VEICHI

AC80C Series

High Performance Frequency Inverter

Shenzhen Veichi Electric Co., Ltd is a high-tech enterprise that is professionally engaged in the development,manufacturing and marketing of industrial automation control products, and committed to becoming a global leading provider of industrial automation control products and system solutions.

The company owns powerful R&D team, relatively perfect production system, independent intellectual property and manufacturing bases in Shenzhen and Suzhou. To improve our R&D strength, we keep on introducing advanced overseas technology and broadening our partnerships with first-class universities and research institutions.

The main products of Veichi Electric include a variety of Variable Frequency Drive(VFD), Servo Drive System, Photovoltaic Inverter, PLC, HMI, Automation Equipment, etc, which are widely used in industries such as oil&gas,chemical industry, ceramic, crane&hoist, metallurgy,electrical cable and wire, plastic, print and package, textile, metal work and cable, coal mining and municipal engineering. Suitable solutions and products are always ready to meet the demands and improve comprehensive competitiveness of users.

With the spirit of "Innovation is the lifeblood of Veichi", we're committed to becoming one of the leading providers of electric drives, industrial control and green energy products.Veichi has set up more than 40 brand offices in China and dozens of partners in Asia, Europe and Africa. Veichi has been named Chinese Electric Industry's Top Ten National Brands, Chinese Electric Industry Top Ten Satisfying Brands and Top Ten National Brands of Inverter Industry.Veichi products have become the first choice of many enterprises.

AC80C Overview

AC80C is our newly developed high-performance vector control inverter. It not only has the international high-end control performance, while further strengthening the adaptability, and customized and industrialized design product with reliability can better suit to the demanding requirements of industries and equipment.

Products are based on the latest generation of high-speed motor control dedicated DSP with its operation speed increased by 50% and programming capacity doubled. It adopts a leading international vector control algorithm to achieve high-performance, high-precision motor drive control, and to improve product reliability and environmental adaptability while strengthening customer using and industry design specialization, which is more flexible and stable.

AC80B

Upgrade

AC80C

AC80C is our newly developed high-performance vector control inverter, which is currently the upgrading of product AC80B.

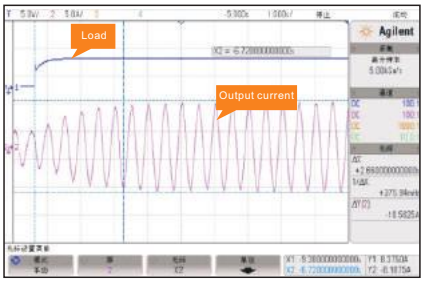
Technical Specification

Project		Specification	
Power Input	Voltage, Frequency	Single phase 220V, 50/60Hz 3 phase 380V, 50/60Hz; 3 phase 220V, 50/60Hz 3 phase 660V, 50/60Hz; 3 phase 1140V, 50/60Hz	
	Allowing fluctuations	Voltage: 320V ~ 440V; Voltage unbalance rate<3%; Frequency: ±5%; Distortion to meet the requirements IEC61800-2	
	Closing inrush current	Less than the rated current	
	Power factor	≥0.94 (DC reactor)	
	Inverter efficiency	≥96%	
Keyboard Display	LED display	Single-line 4-digit LED display	It can monitor a drive state quantity
		5 double-digit digital display	The inverter can be monitored two state quantity
	Parameter copy	Function code information can upload and transfer inverter parameter copy fast	
	Status monitor	Output frequency,Given frequency,Output current,Input voltage,Motor speed,PID feedback amount,PID given quantity, Module temperature,Status input and output terminals, etc.	
	Error alarm	Over-voltage,Over-current,Short circuit,Phase,Overload,Overheat,Overvoltage stall,Current limiter,Data protection damaged, Fault current operating conditions,Fault history	
Output	Output voltage	Output under rated conditions: 3 Phase, 0~input voltage, Error is less than 5%	
	Output frequency range	G type: 0-320Hz	
	Accuracy	Maximum frequency±0.5%	
	Overload	G type: 150% of rated current for 1min; 180% of rated current for 10s; 200% of rated current for 0.5s	
Main control performance	Motor control mode	V/F control without PG, Vector control without PG, V/F control with PG, Vector control with PG	
	Modulation mode	Optimized space vector PWM modulation	
	Carrier frequency	0.6~15.0kHz, Random carrier modulation	
	Speed control range	Vector control without PG, rated load: 1:100 Vector control with PG, rated load: 1:1000	
	Steady speed accuracy	Vector control without PG ≤ 1% of rated synchronous speed Vector control with PG: ≤ 0.02% of rated synchronous speed	
	Starting torque	Flux vector control without PG: 180% of rated torque at 0.5Hz; Flux vector control with PG: 200% of rated torque at 0Hz	
	Torque response	Flux vector control without PG: ≤20ms Flux vector control with PG: ≤10ms	
	Frequency accuracy	Digital setting: maximum frequency × ±0.01% Analog setting: maximum frequency × ±0.2%	
	Frequency resolution	Digital setting: 0.01Hz Analog setting: maximum frequency × 0.05%	
Protective function		Overvoltage,Undervoltage,Current limit,Overcurrent,Overload,Electronic thermal relay,overheat,Overvoltage stall,Data protection	
Surroundings	Installation site	Indoor, altitude not more than 1000m, no corrosive gas and direct sunlight	
	Temperature humidity	-10 ~ +40℃ 20%~ 95%RH (Non-condensing)	
	Vibration	< 0.5g below 20Hz	
	Storage temperature	-25 ~ +60℃	
	Mounting	Wall-mounted,Closet	
	Protection class	IP20	
	Cooling method	Forced air cooling	

AC80C Product Features

Excellent Vector Control Performance

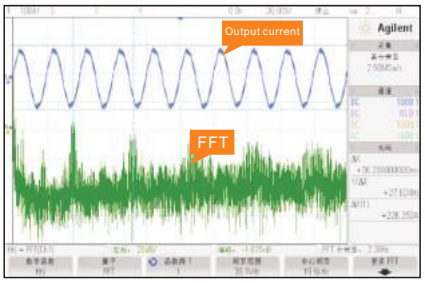
Realizing AC motor decouple and motor vector control. In PG without vector torque control mode, torque control accuracy can up to 5%. Motor four-quadrant runs; torque, current, speed and DC bus voltage fast response, and the motor runs smoothly.



