Installation & Operation Manual

Pump Controller(PCS11 PLUS-MINI)

Ver. 1.0

1. OVERVIEW

The Pump Controller(PCS11 PLUS-MINI) abbreviated to PCS is a programmable control panel that is used to protect and control pumps. Primarily deep well submersible pumps, but also centrifugal; in-line; circulation and multistage pumps. The PCS has four general operating modes namely tank to tank; booster by pressure switch; drainage by sensor; timed pumping. The PCS 's protection features are dry run; overload; stalled pump; over voltage; under voltage;.

2. BUTTON & OPERATIONS

BUTTON	OPERATION [MANUAL mode unless otherwise stipulated]
START	Pump should start if not running.
STOP	Pump should stop if running.
STOP then MODE	Display shows last five failure records.
STOP then START	Display shows accumulative running time.
BUTTON	**OPERATION OF MANUAL TO AUTO AND AUTO TO MANUAL**
MODE SET	**[Parameter 012 set to 00]** – Manual to Auto / Auto to Manual **[Parameter 012 set to 01]** – All buttons locked in Auto mode. To deactivate hold "MODE" for 5sec. Pump will then stop, and controller will switch to manual mode.
To ensure pump and motor is protected it is essential to calibrate the controller parameters as soon as pump is running to operational standards. Perform calibration after each installation or maintenance operation.	
START	**Parameter calibration:** In Manual mode press "START", give the pump time to run as it would normally then hold "START" (*approximately 5-10 sec*),The controller will make a "Di" sound. The controller should now be calibrated to the current spec of the motor.
STOP	**Parameter erasing:** Ensure pump has stopped running then hold "STOP" until the controller makes a "Di" sound. (*Hold for approximately 5-10 sec*). The controller should now be cleared of all calibrations.

3. SPECIFICATIONS

Main technical characteristics of controller		
Control functions	Double liquid level control	
	Pressure switch control	
	Temperature control	
Main technical data		
Rated output power	Refer to label on controller	
Rated input voltage	Refer to label on controller	
Liquid level transfer distance	≤200m	
Protection function	*Dry run*	*Pump stall*
	Overload	
	Under/Over voltage	
Over voltage/under voltage recovery time	*4 minutes*	
Overload recovery time	*30 minutes*	
Main installation data		
Working temperature	-25°C – +55°C	
Working humidity	20% - 90% Relative Humidity	
Degree of protection	IP65	
Installation position	Vertical	
Unit dimensions (L x W x H)	175*88*210 mm	

Unit weight (net)	0.8 kg

4. APPLICATION SETTING

Whenever the controller is to be adjusted for application the power to the controller needs to be off and only re-energized once the switches have been toggled to the desired settings.

Application	2 Pole Switch	Description
1	**0 0**	Tank to tank.
2	**1 1**	Booster pump control by pressure switch.
3	**0 1**	Drainage by level sensor.
4	**1 0**	Timed start and stop. [Cancels out sensor terminal]

5. PARAMETER SETTINGS

PLEASE NOTE: Parameter settings should be adjusted after "Auto" calibration.

To access parameter settings the controller should be in manual mode and the pump should NOT be running.

Press and hold "MODE" for 5sec to enter the parameter menu.

To enter a parameter, press the "MODE" button. This will display the current value for the parameter.

To change the value, press the "START" or "STOP" buttons respectively to increase or decrease the value.

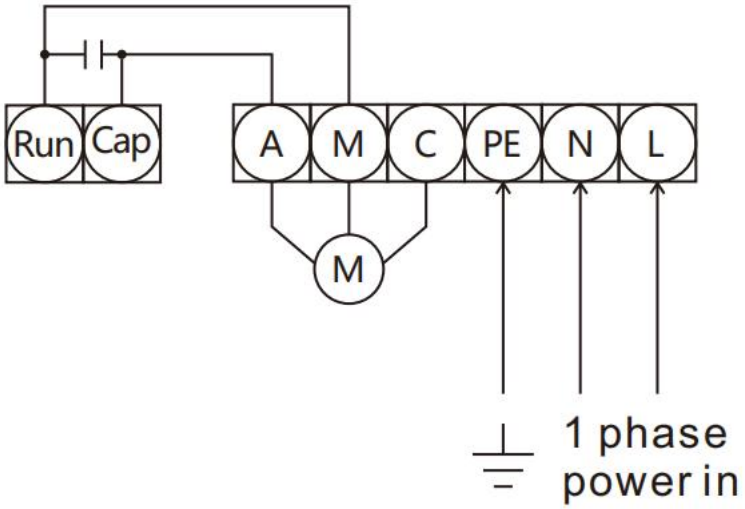
To store the value and return to the main menu press the "MODE" button.

