BOOSTER DC SOLAR

SQB Solar Booster Pump

for Manual and Automatic operation

The SQB peripheral vane solar booster pump is equipped with a permanent magnet, brushless motor that allows for efficient energy usage. It features the latest solar pump technology for a sustainable water supply. These pumps are used for pressure boosting and water transfer of drinking water and small irrigation systems. Suitable for applications where there is no electricity or for cost saving in power consumption.

Product Feature:

- Permanent magnet, brushless motor, saving energy and offering maximum efficiency.
- NSK bearings with ceramic mechanical seal.
- Intelligent dry run protection.
- MPPT function offers higher utilization rate of solar energy.
- Soft start protection.
- Over/under current protection.
- Variable speed control
- Max Flow: 2000L/h
- Max Head: 30m
- Discharge 25mm
- Power ` 250watt
- Voltage DC24

Working Conditions:

- Max pumped liquid temperature: 35°C
- PH capability: 6.5 - 8.5
- Max control box ambient temperature: 50°C

Operation Modes:

Manual:
1) Always On during daylight hours
2) Always On with connection of a regulator and series connected 12V deep cycle batteries.

Automatic:
Option 1 or 2 of manual operation with addition of pressure activated switch.

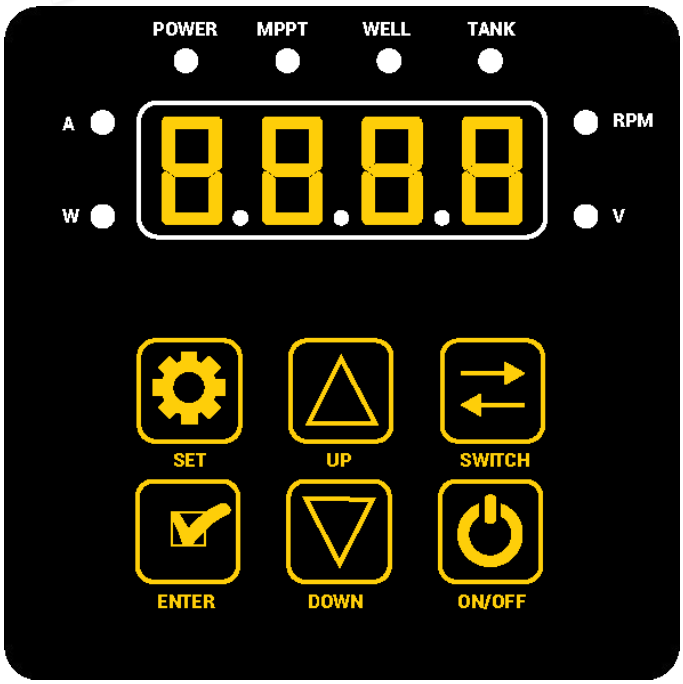
For more information see wiring diagram on page 5 & 6.

Technical Summary:

MODEL	DC MOTOR VOLTAGE (V)	MAX INPUT DC V.O.C (V)	MAX INPUT AMPERAGE	POWER (WATT)	MAX FLOW (m^3/h)	MAX HEAD (m)	OUTLET (INCH)	CABLE SIZE
SQB250-30/2A	24	48	17	250	2	30	1"	3 Core 2.5mm^2

BOOSTER DC SOLAR
Control Panel





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Control Panel

Key	Function
	Factory setting. Do not use.
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	RPM setting, to increase the RPM. In the Error State the key is used to turn the error display On or Off .
	RPM setting, to decrease RPM.
	In operation status this key is used to display the different values: Voltage | Speed | Current | Power
	Power button - Switch unit On and Off manually.

