



Universal vector control frequency converter

Quick Use Guide V1.0

Security definition



In this manual, safety precautions are divided into the following two categories:

Safety signs in this manual

	DANGER	Dangers caused by operations beyond requirements may lead to serious injury, and even death.
	CAUTION	Angers caused by operations beyond requirements may lead to moderate damages or minor injuries, as well equipment damages.

Please read this chapter carefully when installing, debugging, and repairing this system, and be sure to follow the safety precautions required in this chapter. Any injury or loss caused by violation of regulations is not related to our company.

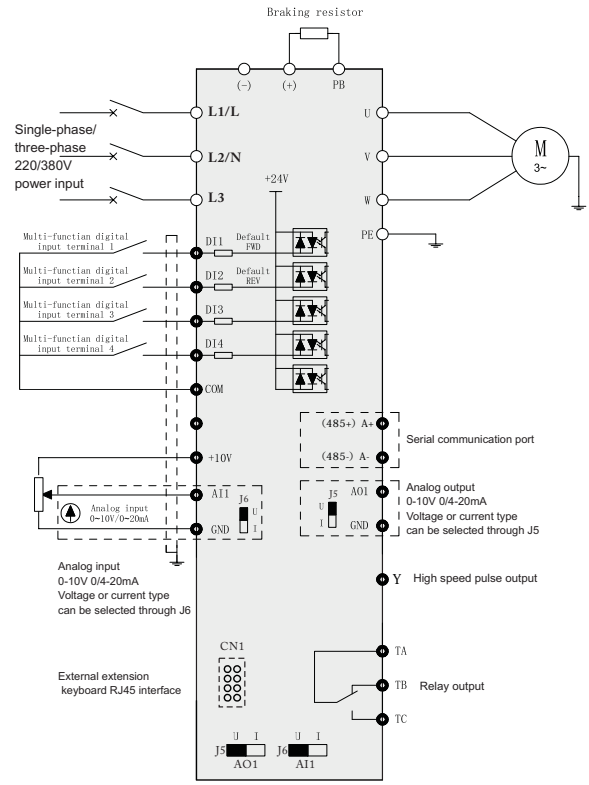
Safety precautions

Security level	Content
 DANGER	<ul style="list-style-type: none"> Do not install the control system if water ingress, missing or damaged components are found during unboxing! Please do not install when the packing list does not match the physical name! Please install on flame-retardant objects such as metals; Stay away from combustible materials. Otherwise, it may cause a fire! Do not arbitrarily twist the fixing bolts of equipment components, especially those marked in red! The frequency converter must be covered with a cover before it can be powered on, otherwise it may cause electric shock! All peripheral accessories must be wired according to the instructions in this manual and correctly connected according to the circuit connection methods provided in this manual, otherwise accidents may occur!
 CAUTION	<ul style="list-style-type: none"> Relevant operations must be carried out by professional electrical engineering personnel; Do not use damaged drives or missing frequency converters. Do not touch control system components with your hands as there is a risk of injury! Please refer to the recommendations in the manual for the wire diameter used. It is prohibited to perform wiring, inspection, and replacement of components when the power is turned on. Please do not change the parameters of the frequency converter manufacturer arbitrarily, otherwise it may cause damage to the equipment!

Technical specifications

Security level	Security level
Input power supply	AC 1PH 200V ~ 220V AC 3PH 200V ~ 220V AC 3PH 380V ~ 480V
Overload capacity	G-type machine: 150% rated current for 60 seconds; 180% rated current for 5 seconds P-type machine: 120% rated current for 60 seconds; 150% rated current for 5 seconds
Control mode	Open loop vector control (SVC), V/F control
V/F curve	Three ways: linear type; multi-point type; square type V/F curve
Speed Simple PLC, multi-stage speed	Realize up to 15 segments of speed operation through control terminals or built-in PLC
Automatic voltage regulation	Automatically maintain a constant output voltage when the grid voltage changes
Motor type	Asynchronous motors, permanent magnet synchronous motors
External power supply	10V, maximum output 50mA; 24V, maximum output 100mA
Analog input and output	0~10V/0~20mA
Digital input and output	4 DI inputs, maximum 1kHz; 1-way Y terminal open collector output
Relay output	3A/AC250V, 1A/DC30V
communication	Built-in standard MODBUS Rs485
Class of protection	Ip20
Environmental condition	-10 ~ 50°C

