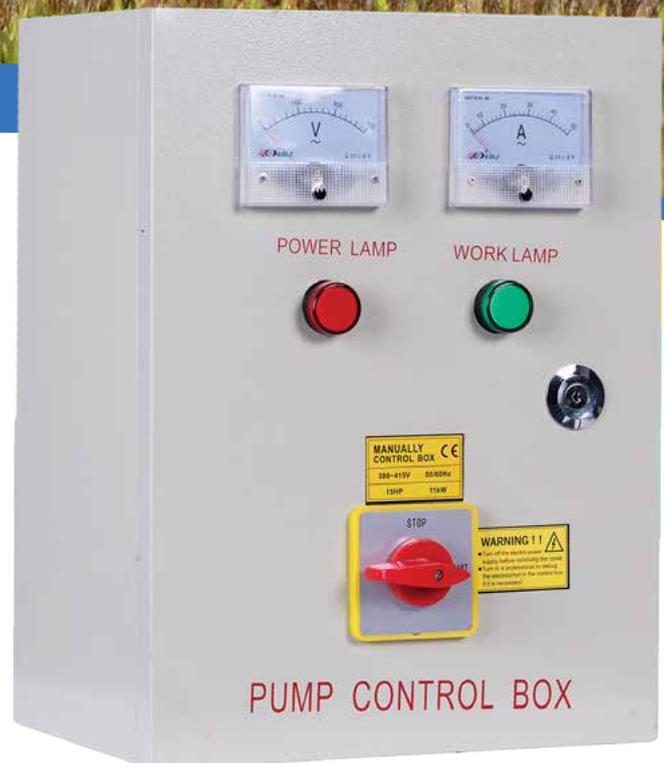




CONTROL EQUIPMENT

DY-T03 SERIES



PUMP CONTROLLER



DY-T03 Series

General description

This three phase control panel is rated for use from 5.5 to 30kW, 380V. It will control and protect pump motors in the following capacity:

Basic control functions include:

1. Over current and under voltage protection
2. Unit can detect liquid levels at source and in delivery tank/reservoir and react according to parameters.
3. Power will be switched off in the event of power failure or loss of phase.

Technical information

Input Voltage:	380VAC, -5% to +10%, 50Hz
Output Power:	5.5-30kW
Water Probe Voltage:	24 VAC
Operating Temperature:	-5°C to +40°C
Dimensions:	300 x 400 x 240mm
Level switching:	Dual level switch capability
Reaction time:	Loss of phase < 2 sec Overload 3-100 sec adjustable

Operation

Water level control between two reservoirs or tanks can be performed simultaneously or for any one tank independently.

Over load protection: with the loss of a phase, the phase detection CCT will signal for the power contactor to drop out and switch the power supply to the pump motor off. Should the pump motor draw an over current the over current protection CCT will signal the power contactor to disengage and stop power supply to the pump motor. This will be done automatically within the time limits set by the installer. The higher the current overload the faster the switch-off time.

Operation



In the event of phase loss or an overload condition, the green and red LED lights on the electro motor protection (BHQ-S-C), inside the main unit, will light up and indicate the relevant condition.