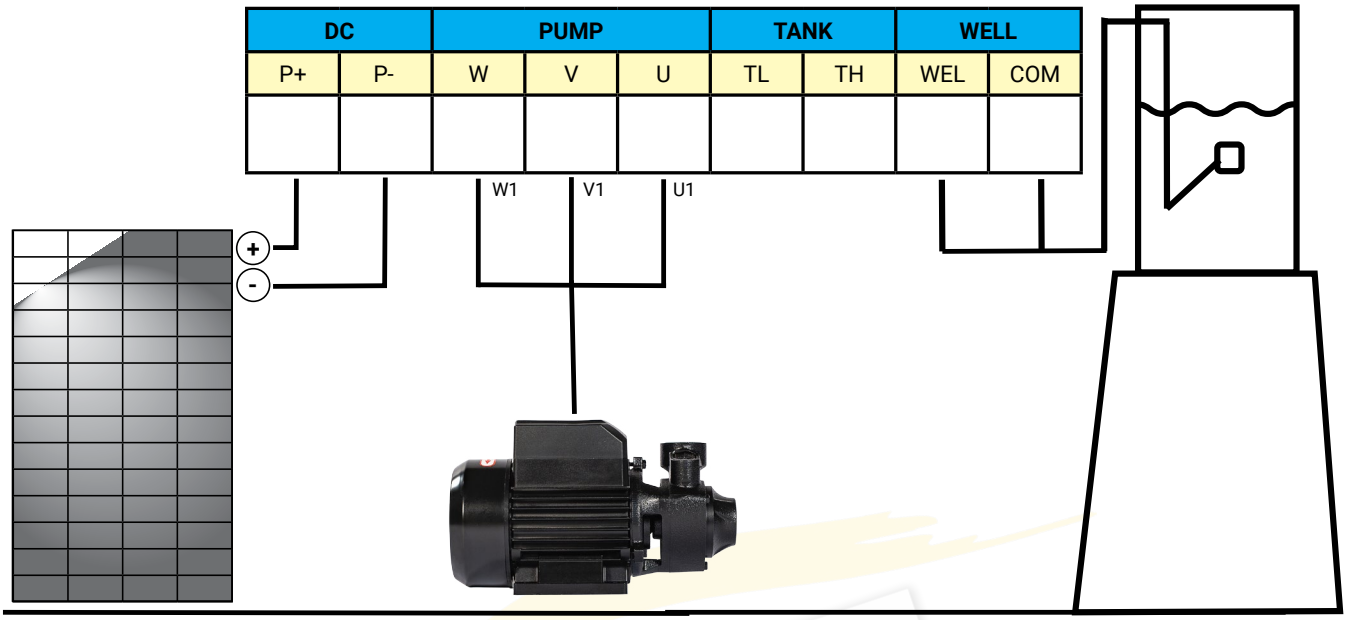
Control Parameters:

Model	Pump Voltage	Max Input Current (A)	VOC (V)	Operating Voltage Range	Operating Temperature
CN24	24V	17	48V	21 - 48	-15°C - 60°C

