AC Series General Purpose Frequency Inverter
Shenzhen Veichi Electric Co., Ltd. is a high-tech enterprise which 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 branch 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.
Accumulation
AC series inverter was developed in 2005, after ten years of development, more than 100 inverters have been applied to site applications and been updated for four generations. Nowadays, stable and reliable performance and easy-using functions have become the critical features of VEICHI AC series products.

Drive Innovation
Drive for ever. VEICHI not only dedicates to improve products’ reliability and functionality but also to strengthen the usability and specialized design. With excellent control performance, reliable protective functions, rich interface resources and strong extension capability, AC series products have won clients’ recognition. Series inverter will start a new journey with its new appearance, heading for a new round of development channel.

Product Development Process

- 2005: AC32 series came out
- 2006: AC60 series was approval
- 2007: AC60 series was launched
- 2008: AC61/62/63 series was launched
- 2009: AC20 mini type was launched
- 2010: AC80 series was launched
- 2011: AC60E series was designed
- 2012: AC90 tension purpose inverter was launched
- 2013: AC70 series was launched
- 2014: AC70E mini type was launched
- 2015: AC80C series was designed
- 2016: AC200 series was launched
AC70 Series—General Purpose

Product Features
1. AC70 series products are easy in installing, debugging and maintaining and are widely used.
2. High reliability and environmental adaptability.
3. Good applicability to power grid and wide voltage input range, functions of supporting AVR and grid instantaneous stop non-stop.
4. Complete protective functions, higher hardware configuration and easy adaptability to various working conditions.
5. Anti-metallic dust design and independent duct design. PCB three anti-paint treatment.

AC70E Series—Mini Type

Product Features
1. Mini frequency inverter with high stability and reliability.
2. Customized design for small power motor.
3. Installation space is greatly saved by its mini volume.
5. Higher reliable and stable design requirements.

AC200 Series—Synchronous/Asynchronous Drive

Product Features
1. By using high performance vector control algorithm, the system has achieved synchronous asynchronous drive integration and comprehensive open loop and closed loop, featuring high speed precision, fast response and large torque at low frequency.
2. The unique synchronous motor control algorithm can detect the pole position and motor speed without encoder, realizing high-precision control.
3. Excellent impact load response capacity, fast torque response to the rapid load change, high precision in speed control and excellent limiting capacity.
4. The over-excitation function can help to achieve fast brake without external braking resistor, suitable for situations needing no frequent but fast brake.
5. Modular design requests for software and hardware have strong expansion capabilities that can be easily debugging on applications, supporting on-site firmware upgrades.
## General Specifications

### Power Section

<table>
<thead>
<tr>
<th></th>
<th>AC70 Series</th>
<th>AC70E Series</th>
<th>AC200 Series</th>
</tr>
</thead>
<tbody>
<tr>
<td>Single phase 220V 50/60Hz</td>
<td>0.75-15KW</td>
<td>0.75-2.2KW</td>
<td>0.75-220KW</td>
</tr>
<tr>
<td>Three phase 220V 50/60Hz</td>
<td>0.75-15KW</td>
<td>——</td>
<td>0.75-220KW</td>
</tr>
<tr>
<td>Three phase 380V 50/60Hz</td>
<td>0.75-710KW</td>
<td>0.75-4.0KW</td>
<td>0.75-710KW</td>
</tr>
</tbody>
</table>

### Input

- Allowing voltage fluctuations: Voltage ±15%; Voltage unbalance rate < 10V;
- Allowing frequency fluctuations: Frequency ±5%
- Distortion rate: IEC61800-2

### Output

- Output voltage: 0~input voltage, Error is less than 5%
- Output voltage range: 0~320Hz, 0~600Hz
- Overload capacity: 150% of rated current for 1min; 180% of rated current for 10s; 200% of rated current for 0.5s

### Main Control Performance

<table>
<thead>
<tr>
<th>Control mode/ starting torque</th>
<th>V/F control without PG</th>
<th>V/F control with PG</th>
<th>AM vector control without PG</th>
<th>AM vector control with PG</th>
<th>PM vector control without PG</th>
<th>PM vector control with PG</th>
<th>Voltage frequency departure output</th>
</tr>
</thead>
<tbody>
<tr>
<td>Speed mode</td>
<td>Vector control without PG, rated load capacity 1:100</td>
<td>Vector control without PG (asynchronization), rated load capacity 1:100</td>
<td>Vector control without PG, rated load capacity 1:100</td>
<td>Vector control with PG (asynchronization), rated load capacity 1:100</td>
<td>Vector control without PG, rated load capacity 1:100</td>
<td>Vector control with PG, rated load capacity 1:100</td>
<td>Vector control without PG, rated load capacity 1:100</td>
</tr>
<tr>
<td>Torque mode</td>
<td>Torque control accuracy</td>
<td>——</td>
<td>——</td>
<td>——</td>
<td>——</td>
<td>——</td>
<td>Vector control without PG, rated load capacity 1:100</td>
</tr>
</tbody>
</table>

### Torque mode

- Vector control without PG: ≤10%
- Vector control with PG: ≤5.0%

### Accuracy in stable speed

- Vector control without PG: ≤1%
- Vector control with PG: ≤0.5% of rated synchronous speed

### Torque response

- Vector control without PG: < 20ms
- 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%

### Carrier frequency

- 0.7~15.0kHz
- 0.7~16.0kHz

### Control Circuit Terminal

<table>
<thead>
<tr>
<th>Input Current mode</th>
<th>1 way DC 10V/50mA</th>
<th>1 way DC 24V/100mA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Voltage mode</td>
<td>2 way VS/DC 0-10V</td>
<td>1 way VS: DC 0-10V</td>
</tr>
<tr>
<td>Voltage/current mode</td>
<td>——</td>
<td>1 way AI/DC 0-10V/0-20mA</td>
</tr>
<tr>
<td>Digital quantity</td>
<td>6 way X terminal</td>
<td>DC 30V/80mA</td>
</tr>
<tr>
<td>Pulse quantity</td>
<td>1 way PUL: 0-50.00kHz</td>
<td>——</td>
</tr>
<tr>
<td></td>
<td>——</td>
<td>1 way PUL: 0-50.00kHz</td>
</tr>
</tbody>
</table>

| Output Analog quantity              | AO1: DC 0-10V/0-20mA/4-20mA | AO1: DC 0-10V/0-20mA/4-20mA |
|                                    | AO2: DC 0-10V/0-20mA/4-20mA | AO2: DC 0-10V/0-20mA/4-20mA |

| Digital quantity                   | 2 way Y terminal: DC 30V/50mA | 1 way Y terminal: DC 30V/50mA |
|                                    | 1 way Y terminal: DC 30V/50mA |
| Relay type                          | 1 open close: 3A/240VAC/5A/30VDC | 1 open close: 3A/240VAC/5A/30VDC |
|                                    | 2 open close: 3A/240VAC/5A/30VDC |

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AC70 Series - General Purpose

Product Overview

AC70 general purpose vector control inverter is a high performance inverter developed by VEICHI. The leading flux algorithm and modular design are adopted to realize high performance and high precision motor drive control, which can meet the needs of different situations. In addition to the general applications, AC70 is especially suitable for industries like air blower, water pump and air compressor.

Product Frequency Range

<table>
<thead>
<tr>
<th>Voltage</th>
<th>Phase</th>
<th>Power Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>220V</td>
<td>single</td>
<td>0.75 – 15KW</td>
</tr>
<tr>
<td></td>
<td>three</td>
<td>0.75 – 15KW</td>
</tr>
<tr>
<td>380V</td>
<td>three</td>
<td>0.75 – 710KW</td>
</tr>
</tbody>
</table>

Product Features

Two Drive Control Modes

© V/F control

The control mode is used in all variable speed control that does not require fast response speed and high-precision control and in situations where one inverter connecting multiple motors; and the mode can be used when the motor parameters are not clear or can not use the self-study.

