

Dear Customer:

Thanks for purchasing Westbridge control products, to avail of your 24 months warranty please complete the Warranty Card below. Note Warranty valid for 24 months from the date of purchase.

Pump model: _____

Production batch number: _____

Invoice number: _____

Date of purchasing: _____

Purchased in: _____

User name: _____

Address: _____

Postal code: _____

Seal:
(please complete and return to Precision Heating Ltd,
504 Northwest Business Park, Mitchelstown Road, Ballycoolin
D15 W97V, Ireland.



Email: support@westbridgecontrols.co.uk

www.westbridgecontrols.co.uk

Scan to download manual



Fully Integrated Intelligent Variable Frequency Pump

Models: PX203E



Warning

- Please read this manual carefully before installation and use.
- Please retain for future reference.
- Electric pump must be grounded reliably before use, and shall be equipped with electrical leakage protection device.
- It's strictly prohibited to touch electric pump during operation;
- It's strictly prohibited to run electric pump without water.

EC Declaration of Conformity

We,
Precision Heating Ltd. Address: Unit 504B Northwest Business Park, Phase 2, Mitchelstown
Road, Ballycoolin, Dublin 15.

Declare under our sole responsibility that below mentioned product is in conformity with the
relevant safety and health requirements of the EC guidelines specified below in its design and
construction and in the version which we introduced to the market.

Brand: Westbridge controls
Product: PXE, BL(T)E, BWJE booster pumps
Description: Booster pump

Model: PX203E, PX404E
BL(T)E4-5, BL(T)E4-6, BL(T)E4-8, BL(T)E4-10, BL(T)E4-12, BL(T)E8-4, BL(T)E8-5, BL(T)E8-6
BWJE8-4, BWJE8-5, BWJE8-6

Relevant EC directives: Machinery Directive 2006/42/EC
Low Voltage Directive 2014/35/EU
Electromagnetic Compatibility 2014/30/EU

Applied harmonized European Standards:
EN ISO 12100:2010
EN 809:1998+A1:2009+AC:2010
EN 60204-1:2018
EN 61000-3-3:2013+A1:2019
EN 60335-1:2012+A11:2014+A13:2017+A1:2019+A14:2019+A2:2019
EN 60335-2-51:2003+A2:2012,
EN 62233:2008+AC:2008
EN 60034-1:2010+AC:2010
EN 55014-1:2017
EN 55014-2:2015
EN IEC 61000-3-2:2019

Technical documentation kept by Precision Heating Ltd. Address: Unit 504B Northwest
Business Park, Phase 2, Mitchelstown Road, Ballycoolin, Dublin 15.

Printed Name: Philip Bassett

Title: Managing Director

Signature:



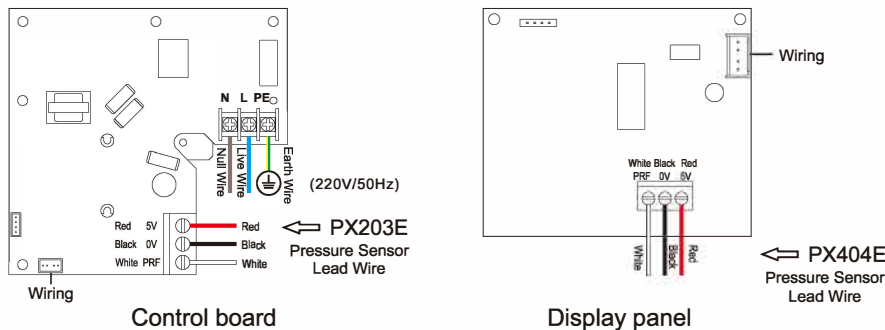
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Table 3 (Continued)

