

Limited Warranty

Products manufactured by Walrus Pumps Co (Walrus) are warranted to the first user only to be free of defects in material and workmanship for a period of 12 months from date of installation, but no more than 24 months from date of shipment. Walrus' liability under this warranty shall be limited to repairing or replacing at our election, without charge, FOB Walrus' distribution center or authorized service agent. Walrus will not be liable for any cost of removal, installation, transportation or any other charges that may arise in connection with warranty claim.

The warranty period commences on the date of original purchase of the equipment. Proof of purchase and installation date, failure date, and supporting installation data must be provided when claiming repairs under warranty.

This warranty is subject to due compliance by the original purchaser with all directions and conditions set out in the installation and operating instructions. Failure to comply with these instructions, damage or breakdown caused by fair wear and tear, negligence, misuse, incorrect installation, inappropriate chemicals or additives in the water, inadequate protection against freezing, rain or other adverse weather conditions, corrosive or abrasive water, lightning or high voltage spikes or through unauthorized persons attempting repairs are not covered under warranty.

Walrus will not be liable for any incidental or consequential damages, losses, or expenses, arising from installation, use, or any other causes. There are no express or implied warranties, including merchantability or fitness for a particular purpose, which extend beyond those warranties described or referred to above.

Certain states do not permit the exclusion or limitation of incidental or consequential damages or the placing of limitations on the duration of an implied warranty, therefore, the limitations or exclusions herein may not apply. This warranty sets forth specific legal rights and obligations, however, additional rights may exist, which may vary from state to state.

Supersedes all previous publications

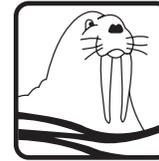


WALRUS®

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WALRUS®

TQIC Series

Inverter Control Pump Instruction Manual



ISO 9001 Certified

Walrus Pump Co., Ltd.

Before beginning installation procedures, these installation and operating instructions should be read carefully.

I. Applications:

The TQIC series pumps are designed for water supply and pressure boosting in residential, commercial and light industrial applications where low or inadequate water pressure exists. It is suitable for boosting pressure from underground or surface water supplies.

II. Product Features:

1. The TQIC is a complete, all-in-one unit, consists of pump, motor, inverter, pressure tank, and electronic controller. The built-in electronic controller provides constant pressure which ensures that the pump starts automatically when water is consumed and operates continuously until water is not required.
2. The Micro Frequency Inverter detects the instantaneous pressure in the system through the pressure transmitted and adjusts motor speed to keep it at the required value. Depended on applications, the pumps offer energy saving or improved processing.
3. Compact design and quiet operation make the TQIC series suitable for many applications.
4. The TQIC is constructed from the top quality corrosion resistant materials.
5. The TQIC has automatic restart function. Once the pump starts to operate, the pressure sensor will automatically detect the pressure limit. If the pressure limit can not reach to the original setting within 2 minutes, the pump will stop and attempt to restart every 10 minutes until the function is deactivate. It will also stop when the temperature exceeds 55°C (131°F), and will restart when the temperature drops to 40°C (104 °F).

6. The motor has built-in thermal overload to protect against high operating temperatures and over current.
7. The TQIC has an anti-cycling feature which prevents the pump from continuous starting and stopping when you have a dripping tap or minor leak in the system.
8. The pumps will lift water up to 7.6m with foot valve and pump suction piping filled with water.

III. Description

The pump uses a Micro Frequency inverter to continuously adjust its speed to the pressure setpoint.

IV. Operating Conditions:

Ambient temperature: +4°C ~ +40°C

Liquid temperature: +4°C ~ +40°C

Relative Humidity: Max. 85%

Suitable liquids: Potable water or other clean or non-corrosive liquids.

Original constant inverter pressure setting:

TQIC400 - 2.0kg/cm²

TQIC800/1500/2200 - 3.0kg/cm²

Original pressure tank limit :

TQIC400 - 1.5kg/cm²

TQIC800/1500/2200 - 2.5kg/cm²

Protect Function:

The TQIC series has dual protect function, once the temperature exceed +50°C(+122°F) (ambient temperature) the fan will be automatically turn on to cool down the temperature. When the temperature is continuous to rise and exceed +70°C(+158°F)(ambient temperature)or the heat sink exceed +85°C(+185°F), the inverter will automatically stop.

V.Installation

1. The pump is recommended to be installed indoors. When installed outdoors, a suitable cover must be provided according to local regulations to protect it from weather.
2. If the pump draws water from a well, it is

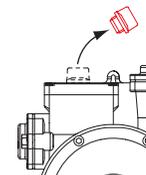
- recommended to fit a foot valve to the end of the suction pipe.
3. Please mount and bolt the pump on the solid foundation.
4. Do not start the pump until the system has been filled with water.
5. The electrical connections and additional protection should be carried out by qualified persons in accordance with local regulations.
6. Make sure of using the correct voltage.
7. The grounding must be connected.