© Vector control without PG

This mode is used in all variable speed control, when the high-accuracy speed control is needed, please set to this mode, which has rapid torque response, and a large torque can be obtained in low speed running.

Rich Self-study Function

<table>
<thead>
<tr>
<th>Self-study Mode</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Static self-study</td>
<td>The mode is most suitable when motor and load can not be disengaged, when motor and gear box is connected to make accurate electrical parameters after self-study, thereby obtaining a high starting torque, high-speed, and high-precision control.</td>
</tr>
<tr>
<td>Rotating self-study and static self-study</td>
<td>This mode is most suitable when motor and load can be disengaged or no-load running situation. So the mechanical equipment can obtain high starting torque, high-speed, and high-precision control.</td>
</tr>
</tbody>
</table>
Speed Tracking Mode

In light load one inverter can drive several motors to start tracking and to optimize the hardware and software tracking function, in which case the speed tracking precision and reliability are much higher.

Professional instantaneous stop without power off algorithm to deal with interference electricity of power grid

In a lighter load or high inertia loads instantaneous power compensation can be implemented.

- Eliminating the need for UPS (uninterruptible power supply), and other special equipment. When low voltage is detected, automatic instantaneous power compensation can be implemented.
- Search free-running state speed, easily re-start to improve the reliability of the whole system.

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.

Random Carrier Function

Random carrier function can effectively reduce motor noise and suppress Inverter interference on external devices.

Oscillation Suppression

When the motor can not run properly with significant oscillations, turn on this feature, the oscillation suppressing effect would be significantly improved.
Multiple V/F Curves Settings

- Five curve settings:
  - Constant torque curve for ordinary constant torque load;
  - Customized torque curve for water extractor, centrifuge load;
  - Square torque curve for blower and water pump load;
- Adjustable five points for curve:
  - The most suitable curve can be set according to the torque characteristic of the equipment;
  - Achieving better energy-saving effect if matching with the best excitation control.

Standard Swing Frequency Function

- The main purpose is to avoid wobble when winding and reduce static electricity.
- The thread is better than the thread produced by equipment without this feature, which improves the quality and production efficiency of the product.

Multiple PID Controls

PID control is divided into ordinary PID and closed-loop pressure special PID with a broader scope and more specific feature.
**Energy Saving**

- A new generation of energy-saving operation, the use of energy-saving inverter control can achieve high efficiency operation of induction motor.
- In operation, the drive automatically calculates the optimum output voltage and supplies it to the load in order to achieve the purpose of saving energy.

![Energy Saving Graph](image)

**Available DC Power Supply**

- DC power supply can be used directly, especially for the common DC bus program and EPS powersupply.
- Energy efficient, environmentally friendly and economic.

![Available DC Power Supply](image)

**Environmental Resistance Design**

- Three anti-treatment: anti-moisture, anti-salt and anti-fungal.
- Protection class: Protection class is IP20, higher protection class products can be customized.
- Moisture resistant, dust resistant, vibration-resistant and environmental-friendly products.

![Environmental Resistance Design](image)

**Communication Method**

- Standard RS485 communication, support PROFIBUS-DP communication protocol.
- Convenient for the achievement of PC and PLC connection to realize remote monitoring.

![Communication Method](image)

**Mounting Mode**

- Full range of DC fan, easy to replace, longer life span. Available for penetrating installation, strong adaptability.
- Cabinet machine adopts up and down design with standard chokes mounted on the base so that the cooling is better, improving the life of the machine, at the same time the wiring is more beautiful.

![Mounting Mode](image)
Application Areas

Fans and Pumps
- Low impact to power grid, good energy-saving effect and long service time.
- It achieves stepless speed regulation of motor and the continuous stable speed change will reduce mechanical vibration and noise.
- Built-in pressure closed-loop PID can ensure stable pipe pressure.
- The system is with high stability and strong reliability.

Wood Working Machinery
- High speed stability, smooth speed acceleration and deceleration.
- Unique control algorithm and fast brake without braking resistor.

Textile Machinery
- Smooth start, good speed acceleration and deceleration and low impact.
- Multi-channel frequency given channel, standard swing function and higher speed stability accuracy.
- Improve production efficiency and promise product quality.
- Widely used in textile machinery such as sizing machine, glue machine, photographic weft machine, embroidery machine and roving machine.

Glass Machinery
- Stable system and low fault rate.
- Smooth transmission and easy operation.
- Soft start which can avoid electrical and mechanical shocks to ensure the service life.

Compressor / Air compressor
- Various combinations of the double channel frequency given, ensuring convenient system function.
- Built-in advanced PID algorithm, fast response, high constant pressure precision.
- Meet the system requirements of starting and operating in heavy load situation.
- Overall protection from the frequency inverter, motor to the outer equipment.

Industrial Washing Machine
- Large starting torque as the clothes have absorbed water.
- The powerful torque and slip compensation of AC70 ensures the stability of washing process.
- Small speed fluctuation during the eccentric status.
- Strong environmental adaptability and stable running in severe environment such as high humidity and high temperature.
AC70E Series
- Mini Type

Product Overview
AC70E series inverter is a new generation of high-performance general-purpose inverter; the product has advanced control method to achieve high torque, high accuracy, high reliability and wide speed drive. Products built-in PLC, PID adjustment, programmable input and output terminals, RS485 interfaces, analog input and output, and other rich control functions. These functions provide highly integrated solutions for engineering and special industry automation applications.

Product Frequency Range
220V
- single phase: 0.75 ~ 15KW
- Three phase: 0.75 ~ 15KW

Product Features
Superior Design Concept
Advanced control algorithms
Vector control without PG (SVC), V/F control mode and improved PWM output.

Protection class is IP20, higher protection class products can be customized. Moisture resistant, dust resistant, vibration-resistant reinforced products.

Optimized Structural Design
Adopt leading modular design concept, compact structural layout and professional thermal simulation design. Compared with other series of the same power mode, mini types greatly save the installation space.

Humanization design
Wide voltage input range, ensuring that products meet the needs of the user site.

Convenient operation
Out access is standard, potentiometer keyboard, plug and play, supporting parameter copy. Complete fault protection, fault history query support, rapid positioning.

Rich features
Multi speed and simple PLC, PID. Wide voltage input range, ensuring that products meet the needs of the user site.

Structure Comparison Diagram
Area reduced by 43% and volume reduction of 50%.

Environmental resistance design
Three anti-treatment: PCB three anti-paint treatment: anti-moisture, anti-salt, anti-fungal.
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.

Outputting large current at 2Hz, the motor does not stall

Advanced Thermal Simulation

It adopts advanced and accurate thermal simulation software to ensure the thermal reliability of the whole machine. When designed AC70, the technical team considered various application areas. After rigorous thermal simulation tests, they reduced the overall volume while ensuring the small temperature rise.

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.

Random Carrier Function

Random carrier function can effectively reduce motor noise and suppress Inverter interference on external devices.

Speed Tracking Mode

In light load one inverter can drive several motors to start tracking and to optimize the hardware and software tracking function, in which case the speed tracking precision and reliability are much higher.
Updated EMC Design
The unique and convenient grounding design will effectively weaken electromagnetic interference.

Abundant Application Functions
The rich software functions will satisfy customer’s specific industry needs.

