

VicRuns

Caring for Machinery Caring for Energy



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VD60 Series Frequency Converter

ABOUT US

VicRuns Technology is a high-tech innovative enterprise integrating product development, manufacturing, sales and service in the fields of high-performance motor drive and control, new energy power conversion and control, and industrial robot servo control. With the deep integration of high-performance motor drive technology, power conversion technology and industrial Internet of Things technology, it serves China's high-end intelligent equipment and other fields, and has long been committed to providing users with durable and reliable standardized products and personalized system solutions.

The company's headquarters has a standardized production base of 20,000 square meters, and the production equipment and inspection and testing equipment are at the domestic advanced level. The company has a technology R&D and management team with doctoral, master and invention rights holders as the core, and has established long-term industry-university-research cooperation relationships with Hunan University and other institutions.

The company has been recognized as a high-tech enterprise, a software enterprise, and a famous trademark in Hunan Province for more than ten consecutive years. It has more than 60 national patents (including more than 20 invention patents), more than 30 software copyrights, and many main technical indicators of the product have reached the advanced level of similar products in the world or the leading domestic level.

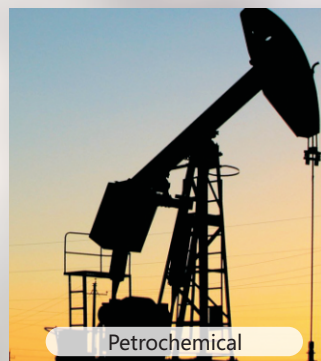


20 Offices **100** Marketing outlets **3** Overseas offices

Service outlets cover the whole country, and products are exported to the United States, Russia, Vietnam, Indonesia, Thailand, India and other countries



APPLICATION SCENES



Petrochemical



Construction Machinery



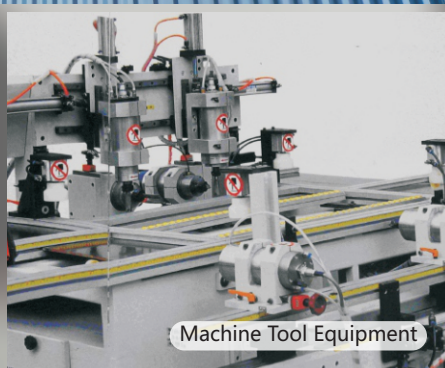
Port Equipment



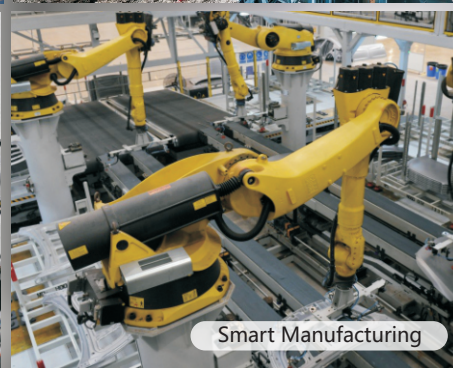
Mining Equipment



Metallurgical Equipment



Machine Tool Equipment



Smart Manufacturing



Textile Equipment



Tension Equipment

PRODUCT SUPERIORITY

Excellent Performance

- . Industry-leading flux vector control technology.
- . High starting torque, wide speed range.
- . Super overvoltage and overcurrent suppression capability.

Exquisite Craftsmanship and Simple Appearance

- . European terminal, simple wiring, shorten wiring time and save cost.
- . Support PC operation, reduce debugging time and difficulty.
- . The whole series adopts double-line display keypad for easy debugging.

European Book-style Design, Stable and Reliable

- . Book-style narrow body design, reducing the volume by up to 60%, support embedded installation.
- . Direct heat dissipation from top to bottom, multiple inverters can be installed side by side, greatly reducing the size of the electrical cabinet, modular design, powerful expansion capability.
- . The whole series of air ducts are completely independent, advanced thermal simulation design, and more perfect protection.

PRODUCT ADVANTAGE

Performance Features

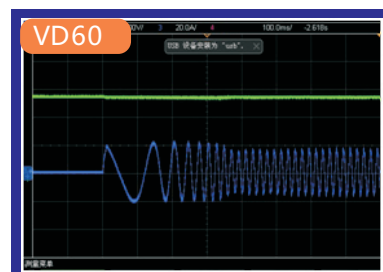
Support Multiple Types of Motors/loads



VD60 series inverters can drive various types of motors such as ordinary asynchronous motors, variable frequency motors, AC servo motors, synchronous motors, high-speed motors and spindle motors, and are suitable for various loads such as constant torque, constant power, fan and water pumps.

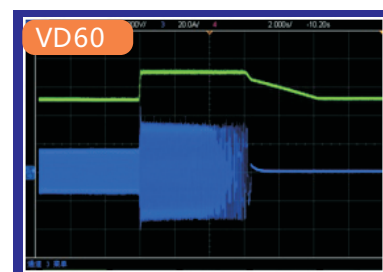
Excellent Control Performance

Using advanced magnetic flux vector control technology, built-in magnetic flux and torque closed-loop control, greatly improving the response speed of magnetic flux and torque. Accurate position and speed identification ensure that the vector control is completely decoupled, thereby greatly improving the control performance.



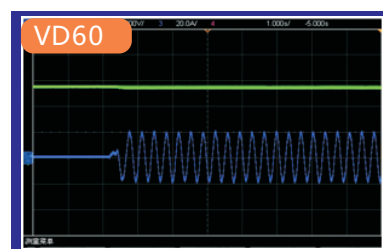
Super Overvoltage and Overcurrent Suppression

Super over-voltage and over-current suppression ability, effectively prevent over-voltage and over-current problems in the process of rapid acceleration and deceleration or load changes, reduce the voltage and current impact of the inverter and equipment, and can realize fast shutdown without braking resistor.



High Starting Torque Characteristics

Low frequency and high torque output. In the closed-loop vector mode, 200% rated torque output at zero speed can be achieved, and stable operation at 0.01Hz ultra-low speed with load. Powerful low-frequency torque output capability can ensure fast and smooth start under heavy load conditions.



