described:


AHW,AHW(S) Hot water circulator pump

Conform to the following directive:

2014 / 30 / EU Electromagnetic Compatibility Directive
2014 / 35 / EU Low Voltage Directive
2006 / 42 / EU Machinery Directive
2009 /125/ EU Ecodesign requirements for energy-related products

Refer to the following standards:

EMI:
EN 55014-1: 2006/A2: 2011
EN 61000-3-2: 2014
EN 61000-3-3: 2013
EN 55014-2: 1997/A2: 2008
EN EN 60335-1/-2-51
EN 809



Symbols used in this document

Warning



- Prior to installation, read these installation and operating instructions. Installation and operation must comply with local regulations and accepted codes of good practice.
- The use of this product requires experience with and knowledge of the product. Only licensed or trained installers should install this product.
- For supply Connection, use wires acceptable for at least 90°C (194°F).
- Risk of shock: This pump has not been tested for use in swimming pools or marine areas.
- To reduce risk of electric shock: Unplug before servicing, see instructions for proper installation, connect to a properly grounded, grounding type receptacle only.
- For indoor and outdoor use.
- Use copper conductors only.
- Do not install with motor above or below pump body.
- Do not submerge.
- Do not run pump dry.

Warning



The safety instructions must be followed to prevent potential personal injury.

Caution



The safety instructions must be followed to prevent potential malfunction or damage to the equipment.

General description

The AHW(S) circulator is designed for circulating water in closed hydronic heating systems or potable water systems.

Underfloor heating systems, single and double-heating systems, Ground source heat systems, Boiler/Solar water heating systems, Hot-water recirculation systems, Water circulation for cooling air-conditioning systems, High temperature liquids recycle systems, One-pipe (series) systems, and Two-pipe (parallel) systems

AHW(S) circulators incorporate with variable speed control technology with a AHW(S) motor, enabling optimum energy efficiency and occupant comfort, with built-in control algorithms that can adapt to continuously changing system requirements with $EEL \leq 0.23$ according to 2009/125/EC Directive. The AHW(S) Circulator features a user-friendly front-mounted control panel and wiring box for ease of installation.

Benefits of installing an AHW(S) circulator

Eight different modes of operation to suit different system requirements:

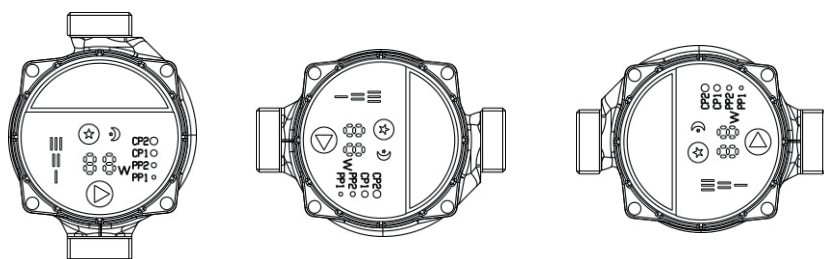
- Easily selectable from the display.
- Modes include Sensor less demand-based control.
- Power consumption clearly displayed.

Installation

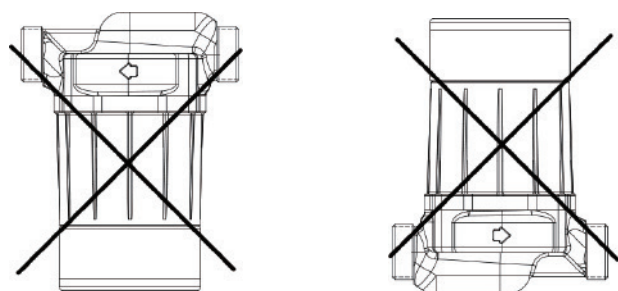
Follow the arrow on the pump casing for direction of water flow, it may be installed at vertical or horizontal piping, but be sure the motor shaft must be always at horizontal position.

Arrows on the pump housing indicate the liquid flow direction through the pump.

Correct installations



Incorrect installations



Warning

The pumped liquid may be scalding hot and under high pressure. Drain the system or close the isolating valves on either side of the pump before the screws are removed.

Caution

After the position of the control box has been rotated, refill the pump with system liquid before startup.

