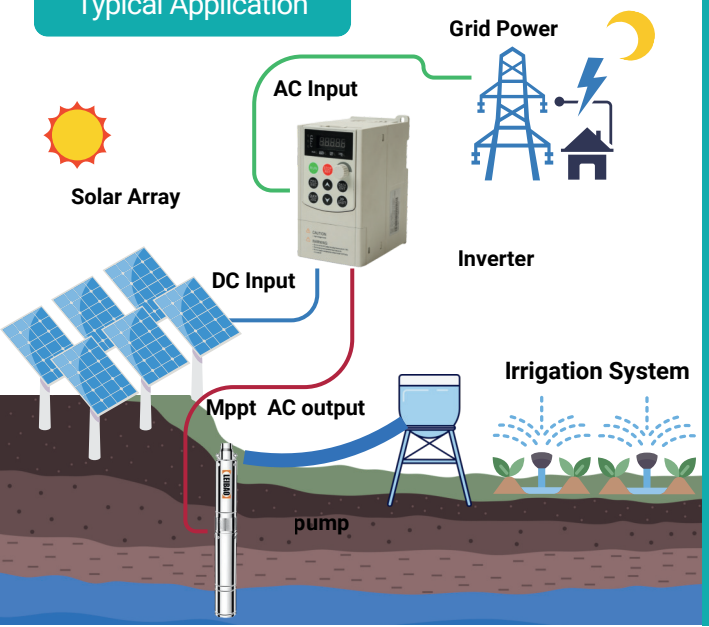
Product Overview

The SN160PV series products are a drive controller specifically designed for photovoltaic water pump systems. Based on the working principle of a frequency converter, the unstable DC power output from the photovoltaic array is converted into stable AC power driven by the water pump. Compared to traditional photovoltaic inverter systems, using the SN160PV series photovoltaic water pump frequency converter has the following advantages:

- Support MPPT, drive the water pump to operate efficiently in different power ranges through maximum power point tracking;
- Switching input between grid and photovoltaic power, ensuring water supply operation by switching grid power in situations such as insufficient light and nighttime;
- Provide comprehensive pump protection functions, including overload, phase loss, underload, water shortage and other pump protections;
- Not battery , direct inverter AC output through photovoltaic connection can reduce system costs without relying on traditional battery components;
- Rich I/O and functions, combined with the rich I/O interfaces of traditional frequency converters, provide functions including RS485 communication, analog input and output, and multifunctional digital input and output, which can be used to achieve systematic integration of electrical design;
- High reliability, adapted to high-lift pumps or submersible deep well pump through enhanced anti-interference ability; By applying enhanced three proof paint, it is suitable for applications in high dust and high humidity environments.

Typical Application



Company Profile

Shuen was founded in 2013. Our company is located in Shanghai. We specialize in motor drive and power inverter related products, such as motor soft starters, frequency converters. Our products are widely used in electrical equipment and industrial automation equipment. The company has been awarded multiple honors by the Chinese government, including high-tech enterprise certification. We have over 60 intellectual property patents, software patents. We have rich experience in overseas cooperation and understand the application needs of overseas customers. We can meet various overseas certification needs.

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SHUEN 数恩

Solar Pump Inverter

SN160PV Series

Agriculture ◆ Irrigation ◆ Off-grid

SHANGHAI SHUEN ELECTRIC TECHNOLOGY CO. LTD

Electrical parameters

Basic Performance	highest frequency	0~500Hz
	Control method	V/f open-loop speed control; SVC open-loop vector control
	Starting torque	0.5Hz/150%(SVC)
	speed regulation range	1:100(SVC)
	overload capacity	150% rated current for 60 seconds; 170% rated current for 12 seconds; 190% rated current for 1.5 seconds
	Steady speed accuracy	±0.5%(SVC)
	Typical functions	Built in PID/automatic voltage regulation AVR/fast current limiting/torque boost/Vf curve timing control/overvoltage and overcurrent stall protection/instantaneous stop without stop
	protection function	Short circuit detection, output phase loss protection, overcurrent protection, overvoltage protection, undervoltage protection, overheating protection, overload protection, underload protection, low light protection, etc. for power on motors
Usage environment	humidity	Less than 95%, no condensation or water droplets,
	Storage temperature	-20℃~+60℃
	Operating Temperature	-10 ℃~+50 ℃ (if it exceeds 40 ℃, the selection will be reduced by 1% for every 1 ℃ increase)
	noise	50dBA Max
I/o interface	command source	Given by operation panel/control terminal/serial communication
	input terminal	5 sets of digital inputs, including 1 set of high-speed pulse (50kHz) input 1 set of analog input (current 0~20mA or voltage type 0~10V)
	output terminal	1 set of high-speed pulse output terminals, 1 set of relay output terminals, and 1 set of analog output terminals
	communication bus	1 set of RS485 (Modbus RTU protocol)
specific functions	MPPT	Built in adaptive high-precision photovoltaic array maximum power point tracking function
	Auto Switch	Suitable for the function of automatically switching between DC photovoltaic and municipal grid AC power sources, after setting, it is used for the system to automatically switch power sources