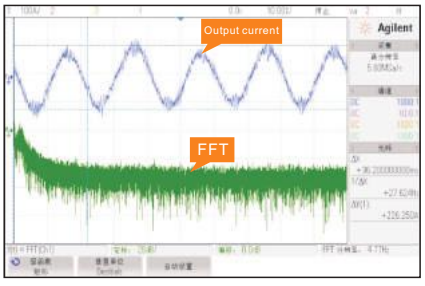
Outputing large current at 2HZ, the motor does not stall

Random function carrier

Compared with the sharp fixed carrier motor noise, output voltage harmonic spectrum random carriers uniformly distributes over a wide frequency range, and the noise emitted by the motor is softer.



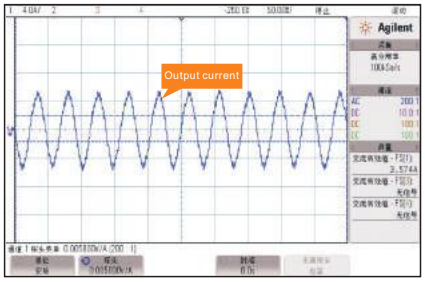
Random carrier OFF



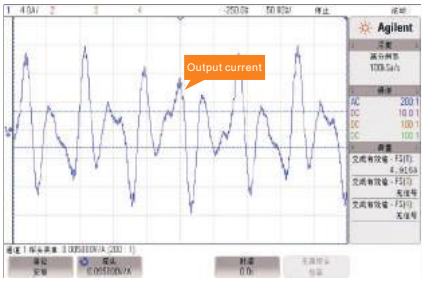
Random carrier ON

Oscillation suppression

when the motor can not run properly with significant oscillations, turn on this feature, the oscillation suppressing effect would be significantly improved.



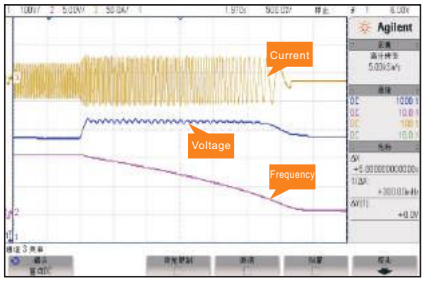
VF open oscillation suppression



Current wave under oscillation

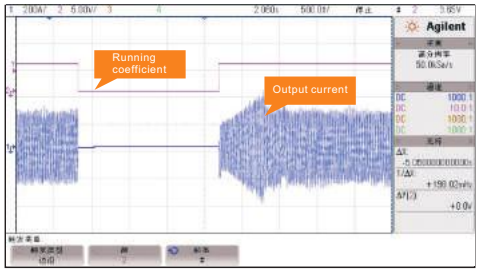
Overvoltage stall function

When large inertia load deceleration stop, the drive automatically limiting voltage to run.



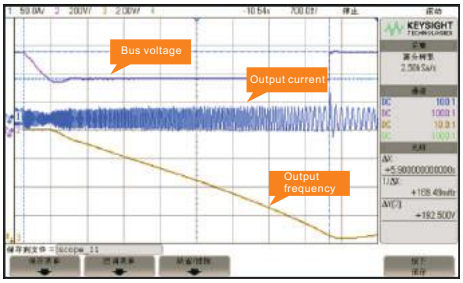
Speed tracking restart function

The drive can judge the motor speed and direction, and then start with the motor speed tracked corresponding frequency to start the motor which is in rotating state. Larger tracking frequency range speed tracking, traceability can reach the lowest speed of 1Hz.



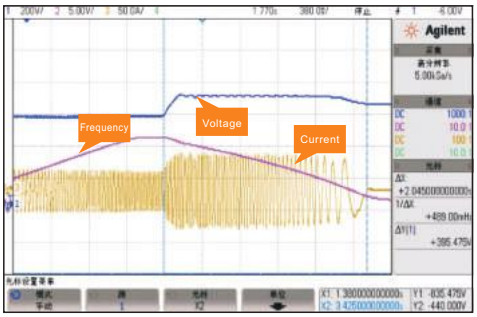
Instantaneous stop non-stop function

This function is momentary power failure will not stop the drive. In the case of a momentary power failure or a sudden drop in voltage,the drive to reduce the output speed and load feedback energy,reduce the offset voltage in order to maintain the drive to run a short time.



Over-excitation function

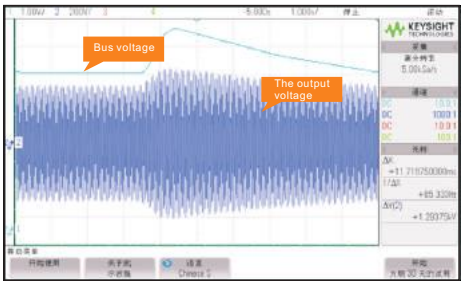
No need to increase peripheral resistance braking and other accessories, to achieve rapid braking effect and improve product usability.
It can effectively inhibit the decelerating bus voltage rises, to avoid frequent reported overvoltage fault, while achieving rapid braking power to realize fast stop.



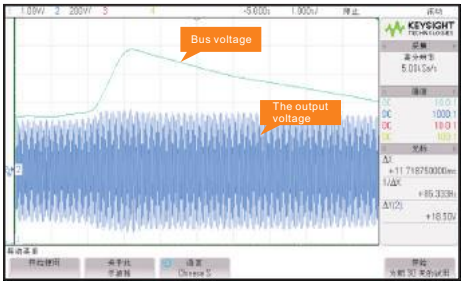
Overexcitation braking function effective

Smart AVR function

When the automatic voltage regulator function is invalid, the output voltage would change with the input voltage. When the automatic voltage regulator function is valid, as long as the minimum input voltage fluctuation is greater than the programmed output voltage (motor rated voltage), the output voltage can be substantially maintained at the set value.



