

AC70E Mini Vector Control Inverter

AC70E high performance vector control mini frequency inverter is Veichi independently developed new generation general purpose electrical motor controller.

With a new generation of high-performance advanced vector control technology applying, high torque control even under low speed, high speed precision, quick torque response and high speed range are available for sophisticated motor control.

It is featured to have modular design, small size, small temperature rise, low noise, and reliable performance. It has built in simple PLC, PID adjusting, programmable input and output terminals function, RS485 terminals, multi function analog input and output function. ect.

It provides high integration solution for equipment matching, engineer retrofiting, automation control and its special industrial filed.



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PS: Company brief introduction:

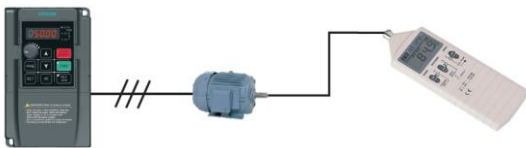
Shenzhen Veichi Electric Co., Ltd is a high-tech enterprise that is engaged in the development, manufacturing and marketing of variable frequency drives, industrial control and renewable energy. Since the start-up in July 2005, the company has grown quickly into a well-known provider of VFDs and motor control solutions. In 2012, with a sales turnover above 51 million USD, we were ranked the top three position among China frequency inverter manufacturers. Now we own over 500 staffs, and 106 of them are R&D engineers, two manufacturing base in Shenzhen and Suzhou. www.veichi.com, www.veichielec.com, www.veichivideo.com

AC70E Enhanced Features:

1. Sensorless vector control without PG, torque responsive speed $\leq 20\text{ms}$.
2. Sensorless vector control without PG, torque control accuracy $\pm 1\%$
3. Sensorless vector control without PG, 150% rated torque output under 1Hz is available.
4. Wide voltage range: voltage fluctuation range $\pm 15\%$ is allowable.
5. Strong overload tolerance capacities: 150% rated current for 60 s, 180% rated current for 2s, 200% for instantaneous.
6. Long service span design of components to extend products service life.
7. Compact design, super small size design to meet various application requirement.
8. Independent duct design to enhanced dust proofing capacities, strong environment adaptabilities.
9. Long life and removable DC fans to ensure system running reliability. Easy for clean and maintenance.
10. Plug and play LED/LCD Keypad, external remote control is available.

Performance validation:

1. Lower noise emitting: noise tested by noise meter when motor is running in 50Hz.



Noise tested is 75Db by noise meter in laboratory, motor noise is 85Db when tested in motor by meter.

2. Excellent acceleration/ deceleration performance.

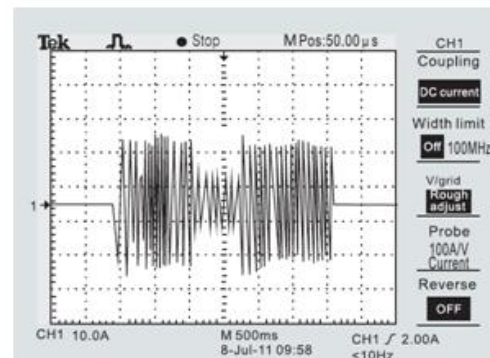
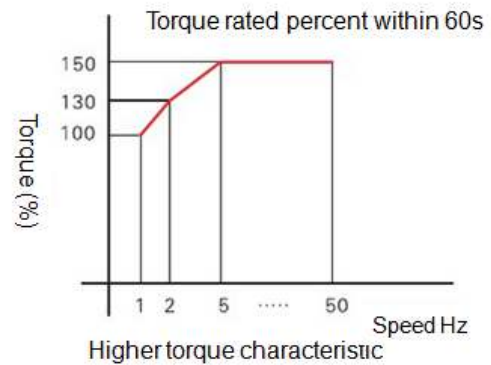
Testing result:

- a. Acceleration time is 1.0s.

- b. Drives heavy duty load with 100% rated torque.

- c. Uses AC70E-T3-2.2G (3 phase, 380V, 2.2Kw) to test.

It shows that 1.0s accel./decel time for start and stop smoothly is available.



3. Perfect large torque output even under low speed

Test items: AC70E-T3-2R2G, runs 2.2kw motor, rated torque of motor is 14.8N·m.

Test result: when running frequency is 1Hz, the dynamometer Shows 14.8N·m.



Multiple PID control function general PID and constant pressure close loop PID to meet wider application required and specific requirement.

Compact design, ease of using, has built in braking transistor. IPM module or Infineon single iGBT.

