

# VEICHI

## AC10 General-Purpose VFD



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# AC10 General-Purpose VFD

Compact and Capable of Taking Various Challenges



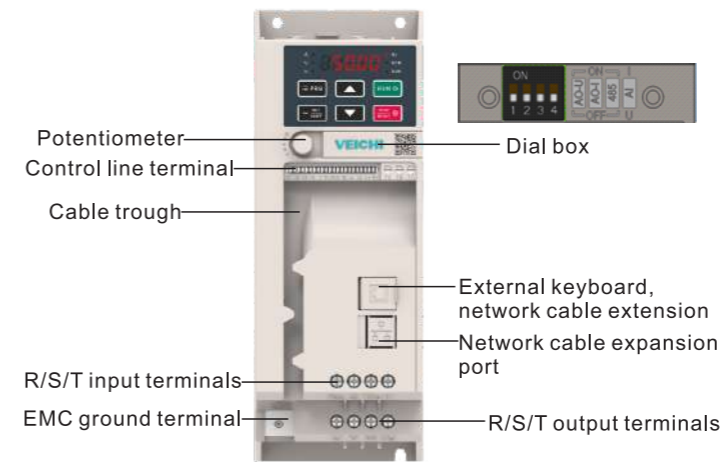
## Product Overview

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 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 spirit (T3 VFDs only support vector control)



## Structural Features

### Interface Introduction



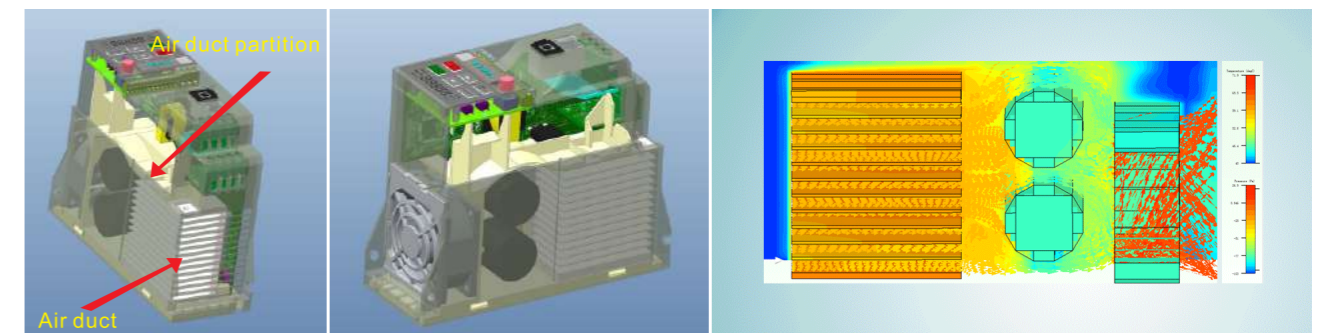
### Installation Methods



## 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.



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



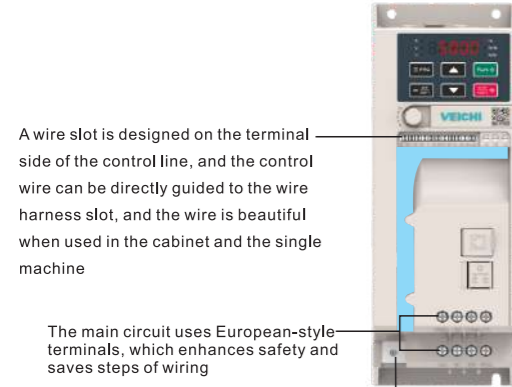
Convenient group network expansion



Multiple functions, small and versatile

## Terminals

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



A wire slot is designed on the terminal side of the control line, and the control wire can be directly guided to the wire harness slot, and the wire is beautiful when used in the cabinet and the single machine

The main circuit uses European-style terminals, which enhances safety and saves steps of wiring

EMC ground terminal is separated from main circuit terminal for safety

## Control Terminals Wiring Specifications

Reasonable parameter	Stripping wire length (mm)	Wire gauge (AWG)	Screw
Specification	4-5	26-16	M2

## Main Circuit Terminal Wiring Specification

	AC10 power level	Wire diameter $\phi$ (mm)	Wire cross-sectional area S (mm <sup>2</sup> )	Stripping wire length L (mm)
Main circuit terminal	0.75KW-2.2KW	0.5-2.5	0.1-5.2	7-8
	4KW-5.5KW	0.5-2.5	0.2-5.2	6-8
Stripping wire diagram				

