



LV



VEM SOLUTIONS

MOTOR - GENERATOR - VFD - IOT



LOW VOLTAGE AC DRIVE

VCS SERIES



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ABOUT VEM





VEM in Asia has been established in 2003 incorporated in Singapore. A small and smart Team leading new sales and after sales services for whole APEC and Oceania areas. A stock in Singapore ensure availability for Marine and flameproof motor within a few minutes.

VEM is an innovative, internationally-active and reliable manufacturer of technically sophisticated system and drive solutions, custom drives and single components. The output capacity ranges from 0.06 kilowatts to 60 megawatts / 90 megavolt ampere. Continuity and reliability, including in the future, this is what the production and service at VEM stands for. The engineering and quality of the products with the VEM logo are trendsetters within the market.

Best for your applications

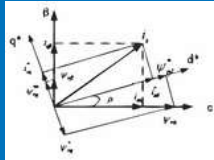
Perfect Drive & High Efficient Energy Saving

VCS Series Drive Profile		
	High performance DTC drives	Multidrives/AFE/Regenerative Drives
Photos		
Model series	VCS580 VCS880	VCS880
Power range	380V-690V 1.5KW-450 KW	380V-690V 4KW-2300KW
Application industries	<ul style="list-style-type: none"> Industrial transmission Lifting/Crane Curl application Oil pump out Precision machine tools Printing and packaging equipment Multi-speed feedback control Permanent magnet synchronous motor application Alternative places for DC motors Electromagnetic or mechanical stirring High-speed centrifuge Dynamometer test bench Power generation and supply device Ship drive/Winch Woodworking Food processing Textile equipment 	<ul style="list-style-type: none"> Industrial transmission Lifting Curl application Oil pump out Drilling equipment Plastic machinery and equipment Multi-speed feedback control Permanent magnet synchronous motor application Alternative places for DC motors High-speed centrifuge Dynamometer test bench Power generation and supply device Ship drive Steel smelting equipment Need high-power energy free flow Dynamic medium and large transmission
Main features	<ul style="list-style-type: none"> Optional standard four-quadrant regeneration Excellent energy efficiency performance Excellent open loop control performance Support all kinds Acmotors Higher control accuracy and dynamic performance Advanced permanent magnet synchronous drive High reliability, multiple protection functions Support mainstream high-speed fieldbus Excellent high speed and weak field 	<ul style="list-style-type: none"> Optional standard four-quadrant operation High-power multi-transmission flexible configuration Excellent open loop control performance Strong short-time overload capacity Higher control accuracy and dynamic performance Advanced permanent magnet synchronous drive High reliability, multiple protection functions Support mainstream high-speed field bus

Technical Features /Product advantages

Direct torque control (DTC): A motor control technique for all seasons

- Excellent magnetic flux optimization technology is adopted to realize industry leading energy saving effect.



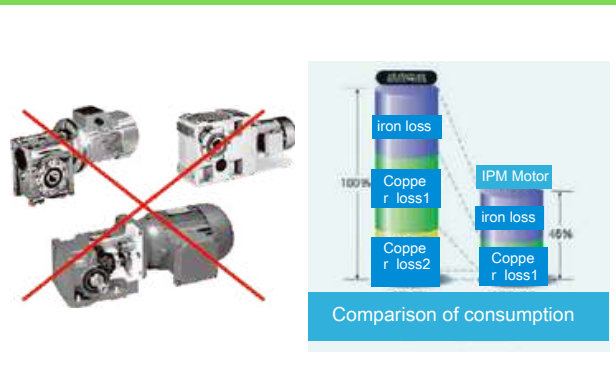
NEW

- Magnetic flux optimization technology(induction motor):Always adjust the magnetic flux at its best to minimize motor losses for higher energy savings while reducing motor noise.

For example: 25% motor load can increase 10% of the total efficiency , 50% load can increase 2% for the total efficiency

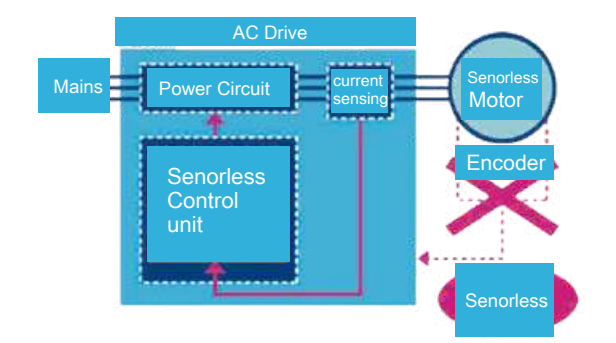
- It can be used to realized direct drive control on low-speed industrial equipment with permanent magnet synchronous motor without decelerating device, saving cost and optimizing process control.
- Smooth and efficient drive permanent magnet motor with more energy saving(including permanent magnet motors that are not equipped with speed or rotor position sensors) Direct drives are available on low-speed industrial equipment for higher energy efficiency and better control performance.

NEW



- It doesn't need a sensor to realize excellent driver performance and speed feedback or position feedback in 95% application. It can save the installation of expensive encoders or other feedback devices and improve the reliability of transmission equipment .
- Always maintain stator and rotor magnetic field angle vertical, minimize the useless power loss in motor operation.

NEW



- It has better control performance in driving induction motor, permanent magnet motor, synchronous magnet resistance motor and magnetic levitation motor to realize higher energy efficiency .



Excellence performance

Better optimize the production process control, improve the production quality, quality consistency and production efficiency of industrial equipment.

Quick torque response, high torque linearity

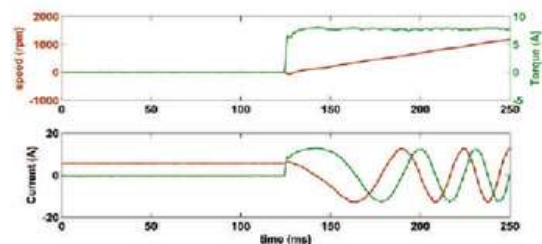
Torque response time lower than 5 ms for sensorless applications (0 step to the rated torque). The torque repeatability is 1%. It is equal to the closed-loop vector or dc device.

It can significantly improve the production process control, product quality and consistency in the curly application of industrial equipment which reduce the investment on sensor using and increase the reliability of the equipment especially in paper, textile, wire, all kinds of ductility tape products. It can be used to replace dc motor with permanent magnet synchronous motor and save the workload and cost of equipment maintenance.

Fast Dynamic Response, High Speed Accuracy

The speed loop's dynamic response accuracy is 0.7% s. The speed accuracy of the sensorless application is less than 0.5%, and the sensor is not needed in 95% of applications. The maximum operating frequency can reach 500Hz

It can significantly improve the production process control, product quality and consistency in the curly application of industrial equipment which reduce the investment on sensor using and increase the reliability of the equipment especially in paper, textile, wire, all kinds of ductility tape products. It can be used to replace dc motor with permanent magnet synchronous motor and save the workload and cost of equipment maintenance.



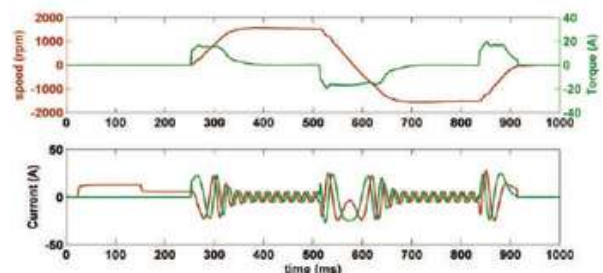
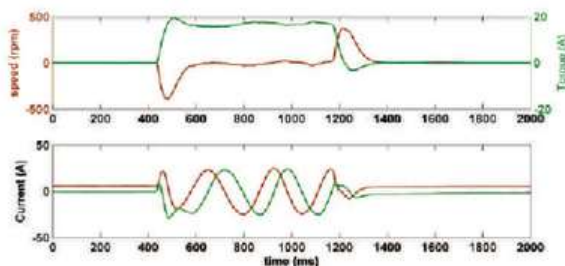
Low Frequency High Torque, Super Smooth Operation

200% torque at 0Hz speed without sensor control, no mechanical lock, smooth switch between driver and brake, to help equipment to realize safer and more convenient operation.

1. No need to amplify the driver power level due to insufficient starting torque. It can achieve 1:1 selection of driver and motor power and can be used in ball mill, stone cutting, industrial washing machine, centrifuge, mixer and other applications.
2. It can realize the open-loop at zero-speed to take off and contracting brake in lifting application, eradicating the slip hook and pouring, and the 150% load can go upward and downward steady.
3. Can cooperate with permanent magnet synchronous motor to realize the direct drive of low speed control industrial equipment and eliminate the use of deceleration device.

Fast Acceleration and Deceleration

It can realize acceleration, deceleration and switching between forward-rotating and reverse in the shortest time without mechanical restriction, optimize the control of production process and improve production efficiency.



The all-compatible drives

Abundant expansion functions support almost all AC sine wave motor control, which can easily cope with harsh application environments and enhance the applicability of the product.

◆ Support different kind of communication protocols

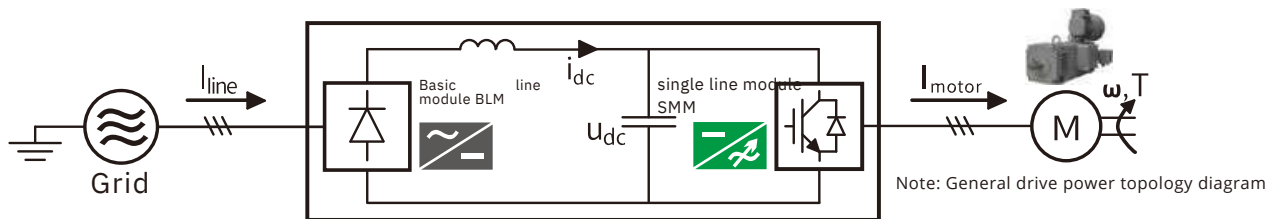
- Optional ProfiNET communication card
- Optional EtherCAT communication card
- Optional MODBUS-TCP communication card
- Standard built-in CANOPEN communication card
- Standard built-in MODBUS-RTU communication card
- Optional PROFIBUS-DP communication card
- Remote diagnosis

◆ Brake chopper built-in design, and reduce wiring, save space

- 22/30KW and below are equipment with built-in braking unit as standard
- 30/37-250kW optional built-in braking unit
- Brake chopper voltage point can be set and adjusted as required
- Braking resistor short circuit protection, overheating protection

◆ Professional certification

- CE certification: the series of products have reached the EU
- Requirements of relevant directives of CE
- CCS classification society certification
- ROHS environmental protection certification



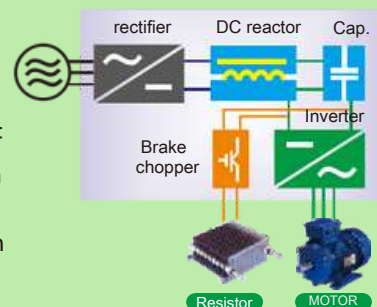
◆ Support single/dual encoder

- Support open collector encoder
- Support differential output encoder
- Support for SinCos encoder
- Supports resolver encoders
- Support single/multi-turn absolute value
- Support single/multi-pole magnetoresistive
- For details, see the option list and model wiring diagram



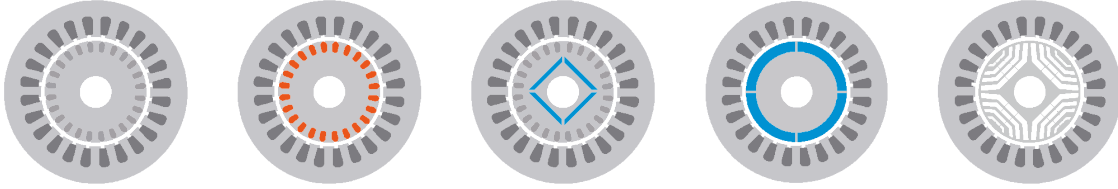
◆ EMC and high protection design

- The input side is equipped with a built-in C3 (EN 61800-3 category 2 environment - C3) EMC filter as standard.
- X3 and above products have a built-in DC reactor to improve power factor and reduce harmonic distortion, pollution and interference.
- The airtight protective casing design can effectively reduce the impact of harsh environments, especially for dusty or humid site environments such as cables, machine tools, textiles, and ceramics.
- The medium and high power models of the E-shape series have a built-in output common mode filter.
- Effectively reduce high-frequency radiation and relieve the current corrosion pressure of motor bearings.



Rich Functions & Easy to use

The system is fully functional designed to better meet the different needs of AC drives in various industries. With large-size Chinese / English multi-language LCD interfaces, it helps you to identify transmission information and control drives more intuitively, conveniently, quickly and comprehensively.



◆ The application macros help set parameters for various functions including:

- Basic setup for input/output control and fieldbus control
- Hand/auto control for local and remote operation
- PID control for closed loop processes
- Sequential control for repetitive cycles
- Torque control
- Four user sets, for saving multiple drive configurations

The drives are equipped with direct torque control (DTC), DTC allows high overloadability, gives high starting torque and reduces stress on mechanics.

The energy optimizer mode ensures the maximum torque per ampere, reducing energy drawn from the supply.

◆ Additional software features include:

- Access levels
- Adaptive programming
- Automatic reset
- Automatic start
- Constant speeds
- Critical speeds and frequencies
- DC hold
- DC magnetizing
- Diagnostics
- Drive-to-drive link for master-follower control
- Flux braking
- Jogging
- Maintenance timer and counters
- Mechanical brake control
- Motor potentiometer
- Output phase order selection, switches rotation direction of the motor
- Oscillation damping
- Power loss ride-through
- Process PID control with trim function
- Programmable and pre-programmed protection functions
- Programmable inputs and outputs
- Scalar control with IR compensation
- Speed controller with auto tuning
- Startup assistants
- User adjustable load supervision/limitation
- User selectable acceleration and deceleration ramps
- Variable slope

◆ Removable memory unit :

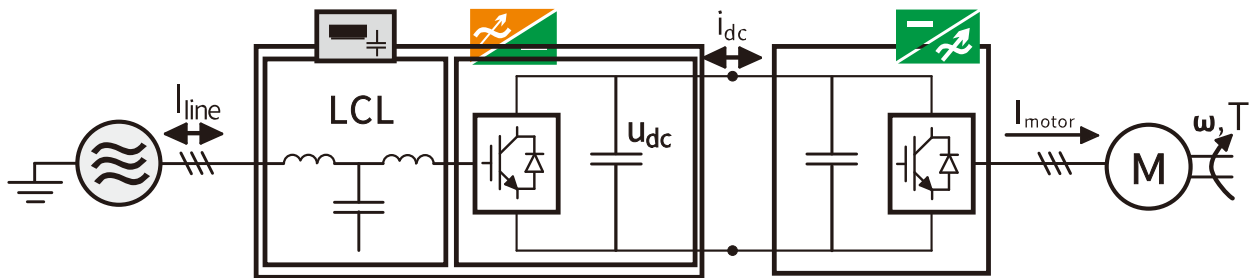
- The removable memory unit stores the software that includes user settings, parameter settings and motor data.
- Situated on the control unit, the memory unit can easily be removed for maintenance, update or replacement purposes.
- This common type of memory unit is used throughout the VCS series.



Reliability, performance and safety

We always put reliability and safety in first in product design and manufacturing. Comprehensive Design of Heat Dissipation.

- The IGBT junction temperature real-time monitoring technology is used to accurately measure IGBT junction temperature and more effectively protect IGBT module.
- Comprehensive temperature monitoring of application environment to achieve system-level comprehensive thermal management and rapid overheating checking.
- High efficiency and accurate thermal simulation software and the most stringent industry limit test standard are adopted to effectively guarantee the thermal reliability of the whole machine.
- Complete seal machine design and independent cooling air duct to reduce the influence of harsh environments on the electronic devices

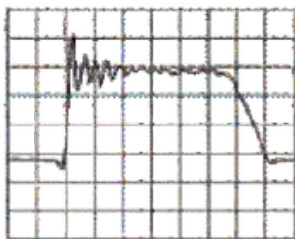


◆ Rigorous Machine Quality Testing

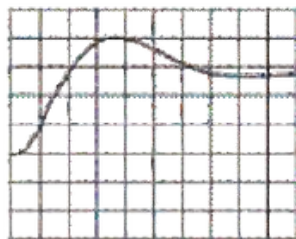
All products under high temperature aging testing with 120% load at 50 °C which is first in China and can effectively guarantee the product quality.

