

VEIKONG

SOLAR PUMPING INVERTER

A NEW GENERATION CONTROLLER



VEIKONG

— We can do it more! —

ShenZhen VEIKONG Electric CO.,Ltd.

Factory address: 4F, Building 5, Dongluyang Industrial, Park, No.4 Tengfeng 4th Road,

Fuyong Phoenix Third, Industrial Zone, Baoan District, Shenzhen, China

Phone number: +8675589587650

Website: www.veikong-electric.com

www.veikong.com

CHINA SHENZHEN

ShenZhen VEIKONG Electric CO.,Ltd.

COMPANY PROFILE

Brief introduction

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Professional R&D team

20+

Over 20 years of professional management experience

Shenzhen VEIKONG ELECTRIC CO., LTD is a reputable high-tech enterprise that specializes in researching, manufacturing, and trading both medium and low voltage inverters and solar pumping inverter. We offer our clients integrated system solutions, and our professional R&D team and devoted management with over 20 years of experience have made us one of the first independent AC drives companies in China.

We incorporate latest high efficiency mppt calculations and SPWM, sensorless vector control, and vector and torque control technology into our VFD and solar pump inverter which have reached international advanced standards, making them able to directly replace and be equivalent to Europe, the United States, Japan, and other brands, providing our clients with the highest level of technical support.

Quality is the foundation of our enterprise, and we consistently follow ISO9001 standards to manage and supervise quality. Our products have passed CE and IEC certifications and other technical approvals, and we continuously upgrade our technologies and products to better meet our customers' requirements and market needs.

VEIKONG team believes that the customer is the source of our enterprise. We take great pride in placing our customers' requirements first and ensuring that we meet and exceed their expectations. Our products have been widely used in various industries, including solar pumping, petroleum, chemical, melting, hoisting, electric power, building materials, water supply, plastics, textiles, printing, packing, and more, to create value for our customers.

VEIKONG , your trusted supplier!



VEIKONG

VFD500-PV

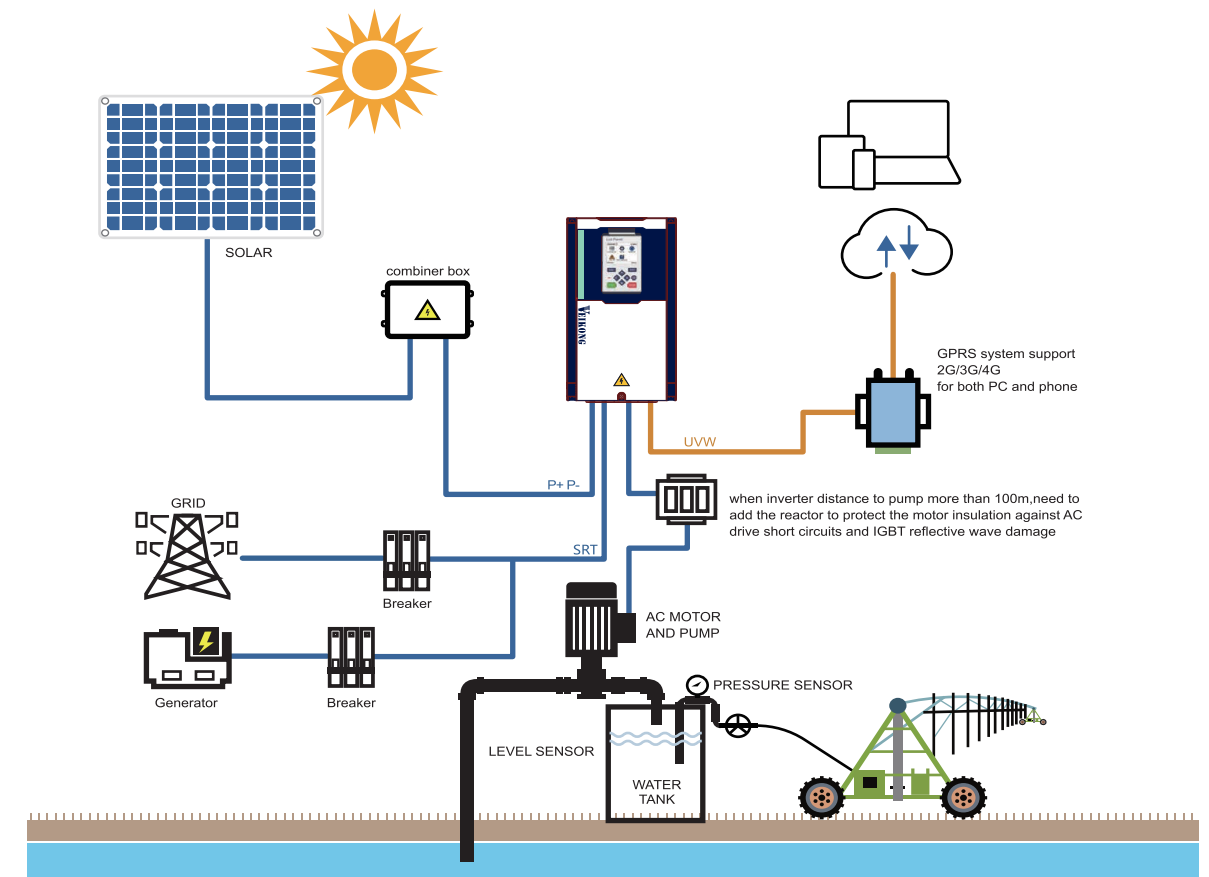
Solar Pumping Inverter



Solar pump inverter working principle



Model reference



Electrical Specifications

	220V	380V
Max input DC voltage(VOC)	450V	800V
DC voltage range	160V-450V	350V-800V
Recommended DC input voltage range(Vmpp)	250V-400V	450V-600V
Recommended input operation voltage	305V(Vmpp)	530V(Vmpp)
MPPT efficiency	>99%	
Rated output voltage	1/3-phase 220VAC	3-phase 380V-480V VAC
Output frequency range	50/60Hz(maximum 600hz)	
Max efficiency of the machine	99%	
Ambient temperature range	-10 °C-50 °C, derating if the temperature is above 40 °C	
Cooling method	Air cooling	
Protection degree	IP20/P21	
Altitude	Below 1000m; above 1% for every additional 100m.	
Standard	IEC CE	