- AVR function help to keep large torque outputting when lower input voltage.
- Protective PCB coating to help inverter work well in any harsh environment.
- Good ventilation capacity with independent air duct, isolated cooling fan design to enhance inverter environment adapting.
- UP to 20 kinds motor protection functions.



Infineon IGBT module

AC60E

Removable keypad with parameter copy function, maximum distance between keypad and motor is 50m.



One line LED is standard

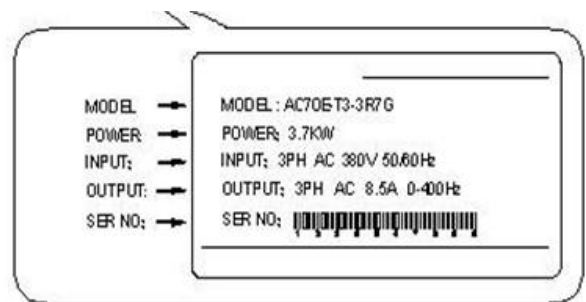


LCD is optional

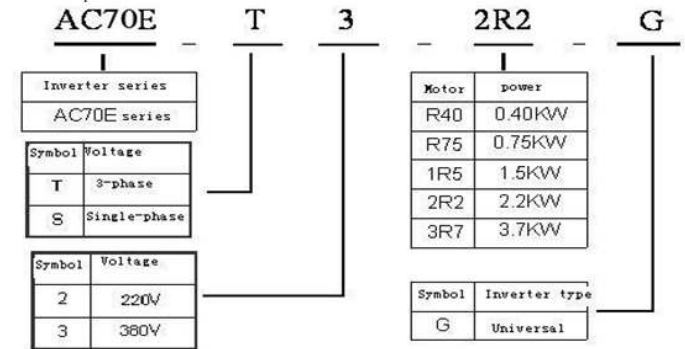
Strong environment adaptability to meet various application requirement.

- Long working lifespan controllable cooling fan.

Nameplate and models illustration.



Model explanation:



Rating, types, voltag, current

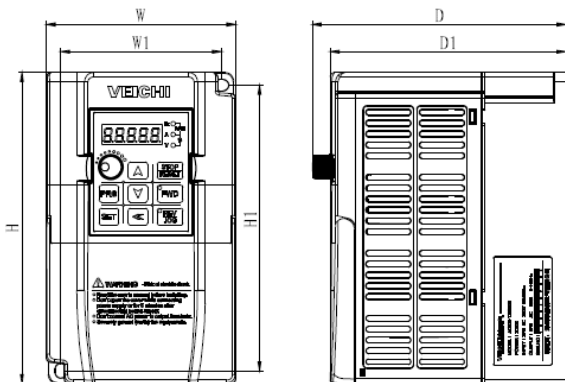
Single phase 220V			Three phase 380V		
Model	Max motor	Rated current	Model	Max motor	Rated current
AC70E-S2-R40G	0.4kW	2.5A	AC70E-T3-R75G	0.75kW	2.3A
AC70E-S2-R75G	0.75kW	4A	AC70E-T3-1R5G	1.5kW	3.7A
AC70E-S2-1R5G	1.5kW	7A	AC70E-T3-2R2G	2.2kW	5A
AC70E-S2-2R2G	2.2kW	10A	AC70E-T3-3R7G	3.7kW	8.5A

Technical specification

Items		Specifications
Power	Voltage/frequency	Single phase 220V to 240V, 50/60Hz ; Three phase 380V to 440V;
	Allowable fluctuations	voltage : $\pm 15\%$, frequency: $\pm 5\%$
Control	Control mode	V/F and Sensorless vector control mode
	Frequency accuracy	$\pm 0.5\%$ of max frequency, 0-400Hz
	Frequency setting resolution	0.01Hz in digital setting; 0.2Hz in potentiometers analog input
	Voltage/frequency characteristics	Voltage in 50% to 100% of the rated voltage range is adjustable, Motor rated frequency in 25-400Hz (3000Hz) is adjustable
	Carrier frequency	1.0-15.0KHz, Random carrier modulation
	Torque boost	0 ~ 25.0% adjustable, auto torque boost, random V/F curve optional
	Overload capacity	150% rated current for one minute, 180% rated current for 2s, 200% rated current for instant jump.
	Acceleration and Deceleration	0.1-6500s
	Rated output voltage	Take advantage of the power supply voltage compensation function, the voltage can be set in the 50 -100% scope but not exceed the input voltage.(rated voltage defined to 100%).
	AVR function	Keep output voltage stable when the input grid voltage fluctuates,
	Automatic energy-saving operation	According to the load conditions, automatic optimize the V / F curves to implement energy saving operation
	Standard functions	PID control, Acceleration and deceleration time adjustable, Acceleration and deceleration mode variable, Carrier frequency adjustment, Torque boost, Current limiter, Speed tracking and restart, Frequency Jumping, Frequency reference limit, Program running, Multi-steps speed, Waving frequency operation, RS485, Analog output, Pulse output frequency
	Brake	Energy-consuming braking, DC braking
	Frequency setting input	Keyboard number settings, keyboard potentiometers, external terminal VS: 0 ~ 10V, the external terminal AS : 4-20mA, RS485 and signal composition and terminal options
	Signal Feedback input	External terminal VS: 0 ~ 10V external terminal AS: 4-20mA, RS485
Input signals command	Start, stop, forward/ reverse switching , jog, multi-steps speed, free parking, reset, acceleration and deceleration time configuring, frequency settings channels select, external fault alarm	
External output signal	Relay output, the collector output, 0-10V output, 4-20mA output, the frequency	
Protection function		Overvoltage, under-voltage, short-circuit, phase loss, over load, over heat, overvoltage stall, current limit function, data safely protection, running status at present fault, history fault.
Display	Setting	Function code, data