◆ Comprehensive Protection of the System

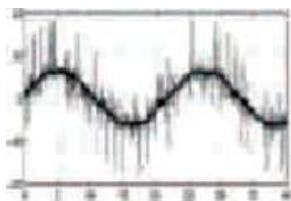
- Driver: short circuit, over current, over voltage, under voltage, input / output phase loss, overload, overheat protection
- Motor: overload, motor overheat protection
- Brake loop: brake tube overload, brake tube straightway, brake resistance protection, etc.
- Output non-stop function when momentary power outage: power loss across, transmission without tripping



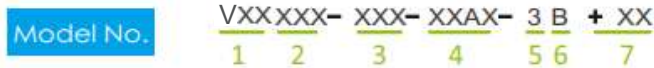
du/dt Filter Without(Left)



With(Right)






In the system design of this series of products, many of the features and functions are built-in standard. Ease of your design and selection, these extensive options can optimize and enhance your drive to meet different application needs. To choose the right driver for your specific application, please Referring to the product overview, technical data, model list, optional parts list and other chapters in this catalog, the selected driver has a unique model identification, structural shape, power and voltage range and other information. Or contact our sales office or representative in your location to let them know more about your needs.



1. Product family
2. Product family
3. Model and appearance and structure
4. Rated capacity or current
5. Various options and functions
6. Voltage class
7. Built-in brake

Note: The current product family mainly includes AFE/DCDC/PTi/PTo/AFEL, etc.

Main power connection	
Voltage range	1PH, Un2 = AC 1/3P 220V(-15%/+10%), max 260V 3PH, Un3 = AC 3P 380V(-15%/+10%), max 490V 3PH, Un6 = AC 3P 660V(-15%/+10%), max 750V
Frequency	50 ~ 60 Hz ± 5%
Power factor	cos Φ = 0.98 , approx = 1@ when AFE applied
Efficiency	0.98
DC connection	Based on 380/690V hardware, can support DC 760-1100-1350V
Output voltage	DC is used for buck regulation, AFE can be used for a certain boost
Product series	Direct Torque Control Technology Products
Motor connection	
Motor Type	AC induction motors, permanent magnet motors and synchronous reluctance motors
Output voltage	3phase output voltage, 0 to Un2/Un3/Un6
Output frequency	0 ~ 500Hz
Motor control	Direct torque control
Torque control	Torque response time
Open loop	Related torque < 5 ms
Close loop	Related torque < 5 ms
	Nonlinearity
Open loop	Related torque ± 4%
Close loop	Related torque ± 3%
Speed Control	Static precision
Open loop	10% of motor slip
Close loop	0.01% of motor related speed
	Dynamic accuracy
Open loop	0.3-0.4% per second at 100% torque step
Close loop	0.1-0.2% per second at 100% torque step
Input/Output	DCDC / AFE series product
output	Note: The upper limit of the output voltage depends on the input voltage value
output precision	<=0.1%FS
Source & Load Effects	<=0.1%FS
Ripple(Vrms)	<=0.2%FS
Response time	<=5ms (10-100% sudden load, input voltage fluctuation within ±5%)
Feedback Feature (AFE)	Note: The upper limit of the output voltage depends on the input voltage value
Input voltage	DC760V, DC1100V, depends on the DC voltage and hardware)
Response characteristics	<=within 5ms (-100% to +100% sudden switching)
Feedback power	Support full-scale full power feedback (related to the selected hardware power size)
Feedback THD	0-3% (depending on local grid capacity)
Feedback THD	<=3% (100% power feedback & suitable grid capacity)
safety features	Note: Associated with selected hardware voltage system class
Insulation resistance	>=20MΩ (reinforced insulation)
Withstand voltage characteristics	2000VDC test 60S, no arcing, breakdown
Ground resistance	<=100mΩ

Product Specification	
	- CE - Low Voltage Directive 2006/95/EC - Mechanical Directive 2006/42/EC - Electromagnetic Compatibility Directive 2004/108/EC
Brake connection	
Braking Unit	RX, X2X, X3X size are as standard, X4X-X8X as optional built-in.
Braking resistor	Externally optional for all power
Optional communication	CANopen, EtherCAT, ProfiNET (optional)
Modbus-RTU (standard)	  
Environmental	
Ambien temperature	-40 to +70 °C
Transportation	-40 to +70 °C
Storage	-15 to +55 °C, no frost allowed
Running	+40 to 55°C with derating of 1%/1°C
Cooling method	
Air-cooled	Dry clean air
Altitude	
0-1000m	Without derating
1000-4000m	With derating of 1%/100m
Relative humidity	5 to 95%, no condensation allowed
Degree of protection	-IP20, UL Type 1 (for room/cabinet use only)
Shell colour	RAL 9017/9002, RAL 9017/7035
Contamination level	No conductive dust allowed
Storage	IEC 60721-3-1, Class 1C2 (chemical gases), Class 1S2 (solid particles)
Transportation	IEC 60721-3-2, Class 2C2 (chemical gases), Class 2S2 (solid particles)
Operation	IEC 60721-3-3, Class 3C2 (chemical gases), Class 3S2 (solid particles)

C = chemically active substance
S = mechanically active substance
1. For higher working output frequency, please contact the sales representative.

VCS880 E series frequency drive selection list

VCS880 series Wall-mounted single drives

Un = 400V (340-500V) The rated power is valid at the rated voltage of 400V (1.5- 450-1400kW)

E
Frame



E2-CON



E2



E8

Nominal ratings			Light-overload		Heavy duty		Noise	Heat	Air flow	Model Number	Resistor	Frame size (mm)
PN kW	IN A	I _{max} A	ILD A	PLD kW	IHD A	PHD kW	dBA	W	m ³ /h			
1.5	3.3	4.1	3.1	1.5	2.4	0.75	45	50	25	VCS880-E22-03A3-3B	>=72Ω	E2 (W100 H300 D230)
2.2	5.6	6.8	5.3	2.2	4.0	1.5	45	76	30	VCS880-E23-05A6-3B	>=72Ω	
4.0	9.5	12	8.8	4.0	5.6	2.2	45	97	40	VCS880-E24-09A8-3B	>=72Ω	
5.5	12.9	16	12	5.5	9.4	4.0	45	175	50	VCS880-E25-12A6-3B	>=72Ω	
7.5	17	21	17	7.5	13	5.5	45	210	55	VCS880-E26-017A-3B	>=39Ω	
11	25	30	24	11	17	7.5	45	325	60	VCS880-E27-025A-3B	>=39Ω	E3 (W145 H400D270)
15	32	42	32	15	25	11	57	500	100	VCS880-E32-032A-3B	>=20Ω	
18.5	38	54	37	18.5	32	15	57	550	125	VCS880-E33-038A-3B	>=20Ω	
22	45	64	45	22	38	18.5	57	660	145	VCS880-E34-045A-3B	>=20Ω	E4 (W250 H400D300)
30	61	76	58	30	45	22	59	890	200	VCS880-E42-061A-3	/B ¹⁾ >=10Ω	
37	72	104	71	37	61	30	59	1114	250	VCS880-E43-072A-3	/B ¹⁾ >=8Ω	
45	87	122	85	45	75	37	59	1140	290	VCS880-E44-087A-3	/B ¹⁾ >=8Ω	E5 (W290 H680 D350)E6
55	115	148	110	55	91	45	59	1200	320	VCS880-E52-105A-3	/B ¹⁾ >=5.2Ω	
75	145	179	143	75	112	55	59	1440	340	VCS880-E53-145A-3	/B ¹⁾ >=5.2Ω	
90	182	247	176	90	150	75	67	1940	400	VCS880-E54-169A-3	/B ¹⁾ >=3.3Ω	
110	226	287	212	110	184	90	67	2200	550	VCS880-E62-206A-3	/B ¹⁾ >=2.3Ω	
132	246	350	241	132	225	110	67	3300	650	VCS880-E63-246A-3	/B ¹⁾ >=2.3Ω	E7 (W425 H900D390)
160	293	418	283	160	266	132	68	3850	680	VCS880-E72-293A-3	/B ¹⁾ >=1.7Ω	
200	363	498	355	200	293	160	68	4100	700	VCS880-E73-363A-3	/B ¹⁾ >=1.7Ω	
250	487	545	450	250	387	200	68	4600	720	VCS880-E74-487A-3	/B ¹⁾ >=1.7Ω	E8 (W380 H1660 D535)
280	546	628	526	280	480	250	68	5100	950	VCS880-E83-546A-3	/B ¹⁾ >=1.7Ω	
315	624	718	615	315	546	280	68	5782	1100	VCS880-E84-624A-3	/B ¹⁾ >=1.7Ω	
400	760	874	727	355	568	315	68	6252	1200	VCS880-E85-760A-3	/B ¹⁾ >=1.7Ω	
450	865	1080	865	450	675	355	68	7860	1350	VCS880-E86-865A-3	/B ¹⁾ >=1.7Ω	

UN = 690 V (range 525 to 750 V). The power ratings are valid at nominal voltage 690 V

Nominal ratings			Light-overload		Heavy-duty		Noise	Heat	Air flow	Model Number	Resistor	Frame size (mm)
PN kW	IN A	I _{max} A	ILD A	PLD kW	IHD A	PHD kW	dBA	W	m ³ /h			
45	49	71	47	45	42	37	59	1120	290	VCS880-E50-049A-6	/B ¹⁾ >=22Ω	E5 (W290 H680 D350)
55	61	104	58	55	49	45	59	1295	320	VCS880-E51-061A-6	/B ¹⁾ >=13Ω	
75	84	124	80	75	61	55	59	1440	340	VCS880-E52-080A-6	/B ¹⁾ >=13Ω	
90	98	168	93	90	84	75	67	1940	400	VCS880-E53-098A-6	/B ¹⁾ >=8Ω	
110	119	198	113	110	98	90	67	2310	550	VCS880-E54-119A-6	/B ¹⁾ >=8Ω	
132	142	220	135	132	119	110	67	3300	650	VCS880-E63-142A-6	/B ¹⁾ >=6Ω	E7 (W425 H900D390)
160	174	274	165	160	142	132	68	3922	680	VCS880-E72-175A-6	/B ¹⁾ >=4Ω	
200	210	384	200	200	174	160	68	4822	700	VCS880-E73-210A-6	/B ¹⁾ >=4Ω	
250	271	411	257	250	210	200	68	6000	720	VCS880-E74-271A-6	/B ¹⁾ >=4Ω	E8 (W380 H1660 D535)
280	300	450	290	280	265	250	68	5800	950	VCS880-E82-295A-6	/B ¹⁾ >=2.7Ω	
315	330	480	320	315	295	280	68	6120	1100	VCS880-E83-325A-6	/B ¹⁾ >=2.7Ω	
355	370	520	360	355	325	315	68	6800	1200	VCS880-E84-360A-6	/B ¹⁾ >=2.7Ω	
400	430	520	420	400	415	355	68	7000	1350	VCS880-E85-420A-6	/B ¹⁾ >=2.7Ω	
450	470	655	455	450	455	400	72	7200	1300	VCS880-E86-450A-6	/B ¹⁾ >=2.7Ω	
500	522	655	505	500	505	450	72	8500	1350	VCS880-E87-505A-6	/B ¹⁾ >=2.7Ω	
560	590	800	570	560	515	500 ²⁾	72	9500	1450	VCS880-E88-571A-6	/B ¹⁾ >=2.7Ω	

PN: Typical motor power in Nominal load use. In: Rated current available continuously without overload at 40 °C. I_{max}: Max.current, Available for 10 seconds at start, then as long as allowed by drive temperature. ILD: Continuous current allowing 110% ILD for 1 minute every 5 minutes at 40 °C, for typical motor power in light-overload use. IHD: Continuous current allowing 150% IHD for 1 minute every 5 minutes at 40 °C, for typical motor power in heavy-duty use. The ratings apply at 40 °C ambient temperature. At higher temperatures (Up to 55 °C) the derating is 1%/1°C.1).150% overload.

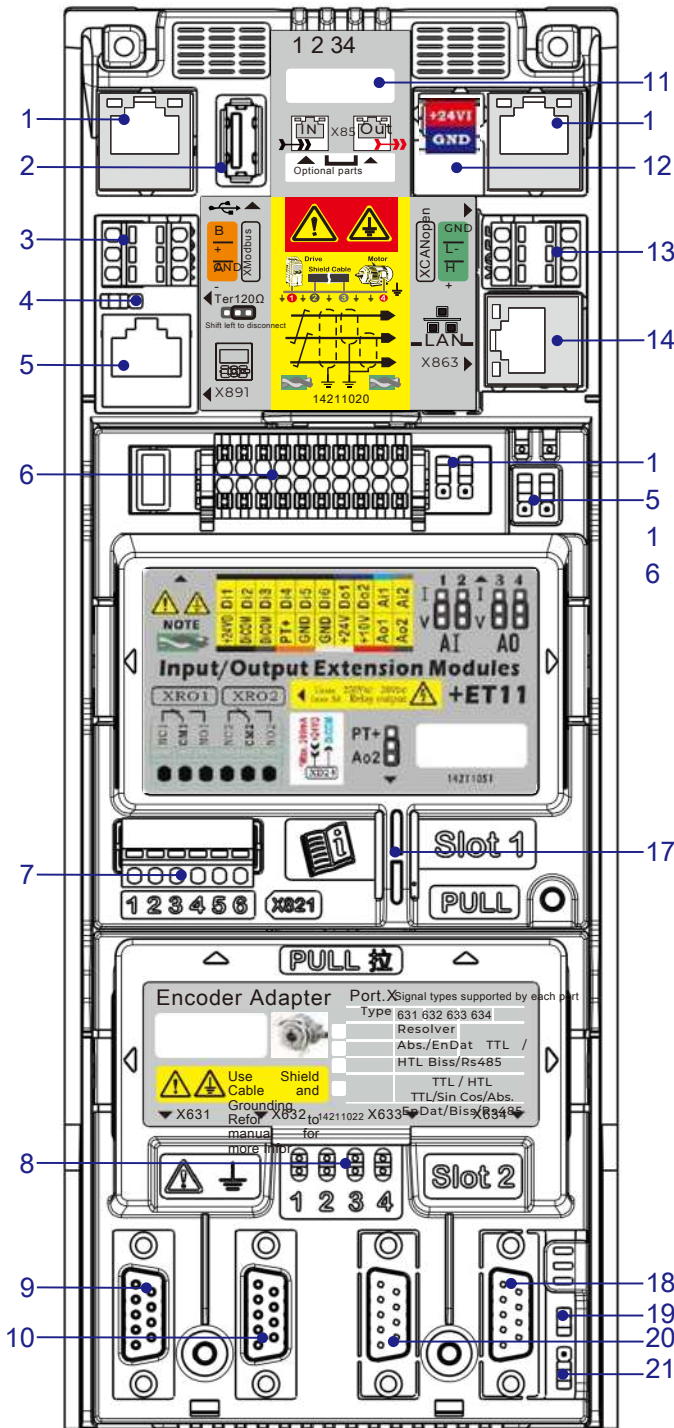
VCS 880E frequency drive terminal wiring diagram

Frame

E



The E series drive control unit is an upgraded control unit from the B series. Each option is modularized, supports a variety of standard interfaces, and interfaces with mainstream high-speed fieldbus options. The following figure shows the basic functions and basic attention of each interface based on the standard universal. For more information, please refer to the manual or contact the relevant representative to further clarify your needs.



