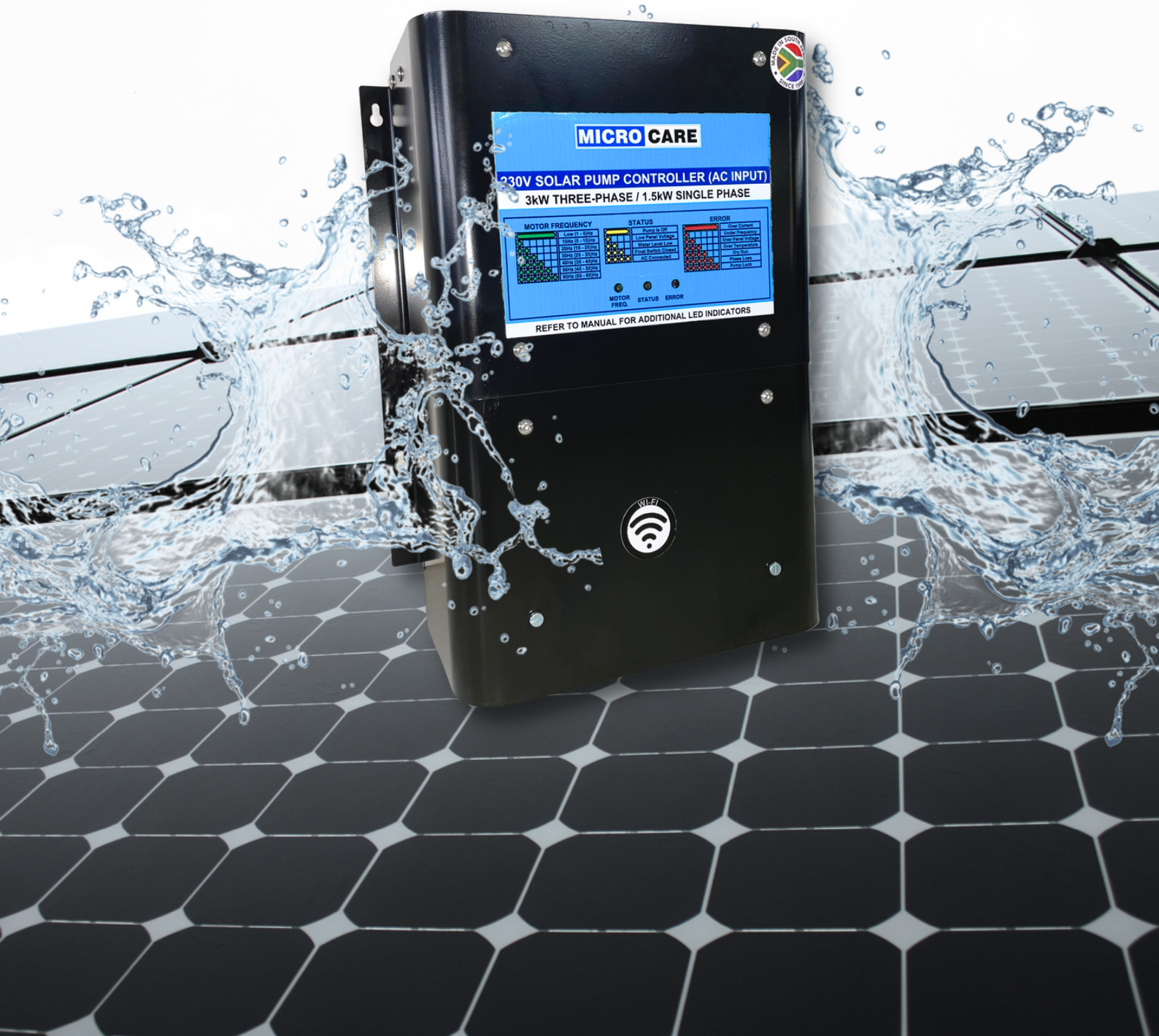


MICROCARE
SOLAR ENERGY

SOLAR PUMPING KITS & SOLUTIONS

Designed Developed Manufactured
in South Africa



RUN STANDARD AC SINGLE & THREE-PHASE PUMPS

The Microcare VSD Solar Pump Controller is able to run approved Single & Three-Phase 220V up to 415V pumps. This includes Mono and Centrifugal pumps.