Excellent Dynamic Response

Excellent torque and speed dynamic response, easily cope with the occasions of load or rapid change in speed (such as fast start and stop), and effectively prevent problems such as jitter, noise, reverse rotation, coasting, overvoltage, overcurrent, large-scale fluctuations in speed and torque that occur during load or rapid changes in speed.



Maximum Torque Current Ratio Control

Using the maximum torque-current ratio control, the maximum torque can be output with the minimum current in the full speed range, which can effectively reduce the temperature rise of the motor, reduce the impact of the equipment, extend the service life of the equipment, and ensure free application in heavy load situations.

Running Frequency	0.5 times rated load	1.0 times rated load	1.5 times rated load
1Hz	4.8A	9.2A	13.7A
10Hz	4.6A	9.0A	13.6A
25Hz	4.6A	9.0A	13.6A
25Hz	4.6A	9.0A	13.6A

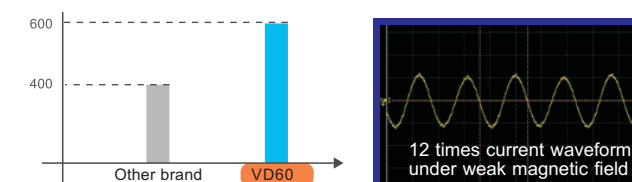
High Precision Control

High-precision torque and speed control (SVC torque control accuracy is 5%, speed control accuracy is 0.5%; FVC torque control accuracy is 3%, speed control accuracy is 0.2%), effectively reduce the impact of speed and torque fluctuations on the equipment craftsmanship and improves the quality of equipment craftsmanship.

Running Frequency	0.5 times rated load	1.0 times rated load	1.5 times rated load
1Hz	0.95Hz	0.95Hz	1.05Hz
10Hz	10.05Hz	10.10Hz	10.15Hz
25Hz	25.05Hz	25.10Hz	25.15Hz
50Hz	50.05Hz	50.10Hz	50.15Hz

Stable High-Speed Weak Magnetic Control

The new weak magnetic control algorithm and the high-bandwidth current vector control algorithm achieve stable and efficient weak magnetic operation, and support up to 12 times the high-precision output of weak magnetic.



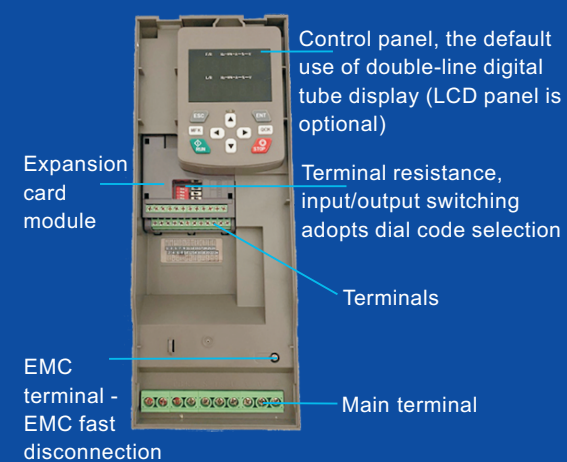
Other series: The maximum output frequency under vector control reaches 320/400Hz;
VD60 series: The maximum output frequency under vector control is up to 600Hz.

PRODUCT ADVANTAGE

Structure Hardware Features

Simple Internal Layout, Convenient Wiring Operation

The whole system adopts a narrow body design and strictly controls the size of the structure. The main model includes most of the conventional applications. Various expansion interfaces and wiring terminals are distributed in an orderly manner, and the wiring operation is convenient.

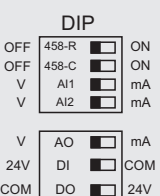


Number of Standard Terminals

Serial No.	Unit Circuit	QTY	Remarks
1	Ordinary digital input	5	Two-way input, 1 channel high-speed pulse input optional
2	Ordinary digital output	1	High-speed pulse output optional
3	Relay output	1	Normally open/normally closed
4	10V power output	1	20mA
	24V power output	1	200mA
5	Analog input	2	V/A supports free switching
6	Analog output	1	V/A supports free switching
7	RS485 communication	1	ModBus-RTU

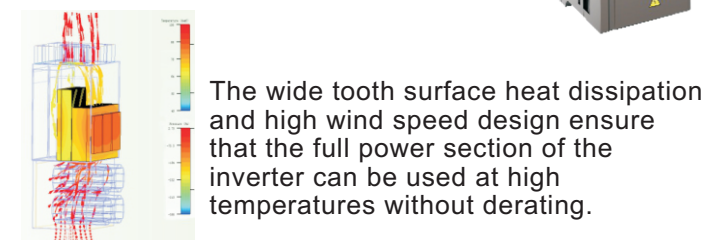
Port Feature Dial Code Selection

The port characteristics are easy to choose by dialing, and the input and output characteristics can be quickly selected with a common screwdriver.

Schematic Diagram of Dialing Code	Tag No.	Location Selection	Function Description
	458-R	OFF	485 communication 120Ω terminal resistance is disconnected
		ON	485 communication 120Ω terminal resistance is connected
	458-C	OFF	485 communication filter capacitor is disconnected
		ON	485 communication filter capacitor is connected
	AI1	V	Terminal selection 0-10V input voltage signal
		mA	Terminal selection 0/4mA-20mA input current signal
	AI2	V	Terminal selection 0-10V input voltage signal
		mA	Terminal selection 0/4mA-20mA input current signal
	AO	V	Terminal selection 0-10V input voltage signal
		mA	Terminal selection 0/4mA-20mA input current signal
	DI	24V	DI and COM short circuit input is valid
		COM	DI and 24V short circuit input is valid
	DO	24V	DO output is 24V external power output
		COM	DO output is internal power output

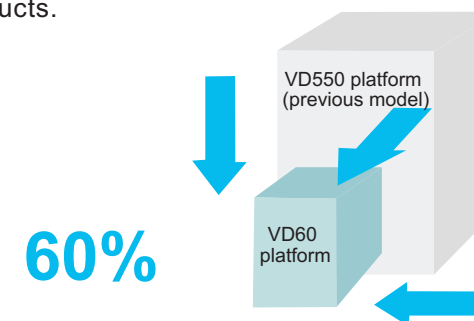
New Structure Design

The electronic device is separated from the air duct of the radiator. The capacitors, MOS tubes, and relays are strengthened for protection, and the two sides of the machine adopt a closed design to improve the environmental resistance of the machine.



