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

VEICHI is a competitive company and adopts the dual-base operating mode, which contains the Shenzhen VEICHI and Suzhou VEICHI. Suzhou VEICHI Electric Co., LTD is located in Suzhou Wuzhong Economic and Technological Development Zone, which covers 50 acres. The total construction area is approximately 80 thousand square meters and all properties are privately run. Additionally, VEICHI is always at the forefront of the domestic industrial automation field.

VEICHI has become the flagship company of industrial automation, which owns an innovative R&D team and establishes a good corporation relationship with famous universities and research institutions. Currently, VEICHI owns more than 110 patents of invention, and many of them are in the leading position both at home and abroad, which completely has independent intellectual property rights.

VEICHI produces a variety of core products, including Variable Frequency Drive (VFD), Servo Drive System, Photovoltaic Inverter, PLC, HMI, and Automation Equipment, which are widely used in industries such as oil & gas, chemical, ceramic, crane & construction hoist, lathe, Auto making, metallurgy, electrical cable and wire, plastic, print and package, textile, chemical fiber, metal work and, coal mining and municipal engineering. Suitable solutions and products are always ready to meet the demands and improve comprehensive competitiveness of customers.

"Innovation is the lifeblood of VEICHI", therefore 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 Electrical Industry’s Top Ten National Brands, Chinese Electrical Industry Top Ten Satisfying Brands and Top Ten National Brands of Inverter Industry. VEICHI products have become the first choice of many enterprises.
**Product Features**

**Features Overview**
- High-performance vector general platform, new motor control algorithm.
- Compatible with AM and PMSM, Open loop and Closed-loop.
- Accurate decoupling of torque excitation, excellent performance of dynamic response.
- Full range of brushless body design, can save the installation space to the maximum.
- Comprehensive thermal simulation design, can guarantee the rationality of hardware layout.
- New design of air duct and full range of DC fan cooling, safe and reliable.
- Creative grounding method of AC300 series, can quickly solve the EMI problem.
- Modular design of software and hardware, powerful extension capability.
- Rich extension interfaces and extension accessories, can cover all kinds of applications.
- Optimized keyboard design, and support external keyboard.
- Much easier and more convenient debugging on-site, can support the firmware upgrading on-site.
- Tri-proof design of whole machine and tri-proof painting of PCB, can ensure the stability and reliability of products.

**General specification**

<table>
<thead>
<tr>
<th>Power range</th>
<th>Voltage range</th>
<th>Frequency range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Single-phase 220V</td>
<td>0.75-220KW</td>
<td>50/60Hz</td>
</tr>
<tr>
<td>Three-phase 220V</td>
<td>0.75-220KW</td>
<td>50/60Hz</td>
</tr>
<tr>
<td>Three-phase 380V</td>
<td>0.75-710KW</td>
<td>50/60Hz</td>
</tr>
</tbody>
</table>

**Input**
- Allowable voltage fluctuation: Voltage 380V/440V, Voltage unbalance rate <3%.
- Allowable frequency fluctuation: Frequency ±5%.

**Output**
- Distortion rate: IEC61800-2.
- Output voltage: 0-voltage error with 5%.
- Output frequency range: 0-600Hz.
- Overload capacity: 150% rated current 10s, 185% rated current 1s, 200% rated current 0.5s.

**AC300 Series High Performance Inverter**

Ac300 series inverter is the product developed on the platform of VEICHI latest high-performance vector technology. It not only adopts the internationally leading field-orientation vector control technology, which is compatible with AM and PMSM control, but also makes the most reasonable layout of components under the premise of high-performance and high-reliability, so as to achieve the book narrow-body design. Besides, to strengthen the usability and industrial specialization, it is equipped with rich extension interfaces and new extension accessories, realizing the features of high performance, high reliability, high power density and high usability.

**Performance Features**

Support various types of motor / load

AC300 series inverter could drive normal AM, variable frequency motor, AC servo motor, PM, high-speed motor and motorized spindle.

