



### Product Description

Magnizon SVD-020K3 solar pump inverter, efficiently drives the pump motors by advanced maximum Power Point Tracking (MPPT) technology. Magnizon solar inverters support solar panel input, and AC main power or generator input. It can work 24hours with enough power support. 100% compliance with CE safety/EN/IEC 60068-2-27. Compatible with all kinds of motors & pumps including asynchronous & synchronous, submersible and surface mount.

### Application

Existing AC motor based systems can be used: Conventional AC induction motors are generally used for water pumping system, so with this advancement in technology there is no need to replace the existing pump/motor/pipes/cables. Simply user can add Solar Panel & controller to run existing AC motor during day time and at night Grid power can be used (dual input systems).

## Key Features

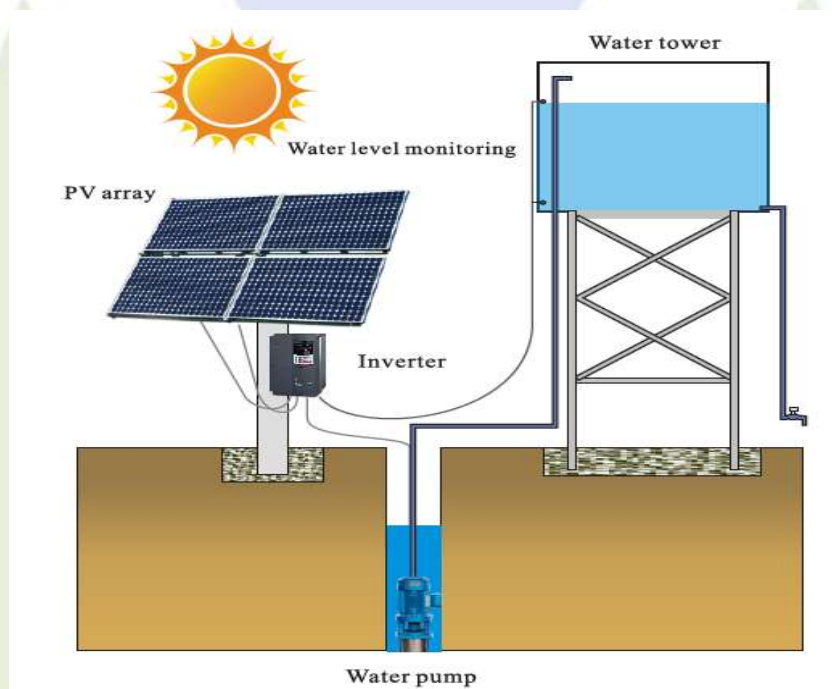
- With no water alarm, timing to restart functions. When the pool has no water, the will stop, and then it will restart after interval set or water level raises to safe level.
- When the pool is full, the solar inverter automatically stops, and it will show it in solar inverter`s panel.
- Reliable: Solar inverter power supply are seldom used in the moving parts; the work is reliable
- Safety: No other public nuisance. Don't have any solid, liquid and gas harmful substances, absolutely environmental protection.
- Easy installation and maintenance, suitable for unattended or automatic running needs, etc
- Good compatibility, Solar power generation can be used with other energy, also can according to the need to make the solar system easily expanded
- Input voltage: DC 100V~310V (1-ph pumps) & DC 100V~600V (3-Ph pumps)
- Input frequency range : 0~400Hz
- Control mode : V/F control mode
- Carrier frequency setting : 1kHz~15kHz.
- Input frequency resolution : digital setting : 0.01Hz ; analogue setting : Max frequency×0.1%
- Starting torque : 0.5Hz/150%
- Overload capacity : 150% Rated current-60s ; 180% Rated current-10s
- Torque boost :0.1%~50.0%
- V/F curve: liner type ; multipoint type
- JOG control : JOG frequency range : 0.00Hz~50.00Hz ; JOG acceleration and deceleration time 0.0s~6500.0s
- PLC Multi-speed running: By built-in PLC
- Built-in PID : Easy to realize process control closed loop control system
- Automatic voltage regulation(AVR): When voltage change, it can automatically maintain constant output voltage
- Over voltage and over current loss of speed control: During the inverter running, the current automatic voltage limit, to prevent frequent trip through the pressure
- Communication methods: RS-485

