VEVOR

Upgrade · The Home Creator Way

LPS25-11PA/180

VEVOR Support Center

CIRCULATOR PUMP

MODEL:LPS25-11PA/180

VEVOR | Upgrade
The Home Creator Way

MODEL:LPS25-11PA/180



This is the original instruction, please read all manual instructions carefully before operating. VEVOR reserves a clear interpretation of our user manual. The appearance of the product shall be subject to the product you received. Please forgive us that we won't inform you again if there are any technology or software updates on our product.

CATALOGUE

1.ATTENTION

2.OVERVIEW

3.APPLICATION

4.THE INSTALLATION

5.ELECTRICAL CONTINUITY

6.THE CONTROL PANEL

7.PUMP SETTING

8.A SYSTEM IN WHICH A BYPASS VALVE IS INSTALLED BETWEEN INLET AND BACKWATER LINE

9.START

10.PWM SIGNAL TYPE AND EXTERNAL CONTROLLER SIGNAL AND FLOW ESTIMATION

ATTENTION

1.Before installation and use, you must read this installation instruction carefully

2.Any failure to comply with the safety warning marks may cause personal injury, water pump damage and other property losses in the future, the factory will not bear any responsibility and compensation

3.Installers and operators must comply with local safety regulations

4.The user must confirm that the product shall be installed and maintained by a person who is proficient in this manual and has a professional qualification certificate

5.Do not install the pump where it is wet or may be splashed

6.In order to maintain the pumps convenient, the globe valve should be installed on both sides of the pump inlet and outlet

7.During installation and maintenance, the water pump power should be cut off

8.Domestic hot water circulation, must use copper or stainless steel pump pump body

9.Non-softening water should not be frequently added in the heating pipeline, so

as not to cause calcium increase in the circulating water in the pipeline, which has blocked the impeller

10.Do not start the pump without pumping liquid

11.Some models cannot be used for dietary water

12.The pumped liquid may be high temperature and high pressure liquid.
The liquid in the system must be emptied or the globe valves on both sides of the pump must be closed before the pump is moved and removed to avoid burns.

13.If the exhaust bolt is removed, high temperature and high pressure liquid will flow out. You must be ensure that the liquid will not cause personal injury or damage to other parts

14.In summer or high ambient temperature, please pay attention to ventilation to prevent condensation, resulting in electrical failure

15.In winter, if the pump system is not running or the ambient temperature is below 0℃ , the liquid in the pipeline system should be drained to avoid the freezing crack of the pump body.

16.If the water pump is not used for a long time, please close the water pipe valve at the inlet of the water pump and cut off the power supply of the water pump.

17.If the cable cord is damaged, it must be replaced by a professional.

18.If the motor is hot or abnormal, please immediately close the valve of the inlet end pipe of the water pump, cut off the power supply of the water pump, and immediately contact the local dealer or service center

19.If the water pump fault cannot be eliminated according to the instructions in this manual, please immediately close the water pipe valve at the inlet end of the water pump, cut off the power supply of the water pump, and immediately contact the local distributor or service center.

20.The product should be placed out of reach of children. After installation, isolation measures should be taken to prevent children from touching it

21.The product should be stored in a dry, ventilated, cool place at room temperature.

WARNING



Before starting the installation, you must read the equipment installation and operation instructions carefully. Equipment must be installed and used in accordance with local regulations and good operating practices.

WARNING



Persons (including children) who are physically impaired, insensitive or have poor mental ability and lack of experience and relevant knowledge must be under the supervision and guidance of the person responsible for their safety before using the pump.

2.OVERVIEW CATALOGUE:

2.1 Variable Frequency Circulating Pump
2.2 The advantages of installation of Variable Frequency Circulating pump

Variable Frequency Circulating Pump

variable frequency circulating pump is specially used for circulating water in home heating system and domestic hot water system frequency conversion pump is most suitable for the following systems

- Floor heating system
- PWM Input Signal Type A (Heating)
- PWM Input Signal Type C (Solar)
- Single line heating system
- Dual line heating system

frequency conversion pump is equipped with permanent magnet motor and differential pressure controller, which can automatically and continuously adjust the pump performance to meet the actual needs of the system.

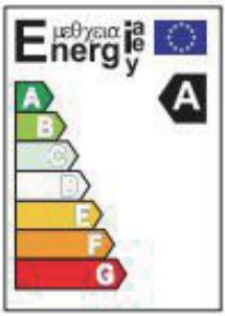
frequency conversion pump front equipped with control panel, easy for users to operate. See chapter 6, control panel, and chapter 15 features.