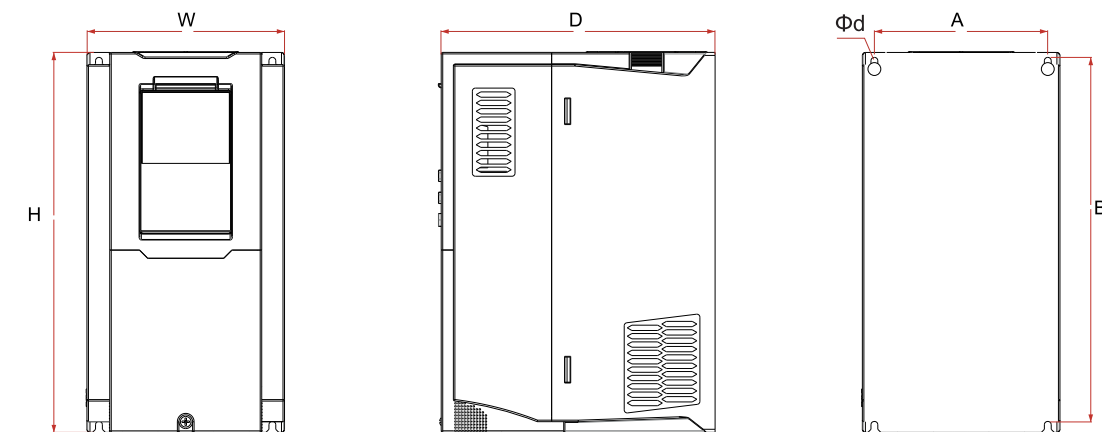
Model Range

Drive Model	Related Voltage	Max DC input voltage (V)	Rated output current (A)	Applicable water pump (KW)	SIZE	Inverter photo
VFD500M-20T00150-PV	220V	450V	8	1.5	SIZE A	
VFD500M-20T00220-PV	220V	450V	10.6	2.2	SIZE A	
VFD500M-40T00150-PV	380V	800	3.7	1.5	SIZE A	
VFD500M-40T00220-PV	380V	800	5	2.2	SIZE A	
VFD500M-40T00400-PV	380V	800	9.4	4	SIZE A	
VFD500M-40T00550-PV	380V	800	13	5.5	SIZE A	
VFD500M-40T00750-PV	380V	800	17	7.5	SIZE A	
VFD500-20T00150-PV	220V	450	8	1.5	SIZE A	
VFD500-20T00220-PV	220V	450	10.6	2.2	SIZE A	
VFD500-20T00400-PV	220V	450	17	4	SIZE A	
VFD500-40T00150-PV	380V	800	4.2	1.5	SIZE A	
VFD500-40T00220-PV	380V	800	6	2.2	SIZE A	
VFD500-40T00400-PV	380V	800	9.4	4	SIZE A	
VFD500-40T00550-PV	380V	800	13	5.5	SIZE B	
VFD500-40T00750-PV	380V	800	17	7.5	SIZE B	
VFD500-40T01100-PV	380V	800	25	11	SIZE C	
VFD500-40T01500-PV	380V	800	32	15	SIZE C	
VFD500-40T01850-PV	380V	800	37	18.5	SIZE D	
VFD500-40T02200-PV	380V	800	45	22	SIZE D	
VFD500-40T03000-PV	380V	800	60	30	SIZE E	
VFD500-40T03700-PV	380V	800	75	37	SIZE E	
VFD500-40T04500-PV	380V	800	90	45	SIZE F	
VFD500-40T05500-PV	380V	800	110	55	SIZE F	
VFD500-40T07500-PV	380V	800	152	75	SIZE G	
VFD500-40T09000-PV	380V	800	176	90	SIZE G	
VFD500-40T11000-PV	380V	800	210	110	SIZE H	
VFD500-40T13200-PV	380V	800	253	132	SIZE I	
VFD500-40T16000-PV	380V	800	304	160	SIZE I	
VFD500-40T18500-PV	380V	800	360	185	SIZE J	
VFD500-40T20000-PV	380V	800	380	200	SIZE J	
VFD500-40T22000-PV	380V	800	426	220	SIZE K	
VFD500-40T25000-PV	380V	800	465	250	SIZE K	
VFD500-40T28000-PV	380V	800	520	280	SIZE L	
VFD500-40T31500-PV	380V	800	585	315	SIZE L	
VFD500-40T35500-PV	380V	800	650	355	SIZE M	
VFD500-40T40000-PV	380V	800	725	400	SIZE M	
VFD500-40T45000-PV	380V	800	820	450	SIZE N	
VFD500-40T50000-PV	380V	800	900	500	SIZE N	



VFD500-PV Solar Pumping Inverter

Appearance and Mounting Hole Dimension



LED & LCD keypad

- Standard inverter are with LED keypad, LCD keypad is optional.
- LCD keypad can monitor 4 parameters at the same time. LED keypad show one parameter only.
- LCD keypad with detailed parameter explain, no need use user manual, more user friendly.
- LCD keypad with copy and update and download function, widely used for government projects and big farms.
- New version LCD and LED display for more options. New LCD with time clock. Multiple language and quick search etc. More user friendly.



Product size

SIZE	Appearance and installation dimension mm							Mounting screws
	A	B	H	H1	W	D	Φd	
SIZE A	87	206.5	215	/	100	170	ø5.0	M4X16
SIZE B	113	239.5	250	/	130	180	ø5.0	M4X16
SIZE C	153	299	310	/	170	193	ø6.0	M5X16
SIZE D	165	350	370	335	210	196	ø6.0	M5X16
SIZE E	218	438	452.5	424	260	230	ø7.0	M6X16
SIZE F	250	535	555	520	320	275	ø10.0	M8X20
SIZE G	280	620	640	605	350	290	ø10.0	M8X20
SIZE H	280	695	715	660	370	313	ø11.0	M8X25
SIZE I	280	705	725	670	360	338	ø11.0	M8X25
SIZE J	360	795	816	762	490	358	ø11.0	M10X25
SIZE K	360	795	816	762	490	358	ø11.0	M10X25
SIZE L	450	1045	1075	1005	550	450	ø13.0	M12X30
SIZE M	630	1013	1495	970	730	450	ø13.0	M12X30
SIZE N	660	1065	1575	1095	785	450	ø13.0	M12X30

