



User Manual

FIE1N Mini Type VFD



Safety Information and Precautions

This guide is packaged together with the product for FIE1N AC Drive. It contains basic information for quick start of the drive. For safety and more information, please refer to the FIE1N AC Drive User Manual, which can be downloaded on website: www.vtdrive.com

■ Electrical Safety

Extreme care must be taken at all times when working with the AC Drive or within the area of the AC Drive. The voltages used in the AC Drive can cause severe electrical shock or burns and is potentially lethal. Only authorized and qualified personnel should be allowed to work on AC Drives.

■ Machine/System Design and Safety of Personnel

Machine/system design, installation, commissioning startups and maintenance must be carried out by personnel who have the necessary training and experience. They must read this safety information and the contents of this manual. If incorrectly installed, the AC Drive may present a safety hazard.

The AC Drive uses high voltages and currents (including DC), carries a high level of stored electrical energy in the DC bus capacitors even after power OFF. These high voltages are potentially lethal.

The AC Drive is NOT intended to be used for safety related applications/functions. The electronic "STOP & START" control circuits within the AC Drive must not be relied upon for the safety of personnel. Such control circuits do not isolate mains power voltages from the output of the AC Drive. The mains power supply must be disconnected by an electrical safety isolation device before accessing the internal parts of the AC Drive.

Safety risk assessments of the machine or process system which uses an AC Drive must be undertaken by the user and/or by their systems integrator/designer. In particular, the safety assessment/design must take into consideration the consequences of the AC Drive failing or tripping out during normal operation and whether this leads to a safe stop position without damaging machine, adjacent equipment and machine operators/users. This responsibility lies with the user or their machine/process system integrator.

The system integrator/designer must ensure the complete system is safe and designed according to the relevant safety standards. VTdrive Technology and Authorized Distributors can provide recommendations related to the AC drive to ensure long term safe operation.

■ Electrical Installation - Safety

Electrical shock risk is always present within an AC Drive including the output cable leading to the motor terminals. Where dynamic brake resistors are fitted external to the AC Drive, care must be taken with regards to live contact with the brake resistors, terminals which are at high DC voltage and potentially lethal. Cables from the AC Drive to the dynamic brake resistors should be double insulated as DC voltages are typically 300 to 400 VDC.

Mains power supply isolation switch should be fitted to the AC Drive. The mains power supply must be disconnected via the isolation switch before any cover of the AC Drive can be removed or before any servicing work is undertaken. Stored charge in the DC bus capacitors of the PWM inverter is potentially lethal after the AC supply has been disconnected. The AC supply must be isolated at least 10 minutes before any work can be undertaken as the stored charge will have been discharged through the internal bleed resistor fitted across the DC bus capacitors.

Whenever possible, it is good practice to check the DC bus voltage with a VDC meter before accessing the inverter bridge. Where the AC Drive input is connected to the mains supply with a plug and socket, then upon disconnecting the plug and socket, be aware that the plug pins may be exposed and internally connected to the DC bus capacitors (via the internal bridge rectifier in reversed bias). Wait 10 minutes to allow stored charge in the DC bus capacitors to be dissipated by the bleed resistors before commencing work on the AC Drive.

■ Electrical Shock Hazard

Ensure the protective earthing conductor complies with technical standards and local safety regulations. Because the leakage current exceeds 35 mA in all models, IEC 61800-5-1 states that either the power supply must be automatically disconnected in case of discontinuity of the protective earthing conductor or a protective earthing conductor with a cross-section of at least 10 mm² (Cu) or 16 mm² (Al) must be used. Or use two PE wires and each wire must satisfy the IEC requirements independently. Failure to comply may result in death or serious injury.


When using an earth leakage circuit breaker, use a residual current operated protective device (RCD) of type B (breaker which can detect both AC and DC). Leakage current can cause unprotected components to operate incorrectly. If this is a problem, lower the carrier frequency, replace the components in question with parts protected against harmonic current, or increase the sensitivity/ampereage of the leakage breaker to at least 100 mA per drive.

Factors in determining leakage current:

- Size of the AC drive
- AC drive carrier frequency
- Motor cable type and length
- EMI/RFI filter

1. Product Information

1.1 Nameplate and Designation Rule



Nameplate

AC drive model

Rated input

Rated output

S/N code


Manufacturer

MODEL: FWI-FIE1N-2d2

INPUT: 1PH AC 200-240V 27.0A 50Hz/60Hz


OUTPUT: 3PH AC 0-240V 11.0A 0-500Hz 2.2kW

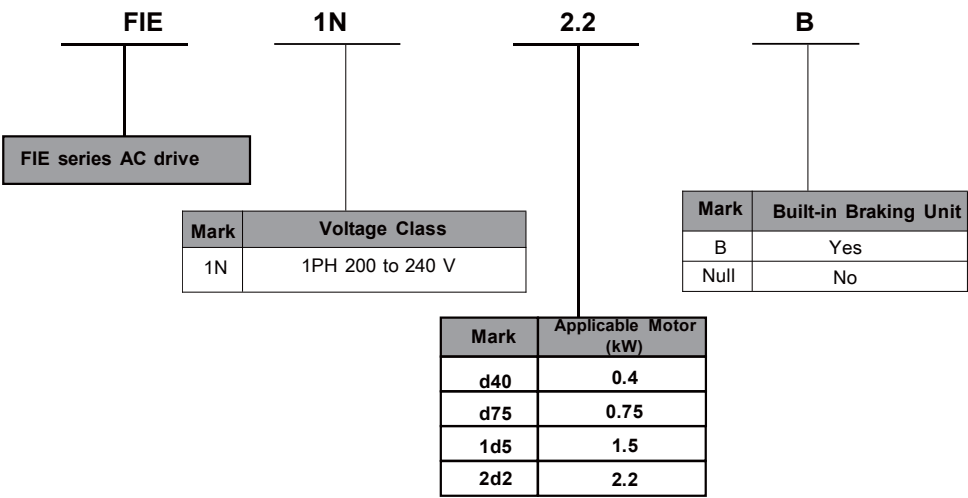
S/N: Serial Number



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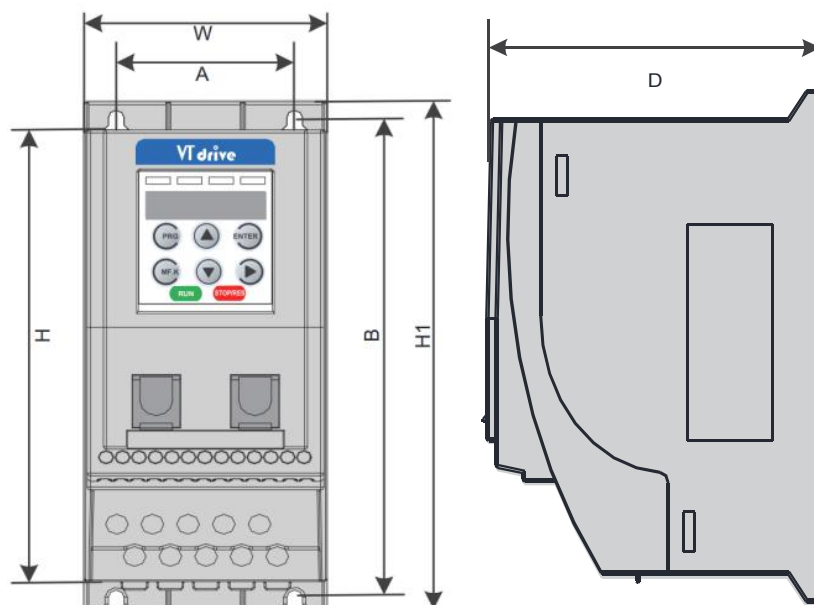
1.2 General Specifications

Voltage class		200 to 240VAC			
Model: FIE1N***B ⁽¹⁾		04	075	15	22
Dimension ⁽²⁾	Height	[H]: 180 mm			
	Width	[W]: 75 mm			
	Depth	[D]: 145 mm			
Mounting Hole, [mm]		Φ5.0			
Drive Input	Rated Input voltage		1 PH, 200 to 240 VAC , -15% to +10%		
	Rated input current, [A]		65	110	180
	Rated input frequency		50/60 Hz, ±5%		
	Power capacity, [kVA]		1.7	30	48
Drive Output	Applicable motor	[kW]	04	075	15
		[HP]	05	1	2
	Output current, [A]		26	46	80
	Default carrier frequency, [kHz]		6	6	6
	Overload capacity		150% for 60 Sec		
	Max output voltage		3 PH, 0 to 240 VAC		
	Max output frequency		50 to 500 Hz		
Braking Resistor	Recommended power, [W]		80	80	100
	Recommended resistance, min. [Ω]		200	150	100
Weight, [kg]		1.1			

Note

(1): "B" denotes build-in brake function(2):

The dimensions are shown as below:

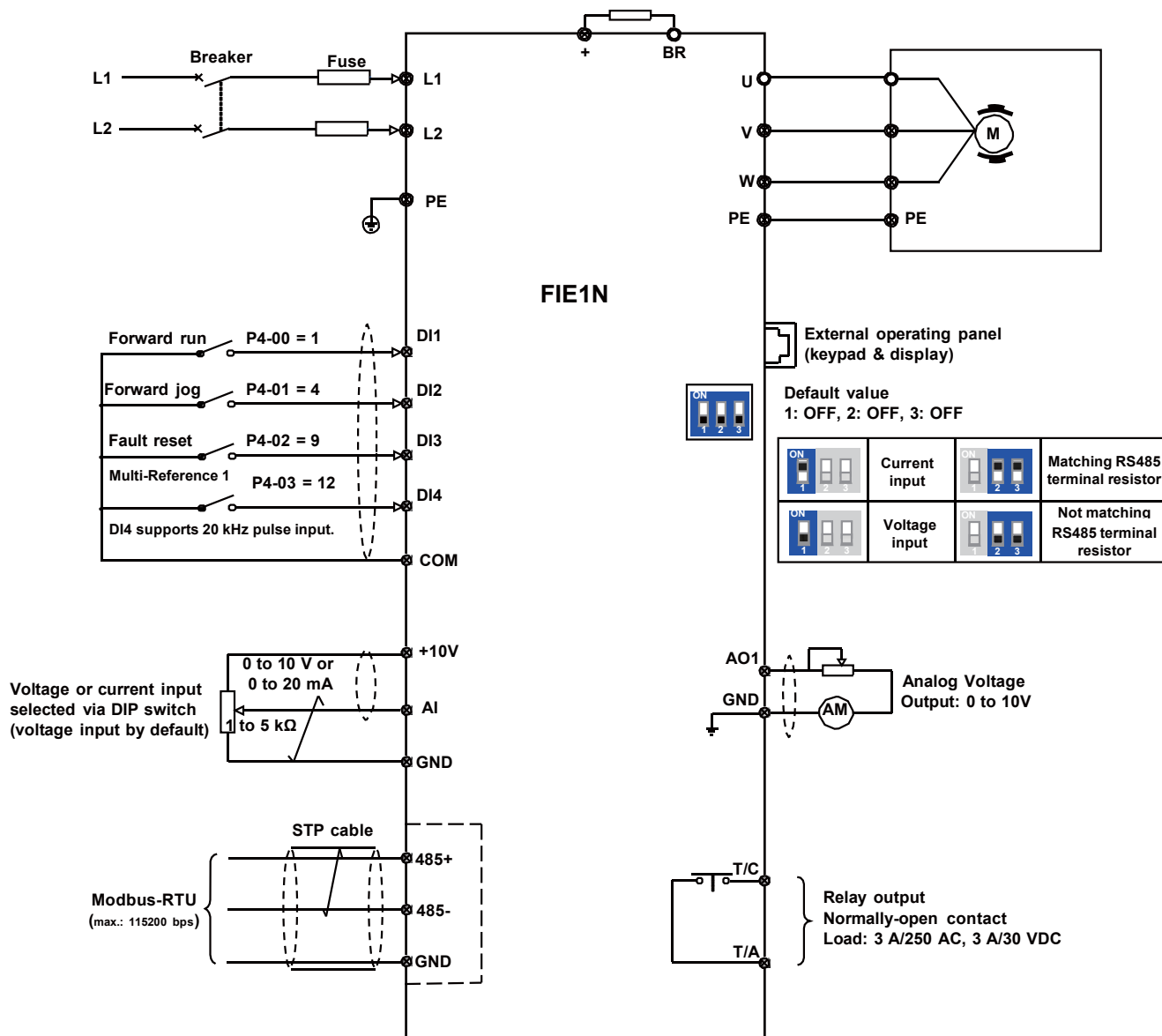


1.3 Environment

Altitude	Below 1000 m, 1% derating current per 100 m at 1000 to 3000 m Max 3000 m
Storage Temperature	-20°C to +60°C
Operating Temperature	-10°C to +40°C. 1.5% derating current per 1°C at 40°C to 50°C. Max. 50°C.
Max Humidity	≤ 95% RH, no-condensing
Vibration	≤ 5.9 g/s ² (06 g)
Running Environment	PD2
Power Supply System	TT/TN
	IT (Remove the screws of VDR and EMC filter according to section 2.3.)
Enclosure	IP20

2 Wiring

2.1 Typical System Connection

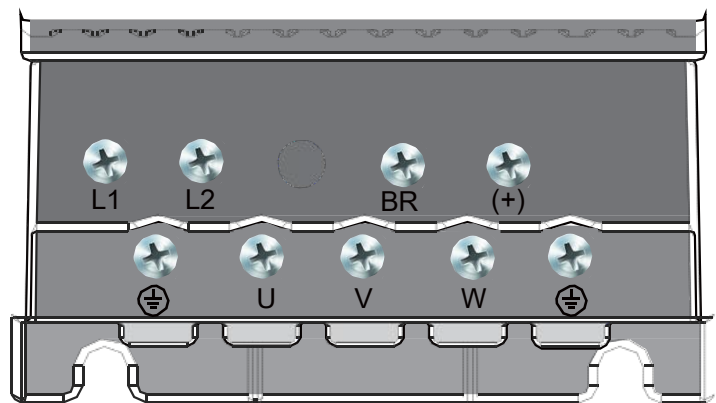


Note

For the DI terminals, low level is valid and valid level is < 5 V, input resistance is 3.6 K, DI1 to DI3 satisfies 100 Hz frequency input, and DI4 satisfies 20 kHz frequency input. The requirement of pulse duty cycle is 30% to 70%.

22 Terminal Description

■ Terminals of Main Circuit



Terminal	Terminal Name	Description
L1, L2	Single-phase supply input	Connect to the single-phase AC power supply
BR, (+)	Braking resistor connection	Connected to external braking resistor.
U, V, W	Output terminals	Connect to a three-phase motor
	Ground (PE)	Grounding connection.

■ Terminals of Main Control Board

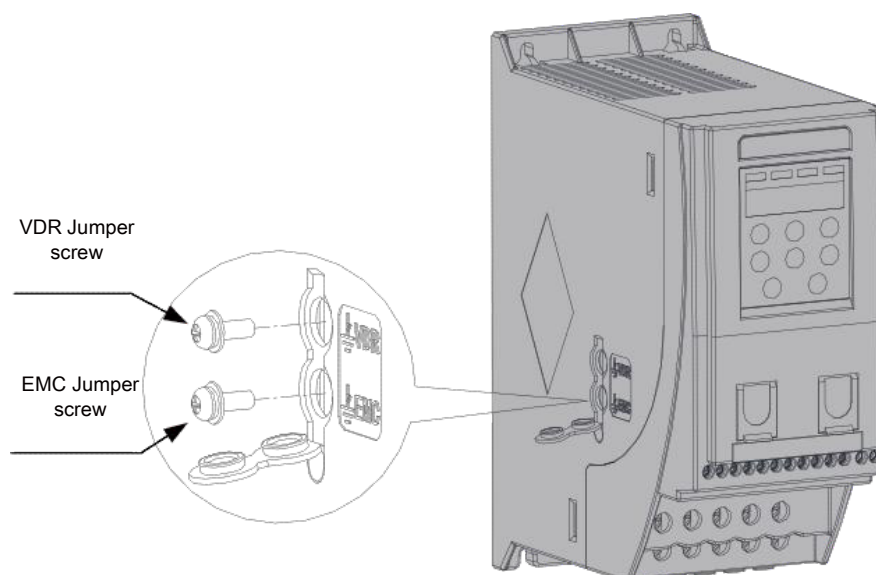
DIP switch
Default value: 1: OFF, 2: OFF, 3: OFF

	Current input		Matching RS485 terminal resistor
	Voltage input		Not matching RS485 terminal resistor

Terminal	Terminal Name	Description
+10V-GND	+10 VDC power supply	Provides +10V power supply to an external unit Generally used to supply an external potentiometer of 1 to 5 k Ω . Max output current: 10 mA
AI-GND	Analog input	Either a voltage or a current input, determined by jumper J9; Input voltage range: 0 to 10 VDC; Input current range: 0 to 20 mA; Resolution: 12 bits Correction accuracy: 0.5% Response time: < 8 ms
DI1-COM	Digital input	Low level valid; Valid level < 5 V; Frequency < 100 HZ Input resistance: 4 k Ω
DI2-COM		
DI3-COM		
DI4-COM	High-speed pulse input	High-speed pulse input, supporting a maximum of 20 kHz Input resistance: 4 k Ω
AO-GND	Analog output 1	0 to 10 V Correction accuracy: 100 mV Resolution: 10 bits Correction accuracy: 1%
T/A-T/C	Normally open terminal	Contact driving capacity: 250 VAC, 3 A, Cos ϕ = 0.4, 30 VDC, 3 A Applies to overvoltage Category II circuit
485+ - 485-	RS485 communication	Half-duplex RS485 communication Max baud rate: 115200 Supporting a maximum of 64 nodes

