



Quick Start Guide

NE200/NE300

Variable Speed AC drive



Part number: 0478-0709-04
Issue: 4

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EU Declaration of Conformity

1. Product model

NE series variable speed drives and accessories

2. Name and address of the manufacturer

Manufacturer	Authorised representative in the EU
Leroy Somer Electro-Technique (Fuzhou) Co., Ltd. SZGM 1st Floor Machine Building Yanxiang Sci & Tech Park, No.11 Gaoxin Xi Road, Guangming District, Shenzhen 518107 China	Nidec Netherlands B.V. Kubus 155 3364 DG Slidrecht Netherlands

3. Responsibility

This declaration is issued under the sole responsibility of the manufacturer.

4. Object of the declaration

Model number	Interpretation	Format: NEaaa-bcddddde
aaa	Control Type	200, 300, 400, 600
b	Voltage Rating	2 = 200 V, 4 = 380 V
c	Voltage Phase	S = Single phase, T = Three phase
dddd	Power Rating	Example 0022 = 2.2 kW
e	Drive Type	G = Constant Torque, P = Fan and Pump

The model number may be followed by other characters that do not affect the ratings.

Accessories

Option modules for NE300/600	303PU02, NE30-I/O Lite, NE30-I/ORelay, NE30-ZS01, NE30-AN01, NE30-SP01, NEF-CCLINK, NEF-Profibus, NEF-Profinet, NEF-TCP, B602PG03A, B602PG04A, B602PG02A
Keypads	NEF-LED01, NEF-LCD01

5. The object of the declaration is in conformity with the relevant European Union harmonisation legislation

Low Voltage Directive (2014/35/EU)

Electromagnetic Compatibility Directive (2014/30/EU)

Restriction of Hazardous Substances Directives (2011/65/EU and 2015/863/EU)

Regulation of 2019/1781 of directive 2009/125/EC (Energy related products)

6. References to the relevant harmonised standards used

The drive products listed above have been designed and manufactured in accordance with the following European harmonised standards:

EN 61800-5-1:2007	Adjustable speed electrical power drive systems - Part 5-1: Safety requirements - Electrical, thermal and energy
EN 61800-3:2018	Adjustable speed electrical power drive systems - Part 3: EMC requirements and specific test methods

7. Signed for and on behalf of:



Zane Zheng
Director of Research and Development
Leroy Somer Electro-Technique (Fuzhou) Co., Ltd
Shenzhen Guangming Branch office

Date: 18th July 2023
Shenzhen, China

1 Safety information

1.1 Warnings, Cautions and Notes



A Warning contains information which is essential for avoiding a safety hazard.



A Caution contains information which is necessary for avoiding a risk of damage to the product or other equipment.

NOTE

A Note contains information which helps to ensure correct operation of the product.

1.2 Important safety information. Hazards. Competence of designers and installers

This guide applies to products which control electric motors either directly (drives) or indirectly (controllers, option modules and other auxiliary equipment and accessories). In all cases the hazards associated with powerful electrical drives are present, and all safety information relating to drives and associated equipment must be observed.

Specific warnings are given at the relevant places in this guide.

Drives and controllers are intended as components for professional incorporation into complete systems. If installed incorrectly they may present a safety hazard. The drive uses high voltages and currents, carries a high level of stored electrical energy, and is used to control equipment which can cause injury. Close attention is required to the electrical installation and the system design to avoid hazards either in normal operation or in the event of equipment malfunction. System design, installation, commissioning/start-up and maintenance must be carried out by personnel who have the necessary training and competence. They must read this safety information and this guide carefully.

1.3 Responsibility

It is the responsibility of the installer to ensure that the equipment is installed correctly with regard to all instructions given in this guide. They must give due consideration to the safety of the complete system, so as to avoid the risk of injury both in normal operation and in the event of a fault or of reasonably foreseeable misuse.

The manufacturer accepts no liability for any consequences resulting from inappropriate, negligent or incorrect installation of the equipment.

1.4 Compliance with regulations

The installer is responsible for complying with all relevant regulations, such as national wiring regulations, accident prevention regulations and electromagnetic compatibility (EMC) regulations. Particular attention must be given to the cross-sectional areas of conductors, the selection of fuses or other protection, and protective ground (earth) connections.

This guide contains instructions for achieving compliance with specific EMC standards.

All machinery to be supplied within the European Union in which this product is used must comply with the following directives:

2006/42/EC Safety of machinery.

2014/30/EU: Electromagnetic Compatibility.

1.5 Electrical hazards

The voltages used in the drive can cause severe electrical shock and/or burns, and could be lethal. Extreme care is necessary at all times when working with or adjacent to the drive. Hazardous voltage may be present in any of the following locations:

- AC and DC supply cables and connections
- Output cables and connections
- Many internal parts of the drive, and external option units

Unless otherwise indicated, control terminals are single insulated and must not be touched.

The supply must be disconnected by an approved electrical isolation device before gaining access to the electrical connections.

The STOP functions of the drive do not isolate dangerous voltages from the output of the drive or from any external option unit.

The drive must be installed in accordance with the instructions given in this guide. Failure to observe the instructions could result in a fire hazard.

1.6 Stored electrical charge

The drive contains capacitors that remain charged to a potentially lethal voltage after the AC supply has been disconnected. If the drive has been energized, the AC supply must be isolated at least ten minutes before work may continue.

1.7 Mechanical hazards

Careful consideration must be given to the functions of the drive or controller which might result in a hazard, either through their intended behaviour or through incorrect operation due to a fault. In any application where a malfunction of the drive or its control system could lead to or allow damage, loss or injury, a risk analysis must be carried out, and where necessary, further measures taken to reduce the risk - for example, an over-speed protection device in case of failure of the speed control, or a fail-safe mechanical brake in case of loss of motor braking.

None of the drive functions must be used to ensure safety of personnel, i.e. they must not be used for safety-related functions.

The system designer is responsible for ensuring that the complete system is safe and designed correctly according to the relevant safety standards.

The design of safety-related control systems must only be done by personnel with the required training and experience.

1.8 Access to equipment

Access must be restricted to authorized personnel only. Safety regulations which apply at the place of use must be complied with.

1.9 Environmental limits

Instructions in this guide regarding transport, storage, installation and use of the equipment must be complied with, including the specified environmental limits. This includes temperature, humidity, contamination, shock and vibration. Drives must not be subjected to excessive physical force.

1.10 Hazardous environments

The equipment must not be installed in a hazardous environment (i.e. a potentially explosive environment).

1.11 Motor

The safety of the motor under variable speed conditions must be ensured.

To avoid the risk of physical injury, do not exceed the maximum specified speed of the motor.

Low speeds may cause the motor to overheat because the cooling fan becomes less effective, causing a fire hazard. The motor should be installed with a protection thermistor. If necessary, an electric forced vent fan should be used.

The values of the motor parameters set in the drive affect the protection of the motor. The default values in the drive must not be relied upon. It is essential that the correct value is entered in the Motor Rated Current parameter.

1.12 Mechanical brake control

Any brake control functions are provided to allow well co-ordinated operation of an external brake with the drive. While both hardware and software are designed to high standards of quality and robustness, they are not intended for use as safety functions, i.e. where a fault or failure would result in a risk of injury. In any application where the incorrect operation of the brake release mechanism could result in injury, independent protection devices of proven integrity must also be incorporated.

1.13 Adjusting parameters

Some parameters have a profound effect on the operation of the drive. They must not be altered without careful consideration of the impact on the controlled system. Measures must be taken to prevent unwanted changes due to error or tampering.

1.14 Electromagnetic compatibility (EMC)

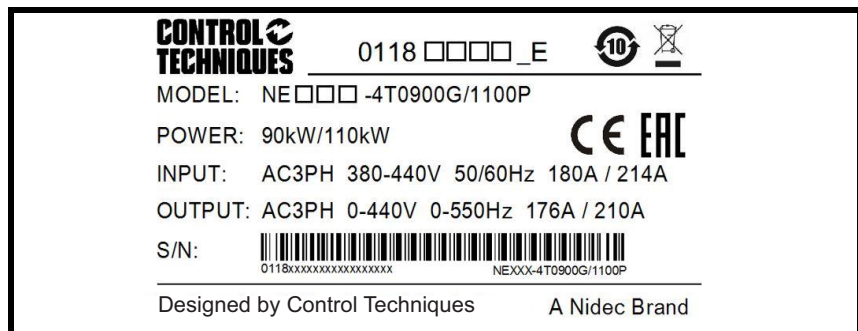
If the installation is poorly designed or other equipment does not comply with suitable standards for EMC, the product might cause or suffer from disturbance due to electromagnetic interaction with other equipment. It is the responsibility of the installer to ensure that the equipment or system into which the product is incorporated complies with the relevant EMC legislation in the place of use.