2.3The advantages of installation of Variable Frequency Circulating pump

Installing a variable frequency circulating pump means easy installation and start-up

•variable frequency pump with AUTO adaptation mode (factory setting)
In most cases, the pump starts without any adjustment. And automatically adjust to the actual needs of the system.
High comfort
•The pump and the whole system operate with very low noise Low energy consumption
•Compared with traditional circulating pumps, energy consumption is very low. frequency conversion circulating pump, minimum energy consumption up to 5W





Energy efficiency label. Class A

1. Pump body 2. The control panel
3. Terminal box 4. Cable socket
5.Signal line(Blue-out Black-com Brown-in)

3.APPLICATION CATALOGUE

3.1 System type
3.2 Pumping the liquid
3.3 The system pressure
3.4 The relative humidity of the air(RH)
3.5 Protection grade
3.6 Inlet pressure

3.1 System type



Figure 2: Pumping liquid with working conditions

variable frequency circulating pump is suitable for

•The working point of the pump is required to be set as the optimal constant flow system or variable flow system

•Piping temperature variable system

3.2 Pumping the liquid

Clean, thin, non - corrosive, non - explosive, no solid particles, no fiber, no mineral oil liquid. As shown in figure 2

In the heating system, the pumped liquid should meet the requirements of qualified water quality standard in the designed heating system. In the domestic hot water system, frequency conversion pump is only suitable for water hardness less than 14 degrees DH

WARNING

Variable frequency pumps should not be used for flammable liquids such as diesel, gasoline or similar liquids

3.3The system pressure

Max pressure: 1.0 Mpa (10ba).As shown in figure 2

3.4 The relative humidity of the air(RH) Max is 95%.As shown in figure 2

3.5 Protection grade

IP 44. As shown in figure 2

3.6 Inlet pressure

The minimum inlet pressure is related to the liquid temperature.

As shown in figure 2

The liquid temperature	Minimum inlet pressure	
	<Mpa>	<ba>
≤75℃	0.005	0.05
90℃	0.028	0.28
110℃	0.108	1.08

4.THE INSTALLATION CATALOGUE:

4.1 The installation

4.2 Location of terminal box

4.3 Change the location of the terminal box

4.4 Heat insulation of pump body

4.1 The installation



Figure 3 : Install frequency conversion circulating pump

The arrows on the pump body indicate the direction in which the liquid flows through the pump body

1. When the frequency conversion pump is installed in the pipeline, two spacers provided shall be installed. See figure 3. Location A.

2. When installed, the motor shaft should be in a horizontal position, see figure 3, position B

4.2 Location of terminal box

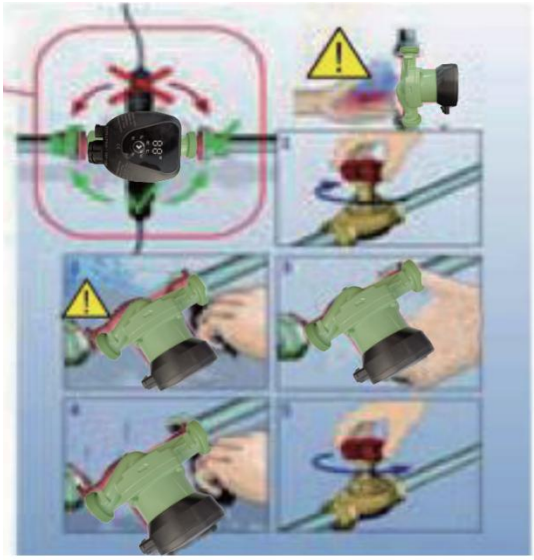


Figure 4 Location of terminal box

WARNING

The pumped liquid may be high temperature and high pressure liquid. Before removing the hexagon socket bolts, drain the system or close the globe valves on both sides of the pump

NOTICE

After changing the position of the junction box, the pump shall not be started until the system is filled with pumped fluid or the globe valve 1s opened

4.3 Change the location of the terminal box

- The junction box can be rotated at 90 degrees.
- Please refer to figure 4 for the possible or permitted location of the junction box and the steps to change the junction box
- Program and Procedure

1.Loosen and remove the four hexagon socket bolts that hold the pump head with T key

2.Rotate pump head to desired position

3.Return the four hexagon socket bolts and tighten them in the cross direction

4.4 Heat insulation of pump body



Figure 5 Heat insulation of pump body

NOTICE

Limit the heat loss of pump body and pipeline

Insulate pump body and management to reduce heat loss in pump and piping. As shown in figure 5

NOTICE

The junction box and control panel shall not be isolated or covered

5.ELECTRICAL CONTINUITY

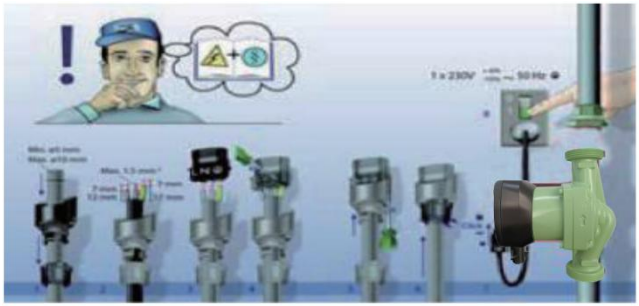


Figure 6 ELECTRICAL CONTINUITY

WARNING

The pump must be linked to the earth wire

The pump must be connected to an external power switch with a minimum clearance of 3 mm between all electrodes.