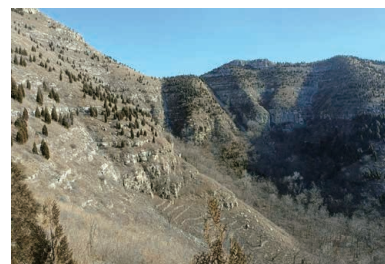
Application scenarios



Commercial/Agricultural irrigation system



Agricultural and animal husbandry water supply system



Barren hills governance system



Agricultural greenhouse water supply system



Landscape fountain system



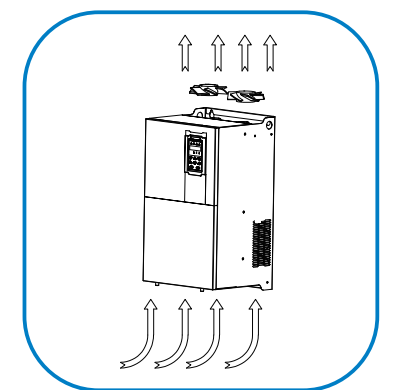
Solve water short problem

Key features

- Maximizing power generation efficiency of solar modules with the use of advanced MPPT control technology and automatic MPPT voltage tracking
- Adjust water outflow of pumps quickly on basis of sunlight intensity change
- Automatic hibernation and wake up
 - (1) Hibernate at high water level and wake up at low water level
 - (2) Hibernate at sunrise and sunset and wake up at strong sunlight
- Built-in C3 EMC filter and DSP technology and Infineon PIM design, with functions of light weak protection, dry run and low voltage, full water warning, overvoltage and over temperature protection
- Advanced calculation for Pump flow and LCD monitoring display
- Automatic running without any commissioning in keypad control and GPRS monitoring option
- Dual supply capability with change over switch-solar and grid compatible
- Special MPPT+PID function for better and more stable water supply

Independent duct design

- ▶ Independent air duct design, effectively preventing dust entering into inverter, causing short-circuit and other faults and improving reliability
- ▶ Use bigger air volume and long-life cooling fan effectively reduces the internal temperature rise of the inverter and ensures reliable and stable operation of inverter.



Perfect protection system

- ▶ Designed for 10 years of maintenance free operation.
- ▶ Cooling fan, capacitors, relays, and IGBTs have been carefully selected and designed for a life expectancy up to ten years.

* Assumes the drive is running continuously for 24 hours a day at 80% load with an ambient temperature of 40



VFD500-PV Solar Pumping Inverter



GPRS remote control

Optional GPRS monitoring device



VEIKONG solar pump inverter GPRS system is a professional monitoring system platform managing solar pump plants.

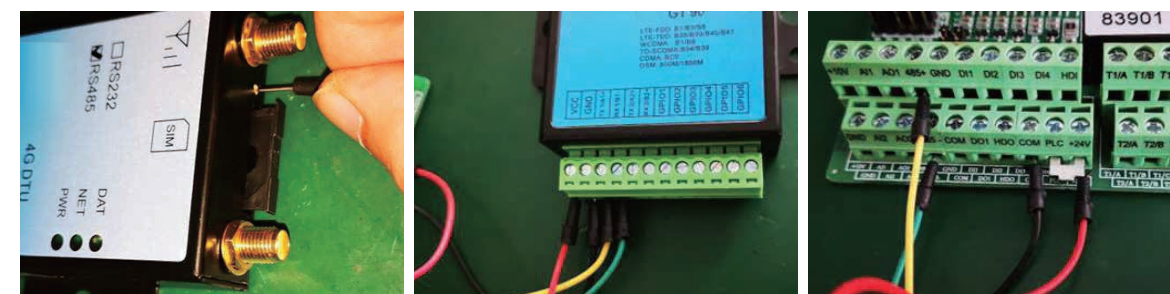
It supplies water volume monitoring and operation of inverter from anywhere at any time.

It's convenient to visit real time and historical data via web or IOS & Android APP anytime and anywhere.

This easy-to-use platform make monitoring of solar pump systems simple and convenient, far reducing operate time and monitoring costs as well.

Installation and terminal connection

Terminal	Drive	GPRS module
Power terminal	24+	VCC
	COM	GND
Communication terminal	485+	TX1/A1+
	485-	RX1/B1-