2 Introduction to NE200 and NE300

2.1 Product model description

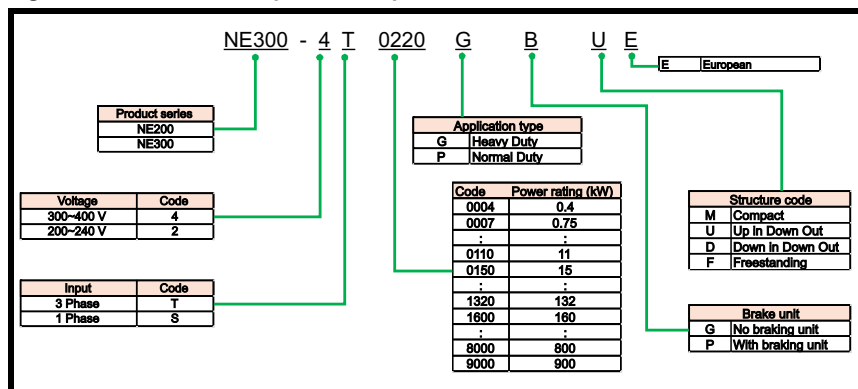
The digits and letters of the drive model number on the nameplate indicate information such as product series, voltage grade, power ratings and hardware versions.

Figure 2-1 Product model description



2.2 Product nameplate description

Figure 2-2 Product nameplate description



2.3 Product series

2.3.1 NE200 Product series

Table 2-1 NE200-4T**GB Three-phase 400 V Constant torque/heavy-duty application**

Power (kW)		0.75	1.5	2.2	4.0
Adapted motor (kW)		0.75	1.5	2.2	4.0
Output	Voltage (V)	3 phase 0~rated input voltage			
	Rated current (A)	2.5	4.0	6.0	9.0
	Overload capability	150 % 1 min; 180 % 20 sec.			
Input	Rated voltage/frequency	3 phase 380 V/440 V; 50 Hz/60 Hz			
	Voltage range	304 V~456 V; voltage imbalance $\leq 3\%$; Allowable frequency fluctuation $\pm 5\%$			
	Rated current (A)	3.7	5.4	7.0	10.7
Braking unit		Inbuilt as standard			
IP rating		IP20			
Cooling		Forced air cooling			

Table 2-2 NE200-4T**PB Three-phase 400 V Variable torque/normal-duty application**

Power (kW)		1.5	2.2	4.0	5.5
Adapted motor (kW)		1.5	2.2	4.0	5.5
Output	Voltage	3 phase 0~rated input voltage			
	Rated current	4.0	6.0	9.0	13
	Overload capability	120 % 1 min; 150 % 1 sec.			
Input	Rated voltage/frequency	3 phase 380 V/440 V; 50 Hz/60 Hz			
	Voltage range	304 V~456 V; voltage imbalance $\leq 3\%$; Allowable frequency fluctuation $\pm 5\%$			
	Rated current (A)	5.4	7.0	10.7	15.5
Braking unit		Inbuilt as standard			
IP rating		IP20			
Cooling		Forced air cooling			

Table 2-3 NE200-2S**GB Single-phase 220 V constant torque/heavy duty application**

Power (kW)		0.4	0.75	1.5	2.2
Adapted motor (kW)		0.4	0.75	1.5	2.2
Output	Voltage	3 phase 0~rated input voltage			
	Rated current	2.5	4.5	7.0	10
	Overload capability	150 % 1 min; 180 % 20 sec.			
Input	Rated voltage/frequency	1 phase 200 V/240 V; 50 Hz/60 Hz			
	Voltage range	176 V~264 V; voltage imbalance $\leq 3\%$; Allowable frequency fluctuation $\pm 5\%$			
	Rated current (A)	5.3	8.3	14	23
Braking unit		Inbuilt as standard			
IP rating		IP20			
Cooling		Forced air cooling			

2.3.2 NE300 Product series

Table 2-4 NE300-2T**GB Three-phase 220 V Constant torque/heavy-duty application**

Power (kW)		0.75	1.5	2.2	4.0	5.5	7.5	11	15	18.5	22	37	45
Adapted motor (kW)		0.75	1.5	2.2	4.0	5.5	7.5	11	15	18.5	22	37	45
Output	Voltage	3 Phase 0~Rated input voltage											
	Rated current	4.0	9.0	13	17	25	32	45	60	75	90	150	176
	Overload capability	150 % 1 min; 180 % 20 sec											
Input	Rated voltage/ frequency	3 Phase 200 V/220 V; 50 Hz/60 Hz											
	Voltage range	176 V~264 V; voltage imbalance ≤3 %; Allowable frequency fluctuation ±5 %											
	Rated current (A)	5.4	10.7	15	20.5	27	35	46.5	62	76	92	157	180
Braking unit		Built-in as standard								Need external			
IP rating		IP20											
Cooling		Forced air cooling											

Table 2-5 NE300-4T**GB Three-phase 400 V Constant torque/heavy-duty application**

Power (kW)		1.5	2.2	4	5.5	7.5	11	15	18.5	22	30	37	45	55	75	90	110
Adapted motor (kW)		1.5	2.2	4	5.5	7.5	11	15	18.5	22	30	37	45	55	75	90	110
Output	Voltage	Three-phase 0 to rated input voltage															
	Rated current	4	6	9	13	17	25	32	37	45	60	75	90	110	150	176	210
	Overload capability	150 % 1 min; 180 % 20 sec															
Input	Rated voltage/ frequency	Three-phase 380 V~440 V; 50 Hz/60 Hz															
	Voltage range	304 V~456 V; voltage imbalance ≤3 %; Allowable frequency fluctuation ±5 %															
	Rated current (A)	5.4	7	10.7	15	20.5	27	35	38.5	46.5	62	76	92	113	157	180	214
Braking unit		Built-in as standard									Need external						
IP rating		IP20															
Cooling		Forced air convection cooling															
Power (kW)		132	160	185	200	220	250	280	315	355	400	450	500	560	630	710	800
Adapted motor (kW)		132	160	185	200	220	250	280	315	355	400	450	500	560	630	710	800
Output	Voltage	Three-phase 0 to rated input voltage															
	Rated current	250	300	340	380	420	470	540	600	660	730	840	900	950	1160	1300	1460
	Overload capability	150 % 1 min; 180 % 20 sec															
Input	Rated voltage/ frequency	Three-phase 380 V~440 V; 50 Hz/60 Hz															
	Voltage range	304 V~456 V; voltage imbalance ≤3 %; Allowable frequency fluctuation ±5 %															
	Rated current (A)	256	307*	345*	385*	430*	480*	548*	610*	670*	740*	850*	910*	960*	1170*	1310*	1470*
Braking unit		Need external															
IP rating		IP20															
Cooling		Forced air convection cooling															

*NE300-4T1600G-F and above products are equipped with in-built DC reactor as standard.

Table 2-6 NE300_4T**PB Three-phase 400 V Variable torque/normal-duty application**

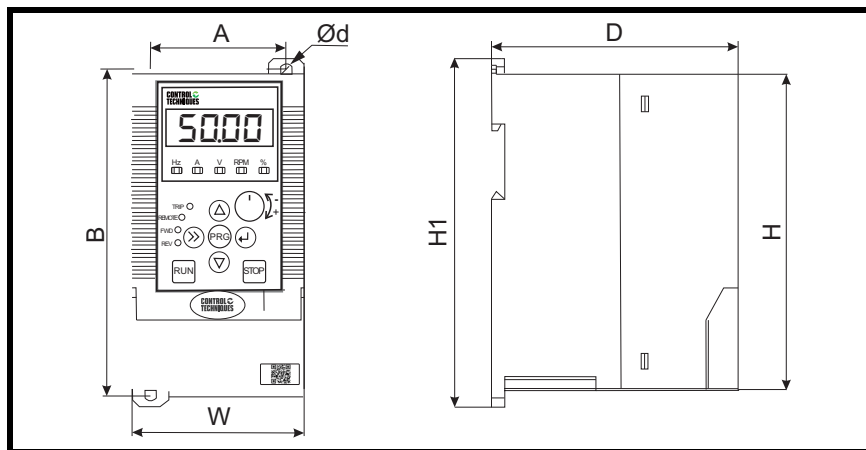
Power (kW)		2.2	4	5.5	7.5	11	15	18.5	22	30	37	45	55	75	90	110	132
Adapted motor (kW)		2.2	4	5.5	7.5	11	15	18.5	22	30	37	45	55	75	90	110	132
Output	Voltage	Three-phase 0 to rated input voltage															
	Rated current	6	9	13	17	25	32	37	45	60	75	90	110	150	176	210	250
Overload capability		120 % 1 min; 150 % 1 sec															
Input	Rated voltage/ frequency	Three-phase 380 V~440 V; 50 Hz/60 Hz															
	Voltage range	304 V~456 V; voltage imbalance ≤3 %; Allowable frequency fluctuation ±5 %															
	Rated current (A)	7	10.7	15	20.5	27	35	38.5	46.5	62	76	92	113	157	180	214	256
Braking unit		Built-in as standard									Need external						
IP rating		IP20															
Cooling		Forced air convection cooling															
Power (kW)		160	185	200	220	250	280	315	355	400	450	500	560	630	710	800	900
Adapted motor (kW)		160	185	200	220	250	280	315	355	400	450	500	560	630	710	800	900
Output	Voltage	Three-phase 0 to rated input voltage															
	Rated current	300	340	380	420	470	540	600	660	730	840	900	950	1160	1300	1460	1640
Overload capability		120 % 1 min; 150 % 1 sec															
Input	Rated voltage/ frequency	Three-phase 380 V~440 V; 50 Hz/60 Hz															
	Voltage range	304 V~456 V; voltage imbalance ≤3 %; Allowable frequency fluctuation ±5 %															
	Rated current (A)	307	345*	385*	430*	480*	548*	610*	670*	740*	850*	910*	960*	1170*	1310*	1470*	1650*
Braking unit		Need external															
IP rating		IP20															
Cooling		Forced air convection cooling															

* NE300-4T1850P-F and above products are equipped with external DC reactor as standard.