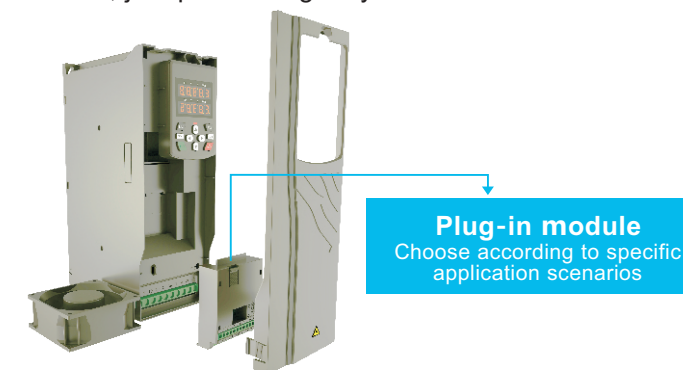
New Book Style Structure

The whole series of VD60 series inverters adopts a book-type narrow-body design, which is approximately 60% smaller in volume than the previous generation products.



Flexible Expansion

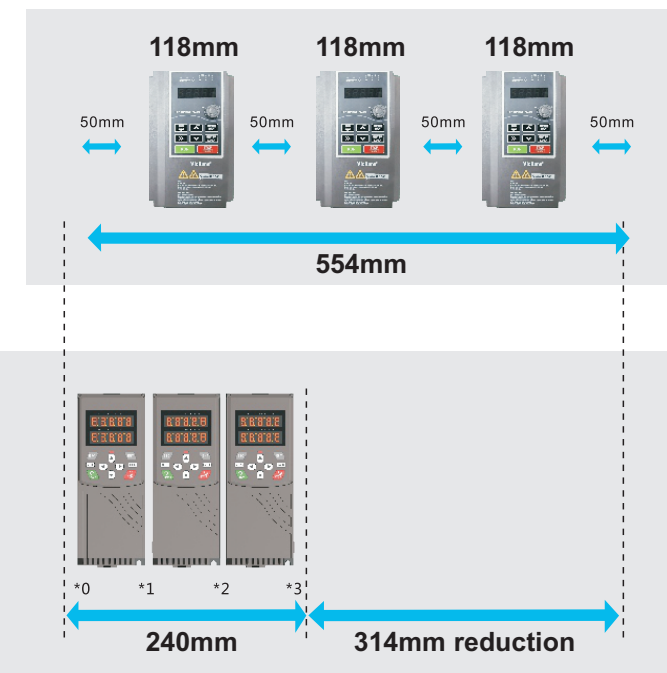
VD60 adopts a modern design concept, allowing users to choose the appropriate configuration according to their needs, with great flexibility. Replacing and adding expansion cards can be done without removing the screws, just pull it out gently.



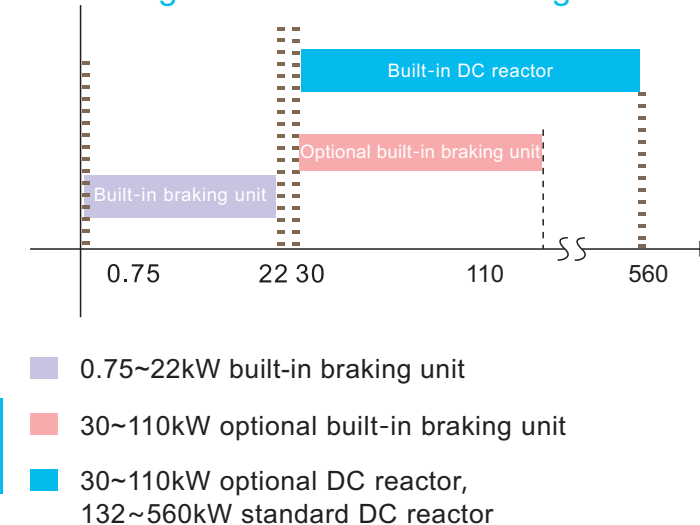
Optimized Structure Design

Book-style narrow body design, reasonable use of space, greatly saving customers' main cabinet space and main cabinet cost.

380V 2.2kW example



Braking Unit and Reactor Configuration



PRODUCT ADVANTAGE

Structure Hardware Features

Fast Disassembly and Assembly Design of the Fan

Using an innovative fan structure design, under the premise of ensuring the stability and efficiency of the fan, the fan can be quickly replaced and cleaned without the help of external tools.



Turn on the fan manually



Turn on the fan easily



Remove the fan for replacement



Remove the fan cover for cleaning

Keypad Operation

The newly designed panel keypad with superior operability makes debugging more convenient. The keypad supports external connect, and the installation methods are more diverse.



485/SPI keypad



LCD keypad



Potentiometer keypad

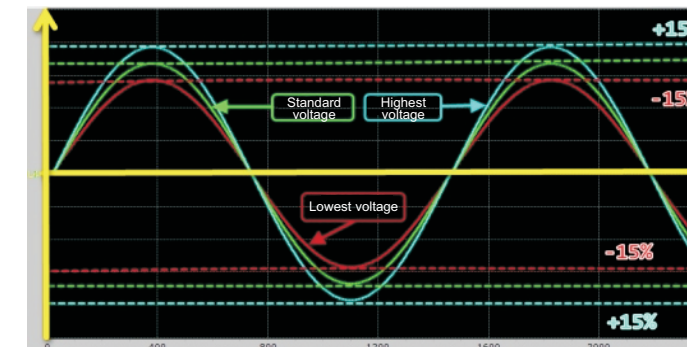


Shuttle keypad

	Name	State	Meaning
Unit Indicator Light	Hz	On	Indicates frequency unit
	A	On	Indicates current unit
	V	On	Indicates voltage unit
	RPM	On	Indicates speed unit
	%	On	Indicates percentage unit
Status Indicator Light	RUN	On/Off	Inverter running / stop
	FED/REV	On/Off	Forward / Reverse
	L/R	On/Off	Terminal / local / serial port control

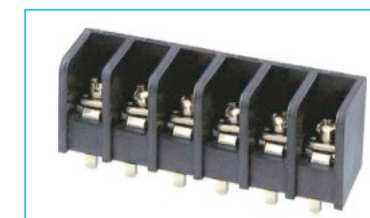
Wide Voltage Design

The allowable fluctuation range of the input voltage is $\pm 15\%$ of the rated voltage, which can avoid the influence of voltage fluctuations during use, and meet the harsh grid environment.