Electrical connection and protection shall be carried out in accordance with local regulations

- Variable frequency pump have no need the external motor protection
- Check whether the power supply voltage and frequency are consistent with the value of the water pump nameplate, see section 15.1 nameplate
- Use the plug supplied with the pump to connect the pump to the power supply. See figure 6, steps 1 to 8
- The indicator light on the control panel indicates that the power is connected

6.THE CONTROL PANEL CATALOGUE

6.1 Components on the control panel

6.2 Display

6.3 Show the trooper area of the pump setting

6.4 The button to start the pump setting

6.1 Components on the control panel

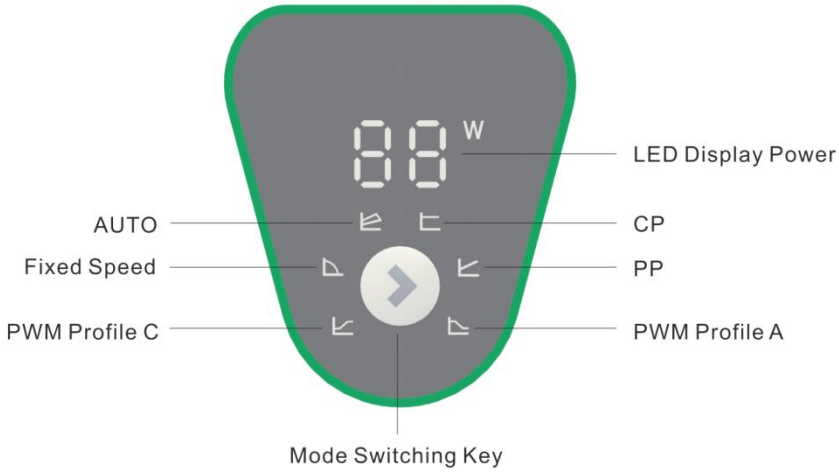


Figure 7 THE CONTROL PANEL

The variable frequency pump control panel includes

NO.	Instructions
1	A display that displays the actual power consumed by a pump in watts
2	8 light areas for the pump setting
3	Light area in night mode
4	The button to enable night mode
5	The button for pump Settings

6.2 Display

Mien the power is turned on, the display at position 1 will work.

During operation, the display value to Watt as a unit showing the actual power consumption of the pump.

A fault that prevents the pump from working properly (for example,a blockage) is indicated on the display as “--”.

If there is a failure, you must disconnect the power supply, in order to troubleshoot, after the failure, re-connect the power supply and start the pump.

6.3 show the light area set by the pump

intelligent has eight kinds of settings and can be selected by button.please refer to figure 7,the position 5

Pump settings are represented by eight different lighting areas, as shown in figure 8.

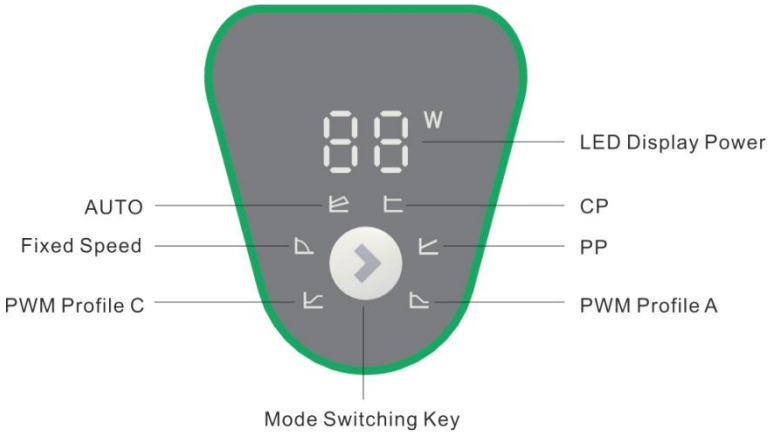


Figure 8 eight lighting areas

ATTENTION

If the intelligent pump has been set speed Ⅰ mode, speed Ⅱ or speed Ⅲ mode, auto night mode cannot be selected.

6.4Select the pump setting button

Each press of the button once, as shown in figure 7, Position 5, the pump setting changes a mode.