3 Product Installation

3.1 NE200 Product outline, Mounting dimension

Figure 3-1 Product Outline, Mounting Dimension Schematic diagram



NOTE

NE200 series support 35 mm (1.38 in) DIN-rail mounting.

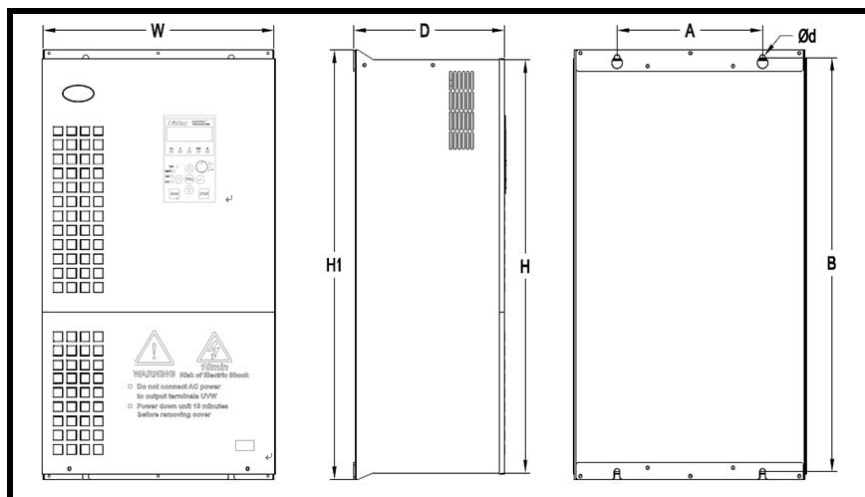
Drive Model	H	W	D	H1	A	B	d
NE200-2S0004GB	150 mm (5.91 in)	83 mm (3.27 in)	120 mm (4.72 in)	166 mm (6.54 in)	65 mm (2.56 in)	153 mm (6.02 in)	5 mm (0.24 in)
NE200-2S0007GB							
NE200-2S0015GB							
NE200-4T0007G/0015PB							
NE200-4T0015G/0022PB							
NE200-4T0022GB-M	200 mm (7.87 in)	120 mm (4.72 in)	140 mm (5.51 in)	215 mm (8.46 in)	98 mm (3.86 in)	202 mm (7.95 in)	5 mm (0.24 in)
NE200-2S0022GB							
NE200-4T0022G/0040PB							
NE200-4T0040G/0055PB							

NOTE

-M compact model

3.2 NE300 Product outline, Mounting dimension

Figure 3-2 Product Outline, Mounting Dimension Schematic diagram



Drive Model	H	W	D	H1	A	B	d
NE300-2T0007G	210 mm (8.27 in)	133 mm (5.24 in)	180 mm (7.09 in)	238 mm (9.37 in)	108 mm (4.25 in)	225 mm (8.89 in)	7 mm (0.28 in)
NE300-2T0015G	258 mm (10.16 in)	155 mm (6.10 in)	180 mm (7.09 in)	285 mm (11.22 in)	120 mm (4.72 in)	270 mm (10.63 in)	7 mm (0.28 in)
NE300-2T0022G							
NE300-2T0040G							
NE300-2T0055G	308 mm (12.13 in)	192 mm (7.56 in)	186 mm (7.32 in)	340 mm (13.39 in)	150 mm (5.91 in)	323 mm (12.72 in)	7 mm (0.28 in)
NE300-2T0075G							
NE300-2T0110G							
NE300-2T0150G	425 mm (16.73 in)	270 mm (10.63 in)	200 mm (7.87 in)	450 mm (17.72 in)	200 mm (7.87 in)	430 mm (16.93 in)	7 mm (0.28 in)
NE300-2T0185G	535 mm (21.06 in)	320 mm (12.60 in)	248 mm (9.76 in)	560 mm (22.05 in)	240 mm (9.45 in)	540 mm (21.26 in)	9 mm (0.35 in)
NE300-2T0220G							
NE300-2T0370G							
NE300-2T0450G	640 mm (25.20 in)	380 mm (14.96 in)	248 mm (9.76 in)	665 mm (26.18 in)	240 mm (9.45 in)	640 mm (25.20 in)	9 mm (0.35 in)
NE300-4T0015G/0022PB	210 mm (8.27 in)	133 mm (5.24 in)	180 mm (7.09 in)	238 mm (9.37 in)	108 mm (4.25 in)	225 mm (8.89 in)	7 mm (0.28 in)
NE300-4T0022G/0040PB							
NE300-4T0040G/0055PB							
NE300-4T0055G/0075PB	258 mm (10.16 in)	155 mm (6.10 in)	180 mm (7.09 in)	285 mm (11.22 in)	120 mm (4.72 in)	270 mm (10.63 in)	7 mm (0.28 in)
NE300-4T0075G/0110PB							
NE300-4T0110G/0150PB							
NE300-4T0150G/0185PB	310 mm (12.20 in)	192 mm (7.56 in)	186 mm (7.32 in)	340 mm (13.39 in)	150 mm (5.91 in)	323 mm (12.72 in)	7 mm (0.28 in)
NE300-4T0185G/0220PB							
NE300-4T0220G/0300PB							

Drive Model	H	W	D	H1	A	B	d
NE300-4T0300G/0370P	425 mm (16.73 in)	270 mm (10.63 in)	200 mm (7.87 in)	450 mm (17.72 in)	200 mm (7.87 in)	430 mm (16.93 in)	7 mm (0.28 in)
NE300-4T0370G/0450P							
NE300-4T0450G/0550P	535 mm (21.06 in)	320 mm (12.60 in)	248 mm (9.76 in)	560 mm (22.05 in)	240 mm (9.45 in)	540 mm (21.26 in)	9 mm (0.35 in)
NE300-4T0550G/0750P							
NE300-4T0750G/0900P	640 mm (25.20 in)	380 mm (14.96 in)	248 mm (9.76 in)	665 mm (26.18 in)	240 mm (9.45 in)	640 mm (25.20 in)	9 mm (0.35 in)
NE300-4T0900G/1100P							
NE300-4T1100G/1320P							
NE300-4T1320G/1600P-U							
NE300-4T1320G/1600P-D	710 mm (27.95 in)	465 mm (18.31 in)	355 mm (13.99 in)	750 mm (29.53 in)	380 mm (14.96 in)	719 mm (28.31 in)	11 mm (0.43 in)
NE300-4T1600G/1850P-U							
NE300-4T1600G/1850P-D							
NE300-4T1850G/2000P-U							
NE300-4T1850G/2000P-D							
NE300-4T2000G/2200P-U							
NE300-4T2000G/2200P-D	859 mm (33.82 in)	550 mm (21.65 in)	385 mm (15.16 in)	900 mm (35.43 in)	440 mm (17.32 in)	868 mm (34.17 in)	11 mm (0.43 in)
NE300-4T2200G/2500P-U							
NE300-4T2200G/2500P-D							
NE300-4T2500G/2800P-U							
NE300-4T2500G/2800P-D							
NE300-4T1600G/1850P-F							
NE300-4T1850G/2000P-F	1400 mm (55.12 in)	400 mm (15.75 in)	402 mm (15.83 in)	1400 mm (55.12 in)	460 mm (18.11 in)	1270 mm (50 in)	13 mm (0.51 in)
NE300-4T2000G/2200P-F							
NE300-4T2200G/2500P-F							
NE300-4T2500G/2800P-F	1600 mm (62.99 in)	505 mm (19.88 in)	420 mm (16.54 in)	1600 mm (62.99 in)	560 mm (22.05 in)	1460 mm (57.48 in)	13 mm (0.51 in)
NE300-4T2800G/3150P-F							
NE300-4T3150G/3550P-F							
NE300-4T3550G/4000P-F							
NE300-4T4000G/4500P-F	1800 mm (70.87 in)	780 mm (30.71 in)	500 mm (19.69 in)	1800 mm (70.87 in)	840 mm (33.07 in)	1630 mm (64.17 in)	13 mm (0.51 in)
NE300-4T4500G/5000P-F							
NE300-4T5000G/5600P-F							
NE300-4T5600G/6300P-F							
NE300-4T6300G/7100P-F	2000 mm (78.74 in)	1000 mm (39.37 in)	700 mm (27.56 in)	2000 mm (78.74 in)			
NE300-4T7100G/8000P-F							
NE300-4T8000G/9000P-F							
NE300-4T9000G-F	1800 mm (70.87 in)	1560 mm* (61.42 in)*	500 mm (19.69 in)	1800 mm (70.87 in)			

NOTE

-U input lines come from upside and output lines come out downside.