Control terminal wiring diagram



A+	B-
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TA	TB	TC	24V	COM	D1	D2	D3	D4	Y	GND	10V	AI1	AO1
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Keyboard Key Description

Key	Name	Function
PRG/ESC	Program key/Exit	Entering or exiting the primary menu, returning to the higher-level menu
Knob	Confirm key (ENTER)	Gradually enter the menu screen and confirm the set parameters
	Increment key (+)	Incremental data or function codes
	Decrement key (-)	Decrement of data or function codes
SHIFT	Shift key	Under the shutdown display interface and the operation display interface, the display parameters can be selected in a loop. For specific display meanings, please refer to P7-29 and P7-30; When modifying parameters, you can select the modification bit of the parameter
RUN	Run key	In keyboard operation mode, used to run operations
STOP/RESET	Stop/Reset key	When in operation, pressing this key can be used to stop the operation; When in a fault alarm state, it can be used for reset operation, and the characteristics of this key are limited by function code P7-27.
QUICK/JOG	Jog Run Key/Direction Key	Set P7-28 to 0 as the jog operation button, and P7-28 to 1 as the direction button. Press this button to reverse the direction.

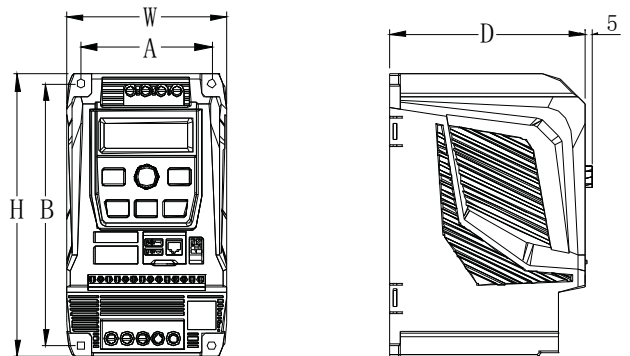
Fault alarm and countermeasures

Fault name	Panel display	Troubleshooting	Troubleshooting Countermeasures
Inverter module protection	Err01	<ul style="list-style-type: none"> Whether the motor connection terminals U, V and W are short-circuited between phases or to ground Is the module overheated? Whether the internal wiring of the inverter is loose Whether the main control board, driver board or module is normal 	<ul style="list-style-type: none"> Contact short circuit Are the fans and air ducts normal? Connect all loose wires Seek technical support