Electrical connection

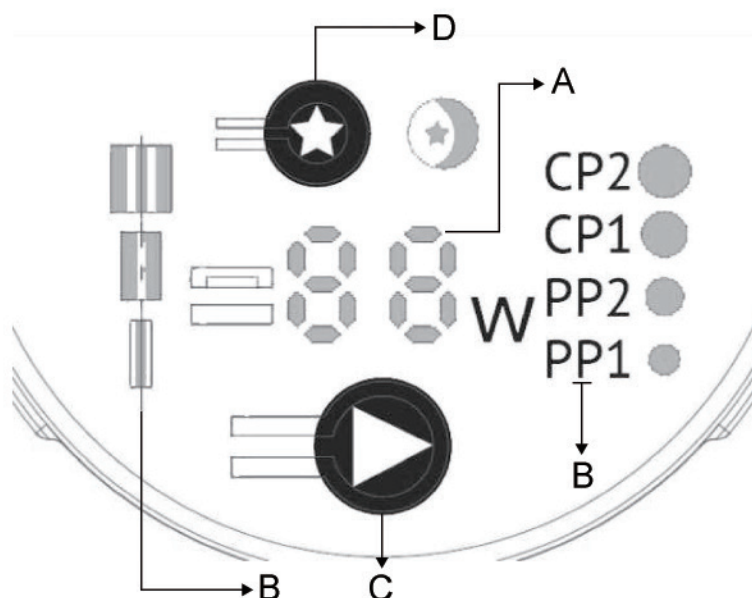
The electrical wiring must be installed strictly in accordance with the regulations of national electrical codes and local codes.

- Electrical installation should be conducted by a qualified electrician.
- Always make sure electric power is disconnected before wiring the circulator.
- The electrical connections and protection must be carried out in accordance with local regulations.
- Warning

The pump must be connected to ground.

Control panel

Elements on the control panel



The control panel on the AHW(S) Circulator includes:

position	description
A	Display showing the actual pump power consumption in Watt.
B	Seven light fields indicating the pump setting
C	Mode Select button for changing pump setting
D	Night version button

First power-up

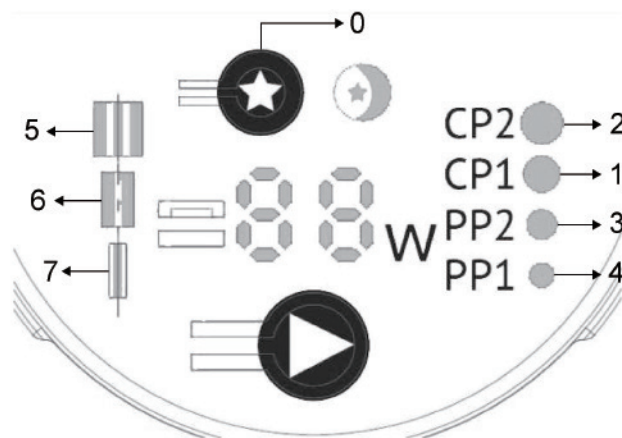
The display is on and in Function III mode when the electricity has been switched on.

The display shows the actual pump power consumption in Watts.

Display

The AHW(S) Circulator has eight pump settings which can be selected with the press button. Every time the Mode button is pressed the pump setting is changed to the next option.

A full cycle is Start button pressed. The selected pump setting is indicated by one of eight different light fields