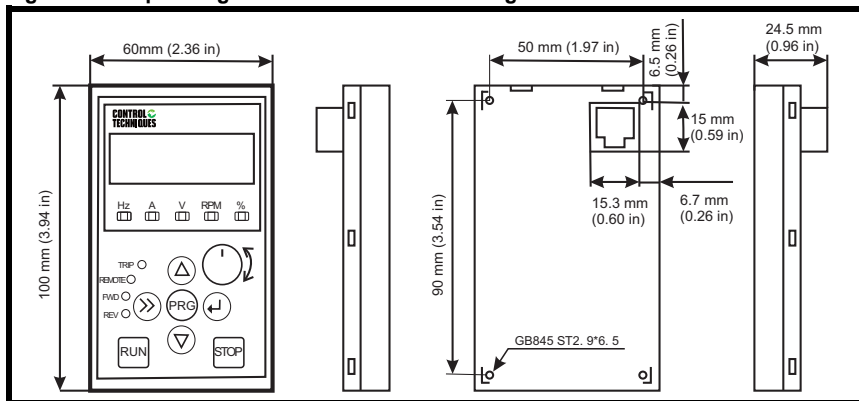
-D input lines come from downside and output lines come out downside.

-F freestanding models

* This model consists of two separate models, 1560 mm (61.42 in) is the net dimension without mounting distance. Must keep ≥ 200 mm (7.87 in) mounting distance between them.

3.3 Operating keypad panel outline and mounting dimensions (mm)

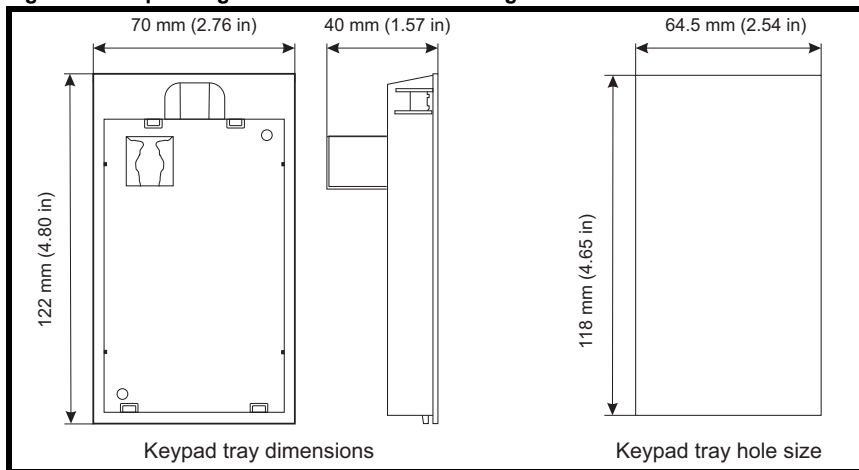
Figure 3-3 Operating Panel Outline and Mounting Dimension



3.4 Keypad holder outline and mounting dimensions

NEF-KB01 is the mounting tray when the operation panel is to install on the electric control cabinet. The outline and dimensions are as follows: (mm)

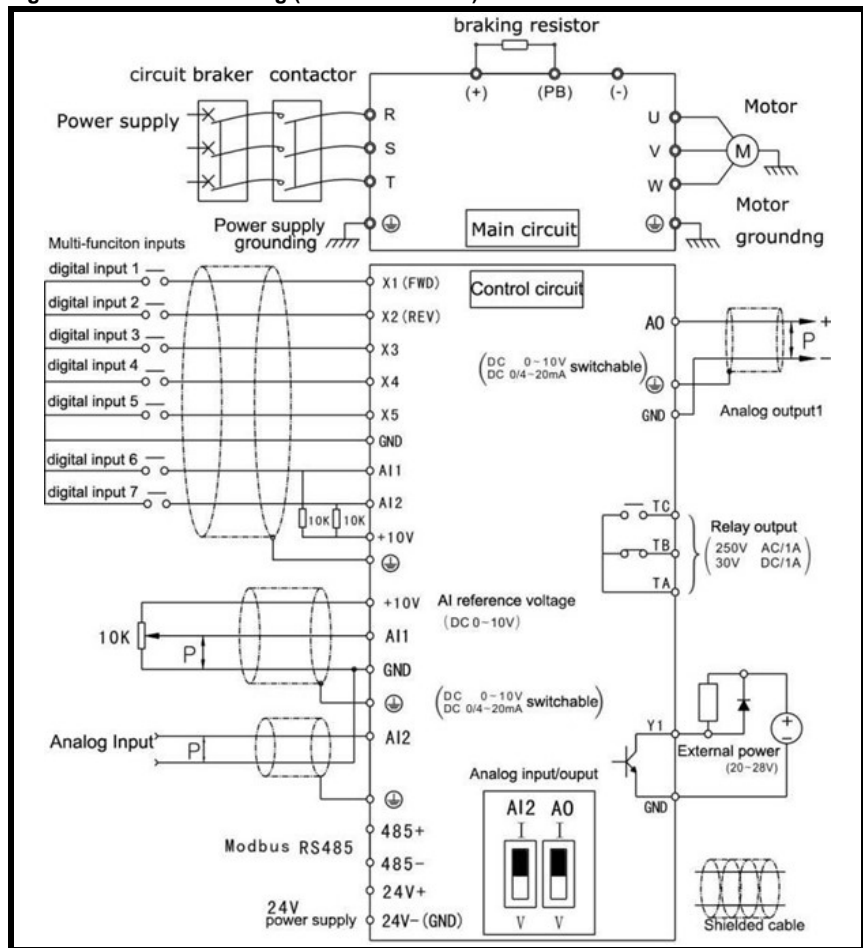
Figure 3-4 Operating Panel Outline and Mounting Dimension



4 Wiring of drive

4.1 Terminal wiring of NE200

Figure 4-1 Terminal wiring (0022GB~0040GB)

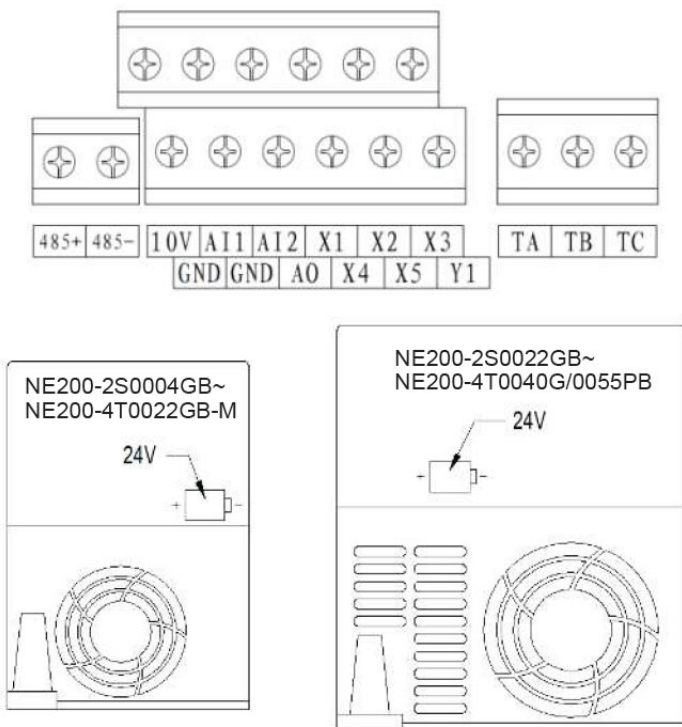


4.1.1 Functions of control circuit terminals (NE200)

Standard configuration of control circuit terminals (NE200)