1	X85 IN	Optional Field Bus Ports for EtherCAT, ProFINET Type tabbed at Flag 11
2	USB	USB to U drive for Configure storage, FAT32 format
3	Xmodbus communication terminal	
3	B+	Modbus ports EIA-485
3	A+	High speed fieldbus, Protocol configuration refer manual
3	GND	The wiring should with GND wire, A / B twisted pair, and shielded to enhance electromagnetic anti-interference
4	Ter120Ω	Modbus/CAN Ter. resistor, shift left to disconnect
5	X891	Panel port, Max. 30m extension by cable and External EMC
6	+24VD	DI reference supply, +24V DC 0-200mA or for external sensors
6	DICOM	Digital signal input/output ground
6	XPT	XPT Ports for temperature sensor in from motor / choke or others
6	PT+	Sensor as KTY84, PT100, PT1000, PTC etc, configuration parameter and cable with twisted&Shield&Strong insulation
6	GND	
6	XPW	XPW Out port as power output from Drive
6	GND	Signal ground
6	+24V	Only external low-power sensors, +24V DC Max.400mA
6	+10V	Analog reference power supply, R=1k-10kohm
6	XAO	Ports Analog outputs
6	AO1	Type with 0-20mA RL=500 ohm Voltage 0-10V DC
6	AO2	It is used to configure the speed, torque, current and other
6	XAI	Ports Analog inputs
6	A1	Current type: -20--+20mA, 0--20mA, Rin=100kohm
6	A2	Voltage type: 0--+10V, -10--+10V, Rin=500ohm
6	XDI	Digital and high-speed pulse input, with rich and flexible functions
6	DI1	(As default) = DI1: Stop (0)/Start (1), DI2: Forward (0)/Reverse (1) or for other function by parameters.
6	DI2	
6	DI3	DI3/4/5/6, Define its functions by parameters and pointers
6	DI4	DI1/2/3: ON/OFF input only.
6	DI5	DI4/5/6: ON/OFF or Plus input, f<=100kHz or HTL encoder A.
6	DI6	B-, Z signal input, by parameter to NPN/PNP, encoder, etc.
6	XDO	Digital and high-speed pulse output, with rich and flexible functions
6	DO1	ON/OFF output (I<=0.5A), or Pulse output (f<=120kHz)
6	DO2	by parameter to switch NPN/PNP, phase output, etc.
7	XRO	Ports of Relay output
7	NC1	Running, or others by parameters
7	CM1	RO1 250V AC / 30V DC
7	NO1	3A
7	NC2	Faulted, or others by parameters
7	CM2	RO2 250V AC / 30V DC 3A
7	NO2	
8	1 2 3 4	LED indicator to Encoder of prot. 631/632/633/634
9	631	Resolver/TTL/HTL/SinCos/Abs/EnDat/Biss/Rs485
10	632	
11	Label	EtherCAT or ProFINET type shown
12	24V(+) GND(-)	External power input DC24V 1A. For multi-module drives, this interface may be an extended port driver. When the main power supply is missing, parameter configuration and debugging of this power supply can be performed
13	XCANopen	CANopen ports EIA-CAN Terminal R ON/OFF by parameter
13	GND	Protocol configuration refer to manual. The wiring should with GND wire, A / B twisted pair, and shielded to enhance electromagnetic anti-interference, 1939 type in coming soon
13	L	
13	H+	
14	LAN X863	EtherNET/IP, TCP/IP, Modbus-TCP, Remote debugging, multi-Drive linkage control to Host computer hub
15	Ai	Ai Jumper, move up current type, move down voltage type
16	Ao	Ao Jumper, move up current type, move down voltage type
17	PT+ /Ao2	PT+ /Ao2 jumper, move up by PT+, down by Ao2 function
18	634	Resolver/TTL/HTL/SinCos/Abs/EnDat/Biss/Rs485
19	633	
20	633	Resolver/TTL/HTL/SinCos/Abs/EnDat/Biss/Rs485
21	J5/PE/J6	GND/DICOM to PE connection switch cap, Depending on the level of EMC interference and the required switching

VCS580 series frequency drive selection list

VCS580 series Wall-mounted single drives [General Drives/Servo]

UN = 3phase- 220 V (range 200 to 240 V). The power ratings are valid at nominal voltage 220 V

Nominal ratings			Noise level	Heat diss.	Air flow	Type designation *Selection according to rated and peak load current	Frame size (mm)
Pn KW	In A	Imax A	dBa	W	m³/h		
0.75	4	5.6	40	40	25	VCS580-R13-04A0-2B	R1 (W78 H210 D145)
1.5	5.6	6.8	40	65	25	VCS580-R16-05A6-2B	
2.2	8	10	40	80	25	VCS580-R17-08A0-2B	
4.0	12.9	17	45	172	53	VCS580-C25-12A9-2B	C2 (W100 H290 D200)
5.5	25	29	45	325	55	VCS580-C27-025A-2B	
7.5	32	42	57	500	145	VCS580-C32-032A-2B	C3 (W145 H400 D230)
11	45	64	57	660	145	VCS580-C34-045A-2B	
15	61	70	57	890	145	VCS580-C35-061A-2B	
18.5	72	104	60	1114	290	VCS580-C43-072A-2 /B	C4 (W250 H400 D270)
22	87	122	60	1140	290	VCS580-C44-087A-2 /B	
30	105	132	60	1200	290	VCS580-C45-105A-2 /B	
37	145	178	60	1440	350	VCS580-C53-145A-2 /B	C5/C6 (W290 H680 D305)
45	169	247	60	1940	350	VCS580-C54-169A-2 /B	
55	206	255	67	2100	550	VCS580-C55-206A-2 /B	
75	246	350	68	3300	685	VCS580-C63-246A-2 /B	

Un = 380V(range 340V to 500V). The power ratings are valid at nominal voltage 400V

Nominal ratings			Noise level	Heat diss.	Air flow	Type designation *Selection according to rated and peak load current	Frame size (mm)
Pn KW	In A	Imax A	dBa	W	m³/h		
1.5	4	5.6	40	40	25	VCS580-R15-04A0-3B	R1 (W78 H210 D145)
2.2	5.6	6.8	40	76	25	VCS580-R16-05A6-3B	
4.0 ¹⁾	8	10	40	97	25	VCS580-R17-08A0-3B	
4.0	10.5	15	45	97	53	VCS580-C24-09A8-3B	C2 (W100 H290 D200)
5.5	12.9	17	45	172	53	VCS580-C25-12A9-3B	
7.5	17	21	45	210	53	VCS580-C26-17A0-3B	
11	25	29	45	325	55	VCS580-C27-025A-3B	C3 (W145 H400 D230)
15	32	42	57	500	145	VCS580-C32-032A-3B	
18.5	38	54	57	550	145	VCS580-C33-038A-3B	
22	45	64	57			VCS580-C34-045A-3B	C4 (W250 H400 D270)
30	61	70	57			VCS580-C35-061A-3B	
37	72	104	60	1114	290	VCS580-C43-072A-3 /B	
45	87	122	60	1140	290	VCS580-C44-087A-3 /B	C5/C6 (W290 H680 D305)
55	105	132	60	1200	290	VCS580-C45-105A-3 /B	
75	145	178	60	1440	350	VCS580-C53-145A-3 /B	
90	169	247	60	1940	350	VCS580-C54-169A-3 /B	C7 (W425 H900 D350)
110	206	255	67	2100	550	VCS580-C55-206A-3 /B	
132	246	350	68	3300	685	VCS580-C63-246A-3 /B	
160	293	418	68	3850	720	VCS580-C72-293A- /B	
200	363	498	68	4100	720	VCS580-C73-363A- /B	
220	430	545	68	4600	720	VCS580-C74-430A- /B	C7 (W425 H900 D350)
250	487	584	68	5100	720	VCS580-C75-487A-3 /B	

¹⁾ 101-105% Overload, The target is non-long-term, but intermittently work above >80% load and no more than 101-105%.

Ratings

Pn Typical motor power in Nominal load use.
In Nominal continuous current at 40 °C, At higher temperatures (up to 55 °C) the derating is 1%/1°C

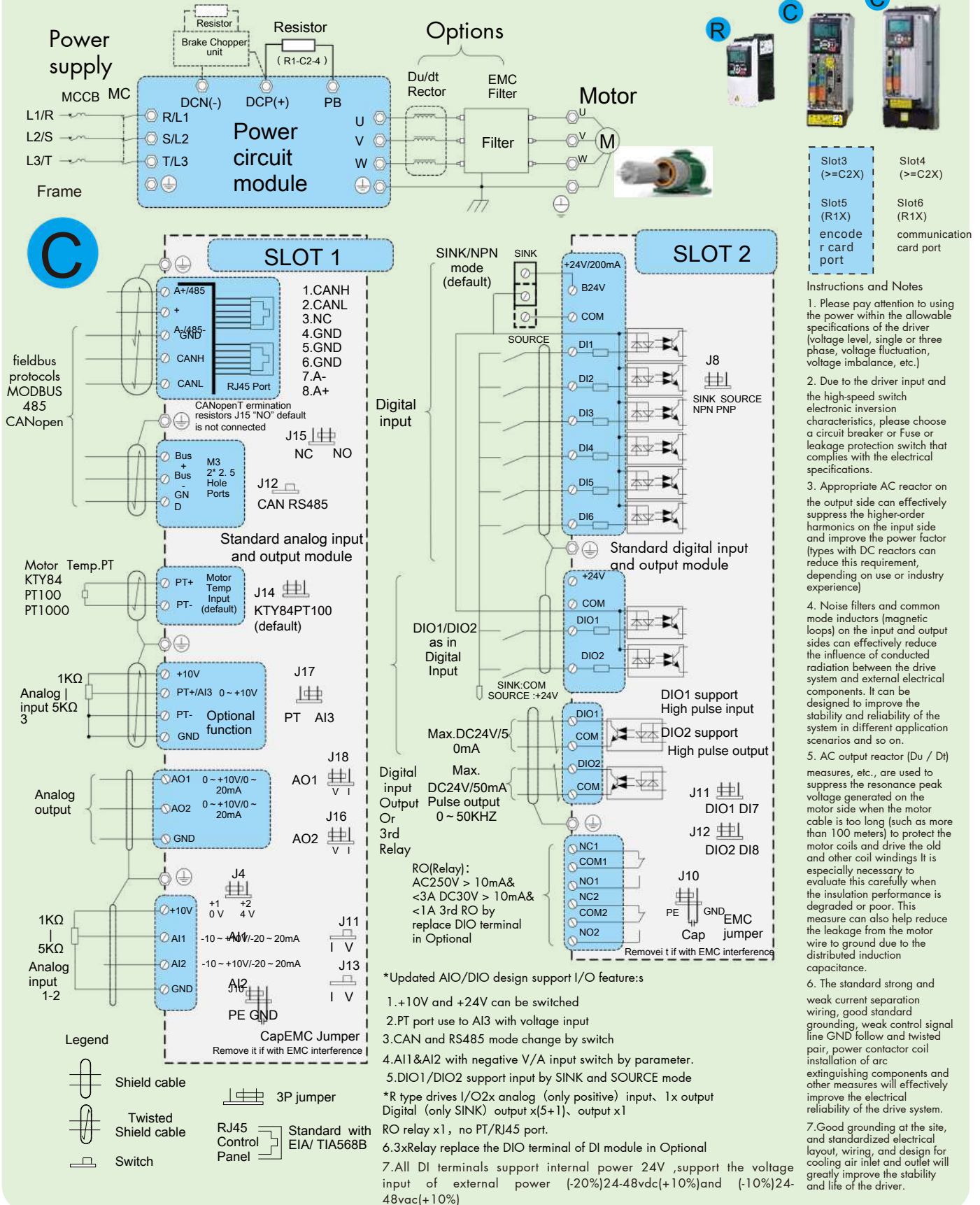
Max.current

Imax Max.current, the length of time depends on the Heatsink temperature of Drives



VCS580 series are equipped with a series of analog and digital interfaces, a variety of encoder card slots and communication slots. Please refer to the notes below for function details.

Note: >=2 Drives common DC- bus, It is necessary to consider the soft start between units and the current sharing capacity at the rectifier side



Introduction for Multi-module drive/AFE/ Regenerative drive

Big-power single/multi-motor drive module kit, VCS880-(04), power module type [industrial drive / common DC bus]

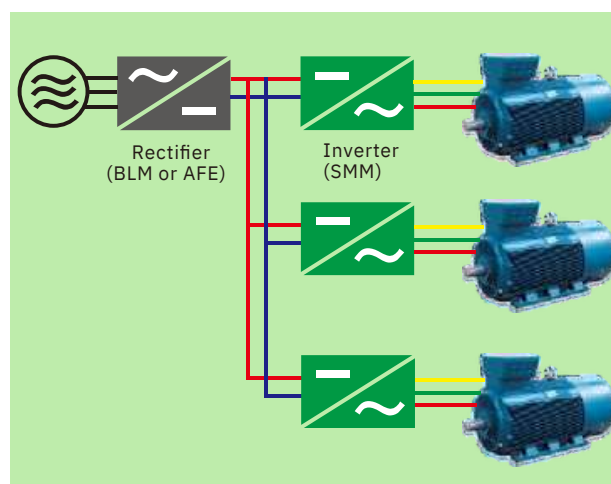
Inomax drive modules make cabinet assembly easy and economical. Based on the compact and tight cabinet design, it can save a lot of floor space and is easy to maintain. It has a flat structure similar to a bookshelf, and has a wheeled base, which can be equipped with output or parallel power reactors. The common DC bus terminals are all located on the top of the module, and the three-phase incoming and outgoing wires of the basic rectifier and motor drive modules are located at the bottom of the module. The central layout greatly facilitates the formation of cabinets and the connection with power distribution components.

BLM, ALM, and SMM modules can be equipped with a built-in brake chopper, which greatly facilitates the design of dynamic braking and cabinet formation in multi-machine transmission, which can shorten the engineering design time and the cost of cabinet assembly.

-04, -X04 (Note: 04 represents the general name of the component, subject to the actual detailed model) High-power transmission module kit includes parallel R series inverter module (SMM) and R series semi-controlled diode rectifier with thyristor charging function Module, or through the combination of AIM+ALM=AFE module to form IGBT very low harmonic rectifier, its power range can be up to 2300kW, and the voltage range is 380-690V.

The multi-drive module is suitable for building multi-drive devices, which can be used in metallurgy, oil and gas, mining, ships, offshore operations, material handling, pulp and paper, automobiles, food and beverage, cement, electricity, clean water and sewage treatment industries. They can control many applications, including cranes, profile and flat tying, conveyor belts, winches, dynamometer test stands, production lines, paper machines, pumps and fans.

Multi-drive modules can meet all the needs of a complete set of transmission equipment, including rectifiers, inverters, filters, brake choppers (built-in optional), various communication options, and various speed feedback interface options. With the highly accurate motor control platform-direct torque control technology, the drive can control the motor either in an open loop or in a closed loop.

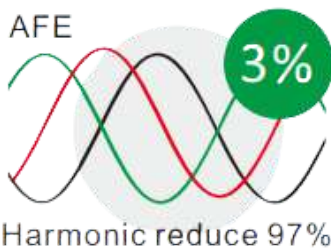


Hardware and Functional brief of Multi-Drive Modules

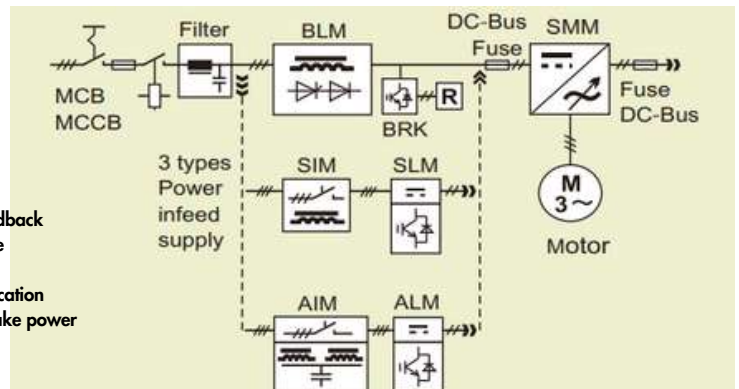
1. The power module type multi-motor drive is an AC-DC-AC multi-motor drive based on the public DC bus system. First, determine the rectification method according to the load demand. The judgment basis is derived from the configuration of the user side, such as the grid capacity/ Phase-shifting transformer/power transformer/quick braking/dragging, etc. If the overall energy of the drive needs to be fed back to the grid side, use basic rectification plus braking resistor, AFE active rectification or feedback rectification. If there is no energy feedback, Then choose the basic rectification method, and then choose the rectification and inverter motor modules of different power levels according to the number and performance level of the required drive motors. Due to the adjustment of the English abbreviation, the ALM in this article has the same function as the SLM in the manual before this edition.
2. The system-level logic control of soft start, thermal and electric energy limit protection linkage between functional modules is realized through terminal wiring or communication connection. Please refer to the manual or consult.
3. It is also possible to achieve 12-pulse or higher multi-pulse rectification to reduce harmonics through single or multi-transmission models with different forms and front-end phase-shifting transformers. SIM&AIM rectifier front-end interface module is not recommended and supports parallel use due to principle restrictions, SMM motor inverter module can realize power increase and turn through paralleling. The following figure shows the main electrical topology diagram of each functional module and the basic introduction of each functional module. The main components of the power module include:

Size	Wide W (mm)	Height H (mm)	Depth D (mm)	Hole width W2 (mm)	Hole depth H2 (mm)	diameter d2 (mm)	screw size	Weight M (kg)
R8	240	977-1395	577-600	150	900	12	M12	80 63

Harmonic distortion typically



- ALM rectifier feedback
- SMM motor drive
- DCDC power
- BLM Basic Rectification
- Pti/Pto supply/take power










L8 L9 Liquid cooling R7 R8B/R8M

1. Basic Line Modules (Basic Line Modules):
It is only designed for pure rectification, and the interior is composed of thyristor diodes and DC incoming line reactors. Electricity needs to be equipped with a brake module.
2. Feedback rectifier SLM module (Smart Line Module): [Not recommended]
Composed of IGBT and DC smoothing capacitor, it can rectify power supply and feed energy back to the grid. There must be a suitable front-end interface reactor SIM(L) for feedback. The DC bus voltage cannot be constant and adjustable. Usually under rated load, the typical value of grid-side current harmonic THDi<30-35%
3. Active rectifier ALM module (Active Line Module): [Recommended and preferred use]
Composed of IGBT and DC smoothing capacitor, it has the function of feedback and rectification, and can also be controlled intelligently. Control and maintain the bus voltage. The actual current effect produced on the power supply side is close to a sine wave, thereby suppressing harmful harmonics. This rectifier module must use a matching AIM incoming module. At this time, the typical grid-side current and voltage harmonics under rated load THDi/u<3-5%.
4. Front-end interface AIM module (Active Interface Module):
AIM is installed between the power grid and ALM, and it integrates a filter, a pre-charging circuit, a smooth wave absorption LCL circuit, etc., compared to its SIM, it may only reduce the inductance of the reactor.
5. Motor inverter (SMM) module (Single Motor Module):
It is a self-commutated inverter with IGBTs, which drives the motor with controlled energy through a common DC bus, or transfers the energy generated by the motor to the bus. High-power transmission and machine need to be equipped with special control components.