Fault code of frequency controller	Corresponding faults	Fault indicating lights	Countermeasures
E5	Current is too large	The voltage (current) fault light (⚡) is on, and the fault shutdown light (■) is on	Pull out the plug and plug in again
E6	Phase loss	The motor fault light (⚡) is on, and the failure shutdown light (■) is on	1. Check whether the three-phase winding of electric motor is normal 2. Check whether the lead wire of frequency converter and electric motor is open-circuit
E7	Locked-rotor	The motor fault light (⚡) is flickering, and the failure shutdown light (■) is on	Move the fan to make rotor rotate flexibly or take apart the pump body to remove debris
E8	Communication failure	Er.8 or nothing is displayed in the nixie tube state display area	Open the control box cover, and check whether the flat cable between keypad and control mainboard is plugged firmly
E9	IPM is overheated	The failure shutdown light (■) is on	Check whether the ambient temperature of water pump is too high
E10	Leakage	The leakage fault light (⚡) is on	please kindly check whether the pipeline/ pump have leakage problem

XI. Schematic Diagram of Internal Wiring of Control Box



Notes:

1. Please understand that, all the figures given in this manual are schematic diagrams, and the electric pump you purchased and its accessories may be different from the figures in this manual.
2. The performance of the product is improving continuously, all the products (including appearance and color, etc.) are subject to physical goods, and changes will be made without further notice.

Thank you very much for choosing our products, and please read over the operating manual and keep it properly before the installation and use.



Warning

- The Electric pump must be grounded reliably before use, and shall be equipped with electrical leakage protection device.
- It's strictly prohibited to touch electric pump during operation;
- It's strictly prohibited to run electric pump without water.

Warnings for Children

- Please keep away from children, this product is not a toy.

Pressure Warning

- The system where a pump lies should be able to withstand the maximum pressure of the pump.

Electricity Warning

- The electric power system may be used only when it has the safety protection measures specified by the existing provisions of the country where the product is installed.

Modification-related Warning

- Where any electric pump is tampered, modified and/or operates outside the recommended operating scope or goes against any other instruction given in this manual, the manufacturer will not guarantee the correct operation of the electric pump or be responsible for any loss which might be caused by the electric pump.
- The manufacturer refuses to undertake any responsibility for any error which might appear in this manual due to misprint or misreplication. The manufacturer reserves the right to make any modification to the product, which, in its opinion, is necessary or useful, without affecting basic features of the product.

I. Product Introduction

PX-E fully-integrated intelligent variable frequency pump is a new-generation variable frequency constant pressure water supply equipment integrated with inverter, electric pump and pressure tank. The electric pump adopts centrifugal impeller and guide vane structure, with the advantages of large flow, low noise, and stable operation, etc. The electric pump is featured by attractive appearance, compact structure, and convenience of installation and operation; it can automatically adjust the operating frequency according to users' requirements to ensure constant pressure of users' pipe network and make the system run in a more efficient and energy-saving manner.

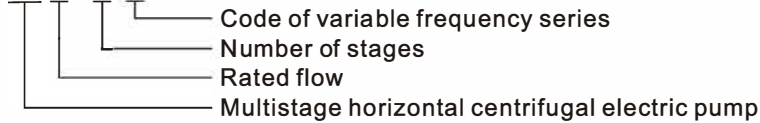
II. Operating Conditions

The electric pump shall be able to operate continuously and normally in the following operating conditions:

1. Transferring liquid: clean water or other liquids with similar property to water;
2. Liquid temperature: 0°C~+60°C;
3. Liquid pH value: 6.5~8.5;
4. The volume ratio of solid impurities is no more than 0.1%, and the particle size is no greater than 0.2mm;
5. Voltage/frequency: AC 220V/50HZ, voltage fluctuation shall not exceed ±10%.