Type	Terminal	Terminal function	Technical specification
Digital Input & output	X1~X5	Multi-functional input terminals 1~5	Optical-isolated input Frequency range: 0~200 Hz Voltage range: 0~12 V
	Y1	Open collector output	Optical-isolated output Maximum output current: 50 mA Output voltage range: 0~24 V
	GND	Terminal ref. grounding	
	24 V	24 V	24 V $\pm 5\%$, Maximum load: 200 mA, with overload and short circuit protection
Analog input	10 V	Analog input reference voltage	Open circuit voltage up to 11V; Maximum output 30 mA
	AI1	Analog input channel 1	Input Voltage range: 0~10 V Input impedance: 100 k Ω
	AI2	Analog input channel 2	Input Voltage range: 0~10 V Input impedance: 100 k Ω Input current range: 0~30 mA Current Input impedance: 500 Ω , 0~20 mA or 0~10 V analog input can be selected through DIP switch SW1
	GND	Terminal ref. grounding	
Analog output	AO	Analog output 1	0~20 mA: Allowed load impedance 200~500 Ω 0~10 V: Allowed load impedance ≥ 1 k Ω . With SC protection; 0~20 mA or 0~10 V analog output can be selected through DIP switch SW2
	GND	Analog grounding	
Relay output	TA/TB/TC	Relay output 1	TA-TB: NC; TA-TC: NO Contact capacity: 250 VAC/1 A, 30 VDC/1A
RS485	485+	485 differential positive	Rate: 1200/2400/4800/9600/19200/38400 bps; Max. parallel 127 No.s; SW3 select terminal resistor; Max. Length 500 m. (twisted shielding cable)
	485-	485 differential negative	
	GND	485 shielding grounding	Internal isolated with COM

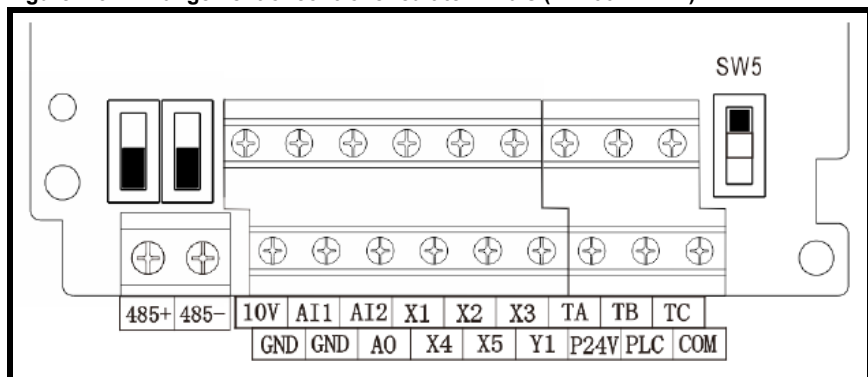
Figure 4-2 Arrangement of control circuit terminals (NE200)



4.1.2 PNP version (NE200-HW-24)

This pcb is standard fit on the European variants.

Figure 4-3 Arrangement of control circuit terminals (NE200-HW-24)



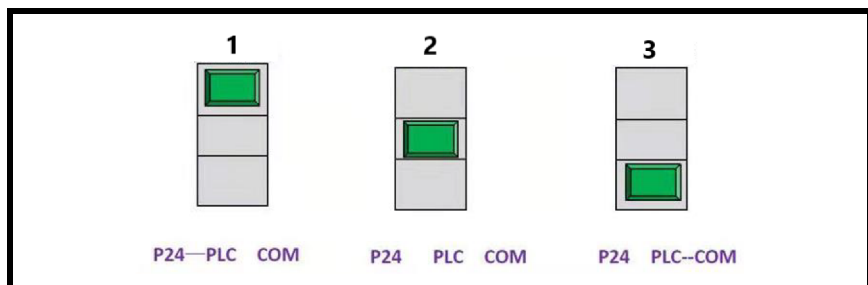
SW5 allows you to choose which type of connection you want to use: PNP or NPN.

You can use internal or external power source.

Pos.1: P24 and PLC terminals are connected (NPN with internal power source)

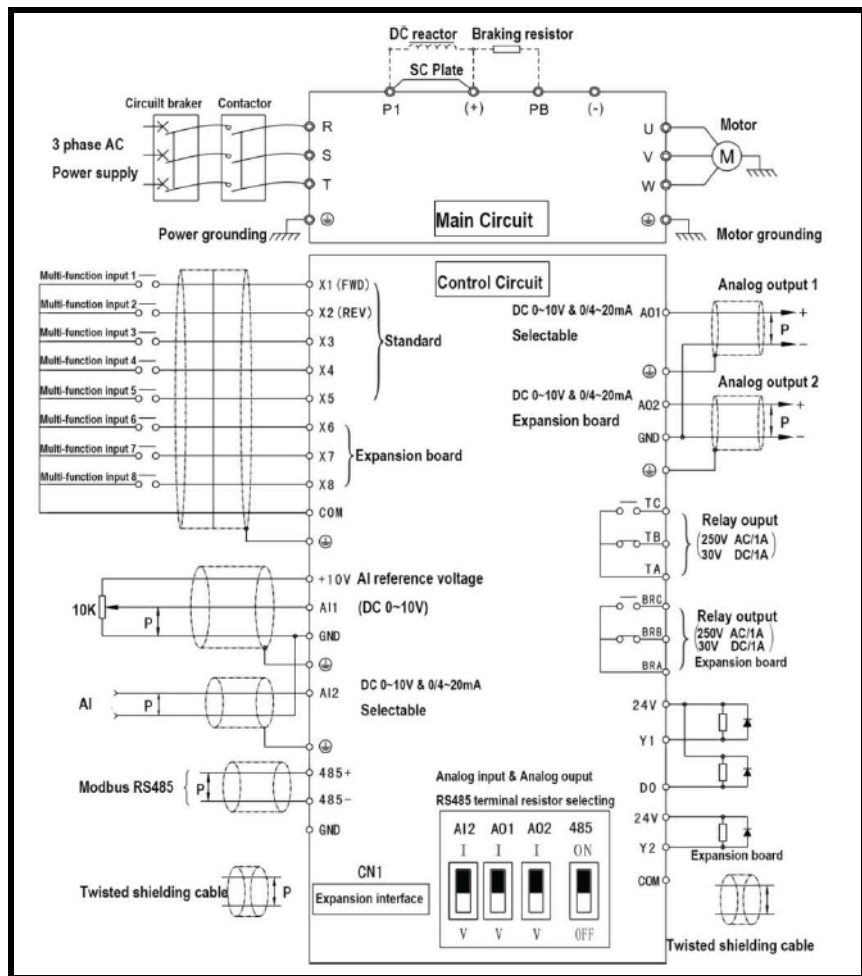
Pos.2: All terminals are disconnected (NPN\PNP with external power source)

Pos.3: COM and PLC terminals are connected (PNP with internal power source)



4.2 Terminal wiring of NE300

4.2.1 Functions of control circuit terminals

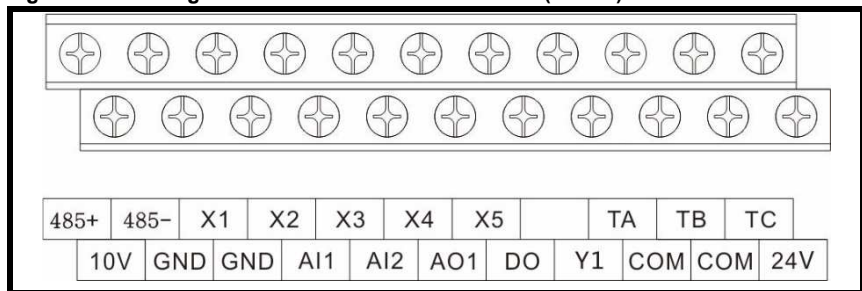


4.2.2 Functions of control circuit terminals (NE300)

Standard configuration of control circuit terminals (NE300)

Type	Terminal	Terminal function	Technical specification
Digital Input	X1~X3	Multi-functional input terminals 1~3	Optical-isolated input Frequency range: 0~200 Hz Voltage range: 0~24 V
	X4 X5	Multi-functional input or Single pulse input 4, 5	Multi-functional input: same as X1~X3 Single Pulse input: 0.1 Hz~50 kHz Voltage range: 0~24 V
	COM	Multi-functional input terminals common end	Internal isolated with GND
Digital output	24 V	24 V	24 V $\pm 5\%$, Maximum load: 200 mA, with overload and short circuit protection
	Y1	Open collector output 1	Optical-isolated output maximum output current: 50 mA Output voltage range: 0~24 V
	DO	Open collector or high speed pulse output	Output frequency: 0~50 kHz Open collector same as Y1
	COM	Open collector output common end	Internal isolated with GND
Analog input	10 V	Analog input reference voltage	Open circuit voltage up to 11 V; Internal isolated with com; Maximum load 30 mA, with overload and short circuit protection
	AI1	Analog input channel 1	Input Voltage range: 0~10 V Input impedance: 100 k Ω
	AI2	Analog input channel 2	Input Voltage range: 0~10 V Input impedance: 100 k Ω Input current range: 0~30 mA Current Input impedance: 500 Ω , 0~20 mA or 0~10 V analog input can be selected through DIP switch SW1
	GND	Analog grounding	Internal isolated with COM
Relay output	TA/TB/TC	Relay output 1	TA-TB: NC; TA-TC: NO Contact capacity: 250 VAC/1A, 30 VDC/1A
RS485	485+	485 differential positive	Rate: 1200/2400/4800/9600/19200/38400 bps; Max. parallel 127 No.s; SW3 select terminal resistor; Max.Length 500 m. (twisted shielding cable)
	485-	485 differential negative	
	GND	485 shielding grounding	Internal isolated with COM

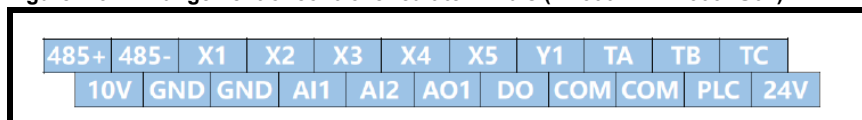
Figure 4-4 Arrangement of control circuit terminals (NE300)



4.2.3 NE300 advanced control PCBA diagram

303PU01 is the standard control PCBA. Need to use 303PU02 if you want to get the close-loop, CAN etc. The 303PU02 pcb is standard fit on the European variants.