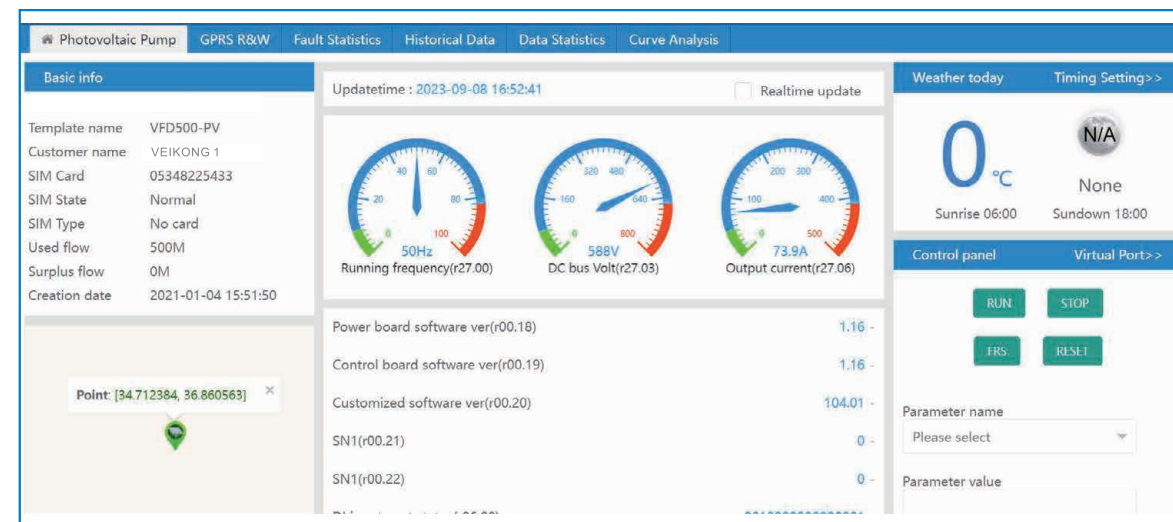


GPRS operation

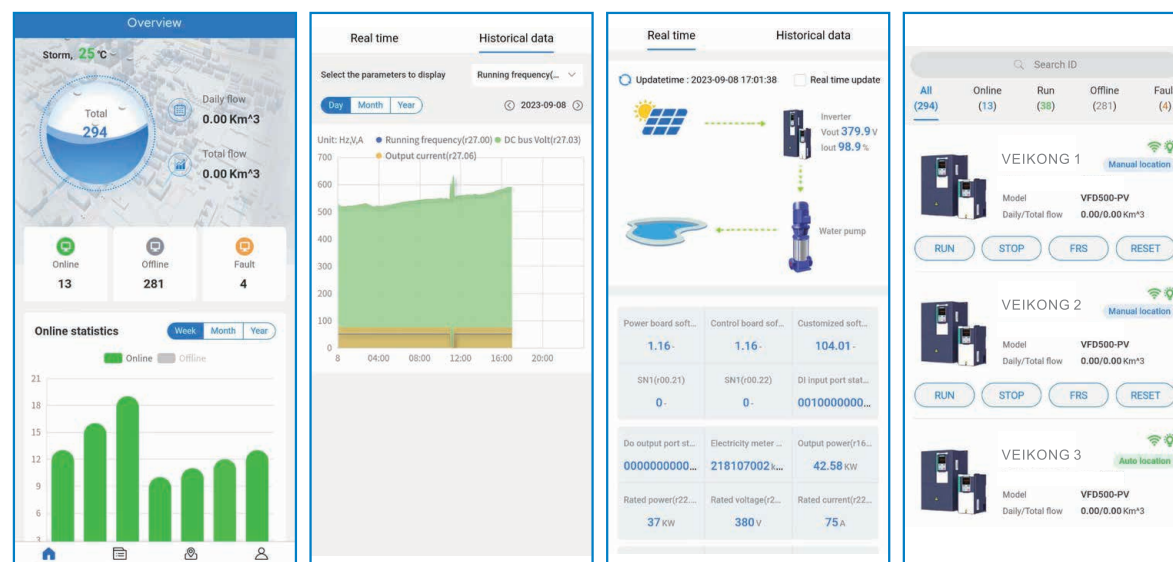
- Iphone
- Ipad
- Android devices

Monitor and operate at anytime,from anywhere

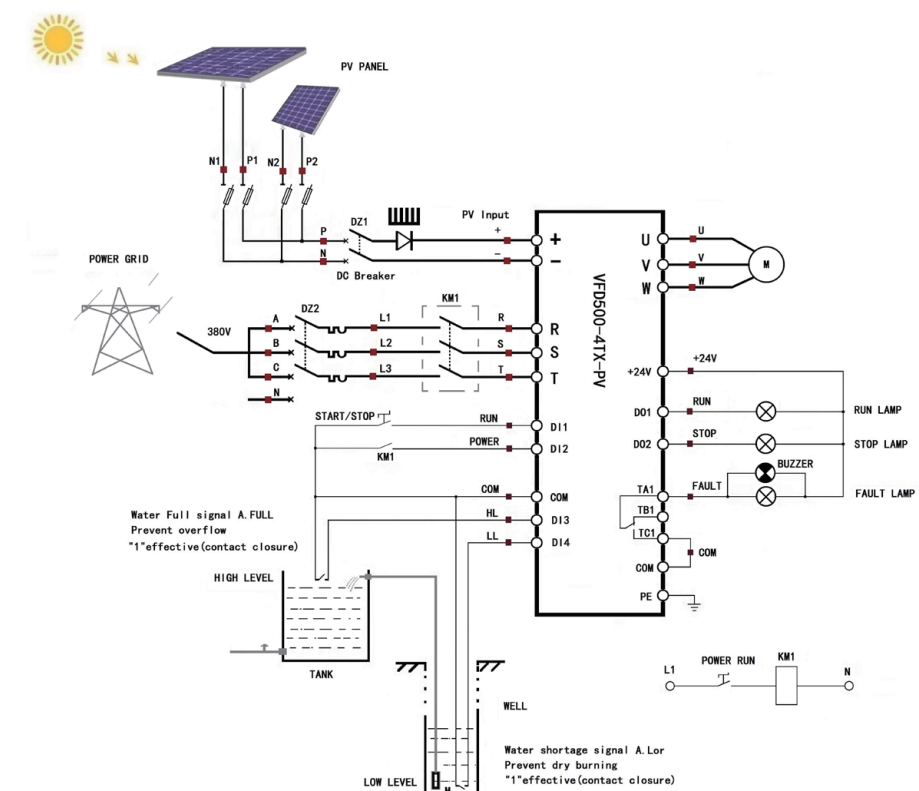
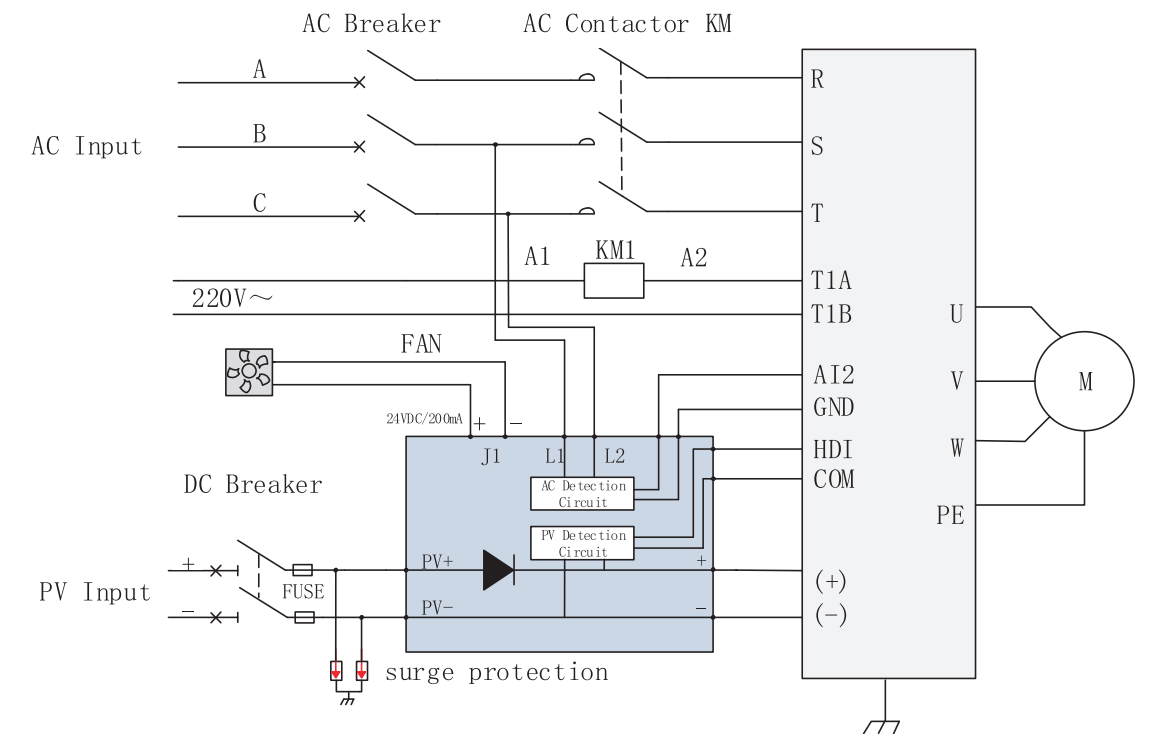
▶ Remote control and monitor from PC side