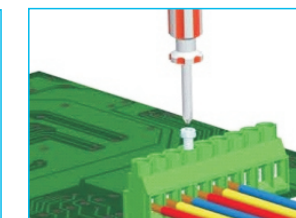


European Terminals

Choose professional European-style terminals that comply with IEC60998-2-1; UL1059; UL486E specifications to ensure safety and reliability, while saving connection time; stripping → thread number → screw locking. The VD60 inverter adopts European-style terminals on the main circuit terminals of low-power machines. Using European-style terminals to connect the main circuit of the cabinet, the time is reduced by at least half compared with the previous generation products, which greatly improves the customer's assembly efficiency.



Stripping→Thread Number→ Crimping Nose→Screw Lock



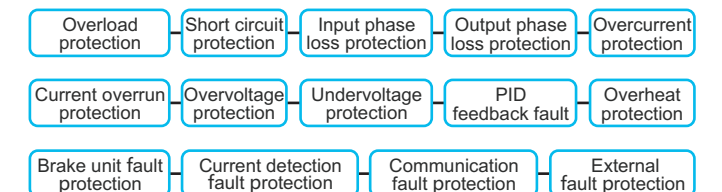
Stripping→Thread Number→Screw Lock

	VD60	Wire Diameter (mm)	Wire Cross-Sectional Area S(mm²)	Stripping Length L(mm)
Main Circuit Terminal	0.75kW-2.2kW	0.25-2.5	0.05-5.2	7-8
	3.7kW-5.5kW	0.5-2.5	0.2-5.2	6-7
	7.5kW-11kW	0.8-4	0.5-13	10-11
Stripping Diagram				

Protection Function

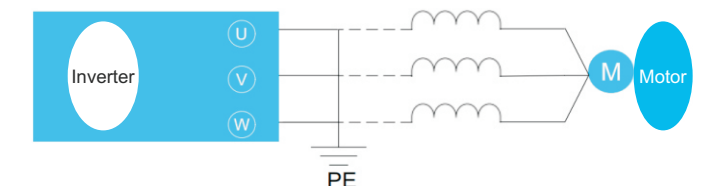
It has hardware protection functions such as output-to-ground short-circuit protection, internal buffer relay protection, fan drive circuit protection, external 24VDC short-circuit protection, motor overload protection, etc., to achieve full protection of the inverter's internal and peripheral equipment.

Fault Type



New Motor-to-Ground Short Circuit Detection

The whole series adopts three-phase current detection, which can detect and protect the motor to ground short-circuit at any time.



EMC Discontent Ground Line Design

Using innovative EMC disconnect ground line design, fast selection through terminal, effectively solving EMC interference.



PRODUCT ADVANTAGE

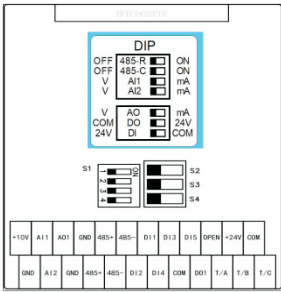
Expansion Ability

Super Expansion Ability

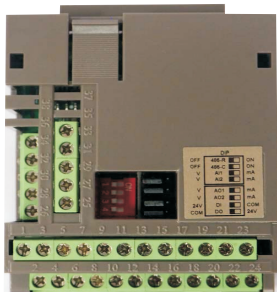
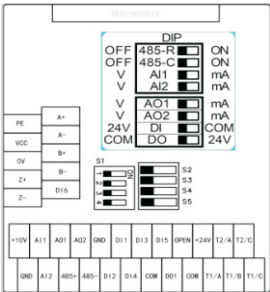
It supports a variety of expansion card types with rich functions. Different function expansion cards can be selected according to the different needs of customers, and the configuration is flexible to meet various customized needs.

Expansion Card Type	Remarks
IO expansion card option	DI, DO, AI, AO, relay, etc.
PG card option	Multiple types of codes such as ABZ and resolver are optional
Communication Expansion Card	MODBUS, CANopen, RPOFIBUS-DP, Profinet, etc

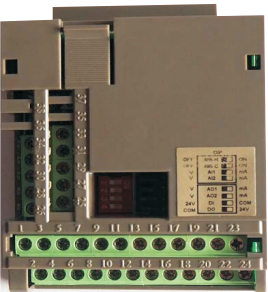
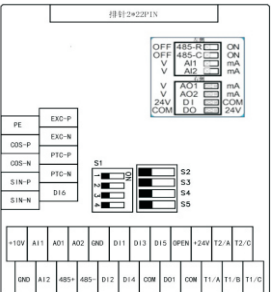
IO1 Expansion Card



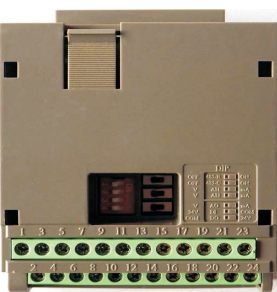
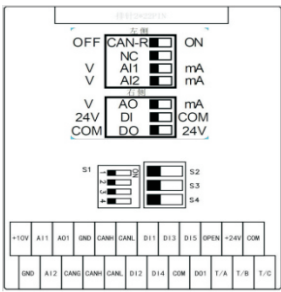
ABZ PG Expansion Card