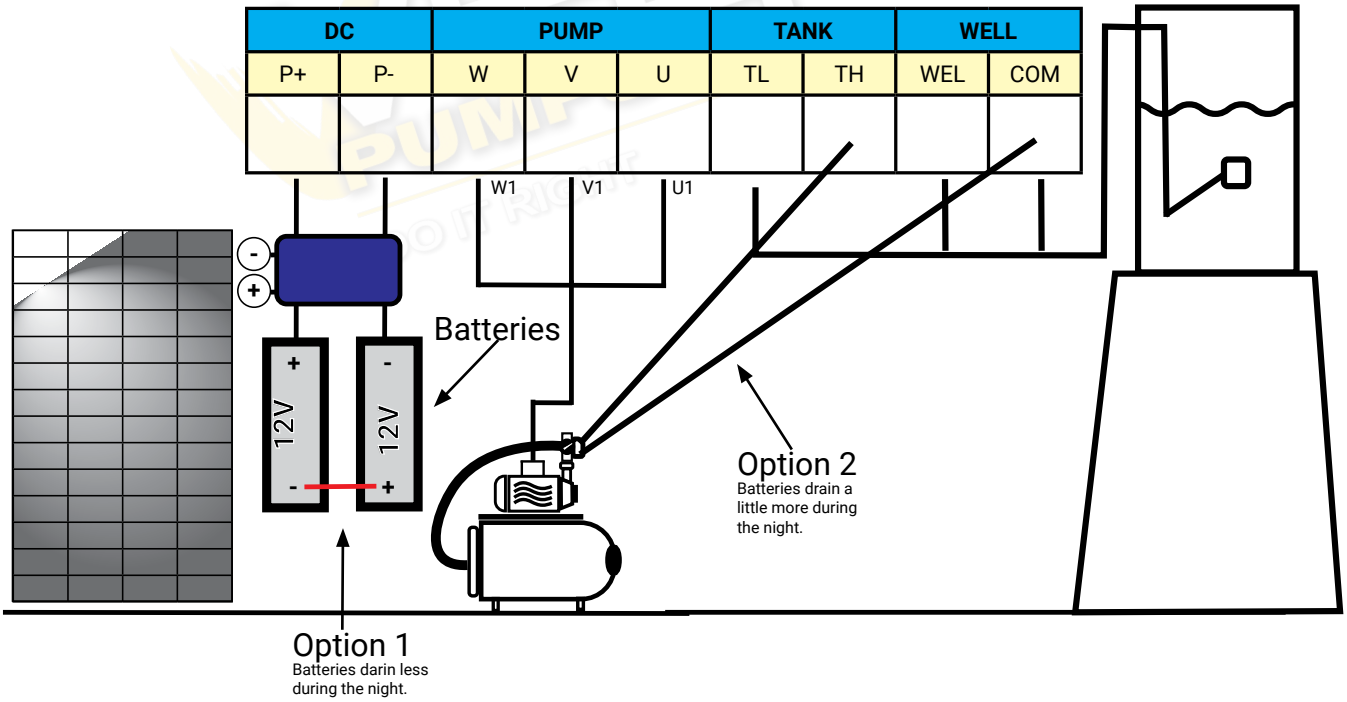
BOOSTER DC SOLAR

Wiring Diagram

Manual Operation:



Automatic Operation:



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Control Panel

Error Codes:

No	Code	Description	Cause	Solution	Recovery process
1	P0	Unit over-current	Incorrect motor voltage. UVW short circuit connection.	Replace with correct specification. Rewire according to diagram.	Automatically after 30sec.
2	P43	Phase protection	UVW open circuit.	Rewire according to diagram and ensure all wires are secured properly.	Automatically after 30sec.
3	P46	Stalling protection	Incorrect motor cable Length. Pump bearing stuck.	Replace with correct specification. Decrease length or replace with larger diameter cable. (See Cable chart) Return unit to supplier for evaluation and repair.	Automatically after 30sec.
4	P49	Software over-current	Pump bearing stuck. UVW short circuit connection.	Return unit to supplier for evaluation and repair. Rewire according to diagram and ensure all wires are secured properly.	Automatically after 30sec.
5	P50	Low voltage protection	Low input voltage.	Check panel wiring and ensure panels provide sufficient voltage according to pump specification.	Immediately
6	P51	High voltage protection	Input voltage too high.	Check panel wiring and ensure panel voltage specification meets pump requirement.	Immediately
7	P48	Dry-run protection	Water level below inlet of pump. Air trapped in pipework.	Lower the pump or wait until well refills. Switch unit off and wait for 30seconds.	Unit will automatically start after 30minutes.
8	P60	High temperature protection	High temperature protection.	Temperature of controller more than 90°C.	Unit will automatically start after temperature has stabilised.
9	E00-10	Current sampling failure		Switch power off and restart after 30 seconds.	Restart unit to clear error.
10	E-11	MOS drive voltage abnormal		Return unit to supplier for technical evaluation.	
11	E-12	Well Light illuminated	Water source is dry or at low level	Check water supply level and ensure it's above low level sensor, If below refill to acceptable level. If water level is above sensor level, check suction line for any obstructions.	Unit will automatically start after 30sec once supply has been restored.
12	E-13	Tank Light illuminated	Water level is above sensor. (Tank Full)		
13	PL	Power shortage	PV Panel not receiving sufficient sunlight. PV Panels not wired correctly.	Unit will start up automatically as soon as sky clears. Check wiring and ensure that it is correct according to wiring diagram.	Unit will restart automatically after 30 seconds the first 5 times, there after it will restart after 30 minutes.
14	ALARM	Reverse wiring protection	Panel incorrectly wired	Check wiring and ensure that it is correct according to wiring diagram.	Restart unit to clear error.

PV Panel to Control Box

Unit Voltage	Cable Length (m)											
	15	30	45	60	75	90	105	120	135	150	175	200
24V	4mm²	6mm²	10mm²	16mm²	16mm²	25mm²	25mm²	35mm²	35mm²	35mm²	50mm²	50mm²
48V	2.5mm²	4mm²	6mm²	10mm²	10mm²	16mm²	16mm²	25mm²	25mm²	25mm²	35mm²	35mm²
72V	2.5mm²	4mm²	6mm²	10mm²	10mm²	10mm²	10mm²	16mm²	16mm²	16mm²	25mm²	25mm²
96V	2.5mm²	2.5mm²	4mm²	4mm²	6mm²	6mm²	10mm²	10mm²	10mm²	10mm²	16mm²	16mm²
110V	2.5mm²	2.5mm²	4mm²	4mm²	6mm²	6mm²	10mm²	10mm²	10mm²	10mm²	16mm²	16mm²

Control Box to Pump

		CABLE DIAMETER						
Watt		1.5 mm²	2.5 mm²	4 mm²	6 mm²	10 mm²	16 mm²	25 mm²
210	CABLE LENGTH		40	60				
300			110	170	260			
500			110	170	260			
750			160	260	380			
1200			160	260	380			