<table>
<thead>
<tr>
<th>Function</th>
<th>Effect</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acceleration and deceleration curve</td>
<td>Two kinds of acceleration and deceleration modes, four kinds of acceleration and deceleration times, time unit 0.1S, the longest 6500.0s.</td>
</tr>
<tr>
<td>Instantaneous power off non-stop</td>
<td>Deal with the phenomenon of instant grid voltage drop, this function can keep the equipment running continuously without shutdown in the effective time and ensure the continuity of equipment operation.</td>
</tr>
<tr>
<td>Simple PLC</td>
<td>The frequency inverter can automatically switch the running direction and frequency according to the time set by the simple PLC to meet the requirements of the field process.</td>
</tr>
<tr>
<td>Virtual I / O</td>
<td>Can be simulated by the internal virtual terminal, actually the X / Y terminal, wiring eliminates the actual terminal wiring; Save the actual number of terminals, reduce the external wiring.</td>
</tr>
<tr>
<td>Power off and restart</td>
<td>After the power is restored, frequency inverter can automatically start according to the set time.</td>
</tr>
<tr>
<td>Speed tracking</td>
<td>Software speed tracking can detect the motor speed from the current, and then output automatically according to the set value.</td>
</tr>
</tbody>
</table>

Comprehensive Hardware Protection
Has functions of output to ground short-circuit protection, internal buffer relay protection, fan drive circuit protection, external 24VDC DC short circuit protection and motor overload protection that can achieve overall protection from the frequency inverter inner parts to the external equipment.

Excellent Energy Saving Function
With the new generation of energy-saving control technology, the induction motor can be operated efficiently; The excitation current can be reduced on the load current; the energy saving situations can be adjusted on its loading capacity. Maximize the motor efficiency; Reduce motor loss and energy loss.

Rich software protections
The frequency converter fault protection times will be reduced by advanced drive algorithm and precise control on output voltage and current.

Over voltage suppression
During the deceleration process, by adjusting output frequency, it can avoid over voltage of frequency inverter caused by fast acceleration.

Over current suppression
During the acceleration process, by adjusting the output frequency, it can avoid over current of frequency inverter caused by over fast acceleration.
Application Areas

Domestic Fans and Pumps
- Good energy saving effect and long service life.
- The motor speed can be continuously and steadily changed with smaller mechanical vibration and lower noise.
- Built-in pressure closed-loop PID can ensure stable pipe pressure.
- High stability, strong reliability and complete protect functions.

Food Machinery
- Increase efficiency and reduce cost.
- Wide speed change range and strong anti-overload capability.
- Achieve software control.

Packing Machinery
- High stable speed accuracy and fast response performance.
- Small volume, low noise and rich functions.

Automated Assembly Line
- Powerful communication function to facilitate centralized control.
- Strong resistance to current shock.
AC200 Series Synchronous/Asynchronous Drive

Product Overview

AC200 is the latest high performance vector frequency inverter developed by VEIHCI. As adopting the leading field oriented vector control technology, the inverter has compatible functions of synchronous and asynchronous motor control, supporting three control modes on speed, torque and position. When improving the products' reliability and functions, we also strengthen the usability and specialized industry design. AC200 will win client's recognitions by its excellent control performance, reliable protective functions, rich port resources and strong expansion capacity.

Product Frequency Range

<table>
<thead>
<tr>
<th>Voltage</th>
<th>Single Phase</th>
<th>Three Phase</th>
</tr>
</thead>
<tbody>
<tr>
<td>220V</td>
<td>0.75~15KW</td>
<td>0.75~15KW</td>
</tr>
<tr>
<td>380V</td>
<td>0.75~710KW</td>
<td></td>
</tr>
</tbody>
</table>

Product 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.

Performance Optimization

High stable speed accuracy
Stable speed accuracy: ±0.5% (SVC), ±0.02% (FVC)

Wide range of speed control
Speed control range: 1:200 (SVC), 1:1000 (FVC)

Fast response
Vector control without sensor, torque response < 20ms.
Vector control with sensor, torque control response < 5ms.

Large starting torque
Vector control without sensor: 150% of rated torque at 0.5Hz.
Vector control with sensor: 180% of rated torque at 0Hz.
Support Multiple Motor/Load Types

(1) It can drive all kinds of motors: ordinary asynchronous motor, frequency conversion motor, AC servo motor, various synchronous motor, high speed motor and electric spindle.

(2) Realize operation under V/F complete separation and semi separation, and meet power supply requirements of variable frequency and variable voltage.

Support Multiple Control Modes

Asynchronous motor control mode: V/F control
High performance vector control with speed sensor;
High performance vector control without speed sensor;
Synchronous motor control mode: high performance vector control with speed sensor;
High performance vector control without speed sensor;
Other control mode: voltage frequency separation output

<table>
<thead>
<tr>
<th>Control mode</th>
<th>Speed control</th>
<th>Torque control</th>
<th>Position control</th>
<th>Suitable motor</th>
</tr>
</thead>
<tbody>
<tr>
<td>V/F</td>
<td>v</td>
<td>x</td>
<td>x</td>
<td>Asynchronous motor</td>
</tr>
<tr>
<td>High performance vector without PG</td>
<td>v</td>
<td>v</td>
<td>x</td>
<td>Asynchronous permanent magnet motor</td>
</tr>
<tr>
<td>High performance vector with PG</td>
<td>v</td>
<td>v</td>
<td>v</td>
<td>Asynchronous permanent magnet motor</td>
</tr>
</tbody>
</table>

Standard Self-study Functions of Motor Parameters

It can accurately carry out the rotation or static motor parameters from self-study with easy debugging and simple operation, providing higher control accuracy and speed response.

- Rotating auto tuning
- Static self-study

Under this mode, the motor and load must be disengaged, it’s suitable for high requirement situations for control accuracy.

Unique functions of AC200 that can achieve the same effect of rotating self-study when the motor is in static condition.

Large Starting Torque

Under the closed-loop vector mode, the torque linearity deviation is within 3%. The stable torque output and large torque at low frequency will output 200% of rated torque at 0.0Hz. Even in ultra low speed at 0.01Hz, the system can be stable with load operation.

High Speed Output Under Vector Control

Under vector control mode, the maximum frequency output can reach 600Hz and achieve high speed and high precision output within 10 times of the weak magnetic range.

Strong Overload Capacity

Adopt load curve standard integrating with G type and P type.
G type: 150% of rated current for 60s in 300s cycle period;
P type: 130% of rated current for 60s in 300s cycle period;

Current of frequency control products

![Graph showing current and torque pulsation]

Given torque (%)
Torque pulsation (5Hz)
Torque pulsation (10Hz)
Torque pulsation (20Hz)
Torque pulsation (30Hz)
Torque pulsation (40Hz)
Torque pulsation (50Hz)

Rotation of motor and load must be disengaged, it’s suitable for high requirement situations for control accuracy.

Current of frequency control products

![Graph showing current and torque pulsation]

Given torque (%)
Torque pulsation (5Hz)
Torque pulsation (10Hz)
Torque pulsation (20Hz)
Torque pulsation (30Hz)
Torque pulsation (40Hz)
Torque pulsation (50Hz)

Under vector control mode, the maximum frequency output can reach 600Hz under vector control.

- Other series: the maximum frequency output can reach 320/400Hz under vector control.
- AC200 series: the maximum frequency output can reach 600Hz under vector control.
Zero Impact Speed Tracking Start
A new generation of speed tracking start, which can achieve start with zero wait time and zero impact current.