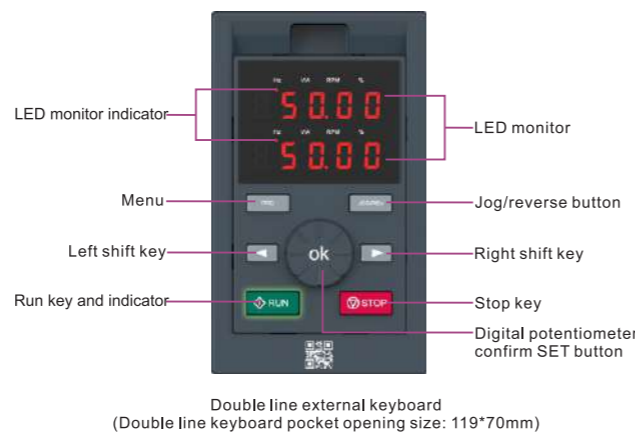
## Network Port Expansion Interface

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 AC300 keyboard design, which is for quickly getting started, and the external extension keyboard is the same as AC300's Support three keyboard modes (integrated, external single line, external double line)



## Performance Characteristics

### Comprehensive Error Protection

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

Error Type	system error	Over-current	Over-voltage	Under-voltage	Motor overload
	VFD overload	CBC continues to produce	Rectifier module overheated	Inverter module overheated	Motor overheated
	The sum of the three phase currents is not 0	Excessive U/V/W phase zero drift	Short circuit to ground	Short circuit on fan	PID feedback disconnection
	Parameter copy error	Three-phase output phase loss	U/V/W phase output phase loss	Output phase loss	External error
	Brake module error	Self-tuning error	Load protection	Excessive speed deviation	Rapid error
	Parameter setting error	CPU timeout	Parameter storage error	Communication error	.....

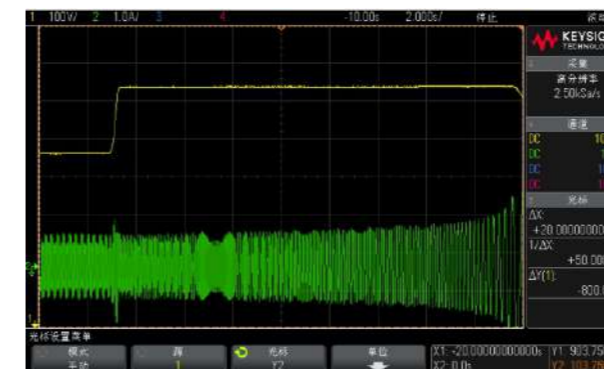
## Excellent Control Performance

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

Main control performance	Motor type	PMSM and AM
	Motor control mode	No PG V/F control, no PG vector control
	Modulation	Optimized space vector PWM modulation
	Speed control range	1 : 100 No PG vector control, rated load 1:100
	Steady state speed accuracy	No PG vector control: $\leq 2\%$ rated synchronous speed
	Starting torque	None PG vector control: 150% rated torque at 0.5Hz
	Torque response	No PG vector control: $<20\text{ms}$
	Frequency accuracy	Digital setting: Maximum frequency $\times \pm 0.01\%$ ; analog setting: maximum frequency $\times \pm 0.2\%$
	Frequency resolution	Digital setting: 0.01Hz; Analog setting: Maximum f frequency $\times 0.05\%$

## 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.



## 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.



## 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 the vector is always valid.



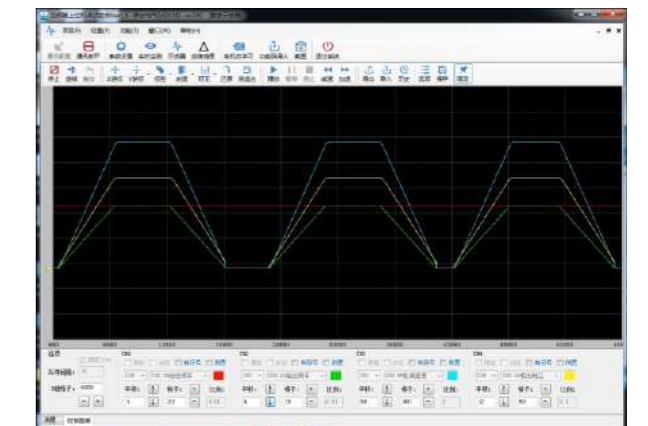
## Wave-by-Wave Current Limit

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.