Input and output specifications

Scope of Application		S2 specification	T4 specification
DC input specification DC	Maximum input DC voltage	450V DC	800V DC
	Recommended VOC voltage range	360~430VDC	550~750VDC
	Recommended MPPT voltage range	250~350VDC	450~600VDC
	Starting voltage range	160~450VDC (adjustable)	300~800VDC (adjustable)
Rated output specifications	Rated output voltage (AC)	3PH or 1PH 220V	3PH 380V
	Output frequency range	0~500Hz	0~500Hz
Exchange input specifications AC	input voltage	1PH / 220V(-15%)~240V(+10%)	3PH / 380V(-15%)~440V(+10%)
	frequency range	50/60Hz ±5%	50/60Hz ±5%

Model Definition

S N 1 6 0 P V - 5 R 5 G - T 4

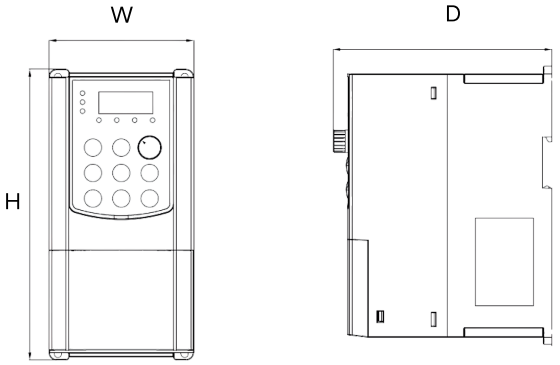
① ② ③ ④ ⑤

No.	definition	Instructions
①	Series Name	Shuen: SN, development code 160
②	Machine Type	PV: Photovoltaic Pump Type MN: General Type JC: CNC Machine Type ZD: Packaging Machinery Special
③	Adaptive power	0.75~22kW，decimal point with "R". For example, 5R5 represents 5.5KW
④	load type	G: General type; P: Light load type
⑤	voltage level	S2: Single phase input 220V (-15%~+20%)
		T4: Three phase input 380V (-15%~+20%)

Specification List

	Adapt to photovoltaic modules (open circuit voltage)				Product dimensions	Specification and power information				
	37±1V		45±1V			apacity	input current	output current	Adapted motor	
Product Model	Component power ± 5WP	Number of strings per component * number of strings per group	Component power ± 5WP	Number of strings per component * number of strings per group	mark	kVA	A	A	kW	HP
SN160PV-0R7G-S2	250	11*1	300	9*1	A	1.5	8.2	4	0.75	1
SN160PV-1R5G-S2	250	11*1	300	9*1	A	3	14	7	1.5	2
SN160PV-2R2G-S2	250	11*1	300	9*1	B	4	23	9.6	2.2	3
SN160PV-0R7G-T4	250	18*1	300	15*1	B	1.5	3.4	2.1	0.75	1
SN160PV-1R5G-T4	250	18*1	300	15*1	B	3	5	3.8	1.5	2
SN160PV-2R2G-T4	250	18*1	300	15*1	B	4	5.8	5.1	2.2	3
SN160PV-3R7G-T4	250	20*1	300	16*1	C	6	10.5	9	3.7	5
SN160PV-5R5G-T4	250	18*2	300	15*2	C	11	13.9	13	5.5	7.5
SN160PV-7R5G-T4	250	18*2	300	15*2	D	15	18.9	17	7.5	10
SN160PV-11G-T4	250	18*3	300	15*3	D	30	27.8	25	11	15
SN160PV-15G-T4	250	18*4	300	15*4	E	37	37.9	32	15	20
SN160PV-18R5G-T4	250	18*5	300	15*5	E	44	46.7	37	18.5	25
SN160PV-22G-T4	250	18*6	300	15*6	E	60	55.6	45	22	30

dimensions and appearance



Size List Unit: mm

Mark	H	W	D	Net weight
A	165	78	117	0.7
B	170.2	84.6	138.1	1
C	194	97	153.5	1.5
D	245	124	168	3.5
E	310	164.8	195.2	5.5


Groundwater development


Water tower storage


Utilization of wasteland


Water conservancy