Non-Stop Function During Instantaneous Power Failure
This function means that the frequency inverter will not stop when there is instant voltage sag. In the case of instantaneous power failure or sudden voltage sag, the frequency inverter can maintain itself run continuously within a short time as it can compensate the voltage reduction through the load feedback energy within the effective time.

Faster and More Stable Tracking Effect
AC200 software processing time is up to 0.1s.

Torque Limit and Speed Limit for Protecting Machines
AC200 will provide torque limit and speed limit protections. When the given torque or given speed exceeds the machine’s maximum torque range, the inverter will output torque or frequency as the maximum value to protect equipment safety on premise of excavating machine’s maximum efficiency.

Excellent Current Suppression and Bus Voltage Suppression
Current suppression function can avoid frequency inverter from frequent over-current alarm. When the current exceeds the current protection point, the over-current suppression function can continuously limit the current within the current protection point, thus protecting the safety of the equipment and avoiding over-current alarm caused by sudden load or interference.

Built-in Multi-group PID Function Module
Built-in two sets of PID parameter group; automatically switch according to the deviation, DI terminal conditions; Various given and feedback source selection, rich types, practical; PID feedback disconnection detection function, user-friendly fault diagnosis; PID control suspend detection function, user-friendly real-time monitoring; PID factory parameters preset, meeting the operating requirements of specific equipments; Adapted to the fan pumps, wire drawing machine, cable and other occasions of changeable diameters; Simplified the debugging process to facilitate equipment maintenance.

Various Braking Methods and Fast Stop
<table>
<thead>
<tr>
<th>Energy consumption brake</th>
<th>DC brake</th>
</tr>
</thead>
<tbody>
<tr>
<td>Large braking torque, fast braking speed</td>
<td>Brake unit and braking resistor are not required</td>
</tr>
<tr>
<td>It is applicable for large inertia load frequent braking occasions</td>
<td>occasions that motor needs to brake firstly and then restart for free running, and applicable for the occasions which need to maintain torque output at zero speed.</td>
</tr>
<tr>
<td>The brake unit and the braking resistor must be configured</td>
<td>Not suitable for large inertia load frequent or fast braking; not applicable for braking when motor is running at high speed.</td>
</tr>
</tbody>
</table>
Rich Application Functionality

<table>
<thead>
<tr>
<th>Function</th>
<th>Effect</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pressure frequency separation</td>
<td>Output voltage and output frequency can be independently set and adjusted, generally used for EPS power supply, torque motor control, high frequency heating and other industries.</td>
</tr>
<tr>
<td>Current limiting</td>
<td>Through the hardware protection, it can limit the current rise to a certain extent, ensuring the normal operation of equipment, avoiding over-current fault and shutdown what affects production.</td>
</tr>
<tr>
<td>Switch delay</td>
<td>It provides more flexible control modes, suitable for various on-site controls.</td>
</tr>
<tr>
<td>Analog deviation value</td>
<td>Start the instantaneous detection to motor speed and direction. In the condition that motor is running with large inertia load, it ensures the motor starts at the current speed.</td>
</tr>
<tr>
<td>Speed tracking</td>
<td>Start the instantaneous detection to motor speed and direction. In the condition that motor is running with large inertia load, it ensures the motor starts at the current speed.</td>
</tr>
<tr>
<td>Instantaneous power failure non-stop</td>
<td>Frequency inverter can automatically switch the running direction and frequency according to the time set by the simple PLC, so as to meet the on-site process requirements.</td>
</tr>
<tr>
<td>Simple PLC</td>
<td>Frequency inverter can automatically switch the running direction and frequency according to the time set by the simple PLC, so as to meet the on-site process requirements.</td>
</tr>
<tr>
<td>Virtual I/O</td>
<td>The actual X / Y terminal wiring can be simulated by the internal virtual terminal, eliminating the actual terminal wiring, saving the actual number of terminals as well as reducing the external wiring.</td>
</tr>
</tbody>
</table>

Flexible and Practical Function Terminals

Terminal type: 7 groups of input terminals, 3 output terminals, 3 analog inputs, 2 analog outputs, 1 pulse input.

Terminal function selection: 63 kinds of input terminal, 31 kinds of output terminal, 18 kinds of analog output.

Analog input terminals can be set up to three kinds of curves, two sets of inflection point corresponding relationships; AI terminal also supports voltage or current analog input.

Analog output terminals: supports both voltage and current analog outputs, AO2 terminals support up to 100KHz pulse output.

Note: Input terminal X7 supports digital input or pulse input.

Communication Function

Support for fieldbus expansion, and can support the PROFIBUS protocol through the optional DP card.

Provide a variety of communication interfaces, and can achieve RS485, DP, CAN and CanOpen communication.

Expandable relay output, analog input and RS485 communication.

VEICHI IOT

Intelligent terminal, high positioning accuracy, small and beautiful, easy to install;
Using GPRS and GSM dual-mode communication, stable operation, and reliable performance;
Through the remote monitoring module, it can achieve online-monitoring and remote fault diagnosis, providing customers with more value-added services.

Advantages of VEICHI IOT System

1. Anti-dismantle and capable of preventing mistaken lock.
2. Prevent overdue bills.
3. Double positioning.
4. Warm reminder.

Powerful Background Software

Support parameter operation and virtual oscilloscope function of frequency inverter (can realize the graphics monitoring of frequency inverter inner status.)
Special Frequency Inverter Series

Main applications:
- CNC lathes, machining centers, gantry milling, deep hole drilling, CNC boring machine.
- CNC lathes, CNC boring machine, CNC vertical lathe, machining centers, gantry milling and other CNC equipment, spindle motor drive.
- Straight wire drawing machine, single frequency drawing machine, double frequency drawing machine and other types of wire and cable equipment.
- All kinds of drawing, cable equipment, cutting equipment, plastic sheet printing, film molding, leather production, textile industry and etc.
- All kinds of textile, spinning, printing and dyeing.
- All kinds of punching machine, die-casting equipment, injection molding machines.
Special VFD for Machine Tool

Product overview
It is the latest high performance machine tool purpose vector control frequency inverter, adopting industry-leading magnetic flux algorithm and modular design to achieve high-performance and high-precision motor drive control. Combining with machine tool industry characteristics and high reliability, it can meet the processing demands of different products.

Product Features
- Machine tool motor dedicated macro parameters, simplified parameter settings.
- Large torque output at low frequency, fast torque dynamic response speed.
- Carrier smoothing function, effectively reducing motor noise.
- High seismic design, suitable for machine body vibration.
- Sealed design, thick three anti-paint treatment, easy to deal with a variety of harsh environments.

Load Strain Capacity
- Automatic current limit technology and automatic frequency adjusting technology can response to sudden load changes.
- Avoid frequent drive from fault reports, ensure its fast response characteristics and high producing efficiency.

Noise Control
Compared to sharp motor noise of fixed carrier, the output voltage harmonics spectrum of random carrier is evenly distributed over a wide frequency range, effectively reducing motor noise.

Large Torque at Low Frequency
- In low frequency and weak magnetic field, torque performance is optimized.
- It has linear torque feature in the whole speed range.
- Torque dynamic response time is less than 20ms.

Deceleration Over Excitation Function
According to the set deceleration over excitation current, the output current can be kept constant, which not only can quickly consume motor feedback energy to prevent over voltage of bus capacitor but also can produce large resistance torque to stop motor quickly and improve processing efficiency.

- If deceleration over excitation is off, output current is small and deceleration time is long.
- If deceleration over excitation is on, output current increases and deceleration time shortens.
AC200-CS Series Special VFD for Spindle Positioning

Product Description

AC200-CS spindle servo system is a high-end product specially developed for the machine tool industry by Veichi Electric, adopting brand-new software and hardware platform. Through the closed-loop servo control to motor, it can achieve high precision motor speed control and position control. As it can meet a great variety of control needs to spindle, so it has wide applications in the machine tool industry.