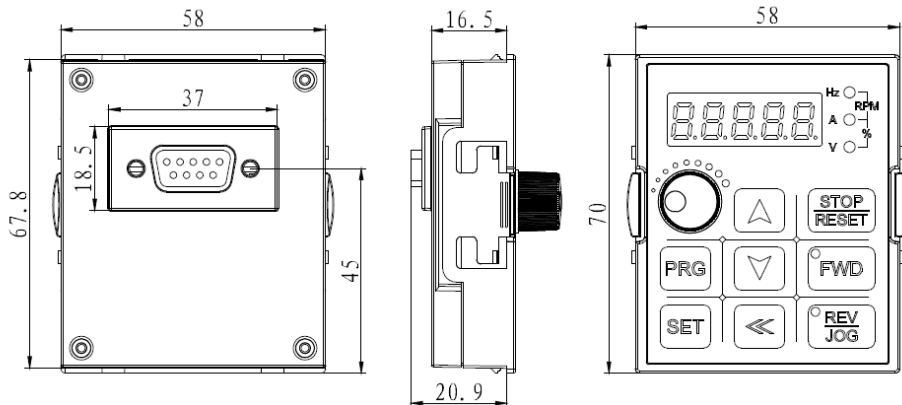
	Running	Output frequency, given frequency, output current, input voltage, output voltage, motor speed, PID feedback, quantitative PID, module temperature, input and output terminal, parameter lock
	Fault	Overvoltage, under voltage, over current, short circuit, phase missing, overload, over heat, stall prevention, current limiter, historical fault, data protection function are damage
Environ ment	Installation sites	Indoor,Altitude should not more than 1000m, no corrosive gases and direct
	Temperature, humidity	-10—+40°C , 20%—90%RH (No condensation)
	Vibration	Below 20Hz less than 0.5g
	Storage Temperature	-25—+65°C
	Installation mode	Wall-mounted mode
	Protection degree	IP20
	Cooling Mode	Forced air-cooling

Installation dimension



Model	W	W1	H	H1	D	D1	Inst all. hole
AC70E-S2-R40G	88	75	142.5	129.5	142	132	Ø5
AC70E-S2-R75G							
AC70E-S2-1R5G							
AC70E-T3-R75G							
AC70E-T3-1R5G	106	90	172	158	142	132	Ø5
AC70E-S2-2R2G							
AC70E-T3-2R2G							
AC70E-T3-3R7G							