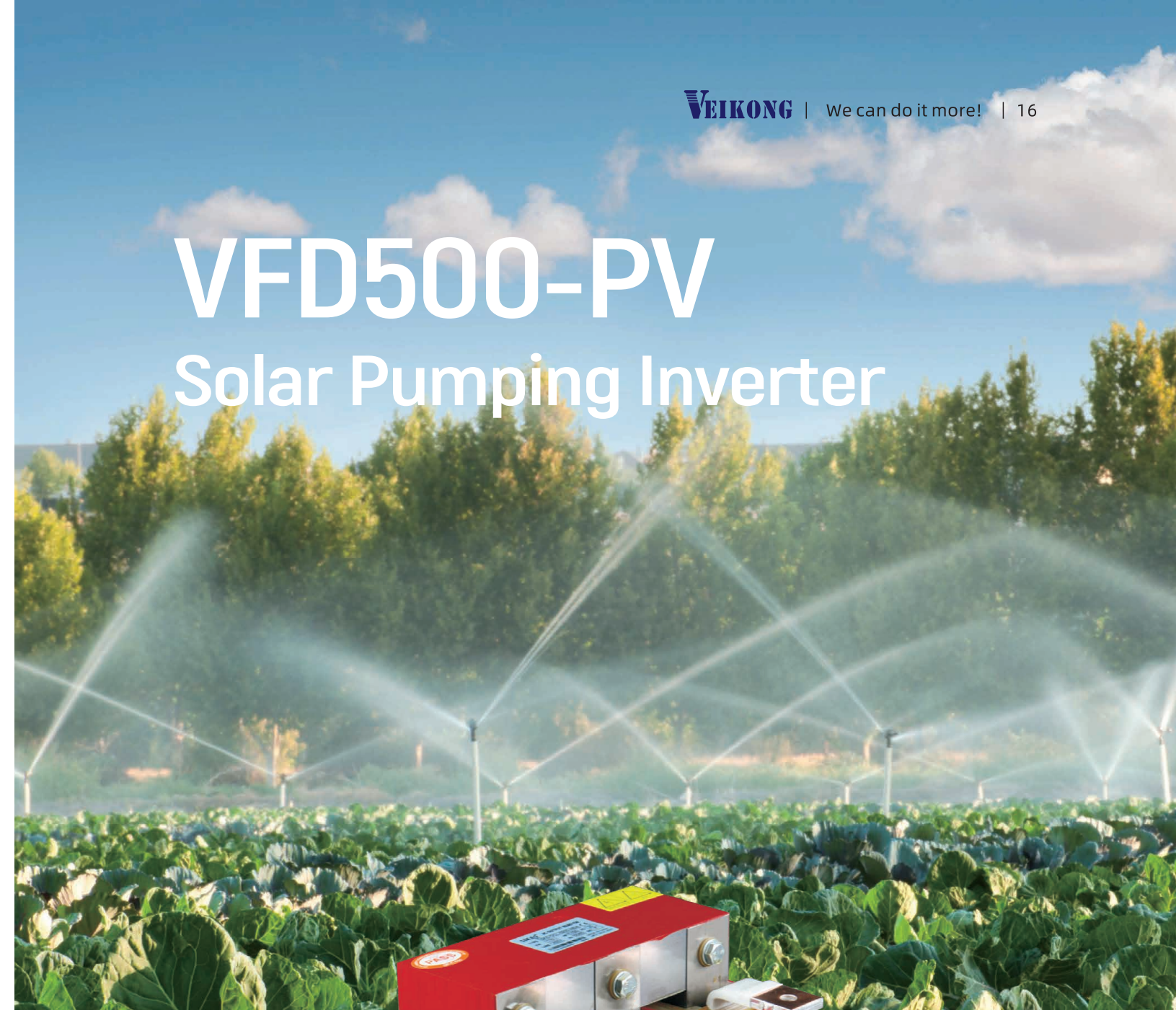
▶ Remote control and monitor from mobile phone side



VEIKONG hybrid mode wiring map



VEIKONG solar pump inverter applications



VFD500-PV

Solar Pumping Inverter



Optional output reactors

Optional output reactors

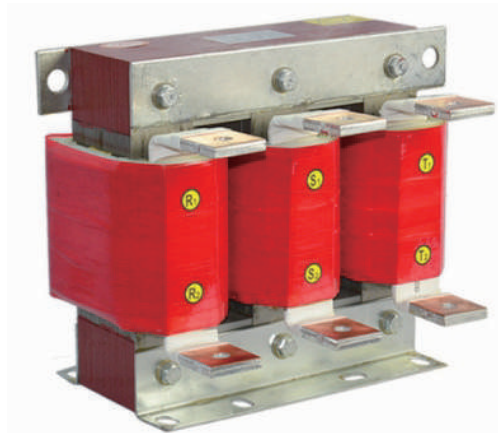
AC Output Reactor(Choke)

Product Profile

Smoothing circuit, efficient from IGBT motor drives, so as to extending service life of electric motors. Reduce motor noise and eddy loss. Reduce the leakage current resulted from the output of high harmonic. Protect the electronic power switch within the inverters.