List of multi-drive series modular drives

- Note: L-liquid cooling, M&R-forced air cooling

No.	M1	R4	R5	R6	R7	R8	L8	R9	AIM U1A-R8A
Outline diagram									
Power Range	In-built BLM: 380-500Vac Max.22kW SMM: 300-760Vdc 1.5-7.5kW 2x[1.5-7.5] 3x[1.5-7.5] 4x[1.5-5.5] *with DC soft start	BLM: 380-500Vac Pn:45kW SMM: 300-760Vdc 1.5-4.5kW 1x[1.5-4.5] 2x[7 5-15] *with DC soft start	BLM: 380-500Vac Pn:90-110 SMM: 300-760Vdc 55-90kW *with DC soft start	BLM: 380-500Vac Pn:132-160kW SMM: 300-760Vdc 110-132kW 600-1200Vdc 45-132kW *with DC soft start	BLM: TBA BRK: 450-1280A SMM: 300-760Vdc 160-250kW 600-1200Vdc 160-280kW	BLM: 380-500Vac Pn:160-560kW 660-690Vac Pn:160-700kW SMM: 300-760Vdc 280-560kW 600-1200Vdc 280-560kW	In-built BLM: 380-500Vac Pn:90-250kW 660-690Vac Pn:90-450kW SMM: 300-760Vdc 90-630kW 600-1200Vdc 90-1100kW	BLM: TBA SMM: 300-760Vdc 560-1000kW 600-1200Vdc 630-1100kW	AFE: AIM 380-500Vac Pn:15-400kW 660-690Vac Pn:15-400kW R8A\690Vac needs to be connected to 220Vac auxiliary power supply
Function	VFD SM M ALM	BLM SM M ALM	BLM SM M ALM	BLM SM M ALM	-DCDC SMM PTi/o ALM	BLM DCDC SMM PTi/o ALM	VFD DCDC SMM PTi/o ALM	DCDC SMM PTi/o ALM	- LC (sinewave filter) - M1-2 U2-3 External LC AIM (Built-in soft start charging)
Weight	Max. 6kg	BLM:12kg -10kg	BLM:25kg -20kg	BLM:35kg -25kg	- 35kg	BLM:95kg -65kg	-65kg	-95kg	-10kg to -200kg
Dimension mm	100x420x320 WxHxD	100x500x320 WxHxD	200x420x320 WxHxD	300x420x320 WxHxD	190x900x535 WxHxD	240x977x600 WxHxD	200x1000x535 WxHxD	570x900x535 WxHxD	240x1400x600

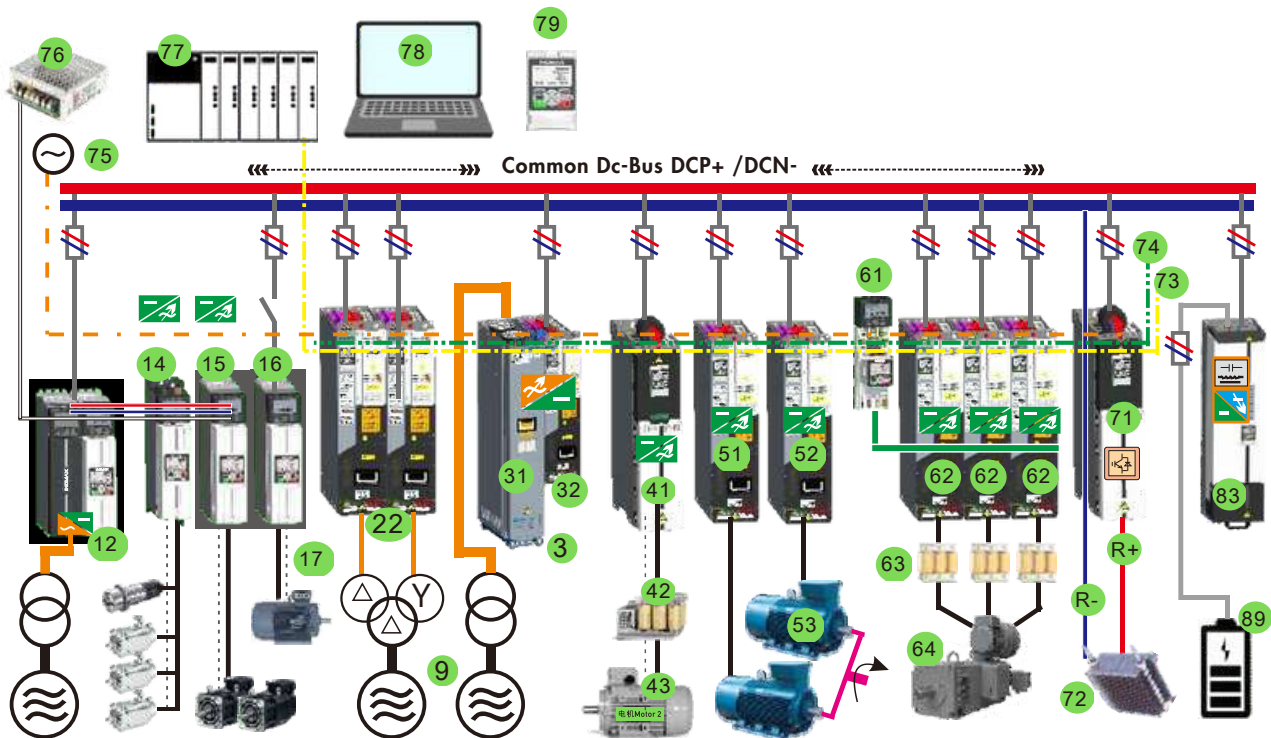
Topology diagram of multi-module drive

Part Number Description

75 - 220Vac auxiliary power supply
 76 - 24Vdc auxiliary power supply
 12 - Basic rectification + braking
 14 - 2/3/4 axis inverter
 15 - 1/2 axis inverter
 16 - Single axis inverter (with soft start)
 17 - Speed feedback
 22 - 6/12 pulse rectifier
 31 - AFE(ALM) Active Interface Module
 32 - AFE(ALM)Active Line Module

41 - Medium power single axis inverter
 42 - Output Filter
 43 - IM/PM motor
 51/2 - High-power single-axis inverter
 53 - Multi-machine synchronous drive
 61 - Parallel control unit PCU
 62 - Parallel inverter power module
 63 - Parallel current sharing inductor PL
 64 - High power motor

71 - High power brake chopper
 72 - Energy consumption braking resistor box
 83 - DCDC DC power supply
 89 - DC battery/load
 77 - host computer PLC, etc.
 78 - Commissioning/Controlling Computer
 79 - Common operation panel
 74 - Linkage between rectifier/inverter
 73 - High Speed Fieldbus



Topology list of PCU Con.units to multi-drive



Note: BLM/ALM/SMM: Indicates the module model with its own CU control unit,
PBLM/PALM/PSMM: Indicates the module model that does not have a CU control unit and needs to be installed with an external PCU

1 Central control unit PCU model: [A] 880-PCU [B] + [C]



[A]	[B] =	[C]
VCS :Standard Drives/Standard Drives	25-3S1B : Maximum support Ports=3xPSMM+1xPBLM	E3PN: supports bus communication Fieldbus= ProfiNET, 2 Ports
DCC: DC conversion application, DC/DC Converter	26-4S : Maximum support Ports=4xPSMM, with prots	E3EC: supports bus communication Fieldbus= EtherCAT, 2 Ports
Pti : Power Supply Application/Power Take In	27-3S1F : Maximum support Ports=3xPSMM/PALM+1xAIM/DCLC/MU21	Note: Standard Modbus-TCP/IP as standard in
Pto : Power output application/Power Take Out	28-1S1F : Maximum support Ports=1xPSMM/PALM+1xAIM/DCLC/MU21	

PCU option example : VCS880-PCU25-3S1B+E3PN, means a PCU system can control one basic line module and 3 motor module with profinet communication at the same time.

2 Models of series drive and control cables compatible with PCU: FC [A] - [B] - [C]

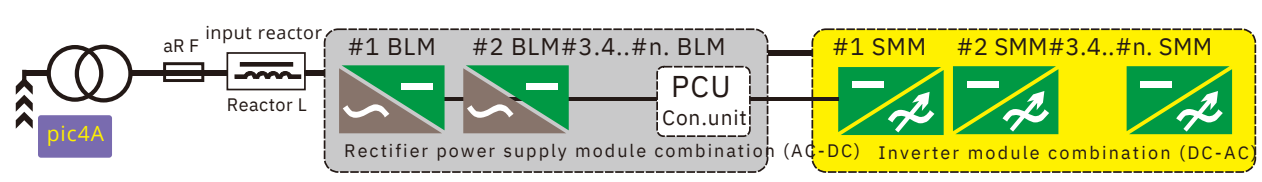


[A] =	[B] =	[C] = Length of cable=
DB9: Two-row 9-pin all-through DB connector, used for connection between PCU and AIM/MU21/DCLC	1F1M : One side of the cable is a female head, and the other side is a male needle head	50 : 50cm, 100 : 100cm, 150 : 150cm
DB15: Three-row 15-pin all-through DB connector, used for connection between PCU and PBLM/PSMM/PDCDC	TB: T586B standard (straightthrough cable) for connecting wires	200: 200cm, 300 : 300cm, 500 : 500cm
RJ45: industrial-grade 8-core allthrough straightthrough network cable, used for the extension between the switch and the PCU and the control keyboard		

Example of drive and control line selection: FCDB15-1F1M-100 means a 3-row DB15 cable with a length of 100cm, one side is male and the other side is female; meter double-ended network cable

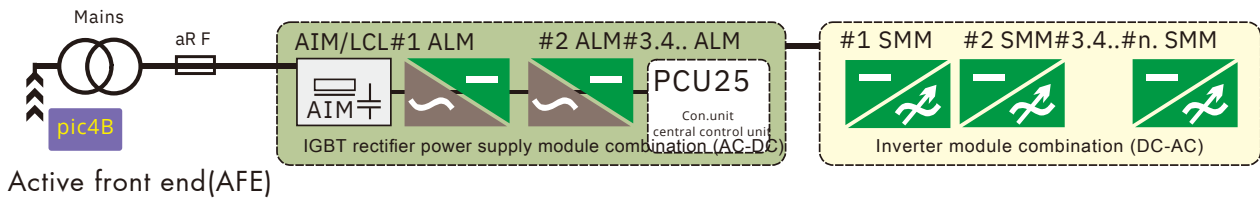
3 BLM [AC-DC] Basic rectification power supply module, 6-pulse thyristor rectification

Note: For 12-pulse rectification applications, please select an even number of modules to connect in parallel

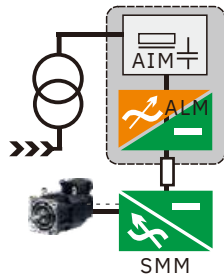


- The above is the basic rectification power supply solution (BLM). The main power topology of a single BLM module is a bridge rectifier composed of three-phase half-controlled thyristors. The module includes basic anti-surge suppression, soft-start charging and other circuits. In the loop, a line reactor with appropriate inductance must be installed externally to suppress harmonics, and the design reference for harmonic suppression on the grid side is $THDi \leq 48\%$ (based on 100% load output under 6-pulse rectification of a typical power supply transformer Bottom), if you expect a lower harmonic suppression effect, please add a larger inductance AC reactor at the input end, use a combination of measures such as 12-pulse rectification topology.
- Thanks to the unique hardware and control technology, BLM only needs to connect a very small amount of I/O or communication cables with the subsequent power modules to complete the electrical linkage and interlocking, and 2/4 modules in the model. The hardware type of parallel connection, in order to support 12-pulse low harmonic rectification, the structure of AC down-in and DC up-out is very convenient for the design and construction of common bus cabinets. If you need various communication options, please add the corresponding suffix after the model number, such as +E3PN means it has a ProfiNET interface.
- Each BLM module can be installed side by side in the cabinet, and its bottom has the characteristics of supporting the bottom bracket structure. When the cabinet is assembled, it only needs to be configured with the bottom bracket according to the recommendation, and the drawer-type installation can be realized, so that it can be installed.

4 AFE [AC-DC] IGBT active rectification power supply module combination



Active front end(AFE)



Schematic diagram(AFE)

1. Compared with drives that provide standard diode power supply solutions (BLM), the extremely low harmonic AFE intelligent rectification and feedback power supply has fewer harmonics. The combination of compact AIM+ALM modules produces an exceptionally low amount of harmonics in the drive line and does not require external filters or multi-pulse transformers. Through the management and control of harmonics, the power source of the transmission system has achieved a power factor of approximately 1. The AFE power supply device can increase the output voltage, even when the power supply voltage is lower than the nominal value, it can guarantee the rated output of the motor, and has excellent dynamic performance, ensuring real-time and fast bidirectional flow of energy. Adjustable and controlled current and voltage, It can also improve the energy efficiency of the system.

2. Thanks to the direct torque control technology, the ALM hardware does not need to monitor the physical real-time voltage of the public AC power grid, which greatly improves and guarantees the operation stability of the power supply module, and only needs to be connected with the subsequent power consumption module. Electrical logic linkage and interlocking can be completed by connecting a very small number of I/O or communication cables. The hardware type of 2/4 modules in the model is connected in parallel to support 12-pulse low harmonic rectification, AC downstream and DC. The above structure is very convenient for the design and construction of the common busbar cabinet. If you need various communication options, please add the corresponding suffix after the model number, such as +E3PN means it has a ProfiNET interface.

3. Each module can be installed side by side in the cabinet, and its bottom has the characteristics of supporting the bottom bracket structure. When the cabinet is assembled, it only needs to be configured with the bottom bracket according to the recommendation, and the drawer-type installation can be realized, so that installation and maintenance are faster. And easily, the cooling fan of the module supports frontal pull-out maintenance, and is common to standard conventional parts and all R8 series products, which will greatly help reduce the type and quantity of spare parts for fans as vulnerable parts.

4. While simplifying the installation, this multi-transmission module can bring the following advantages:

- Save wiring, installation and maintenance costs. Reduced line current facilitates energy sharing and simplifies brake layout
- Save installation space and cabinet cost. Reduced component count improves reliability.