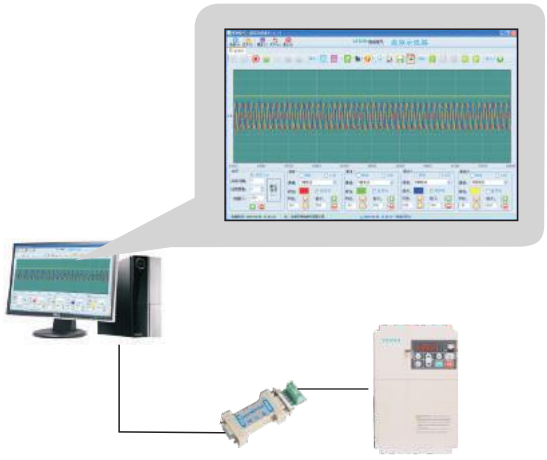
Smart AVR function invalid

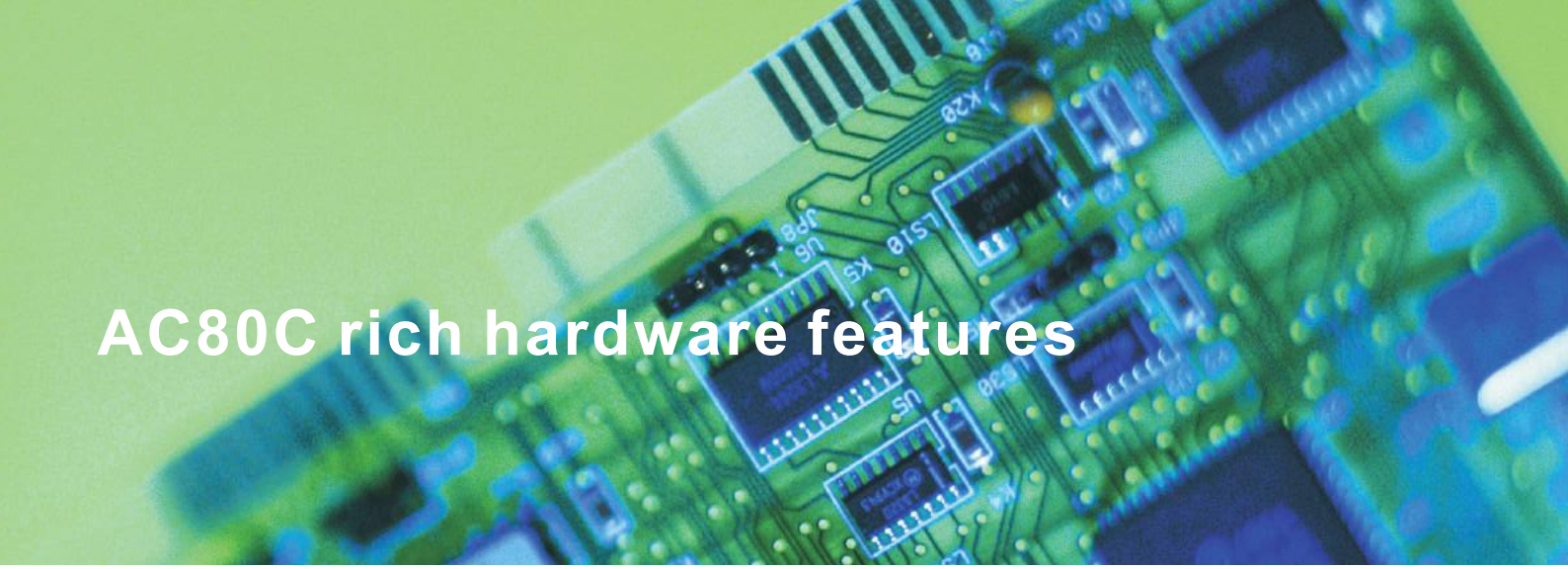


Smart AVR function valid

Strong background software

Support the drive parameters operation and virtual oscilloscope function（virtual label can realize the internal state monitor of the inverter graphics）.





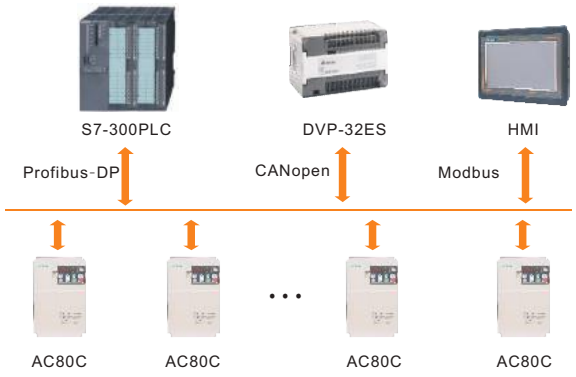
AC80C rich hardware features

Hardware Upgrades

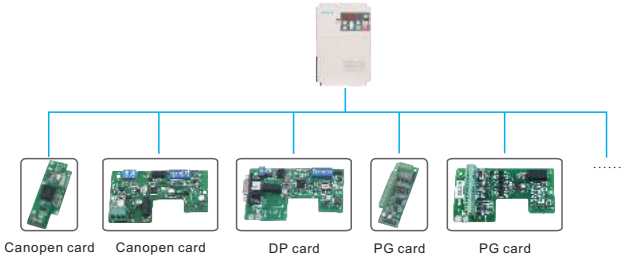
1. Full range of three-phase current detection output can realize the short circuit protection.
2. Higher bus capacitor configuration, longer machine life.
3. AC80C full range of standard common DC bus design can be directly co-bus.
4. Terminal protection is complete, and control panel 24V, 10V power supply has short circuit and overload protection.
5. Full range of DC cooling fan is safe and reliable.
6. Three anti-machine design, copper plating, PCB-three paint spraying to ensure stable and reliable products;
7. Standard brake unit for products under 22KW, and standard reactor for products above 160KW.
8. Standard keyboard design supports both keyboard and parameter copy function.

Communication

Support fieldbus expansion option via PROFIBUS DP card can support the agreement.
It offers a variety of communication interfaces.
Scalable relay outputs, analog inputs.