Fault name	Panel display	Troubleshooting	Troubleshooting Countermeasures
Overcurrent during acceleration	Err04	<ul style="list-style-type: none"> There is grounding or short circuit in the output circuit of the inverter The motor parameters are incorrect The acceleration time is too short V/F torque boost or inappropriate curve The input voltage is low Start the rotating motor Sudden load during acceleration Inverter selection is too small 	<ul style="list-style-type: none"> Eliminate peripheral faults Check parameters and parameter identification Increase the acceleration time Adjust the V/F boost torque or curve Adjust the voltage to the normal range Select the speed tracking start or wait for the motor to stop before starting Cancel sudden load Use inverters with larger power levels
Overcurrent during deceleration	Err05	<ul style="list-style-type: none"> There is grounding or short circuit in the output circuit of the inverter The motor parameters are incorrect The deceleration time is too short The input voltage is low Sudden load during deceleration No braking unit and braking resistor The magnetic flux braking gain is too large 	<ul style="list-style-type: none"> Eliminate peripheral faults Perform motor parameter identification Increase the deceleration time Adjust the voltage to the normal range Cancel sudden load Install braking unit and resistance Reduce the magnetic flux braking gain
Overcurrent in constant speed operation	Err06	<ul style="list-style-type: none"> There is grounding or short circuit in the output circuit of the inverter The motor parameters are incorrect The input voltage is low Is there a sudden load during operation? Inverter selection is too small 	<ul style="list-style-type: none"> Eliminate peripheral faults Check parameters and parameter identification Adjust the voltage to the normal range Cancel sudden load Select the inverter with a larger power level
Overvoltage during acceleration	Err08	<ul style="list-style-type: none"> The input voltage is too high There is an external force driving the motor to run during the acceleration process The acceleration time is too short No braking unit and braking resistor The motor parameters are incorrect 	<ul style="list-style-type: none"> Adjust the voltage to the normal range Cancel external power or install braking resistor Increase the acceleration time Install braking unit and resistor Check parameters and parameter identification
Overvoltage during deceleration	Err09	<ul style="list-style-type: none"> The input voltage is too high There is an external force driving the motor to run during the deceleration process The deceleration time is too short No braking unit and braking resistor 	<ul style="list-style-type: none"> Adjust the voltage to the normal range Cancel external power or install braking resistor Increase the deceleration time Install braking unit and resistor
Overvoltage during constant speed operation	Err10	<ul style="list-style-type: none"> The input voltage is too high There is an external force driving the motor to run during the acceleration process 	<ul style="list-style-type: none"> Adjust the voltage to the normal range Cancel external power or install braking resistor
Undervoltage fault	Err12	<ul style="list-style-type: none"> Instantaneous power failure The input voltage of the inverter is not within the range required by the specification The bus voltage is abnormal The rectifier bridge and buffer resistance are abnormal Abnormal drive board The control panel is abnormal 	<ul style="list-style-type: none"> Reset fault Adjust the voltage to the normal range Seek technical support
Drive overload fault	Err13	<ul style="list-style-type: none"> Whether the load is too large or the motor is blocked Inverter selection is too small 	<ul style="list-style-type: none"> Reduce the load and check the motor and mechanical conditions Select the inverter with a larger power level
Motor overload fault	Err14	<ul style="list-style-type: none"> Whether the setting of motor protection parameter P9-01 is appropriate Whether the load is too large or the motor is blocked Inverter selection is too small 	<ul style="list-style-type: none"> Correctly set this parameter Reduce the load and check the motor and mechanical condition Select the inverter with a larger power level
drive overheating	Err15	<ul style="list-style-type: none"> The ambient temperature is too high The air duct is blocked The fan is damaged The module thermistor is damaged The inverter module is damaged 	<ul style="list-style-type: none"> Lower the ambient temperature Clean the air duct Replace the fan Replace the thermistor Replace the inverter module
Current detection failure	Err17	<ul style="list-style-type: none"> Whether the internal wiring of the inverter is loose Is the current detection device normal? Whether the main control board or driver board is normal 	<ul style="list-style-type: none"> Check the wiring Seek technical support
Short to ground fault	Err20	<ul style="list-style-type: none"> Motor short circuit to ground 	<ul style="list-style-type: none"> Replace the cable or motor
Input phase loss fault	Err23	<ul style="list-style-type: none"> The three-phase input power supply is abnormal The driver board is abnormal The lightning protection board is abnormal The main control board is abnormal 	<ul style="list-style-type: none"> Check and eliminate problems in peripheral circuits Seek technical support
Output phase loss fault	Err24	<ul style="list-style-type: none"> The lead wire from the inverter to the motor is abnormal The three-phase output of the inverter is unbalanced when the motor is running The driver board is abnormal Module exception 	<ul style="list-style-type: none"> Eliminate peripheral faults Check whether the three-phase windings of the motor are normal and troubleshoot Seek technical support
read and write failure	Err25	<ul style="list-style-type: none"> EEPROM chip damaged 	<ul style="list-style-type: none"> Replace the main control board
Parameter	Err27	<ul style="list-style-type: none"> Is the host computer working? Is the communication connection normal? Whether the communication parameter P8 group is correct 	<ul style="list-style-type: none"> Check the wiring of the host computer, etc. Check the communication wiring Check the parameters of P8 group