For a cycle of eight presses, see section 6.3,《indicating the light area of the pump setting》

7. pump setting Catalogue

7.1 Set up the water pump according to the system type

7.2 pump control



7.1 Set up the water pump according to the system type

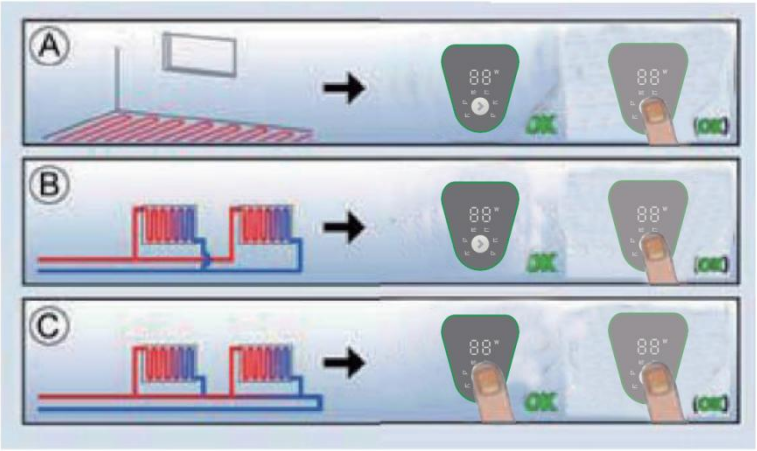


Figure 9 selection of pump settings by system type

Factory setting auto=adapting mode

Several optional pump settings are recommended, as shown in figure 9:

Position	system type Optimal Setting	pump setting Or other optional settings
A Floor Heating System	AUTO	Maximum constant pressure curve (CP2 mode) Or Minimum constant pressure curve(CP1 mode)
B Double-pipe heating system	ALJTO	Maximum proportional pressure curve (PP2mode)
C Single pipe heating system	(PP1mode)	(PP2mode)

AUTO (Adaptive mode) Heating System installed under the floor and double pipe system

AUTO (Adaptive mode) According to the actual heat demand of the system, automatically adjust the pump performance. As the performance is gradually adjusted, it is recommended that the pump be placed in "AUTO" mode for at least one week before changing its setting.If you choose to change back to "auto" mode, the intelligent pump can remember the vaguely auto-adaptive mode setting point, continue to automatically adjust the performance

Pump setting changed from optimal to other optional settings

Heating Systems are "slow" systems that can not operate optimally in minutes or hours. If the optimal setting of the pump fails to achieve the desired heat distribution in each room, the pump setting should be changed to other settings. For the relationship between pump settings and performance curves, see Chapter 11《pump settings and pump performance》.

7.2 Pump control

During the operation of the pump, the pump is controlled according to the principle of "proportional pressure control" (PP) or "constant pressure control" (CP).

Under these two control modes, the pump performance and corresponding Power consumption are adjusted according to the heat demand of the system.

Proportional pressure control

Under these two control modes, the pressure difference between the two ends of the pump is controlled by the flow rate. The proportional pressure curve is Shown in the Q/H diagram in PP1 and PP2, see Chapter 11《pump settings and pump performance》 Constant pressure control

In this control mode, the pressure difference between the two ends of the

8. A SYSTEM IN WHICH A BYPASS VALVE IS INSTALLED BETWEEN INLET AND BACKWATER LINE Catalogue

8.1Purpose of bypass valve

8.2 Manually operate the bypass valve

8.3 Automatic bypass valve (temperature controlled)

8.1 Purpose of bypass valve

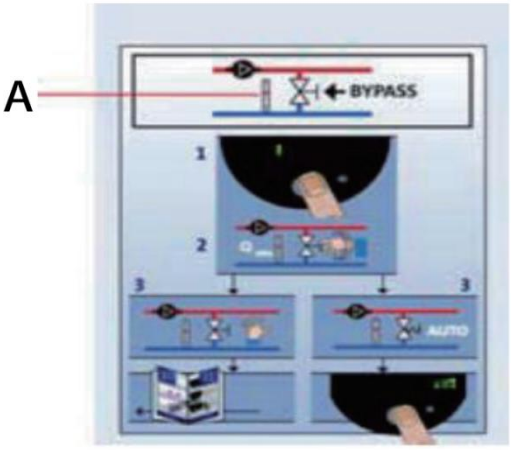


Figure 11. System with bypass valve

Bypass valve

The by-pass valve ensures that heat from the boiler is distributed when all valves in the local panel heating circuit or the temperature control valves in the radiator are closed

Components in the system:

•Bypass valve

•Flow meter, position A

Minimum flow must be ensured when all valves are closed.

The pump setting depends on the type of bypass valve provided, either manually operated or temperature-controlled

8.2 Manually operate the bypass valve

Follow these steps:

1.When adjusting bypass valve, the pump shall be in setting I (speed I mode).The minimum flow rate of the system (Q min.) must be maintained at all times. Refer to manufacturer's instructions for bypass valves

After the bypass valve has been adjusted, the pump shall be set according to chapter 7 "pump setting"

8.3 Automatic bypass valve (temperature controlled) Follow these steps:

When adjusting bypass valve, the pump shall be in setting I (speed I mode).The minimum flow rate of the system (Q min.) must be maintained at all times. Refer to manufacturer's instructions for bypass valves.