CCT SHORT PROTECTION

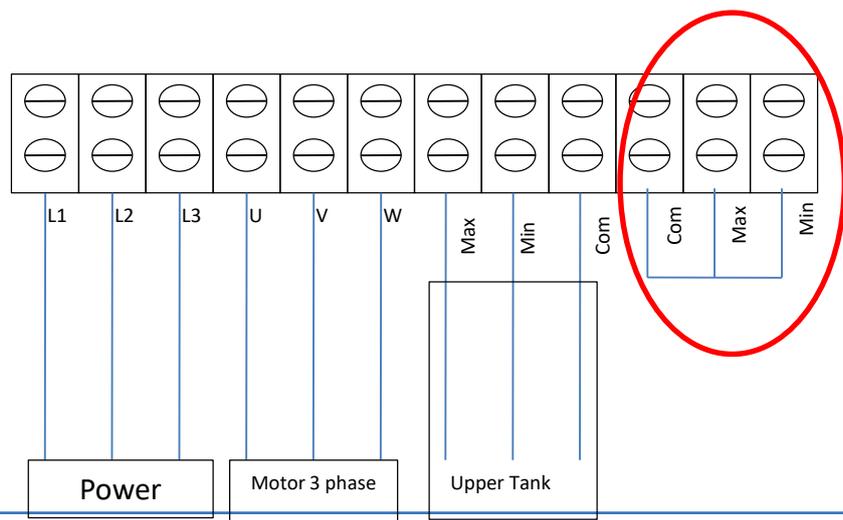
Should the power output connections be shorted out, either by electric motor problems or incorrect cabling, the protection sensing CCT will be activated and the power contactors will drop out and switch off the power to the motor. The control unit will react as if an overload condition (high Amperage) was detected and switch off.



STOP / START SWITCH

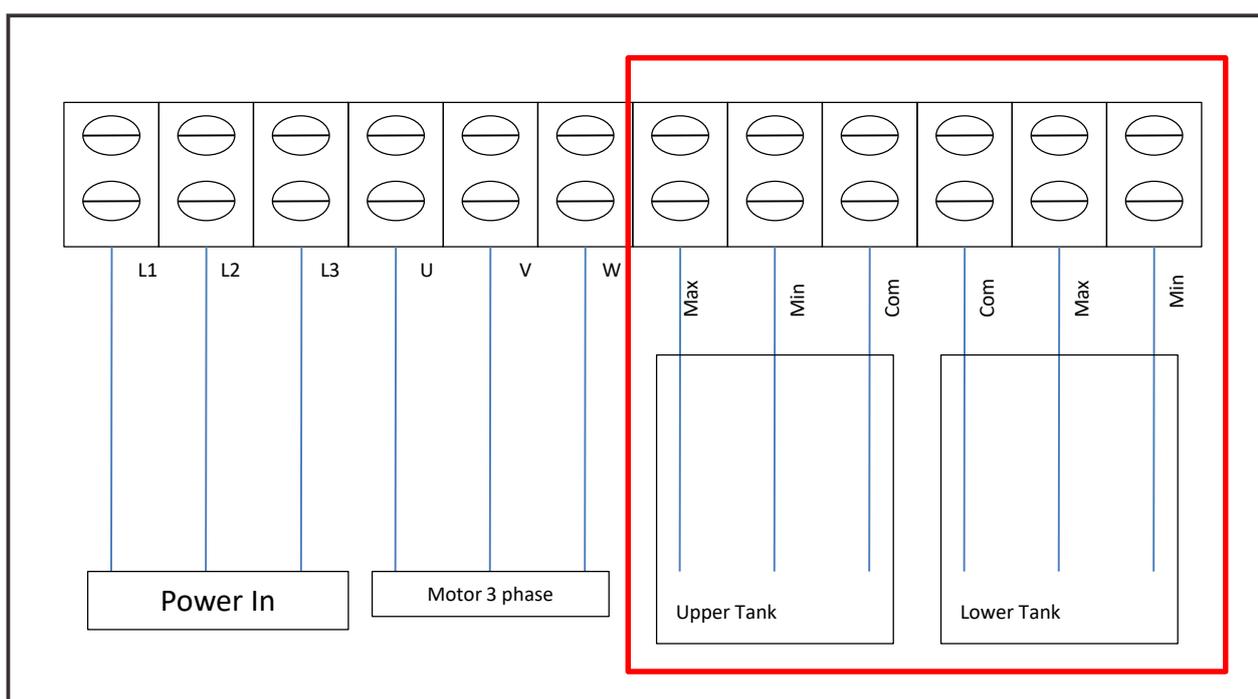
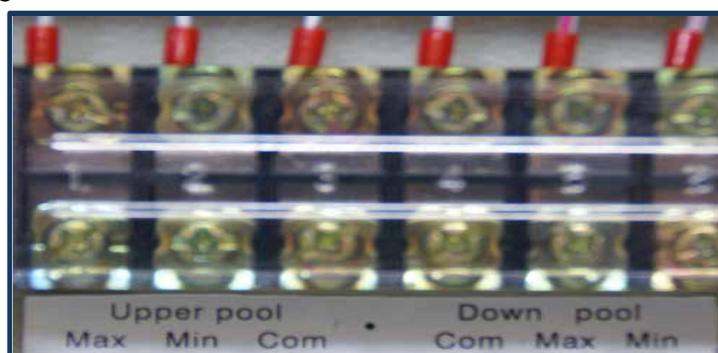
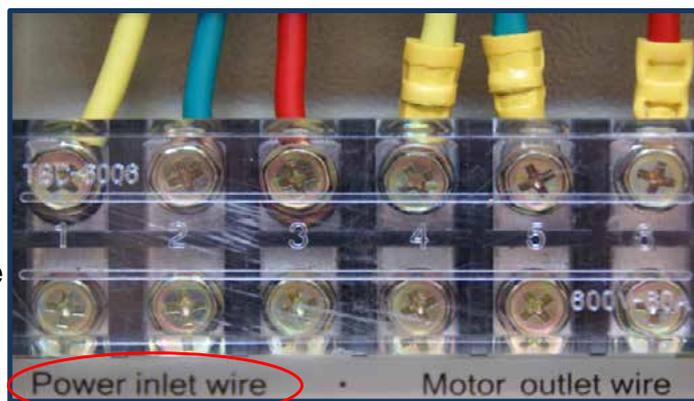
When in the off position power is cut to motor.