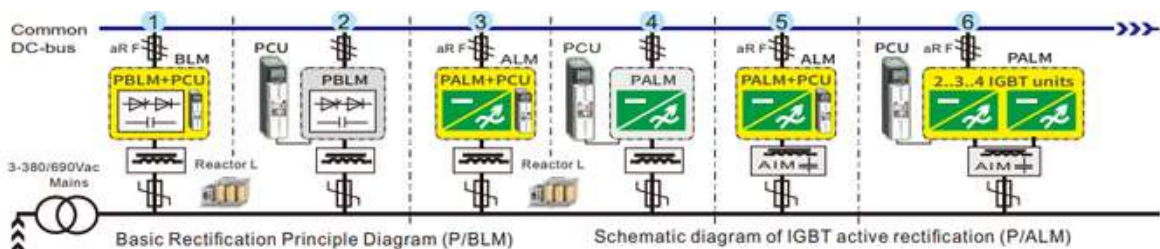
Ratings, types and voltages

Multi-module drive, power module, AC-DC, common DC bus

Nominal ratings					Light-overload		Heavy-duty		Noise	Heat	Air flow	Water flow	Model No. More model No or design please double check before order [P/B]=PBLM/BLM	Chopper adaptation minimum resistance value/AC side distribution reactance inductance (Ω/mH)	Auxiliary power DC=24V AC=1-220V/A	Frame size (mm)
P/ND kW	SN kW	INAC A	INDC A	I _{max} DC A	ILDDC A	PLD kW	I _{HDDC} A	PHD kW	dBA	kW	m ³ /h	L/min.				
BLM [AC-DC] Basic rectification power supply module, 6-pulse thyristor rectification (Note: For 12-pulse rectification applications, please select an even number of modules to connect in parallel)																
[FAN cooling type] 3phase input Un= 400V(380-415V), related power is valid when voltage at 400V																
55	58	88	108	151	126	65	84	45	59	0.6	320		VCS880-R45-105A-3B+[P/B]	8Ω/-0.45	24V1.5A	R4 [W=100H500D320]
110	118	176	215	305	246	125	165	90	61	1.2	400		VCS880-R56-206A-3B+[P/B]	4Ω/-0.26	24V2A	R5 [W=200H500D320]
200	212	320	390	546	425	215	312	160	62	2.1	650		VCS880-R64-363A-3B+[P/B]	2Ω/-0.15	24V3A	R6 [W=300H500D320]
400	426	640	780	1093	835	430	693	355	68	4.2	950		VCS880-R85-760A-3+BLM	-/-0.051	220V2A	R8 [W=300H500D320]
630	674	1010	1230	1721	1260	650	976	500	68	6.4	1200		VCS880-R88-1140A-3+BLM	-/-0.035	220V2A	R8 [W240H977D600]
[Fan cooling type] 3phase input Un= 690V(660-690V), related power is valid when voltage at 690V																
800	835	705	860	1204	800	790	602	575	68	4.0	900		VCS880-R89-721A-6+BLM	-/-0.071	220V2A	R8 [W240H977D600]
1000	1065	881	1075	1504	998	950	719	687	68	5.5	1050		VCS880-R8A-900A-6+BLM	-/-0.061	220V2A	
1200	1265	1075	1245	1805	1156	1100	898	858	68	6.8	1260		VCS880-R8B-1160A-6+BLM	-/-0.051	220V2A	
[Liquid cooling type] 3phase input Un= 690V(660-690V), related power valid when voltage at 690V																
400	565	430	520	725	500	545	425	400	58	2.3		13	VCS880-L85-420A-6+BLM	-/-0.12	24V3A	L8 [W200H1000D535]
800	835	705	860	1204	800	790	660	600	58	4.5		14	VCS880-L89-721A-6+BLM	-/-0.071	24V3A	
1000	1065	881	1075	1504	1035	980	745	720	58	5.2		16	VCS880-L8A-900A-6+BLM	-/-0.061	24V3A	
1200	1265	1075	1245	1805	1282	1250	1230	1200	58	7.8		18	VCS880-L8B-1160A-6+BLM	-/-0.051	24V3A	
1600	1704	1409	1719	2407	1764	1720	1470	1433	58	10.6		24	VCS880-L8C-1540A-6+BLM	-/-0.04	24V3A	

AFE [AC-DC] IGBT active rectification power supply module combination, AFE=AIM+ALM

[FAN cooling type] 3phase input Un= 400V(380-415V), related power is valid when voltage at 400V																
22	22	33	41	57	39	22	33	18.5	58	0.9	150		VCS880-R41-045A-3+AIM+ALM		24V1.5A	R4+external L
37	38	56	69	96	66	37	57	30	59	1.6	240		VCS880-R43-072A-3+AIM+ALM		24V2A	
55	56	84	102	143	98	53	82	45	61	2.3	320		VCS880-R45-105A-3+AIM+ALM		24V2A	R5+R5A
110	112	167	204	285	195	105	164	90	62	4	400		VCS880-R55-206A-3+AIM+ALM		24V3A	
132	133	203	245	345	234	126	205	110	63	4.5	650		VCS880-R63-246A-3+AIM+ALM		24V3A	R6+R6A
200	202	304	371	519	355	191	297	160	63	5.8	760		VCS880-R73-363A-3+AIM+ALM		220V2A	R7+R7A
250	252	380	463	649	442	238	371	200	65	6.8	950		VCS880-R74-487A-3+AIM+ALM		220V2A	R8+R8A
355	358	539	658	921	627	338	527	285	67	8.9	1100		VCS880-R85-650A-3+AIM+ALM		220V2A	
450	454	684	834	1168	795	430	668	360	68	11	1200		VCS880-R86-865A-3+AIM+ALM		220V2A	2xR8+LC8
630	636	957	1168	1635	1113	600	935	505	70	14	1700		VCS880-2R84-1140A-3+AIM+PALM+PCU		220V4A	
800	808	1216	1483	2076	1413	762	1187	640	71	18	2100		VCS880-2R86-1480A-3+AIM+PALM+PCU		220V4A	3xR8+LC8
1200	1212	1823	2225	3114	2119	1143	1800	960	72	23	3100		VCS880-3R86-2210A-3+AIM+PALM+PCU		220V6A	
1800	1818	2735	3337	4672	3178	1715	2670	1440	72	37	4500		VCS880-4R87-3450A-3+AIM+PALM+PCU		220V8A	4xR8+2xLC8
[Fan cooling type] 3phase input Un= 690V(660-690V), related power is valid when voltage at 690V																
250	252	209	255	357	243	238	204	200	65	6	950		VCS880-R74-271A-6+AIM+ALM		220V2A	R7+R7A
355	358	297	362	507	345	338	190	284	68	7.8	1100		VCS880-R85-420A-6+AIM+ALM		220V2A	R8+R8A
500	505	418	510	715	486	476	408	400	68	10	1200		VCS880-R87-505A-6+AIM+ALM		220V2A	
800	808	669	817	1143	778	760	653	640	70	17	1700		VCS880-2R84-721A-6+AIM+PALM+PCU		220V4A	2xR8+LC8
1000	1010	837	1021	1429	972	952	817	800	71	20	2100		VCS880-2R86-900A-6+AIM+PALM+PCU		220V4A	
1400	1414	1172	1429	2001	1361	1333	1140	1120	72	24	3000		VCS880-3R86-1540A-6+AIM+PALM+PCU		220V6A	3xR8+LC8
1600	1616	1339	1634	2573	1750	1715	1470	1440	72	35	4300		VCS880-4R87-1740A-6+AIM+PALM+PCU		220V8A	
[Liquid cooling type] 3phase input Un= 690V(660-690V), related power valid when voltage at 690V																
560	565	527	643	900	613	600	515	504	58	12		24	VCS880-L88-571A-6+AIM+ALM		24V3A	L8+LLC8
800	808	669	817	1143	778	762	653	640	58	15		27	VCS880-L89-721A-6+AIM+ALM		24V3A	
1000	1010	837	1021	1429	972	952	817	800	58	16.5		30	VCS880-L8A-900A-6+AIM+ALM		24V3A	
1200	1211	1004	1225	1715	1167	1143	980	960	58	20		42	VCS880-L8B-1160A-6+AIM+ALM		24V3A	2xL8+LLC8
1600	1616	1339	1634	2573	1361	1333	1143	1120	59	30		60	VCS880-2L89-1540A-6+AIM+PALM+PCU		24V5A	
2000	2018	1674	2042	2860	1950	1950	1634	1600	59	33		70	VCS880-2L8B-2300A-6+AIM+PALM+PCU		24V5A	3xL8+2xLLC8
2800	2827	2343	2859	4002	2723	2667	2287	2240	60	57		110	VCS880-3L8A-2860A-6+AIM+PALM+PCU		24V8A	
4000	4039	3347	4084	5717	3890	3810	3267	3200	60	75		140	VCS880-4L8B-4160A-6+AIM+PALM+PCU		24V11A	4xL8+2xLLC8



Single-axis motor inverter drive module selection list

SMM [DC-AC] Single motor drive module, forced air cooling, VCS880, 380V, 690V

Three-phase input Un= 400V(380-500V) The rated power is valid when the voltage is 400V (55-132-560-2800kW) * According to the rated and peak load current selection



R4 R5



R6



R7



R8



R9



4xR8 (note 1)

Note 1:
Typical power module parallel structure
1. Inverter power module R8/9-PSMM
2. PCU = Parallel Control Unit
3. PL=parallel current sharing reactor

Nominal ratings			Light-overload		Heavy-duty Noise		Noise	Heat	Air flow	Model Number	Auxiliary power DC=24V AC=220V Voltage/(W)	Frame size (mm)
PN kW	IN A	I _{max} A	ILD A	PLD kW	IHD A	PHD kW	dB(A)	W	m ³ /h			
1.5	3.3	4.1	3.1	1.5	2.4	0.75	45	50	25	VCS880-R40-03A3-3+SMM	24V45W	R4 (W100 H500 D320)
2.2	5.6	6.8	5.3	2.2	4	1.5	45	76	30	VCS880-R41-05A6-3+SMM	24V45W	
4.0	9.5	12	8.8	4	5.6	2.2	45	97	40	VCS880-R42-09A8-3+SMM	24V45W	
5.5	12.9	16	12	5.5	9.4	4	45	172	50	VCS880-R43-12A6-3+SMM	24V45W	
7.5	17	21	17	7.5	13	5.5	45	210	55	VCS880-R44-017A-3+SMM	24V45W	
11	25	30	24	11	17	7.5	45	325	60	VCS880-R45-025A-3+SMM	24V45W	
15	32	42	32	15	25	11	57	500	100	VCS880-R46-032A-3+SMM	24V45W	
18.5	38	54	37	18.5	32	15	57	550	125	VCS880-R47-038A-3+SMM	24V45W	
22	45	64	45	22	38	18.5	57	660	145	VCS880-R48-045A-3+SMM	24V45W	
30	61	76	58	30	45	22	59	890	200	VCS880-R49-061A-3+SMM	24V55W	
37	72	104	71	37	61	30	59	1114	250	VCS880-R4A-072A-3+SMM	24V55W	
45	87	122	85	45	75	37	59	1140	290	VCS880-R4B-087A-3+SMM	24V55W	
55	115	148	110	55	91	45	59	1200	320	VCS880-R52-105A-3+SMM	24V65W	
75	145	179	143	75	112	55	59	1440	340	VCS880-R53-145A-3+SMM	24V65W	
90	182	247	176	90	150	75	67	1940	400	VCS880-R54-169A-3+SMM	24V65W	
110	226	287	212	110	184	90	67	2200	550	VCS880-R55-206A-3+SMM	24V75W	
132	246	350	241	132	225	110	67	3300	650	VCS880-63-246A-3-SMM	24V75W	
160	293	418	283	160	266	132	68	3850	680	VCS880-R72-293A-3+P/SMM	220V1A	
200	363	498	355	200	293	160	68	4100	700	VCS880-R73-363A-3+P/SMM	220V1A	
250	487	545	450	250	387	200	68	4600	720	VCS880-R74-487A-3+P/SMM	220V1A	
280	546	628	526	280	480	250	68	5100	950	VCS880-R83-546A-3+P/SMM	220V2A	
315	624	718	615	315	546	280	68	5782	1100	VCS880-R84-624A-3+P/SMM	220V2A	
400	760	874	727	355	568	315	68	6252	1200	VCS880-R85-760A-3+P/SMM	220V2A	
450	865	1080	865	450	675	355	68	7860	1350	VCS880-R86-865A-3+P/SMM	220V2A	
560	1050	1265	1000	560	874	450	68	8625	1580	VCS880-R87-950A-3+P/SMM	220V2A	
630	1140	1482	1072	630	915	500	68	9430	3000	VCS880-2R84-1140A-3+P/SMM	220V3A	
710	1250	1630	1200	710	1070	560	68	10560	3400	VCS880-2R85-1250A-3+P/SMM	220V3A	
800	1480	1930	1421	800	1170	630	72	14800	3800	VCS880-2R86-1480A-3+P/SMM	220V3A	
1000	1760	2120	1690	900	1316	800	74	17500	4200	VCS880-2R87-1760A-3+P/SMM	220V3A	
1200	2210	2880	2122	1200	1653	900	75	33700	5200	VCS880-3R86-2210A-3+PSMM+PCU+PL	3xR8	
1400	2610	3140	2506	1400	1952	1000	76	35000	5200	VCS880-3R87-2610A-3+PSMM+PCU+PL	3xR8	
1800	3450	4140	3312	1800	2581	1400	76	37000	6100	VCS880-4R87-3450A-3+PSMM+PCU+PL	4xR8	
2400	4290	5150	4118	2000	3209	1800	77	46000	6200	VCS880-3R95-4290A-3+PSMM+PCU+PL	3xR9	
2800	5130	6160	4925	2400	3837	2000	78	57000	7300	VCS880-4R95-5130A-3+PSMM+PCU+PL	4xR9	

Three-phase input Un= 660V(525-690V) The rated power is valid when the voltage is 690V (45-132-630-4000kW)

45	49	71	47	45	42	37	59	1120	290	VCS880-R51-049A-6+SMM	24V65W	R5 (W200 H500 D320)
55	61	104	58	55	49	45	59	1295	320	VCS880-R52-061A-6+SMM	24V65W	
75	84	124	80	75	61	55	59	1440	340	VCS880-R53-080A-6+SMM	24V65W	
90	98	168	93	90	84	75	67	1940	400	VCS880-R54-098A-6+SMM	24V65W	
110	119	198	113	110	98	90	67	2310	550	VCS880-R55-119A-6+SMM	24V65W	R7 (W190 H900 D535)
132	142	220	135	132	119	110	67	3300	650	VCS880-R63-142A-6+SMM	24V65W	
160	174	274	165	160	142	132	68	3922	680	VCS880-R72-175A-6+SMM	220V1A	
200	210	384	200	200	174	160	68	4822	700	VCS880-R73-210A-6+SMM	220V1A	
250	271	411	257	250	210	200	68	6000	720	VCS880-R74-271A-6+SMM	220V1A	R8 (W240 H1000 D600 -650)
280	300	450	290	280	265	250	68	5800	950	VCS880-R82-295A-6+SMM	220V2A	
315	330	480	320	315	295	280	68	6120	1100	VCS880-R83-325A-6+SMM	220V2A	
355	370	520	360	355	325	315	68	6800	1200	VCS880-R84-360A-6+SMM	220V2A	
400	430	520	420	400	415	355	68	7000	1350	VCS880-R85-420A-6+SMM	220V2A	R8 (W240 H1000 D600 -650)
450	470	655	455	450	455	400	72	7200	1300	VCS880-R86-450A-6+SMM	220V2A	
500	522	655	505	500	505	450	72	8500	1350	VCS880-R87-505A-6+SMM	220V2A	
560	590	800	570	560	515	500 ^a	72	9500	1450	VCS880-R88-571A-6+SMM	220V2A	
800	800	1200	768	710	576	560	75	11500	1670	VCS880-2R84-721A-6+SMM	220V3A	2R8
1000	1030	1550	989	900	768	710	75	14200	1850	VCS880-2R86-900A-6+SMM	220V3A	
1100	1170	1760	1123	1000	989	800	75	16500	1960	VCS880-2R88-1160A-6+SMM	220V3A	
1400	1540	2310	1478	1400	1123	1100	76	19500	2150	VCS880-3R87-1540A-6+PSMM+PCU+PL	3xR8	
1600	1740	2610	1670	1600	1478	1200	76	23400	2340	VCS880-3R88-1740A-6+PSMM+PCU+PL	3xR8	3xR8
2000	2300	3450	2208	2000	1670	1600	77	32100	2870	VCS880-4R88-2300A-6+PSMM+PCU+PL	4xR8	
2800	2860	4290	2746	2400	2208	2000	77	40800	3150	VCS880-3R95-2860A-6+PSMM+PCU+PL	3xR9	
3200	3420	5130	3283	3200	2746	2400	77	48700	3850	VCS880-3R95-3420A-6+PSMM+PCU+PL	3xR9	
4000	4100	6200	4000	4000	3283	3200	78	53600	4680	VCS880-4R95-4160A-6+PSMM+PCU+PL	4xR9	

* Select according to the rated and peak load current

Multi-axis motor drive module selection list

Multi-axis motor inverter drive module [multimachine drive/ industrial drive/common DC bus]



n...xSMM [DC-AC] Multi-motor drive module, forced air cooling, VCS880, 380V

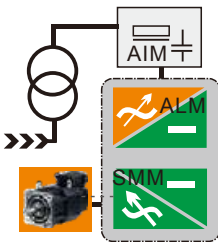
3 phase input $U_n = 400V(380-500V)$ The rated power is valid when the voltage is 400V (0.75-5.5-18.5kW)
* According to the rated and peak load current selection