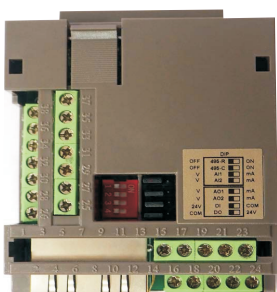
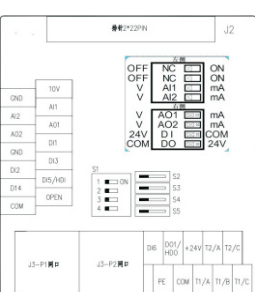
Resolver Expansion Card



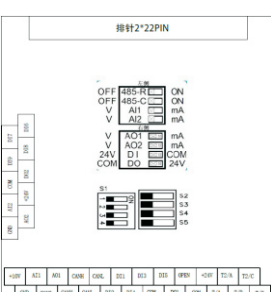
IO2 Expansion Card



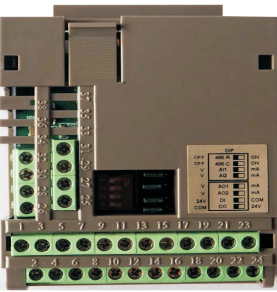
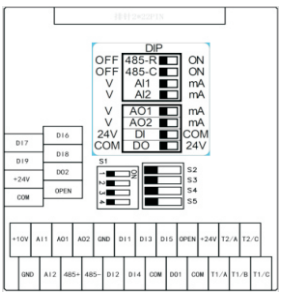
Profinet Expansion Card



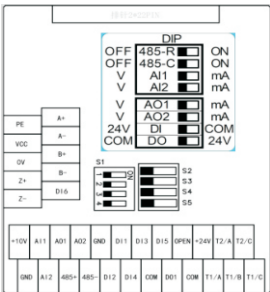
CANopen Communication Expansion Card



IO3 Expansion Card



Profibus-DP Expansion Card



PRODUCT SELECTION

Model Description

VD60-4T-11GB/15PB-L-XX
① ② ③ ④ ⑤ ⑥

①Inverter series		
②Voltage grade	2S	Single phase 220V
	2T	Three phase 220V
	4T	Three phase 380V
③Adaptable motor power		G type 11kW motor
		P type 11kW motor
④Braking Unit		B: Built-in braking unit
		None
⑤Contains dc reactor		
⑥Indicates user-defined code		

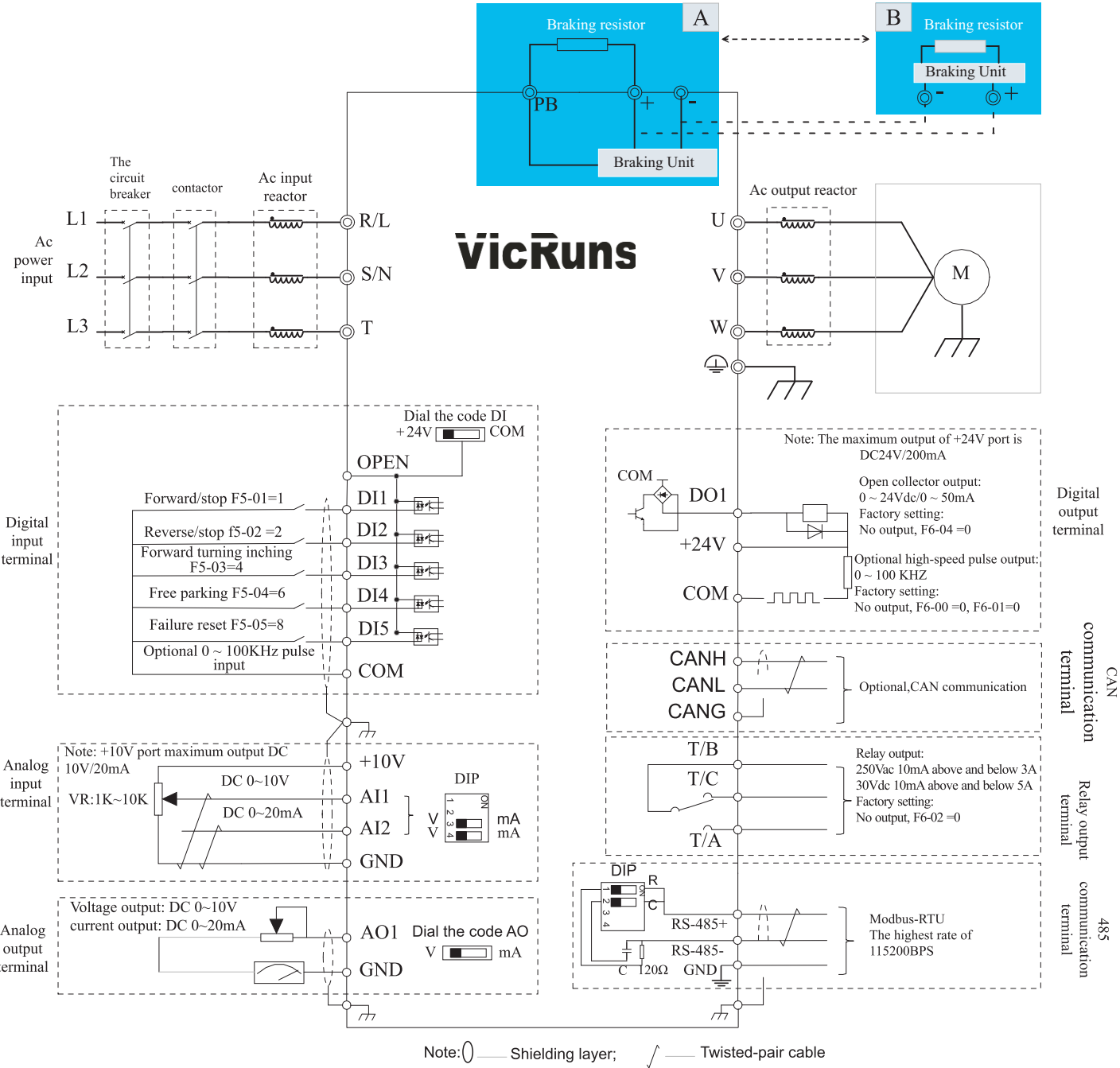
Inverter Rated Parameters

Single phase 220V			Three phase 380V		
Power (KW)	Output current (A)	Input current (A)	Power (KW)	Output current (A)	Input current (A)
0.75	4	8.2	0.75	2.5	3.5
1.5	7	14	1.5	3.8	4.6
2.2	9.6	23	2.2	5.1	6.3
3.7	17	35	3.7	9	11.5
5.5	25	50	5.5	13	16.8
7.5	32	61.5	7.5	17	22
11	45	90	11	25	32.5
15	60	120	15	32	41.5
18.5	75	150	18.5	37	49.6
			22	45	59
			30	60	65
			37	75	80
			45	91	95
			55	112	118
			75	150	157
			90	176	180
			110	210	214
			132	253	240
			160	304	287
			185	326	306
			200	377	365
			220	426	410
			250	465	441
			280	520	495
			315	585	565
			355	650	617
			400	725	687
			450	820	782
			500	860	835
			560	950	920
			630	1100	1050
			710	1260	1198
			800	1500	1426