After the bypass valve has been adjusted, set the pump to the lowest or highest constant pressure mode. For the relationship between pump setting and performance curve, see chapter 11, pump setting and pump performance

9. START CATALOUGE

9.1 Before the starting

9.2 Pump exhaust

9.3 Exhaust the heating system

9.1 Before the starting

Before starting the pump, make sure the system is full of liquid and the gas has been drained. The pump inlet must meet the required minimum inlet pressure. See chapter 3 "application" and chapter 13 "technical data and installation size"

9.2 Pump exhaust

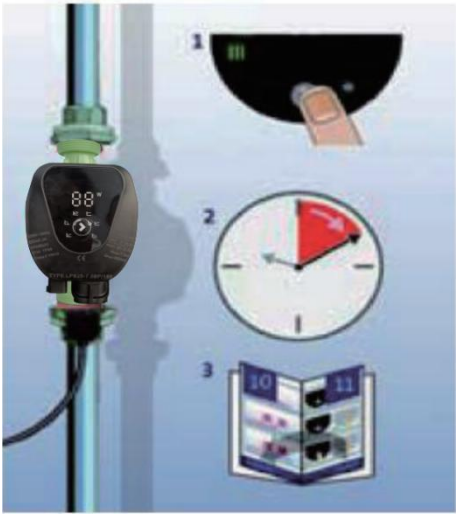


Figure 12. Pump exhaust

Variable frequency pump with self - exhaust function. Do not exhaust before starting. The gas in the pump may cause noise. After a few minutes of operation, the noise will disappear

According to the scale and structure of the system, the variable frequency pump is set to speed III mode in a short time to quickly discharge the gas in the pump

After the pump exhaust and the noise disappeared, according to the recommended instructions for the pump Settings. See chapter 7

“ pump setting”

WARNING

The pump should not run idle without liquid

Do not start the pump for system exhaust. Participating in "exhaust for heating system" on 10.3

9.3Exhaust the heating system

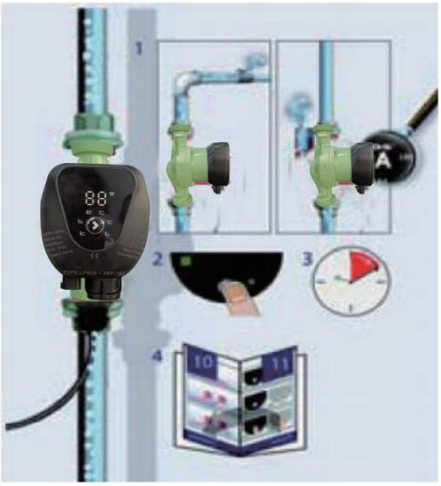


Figure 13. Exhaust the heating system

The exhaust mode of the heating system can be

•Through the automatic exhaust valve installed above the pump (1)

•Pump body with gas separator (2)

In heating systems that often contain a large amount of gas, Lonkey company recommends installing a pump with a gas separator in the pump body, model LPS XX-XXBP. After the heating system is filled with liquid, follow the following steps for exhaust.

1.Open the automatic exhaust valve

2. Set the pump to speed lll mode

3.Run the pump for a period of time, depending on system size and structure.

4.After the pump exhaust, the noise (may be generated) disappeared, according to the recommended instructions for the pump Settings. See chapter 7 " pump setting "

5.Repeat the above steps if necessary

NOTICE

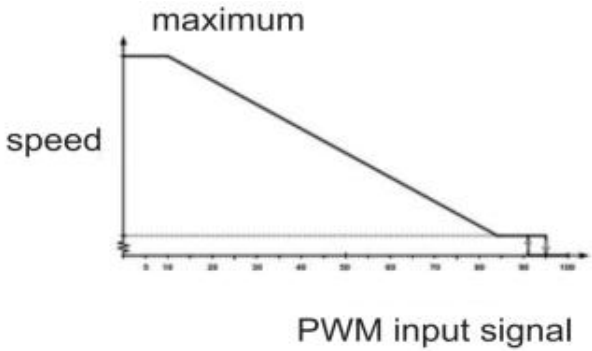
The pump should not run idle without liquid

10.PWM SIGNAL TYPE AND EXTERNAL CONTROLLER SIGNAL AND FLOW ESTIMATION

10.1 PWM signal type

PWM Input Signal Type A (Heating)

In the PWM signal percentage (duty ratio) direction,if the input signal fluctuates up and down the transition point.the lag can prevent the circu lation pump from starting and stopping.When the percentage of PWM signal is low.the circulation pump spees is high dor safety reasons.If the cable in the gas boiler system is damaged,the pump will continue to operate at maximum speed to transfer heat from the primary heat exchanger. This is also suitable for heating circulatind pumps to ensure that the pump is able to transfer heat in the event of cable damage.