III. Model Description

PX □ 0 □ -E



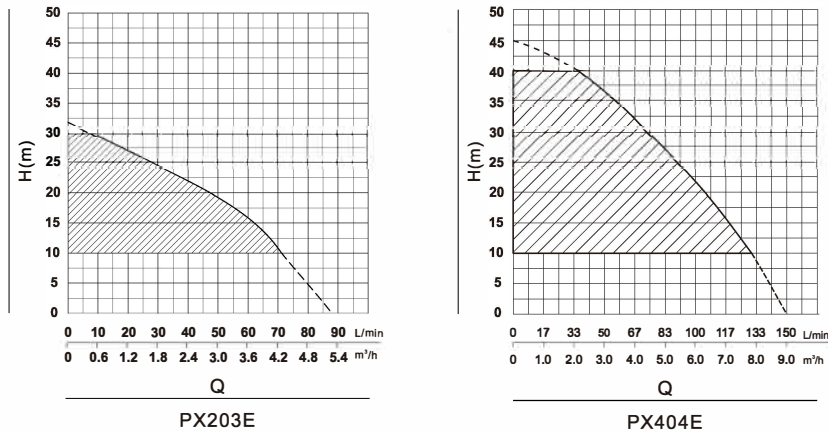
IV. Main Technical Parameters and Performance Chart

1. Main technical parameters

Table 1

Model	Max. flow (L/min)	Max. head (m)	Power (kW)	voltage (V)	Range of speed (r/min)	Net positive suction head required (m)	Q. range (m)	Discharge (mm)
PX203E	83	32	0.37	220	1000~3000	3.5	10~40	25
PX404E	150	45	0.75	220	1000~3000	3.5	10~40	25

2. Performance chart



The shadow area is the operating range of PX-E water pump.

3. Installation dimensions

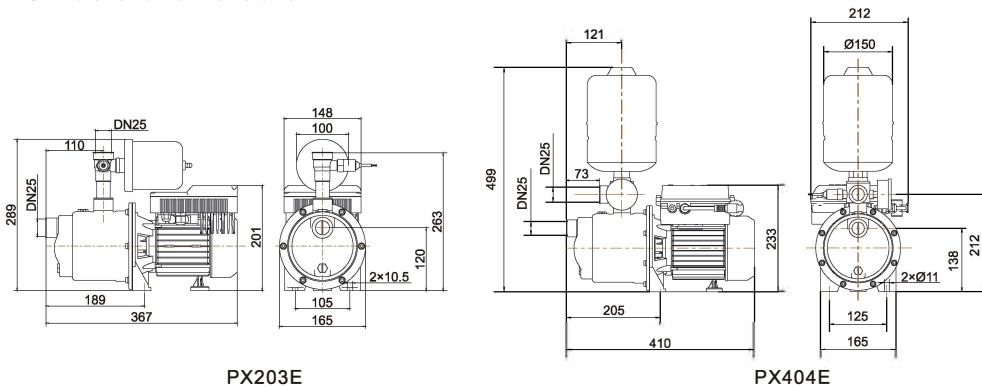


Table 2 (Continued)

Fault	Causes	Remedy
Electric pump starts intermittently when water is not used	1. The water outlet line or faucet leaks 2. Check if valve is intertwined by foreign matter or check valve fails 3. Lack of air pressure in pressure tank or pressure tank is damaged	1. Check whether the outlet pipe is leaking or if the faucet is closed tightly 2. Clean or replace the check valve 3. Increase the air pressure of pressure tank appropriately using inflator or replace the pressure tank
Electric motor vibrates and produces large noise	1. Friction is caused by foreign matter entering moving parts of electric motor 2. Water pump is not installed horizontally or flatly 3. Bearing is damaged	1. Check and clean the position of impeller and revolving shaft 2. Install the pump horizontally again, and add shock pad below the footing 3. Replace bearing