Product Features

- Speed range: 1: 5000, excellent torque at low frequency.
- Steady speed accuracy ± 1rpm, position accuracy ± 1puls.
- Can achieve spindle division, rigid tapping, thread cutting and other specific machine tool functions.

Adaptable Motor

Spindle servo motor, electric spindle, ordinary three-phase asynchronous motor.

Strong Rigidity at Low Frequency

At 0.5Hz, it can output 180% of the rated torque, ensuring that the machine tool has high reliability and stability during manufacturing workpiece at low speed. In the zero servo state and the condition of rated load, the fastest response can be completed within 50ms and it can also ensure that the spindle is always in the stopped state.

Speed, Position Response Promotion

Combined voltage and current suppression with dynamic braking, AC200-CS spindle drive enables the machine tool driving unit (spindle) achieve fast and steady acceleration and deceleration so as to improve the production efficiency. In the position mode, the loop adjustment cycle has been greatly improved, which ensures that the spindle can quickly make a position response, and quickly complete the positioning control.

Spindle Special Function

<table>
<thead>
<tr>
<th>Function</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Speed control</td>
<td>0~12000RPM</td>
</tr>
<tr>
<td>Spindle indexing</td>
<td>Can achieve multi-position control via terminal or external pulse (up to 8 points for terminal)</td>
</tr>
<tr>
<td>Rigid tapping</td>
<td>Cooperate with feed shaft to achieve rigid tapping function, the error is 2%</td>
</tr>
<tr>
<td>Other functions</td>
<td>Thread cutting, electronic gear, position and etc.</td>
</tr>
</tbody>
</table>
Special VFD for Wire Drawing Machine

Product Description
High-performance wire drawing machine frequency inverter is specially designed for wire drawing machine combined many years of experiences. It can achieve high precision speed control and torque control of the motor to meet the operation and control requirements of frequency inverter in wire drawing industry. With its excellent performance, this product has won the recognition and praise from the wire and cable enterprise and wire production enterprises.

Product Features
- Ultra low-frequency torque, fast dynamic response characteristics, ultra-stable speed accuracy.
- Unique tension control algorithm, fast response to tension and instantly achieve stable state.
- Resistance to metal powder, independent duct technology.
- PCBs are all coated with thickened anti-paint treatment.
- High seismic design, easy to deal with cabinet vibration of drawing machine.
- All the tension algorithms are integrated into the frequency inverter; meanwhile, the drawing machine features are integrated into the frequency inverter. Without external control circuit, it can achieve all the complex control of drawing machine, greatly simplifying the original equipment control circuit.
- Tension control is completed by variable frequency, featuring high precision and stable performance. The frequency inverter integrates various special parameters of wire drawing machine, directly calls the corresponding system parameters that users do not need to set parameters one by one.

Special Design According to Wire Drawing Machine Characteristics

Easy Parameter Setting
As the frequency inverter has built-in multiple sets of wire drawing machine parameters, it can be directly set as water tank drawing machine host or slave that users do not need to set the parameters one by one. The default parameters are in full compliance with the equipment requirements, and users can debug it simply and quickly.

Adopting Vector Control in Full Power Section, Perfect Current Control
Relying on years of technology accumulation, Veichi Electric has a very mature current vector control technology. In the low voltage, it can also start normally with load. The significance of vector is decoupling the stator current into the excitation current and torque current through the coordinate transformation, so that we can independently adjust the two components so as to easily adjust the load for enhancing the motor output effect at low frequency.

Stable Tension Control
Tension is calculated by the rolling diameter and tension PID; winding inverter calculates the rolling diameter in real time according to the feedforward signal and the current winding frequency, and corrects the speed ratio between the host and the slave through the rolling diameter so as to reduce the amount of PID adjustment and make the system more stable.

Complete Functions
The system has integrated all the functions of the wire drawing machine into the frequency inverter. Without the external controller or PLC, we can complete the control function.

- Simple system: the frequency inverter of simple circuit can achieve all the control requirements of wire drawing machine, no external controller required.
- Smooth start: start logic control and rolling diameter calculation function, ensuring that it can start smoothly at any rolling diameter.
- Stable control: four sets of PID parameters can ensure that the whole pendulum control effect is stable.
- Wire break detection: it can be set to determine automatically by software or external input disconnection signal flexibly, to ensure system stability.

Schematic Diagram of Wire Drawing Machine Winding and Unwinding

Wire & cable winding and unwinding is as shown in diagram (a), (b): generally it is composed of host, stretch film, tension balance bar, wire winding machine, traverse machine and etc.

Electronic Control Solution for Wire Drawing Machine Industry

System solution for dual frequency conversion wire drawing machine
System solution for no pendulum dual frequency conversion wire drawing machine
System solution for diameter wire drawing machine
System solution for dynamic pay-off stand
System solution for automatic pay-off drum
System solution for cantilever single strand
Product Description

AC200T special tension control frequency inverter keeps the constant tension through the output torque control and the automatic rolling diameter calculation. With no need of install tension sensor, without current position feedback or the external signal of tension, even without installing the rotary encoder which is used for speed feedback, AC200T can complete the tension control in most application cases. During the control of winding and unwinding, it can accurately provide tension, ensuring that the processed material thickness is uniform. It has string adaptability to rolling diameter of winding and unwinding. It starts smoothly and is capable of achieving tension control at both high speed and low speed. It adopts advanced torque identification algorithm, which can automatically compensate for the moment of inertia and static and sliding friction so as to fundamentally ensure consistent tension control during material processing. It adopts intelligent diameter identification which is of high accuracy and anti-disturbance ability.

Professional Treatment for Tension Control

When the torque is constant, the tension is inversely proportional to the rolling diameter; therefore, we need to change the torque according to the rolling diameter during winding and unwinding process, in order to maintain a certain tension value.

Rolling Diameter Calculation Method

During tension open-loop control, the calculation of rolling diameter is a very important part. Frequency inverter has 2 kinds of rolling diameter calculation methods.

**Line Speed Method**

\[ v = \kappa \times \omega \times r \]

AC200T tension control frequency inverter can obtain accurate winding diameter according to the line speed, own angular velocity, mechanical reduction ratio. In the formula, \( v \) represents the linear velocity of the drawing side, \( \omega \) represents the angular velocity of the motor rotation (calculated by the frequency converter), \( \kappa \) represents the mechanical reduction ratio, \( r \) (required for tension winding) represents the winding diameter.

**Thickness Integral Method**

The rolling diameter is accumulated according to the rotating circles of winding drum and material thickness, thereby obtaining the material roll diameter.

AC200T tension control frequency inverter accumulates the winding axis rotation cycles through the encoder, proximity switch and other components, thereby getting the winding diameter. No need to add external proximity switches and circle-counting devices.

Fast Response Under Low Torque

The green line represents the motor speed, 10V corresponds to 1500rpm. The yellow line represents the output torque, 10V corresponds to 200% of the rated torque.

**Smooth Operation**

Compared with AC90, AC200 has reduced the torque pulsation without PG card, capable of achieving more stable operation.

Automatic Roll Change

Tension control frequency inverter has rich automatic roll change function that it can achieve high-speed non-stop automatic roll change, greatly improving the production efficiency.

Friction Compensation

Special tension control frequency inverter is specially designed with compensation according to the dynamic and static friction of mechanical system, which can optimize the tension control effect and improve the tension system stability and response speed.