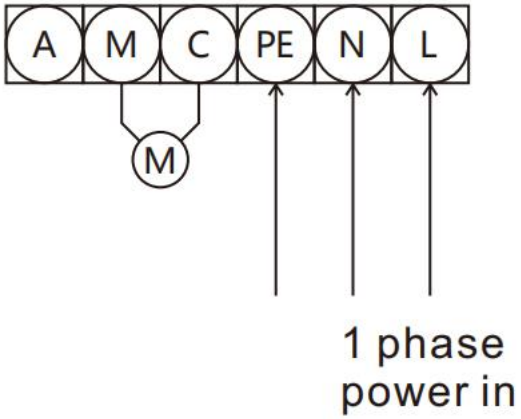
To store all changes and exit the parameter menu holding the "MODE" button for 5 sec if yellow button is not on circuit board.

Para-meter	Description	Range	Default value
001	Dry run protection trip amps.		0.7 times of rated running ampre
002	Overload protection trip amps.		1.4 times of rated running ampere
003	Stall protection trip amps.		1.7 times of rated running
004	Under voltage protection trip voltage.		175 V (Single Phase)
005	Over voltage protection trip voltage.		253 V (Single Phase)
006	Dry run protection trip response time.	0 – 254 sec	6 seconds
007	Dry run protection recovery time.	0 – 254 min	30 minutes
008	Timer function.	00 – 01	00 (Disabled) [01 Enabled]
009	Pump running time.	0 – 254 min	5 minutes (Only if 008 Enabled or dip switch at 10 position)
010	Pump stop time.	0 – 254 min	5 minutes (Only if 008 Enabled or dip switch at 10 position)
011	Pump stop timer under manual state.	0 – 254 min	0 minutes (0 = inactive)
012	LCD & button operation lock function.	00 - 01	00 (unlocked) [01 locked]

6. POWER WIRING DIAGRAMS

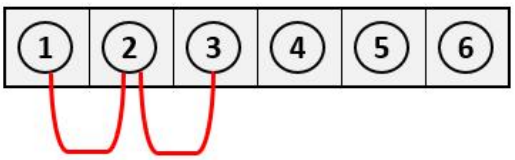
6.1 Single phase input and output wiring.