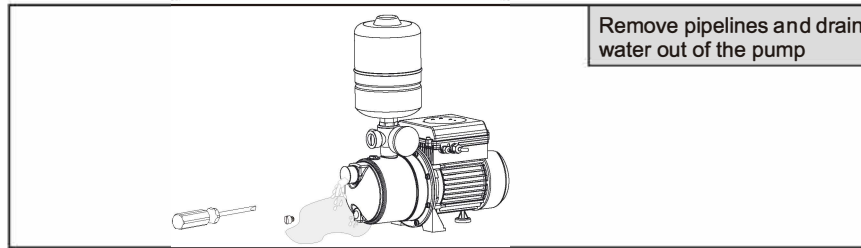
2. Frequency converter

Table 3 Fault code of water pump

Fault code of frequency controller	Corresponding faults	Fault indicating lights	Countermeasures
E1	Lack of water	The water shortage fault light (⊗) is normally on, and the fault shutdown light (≡) is on	Check whether the water source and water pressure are sufficient, whether the air inside pump body is exhausted, and whether the diameter of inlet pipe is greater than or equal to that of outlet pipe
	Dry running	The water shortage fault light (⊗) is flickering, and the fault shutdown light (≡) is on	
E2	Sensor is out of order	The sensor fault light (⊗) is normally on, and the fault shutdown light (≡) is on	Check whether the pressure sensor lead wire is normal or replace the pressure sensor
E3	Voltage is too low	The voltage (current) fault light (⚡) is on, and the fault shutdown light (≡) is on	Adjust the supply voltage to 0.9~1.1 times of rated value
E4	Voltage is too high	The voltage (current) fault light (⚡) is on, and the fault shutdown light (≡) is on	Adjust the supply voltage to 0.9~1.1 times of rated value

3. When air temperature is below 4°C, anti-freezing measures shall be taken to prevent frost crack of pump body.

4. If electric pump is not used for a long time, it should be kept properly at a dry and well-ventilated place after pipelines are removed, water in the pump is drained out, and main parts are scrubbed clean.