Product Features

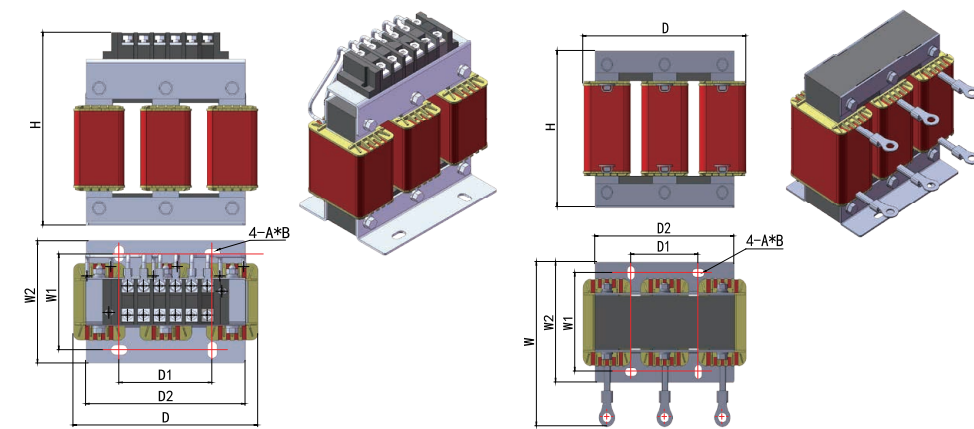
Selection of silicon steel, ferrite magnetic material of amorphous core according to the frequency of application; Excellent property due to foil winding structure, small DC resistance .strong resistance .strong resistance to electromagnetic force, good overload ability in short time ;First class insulation materials are used .which ensure products maintain reliable performance in harsh working conditions; Designed with low magnetic flux density the reactor is of high linearity, powerful overload capacity. Moreover, combined with VPI process, the noise is low.



380V AC output reactor (2% impedance)selection table

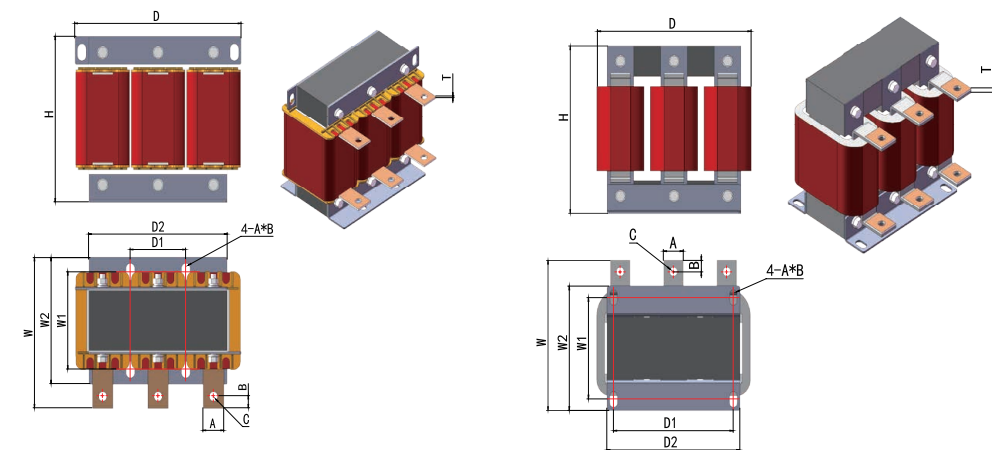
Type	Power (Kw)	Inductance Value (mH)	Current (A)	Weight (Kg)	Dimension (mm)								Connection		Linear aperture	Pic. NO.
					D(Max)	D1±1	D2±2	W±10	W1±1	W2±2	H (Max)	A*B	Terminal	Cu flat		
VKS-OCL-0005-CL/4-2	1.5	2.80	5	1.3	100	35	80	/	59	77	125	7x12	√	/	/	A
VKS-OCL-0007-CL/4-2	2.2	2	7	1.4	100	35	80	/	59	77	125	7x12	√	/	/	A
VKS-OCL-0010-CL/4-2	3.7	1.4	10	1.5	100	35	80	/	59	77	125	7x12	√	/	/	A
VKS-OCL-0015-AL/4-2	5.5	0.93	15	2.5	150	70	120	/	92	150	7x12	√	/	/	/	A
VKS-OCL-0020-AL/4-2	7.5	0.70	20	2.5	150	70	120	/	72	92	150	7x12	√	/	/	A
VKS-OCL-0030-AL/4-2	11	0.47	30	3.5	180	70	145	/	88	170	7x12	√	/	/	/	A
VKS-OCL-0040-AL/4-2	15	0.35	40	5	180	70	145	/	81	101	170	7x12	√	/	/	A
VKS-OCL-0050-AL/4-2	18.5	0.28	50	5	180	70	145	130	101	135	7x12	√	/	/	/	B
VKS-OCL-0060-AL/4-2	22	0.24	60	6.5	180	70	145	140	90	110	145	7x12	√	/	/	B
VKS-OCL-0080-AL/4-2	30	0.17	80	9	210	80	170	155	111	160	7x12	√	/	/	/	B
VKS-OCL-0090-AL/4-2	37	0.16	90	9	210	80	170	155	91	111	160	7x12	√	/	/	B
VKS-OCL-0120-AL/4-2	45	0.12	120	13	245	80	200	160	130	210	12x20	30*3	φ11	/	/	C
VKS-OCL-0150-AL/4-2	55	0.095	150	15	245	80	200	160	94	130	210	12x20	30*3	φ11	/	C
VKS-OCL-0200-AL/4-2	75	0.07	200	20	245	80	200	185	156	210	12x20	30*3	φ11	/	/	C
VKS-OCL-0240-AB/4-2	90	0.056	240	25	240	180	200	195	132	162	220	11x20	30*7	φ11	/	D
VKS-OCL-0250-AB/4-2	110	0.056	250	25	240	180	200	195	162	220	11x20	30*7	φ11	/	/	D
VKS-OCL-0290-AB/4-2	132	0.048	290	31	310	225	250	215	122	158	255	12x20	40*8	φ13	/	E
VKS-OCL-0330-AB/4-2	160	0.042	330	32	310	225	250	215	158	255	12x20	40*8	φ13	/	/	E
VKS-OCL-0390-AB/4-2	187	0.036	390	42	310	225	250	220	125	161	285	12x20	40*8	φ13	/	E
VKS-OCL-0490-AB/4-2	220	0.028	490	45	310	225	250	220	161	285	12x20	40*8	φ13	/	/	E
VKS-OCL-0530-AB/4-2	250	0.026	530	42.5	310	225	250	220	125	161	285	12x20	40*8	φ13	/	E
VKS-OCL-0600-AB/4-2	280	0.023	600	55	310	225	250	245	181	280	12x20	40*9	φ13	/	/	E
VKS-OCL-0660-AB/4-2	315	0.021	660	55	310	225	250	245	145	181	280	12x20	40*9	φ13	/	E
VKS-OCL-0800-AB/4-2	380	0.0175	800	85	390	130	320	305	270	400	12x20	50*11	2-φ11	/	/	G
VKS-OCL-1000-AB/4-2	450	0.014	1000	85	390	130	320	305	230	270	400	12x20	50*11	2-φ11	/	G
VKS-OCL-1250-AB/4-2	550	0.011	1250	110	385	130	320	305	250	470	12x20	60*13	4-φ13	/	/	F
VKS-OCL-1600-AB/4-2	630	0.009	1600	110	385	130	320	305	210	250	470	12x20	60*15	4-φ13	/	F