Nominal ratings		Light-overload		Heavy-duty Noise		Noise	Heat	Air flow	Model Number [A]=VCS880 [B]=2/3/4 [D]=ET11/ET12(Default) [F]=EC / PN / EN	Auxiliary power DC=24V L1 inductance (W)/(mH)	Frame size (mm)	
PN kW	IN A	I _{max} A	ILD A	PLD kW	IHD A	PHD kW	dBA	W				m³/h
1.5	3.3	4.1	3.1	1.5	2.4	0.75	45	nx50	25	[A]-[B]M1B-03A3-3+SMM+[D]+[F]	45/5.2	*Optional 2/3/4 in 1 M1 (W100 H400 D320)
2.2	5.6	6.8	5.3	2.2	4	1.5	45	nx76	30	[A]-[B]M1C-05A6-3+SMM+[D]+[F]	45/4.6	
4.0	9.5	12	8.8	4	5.6	2.2	45	nx97	40	[A]-[B]M1D-09A8-3+SMM+[D]+[F]	45/3.3	
5.5	12.9	16	12	5.5	9.4	4	45	nx172	50	[A]-[B]M1E-12A6-3+SMM+[D]+[F]	45/2.2	
7.5	17	21	17	7.5	13	5.5	45	420	55	[A]-2R4F-017A-3+SMM+[D]+[F]	55/3.5	*2 in 1 model R4 (W100 H500 D320)
11	25	30	24	11	17	7.5	45	650	60	[A]-2R4G-025A-3+SMM+[D]+[F]	55/3.3	
15	32	42	32	15	25	11	57	900	100	[A]-2R4H-032A-3+SMM+[D]+[F]	55/2.2	
18.5	38	54	37	18.5	32	15	57	1050	125	[A]-2R4J-038A-3+SMM+[D]+[F]	55/1.8	

ALM+SMM [AC-AC] active rectifier + inverter drive module, forced air cooling, VCS880, 380V

3 phase input $U_n = 400V(380-500V)$ Rated power is valid at 400V voltage (5.5-18.5kW)
* Select according to rated and peak load current

Active Front End (AFE)



Nominal ratings		Light-overload		Heavy-duty Noise		Noise	Heat	Air flow	Model Number [A]=VCS880 [B]=2/3/4 [D]=ET11/ET12(Default) [F]=EC / PN / EN	Auxiliary power DC=24V L1 inductance (W)/(mH)	Frame size (mm)	
PN kW	IN A	I _{max} A	ILD A	PLD kW	IHD A	PHD kW	dBA	W				m³/h
7.5	17	21	17	7.5	13	5.5	45	420	55	VCS880-R4F-017A-3+ALM+SMM	45/3.5	*With feedback rectification R4 (W100 H500 D320)
11	25	30	24	11	17	7.5	45	650	60	VCS880-R4G-025A-3+ALM+SMM	45/3.3	
15	32	42	32	15	25	11	57	900	100	VCS880-R4F-017A-3+ALM+SMM	45/3.5	
18.5	38	54	37	18.5	32	15	57	1050	125	VCS880-R4G-025A-3+ALM+SMM	45/3.3	

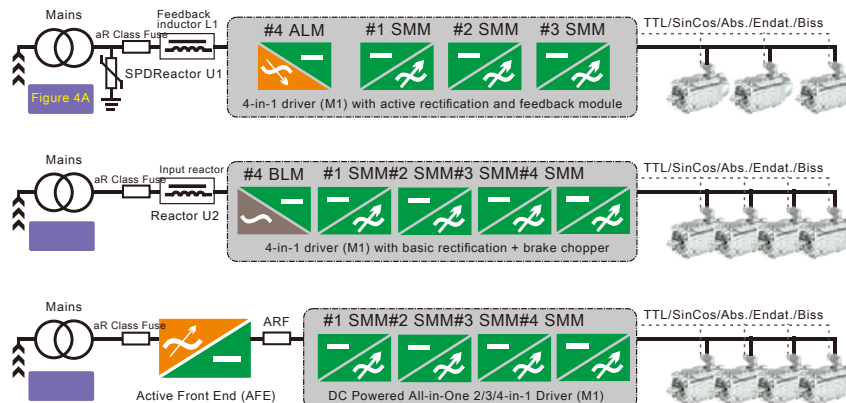
Note): For bigger power expansion or professional application models and more details, such as low harmonic 12-pulse rectification or four-quadrant models with feedback function, please consult relevant personnel.

This series of all-in-one models realizes the high-speed and fast exchange of required information between multiple inverter units (SMM) through the unique internal special operation processing circuit, so as to be competent for those requiring multi-axis high speed/position/torque precision linkage Applications.

Its main application topology features are: the upper control system (machine) controls the driver in real time through the current mainstream high-speed real-time fieldbus (EtherCAT/ProfiNET, etc.), and the multi-channel I/O and motor feedback form a high-dynamic drive control system. Conventional open loop drive is also supported.

In the form of power supply, there are a variety of flexible options to match the power supply conditions and requirements of different characteristics. Among them, the topology of BLM+ brake chopper is suitable for conventional typical applications. However, for those applications that require more advanced motor control characteristics and frequent dynamic acceleration and deceleration of the motor, the ALM power supply form should be preferred, which will greatly help ensure or improve control. Effects and green energy.

In order to simplify your power networking difficulty, you only need to prepare a 24Vdc switching power supply + grid-side filter reactance + SPD anti-surge protector + the above all-in-one driver with ALM for a typical multi-axis application to obtain four-quadrant operation. power supply + multi-axis inverter drive system.



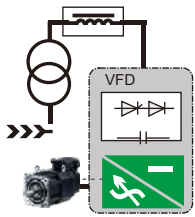
Liquid-cooled drive module selection list

Liquid-cooled wall-mounted drive module [Multi-drive/Industrial drive/Common DC bus]



Main liquid cooling + auxiliary air cooling internal circulation type Basic Rectification (BLM) or Inverter (SMM/ALM)

Standard VFD



VFD [AC-AC] Single motor drive module, liquid cooling, VCS880, 380V

Three-phase input $U_n = 400V(380-500V)$ The rated power is valid at the voltage of 400V (45-250kW)

* According to the rated and peak load current selection

Nominal ratings			Light-overload		Heavy-duty		Noise Level	Heat Diss.	liquid cooling flow	Model Number [A]=VCS880	Built-in brake chopper adapts to the minimum resistance value (Ω)	the inductance of the reactor (mH) to the AC input side	Frame size (mm)
PN kW	IN A	I _{max} A	ILD A	PLD kW	IHD A	PHD kW	dBA	W	L/min.				
55	115	148	110	55	91	45	59	1200	10	[A]-L80-105A-3	/B	≥3.3Ω	-0.21
75	145	179	143	75	112	55	59	1440	11	[A]-L80-145A-3	/B	≥3.3Ω	-0.18
90	182	247	176	90	150	75	67	1940	12	[A]-L80-169A-3	/B	≥3.3Ω	-0.13
110	226	287	212	110	184	90	67	2200	13	[A]-L80-206A-3	/B	≥3.3Ω	-0.11
132	246	350	241	132	225	110	67	3300	14	[A]-L80-246A-3	/B	≥3.3Ω	-0.09
160	293	418	283	160	266	132	68	3850	15	[A]-L80-293A-3	/B	≥3.3Ω	-0.08
200	363	498	355	200	293	160	68	4100	16	[A]-L81-363A-3	/B	≥3.3Ω	-0.06
250	487	545	450	250	387	200	68	4600	16	[A]-L82-487A-3	/B	≥3.3Ω	-0.06

VFD [AC-AC] Single motor drive module, liquid cooling, VCS880, 690V

Three-phase input $U_n = 660V(525-690V)$ The rated power is valid when the voltage is 690V (90-250-500W)

* According to the rated and peak load current selection

Nominal ratings			Light-overload		Heavy-duty		Noise Level	Heat Diss.	liquid cooling flow	Model Number [A]=VCS880	Built-in brake chopper adapts to the minimum resistance value (Ω)	the inductance of the reactor (mH) to the AC input side	Frame size (mm)
PN kW	IN A	I _{max} A	ILD A	PLD kW	IHD A	PHD kW	dBA	W	L/min.				
110	119	198	113	110	98	90	67	2310	550	[A]-L80-119A-6	/B	≥8Ω	-0.26
132	142	220	135	132	119	110	67	3300	650	[A]-L80-142A-6	/B	≥6Ω	-0.21
160	174	274	165	160	142	132	68	3922	680	[A]-L80-175A-6	/B	≥6Ω	-0.18
200	210	384	200	200	174	160	68	4822	700	[A]-L80-210A-6	/B	≥4Ω	-0.13
250	271	411	257	250	210	200	68	6000	720	[A]-L81-271A-6	/B	≥4Ω	-0.11
280	300	450	290	280	265	250	68	5800	950	[A]-L82-295A-6	/B	≥4Ω	-0.09
315	330	480	320	315	295	280	68	6120	1100	[A]-L83-325A-6	/B	≥3.3Ω	-0.08
355	370	520	360	355	325	315	68	6800	1200	[A]-L84-360A-6	/B	≥3.3Ω	-0.06
400	430	520	420	400	415	355	68	7000	1350	[A]-L85-420A-6	/B	≥3.3Ω	-0.06
450	470	655	455	450	455	400	72	7200	1300	[A]-L86-450A-6	/B	≥2.7Ω	-0.05
500	522	655	505	500	505	450	72	8500	1350	[A]-L87-505A-6	/B	≥2.7Ω	-0.05



L8 L9 [liquid cooling type]

BLM [AC-DC] Basic rectifier power supply module, liquid cooling, VCS880, 690V

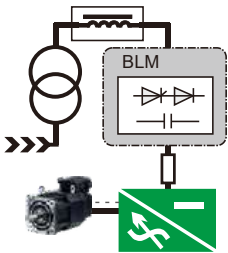
Three-phase input $U_n = 690V(660-690V)$ The rated power is valid when the voltage is 690V (55-132-800-4000kW)

* According to the rated and peak load current selection

Nominal ratings			Light-overload		Heavy-duty		Noise Level	Heat Diss.	liquid cooling flow	Model Number [A]=VCS880	Built-in brake chopper adapts to the minimum resistance value (Ω)	the inductance of the reactor (mH) to the AC input side	Frame size (mm)
PN kW	IN A	I _{max} A	ILD A	PLD kW	IHD A	PHD kW	dBA	W	L/min.				
400	565	430	550	545	425	400	58	/	13	VCS880-L85-420A-6+BLM	-/-0.12	24V3A	L8 (W200 H1000 D530)
800	835	705	800	790	660	600	58	/	14	VCS880-L89-721A-6+BLM	-/-0.071	24V3A	
1000	1065	881	1035	980	745	720	58	/	16	VCS880-L8A-900A-6+BLM	-/-0.061	24V3A	
1200	1265	1075	1282	1250	1230	1200	58	/	18	VCS880-L8B-1160A-6+BLM	-/-0.051	24V3A	
1600	1704	1409	1764	1720	1470	1433	58	/	24	VCS880-L8C-1540A-6+BLM	-/-0.04	24V3A	

* Higher power can be obtained by connecting this series of modules in parallel. For more liquid-cooled derivatives or low-power topological models, please consult relevant personnel

Liquid-cooling Basic Rectifier Module (BLM)



LX series water (liquid) cooling type driver can realize high-precision control of common induction motors and high-efficiency permanent magnet motors in the large power range under the condition of 380...690Vac power supply. The ultra-compact structure and high power density make it especially suitable for air-cooled and heat-sensitive applications with limited installation space and harsh environments, and has excellent performance in various extreme environmental conditions.

Compared with air cooling, the liquid-cooled drive can significantly reduce the load and floor space of the air-conditioning system in the electrical room, and achieve low noise and more stable operation. It can be widely used in stand-alone or large-scale common DC bus systems. When properly configured, optimum performance and significant energy cost savings can be achieved.

The standard VFD hardware structure driver must be equipped with a suitable L reactance filter to form an LC filter with the capacitance in the module. If it is in the form of AFE rectifier power supply, it is recommended to choose an air-cooled AIM + 1 liquid-cooled ALM, and an AIM with a liquid-cooled LCL filter is also available. At this time, functional modules such as LCL filter and power-on charging are also available. It will be supplied in component form to be assembled into a system in a cabinet.

For the L8X module of SMM/ALM with no basic rectification and only inverter topology, the DC side common mode filter is standard as default, which will make it easier for you to form a high-power multi-transmission topology. At the same time, L8X has a built-in fan cooling /liquid-cooled heat exchange module, which will effectively control the temperature of the circulating air in the electrical cabinet.

For liquid-cooled supply sources, air-cooled to liquid-cooled or liquid-cooled to liquid-cooled heat exchangers are optional, which can be considered in multiple dimensions such as project cost budget, installation site conditions, corrosion resistance level, and liquid-liquid medium conditions.

Liquid-cooled drive module selection list

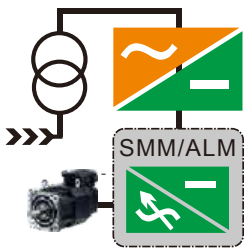
Liquid-cooled wall-mounted drive module [Multi-drive/Industrial drive/Common DC bus]

+SMM/+ALM [DC-AC] Single inverter drive module, liquid cooling, []880, 380V/690V



Standard VFD

Power Module (BLM/AFE)



Three-phase input $U_n = 400V(380-415V)$ The rated power is valid when the voltage is 400V (55-132-560-4000kW)

* According to the rated and peak load current selection

Nominal ratings			Light-overload	Heavy-duty	Noise Level	Heat Diss.	liquid cooling flow		Model Number [A]=VCS/PTi/PTo/DCC [B]=2/3/4	Auxiliary power (W) DC=24V AC=220V	Frame size (mm)
PN kW	IN A	Imax A	ILD A	PLD kW	IHD A	PHD kW	dBa	W			
55	115	148	110	55	91	45	59	1200	10	[A]880-LR52-105A-3+SMM	R5 (W200 H500 D320)
75	145	179	143	75	112	55	59	1440	11	[A]880-LR53-145A-3+SMM	
90	182	247	176	90	150	75	67	1940	12	[A]880-LR54-169A-3+SMM	
110	226	287	212	110	184	90	67	2200	13	[A]880-LR55-206A-3+SMM	
132	246	350	241	132	225	110	67	3300	14	[A]880-L63-246A-3+SMM	R6 (W300 H500 D320)
160	293	418	283	160	266	132	68	3850	15	[A]880-LU38-293A-3+SMM	L8 (W200 H1000 D530)
200	363	498	355	200	293	160	68	4100	16	[A]880-L81-363A-3+SMM	
250	487	545	450	250	387	200	68	4600	16	[A]880-L82-487A-3+SMM	
280	546	628	526	280	480	250	68	5100	16	[A]880-L83-546A-3+SMM	
315	624	718	615	315	546	280	68	5782	20	[A]880-L84-624A-3+SMM	
400	760	874	727	355	568	315	68	6252	20	[A]880-L85-760A-3+SMM	
450	865	1080	865	450	675	355	68	7860	23	[A]880-L86-865A-3+SMM	
560	1050	1265	1000	560	874	450	68	8625	25	[A]880-L87-950A-3+SMM	
630	1140	1482	1072	630	915	500	68	9430	27	[A]880-L88-1140A-3+SMM	
710	1250	1630	1200	710	1070	560	68	10560	28	[A]880-L89-1250A-3+SMM	
800	1480	1930	1421	800	1170	630	72	14800	30	[A]880-L8A-1480A-3+SMM	

* For more liquid-cooled derivative or low-power topological models, please consult relevant personnel

Three-phase input $U_n = 660V(525-690V)$ The rated power is valid when the voltage is 690V (45-132-630-4000kW)



L8 L9 [liquid cooling type]