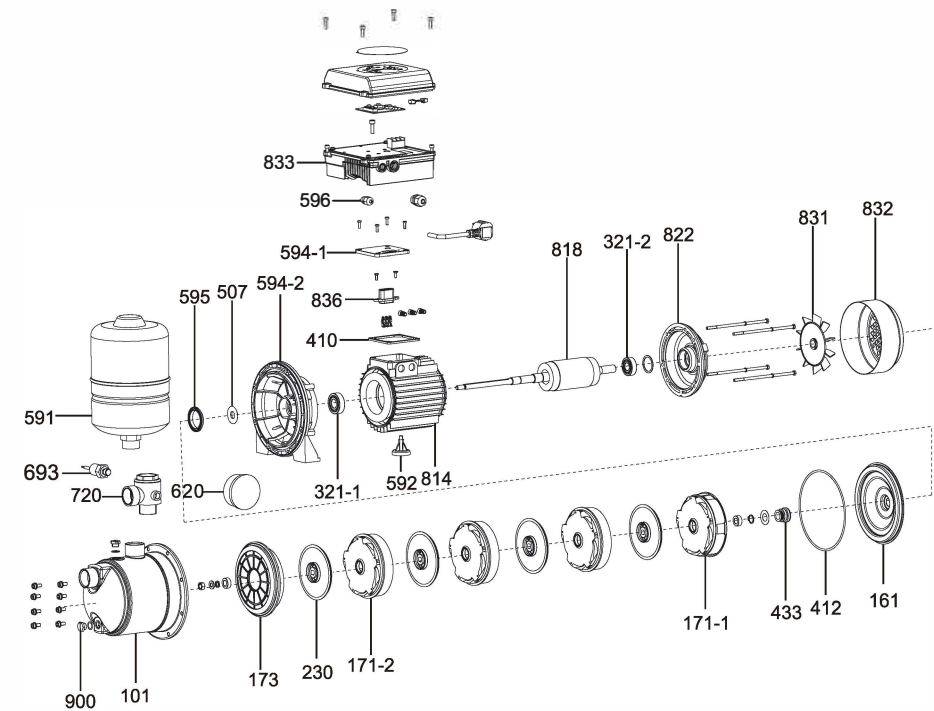
X. Troubleshooting

1. Water pump

Table 2

Fault	Causes	Remedy
Electric motor does not run	<ol style="list-style-type: none"> 1. Check that the electric pump cable is connected properly / check to see if the cable is faulty 2. Impeller is blocked 3. Stator winding is burnt out 	<ol style="list-style-type: none"> 1. Check wiring terminals or replace cable 2. Correct the blocked part or remove debris 3. Remove the winding for overhaul
Electric motor runs but water pump has no output	<ol style="list-style-type: none"> 1. Air leakage occurs to water inlet pipeline 2. Check valve is not opened or is blocked 3. Air enters into the pump through sealing elements 4. Water pump is not filled with water 5. Impeller is damaged 	<ol style="list-style-type: none"> 1. Check whether the water inlet pipeline and joints are well-sealed, and ensure reliable sealing 2. Check the flexibility of check valve, and remove blockage 3. Adjust or replace sealing elements 4. Fill the pump body with water again 5. Replace the impeller
The flow is insufficient	<ol style="list-style-type: none"> 1. The pipeline is too long, the head is too high or the pipeline is bent too much 2. Strainer or impeller is blocked partially 3. Impeller is worn out 	<ol style="list-style-type: none"> 1. Shorten the pipeline, use the pump within the usable range of head, or make the pipeline bent gently 2. Remove blockage 3. Replace the impeller

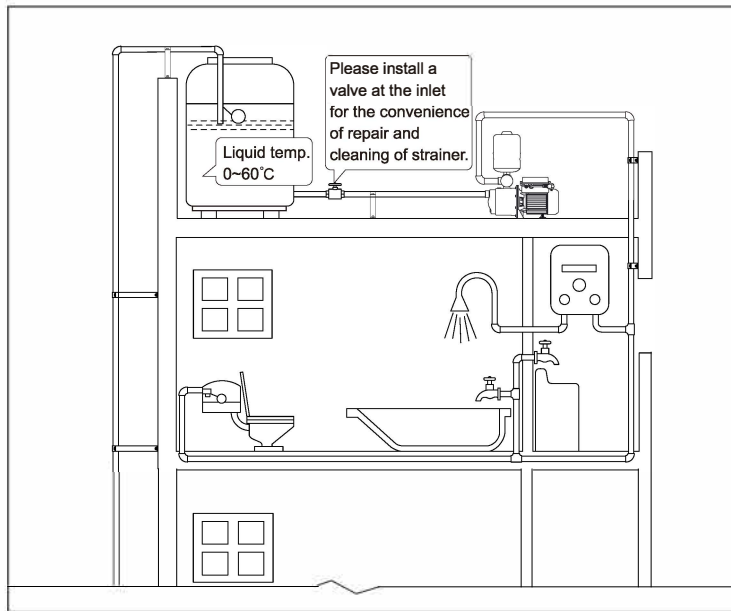
V. Detailed Product View



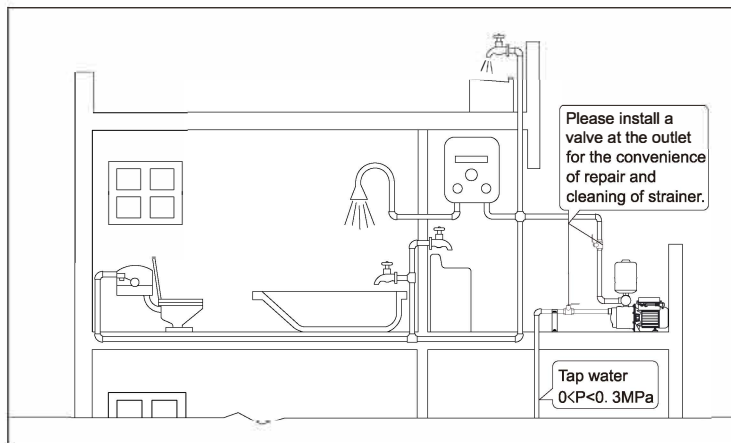
PX-E

595	Rubber gasket	822	End cover	900	Air faucet
507	Water retaining ring	831	Fan	101	Pump body
594-2	coupling	832	Fan cover	173	Baffle
410	Rubber gasket	814	Stator	230	Impeller
836	Terminal block	592	Footing	171-2	Guide vane
594-1	Coupling base	321-1	Bearing	171-1	Back guide vane
596	Cable lock	620	Pressure gauge	433	Mechanical seal
833	Control box	720	Five-way joint	412	O-ring seal
818	Rotor	693	Pressure sensor	161	Pump cover
321-2	Bearing	591	Pressure tank		

