AC10 General-Purpose VFD
Product Overview

AC10 series frequency inverter is a product developed on the latest technology platform of VEICHI. AC10 products are based on the user’s market demand for miniaturization, high reliability and high cost performance. As a narrow-body VFD, AC10 has a convenient way of installation, small size, low temperature rise, high protection, strong software performance and many other advantages. AC10 development relies on advanced PLM R&D management system to ensure that the hardware, software, structure and test process are three-dimensional, systematic and can be developed during the development process. Traceability, constant scrutiny in every detail ensures strict rigor and scientific split (T3 VFDs only support vector control).

Structural Features

Interface Introduction

Installation Methods

Potentiometer
Control line terminal
Cable through
External keyboard, network cable expansion port
R/S/T input terminals
R/S/T output terminals

Flexible and compact, book narrow body design
Various Installation methods
No derating while ambient temperature is up to 50 °C
Wire-hidden line design makes it easier to route

Isolated air duct helps heat dissipation and dustproof
Over-voltage and over-current suppression protection and wave-by-wave current limiting protection
Convenient group network expansion
Multiple functions, small and versatile

Protective Design

High protection: completely independent air duct, scientific layout inside the machine, taking into account the heat dissipation of high-power devices and the dust-proofing of the sensing device.
High temperature resistance: scientific air duct design, which can quickly dissipate heat, low temperature rise of the machine, and no need of derating at an ambient temperature of 50 °C.
Terminals

The layout of the AC10 machine's terminal block is simple and beautiful, and the overall style is more technical.

A wire nut is designed on the terminal sides of the control box, and the control wire can be directly guided to the wire harness set, and the wire is beautiful when used in the cabinet and the single machine.

The main circuit uses European-style terminals, which guarantee safety and prevent steps of wiring.

EMG ground terminal is separated from main circuit terminal for safety.

Control Terminals Wiring Specifications

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Specification</th>
<th>Wire gauge (AWG)</th>
<th>Strip wire length (mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Specification</td>
<td>4×6</td>
<td>20-16</td>
<td>62</td>
</tr>
</tbody>
</table>

Main Circuit Terminal Wiring Specification

<table>
<thead>
<tr>
<th>Main circuit terminal</th>
<th>Wire diameter (mm)</th>
<th>Strip wire length (mm)</th>
<th>Strip wire length (mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>AC10 power box</td>
<td>4.0×4.0 (2kw)</td>
<td>9.2×3</td>
<td>9.2×2</td>
</tr>
<tr>
<td>Main control terminal</td>
<td>5.0×4.0 (3kw)</td>
<td>9.2×3</td>
<td>9.2×2</td>
</tr>
</tbody>
</table>

Network Port Expansion Interface

The network model supports RS485, and CAN (customized) can be directly extended through the network port. Customers only need to make a network cable connection, which is convenient and beautiful.

Keyboard Operation

Keyboard key operation continues using AC309 keyboard design, which is for quickly getting started, and the external extension keyboard is the same as AC309's. Support three keyboard modes (integrated, external single line, external double line).

Excellent Control Performance

The AC10 is a high-performance frequency inverter that supports PDRV three vector control in addition to the universal V/F control mode, has excellent control performance and can adapt to more complex operating conditions.

Over-current Suppression

The overcurrent suppression function is to automatically limit the overcurrent suppression point that does not exceed the set overcurrent suppression point during operation to prevent the fault from tripping caused by excessive current. For some loads with large inertia or severe changes, this function is especially useful. Also the setting is only valid for V/F control, and the overcurrent suppression function under vector is always valid.

Over-voltage Suppression

When the bus voltage reaches or exceeds the bus overvoltage suppression point during the running of the frequency inverter, it will automatically adjust the operating frequency to suppress the bus voltage rise, thus ensuring that the frequency inverter does not cause over-voltage protection due to excessive bus voltage.

Wave-by-Wave Current Limit

The wave-by-wave current limit is protected by hardware, which can limit the rise of current to a certain extent, so that the current does not exceed the protection value of the frequency inverter, and avoids stopping the flow failure and stopping.

Virtual Oscilloscope

The AC10 has virtual oscilloscope software that can be adapted to monitor four parameters at the same time. Users can monitor the operating parameters in real time on the computer through a virtual oscilloscope, which makes monitoring, debugging and troubleshooting more flexible.

Performance Characteristics

Comprehensive Error Protection

The AC10's error protection method is more comprehensive and detailed, and it can be localized more quickly and accurately in the event of an error.

Under-voltage Suppression

When the frequency inverter suddenly loses power during operation, the frequency inverter will automatically adjust the operating frequency after the bus voltage drops to the under-voltage suppression point, thus ensuring that the frequency inverter will not report under-voltage faults due to the low bus voltage in a short time. When the power supply is restored within the valid period of under-voltage suppression, the frequency inverter can continue to operate normally.
Software Upgrade on-Site
VEICHI upgrade software provides great convenience for the on-site upgrade of the AC15.

Installation Size

Model Description

AC10 model naming rules:

AC10-T 3-1R5 G-B

Series No.

Voltage Level
T: Three-phase
S: Single-phase

Adapter motor power
ATS: 0.75kW
1R5: 1.5kW
3R2: 2.2kW
5R: 4kW

Voltage Level
2: 220V
3: 380V

Control Terminals Parameters

<table>
<thead>
<tr>
<th>Type</th>
<th>Terminal Size</th>
<th>Maximum Input / Output</th>
</tr>
</thead>
<tbody>
<tr>
<td>Power terminal</td>
<td>+100(W)O/0</td>
<td>0/24V, 3mA</td>
</tr>
<tr>
<td></td>
<td>-100(W)I/0</td>
<td>0/24V, 3mA</td>
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<tr>
<td>FOC</td>
<td>480V, 3mA</td>
<td></td>
</tr>
<tr>
<td>Analog input</td>
<td>0/24V, 3mA</td>
<td></td>
</tr>
<tr>
<td>Analog output</td>
<td>0/240V, 3mA</td>
<td></td>
</tr>
<tr>
<td>Digital output</td>
<td>0/24V, 3mA</td>
<td></td>
</tr>
<tr>
<td>Relay normally open terminal</td>
<td>NO/NC</td>
<td>120V, 1A</td>
</tr>
<tr>
<td>Feedback interface</td>
<td>RS485</td>
<td>120V, 1A</td>
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<tr>
<td>RS485 communication interface</td>
<td></td>
<td>120V, 1A</td>
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Rated Output Current

<table>
<thead>
<tr>
<th>Voltage</th>
<th>220V</th>
<th>380V</th>
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</thead>
<tbody>
<tr>
<td>0.4</td>
<td>2.8</td>
<td></td>
</tr>
<tr>
<td>0.75</td>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td>1.5</td>
<td>7</td>
<td>5</td>
</tr>
<tr>
<td>2.2</td>
<td>10</td>
<td>6</td>
</tr>
<tr>
<td>3</td>
<td>9.5</td>
<td>1</td>
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