PHASE LOSS PROTECTION

When a phase is lost on the pump the Microcare product will automatically switch off the pump and a LED on the unit will indicate that a phase is lost.

ONLINE MONITORING

When the borehole or reservoir reaches a low level, the pump controller will disconnect the power to the motor to prevent the pump from running dry and burning out. The Pump Controller can also be set to restart once the water level has raised again and will automatically start to pump again.

FLOAT + HIGH/LOW WATER SENSOR

The Controller has connections for a Float Switch and for a High/Low water sensor probe. In the case of the Float switch when the water level is low, the pump will automatically switch on and when the water level is high, the pump will automatically switch off. In the case of the High/Low water sense the pump will turn off when the Low water is reached and can be set to automatically turn on when the High water level is reached.

SWITCHES ON/OFF BASED ON FREQUENCY

The user can set the frequency according to the required specifications. If the frequency level drops below or exceeds the amount set for it, the Pump Controller will switch off automatically.

VARIABLE SPEED DRIVE (VSD)

Driven by cutting edge technology, the Microcare Solar Pump Controllers have a built-in variable speed drive (VSD) which enables the end user to adjust the flow of water from the pump and by varying the speed of the drive thus ultimately reducing wastage of energy.

LCD DISPLAY & WI-FI CONNECTION (OPTIONAL)

The Controller is available with an optional LCD display allowing the user to access real time readings of the Controllers operating conditions including Output Voltages, Power etc. Additionally the same data can be accessed via your mobile phone, tablet or computer through the Wi-Fi radio connection.

SOLAR VOLTAGE BOOSTER

The Microcare Solar Voltage Booster is an electronic device which is mounted onto the back of a PhotoVoltaic (PV) solar panel to interface with and boost the voltage of the Solar PV panel. It is designed to increase the voltage of a standard PV solar panel (17-35V) to match the levels required for use with Microcare Solar VSD Pump Controllers.

This unit is designed for rural and farming environments where grid electricity is not always available close to water sources such as boreholes and dams. Operating as a high frequency DC/DC converter the unit allows the pump controller to track the maximum power from the solar panel through the regulator in such a way that it doesn't affect the performance of the system and pump controller. This equates to a peak efficiency of 98% making a single panel look like an array of panels to the pump controller with a seamless Invisible link between the panels and pump controller.



230V SOLAR VSD PUMP CONTROLLER (AC INPUT)

Microcare products are designed and developed locally with extensive field testing completed before the manufacturing process begins. Ideal for South African conditions the Microcare Solar VSD Pump Controllers are designed to provide power to remote applications of motors and pumps. Driven by local innovation the unit is a Maximum Power Point Tracker (MPPT) facilitating a maximum power generation for efficient usage. With its variable speed selectable control and flow switch input the unit is able to offer a true Solar Pump Controller capable of producing high efficiency and maximum power output. The unique built in overdrive feature allows for a lower PV voltage operation.



