SERVOTEC
smart power solutions

Sunfarm Series

VFD-Solar Pump Controller

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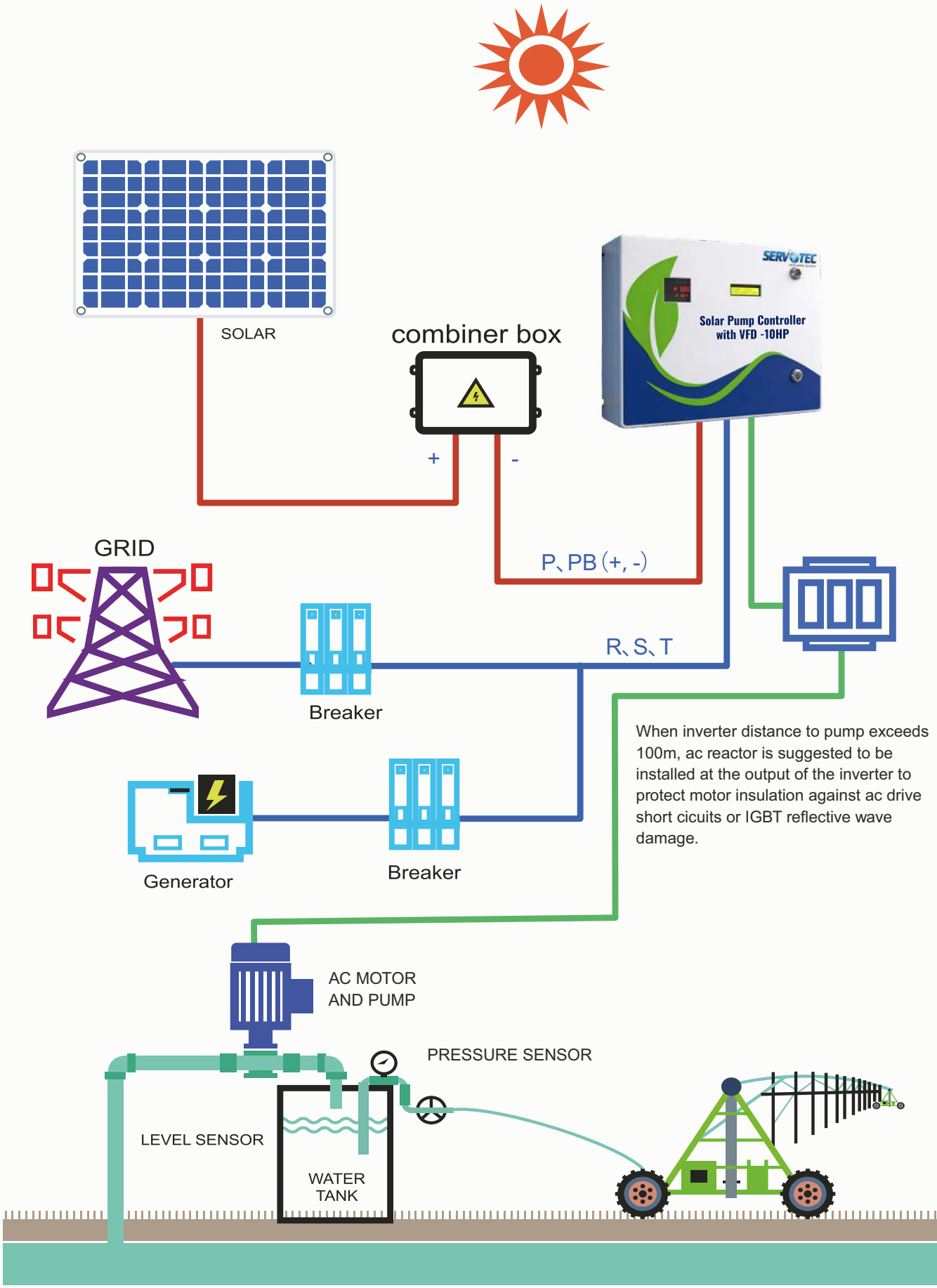
About Servotech Renewable

Servotech Renewable Power System Ltd. (NSE: SERVOTECH) is India's leading manufacturer of advanced clean energy solutions, specializing in solar Solutions, BESS and EV charging solutions. With a robust pan-India presence, agile manufacturing, and strong R&D capabilities, Servotech is driving India's transition toward a sustainable, energy-independent, and technologically empowered future. Through continuous innovation, strategic collaborations, and large-scale deployments, the company delivers reliable, high-performance solutions that support the nation's clean energy goals. Servotech's comprehensive portfolio spanning solar panels, inverters, Lithium batteries, and EV chargers reflects its commitment to engineering excellence and environmental stewardship. By aligning business growth with global sustainability standards, Servotech stands as a catalyst in shaping India's green energy transformation and powering a cleaner tomorrow.