Taper Coefficient

Special tension control frequency inverter is specially designed for occasions which the tension decreases when the rolling diameter increases; by setting the taper coefficient, it can achieve the formation of winding so as to get better molding effect.

Electrical System Solution
Special VFD for Loom

Product Description

The spindle motor of traditional jet weaving industry adjusts the speed in the way of pulley replacement, and its starting is of triangular starlike mode. This control mode has many shortcomings such as low efficiency, high labor costs, maintenance difficulty, easy to damage and etc. After variable frequency transformation to spindle motor by VEICHI products, now you can achieve stepless speed regulation, and the frequency inverter has been added super-start function that the start response time can fully meet the high-precision requirements of this industry. The warp unwinding and cloth forming winding can be perfectly controlled. We can provide customers with customized jet weaving system solutions.

Product Features

High Performance
- V/F, high precision speed output without PG vector control, small torque pulsation.
- Provide rich interface resources, and 485, CAN bus communication.
- Special super-start function for jet weaving industry, start-up time up to 70ms.
- In the static load status, it can accurately identify all the parameters of motor.

Delicate Structure
- Divide according to customer needs: independent cabinet machine, penetrating-type installation for cabinet machine
- No fan design and radiator passivation design for jet weaving industry.
- One molding in seal strangulation for cabinet door, seamless connection.
- Protection degree IP54

Smooth Running
Suppress the vibration during the running process through the vibration suppression algorithm, in order to improve the anti-interference capability of system.

Achieved the stepless speed adjustment of loom, greatly improved the efficiency of the water jet loom, and solved the damage to the equipment during the mechanical belt replacement.

Rich Expansion Functionality

Profibus-DP card
VEICHI Profibus DP fieldbus is widely used for its high speed and low cost advantages in communication between device level control system and distributed I/O.

External Expansion PG Card Module
PG card is mainly used in vector-type frequency inverter for detecting and feedback motor speed and direction signal, so the motor speed and torque can be controlled precisely.

GPRS Wireless Module
Multi-machine remote communication controls the equipment operation status. Remote diagnostic service

Jet Weaving Electrical System Solutions
Special VFD for Die Casting Industry

Product Description
Forging industry purpose frequency inverter is a high performance vector control inverter which is specially developed according to the punching machine characteristics. This product adopts the latest generation of high-speed motor control dedicated DSP (TI's TMS320F28062) that its computing speed has been increased by 50% and the program capacity has been doubled. It adopts the international leading vector control algorithm to achieve high-performance and high-precision motor control.

While improving the product reliability and environmental adaptability, we also enhanced the ease of use and industry-specific design so that the product is more feature-rich with flexible applications and stable working performance. Meanwhile, it features richer interface sources and stronger expansion capability supporting multiple communication interfaces.

Product Features
- It can be matched with the level of motor, no need to increase a gear.
- Strong anti-interference ability; random carrier function can deal with motor noise easily.
- Unique voltage suppression function can easily inhibit the DC side bus voltage.
- Unique current suppression function, the by-wave current limiting function which is newly added into the hardware can quickly suppress the load current.
- Vector control, high speed accuracy, wide speed range, large torque at low frequency, strong overload capacity.
- Compact, built-in DC reactor, the volume size is further reduced because of design optimization.
- High reliability, the whole seismic design, wide voltage input, three anti-paint automatic spraying process.

Professional Treatment for Punch Features
Fast Deceleration Stop
Significantly reduce the braking distance when motor shuts down, the motor speed is slow when the frequency inverter stops.

Speed Tracking Function
Speed tracking function of greater tracking frequency range, the minimum tracking speed is 1.00Hz, so the tracking speed is faster.

Unique Voltage Suppression Function (no braking resistor installed)
- Overvoltage suppression function: when the bus voltage is detected to rise, it will increase the output frequency to set the motor in the electric state.
- Over-excitation function: no need to increase the external brake resistor and other accessories, to achieve rapid braking effect, improve product ease of use; more effectively inhibit the bus voltage rise during the deceleration process to avoid frequent over-voltage failure, meanwhile achieve fast braking and fast stop when power failure happens.

It can automatically and quickly suppress the frequency inverter voltage during the deceleration, constant speed and stopping process in order to prevent over-voltage failure so that the equipment can work stably.

Unique Current Suppression Function
- The platform is a high-performance vector frequency inverter which controls the current perfectly through the mature current vector technology.
- The current increases and the motor speed decreases when the motor load increases suddenly or the motor is in stepping move state, especially when the punch press performs deep drawing. At this time, the instantaneous slip of the motor is widened (that it is to say, the speed is instantly slowed down), which can quickly reduce the frequency to ensure that the motor speed and output frequency corresponds to each other (ensuring the slip frequency is small); as the slip frequency is proportional to the current, so it can ensure that the current of the inverter will not increase too much and report the overcurrent fault.

- Through by-wave current limiting to hardware, it can rapidly suppress the current increase to ensure the output current is maintained within the hardware-limited range and avoid frequent overcurrent failure.

Through the targeted treatment in software, it can effectively prevent the inverter over current, so that the equipment can work normally without alarm.

Current Oscillation Suppression
Current oscillation suppression: through the feedback of the excitation current component, it adjusts the vector angle of the output voltage so as to ensure the output current stability.

Anti-Interference Treatment
Ao2 adopts differential signal output which can completely solve the signal interference problem during transmission process. When the transmission distance is greater than 5m, the transmission mode of collector open signal is unstable.
AC Series – Standard Vector Frequency Inverter

**AC** - **T 3 - 011 G / 015 P**

**Frequency Inverter Series**
- AC70 series
- AC70E series
- AC200 series

**Voltage Class**
- T: Three phase
- S: Single phase

**Voltage Class**
- 2: 220V
- 3: 380V
- 6: 660V
- 11: 1140V

**Frequency Inverter Type**
- G: General type
- P: Fan and pump type
- Z: Special type for plastic machinery
- L: Special type for wire drawing machine
- H: Medium-frequency type
- GD: Cabinet machine with base
- PD: Cabinet machine with base

**Adaptable motor power (KW)**
- 7R5: 7.5
- 011: 11
- 015: 15
- 018: 18.5
- 022: 22
- 030: 30

---

AC70E Series Wiring Diagram

**Legend**
1. Mark: stands for main circuit terminals.

---

**AC power input**

**Multi-function contact input**
- (forward running)
- (reverse running)
- (forward jog)
- (reverse jog)
- (free parking)
- (failure reset)

**Input reactor**

**Output reactor**

**RS485 Differential Communication**

**Frequency control input**
- VR: 0-20mA (+-4-20mA)
- Current analog input
- VR minimum 2KΩ

**Note:**
1. +10V port maximum output: 50mA.
2. VS1/VS2 port resistance: 89KΩ.
3. AS port resistance: 250Ω.

---

**Shielded cable or armored cable (grounded near the inverter)**

**AC220V**
- Maximum output of contact
- 3A/240VAC
- 5A/30VDC

---

**AC0V**

**Y port maximum output:**
- Shielded cable or armored cable (grounded near the inverter)

---

**+24V**

**Toggle switch**

**AO**

**GND**

**Legend:**
- Mark: stands for main circuit terminals.
- Mark: stands for control circuit terminals.
AC70 Series Wiring Diagram

**Note:** The functions inside the brackets are the factory settings of variable frequency drive.

**Legend:**
1. Mark stands for main circuit terminals.
2. Mark stands for control circuit terminals.

**Frequency Inverter**

- **AC power input**
  - R
  - S
  - T

- **Output reactor**
  - U
  - V
  - W

- **PLC**
  - X1
  - X2
  - X3
  - X4
  - X5
  - X6
  - COM

- **RS485 Differential Communication**
  - A+
  - B-
  - 120Ω

- **Pulse input**
  - Shielded cable or armored cable (grounded near the inverter)