23 Remove the EMC and VDR screws

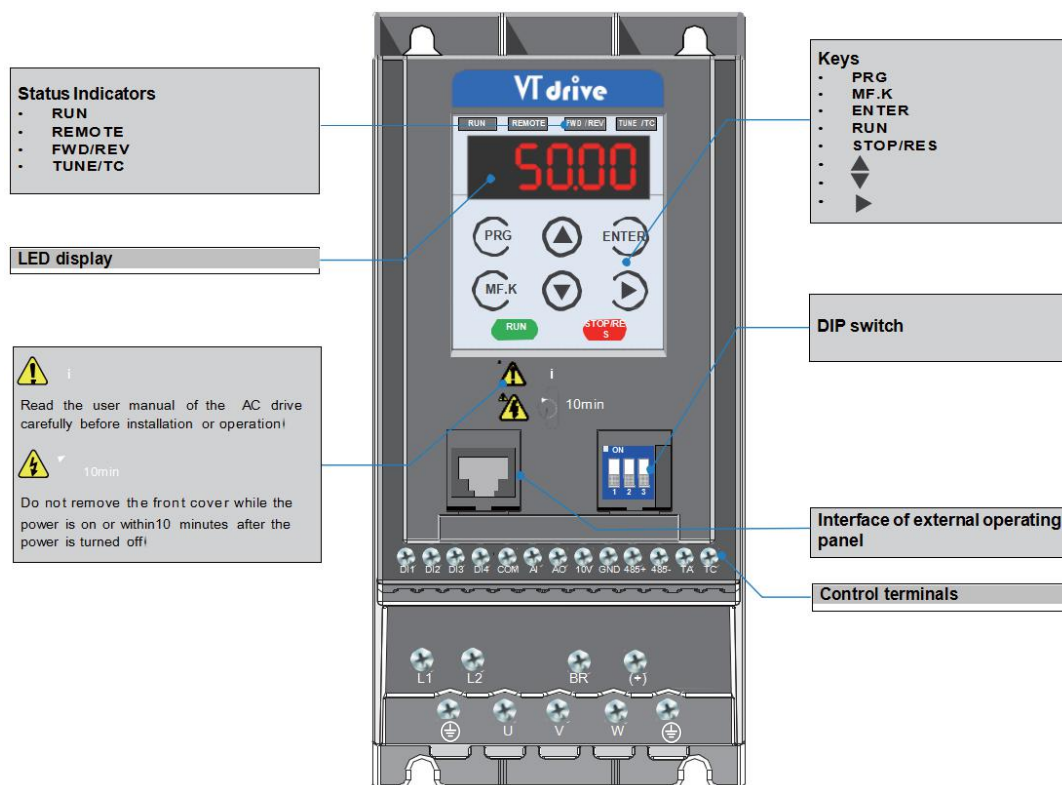
If the drive is applied in an IT system, remove the EMC and VDR screws as shown in the following figures.



3 Operating Panel

3.1 Get Familiar with Operating Panel

■ Overview

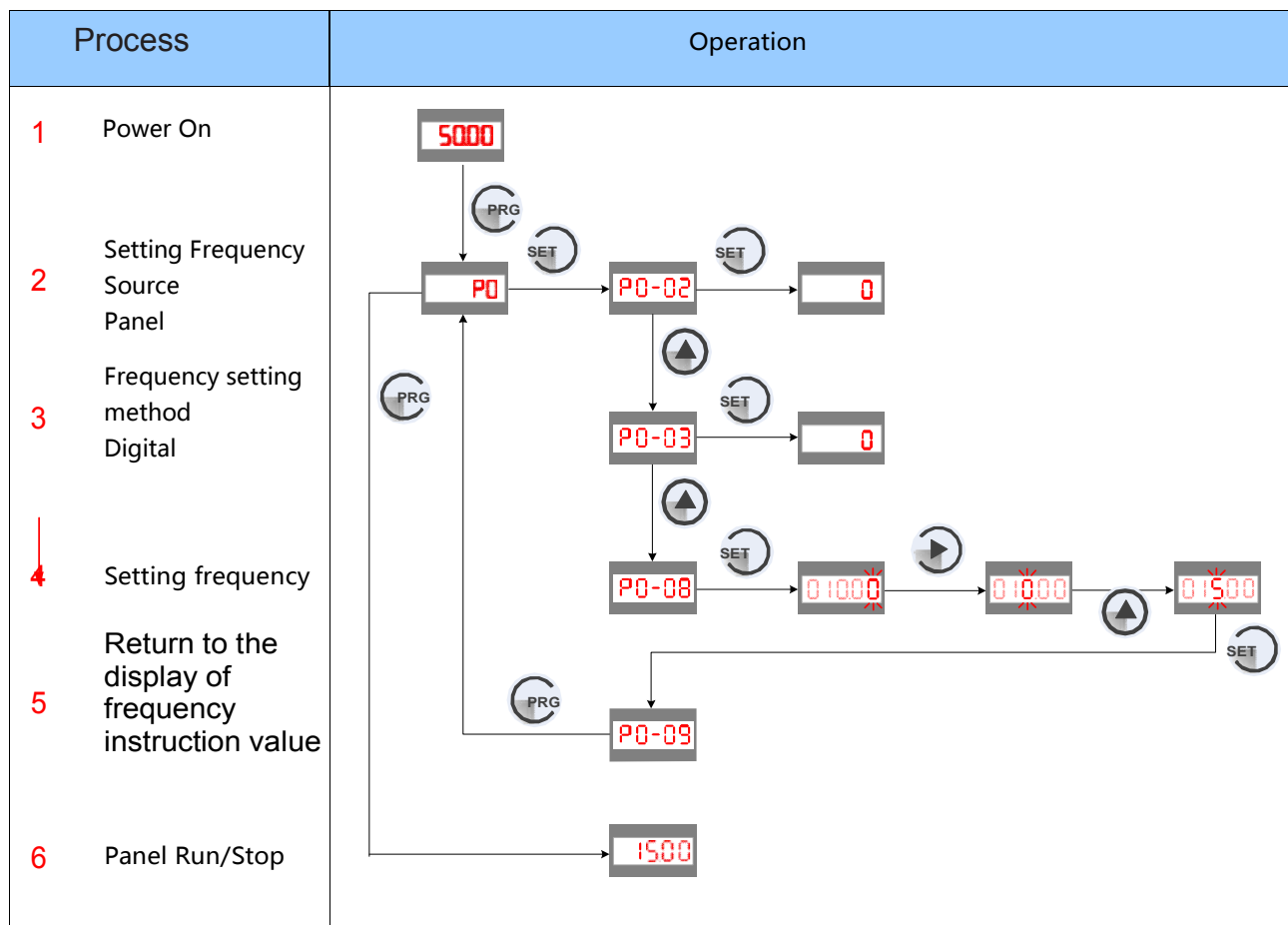


■ Keys on operation panel

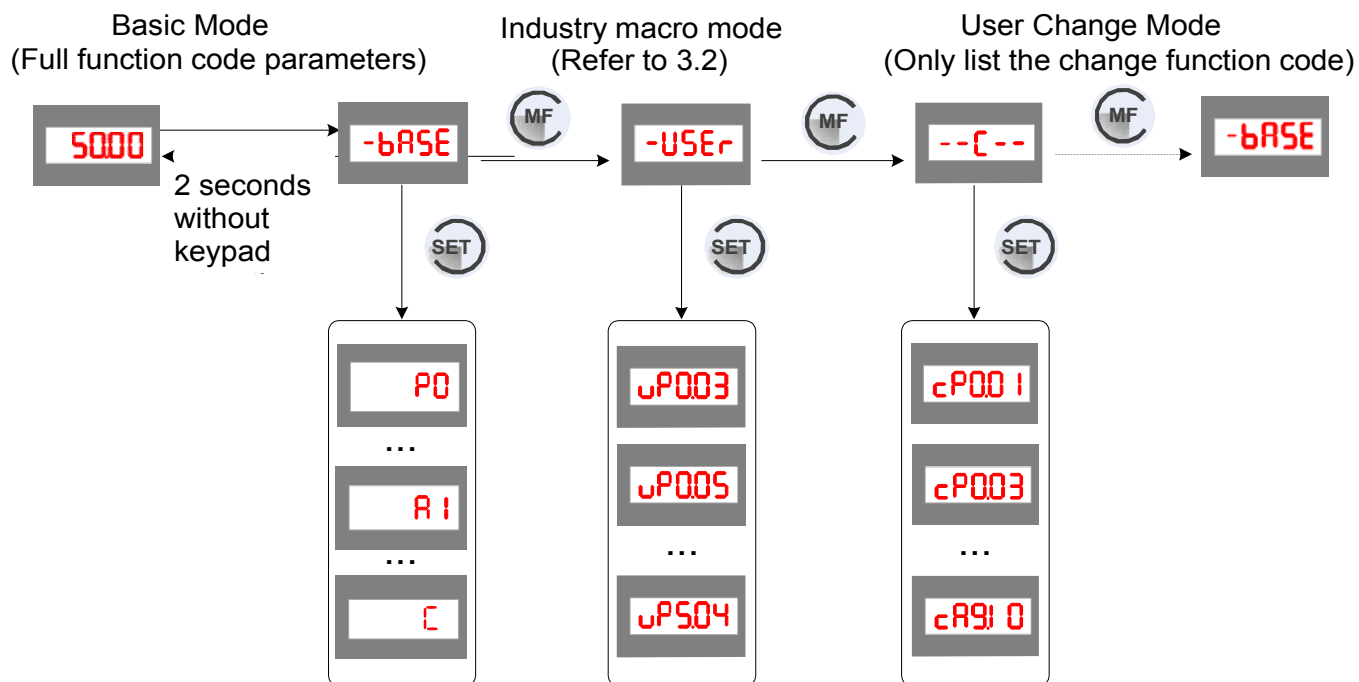
Key	Key Name	Function
	Programming	Enter or exit Level I menu. Return to the previous menu.
	Confirm	Enter each level of menu interface. Confirm displayed parameter setting.
	Increment	When navigating a menu, it moves the selection up through the screens available. When editing a parameter value, it increases the displayed value. When the AC drive is in RUN mode, it increases the speed.
	Decrement	When navigating a menu, it moves the selection down through the screens available. When editing a parameter value, it decreases the displayed value. When the AC drive is in RUNNING mode, it decreases the speed.
	Shift	Select the displayed parameter in the STOP or RUNNING status. Select the digit to be modified when modifying a parameter value.
	RUN	Start the AC drive when using the operating panel control mode. It is inactive when using the terminal or communication control mode.
	Stop/Reset	Stop the AC drive when the drive is in the RUNNING status. Perform a reset operation when the drive is in the FAULT status. Note: The functions of this key can be restricted by using function F7-02.
	Multifunction	Perform a function switchover as defined by the setting of F7-01, for example to quickly switch command source or direction.