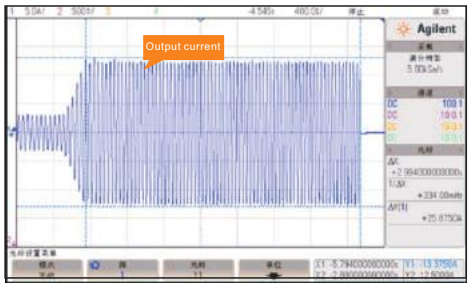


Extended feature-rich



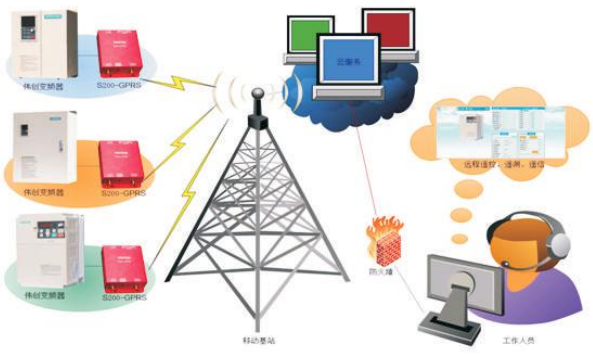
Hardware wave by wave limiting function

When this function is active, if the inverter output current exceeds 2 times the rated drive current, the inverter enters Zhu Bo-limiting state, then the drive will stop output until the output current is less than 2 times the rated drive current.



Veichi Internet of Things

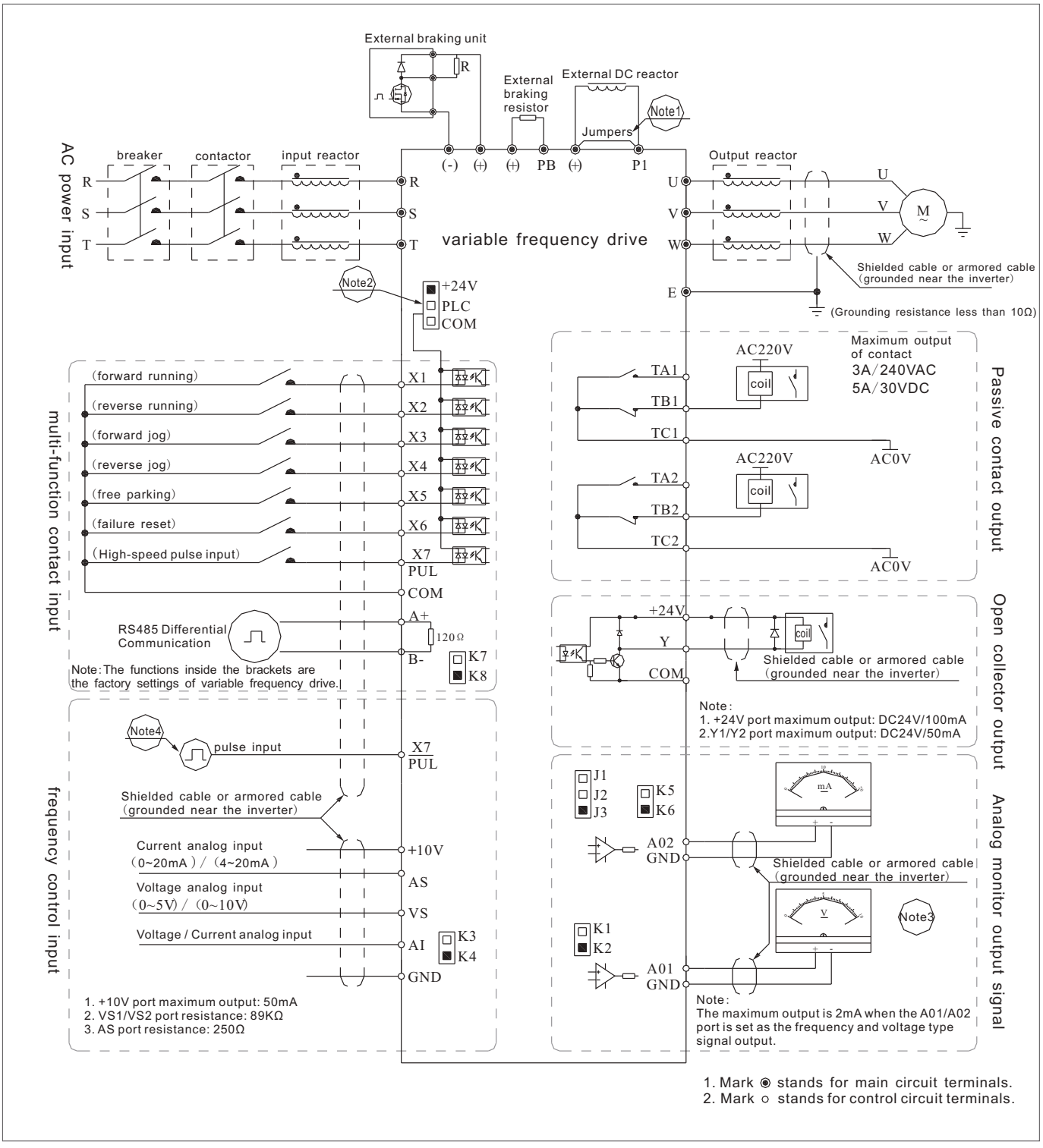
Intelligent terminals, high positioning accuracy, compact, easy to install.
Using GPRS and GSM dual-mode communication system, stable and reliable;
Through remote monitoring module, online monitoring, remote fault diagnosis, to provide greater context of value-added services.



Veichi Things System Benefits

Anti disassemble, mistakenly lock; anti arrears, double positioning, Tips.

Standard Wiring Diagram



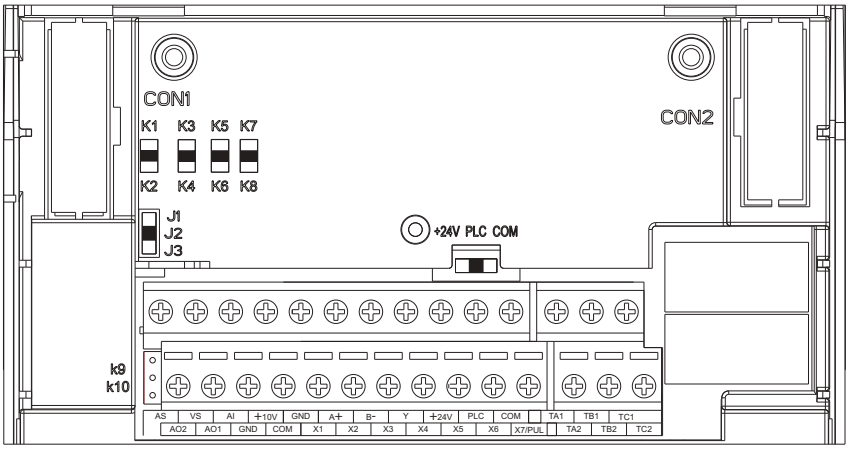
Note:

1. When installing a DC reactor, be sure to remove the jumper between terminals P1, (+).
2. Multi-function input terminals (X1, X7/PUL) can select NPN or PNP transistor as the input signal, the bias voltage can select the inverter internal power supply (+ 24V terminal), or you can choose an external power supply (PLC terminals) Preset "+ 24V "and" PLC "short.
3. The analog monitor outputs are the outputs of frequency meter, ammeter, voltmeter and other special instruction, and they cannot be used for feedback control and other control operations.
4. Due to the presence of various types of pulse practice, please refer to specifications for specific wiring scheme.