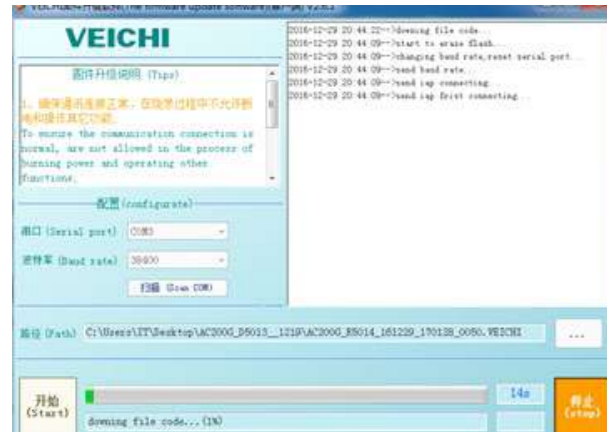
## Virtual Oscilloscope

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.



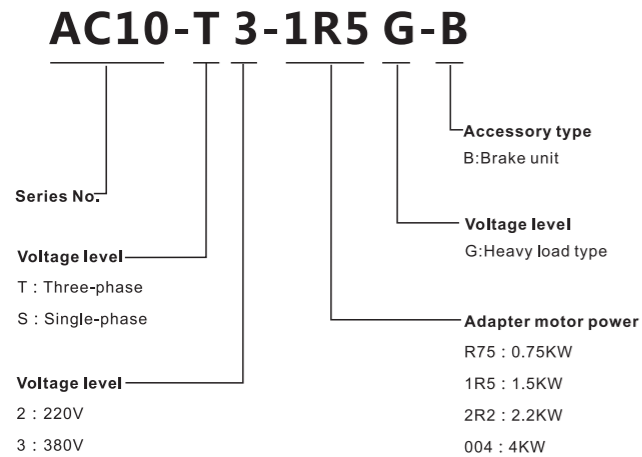
## Software Upgrade on-Site

VEICHI upgrade software provides great convenience for the on-site upgrade of the AC10.



## Model Description

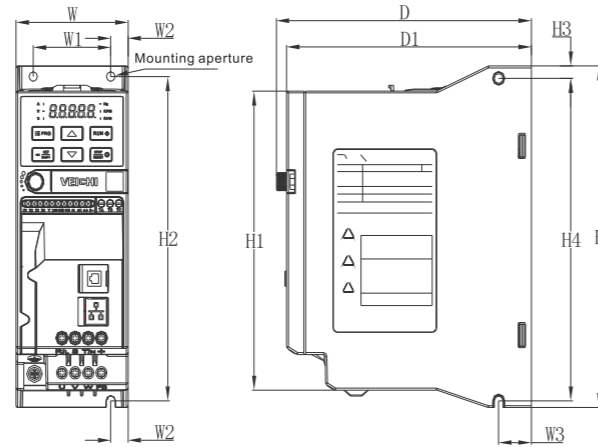
AC10 model naming rules:



## Rated Output Current

Voltage	220V	380V
	Rated output current (A)	
0.75	4	3
1.5	7	4
2.2	10	5
4		9.5
5.5		13