4. Operating Panel

Quick Setup Flowchart:



Quick parameter checking flowchart:



5. Parameter Table

5.1 Introduction

Groups P and A include standard function parameters. Group C includes the monitoring function parameters and extension card communication parameters.

5.2 Standard Parameters

Para No	Para Name	Setting Range	Default	Comms Address
Group P0: Standard Parameters				
P0-02	Command source selection	0: Operating panel 1: Terminal I/O control 2: Serial comms	0	0xP002/0x0002
P0-03	Main frequency reference setting channel selection	0: Digital setting (non-retentive at power down) 1: Digital setting (retentive at power down) 2: AI 5: Pulse reference(DI4) 6: Multi-reference 7: Simple PLC 8: PID reference 9: Serial comms	0	0xP003/0x0003
P0-04	Auxiliary frequency reference setting channel selection	Same with P0-03	0	0xP004/0x0004
P0-05	Base value of range of auxiliary frequency reference for main and auxiliary calculation	0: Relative to maximum frequency 1: Relative to main frequency reference	0	0xP005/0x0005
P0-06	Range of auxiliary frequency reference for main and auxiliary calculation	0% to 150%	100%	0xP006/0x0006
P0-07	Final Frequency reference setting selection	00 to 34	00	0xP007/0x0007
P0-08	Preset frequency	000 to max frequency (P0-10)	5000 Hz	0xP008/0x0008
P0-09	Running direction	0: Run in the default direction 1: Run in the direction reverse to the default direction	0	0xP009/0x0009
P0-10	Max frequency	5000 to 50000 Hz	5000 Hz	0xP00A/0x000A
P0-11	Setting channel of frequency upper limit	0: Set by P0-12 1: AI 4: Pulse reference (DI4) 5: Communication reference	0	0xP00B/0x000B
P0-12	Frequency reference upper limit	P0-14 to P0-10	5000 Hz	0xP00C/0x000C
P0-14	Frequency reference lower limit	000 Hz to frequency upper limit (F0-12)	000 Hz	0xP00E/0x000E
P0-15	Carrier frequency	08 to 11 kHz	Model dependent	0xP00F/0x000F
P0-16	Carrier frequency adjusted with temperature	0: Disabled 1: Enabled	1	0xP010/0x0010
P0-17	Accelerationtime1	00s to 65000s	Model dependent	0xP011/0x0011
P0-18	Decelerationtime1	00s to 65000s	Model dependent	0xP012/0x0012
P0-23	Retentive of digital setting frequency upon stop	0: Not retentive 1: Retentive	0	0xP017/0x0017

Para No	Para Name	Setting Range	Default	Comms Address
P0-25	Acceleration/Deceleration time base frequency	0: Maximum frequency (F0-10) 1: Frequency reference 2: 100 Hz	0	0xP019/0x0019
P0-26	Base frequency for UP/DOWN modification during running	0: Running frequency 1: Frequency Reference	0	0xP01A/0x001A
Group P1: Motor 1 Parameters				
P1-01	Rated motor power	01 to 5.5kW	Model dependent	0xP101/0x0101
P1-02	Rated motor voltage	1 to 600 V	Model dependent	0xP102/0x0102
P1-03	Rated motor current	001 to 15 A	Model dependent	0xP103/0x0103
P1-04	Rated motor frequency	001 Hz to max frequency	Model dependent	0xP104/0x0104
P1-05	Rated motor speed	1 to 65535 rpm	Model dependent	0xP105/0x0105
P1-06	Stator resistance	0.001 to 65.535 Ω	Auto-tuning dependent	0xP106/0x0106
P1-37	Motor auto-tuning method selection	0: No auto-tuning 1: Static auto-tuning 1	0	0xP125/0x0125
GroupF3: V/F Control Parameters				
P3-00	V/F curve setting	0: Linear V/F 1: Multi-point V/F	0	0xP305/0x0305
P3-01	Torque boost	00%: automatic boost 01% to 30%	Model dependent	0xP301/0x0301
P3-02	Cut-off frequency of torque boost	000 Hz to max frequency	5000Hz	0xF302/0x0302
P3-03	Multi-point V/F frequency 1	000 Hz to P3-05	000 Hz	0xP303/0x0303
P3-04	Multi-point V/F voltage 1	00% to 1000%	00%	0xP304/0x0304
P3-05	Multi-point V/F frequency 2	P3-03 to P3-07	000Hz	0xP305/0x0305
P3-06	Multi-point V/F voltage 2	00% to 1000%	00%	0xP306/0x0306
P3-07	Multi-point V/F frequency 3	P3-05 to rated motor frequency(P1-04)	000 Hz	0xP307/0x0307
P3-08	Multi-point V/F voltage 3	00% to 1000%	00%	0xP308/0x0308
P3-09	Slip compensation gain	00% to 2000%	00%	0xP309/0x0309
P3-10	V/F over-excitation gain	0 to 200	64	0xP30A/0x030A
P3-18	Current limit level	50% to 200%	150%	0xP312/0x0312
P3-19	Current limit selection	0: Disabled 1: Enabled	1	0xP313/0x0313
P3-20	Current limit gain	0 to 100	20	0xP314/0x0314
P3-21	Compensation factor of speed multiplying current limit level	0 to 200%	50%	0xP315/0x0315
P3-22	Voltage limit	330 to 390 V	390 V	0xP316/0x0316
P3-23	Voltage limit selection	0: Disabled 1: Enabled	1	0xP318/0x0317
P3-24	Frequency gain for voltage limit	0 to 100	30	0xP318/0x0318
P3-25	Voltage gain for voltage limit	0 to 100	30	0xP319/0x0319
P3-26	Frequency rise threshold during voltage limit	0 to 50 Hz	5Hz	0xP31A/0x031A

Para No	Para Name	Setting Range	Default	Comms Address
Group P4: Input Terminals				
P4-00	DI1 function selection	0: No function 1: Forward run (FWD) 2: Reverser run (REV) 3: Three-wire control 4: Forward jog (FJOG) 5: Reverse jog (RJOG) 6: Terminal UP 7: Terminal DOWN 8: Coast to stop 9: Fault reset (RESET) 10: RUN disabled	1	0xP400/0x0400
P4-01	DI2 function selection	11: External fault normally-open input 12: Multi-reference terminal 1 13: Multi-reference terminal 2 14: Multi-reference terminal 3 15: Multi-reference terminal 4 16: Terminal 1 for acceleration/deceleration time selection 18: Frequency reference setting channel switchover 19: UP and DOWN setting clear (terminal, operation panel) 20: Command source switchover 21: Acceleration/Deceleration prohibited 22: PID disabled	4	0xP401/0x0401
P4-02	DI3 function selection	23: PLC state reset 30: Pulse input as frequency reference (valid only for DI4) 32: Immediate DC injection braking 33: External fault normally-closed input	9	0xP402/0x0402
P4-03	DI4 function selection	34: Frequency modification enabled 35: PID operation direction reverse 36: External stop 1 37: Command source switchover 2 38: PID integral disabled 39: Switchover between main frequency reference and preset frequency 40: Switchover between auxiliary frequency reference and preset frequency 43: PID parameter switchover 47: Emergency stop (ES) 48: External stop 2 49: Deceleration DC injection braking 50: Clear running time this time 51: Two-wire control/ Three-wire control 52: Reverse running prohibited	12	0xP403/0x0403
P4-10	DI filter time	0000s to 1000s	0010s	0xP40A/0x040A
P4-11	Terminal I/O control mode	0: Two-wire control mode 1 1: Two-wire control mode 2 2: Three-wire control mode 1 3: Three-wire control mode 2	0	0xP40B/0x040B
P4-12	Terminal UP/DOWN rate	0001 to 65535 Hz/s	1000 Hz/s	0xP40C/0x040C

Para No	Para Name	Setting Range	Default	Comms Address
P4-13	AI curve1 min input	000 V to P4-15	000 V	0xP40D/0x040D
P4-14	Corresponding percentage of AI curve 1 min input	-10000% to 1000%	00%	0xP40E/0x040E
P4-15	AI curve 1 max input	P4-13 to 1000 V	1000 V	0xP40F/0x040F
P4-16	Corresponding percentage of Alcurve1 max input	-10000% to 1000%	1000%	0xP410/0x0410
P4-17	AI1filtertime	000s to 1000s	010s	0xP411/0x0411
P4-28	Pulse min input	000 kHz to P4-30	000 kHz	0xP41C/0x041C
P4-29	Corresponding percentage of pulse min input	-10000% to 1000%	00%	0xP41D/0x041D
P4-30	Pulse max input	P4-28 to 2000 kHz	5000 kHz	0xP41E/0x041E
P4-31	Corresponding percentage of pulse max input	-10000% to 1000%	1000%	0xP41F/0x041F
P4-32	Pulse filter time	000s to 1000s	010s	0xP420/0x0420
P4-38	DI active mode selection1	00000 to 11111	00000	0xP426/0x0426
Group P5: Output Terminals				
P5-02	Relay (T/A-T/B-T/C) function selection	0: No output 1: AC drive running 2: Fault output 3: Frequency level detection 1 output 4: Frequency reached 5: Zero-speed running (no output at stop) 6: Motor overload pending 7: AC drive overload pending 11: PLC cycle completed 12: Accumulative running time reached 13: Frequency limited 15: Ready for RUN 17: Frequency upper limit reached 18: Frequency lower limit reached (no output at stop)	2	0xP502/0x0502
P5-02	Relay (T/A-T/B-T/C) function selection	19: Undervoltage 20: Communication setting 24: Accumulative power-on time reached 26: Frequency 1 reached 28: Current 1 reached 30: Timing reached 31: AI input exceeding limit 32: Load lost 33: Reverse running 34: Zero current 36: Output current exceeding limit 37: Frequency lower limit reached (having output at stop) 38: Alarm output 40: Current running time reached 41: Fault output	2	0xP502/0x0502