Auxiliary terminal output capacity

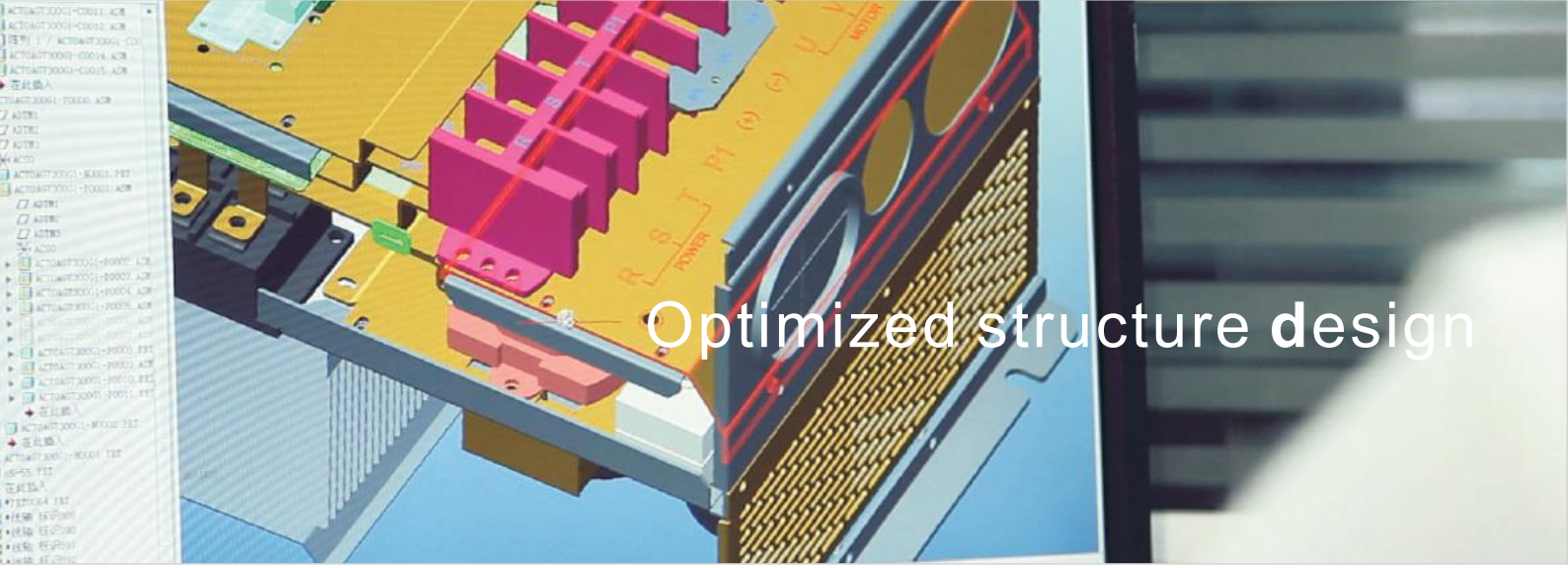
Terminals	Function Definition	Maximum output
+10V	10V auxiliary power output,and form a loop with GND	50mA
A01/A02	Analog monitor output,and form a loop with GND	As frequency and voltage signal, maximum output 2mA
+24V	24V auxiliary power output, and form a loop with COM	100mA
Y	Open collector output, programmable setting motion targets	DC24V/50mA
TA1/TB1/TC1 TA2/TB2/TC2	Passive contact output, programmable setting motion targets	3A/240VAC 5A/30VDC

Switch function legend



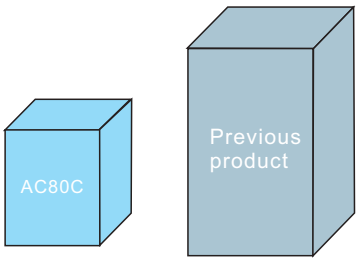
Dashboard terminal diagram

No.	Select Location	Function Description
S1	K1	AO1 output 0 ~ 20mA or 4 ~ 20mA
	K2	AO1 output 0 ~ 10V
S2	K3	AI input 0 ~ 20mA or 4 ~ 20mA
	K4	AI input 0 ~ 10V
S3	K5	AO2 0.0-50kHz output (J1 open), turn AO2 the open collector output
	K6	AO2 0.0-50kHz output (J1 open), turn AO2 output is active
S4	K7	RS485 communication access 120 Ohm
	K8	RS485 communication disconnect 120 Ohm
S5	J1	AO2 output frequency interfaces 0.0-50kHz
	J2	AO2 Interface 0-20mA current output or 4-20mA current output
	J3	0 ~ 10V voltage output
S6	+24V	+24V and PLC shorting
	PLC	PLC may receive an external power supply
	COM	PLC with COM
S7	K9	Off the ground GND with the chassis PE discharge circuit
	K10	On the ground GND with the chassis PE discharge circuit



Optimized structure design, leading technology platform

Selecting a new generation of IGBT module technology, with high junction temperature and high power density. Compared with the average 30% reduction in the volume of its predecessor, it saves a great space for installation, convenient electrical controls layout.



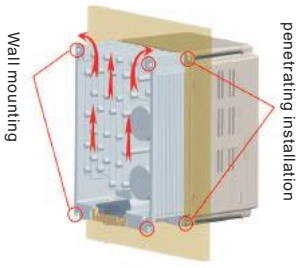
A variety of installation

0.4~22kW Wall mounting, penetrating installation.

30~132kW Wall mounting.

