

Technical Datasheet

Solar pump driving system with hybrid power supply from photovoltaic panels (PV Plant) and three-phase AC Grid (Mains and/or Diesel Gen-Set) "Solar Power Control System / Hybrid - SPCS/H"



SPCS/H x.x-xxx COMBINER BOX Technical Data

System Type	SPCS/H 1.5-230 Combiner	SPCS/H 2.2-400 Combiner	SPCS/H 3.0-400 Combiner	SPCS/H 4.0-400 Combiner	SPCS/H 5.5-400 Combiner
Output Power Ratings Data					
Frequency Converter Type	SPCS 1.5-230	SPCS 2.2-400	SPCS 3.0-400	SPCS 4.0-400	SPCS 5.5-400
Applicable Pump Motor AC Induction Motor Power	1.5 kW / 2.0 HP	2.2 kW / 3.0 HP	3.0 kW / 4.0 HP	4.0 kW / 5.5 HP	5.5 kW / 7.5 HP
Frequency Converter Output Power Capacity	3.0 kVA	4.4 kVA	6.0 kVA	7.5 kVA	10.5 kVA
Rated Output Voltage Rated Motor Voltage	3~ 230 V _{rms}	3~ 400 V _{rms} (from 0 to U _{SUPPLY})			
Output Frequency	0~60 Hz (512 Hz upon request) variable frequency; frequency parameters are software adjustable				
Rated Output Current	7.0 A _{rms}	5.5 A _{rms}	7.5 A _{rms}	11.0 A _{rms}	14.0 A _{rms}
Overload Current	120% for up to 1 minute, once per 10 minutes				
PV Input Power Ratings Data					
Max Input Voltage PV Open-circuit Voltage (V _{oc})	600 V _{DC}	800 V _{DC}			
MPPT Range	250 ÷ 450 V _{DC}	450 ÷ 650 V _{DC}			
Number of PV String Inputs	1			2	
PV Plant String Panels Installation Recommendation	13±15 PV x [255÷300]Wp	17(18) PV x [255÷300]Wp	20 PV x [255÷300]Wp	2 x (18±20) PV x [255÷300]Wp	2 x 20 PV x [255÷300]Wp
DC Switch Disconnecter	32A / 1000V / DC21B / Direct Handle (inside enclosure)				
PV Inputs Protection	PV Fuses 15A / gPV / 1000V _{DC} / 10 x 38mm; Surge Arrester 1000 V _{DC} / Class II / 3+0 / 50kA per pole				
AC Input Power Ratings Data (Hybrid Power Source Input implemented by HPSI-B-400 Module)					
Input AC Grid / Mains Voltage	1~ 230 V _{rms} ±15% 50(60) Hz	3~ 400 V _{rms} ±15% / 50(60) Hz			
Input AC Grid Current (max)	12.0 A _{rms}	8.0 A _{rms}	10.0 A _{rms}	14.0 A _{rms}	18.0 A _{rms}
AC Grid Input Overvoltage Protection	U _o =230V _{ac} / U _c =300V / 2+0	U _o =400V _{ac} / U _c =480V _a / 3+0			
	Surge Arrester Type 2 (Class II) I _{max} =50kA				
AC Switch Disconnecter / Cam Switch	2p	3p			
	I _{th} =25A / 10kA / AC4 / Direct Handle (inside enclosure)				
Additional Power Features & Options – converter matched output chokes and output sine filters (depending on the output line cable length, i.e. depending on the distance, between the converter output and the pump motor input); converter matched input line chokes and filters					
Application and Environmental Data					
Rated Operating Temperature Range	-20°C to +55°C				
Protection Degree	≥ IP54				
UV Proof	Yes (for outdoor version)				
Altitude	≤ 2000m (above 2000m – derating)				
Conformity with Norms	EN 61439-2:2011; EN 62109-1:2010; EN 62109-2:2011; EN 61800-5-1:2007; EN 61800-3 C3				
Indication & Control Features					
LED Indication	Ready / Run / Alarm				
Operation Modes	Manual / Automatic (front panel control switch "Manual / OFF / Auto")				
Communication Interface	RS 232/485 / MODBUS RTU				
AC Induction Motor Control Methods	MPPT based U/f constant control				
Carrier (PWM) Frequency	4kHz to 12kHz (software adjustable)				
Built-in Electronic Protections	Over Voltage, Under Voltage, Over Current, Short Circuit, Over Load, Earth Fault, Output Phase Loss / Interruption, Overheating, PV Reversal, Dry Run				