Note: All powers are suitable for motors of the same power.

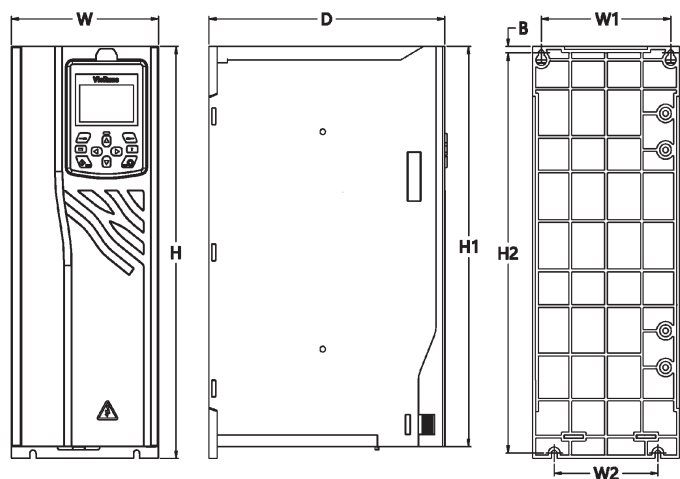
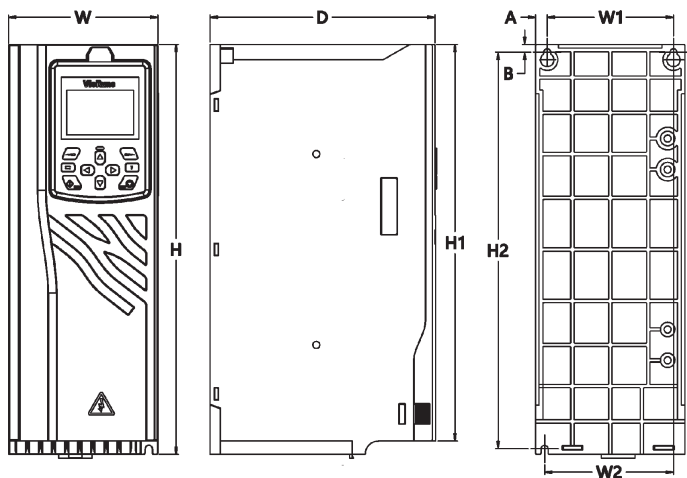
Standard Wiring Diagram

The braking method is selected according to the model;
A.The power of 110kW and below is directly connected to the braking resistor;
B.The power of 132kW and above need an external braking unit and then connect the braking resistor;
C.The power of 132kW and above external braking unit,and then external braking resistor.



MOUNTING DIMENSIONS

Plastic Shell Model

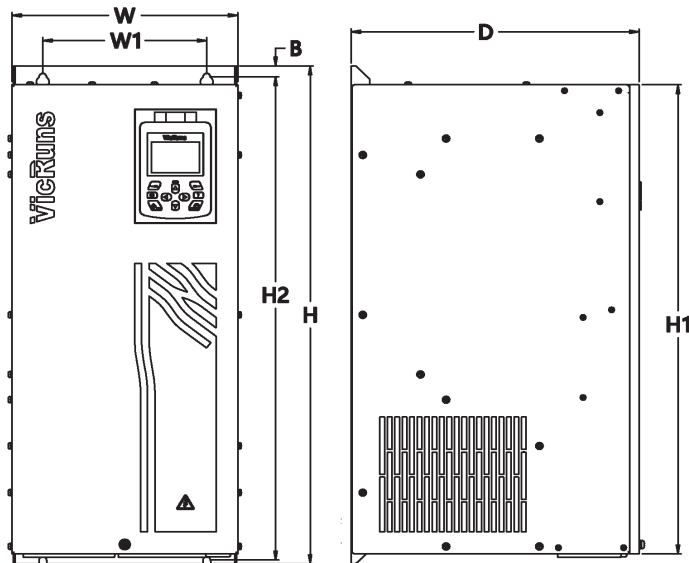


Model	Dimensions(mm)				Installation size(mm)					Mounting Hole (mm)	Braking Unit	DC Reactor
	W	H	H1	D	W1	W2	H2	A	B			
Single-phase 220V, 50/60HZ												
VD60-2S-0.75GB	80	201	193	160	65	65	193	7.5	5.5	3-M4	Standard built-in	No
VD60-2S-1.5GB												
VD60-2S-2.2GB	100	241	231	163	84	86	231	8	5.5	3-M4		
VD60-2S-3.7GB												
VD60-2S-5.5GB	116	318	307	176	98	100	307	9	6	3-M5		
Three-phase 220V, 50/60Hz												
VD60-2T-0.75GB	80	201	193	160	65	65	193	7.5	5.5	3-M4	Standard built-in	No
VD60-2T-1.5GB												
VD60-2T-2.2GB	100	241	231	163	84	86	231	8	5.5	3-M4		
VD60-2T-3.7GB												
VD60-2T-5.5GB	116	318	307	176	98	100	307	9	6	3-M5		
Three-phase 380V, 50/60HZ												
VD60-4T-0.75GB/1.5PB	80	201	193	160	65	65	193	7.5	5.5	3-M4	Standard built-in	No
VD60-4T-1.5GB/2.2PB												
VD60-4T-2.2GB/3.7PB												
VD60-4T-3.7GB/5.5PB	100	241	231	163	84	86	231	8	5.5	3-M4		
VD60-4T-5.5GB/7.5PB												
VD60-4T-7.5GB/11PB												
VD60-4T-11GB/15PB	116	318	307	176	98	100	307	9	6	3-M5		