When in the start position, power is supply and motor protection aswell as dual level control is active. Dual level function to be bridged out when not required.



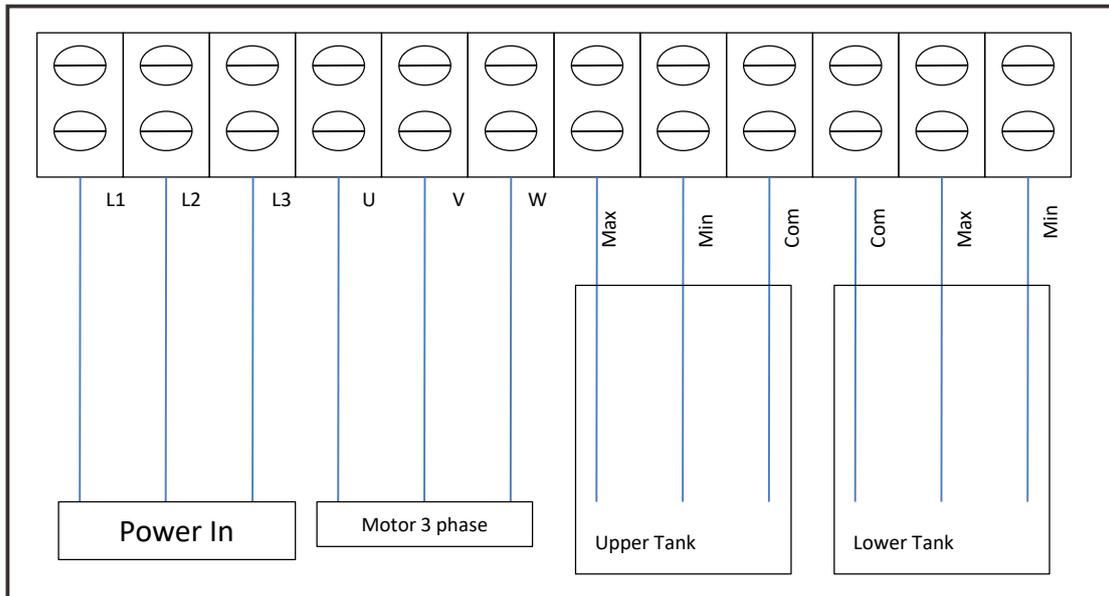
Installation

1. Fit the automatic control unit vertically to the appropriate area, avoiding direct sunlight, dust and rain.
2. Connect the input power to terminals as indicated.
3. Connect the appropriate float level or electrode cables to the water reservoir/tank points as indicated at the bottom of the unit.
4. The position marked “com” is for the electrode that must be installed at its lowest level in a tank. This common connection will measure the difference between the minimum and maximum electrodes, relaying the liquid levels to the control circuit.
5. Note that the liquid level probes/electrodes must be fixed to a pole or the side of the tank to the appropriate minimum and maximum positions.