VI. Installation Diagram



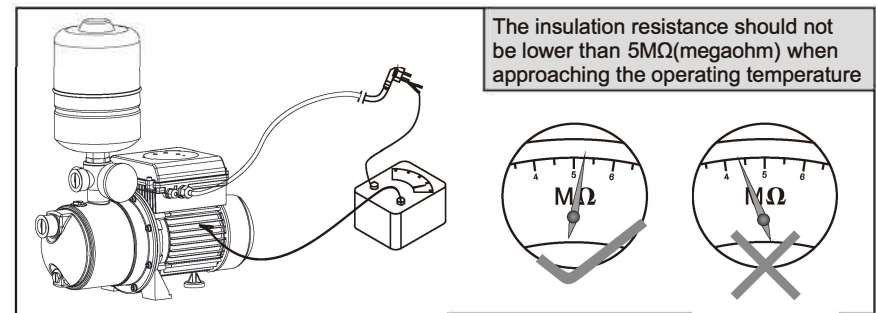
Pressurization between roof water towers



Direct pressurization of tap water

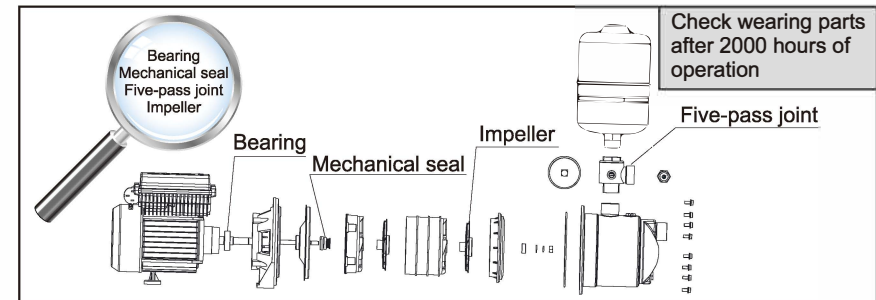
IX. Maintenance

1. The insulation resistance between the winding and enclosure of electric pump should be inspected regularly, and the insulation resistance shall not be less than 5MΩ (megaohm) when approaching the operating temperature, or else corresponding measures must be taken to reach the requirement before use.

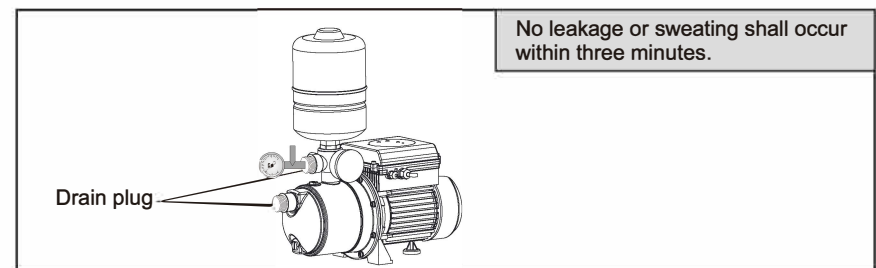


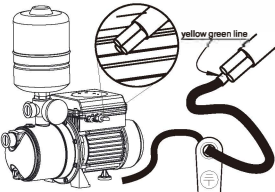
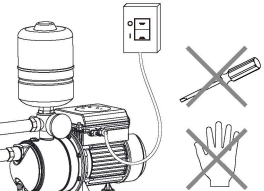
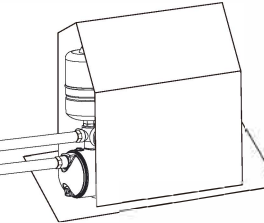
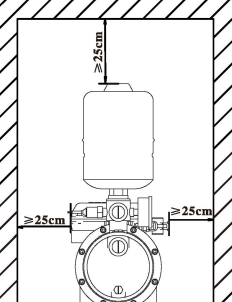
2. After 2000 hours of normal operation, electric pump should be maintained by the following steps:

Disassemble: Check wearing parts, e.g.: rolling bearing, mechanical seal, impeller, and five-way joint, etc., and timely replace the parts if damaged.