- **Current analog input**
  - (0–20mA) / (4–20mA)

- **VR minimum 2KΩ**

- **Voltage analog input**
  - (0–5V) / (0–10V)

- **Note:**
  1. +10V port maximum output: 50mA
  2. VS1/VS2 port resistance: 89KΩ
  3. AS port resistance: 250Ω

- **AC220V**
  - Maximum output of contact:
    - 3A/240VAC
    - 5A/30VDC

- **AC0V**
  - +24V
  - Shielded cable or armored cable (grounded near the inverter)

- **Open collector output**
  - J1
  - J2
  - J3
  - J4
  - J5

- **Analog monitor output signal**
  - A01
  - A02
  - GND

- **Note:**
  1. AC power input reactor
  2. Breaker and contactor input reactor

- **Frequency Inverter**
  - +24V
  - PLC
  - Multi-function contact input
    - (forward running)
    - (reverse running)
    - (freeway jog)
    - (failure reset)

- **Frequency control input**
  - Pulse input
  - Shielded cable or armored cable (grounded near the inverter)

- **Note:**
  1. AC power input reactor
  2. Breaker and contactor input reactor

**AC70 Series Wiring Diagram**

- **DC reactor**
- **Brake unit**
- **Braking resistor**
- **Note1:** AC reactor
- **Note2:** DC reactor brake unit
- **Note3:** AC reactor braking resistor
- **Note4:** AC reactor

**Legend:**
1. Mark stands for main circuit terminals.
2. Mark stands for control circuit terminals.
AC200 Series Wiring Diagram

Note1: TA1, TB1, TC1, +24V, Y

Note2: The functions inside the brackets are the factory settings of variable frequency drive.

Note3: Shielded cable or armored cable (grounded near the inverter)

Note4: Maximum output of contact
3A/240VAC
5A/30VDC

1. +10V port maximum output: 50mA
2. VS1/VS2 port resistance: 89KΩ
3. AS port resistance: 250Ω

1. Mark • stands for main circuit terminals.
2. Mark ○ stands for control circuit terminals.
<table>
<thead>
<tr>
<th>Voltage level</th>
<th>Serial number</th>
<th>Models</th>
<th>Input current</th>
<th>Output current</th>
<th>Adaptive motor</th>
<th>Product series</th>
<th>Exterior structure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Single phase 220V 50/60Hz</td>
<td>1</td>
<td>S2-R75G</td>
<td>8.2A</td>
<td>4A</td>
<td>0.75KW</td>
<td>AC70E</td>
<td>A-1</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>S2-1R5G</td>
<td>14A</td>
<td>7A</td>
<td>1.5KW</td>
<td>AC70</td>
<td>B-1</td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>S2-2R2G</td>
<td>24A</td>
<td>10A</td>
<td>2.2KW</td>
<td>AC70E</td>
<td>A-2</td>
</tr>
<tr>
<td></td>
<td>4</td>
<td>S2-004G</td>
<td>38A</td>
<td>16A</td>
<td>4KW</td>
<td>AC70</td>
<td>B-3</td>
</tr>
<tr>
<td></td>
<td>5</td>
<td>S2-5R5G</td>
<td>44A</td>
<td>20A</td>
<td>5.5KW</td>
<td>AC70</td>
<td>B-3</td>
</tr>
<tr>
<td></td>
<td>6</td>
<td>S2-7R5G</td>
<td>67A</td>
<td>30A</td>
<td>7.5KW</td>
<td>AC70</td>
<td>C-1</td>
</tr>
<tr>
<td></td>
<td>7</td>
<td>S2-011G</td>
<td>92A</td>
<td>42A</td>
<td>11KW</td>
<td>AC70</td>
<td>C-2</td>
</tr>
<tr>
<td></td>
<td>8</td>
<td>S2-015G</td>
<td>129A</td>
<td>55A</td>
<td>15KW</td>
<td>AC70</td>
<td>C-2</td>
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<tr>
<td>Single phase 220V 50/60Hz</td>
<td>1</td>
<td>T2-R75G</td>
<td>6.5A</td>
<td>4A</td>
<td>0.75KW</td>
<td>AC70E</td>
<td>A-1</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>T2-1R5G</td>
<td>9.2A</td>
<td>7A</td>
<td>1.5KW</td>
<td>AC70</td>
<td>B-1</td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>T2-2R2G</td>
<td>11A</td>
<td>10A</td>
<td>2.2KW</td>
<td>AC70E</td>
<td>A-2</td>
</tr>
<tr>
<td></td>
<td>4</td>
<td>T2-004G</td>
<td>19A</td>
<td>16A</td>
<td>4KW</td>
<td>AC70E</td>
<td>A-2</td>
</tr>
<tr>
<td></td>
<td>5</td>
<td>T2-5R5G</td>
<td>23A</td>
<td>20A</td>
<td>5.5KW</td>
<td>AC70</td>
<td>B-3</td>
</tr>
<tr>
<td></td>
<td>6</td>
<td>T2-7R5G</td>
<td>36A</td>
<td>30A</td>
<td>7.5KW</td>
<td>AC70</td>
<td>B-3</td>
</tr>
<tr>
<td></td>
<td>7</td>
<td>T2-011G</td>
<td>44A</td>
<td>42A</td>
<td>11KW</td>
<td>AC70</td>
<td>C-2</td>
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<td></td>
<td>8</td>
<td>T2-015G</td>
<td>60A</td>
<td>55A</td>
<td>15KW</td>
<td>AC70</td>
<td>C-2</td>
</tr>
<tr>
<td>Three phase 380V 50/60Hz</td>
<td>1</td>
<td>T3-R75G</td>
<td>3.4A</td>
<td>2.3A</td>
<td>0.75KW</td>
<td>AC70</td>
<td>B-1</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>T3-1R5G</td>
<td>4.9A</td>
<td>3.7A</td>
<td>1.5KW</td>
<td>AC70</td>
<td>B-1</td>
</tr>
<tr>
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Three phase 380V 50/60Hz

-30-
### Mounting Dimensions

#### Size model

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### Inverter model

#### Dimensions

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#### Wall-mounted mounting dimensions

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<td>235 345 200 311 160 331.5</td>
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<td>255 410 225 370 180 395</td>
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<td>305 570 260 522 180 550</td>
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<td>380 620 290 564 240 595</td>
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<td>750 1170 400 1050</td>
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<td><strong>PG01-ABZ-05-C2</strong></td>
<td><strong>Resolver PG Card</strong></td>
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<tr>
<td>Feedback expansion card required when AC80C is performing close loop vector control or close 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.</td>
<td>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.</td>
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<tr>
<td><strong>CAN01 Card</strong></td>
<td><strong>CAN-RS485 Card</strong></td>
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<tr>
<td>Support CANOPEN protocol and CAN owned protocol.</td>
<td>It supports CANOPEN protocol and can be used to transfer MODBUS protocol.</td>
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<td><strong>EX-PG02EN-A1.0</strong></td>
<td><strong>EXIO-05-A1.1 Card</strong></td>
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<tr>
<td>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.</td>
<td>Sequence detection of frequency inverter R, S, T input (ironclad machine and integrated air compressor)</td>
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<tr>
<td><strong>EXIO-05-A2.0 Card</strong></td>
<td><strong>Keyboard Extension Cable</strong></td>
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<td>Sequence detection of frequency inverter R, S, T input (plastic cases machine, exclude 2.2KW)</td>
<td>2, 3, 5, 10, 15, 20-meter extension cable for connecting the keyboard and inverter control board quality inspection.</td>
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<td><strong>LCD Keyboard</strong></td>
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<tr>
<td>AC70 series, AC80C series and AC200 series use LCD keypad. Supporting Chinese and English bilingual display and parameter copy function, you can upload and download parameters via the keyboard.</td>
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## Input Reactor