VI.Operation

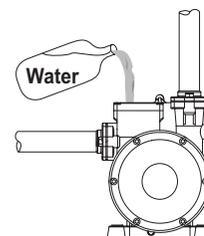
Never run the pump before it is filled with water. Please follow the instructions in (Fig 1) .

1. Remove the filling plug and fill the chamber with water. Then replace the plug and tighten it manually.

- a. Remove the filling plug



- b. Fill water in chamber



- c. Place filling plug and tighten it manually

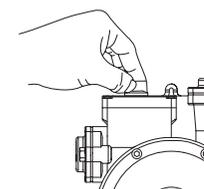


Fig. 1

2. Be sure the pump inlet is lower than water supply, if not, please remove the filling plug to let the water flow back into the chamber. This process can be repeated as many times as necessary until air is fully released from the system.
3. For start up of the first time or after long time inactivity, please place a screwdriver against the motor shaft end to check if the rotor spins freely. If it is, you can start the pump(Fig 2).

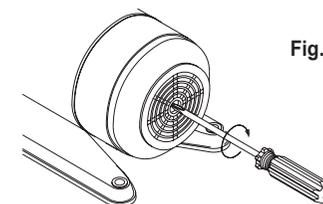
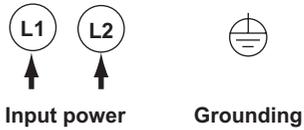


Fig. 2

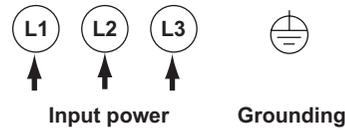
4. Connect the power supply, turn faucet on and the pump will start immediately. If the pump does not start, proceed with VIII, 1 for trouble shooting.
5. If the pump does not start, please disconnect the power supply immediately. Fill in water to the chamber until the pump will start. In case the pump inlet is lower than the water supply, please follow the procedure in VI, 2.
6. After the pump is running normally, please turn faucet on and off several times to check if pump start and stop automatically. In case of trouble, please proceed with Trouble Shooting Chart.

VII. Wiring diagram

Single-phase power supply



3-phase power supply (check if rotation is correct)



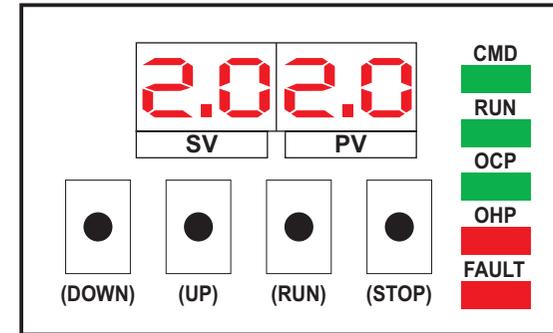
VIII. Trouble Shooting chart



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

	Cause	Remedy
1. Pump does not start.	a. No electricity supply	Connect the electricity supply
	b. Too low or too high supply voltage.	Check if supply voltage is within $\pm 10\%$
	c. The inlet pressure limit of pipeline too high	Check the inlet pressure limit; be sure the inlet pressure do not exceeds: TQIC 400 : 1.5kg/cm ² TQIC 800/1500/2200 : 2.5kg/cm ²
	d. Insufficient water output	Check if the suction line is clogged.
	e. Seized-up/ choked-up pump.	Check if rotor spins freely per instruction VI 3. Contact your pump supplier.
	f. The pump is in alarm condition.	Turn off the faucets, and disconnect the power supply . Notify you pump supplier.
2. Pump cuts out during operation.	a. Dry running.	Check if suction line is blocked.
	b. Seized-up/ choked-up pump.	Follow VIII 1.e as above
	c. Overloaded motor.	Cut off the power supply and restart or contact your pump supplier.
3. The pumps starts when no water is consumed.	a. Defective check valve or the existing pipeline is leaking .	Clean the valve or replace with a new check valve. Fix the leakage
4. The pump starts and stops too frequently	a. Leakage in suction pipe or air in the water.	Check the water supply/ suction pipe.
5. Electric chock.	a. Ineffective grounding.	Reactivate grounding.

IX. Description of Digital Operator



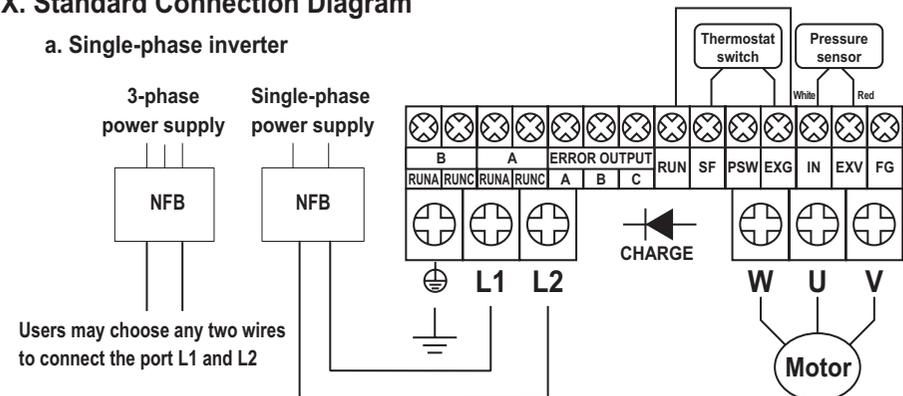
1. SV: Digital display of pressure setting
2. PV: Digital display of actual pressure in operations
3. DOWN: 2-digit display of pressure down between 0~99
4. UP: 2-digit display of pressure up between 0~99
5. RUN: The key to start the pump.
6. STOP: The key to stop the pump & function memory key for all functions and data.
7. CMD : run command action led
8. RUN : motor run led
9. OCP : over current running led
10. OHP : over heat led
11. FAULT : fault led