7. SENSOR WIRING DIAGRAMS

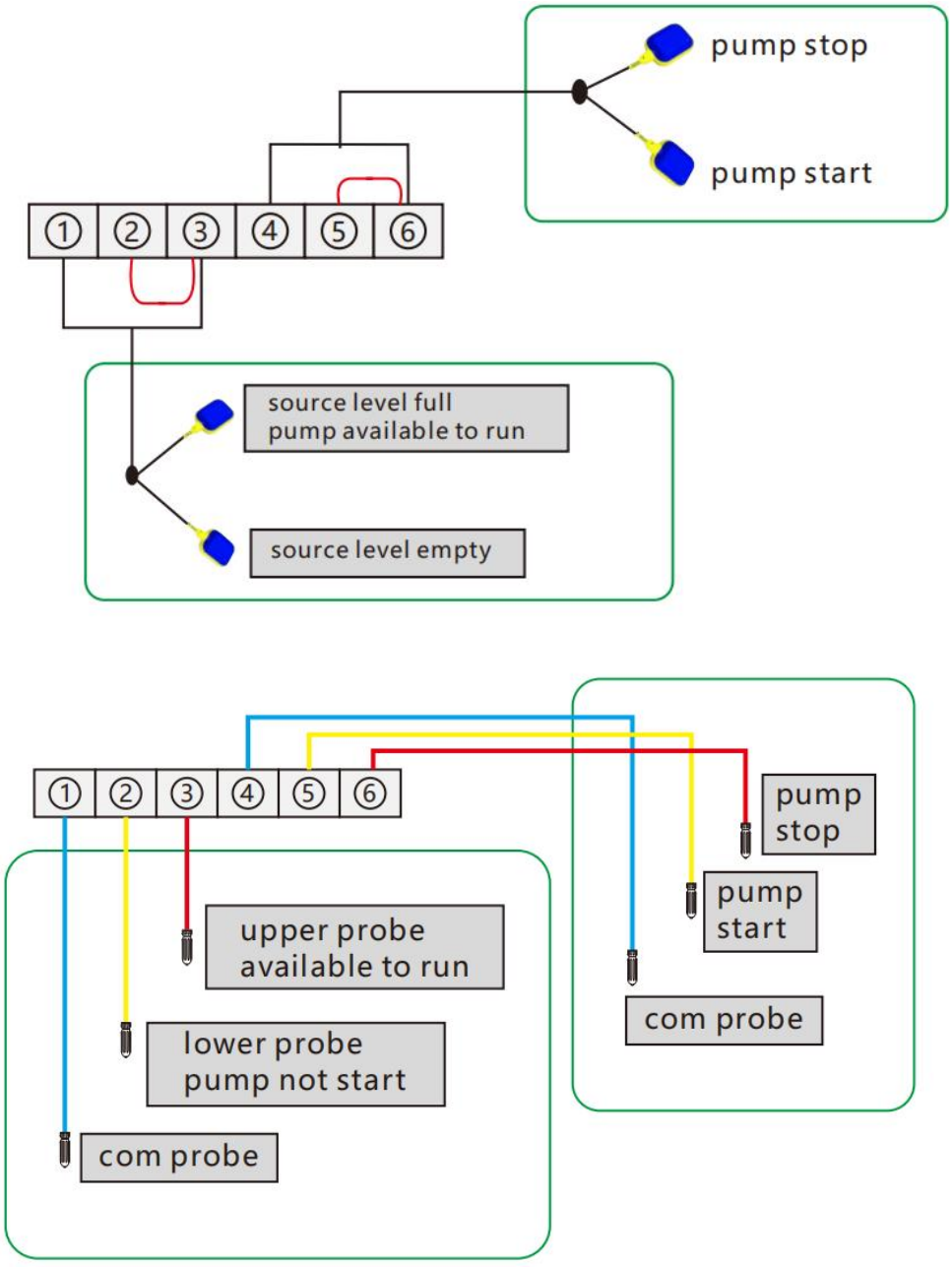
Factory Default wiring



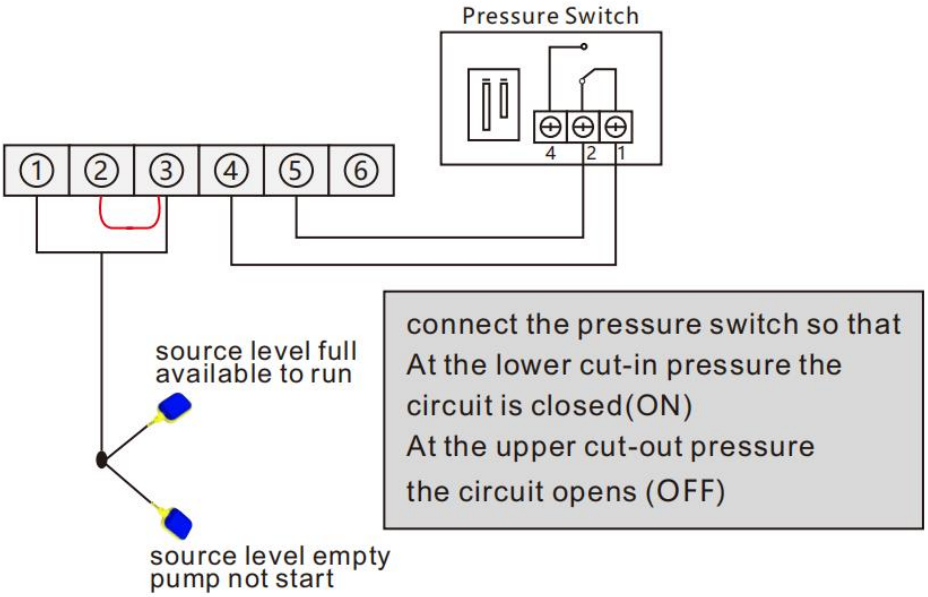
Remark:

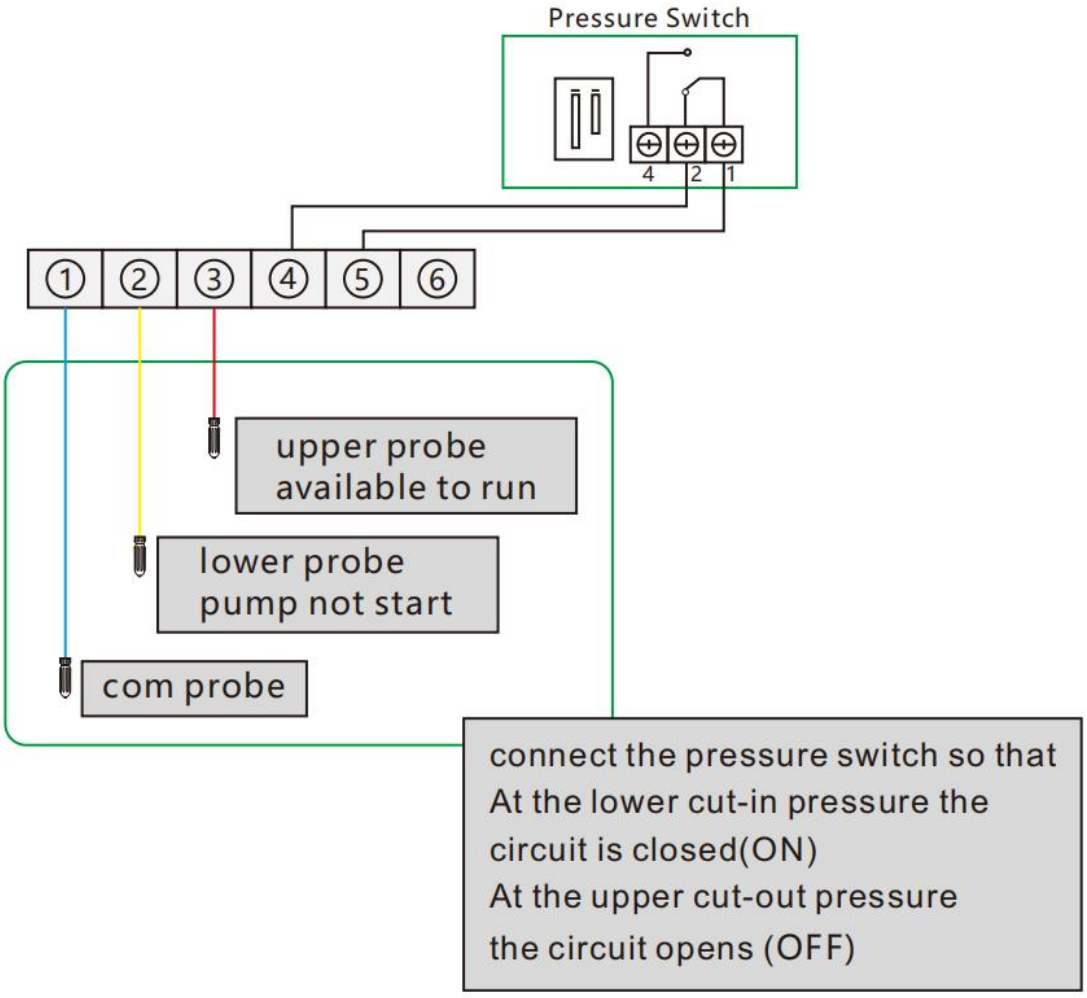
The probe / sensor free in the water well
as the Product has reliable and automatic stop function against pump dry-run (dewatering), if it is used in submersible pump for deep well, pipeline pump or other situations when it is inconvenient to install lower liquid probe in the well, pump users can put terminals ①、②、③in short circuit, which minimize the cost .

7.1 Tank to tank.



7.2 Booster pump control by pressure switch.


Pressure Switch
4
2
1
①
②
③
④
⑤
⑥
source level full
available to run
source level empty
pump not start
connect the pressure switch so that
At the lower cut-in pressure the
circuit is closed(ON)
At the upper cut-out pressure
the circuit opens (OFF)


Pressure Switch
4
2
1
①
②
③
④
⑤
⑥
upper probe
available to run
lower probe
pump not start
com probe
connect the pressure switch so that
At the lower cut-in pressure the
circuit is closed(ON)
At the upper cut-out pressure
the circuit opens (OFF)

7.3 Drainage by level sensor.