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<td>HKSG-2200/G3</td>
<td>CKSG2-2200/G3</td>
<td>DCL2200-G3</td>
</tr>
<tr>
<td>250G/280P</td>
<td>HKSG-2500/G3</td>
<td>CKSG2-2500/G3</td>
<td>DCL2500-G3</td>
</tr>
<tr>
<td>280G/315P</td>
<td>HKSG-2800/G3</td>
<td>CKSG2-2800/G3</td>
<td>DCL2800-G3</td>
</tr>
<tr>
<td>315G/355P</td>
<td>HKSG-3150/G3</td>
<td>CKSG2-3150/G3</td>
<td>DCL3150-G3</td>
</tr>
<tr>
<td>355G/400P</td>
<td>HKSG-4000/G3</td>
<td>CKSG2-4000/G3</td>
<td>DCL4000-G3</td>
</tr>
<tr>
<td>400G/450P</td>
<td>HKSG-4000/G3</td>
<td>CKSG2-4000/G3</td>
<td>DCL4500-G3</td>
</tr>
<tr>
<td>450G/500P</td>
<td>HKSG-5000/G3</td>
<td>CKSG2-5000/G3</td>
<td>DCL5000-G3</td>
</tr>
<tr>
<td>500G/560P</td>
<td>HKSG-5000/G3</td>
<td>CKSG2-5000/G3</td>
<td>DCL5600-G3</td>
</tr>
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<td>560G/630P</td>
<td>HKSG-6300/G3</td>
<td>CKSG2-6300/G3</td>
<td>DCL6300-G3</td>
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</table>

*Overall standard configuration.*
## Braking Unit (Optional Braking Resistor)

<table>
<thead>
<tr>
<th>Model</th>
<th>Braking unit</th>
<th>Resistance value (Ω)</th>
<th>Resistance power (W)</th>
<th>Braking torque (%)</th>
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<tbody>
<tr>
<td></td>
<td>AC70</td>
<td>AC80C</td>
<td>AC200</td>
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<tr>
<td>R75G/1R5P</td>
<td>Built-in function</td>
<td>75Ω</td>
<td>150W</td>
<td>100%</td>
</tr>
<tr>
<td>1R5G/2R2P</td>
<td>Built-in function</td>
<td>400Ω</td>
<td>300W</td>
<td>100%</td>
</tr>
<tr>
<td>2R2G/004P</td>
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<td>250Ω</td>
<td>400W</td>
<td>100%</td>
</tr>
<tr>
<td>004G/5R5P</td>
<td>Built-in function</td>
<td>150Ω</td>
<td>500W</td>
<td>100%</td>
</tr>
<tr>
<td>5R5G/7R5P</td>
<td>Built-in function</td>
<td>100Ω</td>
<td>600W</td>
<td>100%</td>
</tr>
<tr>
<td>7R5G/011P</td>
<td>Built-in function</td>
<td>75Ω</td>
<td>780W</td>
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</tr>
<tr>
<td>011G/015P</td>
<td>Built-in function</td>
<td>50Ω</td>
<td>1200W</td>
<td>100%</td>
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<tr>
<td>015G/018P</td>
<td>Built-in function</td>
<td>40Ω</td>
<td>1500W</td>
<td>100%</td>
</tr>
<tr>
<td>018G/022P</td>
<td>Built-in function</td>
<td>32Ω</td>
<td>2000W</td>
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<td>022G/030P</td>
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<td>2200W</td>
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<td>030G/037P</td>
<td>Built-in function</td>
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<td>3000W</td>
<td>100%</td>
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<tr>
<td>037G/045P</td>
<td>BU30-3-075</td>
<td>20Ω</td>
<td>3700W</td>
<td>100%</td>
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<tr>
<td>045G/055P</td>
<td>BU30-3-075</td>
<td>16Ω</td>
<td>4500W</td>
<td>100%</td>
</tr>
<tr>
<td>055G/075P</td>
<td>BU30-3-100</td>
<td>13Ω</td>
<td>5500W</td>
<td>100%</td>
</tr>
<tr>
<td>075G/093P</td>
<td>BU30-3-100</td>
<td>9Ω</td>
<td>7500W</td>
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<tr>
<td>093G/110P</td>
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<td>9300W</td>
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<td>110G/132P</td>
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<td>6.2Ω</td>
<td>11000W</td>
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<tr>
<td>132G/160P</td>
<td>BU30-3-300</td>
<td>4.7Ω</td>
<td>13000W</td>
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<tr>
<td>160G/185P</td>
<td>BU30-3-300</td>
<td>3.9Ω</td>
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<td>100%</td>
</tr>
<tr>
<td>185G/200P</td>
<td>BU30-3-300</td>
<td>3.3Ω</td>
<td>17000W</td>
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<tr>
<td>200G/220P</td>
<td>2*BU30-3-150</td>
<td>3Ω</td>
<td>18500W</td>
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<td>220G/250P</td>
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<tr>
<td>250G/280P</td>
<td>2*BU30-3-300</td>
<td>2.4Ω</td>
<td>22500W</td>
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<tr>
<td>280G/315P</td>
<td>2*BU30-3-300</td>
<td>2Ω</td>
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<td>100%</td>
</tr>
<tr>
<td>315G/355P</td>
<td>2*BU30-3-300</td>
<td>1.8Ω</td>
<td>30000W</td>
<td>100%</td>
</tr>
<tr>
<td>355G/400P</td>
<td>2*BU30-3-300</td>
<td>1.5Ω</td>
<td>33000W</td>
<td>100%</td>
</tr>
<tr>
<td>400G/450P</td>
<td>2*BU30-3-300</td>
<td>1.2Ω</td>
<td>42000W</td>
<td>100%</td>
</tr>
<tr>
<td>450G/500P</td>
<td>2*BU30-3-300</td>
<td>1.2Ω</td>
<td>42000W</td>
<td>100%</td>
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<tr>
<td>500G/560P</td>
<td>2*BU30-3-300</td>
<td>1Ω</td>
<td>42000W</td>
<td>100%</td>
</tr>
<tr>
<td>560G/630P</td>
<td>2*BU30-3-300</td>
<td>1Ω</td>
<td>50000W</td>
<td>100%</td>
</tr>
</tbody>
</table>
Guarantees of Product R&D

Competitive Products

Planning stage

Demand

Simplification

Information

Innovation

Time

Design convergence

Inheritance

optimization

Verification stage

Concept stage

Structure

Visual inspection
Enclosure protection
Safety testing
Temperature test

Hardware

Electrical Properties
Protective functions
Reliability testing

Software

Basic function
General function
Dedicated function
Quality Assurance

R&D Stage

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

Advanced Manufacturing Equipment

Strict Quality Management System

Has strict quality management system and testing process to ensure that the supplied material qualities meet the specified standards; strict process control specifications and supervision will surely improve the finished product rate; FQC would do comprehensive and rigorous product checks to ensure that the final product performance, outlook and package can meet requirements.
Veichi Electric was established in 2005 and headquartered in Shenzhen, China. In October 2013, Suzhou Veichi Electric Co., Ltd. was founded in Suzhou, Jiangsu province which formed two major production bases. Our sales and service network spread all over the country including more than 40 offices and service centers to ensure timely response of customer needs.