Figure 4-5 Arrangement of control circuit terminals (NE300 PCBA 303PU02)



*PLC and +24V terminals are shorted in factory

4.3 Wiring of multi-function terminal

X1~X5 PNP/NPN wiring diagram (NE200-HW24/NE300 with PCBA 303PU02)

Figure 4-6 PNP wiring diagram (Using external power)

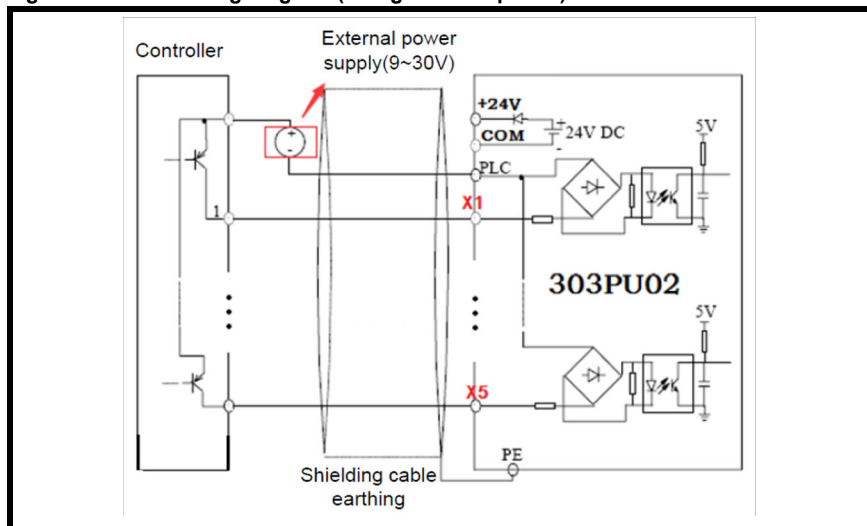


Figure 4-7 PNP wiring diagram (Using internal power)

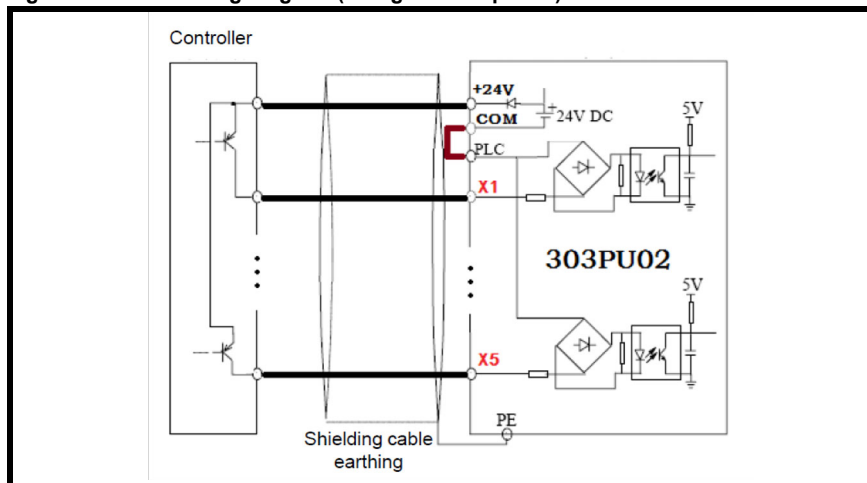


Figure 4-8 NPN wiring diagram (Using external power)

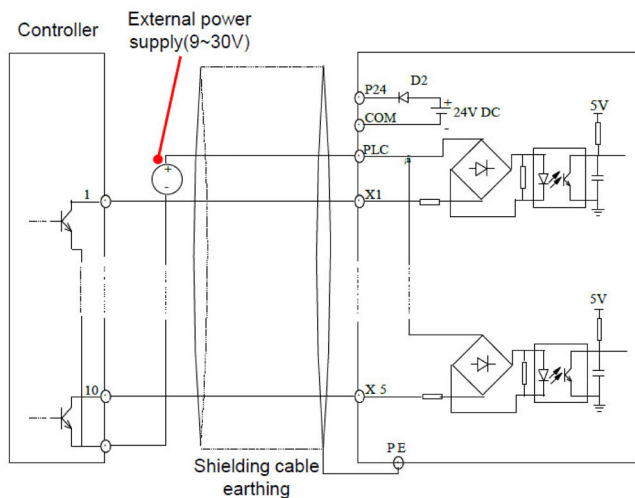
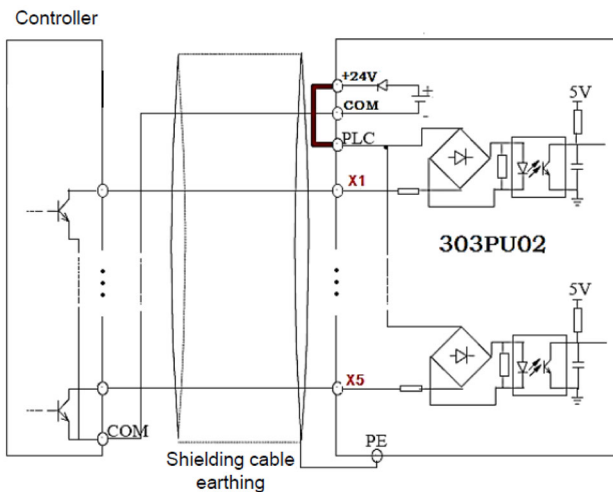


Figure 4-9 NPN wiring diagram (Using internal power)



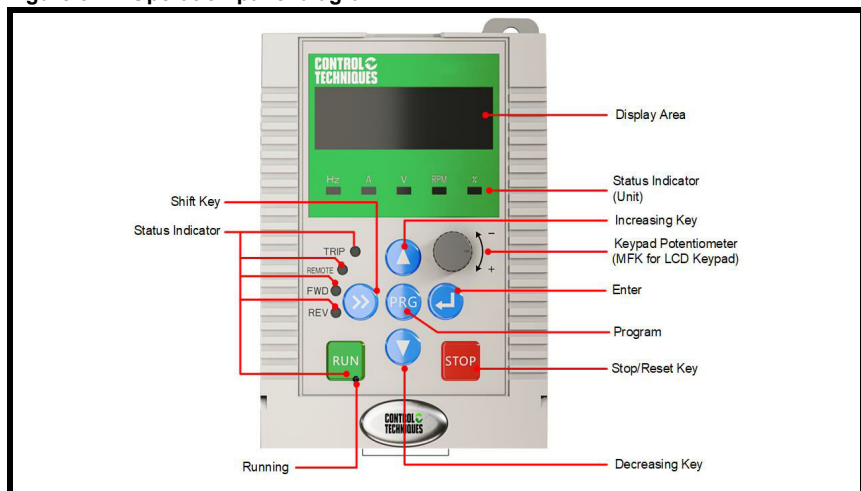
4.4 Electromagnetic compatibility (EMC)

An external EMC filter is required to meet category C3 requirements in accordance with IEC61800-3:2017.

The filter must be reliably grounded and the cable length between the filter and the drive must be less than 30m

5 Operation and Display

Figure 5-1 Operation panel diagram



5.1 Keyboard keys description

Keys	Name	Function
PRG	Programming key	Entry and exit of primary menu.
ENTER	Confirmation key	Enter the next level menu or confirm the data setting.
^	Increase key	Increase of the value or function code.
v	Decrease key	Decrease of the value or function code.
>>	Shift key	Select the to be displayed parameters in turn under stop interface or running interface; Choose the to be modified digits when setting parameters.
RUN	Running key	Run the drive under keypad operation mode.
STOP	Stop/reset	Stop the drive at running status; Reset operation in the fault alarm status. Its function is limited to setting of code FE.02.
Potentiometer		Adjust setting value when potentiometer is set up as input.