Model Reference



Technical Specifications-Single Phase

1. System Overview	
Parameter	**Specification**
System Type	Solar Pump Controller with MPPT & VFD
Application	Solar AC Pump Operation
Grid Dependency	Operate in off-grid mode (independent operation)
Additional Requirement	Pump can run even in absence of grid

2. Electrical Specifications	
Parameter	**Specification**
HP Rating	0.75HP - 3 HP
MPPT Efficiency	> 96%
Maximum Power Voltage (Vmp)	160V – 450V DC
Output Voltage	240 VAC (1-Phase for 3 HP)
Operating Temperature	10°C to 70°C
Cooling Fan	12V DC, 0.35A (Start: ~70°C, Stop: ~60°C)

3. MPPT & Control	
Parameter	**Specification**
MPPT Type	Microprocessor/DSP based
Design	Transformer-less
Control Technology	IGBT based power stage
Output Waveform	Sine wave (PWM based)
Performance Requirement	Constant torque across varying sunlight

4. Display Parameters	
Parameter	**Specification**
Display Type	LCD
Display Data	Total kWh
	Panel Voltage
	Panel Current
	Power
	Frequency
	AC Voltage

5. Remote Monitoring System (RMS)	
Parameter	**Specification**
Communication	GSM/GPRS/2G/3G/4G
Protocol	MQTT
RMS controller Protocol	RS485
Data Format	JSON
Security	TLS/SSL/X.509
Features	Remote ON/OFF via mobile
Data Storage	Local storage up to 1 year (if network unavailable)
Data Push Interval	1–15 minutes
Event Trigger	Immediate push on abnormal events

6. RMS Functional Features	
Parameter	**Specification**
Geo Location	Real-time latitude & longitude tracking
Event Monitoring	Pump faults, overload, dry run, short circuit
Consumer Management	Name, service no., contact details
Asset Management	Serial number, model, IMEI, ICCID
Complaint System	Ticket management supported
Mobile App	Generation, runtime, discharge, complaints

7. Protections	
Parameter	**Specification**
Internal Fault Protection	Temperature, overload, commutation failure, fan failure
	Dry run protection, reverse polarity, open circuit, short circuit
Over Voltage Protection	Lightning & grid fluctuation protection
Earth Fault Detection	Integrated DC side fault detection
Operational Safety	Protection against switching transients

8. Mechanical & Installation	
Parameter	**Specification**
Cable Entry	Bottom
Cable Type	PVC Copper (BIS standard)
Cable Routing	GL trays with covers
Termination	Proper industrial terminations

9. Terminals	
Parameter	**Specification**
Input Terminal	PV input (+ve / -ve)
Output Terminal	RYB terminals (motor output)

10. General Features	
Parameter	**Specification**
Remote Accessibility	Yes (mobile-based)
Protections	Multiple built-in protections
Pump Operation	Continuous from morning to evening
Monitoring Integration	Must connect to State Level Solar Platform

Technical Specifications-Three Phase

1. System Overview	
Parameter	**Specification**
System Type	Solar Pump Controller with MPPT & VFD
Application	Solar AC Pump Operation
Grid Dependency	Operates in off-grid mode (independent operation)
Additional Requirement	Pump runs even in absence of grid

2. Electrical Specifications	
Parameter	**Specification**
HP Rating	3 HP to 10 HP (Higher rating on request)
MPPT Efficiency	> 96%
Maximum Power Voltage (Vmp)	160V – 800V DC
Output Voltage (3-Phase)	415 VAC (3 HP, 5 HP, 7.5 HP, 10 HP)
Operating Temperature	10°C to 70°C
Cooling Fan	12V DC, 0.35A (Start: ~70°C, Stop: ~60°C)

3. MPPT & Control	
Parameter	**Specification**
MPPT Type	Microprocessor/DSP based
Design	Transformer-less
Control Technology	IGBT based power stage
Output Waveform	Sine wave (PWM based)
Performance Requirement	Constant torque across varying sunlight

4. Display Parameters	
Parameter	**Specification**
Display Type	LCD
Display Data	Total kWh
	Panel Voltage
	Panel Current
	Power
	Frequency
	AC Voltage

5. Remote Monitoring System (RMS)	
Parameter	**Specification**
Communication	GSM/GPRS/2G/3G/4G
Protocol	MQTT
RMS controller Protocol	RS485
Data Format	JSON
Security	TLS/SSL/X.509
Features	Remote ON/OFF via mobile
Data Storage	Local storage up to 1 year (if network unavailable)
Data Push Interval	1–15 minutes
Event Trigger	Immediate push on abnormal events

6. RMS Functional Features	
Parameter	**Specification**
Geo Location	Real-time latitude & longitude tracking
Event Monitoring	Pump faults, overload, dry run, short circuit
Consumer Management	Name, service no., contact details
Asset Management	Serial number, model, IMEI, ICCID
Complaint System	Ticket management supported
Mobile App	Generation, runtime, discharge, complaints

7. Protections	
Parameter	**Specification**
Internal Fault Protection	Temperature, overload, commutation failure, fan failure
	Dry run protection, reverse polarity, open circuit, short circuit
Over Voltage Protection	Lightning & grid fluctuation protection
Earth Fault Detection	Integrated DC side fault detection
Operational Safety	Protection against switching transients

8. Mechanical & Installation	
Parameter	**Specification**
Cable Entry	Bottom
Cable Type	PVC Copper (BIS standard)
Cable Routing	GL trays with covers
Termination	Proper industrial terminations

9. Terminals	
Parameter	**Specification**
Input Terminal	PV input (+ve / -ve)
Output Terminal	RYB terminals (motor output)

10. General Features	
Parameter	**Specification**
Remote Accessibility	Yes (mobile-based)
Protections	Multiple built-in protections
Pump Operation	Continuous from morning to evening
Monitoring Integration	Must connect to State Level Solar Platform

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