**Control modes selection**

<table>
<thead>
<tr>
<th>Control mode</th>
<th>Speed control</th>
<th>Torque control</th>
<th>Position control</th>
<th>Matched motor</th>
</tr>
</thead>
<tbody>
<tr>
<td>AM</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Spindle motor</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PMSM</td>
<td></td>
<td>✓</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Excellent control performance**

<table>
<thead>
<tr>
<th>Control mode</th>
<th>Speed regulation range</th>
<th>Start-up torque</th>
<th>Matched motor</th>
</tr>
</thead>
<tbody>
<tr>
<td>High-performance VC control without PG</td>
<td>1:100</td>
<td>150%</td>
<td>AM</td>
</tr>
<tr>
<td>High-performance VC control with PG</td>
<td>1:100</td>
<td>150%</td>
<td>AM</td>
</tr>
<tr>
<td>High-performance VC control with PG</td>
<td>1:1000</td>
<td>200%</td>
<td>AM, PMSM</td>
</tr>
</tbody>
</table>

Closed-loop torque response <10ms, steady speed accuracy 0.02%, speed pulsation 0.2%. Open-loop torque response <20ms, steady speed accuracy 0.2% (PMSM), 0.5% (AM).

The maximum output frequency is 650 Hz under VC control, and the minimum carrier frequency is 14kHz.

**Software suppression function**

**Over current suppression**

Without using braking resistance, it can realize fast braking with over-excitation braking function in some occasions of inertia stop, so as to improve the usability of products. The over-excitation function could effectively suppress the rising of bus voltage in the process of deceleration to avoid the overvoltage fault, and at the same time, it could realize fast braking to meet the fast stop while power off.

**Over voltage suppression**

The overvoltage suppression function could prevent inverter from overvoltage fault in ACC/DEC process. During ACC/DEC, if the bus voltage of inverter reaches or exceeds the overvoltage protection point, the overvoltage suppression function could suppress the rising of bus voltage by automatically adjust the operation frequency, so as to protect the devices and avoid the overvoltage fault caused by the rising of bus voltage.

**High start-up torque characteristic**

High torque at lower frequency. It can output 200% rated torque at 0.0Hz under closed-loop VC mode, and can run smoothly with load at ultra-low speed 0.01Hz. Powerful lower torque output, can effectively ensure a stable and smooth start.

Stable torque output under torque control mode. The torque linearity bias is within 3%, which greatly guarantees the stable operation of devices.

**Self-tuning of motor parameters**

It could accurately acquire the motor parameters both in rotary and static self-tuning, so as to provide higher control accuracy and response speed, which is convenient and simple.

**Rotary self-tuning:** Must unload the motor. Suit for applications with higher requirement of control accuracy.

**Fully static self-tuning:** Leading motor tuning algorithm, can acquire the motor parameters in static status, which is comparable to the rotary self-tuning.

**High performance and high reliability**

High performance means high power density and high usability.
Random carrier frequency
Compared with the sharp motor noise of fixed carrier frequency, the output voltage harmonic spectrum of random carrier frequency is uniform in a wider frequency range, which makes the motor noise much softer.

Powerful upper machine software
There is user-friendly upper machine software for AC300, which is convenient to operate and configure. Besides the keyboard, users can also use VCACSoft Ver1.3 to set, copy and monitor parameters. It could timely and conveniently provide the VFD state information for users, so as to provide unprecedented flexibility for debugging, setting, monitoring and troubleshooting.

The software could operate in Windows environment, and perform data exchange by common RS485 interface or field bus.

Excellent energy-saving functions
Adopt the new generation of energy-saving control technology to realize the high-efficiency operation of induction motor; reduce the excitation current according to the load current, and automatically adjust according to the loading condition; improve the motor efficiency at most; reduce the motor consumption and energy consumption; 30% of AMF/PMSM adopt the VC mode to drive PMSM and the energy utilization could increased by more than 10%.

New book-body structure
AC300 series all adopt book narrow-body design, and the volume is 60% smaller than the original, which is the real “book-body machine” of inverter.

Standard configuration of terminals

<table>
<thead>
<tr>
<th>No.</th>
<th>Unit Circuit</th>
<th>Quantity</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Common X input</td>
<td>5 channel</td>
<td>Dual-detection input</td>
</tr>
<tr>
<td>2</td>
<td>Common Y output</td>
<td>1 channel</td>
<td>Normal on/off</td>
</tr>
<tr>
<td>3</td>
<td>Relay output</td>
<td>1 channel</td>
<td>50mA</td>
</tr>
<tr>
<td>4</td>
<td>10V power output</td>
<td>1 channel</td>
<td>300mA</td>
</tr>
<tr>
<td>5</td>
<td>Voltage/Current analog input</td>
<td>1 channel</td>
<td>VS, AS support random switch</td>
</tr>
<tr>
<td>6</td>
<td>Voltage/Current analog input</td>
<td>1 channel</td>
<td>0-20mA support random switch</td>
</tr>
<tr>
<td>7</td>
<td>Analog output (optional)</td>
<td>1 channel</td>
<td>0-20mA output</td>
</tr>
<tr>
<td>8</td>
<td>RS485 communication</td>
<td>1 channel</td>
<td>Modbus-RTU</td>
</tr>
<tr>
<td>9</td>
<td>Low-speed pulse input</td>
<td>1 channel (SEL)</td>
<td>0-5kHz input</td>
</tr>
</tbody>
</table>

New structure design
Adopt separate deduct design of components and radiator; strengthened protection of capacitors, MOS tube and relays, closed design of inverter sides, to improve the ability to resist environment.