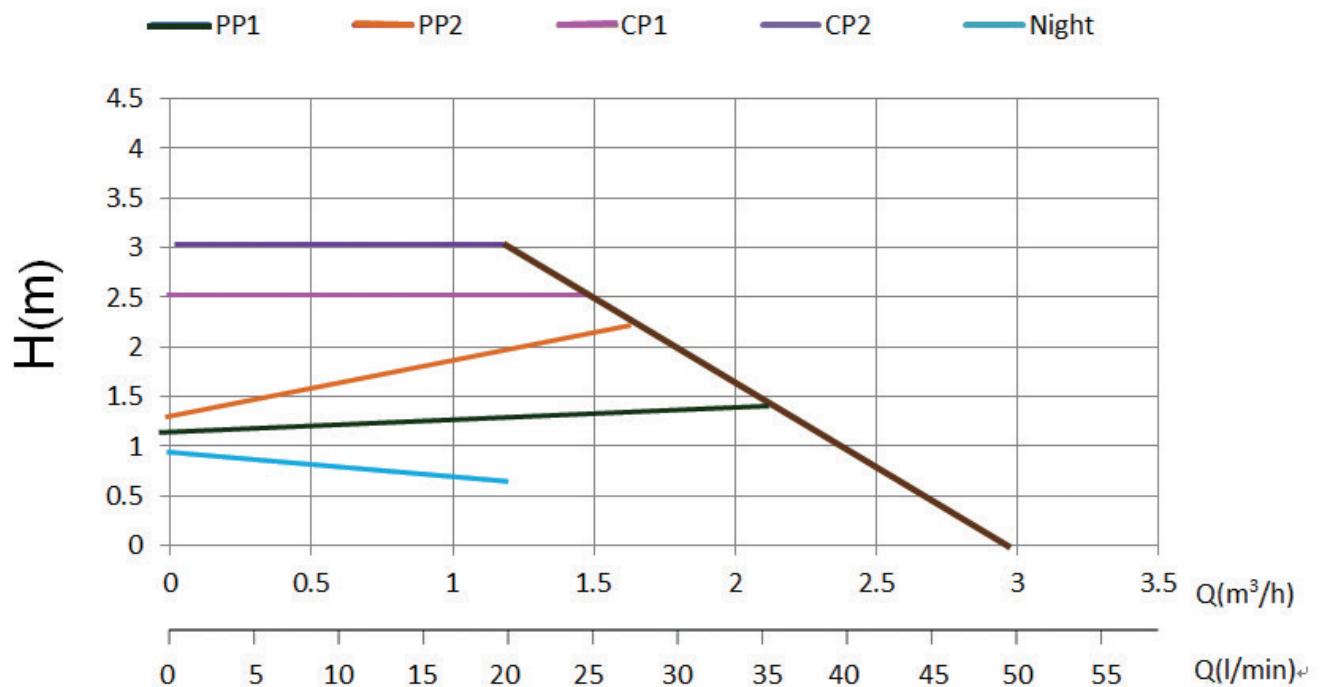
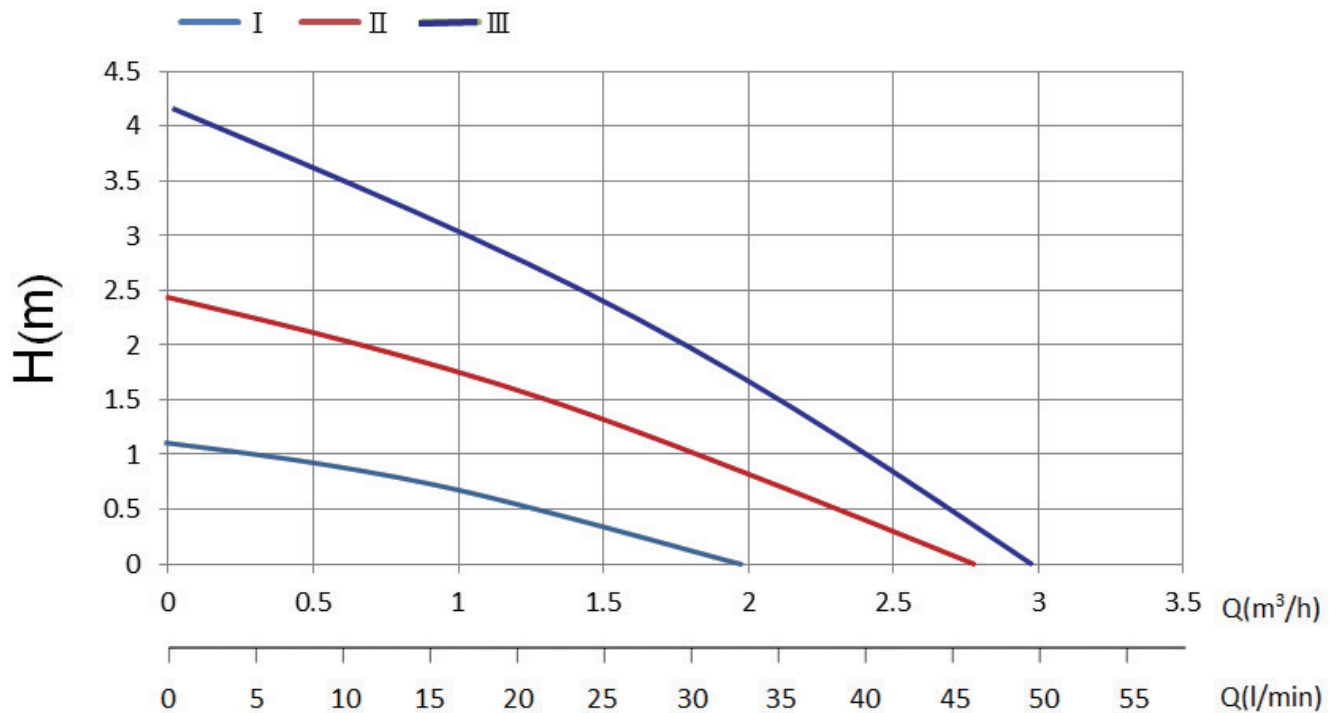


position	description
0	Night version
1	Lowest constant pressure curve
2	Highest constant pressure curve
3	Lowest proportional pressure curve
4	Highest proportional pressure curve
5	Highest constant speed III
6	Medium constant Speed II
7	Lowest constant speed I