Para No	Para Name	Setting Range	Default	Comms Address
P5-07	AO1functionselection	0: Running frequency 1: Frequency reference 2: Output current 3: Output torque 4: Output power 5: Output voltage 6: Pulse input 7: AI 12: Communication reference 13: Motor speed 14: Output current 15: Output voltage	0	0xP507/0x0507
P5-10	AO zero offset coefficient	-1000% to 1000%	00%	0xP50A/0x050A
P5-11	AO gain	-1000 to 1000	100	0xP50B/0x050B
P5-18	Relay1outputdelay	00s to 36000s	00s	0xP512/0x0512
P5-22	DO active mode selection 1	00000 to 11111	00000	0xP516/0x0516
Group P6: Start/Stop Control				
P6-00	Start mode	0:Direct start 1:Catching a spinning motor	0	0xP600/0x0600
P6-01	Mode of catching a spinning motor	0: From stop frequency 1: From zero speed 2: From max frequency 4: Catching a spinning motor in field-orientated control (requiring static auto-tuning, P1-37 = 1)	4	0xP601/0x0601
P6-03	Start frequency	000to1000Hz	000 Hz	0xP603/0x0603
P6-04	Start frequency holding time	00s to 1000s	00s	0xP604/0x0604
P6-07	Acceleration/Deceleration mode	0: Linear acceleration/deceleration 1: Static S-curve acceleration/deceleration 2: Dynamic S-curve acceleration/deceleration	0	0xP607/0x0607
P6-08	Time proportion of S-curve start segment	00% to (1000% –P6-09)	300%	0xP608/0x0608
P6-09	Time proportion of S-curve end segment	00% to (1000% –P6-08)	300%	0xP609/0x0609
P6-10	Stop mode	0:Decelerate to stop 1:Coast to stop	0	0xP60A/0x060A
P6-11	DC injection braking 2 start frequency	000 Hz to maximum frequency	000 Hz	0xP60B/0x060B
P6-12	DC injection braking 2 delay time	00 to 1000s	00s	0xP60C/0x060C
P6-13	DC injection braking 2 level	0% to 100%	50%	0xP60D/0x060D
P6-14	DC injection braking 2 active time	00s to 1000s	00s	0xP60E/0x060E
P6-21	Demagnetization time	000s to 500s	05s	0xP615/0x0615
P6-22	Min. output frequency	000 Hz to F6-11	000 Hz	0xP616/0x0616

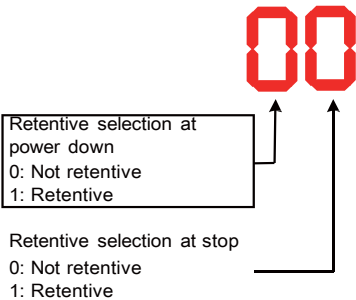
Para No	Para Name	Setting Range	Default	Comms Address
Group P7: Keypad Operation and LED Display				
P7-00	LED default display check	0: Disabled 1: Enabled	0	0xP700/0x0700
P7-01	MFK key function selection	0: MFK key disabled 1: Switchover from remote control (terminal or communication) to keypad control 2: Switchover between forward rotation and reverse rotation 3: Forward jog 4: Reverse jog 5: Parameter display mode switchover	0	0xP701/0x0701
P7-06	Load speed display coefficient	00001 to 65000	10000	0xP706/0x0706
P7-07	Heatsink temperature of IGBT	0°C to 100°C	-	0xP707/0x0707
P7-08	Product series	200	-	0xP708/0x0708
P7-09	Accumulative running time	0 to 65535h	-	0xP709/0x0709
P7-10	Performance software version	-	-	0xP70A/0x070A
P7-11	Function software version	-	-	0xP70B/0x070B
P7-12	Number of decimal places for load speed display	10 to 23	21	0xP70C/0x070C
P7-13	Accumulative power-on time	0 to 65535 h	-	0xP70D/0x070D
P7-14	Accumulative power consumption	0 to 65535 kWh	-	0xP70E/0x070E
Group P8: Auxiliary Functions				
P8-00	Jog frequency reference	000 Hz to max frequency	200Hz	0xP800/0x0800
P8-01	Jog acceleration time	00s to 65000s	200s	0xP801/0x0801
P8-02	Jog deceleration time	00s to 65000s	200s	0xP802/0x0802
P8-03	Acceleration time 2	00s to 65000s	Model dependent	0xP803/0x0803
P8-04	Deceleration time 2	00s to 65000s	Model dependent	0xP804/0x0804
P8-12	Forward/Reverse run switchover dead-zone time	00s to 30000s	00s	0xP80C/0x080C
P8-13	Reverse RUN selection	0: Disabled 1: Enabled	0	0xP80D/0x080D
P8-14	Running mode when frequency reference lower than frequency lower limit	0: Run at frequency reference lower limit 1: Stop 2: Run at zero speed	0	0xP80E/0x080E
P8-16	Accumulative power-on time threshold	0 to 65000 h	0h	0xP810/0x0810
P8-17	Accumulative running time threshold	0 to 65000 h	0h	0xP811/0x0811
P8-18	Startup protection selection	0: Disabled 1: Enabled	0	0xP812/0x0812
P8-19	Frequency detection value 1	000 Hz to max frequency	5000 Hz	0xP813/0x0813
P8-20	Frequency detection hysteresis 1	00% to 1000%	50%	0xP814/0x0814
P8-21	Detection width of target frequency reached	00% to 1000%	00%	0xP815/0x0815
P8-25	Switchover frequency of accel time 1 and accel time 2	000 Hz to max frequency	000 Hz	0xP819/0x0819

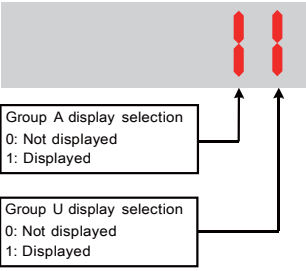
Para No	Para Name	Setting Range	Default	Comms Address
P8-26	Switchover frequency of decel time 1 and decel time 2	000 Hz to max frequency	000 Hz	0xP81A/0x081A
P8-27	Set highest priority to terminal JOG function	0: Disabled 1: Enabled	0	0xP81B/0x081B
P8-30	Detection of frequency1	000 Hz to max frequency	5000 Hz	0xP81E/0x081E
P8-31	Detection width of frequency1	00% to 1000% (max frequency)	00%	0xP81F/0x081F
P8-34	Zero current detection level	00% to 3000% (rated motor current)	50%	0xP822/0x0822
P8-35	Zero current detection delay	001s to 60000s	010s	0xP823/0x0823
P8-36	Output overcurrent threshold	00% (no detection) 01% to 3000% (rated motor current)	2000%	0xP824/0x0824
P8-37	Output overcurrent detection delay	000s to 60000s	000s	0xP825/0x0825
P8-38	Detection level of current1	00% to 3000% (rated motor current)	1000%	0xP826/0x0826
P8-39	Detection width of current1	00% to 3000% (rated motor current)	00%	0xP827/0x0827
P8-42	Timing function	0: Disabled 1: Enabled	0	0xP82A/0x082A
P8-43	Running time setting channel	0: Set by P8-44 1: AI	0	0xP82B/0x082B
P8-44	Running time	00 to 65000 min	00 min	0xP82C/0x082C
P8-45	AI input voltage lower limit	000 V to P8-46	310 V	0xP82D/0x082D
P8-46	AI input voltage upper limit	P8-45 to 1000 V	680 V	0xP82E/0x082E
P8-53	Running time threshold this time	00 to 65000 min	00 min	0xP835/0x0835
P8-54	Output power correction coefficient	00% to 2000%	1000%	0xP836/0x0836
P8-55	Emergency deceleration time	00s to 65000s	01s	0xP837/0x0837
P8-57	Speed synchronous control selection	0: Disabled 1: Enabled	0	0xP839/0x0839
<p>It selects whether to enable the speed synchronous control function.</p> <p>This function means direction data communication between two or more AC drives via CANlink, implementing target frequency of one or more slaves to be synchronized to that of the master.</p> <p>When this function is enabled, CANlink communication addresses of the master and slaves are matched automatically. The baud rate in speed synchronous control is set in Fd-00.</p>				
P8-58	Master and slave selection in synchronous control	0: Master 1: Slave	0	0xP83A/0x083A
<p>It is used to select whether the AC drive is master or slave. When the AC drive is slave, set P0-03 = 9 to set frequency reference via communication.</p>				
Group P9: Fault and Protection				
P9-00	Motor overload protection	0: Disabled 1: Enabled	1	0xP900/0x0900
P9-01	Motor overload protection gain	020 to 1000	020	0xP901/0x0901
P9-02	Motor overload pre-warning coefficient	50% to 100%	80%	0xP902/0x0902
P9-07	Detection of short-circuit to ground upon power-on	0: Disabled 1: Enabled	1	0xP907/0x0907
P9-08	Braking unit applied voltage	310 to 400 V	378 V	0xP908/0x0908
P9-09	Auto reset times	0 to 20	0	0xP909/0x0909