Model	Dimensions(mm)				Installation size(mm)				Mounting Hole (mm)	Braking Unit	DC Reactor
	W	H	H1	D	W1	W2	H2	B			
Single-phase 220V, 50/60HZ											
VD60-2S-7.5GB	142	382	372	228	125	100	372	6	4-M5	Standard built-in	No
VD60-2S-11GB											
Three-phase 220V, 50/60Hz											
VD60-2T-7.5GB	142	382	372	228	125	100	372	6	4-M5	Standard built-in	No
VD60-2T-11GB											
Three-phase 380V, 50/60HZ											
VD60-4T-15GB/18.5PB	142	382	372	228	125	100	372	6	4-M5	Standard built-in	No
VD60-4T-18.5GB/22PB											
VD60-4T-22GB/32PB											

MOUNTING DIMENSIONS

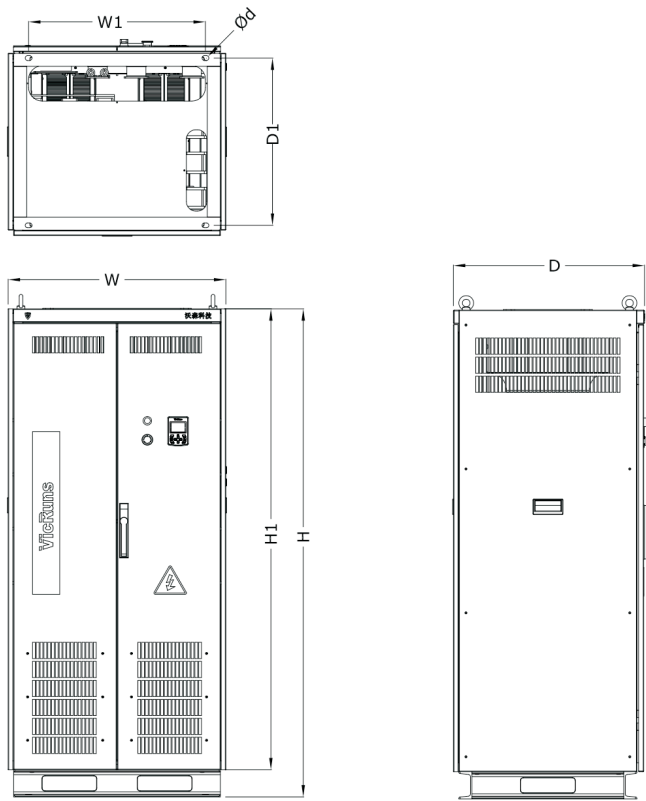
Iron Shell Model



Model	Dimensions(mm)				Installation size(mm)		Mounting Hole (mm)	Braking Unit	DC Reactor
	W	H	H1	D	W1	H2			
Single-phase 220V, 50/60HZ									
VD60-2S-15G	174	429	396	229	150	416	4-M6	Optional built-in	No
VD60-2S-18.5G									
Three-phase 220V, 50/60Hz									
VD60-2T-15G	174	429	396	229	150	416	4-M6	Optional built-in	No
VD60-2T-18.5G									
Three-phase 380V, 50/60HZ									
VD60-4T-30G/37P	174	429	396	229	150	416	4-M6	Optional built-in	Optional built-in
VD60-4T-37G/45P									
VD60-4T-45G/55P	243	559	528	309	176	544	4-M6		
VD60-4T-55G/75P									
VD60-4T-75G/90P									
VD60-4T-90G/110P	270	637	580	349	195	615	4-M8	Optional External	Standard Built-in
VD60-4T-110G/132P									
VD60-4T-132G/160P	350	737	680	404	220	715	4-M8		
VD60-4T-160G/185P									
VD60-4T-185G/200P	360	939	850	479	200	910	4-M16		
VD60-4T-200G/220P									
VD60-4T-220G/250P									
VD60-4T-250G/280P	370	1140	1050	544	200	1100	4-M16		
VD60-4T-280G/315P									
VD60-4T-315G/355P	400	1250	1140	550	240	1213	4-M16		
VD60-4T-355G/400P									
VD60-4T-400G/450P									
VD60-4T-450G/500P	460	1400	1295	550	300	1360	4-M16		
VD60-4T-500G/560P									
VD60-4T-560G/630P									

MOUNTING DIMENSIONS

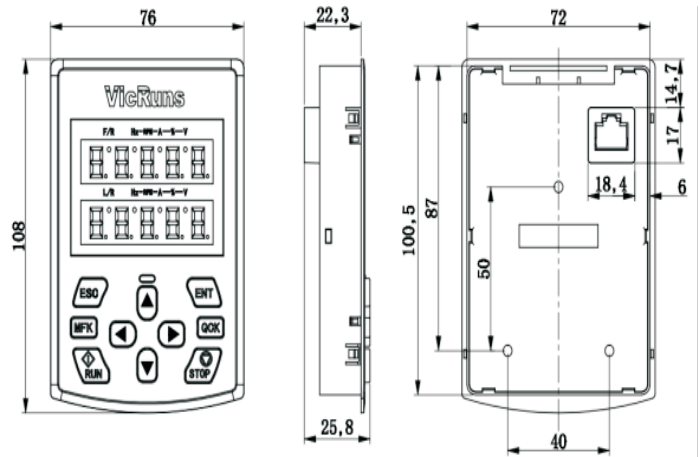
Floor Cabinet Model / Mounting Hole Dimension Drawing