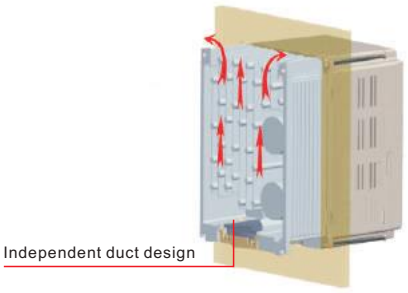
160~400kW Wall hanging.

450~560kW Cabinet installation (provide the base).



Independent duct design

Full range of independent duct design, electronics with 22KW or below models are completely sealed to effectively prevent contaminants from entering the area of electronic components and to enhance the protective effect of the inverter, so that it can adapt to complex environments.

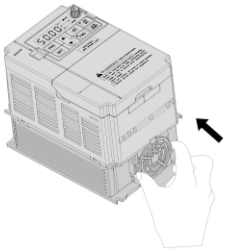


Saw tooth design radiator models

Saw tooth design models using radiator can effectively prevent dust and clogging.

Easy to clean design for fan replacement

Easy to clean design for fan replacement, easy to clean up pollutants fan and heat sink.



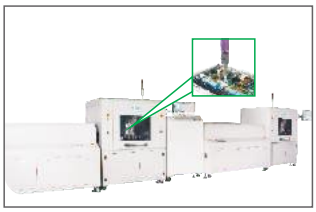
Quality Assurance

R & D stage

Advanced testing equipment, comprehensive testing program, rigorous testing standards to ensure product quality.

Quality management stage

Strict quality management, strict materials testing, ensure the material quality meets the standards; management practices improve the finished product rate; FQC would do comprehensive and rigorous product checks to ensure that packaging and storage of the products can meet the requirements of performance and appearance.



PCB conformal coating process

Aging treatment

Debugging with motor

AC80C Application Cases

AC80C used in the textile industry

Features:
1. Environmental adaptability
2. High degree of protection, waterproof, explosion and fire.
3. Limiting hardware is stable and reliable.
4. Speed and stability.
5. Wide voltage input.
6. Low motor noise.
7. Fanless design.
8. Flexible structure design.

AC80C application on punching

Feature:
1. Strong overvoltage suppression capacity.
2. The clutch switching inrush current loads can inhibit the inverter overcurrent.
3. Random carrier makes the motor sound softer.
4. Seismic processing drive strong.
5. Strong overload capacity.
6. It has strong anti-jamming capability.

AC80C application on engineering ship

Feature:
1. Environmental adaptability, anti-fog.
2. Large output torque.
3. Wide voltage input.
4. Performance stable and secure.
5. Current suppression capability.
6. Wide voltage input.
7. Output torque.

AC80C application on belt transmission

Feature:
1. Electrical shock suppression.
2. Stable and reliable hardware limit.
3. Speed stability.
4. Wide voltage input.
5. Low motor noise.
6. Output torque.
7. Stable and reliable.

AC80C used in CNC machine

Feature:
1. Environmental adaptability.
2. Output torque.
3. Fast torque response.
4. Wide voltage input.
5. Low motor noise.
6. Slowdown stop fast.
7. Strong overload capacity.

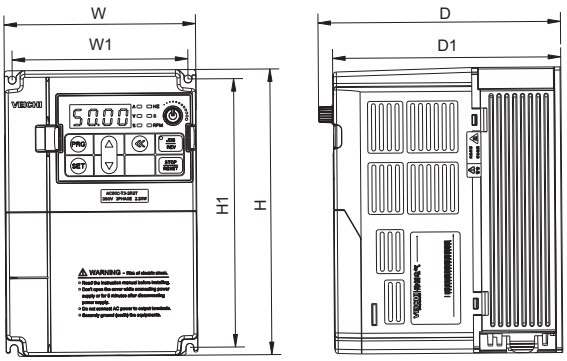
AC80C application on the ceramic machine

Feature:
1. Environmental adaptability.
2. Stable and reliable hardware limit.
3. Speed and stability.
4. Wide voltage input.
5. Low motor noise.
6. Output torque.
7. Stable and reliable.

AC80C application on peeling machine

Feature:
1. Environmental adaptability.
2. Great low-torque output.
3. Fast torque response.
4. Wide voltage input.
5. Low motor noise.
6. Slowdown stop fast.
7. Strong overload capacity.

Mounting dimensions

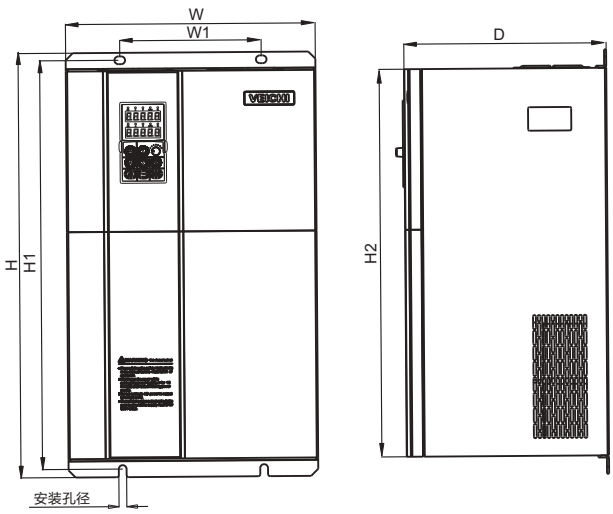


S2 model

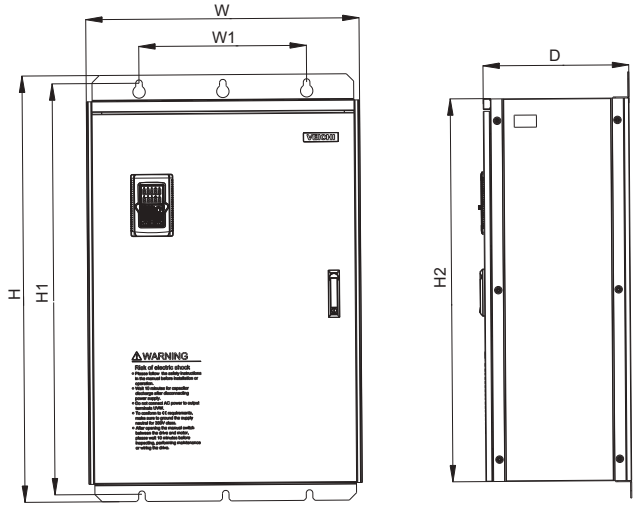
Inverter model	Dimensions				Mounting holes		Mounting Hole
	W	W1	H	H1	D	D1	
AC80C-S2-R40G	122	112	182	171	154.5	145	Φ5
AC80C-S2-R75G							
AC80C-S2-1R5G							
AC80C-S2-2R2G	159	147.2	246	236	157.5	148	Φ5.5