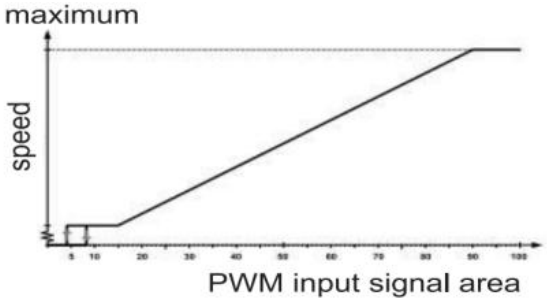
PWM Input Type A (Heating)

PWM Input [%]	Pump condition
≤ 10	Maximum speed:Maximum
> 10 / ≤ 84	Variable speed:minimum to maximum
> 84 / ≤ 91	Minimum speed:N
> 91/95	Lag zone:Start/stop
> 95 / ≤ 100	Standby mode:Stop

PWM Input Signal Type C (Solar)

When the percentage of the PWM signal (duty ratio) is low,the hysteresis can

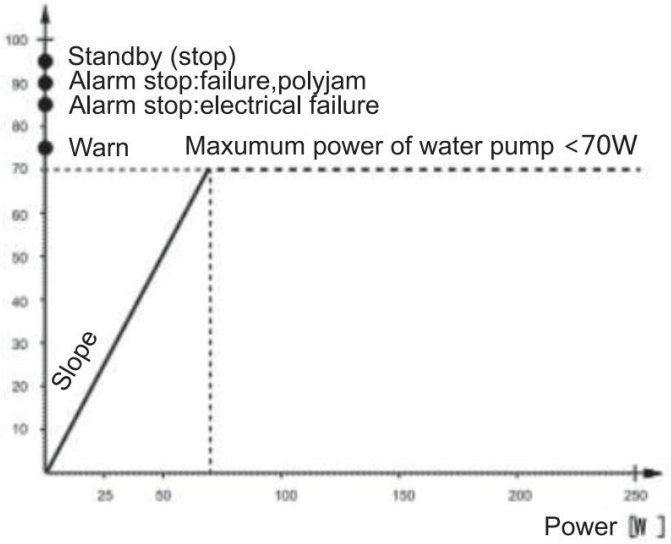
prevent the circulating pump from starting and stopping if the input signal fluctuates up and down the transition point.When there is no PWM signal percentage,the circulating pump will stop for safety reasons.If the signal is lost.for example due to cable damage,the circulating pump will stop to avoid overheating of the solar thermal syatem.



PWM Input Type C (Solar)

Alarm

The alarm output signal is available because some PWM output signals are dedicated to alarm information. If the measured power supply voltage is below the specified voltage range, the output signal is set to 75%. If the rotor is locked due to sediment, the output signal is set to 90%, because this alarm has a higher priority.



PWM feedback signal-Power consumption

PWM Output signal	Q T [s]	Pump information	D T [s]	Priority
95	**0**	PWM signal standby (stop)	**0**	**1**
90	**30**	Alarm,stop,blocking error	**12**	**2**
85	**0-30**	Alarm,shutdown,electrical error	**0-12**	**3**
75	**0**	Warn	**0**	**5**
0-10		0-70W (Footwear 1 W % PWM)		**6**
Output frequency:75Hz±5%				

Note:QT=authentication time,DT=unauthentication time

10.2 External controller signa

UPM External Control Modes and Signals

Control Principle

UPM3 and UPM3FLEX circulation pumps are controlled by a digital low-voltage pulse width modulation (PWM) signal, with the operating speed depending on the input signal. UPM3HYBRID circulation pumps can be controlled internally or externally and can be set to either internal o「external control. The p「e -configured curve of the pump determines the rate of change of the pump speed. These communication signals are standardized in the VDMA E inherits lat! 24244 "Wet-running circulation pumps - PWM control signal specifications"

Control Signals

Digital low-voltage PWM signal

The square wave PWM signal is suitable for frequencies ranging from 100 to 4,000 Hz. The PWM signal is used to select the speed (speed command) and serves as feedback signal. The PWM frequency of the feedback signal is fixed at 75 Hz in the circulation pump

Duty ratio

d%=100x t/T

Example	Rated values
T=2ms, (500 Hz)	U H= 4-24 V
t = 0.6 m s	UL ≤ 1V
d% = 100x0.6/2 = 30%	IH S 10 mA (depending on UH)