5.2 Instruction of function code viewing and modification

The operation panel of the NE200&300 drive adopts three levels menu structure to carry out operations such as parameter setting. The three levels are:

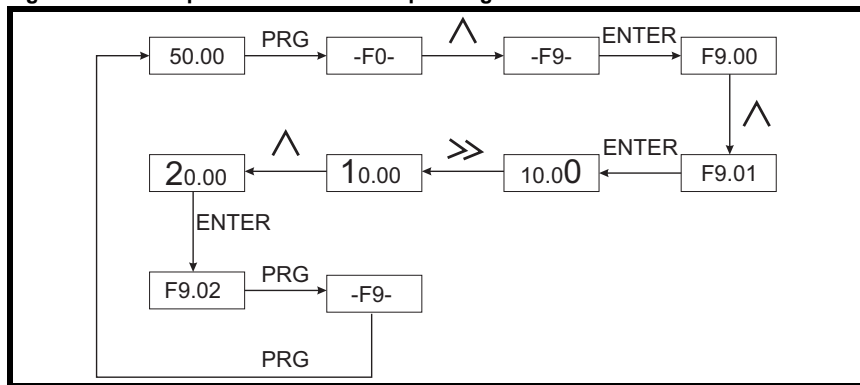
1. Groups of function code (level-1 menu)
2. Function code (level-2 menu)
3. Function code setup value (level-3 menu)

NOTE

At level 3 menu, pressing PRG key or ENTER key can return to level-2 menu. The difference between them is that: Pressing ENTER will save the setup and return to the level 2 menu and then automatically shift to the next function code; while pressing PRG key will directly return to level 2 menu without saving the parameter, and stay at current function code.

Below is the example of modifying the function code F9.01 from 10.00 Hz to 20.00 Hz. (The digits shown in larger font size refers to a blinking digit).

Figure 5-2 Example of 3 levels menu operating



At level-3 menu, if the parameter has no blinking digit, it indicates that this function code cannot be modified. The possible reasons include:

1. The function code is an unchangeable parameter, such as actual detection parameter, running record parameter, etc.
2. The function code cannot be modified in running status. It can be modified only after the drive has stopped.

6 Run the motor

Operations	Details
Before power-on	Check: No operating signal. The motor has been connected. 1 phase 220 V/ 3 phase 380 V input power has been connected correctly.
The drive is powered on	Confirm the drive displays the correct operating mode on power-up. Reset the drive if the operation mode is incorrect. Contact your supplier if problem still exist.
G/P model selection	FP.05 =0 Type G FP.05 =1 Type P
Set max, upper & lower limit frequency	F0.10 Basic frequency F0.11 Max frequency F0.12 Freq. upper limit F0.13 Freq. lower limit
Set control mode	F0.01=0: Sensorless vector control-1 F0.01=1: Sensorless vector control-2 F0.01=2: Vector control with encoder (NE300 only) F0.01=3: V/F control
Set acceleration and deceleration time	F0.19 Acceleration time (s) F0.20 Deceleration time (s)
Set parameters on the motor nameplate	F5.00 Motor type F5.01 Poles of motor F5.02 Rated power of motor (kW) F5.03 Rated current of motor (A) F5.04 Rated speed of rotation of motor (rpm)
Auto-tuning of motor	F5.10=1 (static auto-tuning) or F5.10=2 (rotating auto-tuning, must unload) operate the motor via keypad to perform the auto-tuning.
Run the motor	Press Run button to run the motor. Increase or decrease the speed with keypad potentiometer.

7 List of parameters

Attention:

'o' means the parameter can be changed during running.

'x' means the parameter cannot be changed during running;

'*' means the parameter is detected value or fixed value and not changeable.

'-' means manufacturer parameter and the users have no access to it.

'②' indicates this parameter is only for NE200

'③' indicates this parameter is only for NE300

F0: Basic function group

Code	Description	Setting range	Default	Modify	Modbus Address
F0.00	② Reserved	Reserved	Reserved	-	0100H
	③ Drive type display	0: Type G (Heavy duty) 1: Type P (Normal duty)	0: Type G (Heavy duty)	x	0100H
F0.01	Control mode	0: Sensorless vector control-1 1: Sensorless vector control-2 ② 2: Reserved ③ 2: Vector control with encoder 3: V/F control	0: Sensorless vector control-1	x	0101H
F0.02	Run command control mode	0: Keypad control 1: Terminal control 2: Communication control	0: Keypad control	o	0102H
F0.03	Frequency reference1 (Freq. ref. 1)	0: Digital reference (Keypad, terminal up/down) 1: AI1 2: AI2 3: PULSE setup 4: Communication 5: MS (Multi-step) Speed 6: Programmable Logic Controller (PLC) 7: PID 8: Keypad potentiometer	0: Digital reference (Keypad, terminal up/down)	o	0103H
F0.04	Frequency reference2 (Freq. ref. 2)	1: AI1 2: AI2 3: PULSE setup 4: Communication 5: MS (Multi-step) Speed 6: Programmable Logic Controller (PLC) 7: PID 8: Keypad potentiometer	1: AI1	o	0104H

Code	Description	Setting range	Default	Modify	Modbus Address
F0.05	Frequency setting selection	0: Freq. ref.1 1: Freq. ref.2 2: Freq. ref.1+ Freq. ref.2 3: Switch between Freq.ref.1 & Freq.ref.2 by terminal 4: Switch between (Freq.ref.1+ Freq.ref.2) & Freq.ref.1 by terminal 5: MIN (Freq.ref.1, Freq. ref.2) 6: MAX (Freq.ref.1, Freq. ref.2)	0: Freq. ref.1	o	0105H
F0.06	UP/DOWN Preset freq.	0~ Max frequency	50.00 Hz	o	0106H
F0.07	Terminal UP/DOWN rate	0.01~50.00 Hz/s	1.00 Hz/s	o	0107H
F0.08	UP/DOWN function source select	0: Keypad and terminal 1: Keypad 2: Terminal	1: Keypad	o	0108H
F0.09	UP/DOWN data saving selection	0: Saved at power loss 1: Not saved at power loss 2: Be cleared to 0 after stop	0: Saved at power loss	o	0109H
F0.10	Basic frequency	0.10~550.0 Hz	50.00 Hz	x	010AH
F0.11	Max frequency	MAX[50.00Hz, Freq.upper limit, Reference frequency]~550.0Hz	50.00 Hz	x	010BH
F0.12	Freq. upper limit	Freq. lower limit ~ Max frequency	50.00 Hz	x	010CH
F0.13	Freq. lower limit	0.00~Frequency upper limit	0.00 Hz	x	010DH
F0.14	Max output voltage	110~440 V	Determined by model size	x	010EH
F0.15	Switching freq.	1.0~16.0 kHz	Determined by model size	o	010FH
F0.16	Switching freq. auto-adjust	0: Disable 1: Enable	0: Disable	o	0110H
F0.17	Keypad direction	0: Forward 1: Reverse	0: Forward	o	0111H
F0.18	Motor wiring direction	0: Positive sequence 1: Reversed sequence	0: Positive sequence	x	0112H
F0.19	Acc. time1	0.1~3600 s	Determined by model size	o	0113H
F0.20	Dec. time1	0.1~3600 s	Determined by model size	o	0114H

F1: Start and stop control

Code	Description	Setting range	Default	Modify	Modbus Address
F1.00	② Start mode	0: Start directly 1: DC injection brake first and then start at start freq.	0: Start directly	o	0200H
	③ Start mode	0: Start directly 1: DC injection brake first and then start at start freq. 2: Speed tracking and start			
F1.01	Start freq.	0.10~60.00 Hz	0.50 Hz	o	0201H
F1.02	Start freq. hold time	0.0~10.0 s	0.0 s	o	0202H
F1.03	② DC brake current at start	G: 000.0~100.0 % rated current	000.00 %	o	0203H
	③ DC brake current at start	G: 0.0~100.0 % rated current P: 0.0~80.0 % rated current			
F1.04	DC brake time at start	0.0~030.0 s	0.0 s	o	0204H
F1.05	Acc.Dec. mode	0: Linear 1: S-curve	0: Linear	o	0205H
F1.06	Time of S-curve initial stage	10.0~50.0 % (Acc./ Dec. time) F1.06 + F1.07 ≤ 90 %	30.0 %	o	0206H
F1.07	Time of S-curve rising stage	10.0~80.0 % (Acc./ Dec. time) F1.06 + F1.07 ≤ 90 %	40.0 %	o	0207H
F1.08	Stop mode	0: Deceleration to stop 1: Coast to stop 2: Deceleration+DC braking	0: Deceleration to stop	x	0208H
F1.09	DC brake trigger frequency at stop	00.00~99.99 100.0~550.0 Hz	00.00 Hz	o	0209H
F1.10	DC brake waiting time at stop	0.00~10.00 s	0.00 s	o	020AH
F1.11	② DC brake current at stop	000.0~100.0 % rated current	000.0 %	o	020BH
	③ DC brake current at stop	G: 0.0~100.0 % rated current P: 0.0~80.0 % rated current			
F1.12	DC brake time at stop	0.0~30.0 s	0.0 s	o	020CH
F1.13	Energy consumption brake validity	0: Disabled 1: Enabled	0: Disabled	o	020DH
F1.14	Energy consumption brake action voltage	380 V: 650~750 V 220 V: 360~390 V	700 V 380 V	o	020EH