T3 model

Inverter model	Dimensions				Mounting holes		Mounting Hole
	W	W1	H	H1	D	D1	
AC80C-T3-R75G	122	112	182	171	154.5	145	ϕ5
AC80C-T3-1R5G							
AC80C-T3-2R2G							
AC80C-T3-004G	159	147.2	246	236	157.5	148	Φ5.5
AC80C-T3-5R5G							
AC80C-T3-7R5G	195	179	291	275	167.5	158	Φ7
AC80C-T3-011G							
AC80C-T3-5R5G	230	208	330	315	200	190	Φ7
AC80C-T3-7R5G							
AC80C-T3-011G							



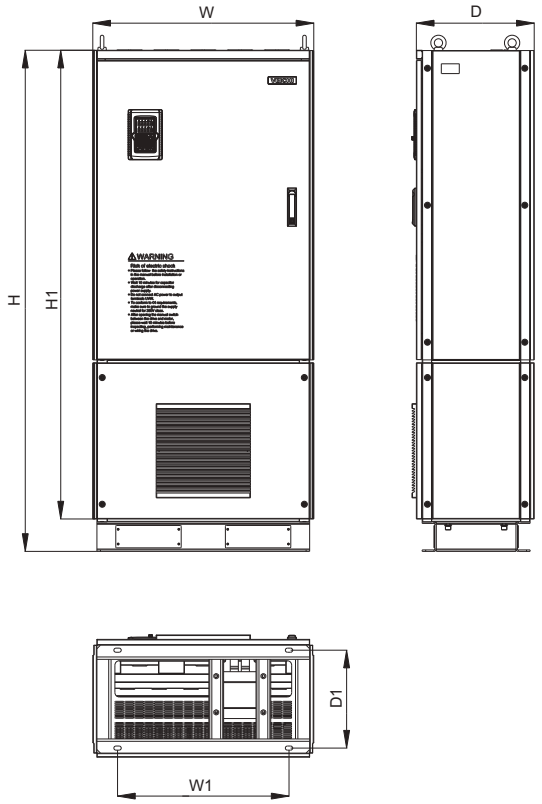
Inverter model	Dimensions				Mounting holes		Mounting Hole
	W	H	D	H2	W1	H1	
AC80C-T3-030G	255	410	225	370	180	395	Φ7
AC80C-T3-037G	305	570	260	522	180	550	Φ9
AC80C-T3-045G							
AC80C-T3-055G							
AC80C-T3-075G	380	620	290	564	240	595	Φ11
AC80C-T3-093G							
AC80C-T3-110G							



Wall-mounted mounting dimensions

Inverter model	Dimensions				Mounting holes		Mounting Hole
	W	H	D	H2	W1	H1	
AC80C-T3-132G	500	780	340	708	350	755	Φ11
AC80C-T3-160G	650	1060	400	950	400	1023	Φ16
AC80C-T3-185G							
AC80C-T3-200G							
AC80C-T3-220G	750	1170	400	1050	460	1128	Φ18
AC80C-T3-250G							
AC80C-T3-280G							
AC80C-T3-315G	850	1280	450	1150	550	1236	Φ20
AC80C-T3-355G							
AC80C-T3-400G							

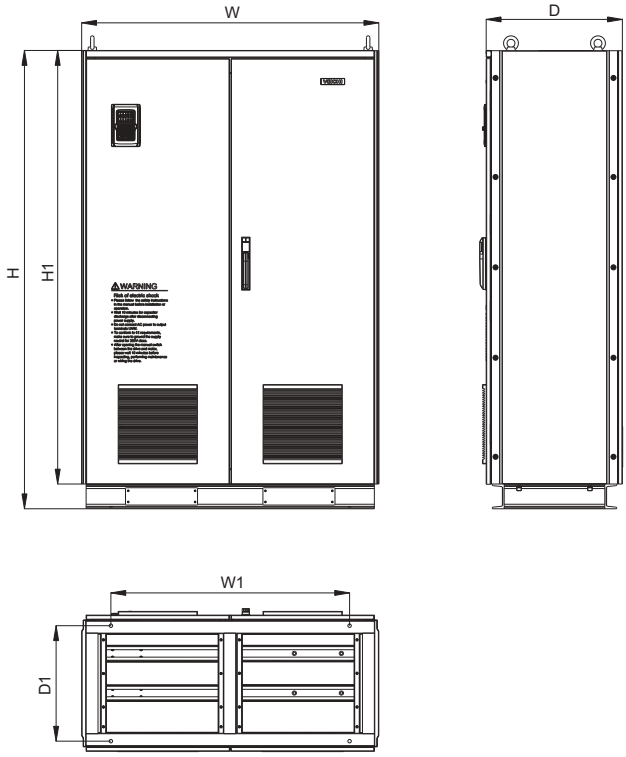
Note: The DC reactor is not built



Cabinet mounting dimensions

Inverter model	Dimensions				Mounting holes		Mounting Hole
	W	H	D	H1	W1	D1	
AC80C-T3-160GD	650	1600	400	1500	492	332	Φ14
AC80C-T3-185GD							
AC80C-T3-200GD							
AC80C-T3-220GD	750	1700	400	1600	582	332	Φ14
AC80C-T3-250GD							
AC80C-T3-280GD							
AC80C-T3-315GD	850	1800	450	1700	622	382	Φ14
AC80C-T3-355GD							
AC80C-T3-400GD							

NOTE: Built-in DC reactor

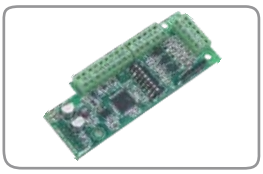


Inverter model	Dimensions				Mounting holes		Mounting Hole
	W	H	D	H1	W1	D1	
AC80C-T3-450G	1200	1850	550	1750	960	466	Φ14
AC80C-T3-500G							
AC80C-T3-560G							

Options

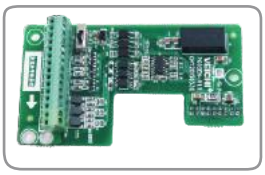
PG01-ABZ-05-C1

When AC80C is used as the PG control feedback expansion card for closed-loop vector or closed-loop V/F control. When PG feedback sensor is photoelectric encoder, select the card as PG feedback. Provide external DC12 / 5V encoder power supply, A, B, Z phase 3 differential inputs, compatible with 3-way open collector input and 3-way push-pull input signals, while supporting arbitrarily assigned output, the output signal is differential push-pull 3-way open collector output.