Product Size



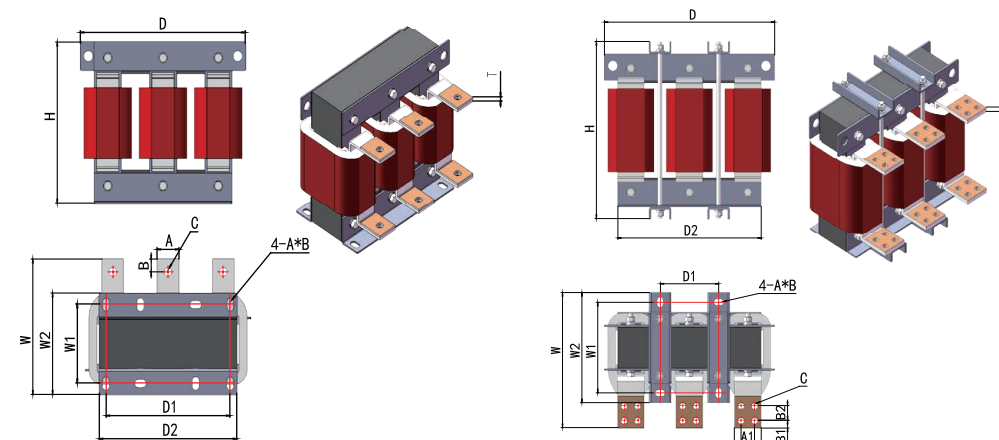
Picture A

Picture B



Picture C

Picture D



Picture E

Picture F

VFD500-PV

Solar Pumping Inverter



Optional sine wave filter

Sine wave Filters

■ Descriptions



Sine wave filters have been specially designed to improve the wave form and avoid over voltages in the motors of VSD system. These low-pass filters are installed in inverters with PWM output, between the frequency inverter and the motor. Switching IGBT (isolated gate bipolar transistor) to high frequency causes an output voltage with peaks that can reach 1300 V (or more) in terminals and coils of the motor.

These constant voltage values age the motor and decrease the performance of the coils, also wearing and pitting bearings, causing overheating and unnecessary noises and the transmission of interferences through cables. This effect becomes more obvious the greater the distance between the inverter and the motor.

■ Functions

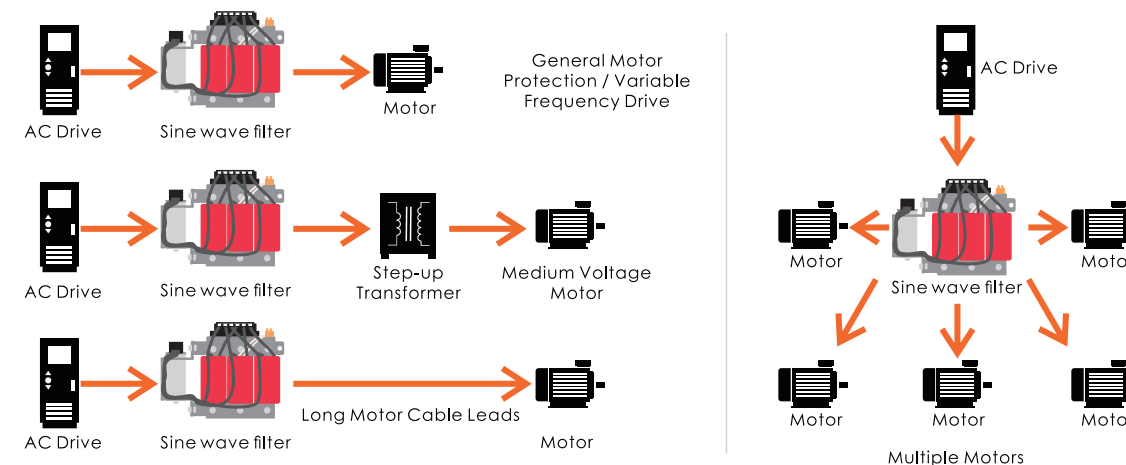


- Reduction of the overvoltage peaks caused by PWM and, therefore, a lower wear of motor insulation systems and bearings;
- Reduction of motor noise and improves motor efficiency;
- Improve the quality of the output wave of the PWM (pulse width modulator), reduces discharge currents driven by pulse frequency, especially in long lines connected to the motor. Recommended for up to 500m motor cable lengths with filter.
- Attenuation of the interference emissions radiated by the conductors between the modulator and motor and improves the entire EMC load on the equipment.

■ Technical Standards

- Technical Standards
- Capacitors: CEI EN 60831-1/2, IEC 831-1/2
- Industrial network affected by harmonics: CEI EN 61642
- Equipment: CEI EN 60439-1, IEC 439-1, ICE 60939
- Systems: EN 60439, EN 60831, EN 50081-1 EN50081-2. class A