Start Up

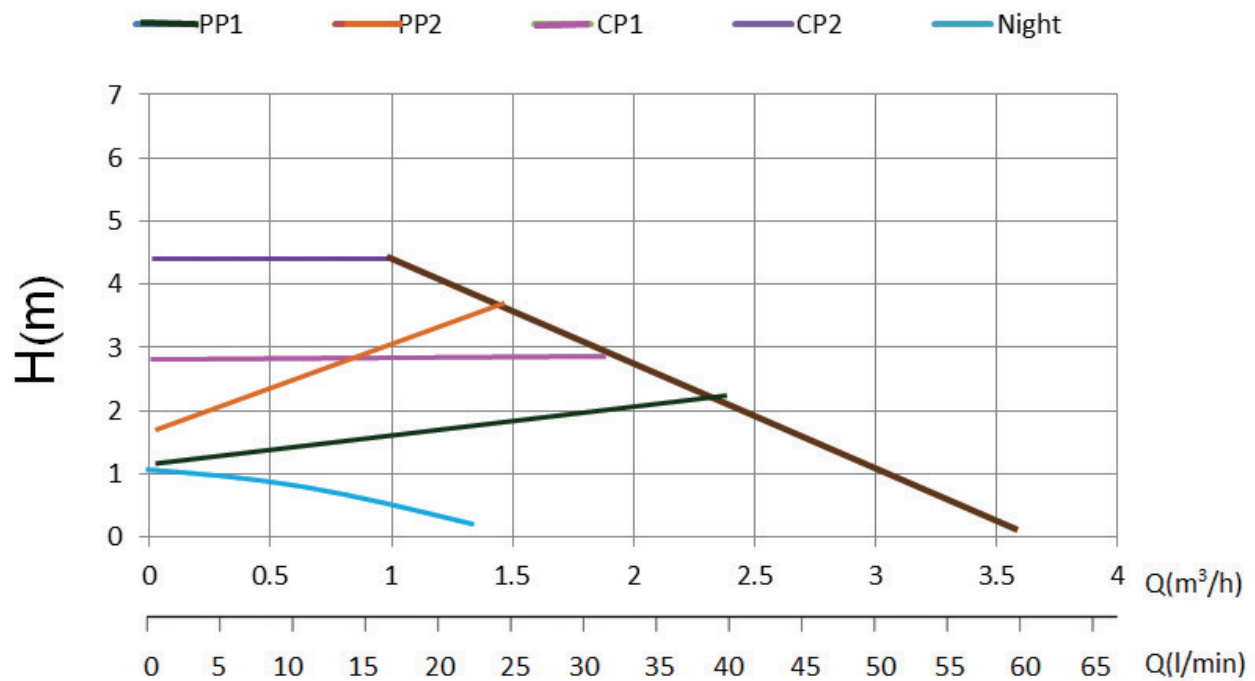
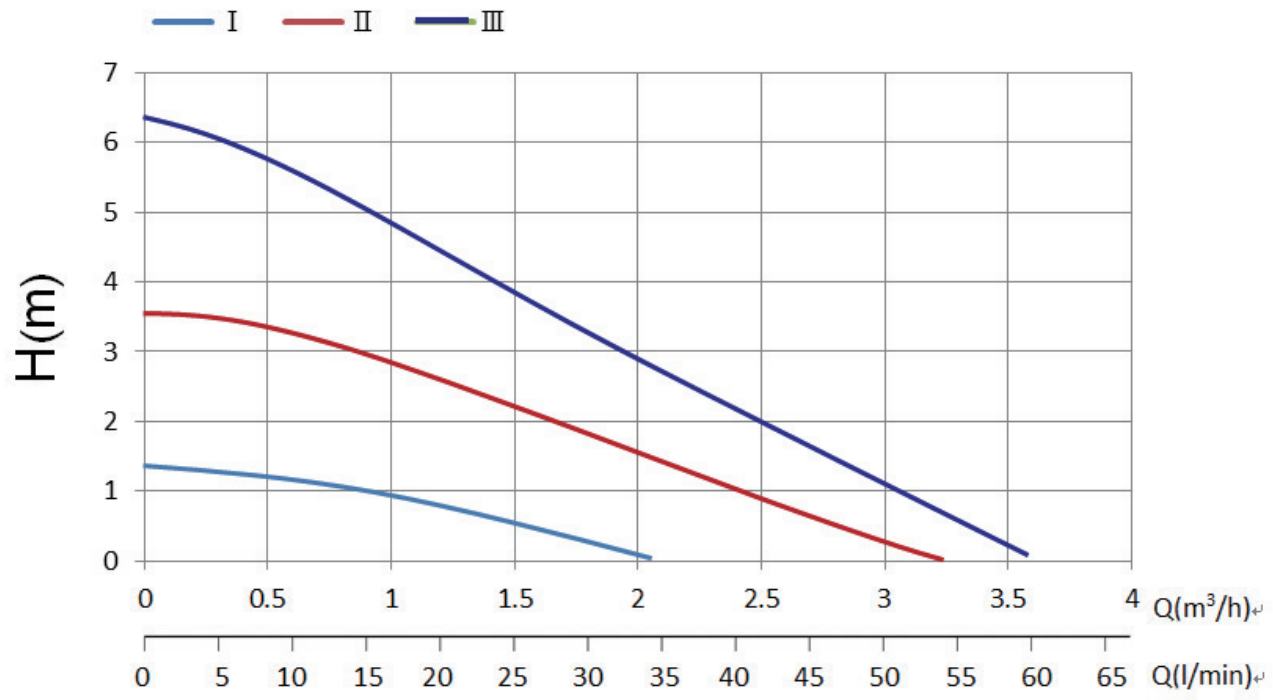
Pump settings and pump performance