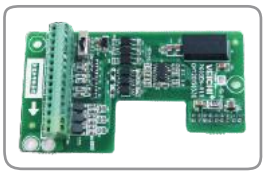
EX-PG02EN-A1.0

When arranged on AC80C,it is used to supplement the first PG card. When PG feedback sensor is photoelectric encoder, select the card as PG feedback. Provide external DC12 / 5V encoder power supply, A, B, Z phase 3 differential inputs, compatible with 3-way open collector input and 3-way push-pull input signals. Extended 3 X terminals, X8X9X10, provide external 24V power supply.



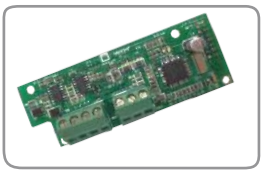
EX-PG03-A1.0

When mounted on the left of AC80C control panel for peeling machine woodworking project.When PG feedback sensor is photoelectric encoder, select the card as PG feedback. Provide external DC 12 / 5V encoder power supply, A, B, Z phase 3 differential inputs, compatible with 3-way open collector input and 3-way push-pull input signals. Extended an X8 terminal, two Y terminals Y2Y3.Provide external 24V power supply.



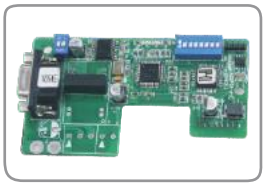
Resolver PG card

Resolver output signal is two-phase quadrature analog signal. And the amplitude would do cosine change as angle changes while the frequency and excitation frequency are consistent. When PG feeds transformer, select the card to do PG feedback. External encoder provides excitation source output, cos and sin signals input.



Profibus card

Profibus-DP field bus is famous for its high-speed, low cost and other advantages, which is widely used in manufacturing automation,process automation and industrial building automation and other industries, of which the physical layer data transmission depends on RS-485 interface. Profibus-DP bus signal can also use shielded twisted-pair transmission, data transmission rate 9.6kbps at a distance of 1200 meters, the baud rate is theoretically 12mbps at a distance of 100 meters. Profibus-DP expansion card. When AC80C is used as the expansion card of Profibus-DP communication, after installation of the card, AC80C series inverters can be connected to any Profibus-DP network.



Canopen card

1.Supports the heartbeat protocol, the master station can use this function to query the device status.

2.Send and receive PDO have two channels, supports synchronous transmit PDO transmission type.

3.SDO supports only delivery mechanism, up to 4 bytes transmission.

4.TPDO, RPDO and other communications objects SDO COB-ID is associated with the device ID, and it is set within the software, so there's no need to modify when using.

5.Emergency objects are not supported, other electrical parameters CANopen communications are in line with international standards.

AC80C LCD keyboard

AC80C Series use LCD keypad.
Supporting Chinese and English bilingual display and parameter copy function, you can upload and download parameters via the keyboard.

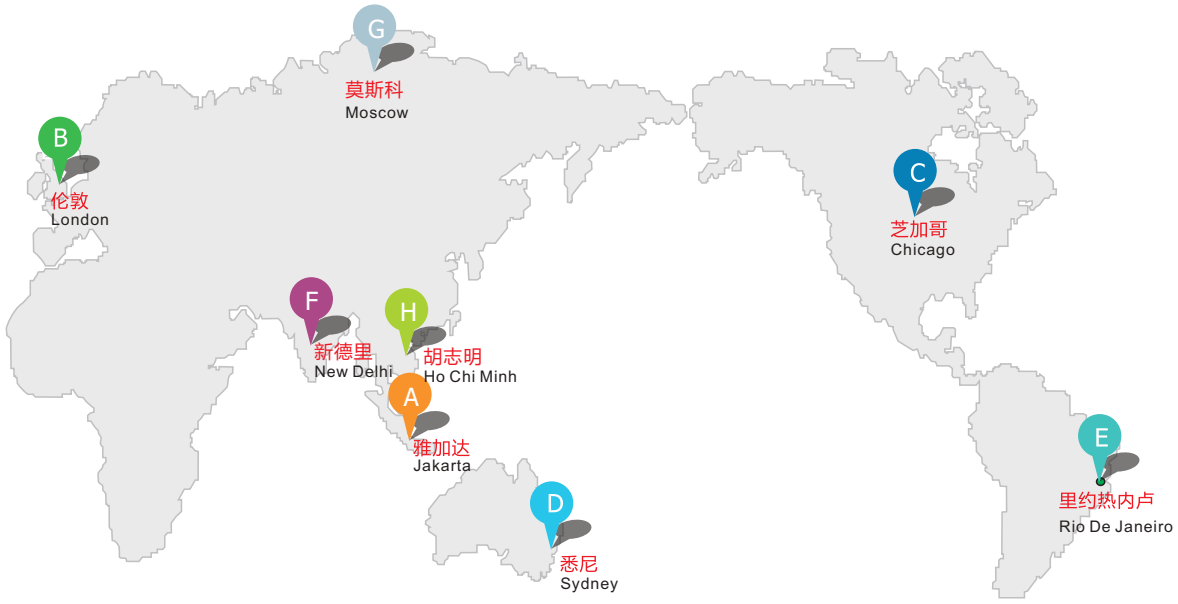
Keyboard extension cable

2,3,5,10,15,20-meter extension cable for connecting the keyboard and inverter control board quality inspection.

Domestic marketing services network

Veichi Electric was established in 2005 and it is headquartered in Shenzhen. On October 2013 Suzhou Veichi Electric Equipment Technology Co., Ltd was established in Suzhou, which formed two major production bases. Sales and service network spread throughout the country with more than 40 overseas offices and service centers to ensure timely response to customer demand.

International marketing services network



VEICHI

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