Para No	Para Name	Setting Range	Default	Comms Address
P9-10	Selection of DO action during auto reset	0: Not act 1: Act	0	0xP90A/0x090A
P9-11	Delay of auto reset	0.1s to 1000s	10s	0xP90B/0x090B
P9-13	Output phase loss protection	0: Disabled 1: Enabled	1	0xP90D/0x090D
P9-14	1st fault type	0: No fault	-	0xP90E/0x090E
P9-15	2nd fault type	1: Reserved	-	0xP90F/0x090F
P9-16	3rd (latest) fault type	2: Overcurrent during acceleration 3: Overcurrent during deceleration 4: Overcurrent at constant speed 5: Overvoltage during acceleration 6: Overvoltage during deceleration 7: Overvoltage at constant speed 8: Pre-charge resistor overloaded 9: Undervoltage 10: AC drive overloaded 11: Motor overloaded 12: Input phase loss 13: Output phase loss 14: IGBT overheat 15: External fault 16: Communication abnormal 17: Reserved 18: Current detection abnormal 19: Motor auto-tuning abnormal 20: Reserved 21: Parameter read-write abnormal 22: Reserved 23: Motor short circuited to ground 24: Reserved 25: Reserved 26: Accumulative running time reached 29: Accumulative power-on time reached 30: Load lost 31: PID feedback lost during running 40: Overcurrent fast prevention timeout 41: Reserved 42: Reserved 43: Reserved 45: Reserved 51: Reserved 55: Slave fault in speed synchronous	-	0xP910/0x0910
P9-17	Frequency upon 3rd fault	-	-	0xP911/0x0911
P9-18	Current upon 3rd fault	-	-	0xP912/0x0912
P9-19	Bus voltage upon 3rd fault	-	-	0xP913/0x0913
P9-20	DI state upon 3rd fault	-	-	0xP914/0x0914
P9-21	DO state upon 3rd fault	-	-	0xP915/0x0915
P9-22	AC drive state upon 3rd fault	-	-	0xP916/0x0916
P9-23	Power-on time upon 3rdfault	-	-	0xP917/0x0917
P9-24	Running time upon 3rd fault	-	-	0xP918/0x0918

Para No	Para Name	Setting Range	Default	Comms Address
P9-27	Frequency upon 2nd fault	-	-	0xP91B/0x081B
P9-28	Current upon 2nd fault	-	-	0xP91C/0x091C
P9-29	Bus voltage upon 2nd fault	-	-	0xP91D/0x091D
P9-30	DI state upon 2nd fault	-	-	0xP91E/0x091E
P9-31	DO state upon 2nd fault	-	-	0xP91F/0x091F
P9-32	AC drive state upon 2nd fault	-	-	0xP920/0x0920
P9-33	Power-on time upon 2nd fault	-	-	0xP921/0x0921
P9-34	Running time upon 2nd fault	-	-	0xP922/0x0922
P9-37	Frequency upon 1st fault	-	-	0xP925/0x0925
P9-38	Current upon 1st fault	-	-	0xP926/0x0926
P9-39	Bus voltage upon 1st fault	-	-	0xP927/0x0927
P9-40	DI state upon 1st fault	-	-	0xP928/0x0928
P9-41	DO state upon 1st fault	-	-	0xP929/0x0929
P9-42	AC drive state upon 1st fault	-	-	0xP92A/0x092A
P9-43	Power-on time upon 1st fault	-	-	0xP92B/0x092B
P9-44	Running time upon 1st fault	-	-	0xP92C/0x092C
P9-47	Fault protection action selection 1	00000 to 22222	00000	0xP92F/0x092F
P9-48	Fault protection action selection 2	00000 to 11111	00000	0xP930/0x0930
P9-49	Fault protection action selection 3	00000 to 22222	00000	0xP931/0x0931
P9-54	Frequency selection for continuing to run upon fault	0: Current running frequency 1: Frequency reference 2: Frequency upper limit 3: Frequency lower limit 4: Backup frequency upon abnormality	0	0xP936/0x0936
P9-55	Backup frequency upon fault	00% to 1000% (max frequency)	1000%	0xP937/0x0937
P9-59	Power dip ride-through function selection	0: Disabled 1: Bus voltage constant control 2: Decelerate to stop	0	0xP93B/0x093B
P9-60	Threshold of power dip ride-through function disabled	80% to P9-60	85%	0xP93C/0x093C
P9-61	Judging time of bus voltage recovering from power dip	00s to 1000s	05s	0xP93D/0x093D
P9-62	Threshold of power dip ride-through function enabled	60% to 100%	80%	0xP93E/0x093E
P9-63	Load lost protection	0: Disabled 1: Enabled	0	0xP93F/0x093F
P9-64	Load lost detection level	00% to 1000%	100%	0xP940/0x0940
P9-65	Load lost detection time	00s to 600s	10s	0xP941/0x0941
P9-71	Power dip ride-through gain Kp	0 to 100	40	0xP947/0x0947
P9-72	Power dip ride-through integral coefficient	0 to 100	30	0xP948/0x0948
P9-73	Deceleration time of power dip ride-through	00s to 3000s	200s	0xP949/0x0949
P9-74	Restart mode after fault reset	0: Normal 1: Catching a spinning motor	0	0xP94A/0x094A

Para No	Para Name	Setting Range	Default	Comms Address
Group PA: PID Function				
PA-00	PID reference setting channel	0: Set by PA-01 1: AI 4: Pulse reference (DI4) 5: Via communication 6: Multi-reference	0	0xPA00/0x0A00
PA-01	PID digital setting	00% to 1000%	500%	0xPA01/0x0A01
PA-02	PID feedback setting channel	0: AI 4: PULSE reference (DI4) 5: Via communication	0	0xPA02/0x0A02
PA-03	PID operation direction	0: Forward 1: Reverse	0	0xPA03/0x0A03
PA-04	PID reference and feedback range	0 to 65535	1000	0xPA04/0x0A04
PA-05	Proportional gain Kp1	00 to 10000	200	0xPA05/0x0A05
PA-06	Integral time Ti1	001s to 1000s	200s	0xPA06/0x0A06
PA-07	Differential time Td1	0000s to 10000s	0000s	0xPA07/0x0A07
PA-08	PID output limit in reverse direction	000 Hz to max frequency	000Hz	0xPA08/0x0A08
PA-09	PID error limit	00% to 1000%	00%	0xPA09/0x0A09
PA-10	PID differential limit	000% to 10000%	010%	0xPA0A/0x0A0A
PA-11	PID reference change time	000s to 65000s	000s	0xPA0B/0x0A0B
PA-12	PID feedback filter time	000s to 6000s	000s	0xPA0C/0x0A0C
PA-13	PID output filter time	000s to 6000s	000s	0xPA0D/0x0A0D
PA-15	Proportional gain Kp2	00 to 10000	200	0xPA0F/0x0A0F
PA-16	Integral time Ti2	001s to 1000s	200s	0xPA10/0x0A10
PA-17	Differential time Td2	0000s to 10000s	0000s	0xPA11/0x0A11
PA-18	PID parameter switchover condition	0: Not switched over 1: Switched over via DI 2: Switched over automatically according to error 3: Switched over automatically according to running frequency	0	0xPA12/0x0A12
PA-19	PID error 1 for auto switchover	00% to PA-20	200%	0xPA13/0x0A13
PA-20	PID error 2 for auto switchover	FA-19 to 1000%	800%	0xPA14/0x0A14
PA-21	PID initial value	00% to 1000%	00%	0xPA15/0x0A15
PA-22	PID initial value active time	000s to 65000s	000s	0xPA16/0x0A16
PA-23	Max value of two outputs error in forward direction	000% to 10000%	100%	0xPA17/0x0A17
PA-24	Max value of two outputs error in reverse direction	000% to 10000%	100%	0xPA18/0x0A18
PA-25	PID integral property	00 to 11	00	0xPA19/0x0A19
PA-26	Detection level of PID feedback loss	0%: No detection 01% to 1000%	00%	0xPA1A/0x0A1A
PA-27	Detection time of PID feedback loss	00s to 200s	00s	0xPA1B/0x0A1B
PA-28	Selection of PID operation at stop	0: Disabled 1: Enabled	0	0xPA1C/0x0A1C

Para No	Para Name	Setting Range	Default	Comms Address
Group PC: Multi-Reference and Simple PLC Function				
PC-00	Reference0	-1000% to 1000%	00%	0xPC00/0x0C00
PC-01	Reference1	-1000% to 1000%	00%	0xPC01/0x0C01
PC-02	Reference2	-1000% to 1000%	00%	0xPC02/0x0C02
PC-03	Reference3	-1000% to 1000%	00%	0xPC03/0x0C03
PC-04	Reference4	-1000% to 1000%	00%	0xPC04/0x0C04
PC-05	Reference5	-1000% to 1000%	00%	0xPC05/0x0C05
PC-06	Reference6	-1000% to 1000%	00%	0xPC06/0x0C06
PC-07	Reference7	-1000% to 1000%	00%	0xPC07/0x0C07
PC-16	Simple PLC running mode	0: Stop after running one cycle 1: Keep final values after running one cycle 2: Repeat after running one cycle	0	0xPC10/0x0C10
PC-17	Simple PLC retentive selection	 <p>Retentive selection at power down 0: Not retentive 1: Retentive</p> <p>Retentive selection at stop 0: Not retentive 1: Retentive</p>	00	0xPC11/0x0C11
PC-18	Running time of simple PLC reference 0	00s (h) to 65000s (h)	00s (h)	0xPC12/0x0C12
PC-19	Acceleration/deceleration time of simple PLC reference 0	0 to 1	0	0xPC13/0x0C13
PC-20	Running time of simple PLC reference 1	00s (h) to 65000s (h)	00s (h)	0xPC14/0x0C14
PC-21	Acceleration/deceleration time of simple PLC reference 1	0 to 1	0	0xPC15/0x0C15
PC-22	Running time of simple PLC reference 2	00s (h) to 65000s (h)	00s (h)	0xPC16/0x0C16
PC-23	Acceleration/deceleration time of simple PLC reference 2	0 to 1	0	0xPC17/0x0C17
PC-24	Running time of simple PLC reference 3	00s (h) to 65000s (h)	00s (h)	0xPC18/0x0C18
PC-25	Acceleration/deceleration time of simple PLC reference 3	0 to 1	0	0xPC19/0x0C19
PC-26	Running time of simple PLC reference 4	00s (h) to 65000s (h)	00s (h)	0xPC1A/0x0C1A
PC-27	Acceleration/deceleration time of simple PLC reference 4	0 to 1	0	0xPC1B/0x0C1B
PC-28	Running time of simple PLC reference 5	00s (h) to 65000s (h)	00s (h)	0xPC1C/0x0C1C
PC-29	Acceleration/deceleration time of simple PLC reference 5	0 to 1	0	0xPC1D/0x0C1D
PC-30	Running time of simple PLC reference 6	00s (h) to 65000s (h)	00s (h)	0xPC1E/0x0C1E
PC-31	Acceleration/deceleration time of simple PLC reference 6	0 to 1	0	0xPC1F/0x0C1F
PC-32	Running time of simple PLC reference 7	00s (h) to 65000s (h)	00s (h)	0xPC20/0x0C20