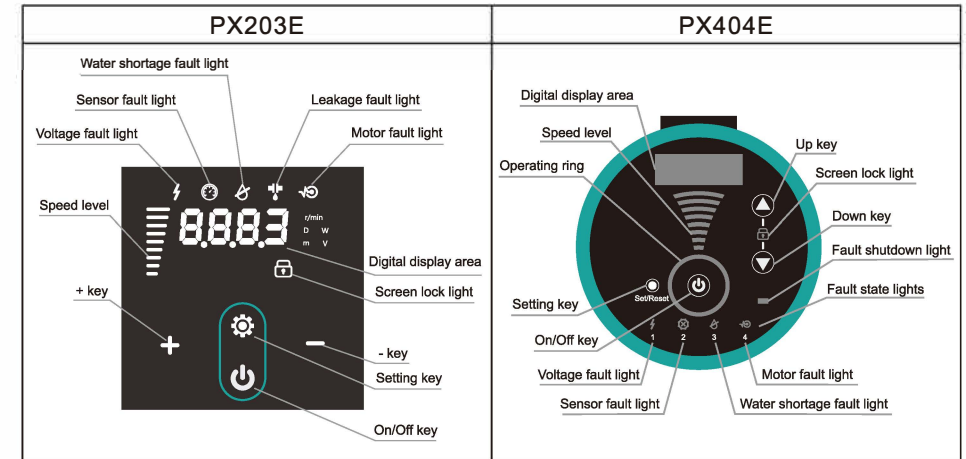
Airtightness test: After teardown repair or replacement of sealing elements, pressure-bearing parts and the complete machine shall be subjected to hydraulic (air) pressure test at the maximum working pressure, and no leakage or sweating shall occur within three minutes.



Figures	Instructions for use
	<p>Electric pump needs to be correctly installed with electrical leakage protection device, reliably grounded at the grounding mark of electric pump or cable, and the power socket connected needs to also be grounded reliably.</p>
	<p>When electric pump is working, if it is needed to adjust the position of electric pump or do actions of touching the electric pump, the power must be cut off first to avoid accidents.</p>
	<p>It's strictly prohibited to lay or immerse the electric pump in the water for use, and the electric motor shall be protected from pouring water and splashing water and even spraying water of strong flow so as not to damp the electric motor and damage winding insulation. If installed outdoors, suitable covering should be provided to prevent exposure to sun and rain, and freezing. If installed indoors, a drain should be arranged around water pump to form natural drainage to prevent losses caused by water leakage during the use, maintenance and replacement of electric pump (especially at such places as basement, kitchen and multi-story building).</p>
	<p>Electric pump should be installed at a place accessible for maintenance and inspection, and the place should be kept dry and ventilated; when installing electric pump at a narrow place, electric pump should be installed as shown in the left figure, and the fan cover should be more than 10cm from the wall to facilitate heat dissipation.</p>

VII. Operating Instructions

1. Panel diagram



2. Key description

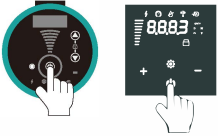
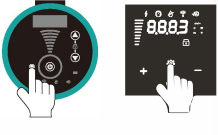
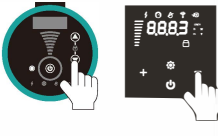
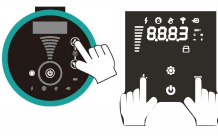
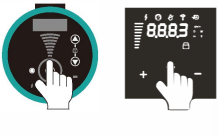
Keys	Description
On/Off key	Starting switch of controller; after electric pump is installed and powered on, after clicking the "On/Off" key, the water pump can starts running continuously; conversely, the electric pump stops running.
Setting key	Click the "Setting / ⚙️" key repeatedly to switch back and forth among operating data, and stop at the data to be displayed.
Up key	Used when setting parameters, "Up / +" represents "increase"
Down key	Used when setting parameters, "Down / -" represents "decrease"