Example

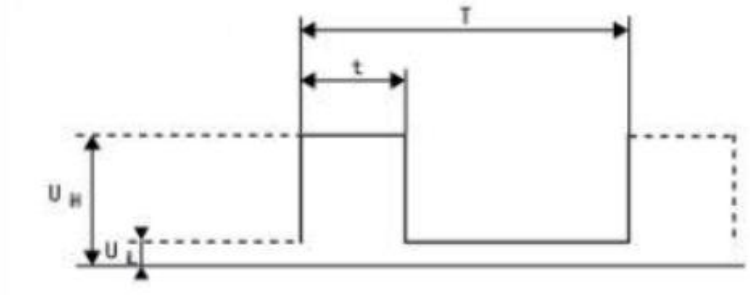


Figure 11 PWM signal

abbreviation	Description
T	Time cycle [sec.]
d	Duty ratio [t/T]
U_H	High level input voltage
U	Low-level input voltage
I_H	High level input current

Interface

TheUPM3PWM interface includes an electronic component that connects an external control signal to the circulation pump. The interface converts the external signal into a signal type that the microprocessor can understand.

Furthermore, the interface ensures that when the power is connected to the circulation pump, the user does not come into contact with dangerous voltages when touching the signal wire

Note: "Signal reference" is the signal reference without protection ground connection

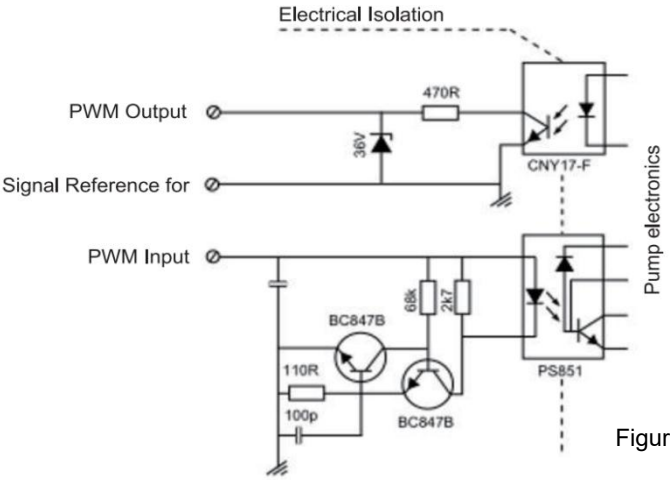


Figure12 Schematic,interfrace

10.2 External controller signal

PWM Feedback Signal - Flow Estimate (on request)

Depending on the request, the PWM feedback signal can also be used to indicate the flow rate of the circulating pump on a given pump housing The accuracy of the feedback signal depends on the operating point and the medium temperature, but it is a good indication of the actual flow rate Example: In this case, a 0-70% PWM output range shows a flow rate between 0 and 2.1 m^3 /h with a slope of 0.03m^3 /h/% PWM.

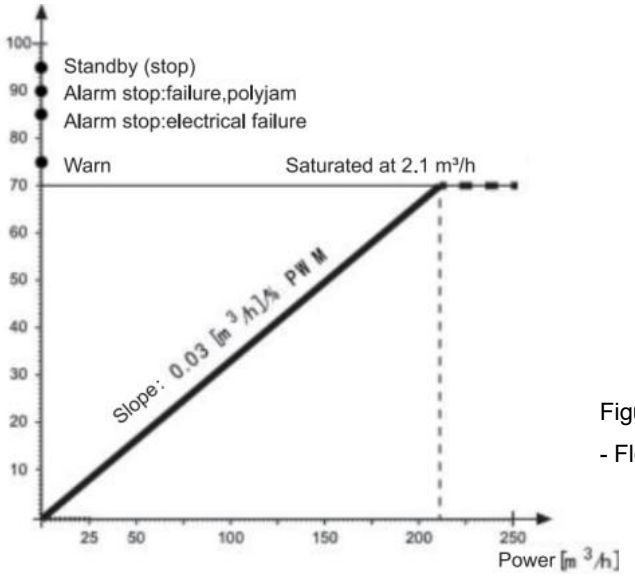
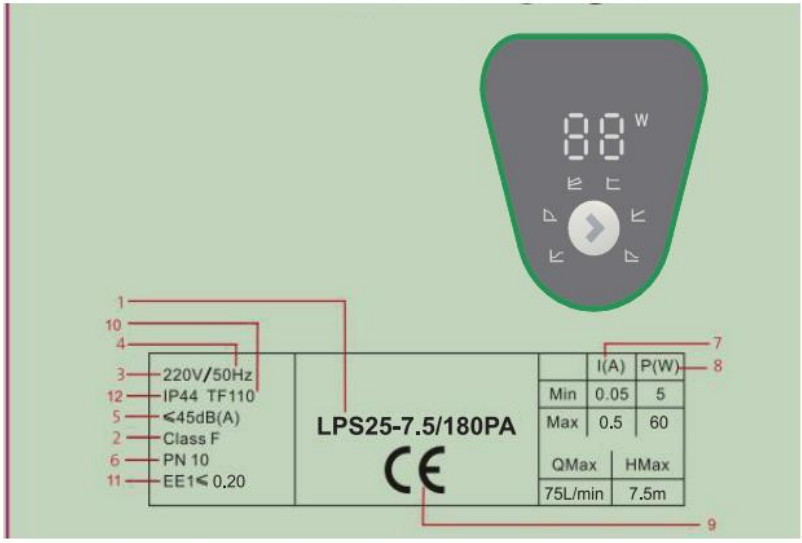