- AC Input to allow shared power usage & operation from the Grid or AC source
- PV Panel Input Voltage of 265–550 VDC
- Compatible with single & three-phase 220V motors that are VSD approved
- LED status feedback
- High – Low water input connectors
- Float switch input
- Trip and restart controls
- Built in Variable Speed Drive (VSD)
- Surge Protection
- Unique overdrive feature allows lower PV Voltage operation than is currently available on the market
- IP44 rated
- No external enclosure box required
- Cost effective installation
- Available with comms port for Wi-Fi connection

MODEL	kW (3ph) 1.2kW (1ph) Pump Controller	3kW (3ph) 1.5kW (1ph) Pump Controller
PV V _{OC} RANGE	365 – 550V	
PV V _{MP} RANGE	265 – 400V	
RECOMMENDED PV V _{MP} (MAX EFFICIENCY)	310 MP	
RATED OUTPUT POWER SINGLE-PHASE	1,1kW	1.5kW
RATED OUTPUT POWER THREE-PHASE	2kW	3 kW
AC INPUT	220V Single Phase	
FREQUENCY RANGE	30–50Hz (Programmable)	
AMBIENT TEMP RANGE	–15 to 40°C	
PROTECTION	Overload, Short Circuit, Over Temperature, Under Voltage, Over Voltage, Surge Protection	
DIMENSIONS (H x W x D)	29 x 24 x 12cm	
WARRANTY	3 years	



380V SOLAR VSD PUMP CONTROLLER

Microcare products are designed and developed locally with extensive field testing completed before the manufacturing process begins. Ideal for South African conditions the Microcare Solar VSD Pump Controllers are designed to provide power to remote applications of motors and pumps. Driven by local innovation the unit is a Maximum Power Point Tracker (MPPT) facilitating a maximum power generation for efficient usage. With its variable speed selectable control and flow switch input the unit is able to offer a true Solar Pump Controller capable of producing high efficiency and maximum power output. The unique built in overdrive feature allows for a lower PV voltage operation.

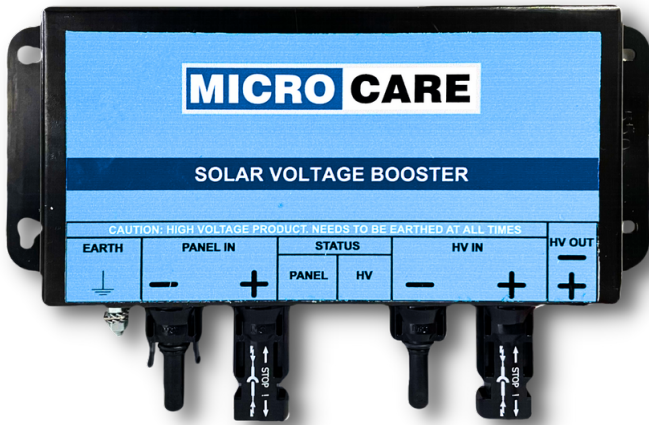


- Surge Protection
- PV Panel Input Voltage of 450–1000 VDC
- Compatible with three-phase 220V & 380V motors that are VSD approved
- LED status feedback
- High – Low water input connectors
- Float switch input
- Trip and restart controls
- Built in Variable Speed Drive (VSD)
- Unique overdrive feature allows lower PV Voltage operation than is currently available on the market
- IP44 rated
- No external enclosure box required
- Cost effective installation
- Available with comms port for Wi-Fi connection

THREE-PHASE OUTPUT VOLTAGE (VAC)	380	400	410	200	220	230	240	219	397
1.5KW VSD RATED OUTPUT POWER	1.5kW			0.8kW				1.5kW	
5.5KW VSD RATED OUTPUT POWER	5.5kW			3kW				5.5kW	
MAX PV VOC INPUT	850V DC			650VDC					
MIN PV START UP VOC (V _{DC})	>537	>565	>580	>285	>310	>325	>339	>180	>300
RECOMMENDED PV VMP (V _{DC})	530	565	580	280	310	325	340	310	530
FREQUENCY RANGE	5–65Hz (Programmable)								
AMBIENT TEMP RANGE	0 to 40°C								
PROTECTION	Overload, Short Circuit, Over Temperature, Under Voltage, Over Voltage, Surge Protection								
DIMENSIONS (H x W x D)	29 x 24 x 12cm								
WARRANTY	3 years								