■ Pressure setting

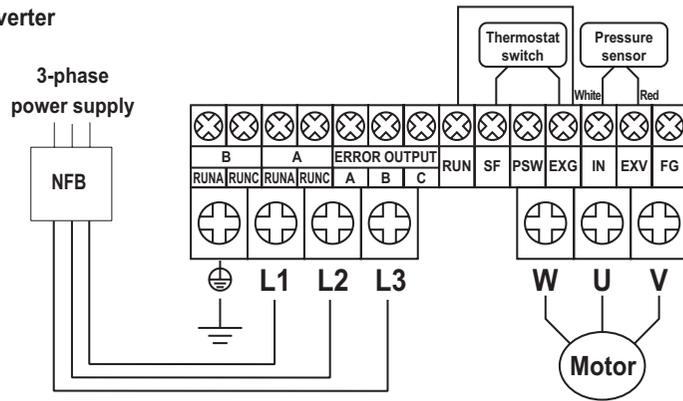
Press **UP** and **DOWN** for a desired pressure and then press **STOP** to complete the setting.

X. Standard Connection Diagram

a. Single-phase inverter



b. 3-phase inverter



XI. Trouble shooting

(Before restart the system, make sure that the electricity supply has been switched off and restart the system after 1 minute.)

■ Over Current Limit (Freq / 2)

STATUS CMD RUN OCP OHP FAULT	CAUTION The light "OCP" blinked through panel
	CASUE The motor current unusual.
	REMEDY Check the system to see if it anything stuck around.

■ Over Current Protect

STATUS CMD RUN OCP OHP FAULT	CAUTION The light "Fault" on, and the digital display of actual pressure show "AF"
	CASUE Over Current Protect function operates. The Magnitude of current exceeds the capacity.
	REMEDY Check the motor to see if it anything stuck fan.

■ Over Heat Protect

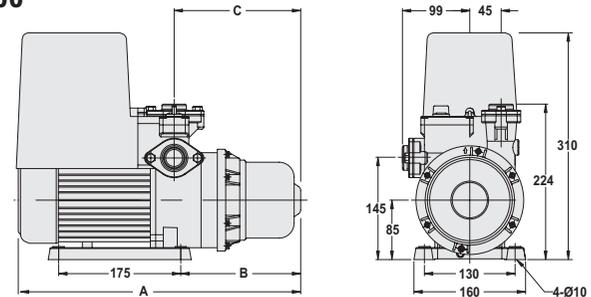
STATUS CMD RUN OCP OHP FAULT	CAUTION The lights "OHP" and "FAULT" ON and digital display of actual pressure show "AF" through panel.
	CASUE Over Heat Protect function operates. The temperature is continuous to rise and exceed +70°C(ambient temperature) or the heat sink exceed +85°C
	REMEDY Check the inverter to see if it anything stuck there.

■ Dry Run Protect

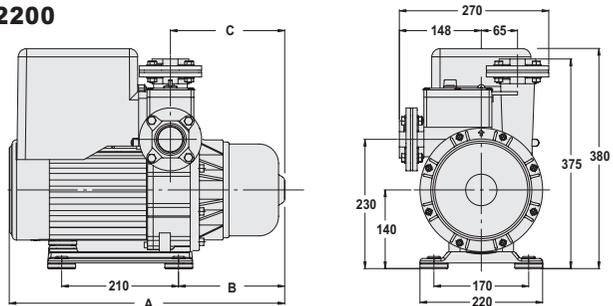
STATUS CMD RUN OCP OHP FAULT	CAUTION The lights on panel are fully OFF and digital display of actual pressure show "0"
	CASUE Dry Run Protect function operates.
	REMEDY 1.Check the water source side to see if it unusual. 2.Check the Pressure Sensor to see if it loses connection. 3.Check the Pump to see if it works. 4.Check the System will it restart every single 10 minutes.

XII. Dimensions: (mm)

TQIC400/800



TQIC1500/2200



Model	A (mm)	B (mm)	C (mm)	Net Weight (kg)
TQIC 400	425	172	177	11.5
TQIC 800	451	198	203	13.5
TQIC 1500/2200	501	197	212	29.6 / 30.4