Siding selection of interface features
Convenient siding selection of interface features, can fast select input/output features with common screwdrivers.

Optimized structure design
Book narrow-body design, rationally utilization of space, can greatly save the size and cost of main cabinet.

Structural hardware features
- Power frequency: 40kHz in VC
- 460Hz in high-performance VC
- 375W
- 25%
- 20%
- 15%
- 10%
- Frequency operation style

Simple internal layout, convenient wiring operation
Full range of narrow-body design and strict control in structure dimension. The main models contain most regular applications, various extension interfaces and ordered terminal layout, which is convenient for wiring.

Support software upgrade on-line
AC300 can upgrade software on-line through VEICHI firmware upgrade software.
AC300 built-in software can be upgraded and replaced directly through the traditional RS485 serial port.

Random carrier frequency
Turn off the spectrum analysis of random carrier frequency

Powerful upper machine software
Turn on the spectrum analysis of random carrier frequency

Excellent energy-saving functions

New book-body structure

Standard configuration of terminals

New structure design

Siding selection of interface features

Optimized structure design

MB Series

Selection of European terminal conforming to IEC60947-2-1/UL 1059:UL 486E specification. Save the connection time while ensuring the safety and reliability. Wire stripping—Line number—Press Wire—Fasten. AC300 inverter adopts MB series on small power main circuit. Using the European terminal to connect the main circuit in the cabinet to the main loop at least half the time compared to the previous machine. Greatly improve the efficiency of customer assembly.

Wide voltage design

Input voltage range is 320V-460V. Avoid the impact of voltage fluctuations and meet the harsh grid environment.

Comprehensive hardware protection

It has such functions as output to ground protection, internal buffer relay protection, fan drive circuit protection, external 24V DC short circuit protection, motor overload protection and other hardware protection functions, so as to realize the omni directional protection from the inverter's internal and peripheral devices.

Logic extension card

Inverter takes the place of PLC to perform simple logic control. Adopt development environment with a wide application of MELSEC programmable controllers. The product integrates universal and comprehensive functional blocks.

IOT of VEICHI

Model specification

**AC300-T3-037 G/45 P-B (L)**

Accessories type:
- B: Built-in brake unit
- L: Built-in DC reactor
- BL: Built-in brake unit and dc reactor

VFD type:
- G: General
- GD: Cabinet with base

Power class:
- 2R2: 2.2KW
- 004: 4KW

Voltage class:
- T: Three phase
- S: Single phase
- D: DC input
- 2: 220V
- 3: 380V
- 4: 440V
- 6: 660V
- 11: 1140V

Series name:
- AC300

VFD rated output current

<table>
<thead>
<tr>
<th>Voltage</th>
<th>220V</th>
<th>380V</th>
</tr>
</thead>
<tbody>
<tr>
<td>Power</td>
<td>Rated output current (A)</td>
<td>Power</td>
</tr>
<tr>
<td>0.75</td>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td>1.5</td>
<td>7</td>
<td>4</td>
</tr>
<tr>
<td>2.2</td>
<td>10</td>
<td>6</td>
</tr>
<tr>
<td>4</td>
<td>16</td>
<td>10</td>
</tr>
<tr>
<td>5.5</td>
<td>20</td>
<td>13</td>
</tr>
<tr>
<td>7.5</td>
<td>30</td>
<td>17</td>
</tr>
<tr>
<td>11</td>
<td>42</td>
<td>25</td>
</tr>
<tr>
<td>15</td>
<td>55</td>
<td>32</td>
</tr>
<tr>
<td>18.5</td>
<td>70</td>
<td>38</td>
</tr>
<tr>
<td>22</td>
<td>80</td>
<td>45</td>
</tr>
<tr>
<td>30</td>
<td>110</td>
<td>60</td>
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<tr>
<td>37</td>
<td>130</td>
<td>75</td>
</tr>
<tr>
<td>45</td>
<td>160</td>
<td>90</td>
</tr>
<tr>
<td>55</td>
<td>200</td>
<td>110</td>
</tr>
<tr>
<td>75</td>
<td>260</td>
<td>150</td>
</tr>
<tr>
<td>90</td>
<td>320</td>
<td>180</td>
</tr>
</tbody>
</table>