■ Applications

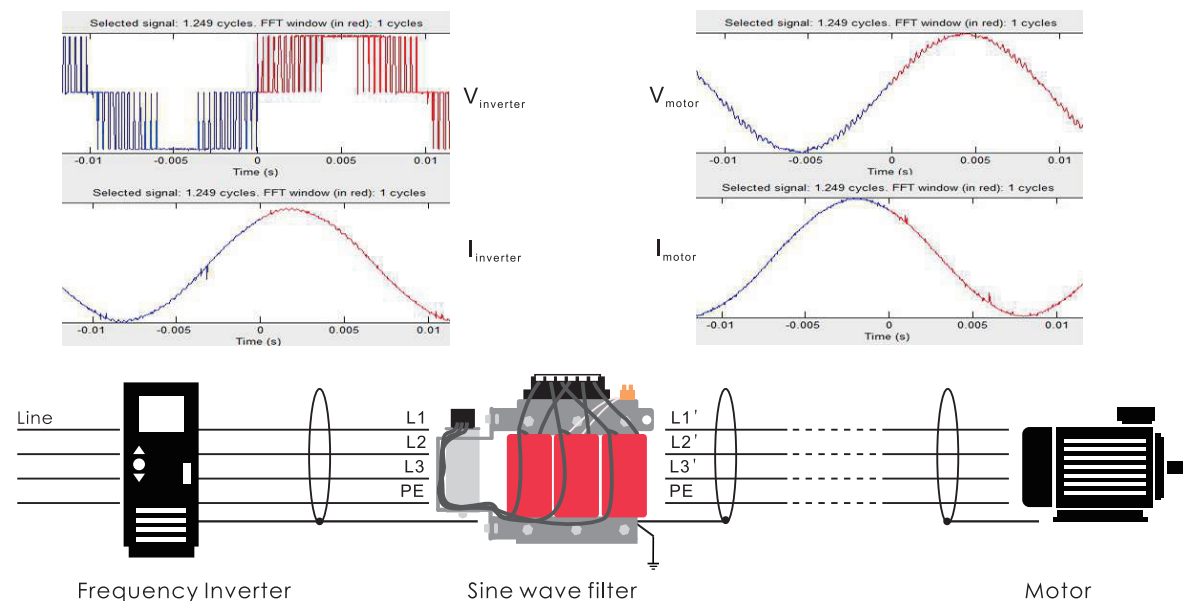


Features

Main Characteristics	
Nominal system voltage (ph-ph)	3x 380±10% (Others on request)
Operating frequency	5-120Hz standard (200Hz -1000Hz on request.)
Switching frequency	2k to 16kHz
Rated load power (P)	1.5 to 630kW
Nominal current (I)	3.3A to 1209A
Residual ripple voltage THD	<5%
Standard voltage drop at rated current	4% (50Hz)
Maximum permanent overload	1.2 times rated current
Maximum transient overload	2.0 times rated current

Design features	
Cabinet	On request
Degree of protection	IP 00 (other on request)
Construction and connection	Terminals or Copper bar
Ventilation	Natural
Mounting	On the floor
Installation	Indoor standards
Operating temperature	Ambient : -25°C to +40°C
Relative humidity	80 %

Block schematic



Selection Table

Filter Model	Picture NO.	System Voltage(±10%)	Motor drive rating @50Hz (kw)	Rated Current (A)	Switching frequency (kHz)	Connections		Weight (kg)	Dimension (±5mm)						
						Terminal	Copper Bar		D	D1	W	W1	W2	H	A*B
VKS-SF-0003-4A/05	1	3×380VAC	1.5	3.3	≥6	√		7.0	150	72	205	150	/	200	7*12
VKS-SF-0006-4A/05	1	3×380VAC	2.2	6	≥6	√		9.7	165	92	205	150	/	200	7*12
VKS-SF-0008-4A/05	1	3×380VAC	3.7	8	≥6	√		10.4	185	92	205	150	/	200	7*12
VKS-SF-0013-4A/05	2	3×380VAC	5.5	13	≥5	√		9.7	185	92	205	150	/	200	7*12
VKS-SF-0017-4A/05	3	3×380VAC	7.5	17	≥5	√		16.2	200	100	245	180	/	260	10*16
VKS-SF-0024-4A/05	3	3×380VAC	11	24	≥4	√		16.6	220	100	245	180	/	260	10*16
VKS-SF-0032-4A/05	3	3×380VAC	15	32	≥4	√		21.5	240	122	245	180	/	260	10*16
VKS-SF-0038-4A/05	3	3×380VAC	18.5	38	≥4	√		25.5	240	121	275	200	/	270	10*16
VKS-SF-0048-4A/05	4	3×380VAC	22	48	≥4	√		28.2	170	131	420	100	200	270	10*16
VKS-SF-0063-4A/05	4	3×380VAC	30	63	≥3	√		38.3	190	125	460	100	225	325	12*20
VKS-SF-0076-4A/05	4	3×380VAC	37	76	≥3	√		42	200	134	460	100	225	325	12*20
VKS-SF-0091-4A/05	4	3×380VAC	45	91	≥3	√		49.7	220	154	460	100	225	325	12*20
VKS-SF-0116-4A/05	5	3×380VAC	55	116	≥3		√	78	260	190	600	150	/	430	12*20
VKS-SF-0148-4A/05	5	3×380VAC	75	148	≥3		√	75	260	190	600	150	/	430	12*20
VKS-SF-0181-4A/05	6	3×380VAC	90	181	≥3		√	88.5	390	190	460	150	/	480	12*20
VKS-SF-0214-4A/05	6	3×380VAC	110	214	≥3		√	87.7	390	190	460	150	/	480	12*20
VKS-SF-0262-4A/05	7	3×380VAC	132	262	≥3		√	100.6	410	280	460	150	/	525	12*20
VKS-SF-0317-4A/05	6	3×380VAC	160	317	≥3		√	111	420	200	460	150	/	540	12*20
VKS-SF-0352-4A/05	8	3×380VAC	185	352	≥3		√	120	430	300	470	150	/	540	12*20
VKS-SF-0413-4A/05	9	3×380VAC	200	413	≥2		√	150	460	300	500	160	/	550	12*20
VKS-SF-0419-4A/05	9	3×380VAC	220	419	≥2		√	150	460	300	500	160	/	550	12*20
VKS-SF-0484-4A/05	10	3×380VAC	250	484	≥2		√	164	550	300	500	160	/	580	12*20
VKS-SF-0531-4A/05	9	3×380VAC	280	531	≥2		√	178	480	300	500	160	/	580	12*20
VKS-SF-0605-4A/05	11	3×380VAC	315	605	≥2		√	256	530	300	570	190	/	620	12*20
VKS-SF-0666-4A/05	11	3×380VAC	350	666	≥2		√	274	540	300	570	190	/	620	12*20
VKS-SF-0721-4A/05	12	3×380VAC	400	721	≥2		√	292	550	280	640	440	/	700	12*20
VKS-SF-0807-4A/05	12	3×380VAC	450	807	≥2		√	310	580	280	640	440	/	710	12*20
VKS-SF-0888-4A/05	13	3×380VAC	500	888	≥2		√	328	670	320	630	210	/	710	12*20
VKS-SF-0999-4A/05	13	3×380VAC	560	999	≥2		√	383	690	320	630	210	/	740	12*20
VKS-SF-1209-4A/05	14	3×380VAC	630	1209	≥2		√	473	720	350	690	230	/	760	12*20

- Selection Recommendation:** It's compulsory to collect all network conditions
- Rated values and service type of the load to the filter
 - Rated values of other non-line loads
 - Indication of the point where the filter has to be installed
 - Presence and type of the power factor equipment in the network
 - Motor frequency, Switching frequency and fundamental operating frequency

■ For more technical details, please contact our sales representatives

Model Rules:



- THDv,05 for THDv≤5%
- Manufacture processing codes
- Rated current
- Series name