Power connection

In the event of phase loss or an overload condition, the green and red LED lights on the electro motor protection (BHQ-S-C), inside the main unit, will light up and indicate the relevant condition.



Settings and adjustments

1. Switch off the 3 phase CCT breaker (DZ 47 D50) by pushing it down.

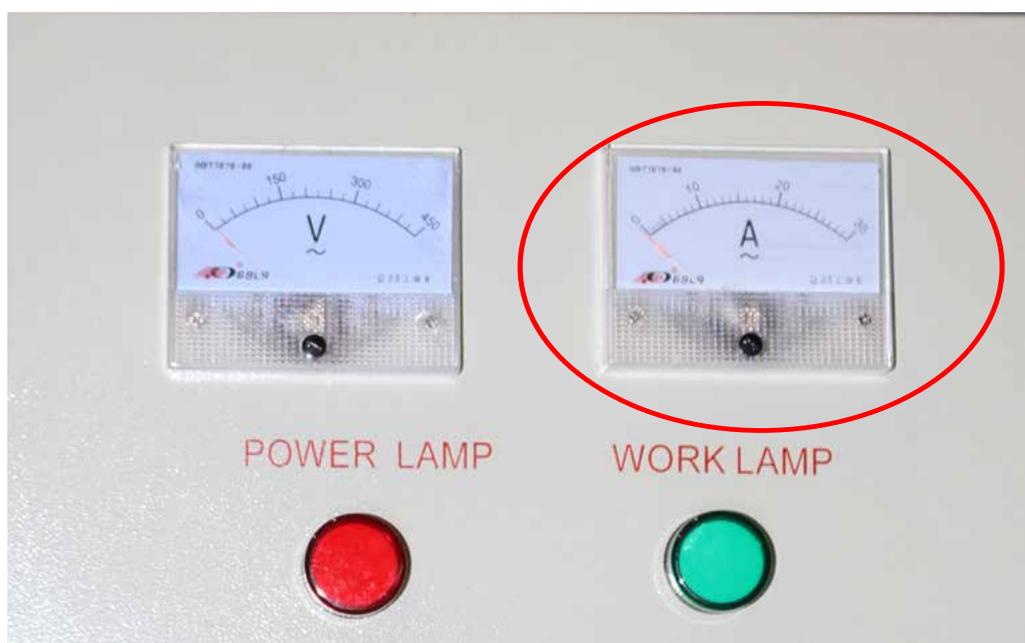


2. Adjust the “current setting screw” to the maximum on the electronic protector (BHQ-S-C) by turning it clockwise.

3. Switch to the appropriate position on the front of the panel.
4. To start the pump push the circuit breaker DZ47 up.
5. While the pump is running, the green LED “run” will be on. Slowly turn the “current setting screw” anti-clockwise until the red LED is on. Now turn the screw slowly clockwise so that the red LED goes off and does not flicker for at least 60 seconds. Lock your setting with the lock nut.