Installation dimension

Plastic model

<table>
<thead>
<tr>
<th>Model</th>
<th>Overall dimension (mm)</th>
<th>Installation dimension (mm)</th>
<th>Installation aperture</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>W</td>
<td>H</td>
<td>H1</td>
</tr>
<tr>
<td>AC300-T3-R75G/1R5P-B</td>
<td>76</td>
<td>200</td>
<td>192</td>
</tr>
<tr>
<td>AC300-T3-1R5G/2R2P-B</td>
<td>100</td>
<td>242</td>
<td>231</td>
</tr>
<tr>
<td>AC300-T3-004G/5R5P-B</td>
<td>116</td>
<td>290</td>
<td>277.5</td>
</tr>
<tr>
<td>AC300-T3-011G/011P-B</td>
<td>140</td>
<td>360</td>
<td>345.5</td>
</tr>
<tr>
<td>AC300-T3-018G/035P-B</td>
<td>172</td>
<td>430</td>
<td>/</td>
</tr>
</tbody>
</table>

Steel model (Other power later replenish)

<table>
<thead>
<tr>
<th>Model</th>
<th>Overall dimension (mm)</th>
<th>Installation dimension (mm)</th>
<th>Installation aperture</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>W</td>
<td>H</td>
<td>D</td>
</tr>
<tr>
<td>AC300-T3-045G/055P</td>
<td>225</td>
<td>523</td>
<td>260</td>
</tr>
<tr>
<td>AC300-T3-055G/075P</td>
<td>225</td>
<td>523</td>
<td>260</td>
</tr>
<tr>
<td>AC300-T3-075G/095P</td>
<td>240</td>
<td>570</td>
<td>340</td>
</tr>
</tbody>
</table>
When installing DC reactor, make sure to dismantle the short connector between terminal P1 and (+). NPN or PNP transistor signal can be selected as the input of multi-function input terminals (X1~X5/PUL). The inverter built-in power supply (+24V terminal) or external power supply (PLC terminal) can be selected as bias voltage. Factory default: “+24V” short connects with “PLC”, which locates between RJ45 and terminals. Analog monitor output is the special output for meters such as frequency meter, current meter and voltage meter. It can’t be used for control operations such as feedback control.

As there are multi pulse types, please refer to the details of wiring connection modes.

Note:
1. When installing DC reactor, make sure to dismantle the short connector between terminal P1 and (+). NPN or PNP transistor signal can be selected as the input of multi-function input terminals (X1~X5/PUL). The inverter built-in power supply (+24V terminal) or external power supply (PLC terminal) can be selected as bias voltage. Factory default: “+24V” short connects with “PLC”, which locates between RJ45 and terminals.
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4. As there are multi pulse types, please refer to the details of wiring connection modes.
Wholeheartedly to ensure that every segment of the strict implementation, to ensure that every product has a unique quality.

R&D Segment

High-quality R & D team with 20 years industrial experience
More than 180 people in R&D team
More than 110 patents technologies
R&D investment more than 12% of sales

Government-enterprise cooperation, as a member of SHENZHEN High-tech Industry Association, A number of scientific researches get support from the government special funds allowance.

There are a number of professional labs:
- 1 general lab, several professional labs.
- EMC lab, motor performance test lab, reliability test lab, Simulation field application lab.

Experiment test

Automatic SMT patch production line and package line, to ensure high-quality, high-volume, fast delivery capacity.

Protection segment

Adhering to principle of quality first.
Source supervision, Process control: all segment such as design, purchase, QC, manufacture strictly carried out according to ISO9001 QMS.

Quality segment

Informatization management.
Product tracing system. From materials to products to achieve the whole process of product traceability.

- Market demand analysis
- Proposal review
- Detail design review
- Prototype review
- Material authentication test
- Performance/Functions test
- EMC/EMI test
- Ambient/Reliability experiment
- Customized production
- 100% Safety test
- 100% Aging experiment
- 100% factory examination
- 100% factory examination

Application case

Mining
CNC
Chemical piping
Municipal engineering
Mechanical, and Packaging
Wire and cable
Injection moulding
Industry power supply
Textile
Lift
Wooden machine

Proposal review
Detail design review
Prototype review
Material authentication test
Performance/Functions test
EMC/EMI test
Ambient/Reliability experiment
Customized production
100% Safety test
100% Aging experiment
100% factory examination