Figure 16 PWM Feedback Signal - Flow Estimate

Data

Maximum rating	Symbol	Range
PWM frequency input of high speed optocoupler	f	100-4000 Hz
Guaranteed standby power consumption		< 1 W
Rated input voltage - High level	U_H	4–24 V
Rated input voltage - Low level	U_L	< 1 W
High level input current	I_H	< 10 m A
Input duty ratio	PW M	0–100 %
PWM frequency output,open collector	f	75 Hz ± 5%
Power output signal accuracy	-	± 2 % (PWM)
output duty ratio	PW M	0–100 %
Collector emitter breakdown voltage on the output body tube	U_C	< 70 V
Output collector current on the body tube	I_C	< 50 mA
Maximum power disspation on the output resistor	P_R	125 m W
Zener diode operating voltage	U_Z	36 V
Zener diode maximum power dissipation	P_Z	300 m W

Pig II



NAMEPLATE

	Explain	crumb	Specification
1	Water pump model	7	Current rated (ampere) Minimum mode minimum flow(ampere) Maximum mode maximum flow (ampere)
2	Insulation grade	8	Input power Pl (watt) Minimum mode minimum input power Pl (watt) Maximum mode maximum input power Pl (watt)
3	Voltage (V)	9	CE Peugeot
4	frequency (HZ)	10	Temperature grade
5	decibel	11	Energy efficiency grade
6	System pressure	12	Level of protection

SPECIFICATION PARAMETERS

Model	Input	Max Flow [LPM]	Max Head [M]	Power [W]
LPS25-11PA/180	AC220-240V 50Hz	117	11	140

1.Warning-To reduce the risk of injury, user must read instructions manual carefully.
2.The product complies with relevant standards and regulations. Installation of this device must comply with all applicable regulations, and it should only be operated in well-ventilated areas. Please read the user manual before installing and using this equipment.
3.This appliance is not intended for use by persons (including children) with reduced physical, sensory or mental capabilities, or lack of experience and knowledge, unless they have been given supervision or instruction concerning use of the appliance by a person responsible for their safety.
4.Children shall not play with the appliance.
6.This appliance is intended to be used in household and similar applications such as:
-staff kitchen areas in shops, offices and other working environments;
-farm houses;
-by clients in hotels, motels and other residential type environments;
-bed and breakfast type environments.
8.Please use the product according to the intended use, warn of potential injury from misuse.
9.Switch off the appliance and disconnect from supply before changing accessories or approaching parts that move in use.
10.always disconnect the appliance from the supply if it is left unattended and before assembling, disassembling or cleaning
11.WARNING: Only use the supply unit provided with this appliance.
12.WARNING: Use only an external supply with the following specifications: <voltage and nature of supply> <power/current of supply>

DANGER – Electric Shock
Disconnect all electrical power before installation, maintenance, or disassembly. Lock out and tag the power source. Only qualified personnel may service this pump
.DANGER – Dry Run Hazard
NEVER operate the pump without liquid. Dry running will destroy bearings and the canned motor, causing fire, electric shock, or permanent failure.
DANGER – Hot Surface
The pump may become extremely hot during operation. To avoid burns, keep hands and tools away from the pump body while in operation.
DANGER – High Pressure
Do not remove any plugs, covers, or piping while the pump is running or pressurized. Fluid ejection can cause severe injury.

WARNING
Read all instructions and safety warnings before use. Failure to follow safety rules may result in electric shock, fire, or serious injury.
WARNING
The pump must be properly grounded to prevent electric shock.
WARNING
Do not modify, disassemble, or alter the pump. Unauthorized changes may cause leakage, overheating, or explosion.
WARNING
Do not operate the pump beyond rated voltage, temperature, pressure, or flow limits.
WARNING
Avoid excessive piping stress. Do not use the pump to support pipe weight.
WARNING
Keep the motor ventilation area clear. Blocked vents cause overheating and damage.
WARNING
Keep children and bystanders away from the pump during operation.
CAUTION
Prime and vent the pump completely before first start-up.
CAUTION
Allow the pump to cool down and release system pressure before maintenance.
CAUTION
Use only genuine replacement parts.
CAUTION
Regularly inspect for leaks, abnormal noise, vibration, or overheating. Stop the pump immediately if problems occur.
CAUTION
Store the pump in a dry, clean, and non-corrosive environment. Drain all liquid if stored for a long time.