3. Description of display areas

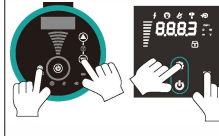
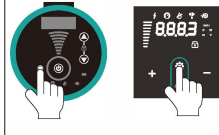
Display areas	Description
Head level	On the inverter panel of pump, there're several levels to show the pressure status, one level stands for one bar. PX203E totally has nine levels, and PX404E has eight.
Screen lock light	The screen lock light is on when the screen is locked
Operating ring	The operating ring rotates when water pump is in the normal running state
Failure shutdown light	The failure shutdown light is on after water pump shuts down disorderly
Fault state lights	Light 1 indicates the voltage (current) fault light (⚡), Light 2 indicates the sensor fault light (⊕), Light 3 indicates the water shortage (dry running) fault light (☞), Light 4 indicates motor fault light (⚙️), PX203E is equipped with leakage fault indicating lamp (⚡)
Digital display area	Current parameters of controller are displayed when the product works normally

4. Function description

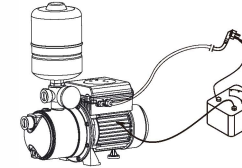
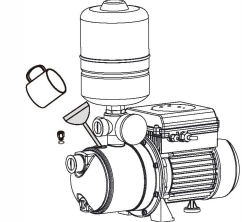
4.1 Operating functions

Diagrams	Functions	Adjusting method	Description
	On/Off	After electric pump is installed and powered on, after clicking the "On/Off" key, the water pump can start running continuously; conversely, the electric pump stops running.	
	View running state	In the normal running state, click the "Setting / ⚙️" key repeatedly to switch back and forth among operating data, and stop at the data to be displayed.	After electric pump runs normally, the following parameters can be viewed: Head: H (m) Input power: P (W) Input voltage: U (V) Frequency: F (Hz) Accumulated running days: D (in day) Software version: V
	Adjust head	During the normal operating status, press "Up / +" and "Down / -" means to adjust the pipe network pressure, the adjustable pressure range of PX203E is from 10~60 meters, and PX404E is from 10~80m.	Level display area One bar is displayed for 10m, two bars are displayed for 11-20m, three bars are displayed for 21-30m, and so on
	Lock/ unlock screen	In the normal running state, Lock screen: Press "Up / +" and "Down / -" simultaneously, all light turn off, but only the screen lock light turns on. Unlock screen: when locked screen state, press and hold "Up / +" and "Down / -" simultaneously for 3s, the screen lock station will be cancelled, and other lights turn on.	If any failure occurs, corresponding fault lights will turn on automatically.
	Wake up	Press any key to wake up the panel, and the panel will show current operating station for 3s then turn off automatically.	

4.2 User debugging menu

Diagrams	Functions	Adjusting method	Description
	Restore factory settings	In the ready mode, press "Setting / ⚙️" and "Down / -" simultaneously, all lights turn on, and the digital displays 88888, which will last around 3s. After that, all the parameter settings will restore to factory settings.	If in operating station, please press the "On/Off" key to stop the water pump first.
	Water shortage protection switch	In the ready mode, press and hold the "Setting / ⚙️" key for 3s, then turn on or turn off the water shortage protection by pressing "Up / +" and "Down / -".	F3.1: It indicates pump is in water shortage protection mode (if water shortage lasts for more than 3min at the inlet). F3.0: It indicates water shortage protection station is cancelled. Note: Pump default setting is in water shortage protection mode.

VIII. Precautions

Figures	Instructions for use
	Before use and installation the electric pump should be inspected fully to ensure there is no damage and that the pump is not faulty prior to purchase. e.g. check whether the cable or outgoing line and plug (if equipped) are in good condition, and whether the insulation resistance is more than 50M Ω (megaohm).
	The pump body and inlet pipe should be filled with water to remove air before electric pump is plugged in; After the electric pump starts water shortage protection, the air inside the pump body and the inlet pipe must be exhausted before the pump operates again. When pumping well water, it is needed to add a bottom valve at the inlet, start and stop the pump repeatedly for 3~5 times, and continuously add water to remove the air in the pump body and inlet pipe.