## Installation Size

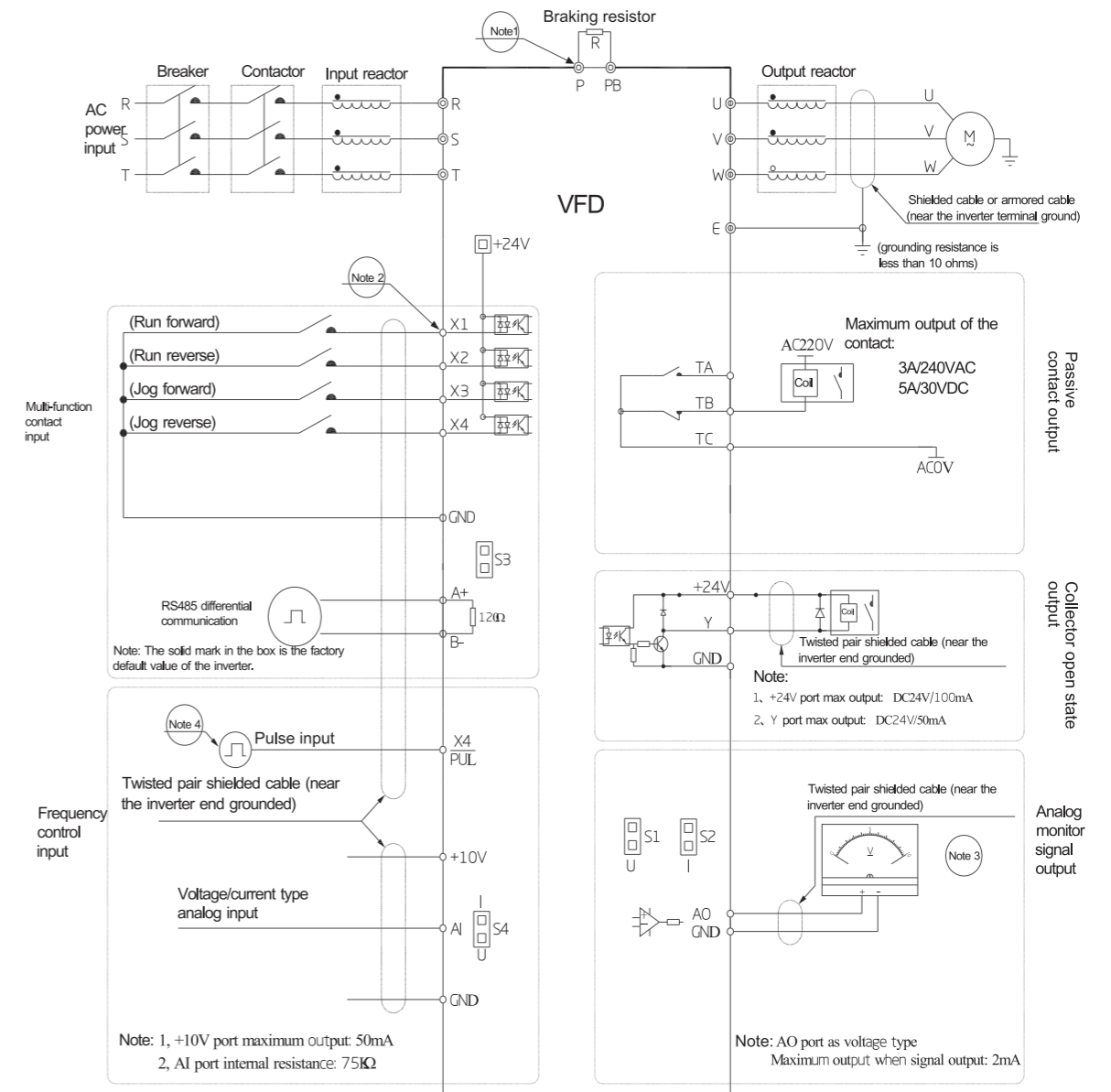


VFD model	Dimensions (mm)				Installation size (mm)				Mounting aperture			
	W	H	H1	D	D1	W1	W2	H2		W3	H3	H4
AC10-T/S2-R75G-B	65	177	155	148	142	45	10	168	19	6.5	167	3-M4
AC10-T/S2-1R5G-B	75	202	180	163	157	55	10	193	19	6.5	192	3-M4
AC10-T/S2-2R2G-B												
AC10-T3-R75G-B	65	177	155	148	142	45	10	168	19	6.5	167	3-M4
AC10-T3-1R5G-B												
AC10-T3-2R2G-B												
AC10-T3-004G-B	75	202	180	163	157	55	10	193	19	6.5	192	3-M4
AC10-T3-5R5G-B												

## Control Terminals Parameters

	Type	Terminal symbol	Maximum input/output capability
Control line terminal	Power terminal	+10V-GND	DC10V, 50mA
		+24V-GND	DC24V, 100mA
		PLC	Factory default connection with +24V
	Analog input	AI-GND	DC24V, 50mA
	Digital input	X1-X4-GND	1. High level: 10~30V 2. Low level: 0~5V 3. X4 (PUL) : 100KHz
	Analog output	AO-GND	1. DC 0V~10V 2. DC 0mA~20mA
	Digital output	Y-GND	Open collector output 1. DC 0V~30V 2. DC 0mA~50mA
	Relay normally open terminal	TA-TC	Contact drive capability: 1. 240VAC, 3A 2. 30VDC, 5A
	Relay normally closed terminal	TB-TC	
	RS485 communication terminal		A+ B-

## Terminal Wiring Diagram



Scale : Symbol® represents the main circuit terminal  
Symbol® represents control circuit terminal