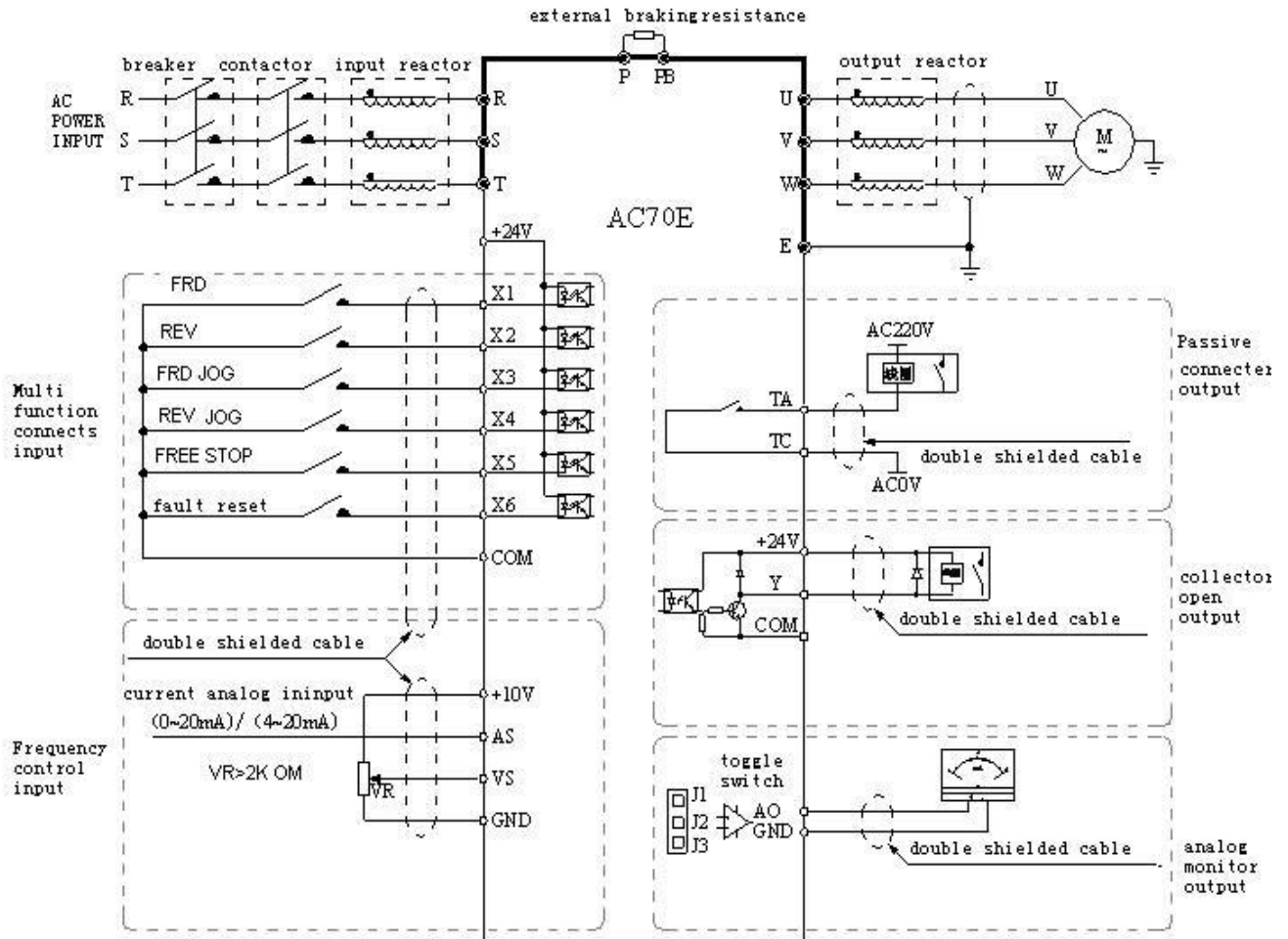
Keypad dimension



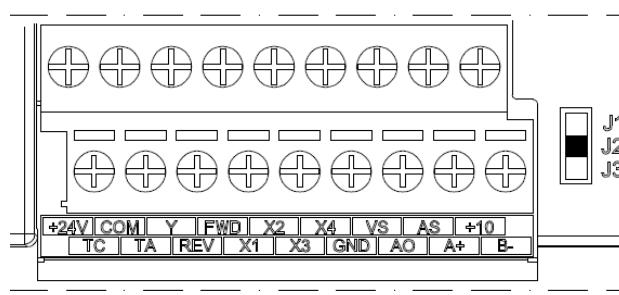
Wiring Diagram

Built it RS458 interface, easy to control the inverter through net work.

Built it braking unit, quick stop is available for large inertia load.



Control terminals



Application

AC70E mini inverter are very popular in OEM machine, food machine, packing machine, textile machine, automatic assembly line...for intelligent automation control, in fans, pumps, for energy saving

Food machine

1. Improve efficiency, reduce the cost
2. Wide speed range regulation, strong overload capacity
3. Multiple function, easy using and running stability

Machine: Bakery equipment, confectionary equipment, tea-making machines, noodle-making machine, food slicers...



Packing machine

1. High accurate dynamic speed control, fast speed and torque control response performance.
2. Compact size, lower noise and rich function.

Machine: inner packing machine, outer packing, and membran packing machine ...



Textile machine

1. Smooth start, big starting torque under low speed, multiple speed.
2. Require acceleration/deceleration characteristic.

Machines: Popular in sizing machine, gumming machine, Photoelectric Abb-Finishing, etc machine.



Automatic assembly line

Small size, strong at-EMI ability, Modbus RS485, strong overload capacity and easy operation, improve braking performance, prevents the collapse of cargo on the conveyor.

Machine: conveyance, automatic warehousing systems.