Para No	Para Name	Setting Range	Default	Comms Address
PC-33	Acceleration/deceleration time of simple PLC reference 7	0 to 1	0	0xPC21/0x0C21
PC-50	Time unit of simple PLC running	0: s 1: h	0	0xPC32/0x0C32
PC-51	Reference 0 source	0: Set by PC-00 1: AI 4: PULSE reference 5: PID 6: Set by F0-08 and modified via UP/DOWN	0	0xPC33/0x0C33
Group Fd: Communication				
Fd-00	Baud rate	0000 to 5009	5005	0xFD00/0x0D00
Fd-01	Data format symbol	0: No check (8-N-2) 1: Even parity check (8-E-1) 2: Odd parity check (8-O-1) 3: No check (8-N-1) (Valid for Modbus)	0	0xFD01/0x0D01
Fd-02	Local address	0: Broadcast address 1 to 247	1	0xFD02/0x0D02
Fd-03	Response delay	0 to 20ms	2	0xFD03/0x0D03
Fd-04	Communication timeout	00: invalid 01s to 600s	00s	0xFD04/0x0D04
Fd-05	Modbus protocol selection and PROFIBUS-DP data frame	0: Non-standard Modbus protocol 1: Standard Modbus protocol	1	0xFD05/0x0D05
Fd-07	PC software selection	0: Disabled 1: Enabled	1	0xFD07/0x0D07
Group FF: Manufacturer Parameters, Access Denied				
Group PP: Function Parameter Management				
PP-00	User password	0 to 65535	0	0x1P00
PP-01	Industry macro	0: No operation 01: Restore factory parameters except motor parameters 02: Clear records 03: Reserved 04: Back up current user parameters 05 to 19: Reserved 20: Mechanical movement industry (conveying belt) 21: Inertia industry (fan) 22 to 500: Reserved 501: Restore user backup parameters	0	0x1P01
PP-02	Parameter display property	 <p>Group A display selection 0: Not displayed 1: Displayed</p> <p>Group U display selection 0: Not displayed 1: Displayed</p>	11	0x1P02
PP-04	Parameter modification property	0: Modifiable 1: Unmodifiable	0	0x1P04

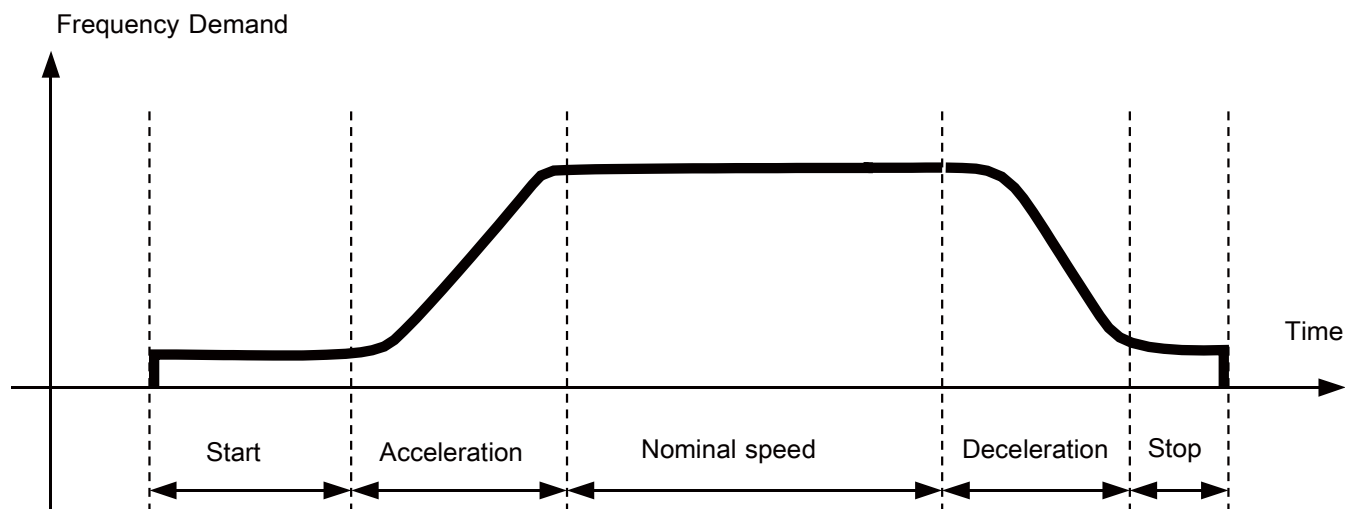
Para No	Para Name	Setting Range	Default	Comms Address
Group A1: Virtual DI/DO				
A1-07	Function selection for AI used as DI	Same as F4-00	0	0xA107/0x4107
A1-10	Active state selection for AI used as DI	 <div> AI 0: High level valid 1: Low level valid </div>	0	0xA10A/0x410A
Group A5: Control Optimization				
A5-00	DPWM switchover frequency upper limit	500 Hz to max frequency	800Hz	0xA500/0x4500
A5-03	Random PWM depth	0 to 10	0	0xA503/0x4503
A5-04	Overcurrent fast prevention	0: Disabled 1: Enabled	1	0xA504/0x4504
A5-05	Max. output voltage coefficient	100% to 110%	103%	0xA505/0x4505
A5-06	Undervoltage threshold	140 to 280 V	200V	0xA600/0x4600
Group AC: AI/AO Correction				
AC-00	AI measured voltage 1	-1000 to 10000 V	Factory-corrected	0xAC00/0x4C00
AC-01	AI displayed voltage 1	-1000 to 10000 V	Factory-corrected	0xAC01/0x4C01
AC-02	AI measured voltage 2	-1000 to 10000 V	Factory-corrected	0xAC02/0x4C02
AC-03	AI displayed voltage 2	-1000 to 10000 V	Factory-corrected	0xAC03/0x4C03
AC-12	AO target voltage 1	-1000 to 10000 V	Factory-corrected	0xAC0C/0x4C0C
AC-13	AO measured voltage 1	-1000 to 10000 V	Factory-corrected	0xAC0D/0x4C0D
AC-14	AO target voltage 2	-1000 to 10000 V	Factory-corrected	0xAC0E/0x4C0E
AC-15	AO measured voltage 2	-1000 to 10000 V	Factory-corrected	0xAC0F/0x4C0F
Note: Parameters in groups A1 and A5 are not displayed by default They can be displayed by setting FP-02				

53 Monitoring Function Code

Para No	Para Name	Comms Address
Group C : Monitoring Parameters		
C-00	Running frequency	0x7000
C-01	Frequency reference	0x7001
C-02	Bus voltage	0x7002
C-03	Output voltage	0x7003
C-04	Output current	0x7004
C-05	Output power	0x7005
C-07	DI state	0x7007
C-08	DO state	0x7008
C-09	AI voltage	0x7009
C-10	Communication protocol	0x700A
C-14	Load speed display	0x700E
C-15	PID reference	0x700F
C-16	PID feedback	0x7010
C-17	PLC stage	0x7011
C-18	Pulse reference	0x7012
C-19	Feedback speed	0x7013
C-20	Remaining running time	0x7014
C-21	AI voltage before correction	0x7015
C-24	Motor speed	0x7018
C-25	Accumulative power-on time	0x7019
C-26	Accumulative running time	0x701A
C-27	Pulse reference	0x701B
C-28	Communication reference	0x701C
C-30	Main frequency reference	0x701E
C-31	Auxiliary frequency reference	0x701F
C-32	Viewing any register address value	0x7020
C-37	Power factor angle	0x7025
C-41	DI state display	0x7029
C-42	DO state display	0x702A
C-45	Fault information	0x702D
C-59	Frequency Reference	0x703B
C-60	Running frequency	0x703C
C-61	AC drive state	0x703D
C-62	Current fault code	0x703E
C-64	Number of slaves	0x7040