## Model # SVD-020K3 3-Ph, 380/400/415V AC, Water Pumping System

Magnizon Model	Power Rating (KW)	Voltages (V)	Rated Output Current (A)**	Gross Weight (kg.)	External Size (H*W*D) (mm)	Package Size (H*W*D) (mm)
SVD-020K3	15	3-Ph 380/400/415V +/-20% DC input 200-600V	30/39	6.7	365*190*187	443*284*301

\*\* Peak current to size cable

### System Layout



## Specification

Standard Function	
Maximum frequency	Vector control: 0–650 Hz
	V/F control: 0–3200 Hz
Carrier frequency	0.5–16 kHz, carrier frequency is automatically adjusted based on the load features.
Frequency resolution	Digital setting: 0.01 Hz
	Analog setting: maximum frequency x 0.025%
	Sensor less flux vector control (SFVC)
	Closed-loop vector control (CLVC)
Control mode	Voltage/Frequency (V/F) control
Startup torque	G type: 0.5 Hz/150% (SFVC); 0 Hz/180% (CLVC)
	P type: 0.5 Hz/100%
Speed range	1:100 (SFVC), 1:1000 (CLVC)
Speed stability accuracy	± 0.5% (SFVC), ± 0.02% (CLVC)
Torque control accuracy	± 5% (CLVC)
Overload capacity	G type: 60s for 150% of the rated current, 3s for 180% of the rated current
	P type: 60s for 120% of the rated current, 3s for 150% of the rated current
Torque boost	Fixed boost
	Customized boost 0.1%–30.0%
V/F curve	Straight-line V/F curve
	Multi-point V/F curve
	N-power V/F curve (1.2-power, 1.4-power, 1.6-power, 1.8-power, square)
V/F separation	Two types: complete separation; half separation
	Straight-line ramp
Ramp mode	S-curve ramp
	Four groups of acceleration/deceleration time with the range of 0.0–6500.0s
DC braking	DC braking frequency: 0.00 Hz to maximum frequency
	Braking time: 0.0–36.0s
	Braking action current value: 0.0%–100.0%

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<b>JOG control</b>	JOG frequency range: 0.00–50.00 Hz
	JOG acceleration/deceleration time: 0.0–6500.0s
<b>Onboard multiple preset speeds</b>	Support up to 16 speeds via the simple PLC function or combination of DI terminal.
<b>Onboard PID</b>	Embedded programmable PID controller to support closed loop control
<b>Auto voltage regulation (AVR)</b>	It can keep constant output voltage automatically when the mains voltage changes.
<b>Over voltage/current stall control</b>	Automatic voltage and current regulation to avoid frequently tripping over voltage/current protection
<b>Torque limit and control</b>	Automatic torque control to avoid frequently tripping over voltage/current protection
	Torque control can be implemented in the CLVC mode.
<b>Rated AC Input Voltage Range</b>	Rated Voltage -15%~+15%
<b>Rated AC Frequency</b>	50Hz/60Hz+/-5%
<b>Rated DC input voltage Range</b>	220/230V Model: 180~400Vdc 380V/440V Model: 350~800Vdc
<b>Enhanced Function</b>	
<b>High performance</b>	high-performance current vector control technology.
<b>Dynamic MPPT Function</b>	Automatic control the output power to track the maximum power point of the solar panel
<b>Power dip ride through</b>	Control to maintain running upon short interval power blackout or power dip .
<b>Rapid current limit</b>	It helps to avoid frequent overcurrent faults of the AC drive.
<b>Virtual I/Os</b>	Five groups of virtual DI/Dos can realize simple logic control.
<b>Timing control</b>	Time range: 0.0–6500.0 minutes
<b>Multi-motor switchover</b>	Four motors can be switched over via four groups of motor parameters.
<b>Multiple communication protocols</b>	Supports communication via Modbus-RTU, PROFIBUS- DP
<b>Motor overheat protection</b>	The optional I/O extension card enables AI3 to receive the motor temperature sensor
	input (PT100, PT1000) so as to realize motor overheat protection.
<b>Protection type</b>	Line supply overvoltage and under voltage safety circuits for drive
	Line supply phase loss safety function, for three phases supply for drive
	Motor phase breaks for drive
	Overcurrent between output phases and earth (on power up only) for drive
	Overheating protection for drive
	Short-circuit between motor phases for drive
	Thermal protection for motor
	Input phase breaks for drive
<b>Dielectric strength</b>	2410 V DC between earth and power terminals