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SPCS/H x.x-xxx COMBINER BOX Additional Control Features & Options

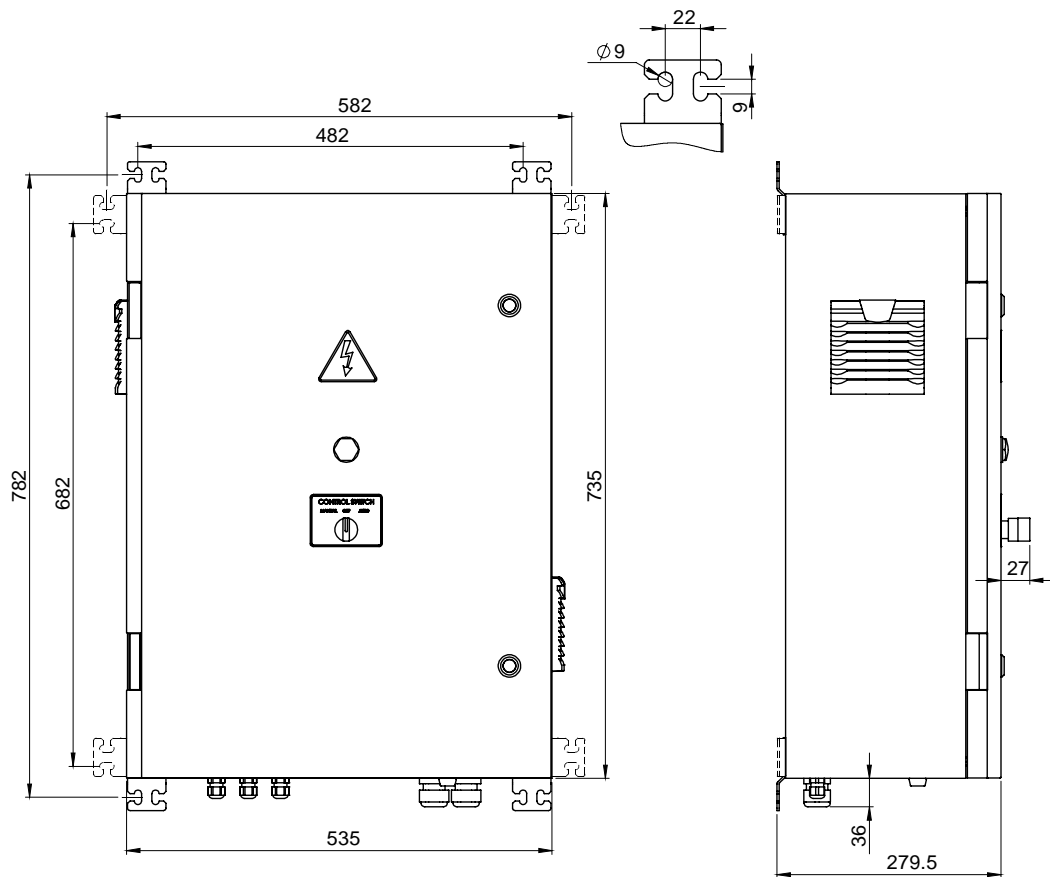
Water Level Control Module implementing two sets of sensors for utilization in draw-well and water tank applications. High and low liquid level control. LED indication. Applicable for conductive liquids.

Drive Remote Control Panel providing the possibility for system parameter adjustment, diagnostics and visualization of logged data via communication port. Installation, commissioning and maintenance support. The module is "pocket" sized and plug & play applicable. In most cases, the drive remote control panel skips the need for using a "notebook" for system adjustment and maintenance activities.

PLC & HMI integration for ensuring of additional system requirements, for instance a SCADA implementation for the pump system (pump station) procurator or operator.

GSM Communication Modules – system monitoring applications

Dimensions



SPCS/H x.x-xxx COMBINER BOX Overall Dimensions, [mm]

NOTE:

Depending on the installation requirements and options, the COMBINER BOX dimensions and configuration may differ from these, presented at the diagram above!

Contacts



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