Fault name	Panel display	Troubleshooting	Troubleshooting Countermeasures
Parameter	Err28	<ul style="list-style-type: none"> Input external normally open or normally closed fault signal through multi-function DI terminal 	<ul style="list-style-type: none"> Fault reset
Excessive speed deviation	Err29	<ul style="list-style-type: none"> The load is too heavy and the set acceleration time is too short The setting of fault detection parameters P9-31 and P9-32 is unreasonable 	<ul style="list-style-type: none"> Extend the set acceleration and deceleration time Reset P9-31 and P9-32
User-defined fault 1	Err30	<ul style="list-style-type: none"> User-defined fault 1 signal input through multi-function terminal DI 	<ul style="list-style-type: none"> Reset
User-defined fault 2	Err31	<ul style="list-style-type: none"> User-defined fault 2 signal input through multi-function terminal DI 	<ul style="list-style-type: none"> Reset
PID feedback lost at runtime	Err32	<ul style="list-style-type: none"> PID feedback value is less than the set value of PA-13 	<ul style="list-style-type: none"> Check the feedback signal or reset the PA-13
Fast current limiting	Err33	<ul style="list-style-type: none"> The load is too large or the stall occurs The set acceleration time is too short 	<ul style="list-style-type: none"> Reduce the load or replace the inverter with a higher power Properly extend the acceleration time
load drop failure	Err34	<ul style="list-style-type: none"> When the load drop detection condition is reached, please refer to P9-28-P9-30 for specific use. 	<ul style="list-style-type: none"> Reset or reset detection conditions
input power failure	Err35	<ul style="list-style-type: none"> The input voltage is not within the specified range Power on and off too frequently 	<ul style="list-style-type: none"> Adjust the input voltage Extend the power cycle
parameter storage exception	Err37	<ul style="list-style-type: none"> Abnormal communication between DSP and EEPROM chip 	<ul style="list-style-type: none"> Replace the main control board Seek manufacturer service
The running time has arrived	Err39	<ul style="list-style-type: none"> The current running time of the inverter > the set value of P7-38 	<ul style="list-style-type: none"> Reset
Accumulated running time reached	Err40	<ul style="list-style-type: none"> The accumulated running time reaches the set value P7-20 	<ul style="list-style-type: none"> Use parameter initialization function 2 to clear the recording time or reset the accumulated running time
Switching motors during operation	Err42	<ul style="list-style-type: none"> Switch the motor through the terminals during operation 	<ul style="list-style-type: none"> Motor switch after shutdown
Master-slave control communication dropped	Err46	<ul style="list-style-type: none"> The master is not set but the slave is set The communication line is abnormal or the communication parameters are incorrect 	<ul style="list-style-type: none"> Set the host and reset the fault Check the communication line and communication parameter P8 group

Appearance and installation dimensions



Model	Input current (A)	Output current (A)	Dimensions (mm)			Installation size (mm)		Aperture
			H	W	D	A	B	
Single phase 220V range: -15%~+20%								
2S-0.4G	5.4	2.3	149	83	107	66	136	Φ5
2S-0.7G	8.2	4.0	149	83	107	66	136	Φ5
2S-1.5G	14.0	7.0	170	98	120	80	157	Φ5
2S-2.2G	23.0	9.6	170	98	120	80	157	Φ5
Three phase 220V range: -15%~+20%								
2T-0.4G	2.7	2.3	149	83	107	66	136	Φ5
2T-0.7G	4.2	4.0	149	83	107	66	136	Φ5
2T-1.5G	7.7	7.0	170	98	120	80	157	Φ5
2T-2.2G	12.0	9.6	170	98	120	80	157	Φ5
Three phase 380V range: -15%~+20%								
4T-0.7G/1.5P	3.4/5.0	2.1/3.8	149	83	107	66	136	Φ5
4T-1.5G/2.2P	5.0/5.8	3.8/5.1	149	83	107	66	136	Φ5
4T-2.2G/3.7P	5.8/10.5	5.1/9.0	149	83	107	66	136	Φ5
4T-4.0G/4.0P	10.5/14.6	9.0/13.0	170	98	120	80	157	Φ5
4T-5.5G/7.5P	14.6/20.5	13.0/17.0	170	98	120	80	157	Φ5