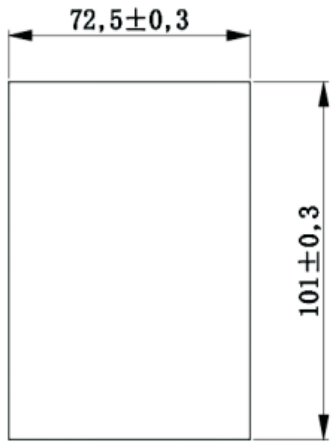
Model	Dimensions(mm)				Installation size(mm)		Mounting Hole (mm)
	W	H	H1	D	D1	W1	
VD60-4T-630G/710P	800	1800	1700	700	617	650	4-φ14
VD60-4T-710G/800P							
VD60-4T-800G							

Mounting Hole Dimension Drawing

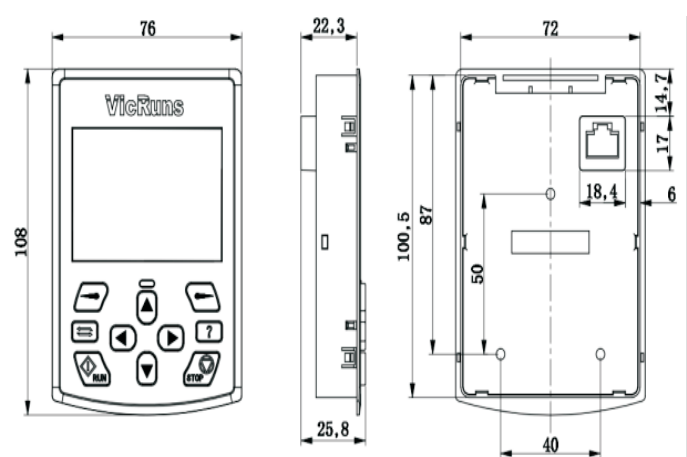
Dimensions of LED keyboard (standard)



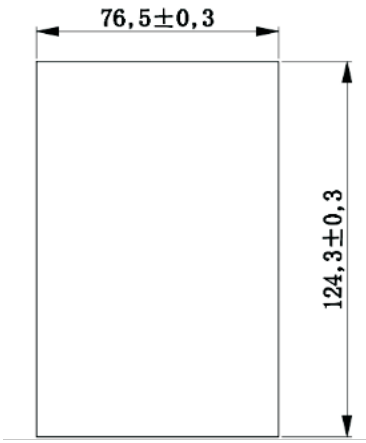
The size of the hole for the direct external introduction of the local keyboard (recommended)



Dimensions of LCD keyboard (optional)



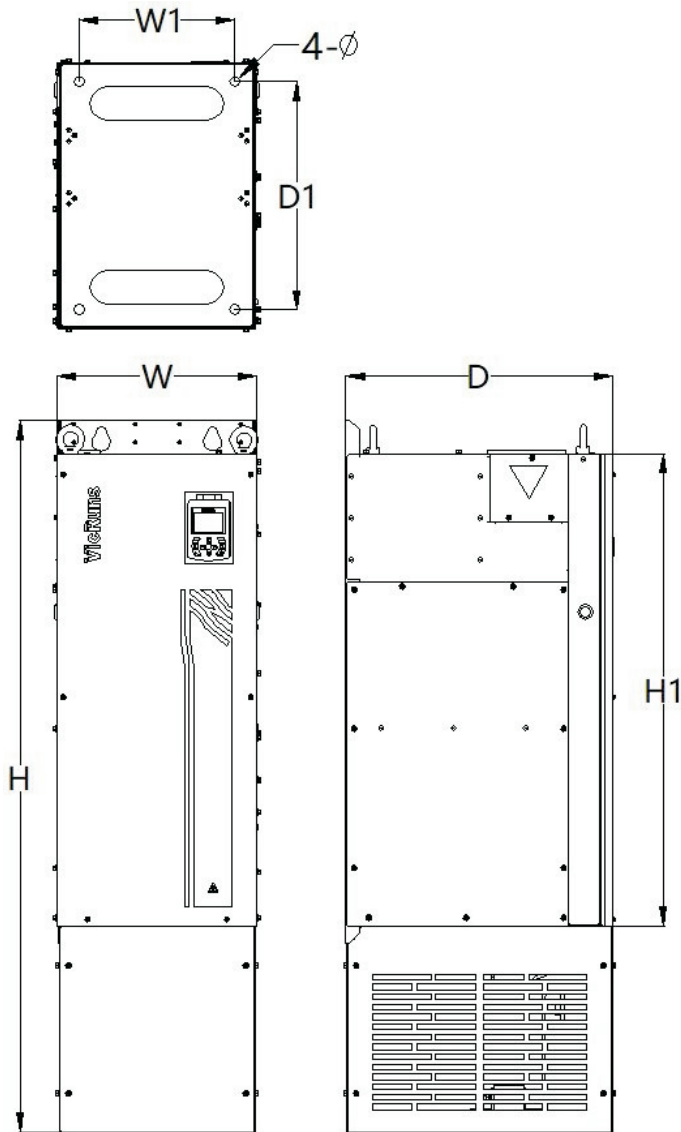
External opening size of the keyboard + tray



Remark: The keypad of this machine can be directly connected.

MOUNTING DIMENSIONS

Floor Cabinet Model



Model	Dimensions(mm)				Installation size(mm)		Mounting Hole (mm)
	W	H	H1	D	D1	W1	
VD60-4T-185G/200P	360	1280	850	479	410	280	4-φ18
VD60-4T-200G/220P							
VD60-4T-220G/250P							
VD60-4T-250G/280P	370	1505	1050	544	480	280	4-φ18
VD60-4T-280G/315P							
VD60-4T-315G/355P							
VD60-4T-355G/400P	400	1620	1145	544	480	320	4-φ18
VD60-4T-400G/450P							
VD60-4T-450G/500P							
VD60-4T-500G/560P	460	1780	1290	544	470	387	4-φ18
VD60-4T-560G/630P							
VD60-4T-630G/710P							
VD60-4T-710G/800P	800	1800	1700	700	617	650	4-φ18

Remark:
1. Below 110kW (inclusive) supports wall-mounted and embedded installation;
2. 132kW (inclusive) ~ 160kW (inclusive) support wall-mounted installation;
3. 185kW (inclusive) ~ 560kW (inclusive) support wall-mounted and cabinet installation, optional chassis base can be added;
4. 630kW ~710kW support cabinet installation.