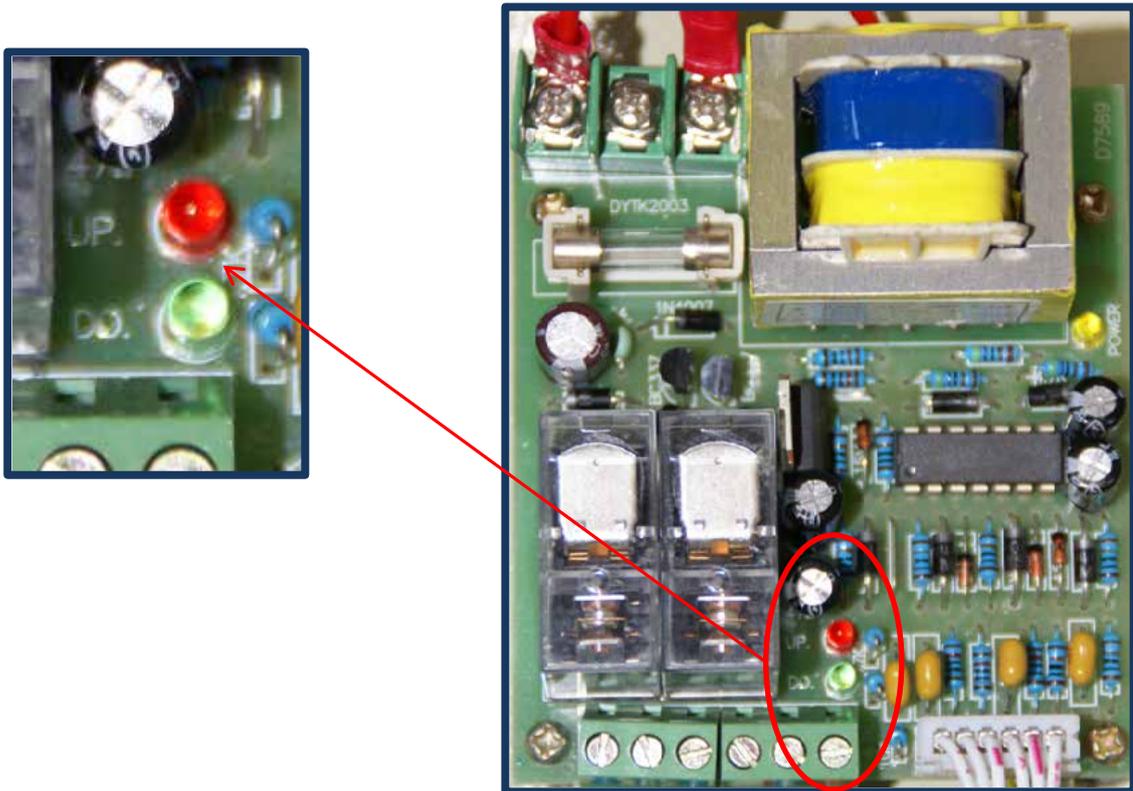


6. In order to set the “time delay setting” on the above mentioned unit, refer to the Amp meter on the front of the unit and set the delay for a bit longer than the starting time of the motor. The centre of the set screw should be around 150 seconds.