Nominal ratings			Light-overload	Heavy-duty	Noise Level	Heat Diss.	liquid cooling flow		Model Number [A]=VCS/PTi/PTo/DCC [B]=2/3/4	Auxiliary power (W) DC=24V AC=220V	Frame size (mm)
PN kW	IN A	Imax A	ILD A	PLD kW	IHD A	PHD kW	dBa	W			
45	49	71	47	45	42	37	59	1120	290	[A]880-LR51-049A-6+[XXX]	R5 (W200 H500 D320)
55	61	104	58	55	49	45	59	1295	320	[A]880-LR52-061A-6+[XXX]	
75	84	124	80	75	61	55	59	1440	340	[A]880-LR53-080A-6+[XXX]	
90	98	168	93	90	84	75	67	1940	400	[A]880-LR54-098A-6+[XXX]	
110	119	198	113	110	98	90	67	2310	550	[A]880-LR55-119A-6+[XXX]	
132	142	220	135	132	119	110	67	3300	650	[A]880-LR56-142A-6+[XXX]	
160	174	274	165	160	142	132	68	3922	680	[A]880-LR57-175A-6+[XXX]	
200	210	384	200	200	174	160	68	4822	700	[A]880-LR58-210A-6+[XXX]	
250	271	411	257	250	210	200	68	6000	720	[A]880-L81-271A-6+[XXX]	
280	300	450	290	280	265	250	68	5800	950	[A]880-L82-295A-6+[XXX]	
315	330	480	320	315	295	280	68	6120	1100	[A]880-L83-325A-6+[XXX]	L8 (W200 H1000 D530)
355	370	520	360	355	325	315	68	6800	1200	[A]880-L84-360A-6+[XXX]	
400	430	520	420	400	415	355	68	7000	1350	[A]880-L85-420A-6+[XXX]	
450	470	655	455	450	455	400	72	7200	1300	[A]880-L86-450A-6+SMM	
500	522	655	505	500	505	450	72	8500	1350	[A]880-L87-505A-6+SMM	
560	590	800	570	560	515	500	72	9500	1450	[A]880-L88-571A-6+SMM	
800	800	1200	768	710	576	560	75	11500	1670	[A]880-L89-721A-6+SMM	
1000	1030	1550	989	900	768	710	75	14200	1850	[A]880-L8A-900A-6+SMM	
1100	1170	1760	1123	1000	989	800	75	16500	1960	[A]880-L8B-1160A-6+SMM	
1400	1540	2310	1478	1400	1123	1100	76	19500	2150	[A]880-2L8A-1540A-6+PSMM+PCU+PL	
1600	1740	2610	1670	1600	1478	1200	76	23400	2340	[A]880-3L8B-1740A-6+PSMM+PCU+PL	
2000	2300	3450	2208	2000	1670	1600	77	32100	2870	[A]880-3L8A-2300A-6+PSMM+PCU+PL	
2800	2860	4290	2746	2400	2208	2000	77	40800	3150	[A]880-4L8A-2860A-6+PSMM+PCU+PL	
3200	3420	5130	3283	3200	2746	2400	77	48700	3850	[A]880-3L8B-3420A-6+PSMM+PCU+PL	
4000	4100	6200	4000	4000	3283	3200	78	53600	4680	[A]880-4L8B-4160A-6+PSMM+PCU+PL	

* For more liquid-cooled derivative or low-power topological models, please consult relevant personnel

- Note 1:
Typical power module parallel structure
1. Inverter power module R8/9-PSMM
 2. PCU = Parallel Control Unit
 3. PL=parallel current sharing reactor

AFE and DC/DC power module selection list

Benefiting from the unique hardware and control strategy, this DCDC has extremely fast voltage response characteristics, extremely low output ripple, and has excellent performance in specific applications such as sudden load changes. The output accuracy reaches 0.1% FS, and the normal voltage range is DC24 -1100V, current output 1-500A-1000A, etc.

DC/DC converter is a powerful tool for industrial DC backup power, supporting DC grids and providing AC or DC energy storage systems with a wider power range for distributed grids, stand-alone grids or industry. Using a DC/DC converter, a common DC bus system or individual inverters can connect their DC bus to an alternative DC power source (such as a battery or supercapacitor) to form a hybrid system. Electrical energy can flow in both directions, from the DC source to the DC link or from the DC link to the source. In this way, the DC power supply can be used as backup power for the system.

DCDC transfers energy from the drive's common DC bus to an external energy storage and releases energy back to the DC bus. Energy storage can be batteries or supercapacitors, for example. Energy storage media is not part of the DC/DC module product offering. Paralleled DC/DC converter modules must have a common energy storage. Each parallel module must have its own output cable. We also recommend that you use the same cables (cable type, cross-section and length) and the same load for each module. For other solutions, please contact us. Typically, DC/DC converters are used for heave compensation in marine applications, peak load compensation, propulsion power supply in ports, energy storage instead of additional generators, etc. DC/DC converters are also used in automotive applications such as electric vehicle charging systems and other applications requiring energy storage and reuse.

DC/DC includes special firmware software to provide DC power conversion based on air-cooled or liquid-cooled inverter modules (DCDC) and filters (DCLC). It has two-way flow of energy within the full power range, energy saving and high efficiency, multiple output modes of constant voltage, constant current, and constant power, and rapid transient response. The specially designed hardware topology and control and filtering system will reduce external common-mode voltage and electromagnetic interference Coupling effects are reduced to a very low level, making it more green, efficient, safe and reliable.

DC/DC



D5D



R8D+M

DCC880 Integrated DC/DC Bidirectional DC Power Module Combination [DC Conversion Module]

(400Vac system) DC<=DC400/800V Comprehensive selection according to power & maximum current, protection class: IP20; BLM input voltage: three-phase AC380-415V

Related value		Input		Output		noise level	Heat output	cool down Air volume	Model Number 1. The maximum voltage of DC output: -3=DC380V -4=DC780V. 2. Special applications support built-in braking unit +-3B, built-in basic thyristor AC input rectifier AC-DC power loop +-BLM.	Frame size (mm)
PN kW	IN A	UN Vdc	Uout Vdc	UDC-bus Vdc	dBa	W	m³/h			
55	100	550	24-380/780	450-800	58	1200	320	DCC880-D52-105A-3/4+DCDC+LC-100A /+BLM	D5D (W290 H1120 D400)	
55	200	275	24-380/780	450-800	58	1300	330	DCC880-D52-105A-3/4+DCDC+LC-200A /+BLM		
75	200	375	24-380/780	450-800	58	1440	340	DCC880-D53-145A-3/4+DCDC+LC-200A /+BLM		
90	300	300	24-380/780	450-800	58	1940	400	DCC880-D54-169A-3/4+DCDC+LC-300A /+BLM		
100	400	275	24-380/780	450-800	58	2200	550	DCC880-D55-206A-3/4+DCDC+LC-400A /+BLM		
132	500	264	24-380/780	450-800	58	3300	650	DCC880-D56-246A-3/4+DCDC+LC-500A /+BLM	R8D+ R8M (W500* H1000* D630)	
160	600	267	24-380/780	450-800	67	3850	680	DCC880-R80-293A-3/4+DCDC+DCLC-600A		
200	700	286	24-380/780	450-800	67	4100	700	DCC880-R81-363A-3/4+DCDC+DCLC-700A		
250	800	313	24-380/780	450-800	67	4600	720	DCC880-R82-487A-3/4+DCDC+DCLC-800A		
280	900	311	24-380/780	450-800	67	5100	950	DCC880-R83-546A-3/4+DCDC+DCLC-900A		
315	1000	315	24-380/780	450-800	67	5782	1100	DCC880-R84-624A-3/4+DCDC+DCLC-1000A		
400	1100	364	24-380/780	450-800	67	6252	1200	DCC880-R85-760A-3/4+DCDC+DCLC-1100A		
450	1200	375	24-380/780	450-800	67	7860	1350	DCC880-R86-865A-3/4+DCDC+DCLC-1200A		

(690Vac system) DC<=DC1200V Comprehensive selection according to power & maximum current, protection class: IP20; BLM input voltage: three-phase AC660-690V

55	100	550	24-1150	450-1200	58	1200	320	DCC880-D51-061A-6+DCDC+LC-100A /+BLM	D5D (W290 H1120 D400)
75	200	375	24-1150	450-1200	58	1440	340	DCC880-D52-080A-6+DCDC+LC-200A /+BLM	
90	300	300	24-1150	450-1200	58	1940	400	DCC880-D53-098A-6+DCDC+LC-300A /+BLM	
100	400	275	24-1150	450-1200	58	2200	550	DCC880-D54-119A-6+DCDC+LC-400A /+BLM	
132	500	264	24-1150	450-1200	58	3300	650	DCC880-D55-142A-6+DCDC+LC-500A /+BLM	
200	600	333	24-1150	450-1200	67	3850	680	DCC880-R81-271A-6+DCDC+DCLC-600A	R8D+ R8M (W500* H1000* D630)
280	600	467	24-1150	450-1200	67	4100	700	DCC880-R82-295A-6+DCDC+DCLC-600A	
355	700	450	24-1150	450-1200	67	4600	720	DCC880-R83-325A-6+DCDC+DCLC-700A	
315	800	444	24-1150	450-1200	67	5100	950	DCC880-R84-360A-6+DCDC+DCLC-800A	
400	900	444	24-1150	450-1200	67	5782	1100	DCC880-R85-420A-6+DCDC+DCLC-900A	
450	1000	450	24-1150	450-1200	67	6252	1200	DCC880-R86-450A-6+DCDC+DCLC-1000A	
500	1100	455	24-1150	450-1200	67	7860	1350	DCC880-R87-505A-6+DCDC+DCLC-1100A	

Note): Bigger power are multi-module drive, for more details ,please check with related person.

PN: Typical motor power with no overload application. In: Rated current available continuously without overload at ambient 40 °C. Imax: Maximum output current. It can last up to 10 seconds at startup, otherwise it depends on the temperature of the drive.

In: Continuous current, 120% In overload allowed for 1 min/5 min at 40 °C. These ratings correspond to an ambient temperature of 40 °C, if the ambient temperature is higher (up to 55 °C) a derating of 1%/1°C is required.

Air-cooling brake chopper module selection list

For U1, C2-C5, B/E2-8 series of standard single-drive drives, the brake chopper is a standard built-in component (some high-power machines are optional, please refer to each selection table for details). The design will achieve better integration in the dimensions of adjustable braking voltage, braking response, braking power control, etc., to simplify and save your software and hardware configuration time.

The independent braking chopper system mainly includes braking chopper module, external braking resistor (box) and its temperature monitoring and cooling system. A higher power braking system can be connected by multiple braking chopper modules in parallel. It is responsible for processing the energy generated by the motor deceleration. The basic principle is that when the energy recovered by the motor deceleration causes the intermediate DC link voltage of the drive to exceed the limit set by the control program, the brake chopper will be turned on and the external braking resistor is connected to the intermediate DC circuit. The power consumption of the resistor will continuously reduce the voltage on the intermediate DC circuit until it is lower than the programmed value. When you select the main parameters of the external braking resistor, you need to pay attention and match them. The minimum resistance value that the chopper you choose can withstand, the maximum braking power/time of the mechanical device where it is located, and at the same time, pay attention to the treatment of the large heat generated by the resistor during long-term braking, and have temperature monitoring to prevent fire or countermeasures.

The three-phase braking unit is dynamically controlled, designed for common DC bus drive systems, flexible installation, and the overall braking function has higher system reliability

+BRK External brake chopper module, air-cooled, VCS880, C760V/AC400V

3-phase input $U_n = 400V(380-500V)$ The rated power is valid when the voltage is 400V



R5

Rated value				braking cycle (1min/5min)		braking cycle (10s/60s)		noise level	cooling air volume	Model Number	Brake Chopper Adaptation Minimum Resistance Value (Ω) Rmin	Frame size (mm)
Pcont kW	Pbrmax kW	Imax A	Irms A	Pbr kW	Irms A	Pbr kW	Irms A	dB(A)	m³/h			
355	500	235	195	500	3x220	400	3x200	58	400	VCS880-R54-650A-3+BRK	3.0-4.3	R5
560	650	370	310	650	3x350	560	3x300	58	660	VCS880-R74-950A-3+BRK	1.7-2.1	R7
800	960	555	465	960	3x530	800	3x440	68	1100	VCS880-R85-1480A-3+BRK	1.2-1.4	R8

The above models are fan cooling, and below models are liquid cooling type cooling water flow is L/min.

355	500	235	195	500	3x220	400	3x200	58	12	VCS880-LR54-650A-3+BRK	3.0-4.3	R5
560	650	370	310	650	3x350	560	3x300	58	15	VCS880-LR3-950A-3+BRK	1.7-2.1	L8 (Liquid cooling)
800	960	555	465	960	3x530	800	3x440	59	20	VCS880-LR5-1480A-3+BRK	1.2-1.4	L8 (Liquid cooling)

+BRK External brake chopper module, air-cooled, VCS880, DC1150V/AC690V

3-phase input $U_n = 660V(525-690V)$ The rated power is valid when the voltage is 690V (90-250-500V)



R7

Rated value				braking cycle (1min/5min)		braking cycle (10s/60s)		noise level	cooling air volume	Model Number	Brake Chopper Adaptation Minimum Resistance Value (Ω) Rmin	Frame size (mm)
Pcont kW	Pbrmax kW	Imax A	Irms A	Pbr kW	Irms A	Pbr kW	Irms A	dB(A)	m³/h			
560	700	235	170	700	3x230	560	3x175	58	420	VCS880-R54-571A-6+BRK	5.0-7.2	R5
1000	1000	370	310	1200	3x350	800	3x300	58	660	VCS880-R74-900A-6+BRK	3.0-3.6	R7
1400	1400	555	465	1660	3x530	920	3x440	68	1100	VCS880-R85-1540A-6+BRK	2.0-2.4	R8

The above models are fan cooling, and below models are liquid cooling type cooling water flow is L/min.

560	700	235	170	700	3x230	560	3x175	58	12	VCS880-LR54-571A-6+BRK	5.0-7.2	R5 (Liquid Cooling)
1000	1000	370	310	1200	3x350	800	3x300	58	15	VCS880-LR54-571A-6+BRK	3.0-3.6	L8 (Liquid cooling)
1400	1400	555	465	1660	3x530	920	3x440	68	20	VCS880-LR5-1540A-6+BRK	2.0-2.4	L8 (Liquid cooling)

* For more power models of liquid cooling drive ,please consult with related person; The heating of braking unit is 1% of the total braking unit power.

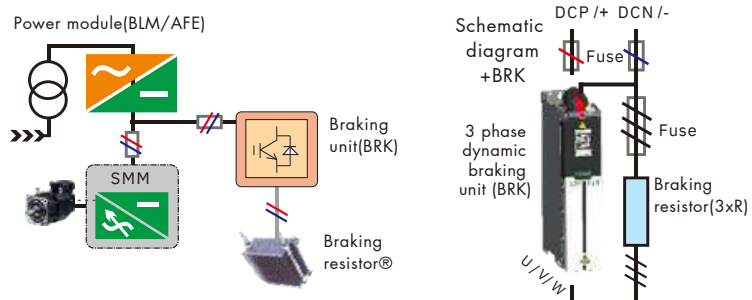


R8

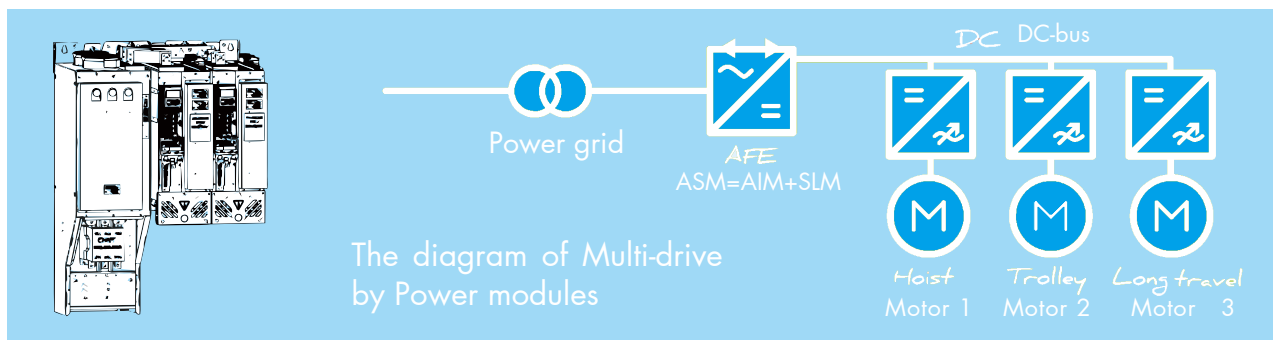


L8

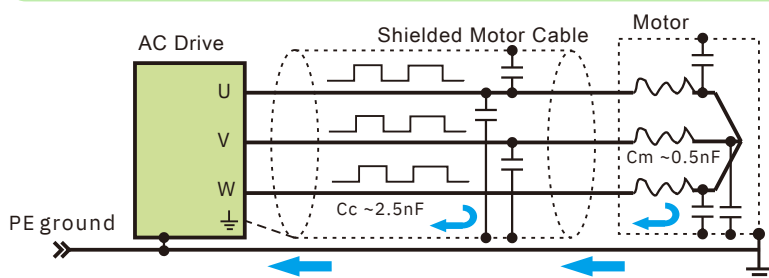
Pbr,max: Maximum short-term braking power.
Rmin: The minimum resistance value of the external resistance (box) that the brake chopper can withstand and allow.
Imax: Maximum peak output current of each brake chopper during braking. The resistor is at its minimum value for maximum current and can last for 10 seconds during initial braking, otherwise the length of time depends on the temperature of the drive.
Pcont: Maximum continuous braking power. A resistor placed in the correct position continues to dissipate power (heat) and the energy Er is released within 400 seconds.
Pbr: The braking power in the corresponding load cycle: 1min/5min.=1 minute braking power is Pbr., 4 minutes no load. 10s/60s=10s braking power is Pbr., 50s no-load.
Irms: The corresponding rms current of each chopper during the duty cycle.