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	3400 V AC between control and power terminals
<b>Insulation resistance</b>	>= 500 mOhm at 500 V DC for 1 minute
<b>Local signalling</b>	1 LED (red) signal for drive voltage
	Four 7-segment display units signal for CANopen bus status
<b>Time constant</b>	5 ms for reference change
<b>Frequency resolution</b>	0.1...100 Hz for analog input
	0.1 Hz for display unit
<b>Multiple encoder types</b>	Supports various encoders such as differential encoder, open-collector encoder,
	resolver, UVW encoder, and SIN/ COS encoder.
<b>Operational Parameters</b>	
<b>Running command source</b>	Operation panel
	Control terminals
	Serial communication port
<b>Frequency source</b>	Up to 10 frequency sources, such as digital setting, analog voltage setting, analog current setting, pulse setting and serial communication port setting. various ways to switchover between sources
<b>Auxiliary frequency source</b>	Up to 10 auxiliary frequency sources. Support fine tuning of auxiliary frequency and frequency synthesis.
<b>Input Control Terminal</b>	5 digital input (DI) terminals, one supports up to 100 kHz high-speed pulse input
	2 analog input (AI) terminals, one supports 0–10 V voltage input and the other supports 0–10 V voltage input or 4–20 mA current input
	Expanding capacity: 5 DI , 1 AI supports -10–10 V voltage input and also supports PT100\PT1000
<b>Output terminal</b>	1 high-speed pulse OP terminal (oc ) supports 0–100 kHz square wave signal output
	1 digital output (DO) terminal 1 relay output terminal
	1 analog output (AO) terminal that supports 0–20 mA current output or 0–10 V voltage output
	Expanding capacity: 1 DO , 1 relay output , 1 AO supports 0–20 mA current or 0–10 V voltage output
<b>Display &amp; Operation on the Operation Panel</b>	
<b>LED display</b>	5 digit LED display ,with indicators shows system status & parameters
<b>Key locking and function selection</b>	locking the keys and define the function range of some keys so as to prevent mis operation.
<b>Protection mode</b>	Motor short-circuit detection at power-on, input/output phase loss protection, overcurrent protection, Overvoltage protection, under-voltage protection, overheat protection and overload protection

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<b>Optional parts</b>	LCD operation panel, braking unit, I/O extension card 1, I/O extension card 2, user programmable card, RS485 communication card, PROFIBUS-DP communication card, differential input PG card, UVW differential input PG card, resolver PG card and OC input PG card
<b>Environment</b>	
<b>Installation location</b>	Indoor use, avoid direct sunlight, dust, corrosive gas, combustible gas, oil smoke, vapour, drip or salt.
<b>Altitude</b>	Up to 4000m , de-rated needed above 1000 m
<b>Ambient temperature</b>	-10°C to +50°C , de-rated needed above 40°C
<b>Humidity</b>	Less than 95%RH, without condensing
<b>Vibration</b>	Less than 5.9 m/s <sup>2</sup> (0.6 g)
<b>Storage temperature</b>	-20°C to +60°C
<b>IP level</b>	IP20
<b>Pollution degree</b>	PD2
<b>Power system</b>	TN , TT
<b>Warranty</b>	2 years
<b>Electromagnetic Compatibility &amp; IEC compliance</b>	
<b>Electromagnetic compatibility</b>	1.2/50 $\mu$ s - 8/20 $\mu$ s surge immunity test - test level 3 conforming to IEC 61000-4-5:2014
	Electrical fast transient/burst immunity test - test level 4 conforming to IEC 61000-4-4:2012
	Electrostatic discharge immunity test - test level 3 conforming to IEC 61000-4-2:2009
	Radiated radio-frequency electromagnetic field immunity test - test level 3 conforming to IEC 61000-4-3:2006
<b>IEC Standards</b>	EN61800-5-1, EN61800-3:2004+A1:2012, EN55011:2016, EN61000-3-2:2014, EN61000-4-4:2012, EN61000-4-8:2010, EN61000-4-6:2014, IEC62253:2011; EN62253:2012
<b>Quality Standards</b>	ISO9001:2015, ISO14001, RoHs, CE

# System Schematics