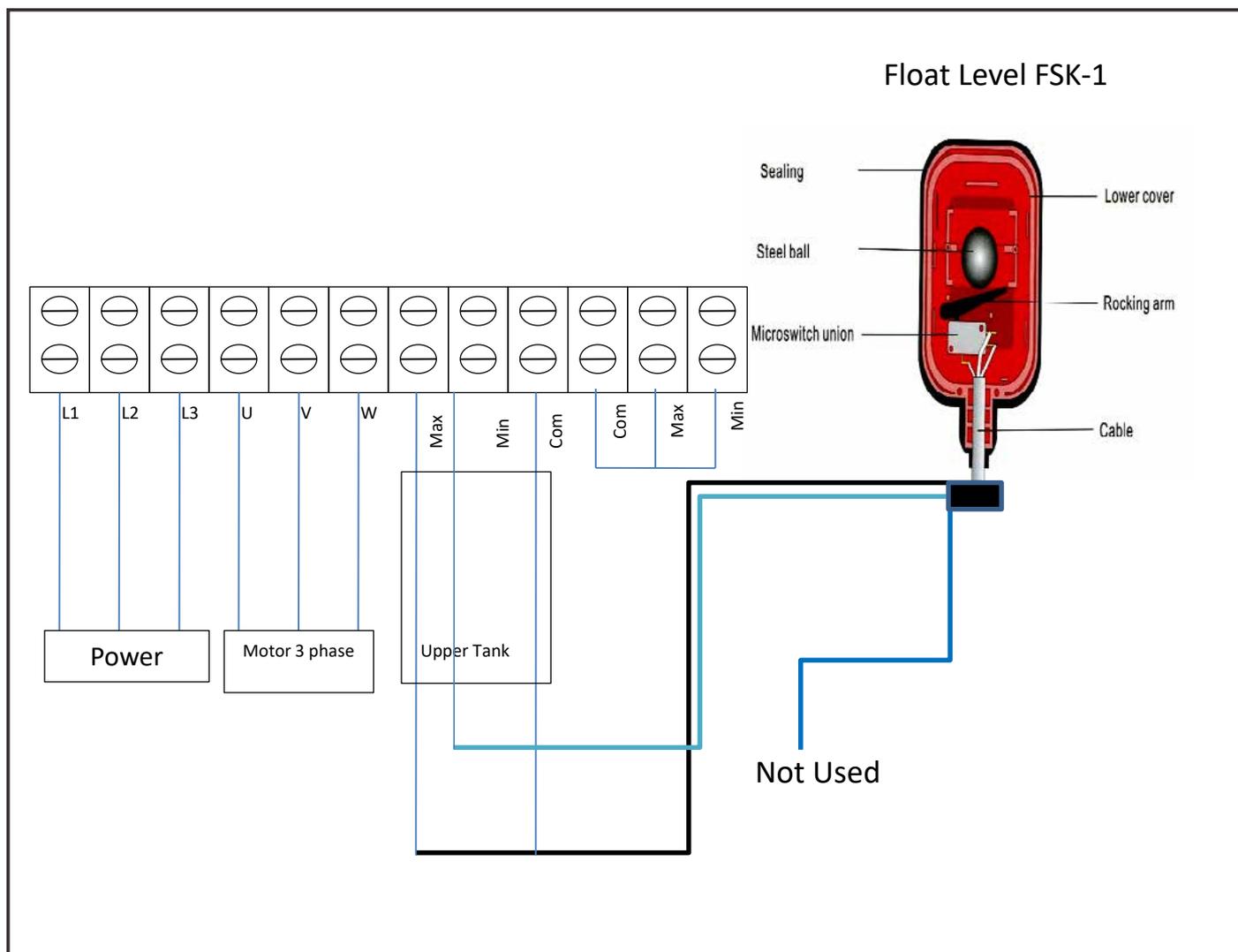
7 To test, switch the input power (at the 3 phase “outside supply”) off, and then back on again. The pump should run normally, indicating that the settings are correct.

8. Note that if the red and green LED’s on liquid level control PC Board is on, it means that both liquid monitoring functions are active and have reached level for ‘high / full’ sensing mode..



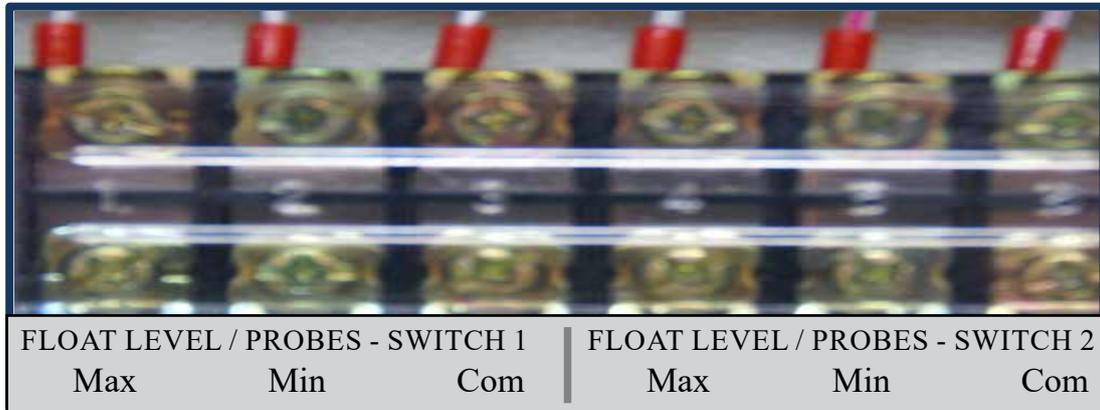
Float level wiring

Upper tank connection with float:

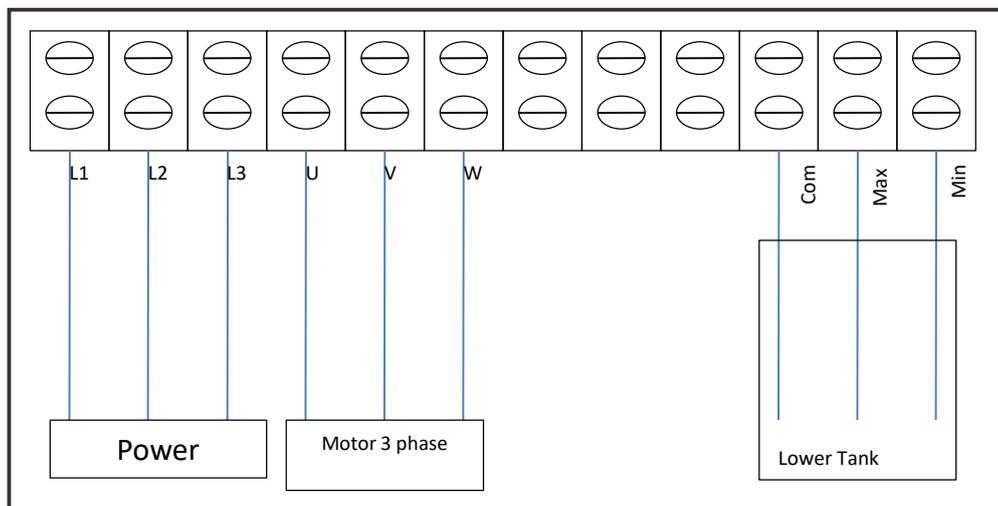


Operation dual level control

1. If the front panel is switched to “Start” then both level switches / probes are active.



2. The “start” switch on the front panel will activate both automatic CCT’s for level switch 1 and 2 as per diagram below.



3. Should the water levels in both reservoirs stay as it is, with “switch 1” at its minimum level and “switch 2” at its maximum level, power will not be switched to the pump motor.

Precautions

1. In the event of a fault in the control panel, rectify the fault first before attempting to re-start the pump.
2. Make sure that the supply voltage is correct before adjusting load current.
3. The control unit must always be sheltered from dust and rain and be installed at least 1.5m from the ground level.

Fault finding

If the control unit is connected to either a water tank or pressure system and the pump motor does not operate correctly as per the installation instructions and “operation water tank levels” then check the system as follows:

1. Switch power off at the CCT breaker in the unit.
2. Ensure that the up and down pool wiring is done correctly and that it is not faulty in any way, open or short CCT.
3. If the wiring is correct and the system still does not operate correctly, remove the wiring and insert a wire/copper link between the max., min. and com. connections. Now start the pump motor by switching the main CCT breaker “on”. If the pump runs normally, disconnect the links, connect it again and make sure the motor switches on and off normally. The above test will indicate that the control unit is in a good working condition and that the water system or wiring is at fault.
4. Should the yellow LED “phase failure” on the BHQ-S-C come on, the following must be performed: using a voltmeter, measure between the phases to establish the missing phase. If it is still missing, measure the outside 3 phase supply to establish faulty wiring from the supply. Should the 3 phase measure correctly at the input of the control unit, then check the CCT breaker and slow blow fuses, by replacing them all.
5. Should the red LED overload protection flicker on the same unit, check and make sure that the overload current setting is done correctly, then set a higher than normal running current.