Mechanical Dimensions



Introduction to the basic and typical principles of interference, anti-interference shielding, and grounding in electromechanical drive speed control systems



The above figure is a typical topology diagram of a variable frequency speed regulation electromechanical system. From left to right, it is the power supply, driver (inverter), shielded power (or signal) cable, and motor. This figure mainly illustrates the distributed capacitance for long lines. The formation of noise, the flow and processing of noise, etc. The core points of understanding and knowing this section are:

1. Find out where the source of interference comes from? This is usually from the motor winding itself, and the motor cable.
2. Find out which objects are easily disturbed? Here is usually a weak current control analog signal less than 36V, such as AI, AO, encoder feedback signal, etc.
3. How to standardize and efficiently deal with interference and interference?

Understand the relevant knowledge in principle, and standardize the electrical wiring according to the general electrical specifications and manual instructions. The specific points are:

- a. Use shielded cable for the motor cable and connect the motor casing to the ground wire from the power grid transformer.
- b. Use shielded wires for weak signal wires and cables that may be disturbed, and try to separate them from the motor wires and power wires of each strong current side and keep a certain distance for wiring, and connect the shielding layers of these weak wires to the power grid transformer. come on the ground. In order to obtain the shielding effect of the shielding layer, it has a passage path for discharging the interference charges.
- c. Connect the motor casing, encoder casing (or signal line shielding layer), driver casing, etc. to the same ground wire for common potential processing. This is the processing method in special environments with poor grounding conditions. At this time, make sure that the absolute connection of the connected ground wire is firm and reliable, and keep confirming that the ground stake is in a low ground impedance state and is well grounded, otherwise the motor induced electricity will cause the risk of injury to personnel and equipment.

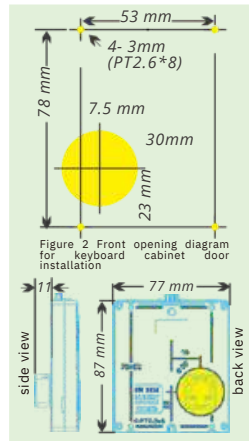
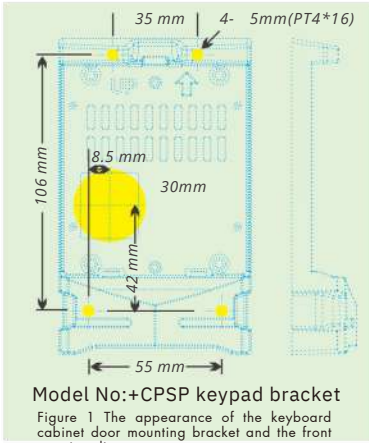
Note: Do not directly connect both ends of the shielding layer of the cable connecting the motor temperature sensor to the driver to the ground wire. If one end cannot add a 3.3nF capacitor between the shielding layer and the ground, only one end should be grounded.



Mechanical Dimensions and EMC Grounding

Dimensions of keypad bracket

The keyboard cabinet door is directly installed, after opening 4 screw holes and 1 RJ45 seat avoidance hole, it can be locked from the back of the door panel with PT2.6*8



The 5 yellow holes in the picture above are the installation and fixing holes that need to be opened for the door panel

Mechanical Dimensions

Frame Size	Frame dim.			Mounting holes			Screw	Weight (kg)
	W (mm)	H (mm)	D (mm)	W2 (mm)	H2 (mm)	d2 (mm)		
R1	78	210	145	40	199	5.0	Spring terminal	1.2
B2	110	410	280	80	393	5.0	M5	8.5
C2	100	290	200	55	275	5.5	M5	3.5
C3/B3	145	400	230 ^①	120	385	7	M6	8
C4/B4	250	400	270 ^②	200	372	9	M6	15
C5/B5	290	680	305 ^③	245	655	11	M10	30
C6/B6	290	680	305 ^③	245	655	11	M10	38
C7/B7	425	900	350 ^④	95/370	878	11	M10	50
C8/B8	380	1660	535	155(W) 445(D)	1588	11	M10	140
R7	190 190	900 900	535	100	770	11	M10	55 43
R8B R8M	240 240	977 ^⑤ 1395 ^⑥	577- 600 ^⑦	150	900	12	M12	80 63
R8A/D	240	1395	577	150	1302	12	M12	210
R9M	570	1000	535	3*100	770	11	M10	140

Note: The weight is an approximate value, please refer to the mechanical dimension drawing or consult our representative for more dimensions and mechanical structure drawings.
About the way of power in and out: R1, C2, C3 size models are bottom in and bottom out, C4, C5, C6, C7, C8 are top in and bottom out, multi-module drives are top in and bottom out, there are design versions and model differences, please consult to confirm.

Including the height of the whole machine after the detachable base with rollers can accommodate the input/output reactor (optional).
Due to the difference of the control unit, the depth of the B size needs to be increased by about 40mm based on this value C size).
Contains the local depth after operating the keyboard



Option parts selection list

No.	Optional parts name	Model No.	Function Description	Photo
1	LCD keypad	+CP66	128x64 dots, assistant panel support Chinese and English language	flag 5
2	High-speed differential encoder (C frame)	+CTL33	9+15Pin+C type, Non-isolated,high-speed differential encoder	flag 3
3	Resolver encoder (C frame)	+RT35	9+15Pin+C type, for resolver type encoder	flag 3
4	SinCos encoder (C frame)	+SN34	(9+15Pin)DB head interface, high-precision sine cosine or high-speed differential non isolated encoder, with frequency division	flag 3
5	HTL Multi-function frequency division encoder (C frame)	+HTL39T	Pluggable screw terminal, push-pull, open collector signal input (DC12V power supply) with frequency division	flag 3
6	TTL Multi-function frequency division encoder (C frame)	+TTL39T	Pluggable screw terminal ,supports differential encoder signal input (DC 5V power supply) with frequency division	flag 3
7	TTL Multi-function heavy load encoder (C frame)	+CTL39T	Pluggable screw terminal, differential signal input (DC12 power supply), with frequency division and disconnection detection	flag 3
8	HTL Multi-function frequency division encoder (R frame)	+HTL59	9+15Pin+R type, Pluggable screw terminal, push-pull, open collector signal input (DC12V power supply) with frequency division	flag 10
9	TTL pulse encoder module (R frame)	+TTL59	9+15Pin+R type,supports differential encoder signal input (DC 5V power supply) with frequency division	flag 10
10	DB series plug wiring by screw port type	+DB15F	(3-row female socket),+DB9M (2-row male Plug), wiring by screw ports.	flag 13/14
11	DB series plug wiring by soldering type	+SDF15F	(3-row female socket),+SDB15M (3-row male Plug),+SDB9M (2-row male Plug)	flag 15
12	E2 type input and output IO extension card	+ET11	6-way digital input DI1-DI6(NPN/PNP), 3-way pulse input DI4-DI6, 24V voltage input, 2-way digital/pulse output DO1-DO2(PNP) 24V voltage output, 2-way analog input AI1-AI2 support: $\pm 0-10V/0-20mA$ 2-way analog output AO1-AO2 support: 0-10V/0-20mA, 2-way relay R01-R02, 5A, 1 normally open and 1 normally closed	flag 21
13	E2 differential absolute string encoder card	+EN21	4 channels, absolute value/5V high-speed differential/sincosine support Endat, Biss, RS485, Hiperface, 3-row DB15 socket	flag 22
14	E2 differential Encoder Card	+EN22A/B	4-way TTL/HTL, support disconnection detection, EN22A=TTL supports 5V input, EN22B=HTL supports 12V input	flag 22
15	E2 Absolute Encoder Card	+EN23	2-way absolute value/sincosine/5V differential + 1-way resolver + 1-way differential, resolver supports reluctance/winding excitation signal self-adaptation	flag 22
16	E2 square string absolute resolver encoder card	+EN24	1 channel of absolute value/sincos + 1 channel of resolver + 1 channel of non-isolated differential without disconnection detection + 1 channel of frequency division feedback output	flag 22
17	Profibus-DP communication card	+DP41	Profibus-DP fieldbus protocols,suitable for C type only	flag 4
18	ProfiNET communication card	+B2PN	For B type frame ,ProfiNET fieldbus protocols	flag 6
19	EtherCAT communication card	+B2EC	For B type frame ,EtherCAT fieldbus protocols with standard RJ45 port	flag 6
20	Cable fixed frame (R type)	+CL1PR1	Assembling to R type drive	flag 9
21	Cable fixed frame (C type)	+CLIPC2	Assembling to C type drive	flag 8
22	Control terminals cover (C type)	+C2CV	Assembling to C type drive	flag 7
23	Control panel surface mounting platform	+CPSP	For LCD panel,fixed by 4-PT4x16 screw	flag 16
24	IT/TT/TN power supply Insulation strengthening for vessel or island	+MYC	Realize the factory default settings for the leakage current of the driver and the specific requirements of ships for power electronic products.	flag 17
25	Bottom wheel fram for R8 power module	+BTR8	support and quickly move the power module, can prevent dumping, and can carry suitable output reactor	flag 18



Fuse, du/dt Filter, Brake Resistor, Cable Design Guideline list

UN = 380V (range 380 to 400V). The power ratings are valid at nominal voltage 400V, 220V & 690V as reference here



Drive Type & Ratings				IEC Fuses & Type ²⁾		du/dt Filter ³⁾ Reactor or enhanced		Braking R and power ⁴⁾ Light-Braking Heavy-Braking ~20% Braking cycle ~50%		Cable Size & Type ⁵⁾ IEC standard, + as PE cable Copper Aluminum	
PN kW	IN A	I input A	I Min. short-circuit current A	gG A	uR/aR A	Input mH	Output mH	Ω / W	Ω / W	mm ²	mm ²
1.5	3.3	5.6	25	8	25	4.8	3.4	>=200/300	>=200/500	3x1.5+1.5	-
2.2	5.6	10	32	10	25	3.2	3.4	>=150/400	>=150/600	3x1.5+1.5	-
4.0	9.5	18	80	25	40	2	1.2	>=100/600	>=100/1000	3x2.5+1.5	-
5.5	12.9	25	120	32	40	1.5	0.5	>=75/800	>=75/1500	3x2.5+2.5	-
7.5	17	30	150	40	40	1.2	0.5	>=75/1000	>=75/2000	3x2.5+2.5	-
11	25	38	200	50	63	0.8	0.35	>=60/1000	>=60/4000	3x4.0+2.5	-
15	32	42	250	50	63	0.6	0.25	>=40/1500	>=40/5000	3x6.0+4.0	-
18.5	38	42	330	63	63	0.5	0.23	>=40/2000	>=40/6000	3x10+10	-
22	45	45	400	63	80	0.42	0.23	>=30/2000	>=30/7500	3x10+10	-
30	61	62	500	80	100	0.32	0.2	>=22/3000	>=22/11000	3x25+16	-
37	72	75	700	100	125	0.26	0.16	>=14/4000	>=14/15000	3x25+16	3x50
45	87	90	1000	100	125	0.21	0.16	>=14/5500	>=14/18000	3x35+16	3x70
55	115	115	1200	125	160	0.18	0.11	>=8/8000	>=8/22000	3x50+25	3x95
75	145	150	1200	160	200	0.13	0.1	>=8/12kW	>=8/28kW	3x75+35	3x120
90	182	185	1200	250	315	0.11	0.1	>=8/16kW	>=8/46kW	3x95+50	3x150
110	226	20	1250	315	350	0.09	0.08	>=8/20kW	>=8/50kW	3x120+70	3x240
132	246	250	1250	355	450	0.08	0.07	-	-	3x150+70	2x(3x95)
160	293	300	1500	425	500	0.06	0.056	>=4/30kW	>=4/75kW	2x(3x95+50)	2x(3x120)
200	363	375	1500	500	630	0.05	0.053	>=4/35kW	>=4/90kW	2x(3x120+70)	2x(3x185)
250	487	495	1500	630	700	0.04	0.038	Choice AFE as below		2x(3x150+70)	2x(3x240)
280	546	550	2500	800	900	0.04	0.035			3x(3x95)	3x(3x185)
315	624	635	2500	1000	1100	0.04	0.032			3x(3x120)	3x(3x240)
400	760	760	3100	1250	1400	0.03	0.03			3x(3x150)	4x(3x185)
450	865	870	3600	1600	1600	0.025	0.025			3x(3x185)	4x(3x240)

Note 1) In order to facilitate your scientific planning and design of the drive/drive system, based on the hardware design and general industry application characteristics of this series of drives, we give this table for reference. Please note that mechanical and electrical installations always require Follow the local laws and regulations of your country or region, otherwise the manufacturer will not bear any responsibility, and the drive may appear or encounter problems outside the warranty.

Note 2) It is recommended to install fuses on the power supply side to protect the power supply system and drivers. The uR and aR special types have faster protection capabilities. Generally, fuses cannot be completely replaced by circuit breakers because they have a faster and more Breaking capacity, which is also in compliance with the following general standards and specifications (CE IEC 60634,UL NEC 2009)

Note 3) Due to the rectification of the diode, the driver will bring harmonics of the input grid which will affect the grid quality or electromagnetic disturbance. At this time, an input reactor and EMC filter shall be configured according to the severity of these effects and the acceptable range on site. To reduce these effects, you may not need configure or configure a device with less filtering effect for most drivers with built-in DC reactors to meet your needs.

Standard du/dt wave filter or reactor only can suppress the driver output voltage spikes and rapid voltage changes, especially when the motor cable exceeds 150 meters, because this will cause pressure on the motor insulation. In addition, the filter can reduce the capacitive current and high-frequency radiation of the motor cable, as well as high-frequency loss and shaft current in the motor. The requirements of the output filter mainly depend on the insulation of the motor, the degree of old and new motors, the structure and wiring of the motor cable and its length, and the quality and life requirements of the system. The Filter should be installed as close as possible to the output of the driver. Cooling and ventilation. At the same time, for more information about the insulation structure and capabilities of the motor, consult its manufacturer.

Common mode filter, commonly known as magnetic rings, are used to reduce the common mode current inside the motor (generally used when the size of the motor is >280mm) to prevent damage to the steel bearing of the motor due to the common mode current, which can also reduce The EMC of the input or output cable is exposed to external electromagnetic radiation. At this time, the three-phase wires of the motor must pass or bypass the filter (magnetic ring) for many times. Some models have this filter built in. Please consult for confirmation.

As a general guideline for filter selection, common mode filters are effective in suppressing the common mode current and bearing current of the motor, and inductive reactors are effective in suppressing the PE and du/dt of the casing of the motor-side winding. It suppresses and reduces the audible noise on the motor side for UVVW peak voltage, EMC electromagnetic radiation, etc. The sine wave filter is effective, while the all-pole sine filter is better, but the cost is higher, more professional knowledge and application characteristic please consult professional filter manufacturers.

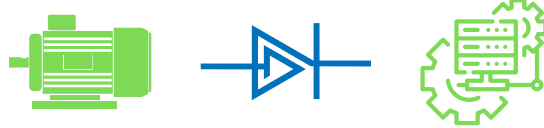
Note 4) This series of driver has a wide range of power with built-in brake chopper function. This integrated built-in design helps you reduce external wiring and flexible and energy-efficient configuration. The braking power and capacity of your driver. When you use non-new braking resistor components, or a new plan to use a braking solution, we recommend that you pay attention to the resistance winding and its ground. Insulation ability, pay attention to its resistance value and power, the braking frequency and total braking power of the drive, and possible overheating protection measures to avoid damage to the drive itself or the resistance caused by overheating Fire.

Note 5): The power supply side and motor power cables must be selected to withstand the corresponding load current, and the protective ground cable must always have sufficient conductivity. Coaxial shielded cable can reduce the electromagnetic radiation of the entire drive system, and also reduce the stress on motor insulation, shaft current and wear. The actual wire specification should be adjusted appropriately considering the quality of the wire, cable wiring and heat dissipation capacity, safety margin allowed by the specification, etc. For applications using the UL standard, aluminum cables are not allowed. Attention should be paid to the selection of suitable terminals for the cable connector and good pressing treatment. For aluminum cables, the scientific transition of the copper-aluminum contact surface should be noted.



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VEM MOTORS ASIA PTE LTD

SALES & SERVICE CONTACT ✓



+65 6873 1150



+82 051-791-1169



WWW.VEM-MOTOR.NET



WWW.VEM.CO.KR



SG@VEM-GROUP.COM



KR@VEM-GROUP.COM