SOLAR VOLTAGE BOOSTERS 350V | 550V

The Microcare Solar Voltage Booster is an electronic device which is mounted onto the back of a PhotoVoltaic (PV) solar panel to interface with and boost the voltage of the Solar PV panel. It is designed to increase the voltage of a standard PV panel (17–35V) to match the levels required for use with borehole pumps. This is designed for rural and farming environments where grid electricity is not always available close to water sources such as boreholes and dams. Operating as a high frequency DC/DC converter the unit allows the pump controller to track the maximum power from the solar panel through the regulator in such a way that it doesn't affect the performance of the system and pump controller. This equates to a peak efficiency of 98% making a single panel look like an array of panels to the pump controller with a seamless invisible link between the panels and pump controller.



- Multiplies input voltage by 15
- Input Voltage range: 10 to 50 VDC
- Panel power up to 360W supported
- Modular expansion
- Easy installation—All connections MC4
- Self-protecting design
- Most cost effective option for smaller pump systems
- Fits behind most standard PV panels
- 95% efficient over wide power range
- Electronics fully encapsulated

MODEL	SVB—350 (Single Phase Applications)	SVB—550 (Three Phase Applications)
PV V_{OC} RANGE	20V to 50V	
PV V_{MP} RANGE	12V to 40V	
INTENDED USE	$V_{MP} = 37V, V_{OUT} = 350V$	$V_{MP} = 37V, V_{OUT} = 550V$
VOLTAGE MULTIPLICATION FACTOR	9.7	14.9
RATED OUTPUT POWER	360W	
EFFICIENCY	95% (over wide range)	
AMBIENT TEMP RANGE	-40°C to 75°C	
PROTECTION	4.5kA Surge protection on all inputs	
DIMENSIONS (H x W x D)	14 x 21 x 5cm	
WARRANTY	1 year	



SOLAR PUMPING KITS

VOLTAGE	MODEL	SINGLE-PHASE MOTOR	THREE-PHASE 230V MOTOR	THREE-PHASE 380V MOTOR	AC INPUT GRID /GENERATOR	MIN Voc	MAX Voc	RECOMMENDED MIN WATTAGE	IDEAL WATTAGE
230V	1.1kW Single-Phase/ 2kW Three-Phase	Yes up to 1.1kW	Yes up to 2kW	NO	YES	340V	550V	Motor size x 1.7	Motor size x 2
	1.5kW Single-Phase/ 3kW Three-Phase	Yes up to 1.5kW	Yes up to 3kW	NO	YES	340V	550V	Motor size x 1.7	Motor size x 2
380V	1.5kW Three-Phase	NO	Yes up to 0.8kW	Yes up to 1.5kW	NO	540V	850V	Motor size x 1.7	Motor size x 2
	5.5kW Three-Phase	NO	Yes up to 3kW	Yes up to 5.5kW	NO	540V	850V	Motor size x 1.7	Motor size x 2

PUMPING KIT SIZES

KIT SIZE	PUMP CONTROLLER	PANELS	BOOSTERS
230V Single-Phase Solar Pumping Kits			
0.375kW	1.1kW 230V	2 x 335W	2 x 350V
0.55kW	1.1kW 230V	3 x 335W	3 x 350V
0.75kW	1.1kW 230V	5 x 280W HV	N/A
1.1kW	1.1kW 230V	6 x 280W HV	N/A
1.5kW	1.5kW 230V	9 x 335W	N/A
380V Three-Phase Solar Pumping Kits			
0.375kW	1.5kW 380V	2 x 335W	2 x 550V
0.55kW	1.5kW 380V	3 x 335W	3 x 550V
0.75kW	1.5kW 380V	4 x 335W	4 x 550V
1.1kW	1.5kW 380V	8 x 280W HV	N/A
1.5kW	1.5kW 380V	9 x 280W HV	N/A
2.2kW	5.5kW 380V	16 x 335W	N/A
5.5kW	5.5kW 380V	32 x 335W	N/A

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