4 Meter pump curve



Pump settings and pump performance

6 Meter pump curve



Optimum setting

setting	pump curve	function
Night version	NIGHT SETBACK TURNDOWN	When the pump operates in night mode, it automatically switches between the selected operating curve in the mode and night curve. When the night mode is prepared for operating, its icon illuminates and the pump operates in the selected operating curve of the mode. The control panel shows –C while running at the setting.
Function PP1	Lowest proportional pressure curve	The operation point of the pump will follow the lowest pressure curve depending on the load demand.
Function PP2	Highest proportional pressure curve	The operation point of the pump will follow the highest proportional-pressure curve depending on the load demand.
Function CP1	Lowest constant pressure curve	The operation point of the pump will follow the lowest constant-pressure curve depending on the load demand.
Function CP2	Highest constant pressure curve	The operation point of the pump will follow the highest constant-pressure curve depending on the load demand.
Function III	Highest constant speed III	Speed III is the highest constant speed performance curve of AHW(S) Circulator and it also presents the max performance capability of the pump.
Function II	Medium constant Speed II	Speed II is the medium constant speed performance curve of AHW(S) Circulator.
Function I	Lowest constant speed I	Speed I is the lowest constant speed performance curve of AHW(S) Circulator.

Self protection

1. Overload protection

Overload leads low RPM to avoid high working current. The motor turns off on account of low RPM, and it attempts to turns on.

2. High Temp. protection

If the Temp. of motor reaches 120C, it stops. After the temp. of motor cooling down, it turns on.

3. Motor Clog protection

When motor is clogged, it stops working. The motor attempts to turns on, but it not forces to start the motor.

4. Short circuit protection

When short circuit protection happened, the control panel shows E1 or E7

5. AC overvoltage protection

The motor stops after it detecting AC overvoltage. After AC voltage comes to stable, the pump turns on

6. Starting diagnosis

Motor attempts to turns on when starting failure.

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

*Motor protection: The pump requires no external motor protection.



Warning

Before starting any work on the pump, make sure that the electricity supply has been switched off and that it cannot be accidentally switched on.

Error Code	Cause	Remedy
E0、E1、E7、 E8、E9	PC board error or system overload	Change the PC board

8. Technical data

Model	Freq. (Hz)	Phase ø	Voltage	Max.Flow (L/min)	Max.Head (m)	Max.Power (W)	Max.Working Pressure(PSI)	Max. Water temp	Max. Am temp
AHW(S)-25-40-130	50/60	Single	220-240V	49	4	23	145	110°C	40°C
AHW(S)-25-40-180	50/60	Single	220-240V	49	4	23	145	110°C	40°C
AHW(S)-25-60-130	50/60	Single	220-240V	60	6	40	145	110°C	40°C
AHW(S)-25-60-180	50/60	Single	220-240V	60	6	40	145	110°C	40°C

S = stainless steel version

Pumped liquids: Clean water, non-corrosive and non-abrasive liquids

Enclosure Protection Class : IP 42
Long time use temperature 110°C(176°F)

“Noise level information”
Equivalent A-weighted Sound pressure level according to EN ISO 3746
less than 50.0
Uncertainty, K in decibels: 4.0 dB (A) according to EN ISO 4871”