6. Troubleshooting

6.1 AC Drive Performance Fine Tuning



Stage	Symptom	Diagnostics	Remedies
Start	Rollback	Start frequency is too low	Increase P6-03, ranging 0 to 10 Hz
		Torque output is insufficient	Make sure P3-00 = 0, P3-01 = 0
	Starting jerk	Start frequency is too high	Decrease P6-03, ranging 0 to 10 Hz
Acceleration	Jerk when acceleration starts	Too fast acceleration at this section	Increase P6-08, ranging 0 to $(100 - (P6-09))\%$ Or increase P0-17, ranging 0 to 6500s
	Jerk when acceleration end	Too fast acceleration at this section	Increase P6-09, ranging 0 to $(100 - (P6-08))\%$ Or increase P0-17, ranging 0 to 6500s
	Vibration	Overcurrent stall prevention occurs	It reaches current limit
Nominal speed	Vibration	Too big current loop PI gains	Double check the motor parameters and then perform motor auto-tuning once more
Deceleration	Vibration	Overcurrent stall prevention occurs	it reaches current limit
Stop	Jerk	Too strong DC injection at stop	Decrease P6-13, ranging 0 to 100%
	Slip	Too short DC injection active time at stop	Increase P6-14, ranging 0 to 100s
		Too weak DC injection at stop	Increase P6-13, ranging 0 to 100%
		Braking device applies too late	check the timing of braking device




62 Fault Codes and Troubleshooting

Display	Fault Name	Possible Causes	Solutions
Err02	Overcurrent during acceleration	Ground fault or short circuit exists in the output circuit†	Check whether short-circuit occurs on the motor, the motor cable or contactor†
		Acceleration time is too short†	Increase acceleration time†
		Customized torque boost or V/F curve is not appropriate†	Adjust the customized torque boost or V/F curve†
		The voltage is too low†	Adjust the voltage to normal range†
		The spinning motor is started†	Enable the catching a spinning motor function or start the motor after it stops†
		A load is added suddenly during acceleration†	Cancel the suddenly added load†
		The AC drive power class is small†	Replace a drive of larger power class†
		The braking resistor resistance is small† The braking resistor is short circuited†	Replace a new braking resistor†
Err03	Overcurrent during deceleration	Ground fault or short circuit exists in the output circuit†	Check whether short-circuit occurs on motor, motor cable or contactor†
		Acceleration time is too short†	Increase acceleration time†
		The voltage is too low†	Adjust the voltage to normal range†
		A load is added suddenly during deceleration†	Cancel the suddenly added load†
		Braking unit and braking resistor are not installed†	Install braking unit and braking resistor†
		The braking resistor resistance is small† The braking resistor is short circuited†	Replace a new braking resistor†
Err04	Overcurrent at constant speed	Ground fault or short circuit exists in the output circuit†	Check whether short-circuit occurs on the motor, motor cable or contactor†
		The voltage is too low†	Adjust the voltage to normal range†
		A load is added suddenly during running†	Cancel the suddenly added load†
		The AC drive power class is small†	Replace a drive of larger power class†
		The braking resistor resistance is small† The braking resistor is short circuited†	Replace a new braking resistor†
Err05	Overvoltage during acceleration	Input voltage is too high†	Adjust input voltage to normal range†
		An external force drives motor during acceleration†	Cancel the external force†
		Braking unit and braking resistor are not installed†	Install braking unit and braking resistor†
		Acceleration time is too short†	Increase acceleration time†
Err06	Overvoltage during deceleration	Input voltage is too high†	Adjust input voltage to normal range†
		An external force drives motor during deceleration†	Cancel the external force or install braking resistor†
		Deceleration time is too short†	Increase deceleration time†
		Braking unit and braking resistor are not installed†	Install braking unit and braking resistor†
Err07	Overvoltage at constant speed	Input voltage is too high†	Adjust input voltage to normal range†
		An external force drives motor during running†	Cancel the external force or install a braking resistor
Err08	Control power fault	Input voltage is not within the permissible range†	Adjust the input voltage in the permissible range†

Display	Fault Name	Possible Causes	Solutions
Err09	Undervoltage	Instantaneous power failure occurs	Reset the fault
		The AC drive's input voltage is not within the permissible range	Adjust the voltage to normal range
		The bus voltage is abnormal	Replace the AC drive
		The rectifier bridge, the pre-charge resistor, the drive board or the control board are abnormal	Replace the AC drive
Err 10	Drive overload	Load is too heavy or locked-rotor occurs on motor.	Reduce load or check motor and mechanical conditions
		The AC drive power class is small	Replace a drive of larger power class
Err 11	Motor overload	P9-01 (Motor overload protection gain) is set improperly	Set P9-01 correctly
		Load is too heavy or locked-rotor occurs on motor.	Reduce load or check motor and mechanical conditions
		The AC drive power class is small	Replace a drive of larger power class
Err 13	Output phase loss	Motor winding is damaged	Check resistance between motor wires Replace motor is winding is damaged
		The cable connecting the AC drive and the motor is abnormal	Check for wiring errors and ensure the output cable is connected properly
		The AC drive's three-phase outputs are unbalanced when the motor is running	Check whether the motor three-phase winding is normal
		The drive board or the IGBT is abnormal	Replace the AC drive
Err 14	IGBT overheat	The ambient temperature is too high	Lower the ambient temperature
		The ventilation is clogged	Clean the ventilation
		The fan is damaged	Replace the cooling fan
		Thermally sensitive resistor of IGBT is damaged	Replace the AC drive
		The inverter IGBT is damaged	Replace the AC drive
Err 15	External equipment fault	External fault signal is input via DI	Confirm that the mechanical condition allows restart (P8-18) and reset the operation
		External fault signal is input via virtual I/O	Confirm that the virtual I/O parameters in group A1 are set correctly and reset the operation
Err 16	Communication fault	Host computer is in abnormal state.	Check the cable of host computer.
		Communication cable is abnormal	Check the communication cables
		Communication parameters in group Fd are set improperly	Set communication parameters in group Pd properly
		After all the preceding checkings are done but the fault still exists, restore the default settings	
Err 18	Current detection fault	The drive board is abnormal	Replace the AC drive
Err21	EEPROM read-write fault	EEPROM chip is damaged	Replace the AC drive

Display	Fault Name	Possible Causes	Solutions
Err23	Short circuit to ground	Motor is short circuited to the ground.	Replace cable or motor.
		Top tube of the inverter is damaged. Ask professional to check.	Replace the AC drive.
Err26	Accumulative running time reached	Accumulative running time reaches the setting value.	Clear the record through parameter initialization.
Err27	User-defined fault 1	User-defined fault 1 is input via DI.	Reset the operation.
		User-defined fault 1 is input via virtual I/O.	
Err28	User-defined fault 2	User-defined fault 2 is input via DI.	Reset the operation.
		User-defined fault 2 is input via virtual I/O.	
Err29	Accumulative power-on time reached	Accumulative power-on time reaches the setting value.	Clear the record through parameter initialization.
Err30	Off load fault	The output current of AC drive is smaller than P9-64 (load loss detection level).	Check whether load is disconnected or the setting of P9-64 and P9-65 (load lost detection time) satisfies actual running condition.
Err31	PID feedback lost during running	PID feedback is smaller than the setting value of PA-26 (detection level of PID feedback loss).	Check PID feedback or set PA-26 properly.
Err40	Quick current limit	Load is too heavy or locked-rotor occurs on motor.	Reduce load or check motor and mechanical conditions.
		The AC drive power class is small.	Replace a drive of larger power class.
Err55	Slave faulty in speed synchronous	When speed synchronous is enabled, the master receives CAN communication data but does not detect the slave. Then Err55 is reported.	1. Check the slave CAN communication cable connection. 2. Check whether CAN communication of the slave is normal.

63 Symptoms and Diagnostics

Fault Name	Possible Causes	Solutions
There is no display at power-on 	The mains voltage is not input or too low	Check the power supply
	The AC Drive is damaged	Replace the AC drive
 is displayed at power-on	Wire between drive board and control board is in poor contact	Re-connect the 4-pin wire and 28-pin wire
	Control board is damaged	Replace the AC drive
	The motor or motor cable is short circuited to ground	Check whether short-circuit occurs on motor, motor cable or contactor
	The mains voltage is too low	Check the power supply
	The mains voltage is too low	
 (IGBT overheat) is detected frequently	The setting of carrier frequency is too high	Reduce carrier frequency (P0-15)
	The cooling fan is damaged, or ventilation is clogged	Replace the fan or clean the ventilation
	Components inside the AC drive are damaged (thermistor or others)	Replace the AC drive
The motor does not rotate after the AC drive runs	It is motor or motor cable problem	Check that wiring between AC drive and motor is normal
	Related AC drive and motor parameters are set improperly	Restore the factory parameters and re-set the motor parameters properly
	The drive board is faulty	Replace the AC drive
The DI terminals are disabled	Related parameters are set incorrectly	Check and set parameters in group P4 again
	External signals are incorrect	Re-connect external signal cables
	The control board is damaged	Replace the AC drive
The AC drive detects overcurrent and overvoltage frequently	Motor parameters are set improperly	Set motor parameters or perform motor auto-tuning again
	Acceleration/deceleration time is improper	Set proper acceleration/deceleration time
	Load fluctuates	Contact the agent or VTdrive

Revision History

Revision	Date	Description
V00	January 24, 2016	Related firmware version: F7-10 = U10.05 and F7-11 = U0.06
A01	March 22, 2016	Related firmware version: F7-10 = U10.06 and F7-11 = 001.00



8 800 555-63-74 бесплатные звонки по РФ

Контакты

+7 (495) 505-63-74 - Москва

+7 (473) 204-51-56 - Воронеж

+7 (812) 425-17-35 - Санкт-Петербург

purelogic.ru

394033, Россия, г. Воронеж,
Ленинский пр-т, 160, офис 149

Пн-Чт: 8.00–17.00

Пт: 8.00–16.00

Перерыв: 12.30–13.30

info@purelogic.ru