Code	Description	Setting range	Default	Modify	Modbus Address
F1.15	Power failure and fault restart	0: Disable 1: Enabled for power failure 2: Enabled for fault 3: Enabled for both NOTE Power recovery restart is only valid for terminal 2-wires mode. Fault restart is invalid for under-voltage fault.	0: Disable	o	020FH
F1.16	Waiting time for restart	0.0~3600.0 s	0.0 s	o	0210H
F1.18	③ Rotational speed tracking direction inspection	0: Disable 1: Enable	0: Disable	o	0212H
F1.19	③ Rotational speed tracking direction inspection time	10~1000 ms	50 ms	o	0213H

F2: Auxiliary running function

Code	Description	Setting range	Default	Modify	Modbus Address
F2.00	Jog running freq.	0.0~50.00 Hz	5.00 Hz	o	0300H
F2.01	Jog Acc. time	② 0.1~360.0 s ③ 0.1~3600.0 s	② 6.00 s ③ 20.0 s	o	0301H
F2.02	Jog Dec. time	② 0.1~360.0 s ③ 0.1~3600.0 s	② 6.00 s ③ 20.0 s	o	0302H
F2.03	Acc. time2	② 0.1~360.0 s ③ 0.1~3600.0 s	② 6.00 s ③ 20.0 s	o	0303H
F2.04	Dec. time2	② 0.1~360.0 s ③ 0.1~3600.0 s	② 6.00 s ③ 20.0 s	o	0304H
F2.05	Acc. time3	② 0.1~360.0 s ③ 0.1~3600.0 s	② 6.00 s ③ 20.0 s	o	0305H
F2.06	Dec. time3	② 0.1~360.0 s ③ 0.1~3600.0 s	② 6.00 s ③ 20.0 s	o	0306H
F2.07	Acc. time4	② 0.1~360.0 s ③ 0.1~3600.0 s	② 6.00 s ③ 20.0 s	o	0307H
F2.08	Dec. time4	② 0.1~360.0 s ③ 0.1~3600.0 s	② 6.00 s ③ 20.0 s	o	0308H

Code	Description	Setting range	Default	Modify	Modbus Address
F2.09	② Skip freq. 1	0.00~300.0 Hz	0.00 Hz	x	0309H
	③ Skip freq. 1	0.00~320.0 Hz	0.00 Hz	x	
F2.10	③ Skip freq. 2	0.00~320.0 Hz	0.00 Hz	x	030AH
F2.11	Skip freq. amplitude	0.00~15.00 Hz	0.00 Hz	x	030BH
F2.12	Anti-Reverse control	0: Reverse rotation allowed 1: Reverse rotation not allowed	0: Reverse rotation allowed	o	030CH
F2.13	Fwd/ Rev switch dead-zone time	0.0~3600 s	0.0 s	o	030DH
F2.14	Freq. lower-limit treatment	0: Run with frequency lower limit 1: Zero frequency operation	0: Run with frequency lower limit	x	030EH
F2.15	Reserved	Reserved	0	x	
F2.16	③ Energy-saving control select	0: Disable 1: Enable	1: Enable	o	0310H
F2.17	AVR Function	0: Disabled 1: Enabled 2: Disabled only at speed-down	2: Disabled only at speed-down	x	0311H
F2.18	Over modulation	0: Enabled 1: Disabled	1: Disabled	x	0312H
F2.19	③ Droop control	0.00~10.00 Hz	0.00 Hz	o	0313H
F2.20	Fan control mode	0: Auto mode 1: Always Running	0: Auto mode	x	0314H
F2.21	Instant-power-failure treatment	0: Disabled ② 1: Drop frequency (Reserved) ③ 1: Drop frequency 2: Stop directly	0: Disabled	o	0315H
F2.22	Instant-power-failure freq. drop rate	210~600 V	380 V: 420 V 220 V: 230 V	o	0316H
F2.23	Instant-power failure freq. drop point	1-800	400	o	0317H
F2.24	Motor speed display ratio	0.00~500.0 %	100.0 %	o	0318H
F2.25	UP/DOWN drop to minus frequency	0: Enabled 1: Disable	1: Disable	o	0319H
F2.26	ENTER key function	0: No special action 1: FWD/REV switching 2: RUN for forward; Enter for reverse; STOP for stop 3: Jog running	0: No special action	o	031AH
F2.27	Freq. resolution	0: 0.01 Hz 1: 0.1 Hz	0: 0.01 Hz	x	031BH

Code	Description	Setting range	Default	Modify	Modbus Address
F2.28	Acc.Dec. time unit	0: 0.1 s 1: 0.01 s	② 1: 0.01 s ③ 0: 0.1 s	x	031CH
F2.29	High freq. modulation mode	0: Asynchronous modulation 1: Synchronous modulation	0: Asynchronous modulation	x	031DH
F2.31	IO output Freq. baseline select while vector control	0: According to the Freq. after ACC/DEC speed 1: According to the current value	0: According to the Freq. after ACC/DEC speed	o	031FH
F2.32	PWM modulation mode	0: Uplink 16Hz discrete modulation mode (5-stage mode), downlink 12 Hz continuous modulation mode (7-stage mode) 1: Fixed as z continuous modulation mode (7-stage mode)	0: Uplink 16Hz discrete modulation mode (5-stage mode), downlink 12 Hz continuous modulation mode (7-stage mode)	o	0320H
F2.33	Threshold value of Zero Freq. running	0.00~550.0 Hz	0.0 Hz	o	0321H
F2.34	Range between start Freq. and threshold value of Zero Freq.	0.00~550.0 Hz	0.0 Hz	o	0322H
F2.35	Synchronous motor IQ filter	0: with filter 1: without filter	0: with filter	o	0323H
F2.36	Voltage modulation coefficient of synchronous motor with weak magnetic field	0.0~120.0 %	105.0 %	o	0324H
F2.37	Power calibration at low voltage	70.0~130.0 %	100.0 %	o	0325H
F2.38	Power calibration high voltage	70.0~130.0 %	100.0 %	o	0326H
F2.39	③ V/F current-limiting Kp	100~3000	500	o	0327H
F2.40	③ V/F current-limiting Ki	100~3000	500	o	0328H
F2.41	Linear velocity at 60 Hz	000~65000	6000	o	0329H
F2.42	Speed setting	0~65535 rpm	0 rpm	o	032AH
F2.43	Line speed setting	0.000~65.535	0.00	o	032BH
F2.44	Line speed displays decimal points	0: Integer 1: 1 decimal place 2: 2 decimal places 3: 3 decimal places	3: 3 decimal places	o	032CH

Code	Description	Setting range	Default	Modify	Modbus Address
F2.45	Reference frequency of ACC/DEC time	0: Maximum frequency 1: 100 Hz 2: Set frequency	0: Maximum frequency	o	032DH
F2.46	③ Synchro parameter option 1	Units digit: 0: PWM unsubdivided 1: PWM subdivided Tens digit: 0: The position observer uses a reconstructed voltage 1: The position observer uses a given voltage	10	x	032EH
F2.47	Fire alarm mode frequency	-320.00 to 320.00 Hz	0.00 Hz	o	032FH

F3: Vector Control Parameters

Code	Description	Setting range	Default	Modify	Modbus Address
F3.00	Speed loop proportional gain 1	1~3000	1000	o	0400H
F3.01	Speed loop integral time 1	1~3000	300	o	0401H
F3.02	Switching frequency 1	0.00~60.00 Hz	5.00 Hz	o	0402H
F3.03	Speed loop proportional gain 2	1~3000	800	o	0403H
F3.04	Speed loop integral time 2	1~3000	200	o	0404H
F3.05	PID Switching frequency 2	0.00~60.00 Hz	10.00 Hz	o	0405H
F3.06	Speed loop filter time constant	0~500 ms	② 2 ms ③ 3 ms	o	0406H
F3.07	Current loop proportional coefficient	0~6000	3000	o	0407H
F3.08	Current loop integral coefficient	0~6000	1500	o	0408H
F3.09	VC Slip compensation	000.0~200.0 %	100.0 %	o	0409H
F3.10	Torque control	0: Torque control Disabled 1: Torque digital setting(F3.11) 2: AI1 3: AI2 4: Reserved ② 4: Pulse ③ 5: communication 6: Keypad potentiometer	0: Torque control Disabled	o	040AH
F3.11	Torque digital setting	0.00~200.0 %	50.0 %	o	040BH
F3.12	Torque control frequency limit	0: Digital limit of braking torque 1 (F3.25) 1: Digital limit of braking torque 2 (F3.13) 2: AI1 3: AI2 4 Pulse 5 communication 6 keypad potentiometer	0: Digital limit of braking torque 1 (F3.25)	o	040CH
F3.13	Torque control limit digital setting 2	0.00~200.0 %	50.00 %	o	040DH
F3.14	③ Encoder pulse number	1~65535	1024	o	040EH

Code	Description	Setting range	Default	Modify	Modbus Address
F3.16	③ PG direction	0: Forward 1: Reverse	0: Forward	o	0410H
F3.17	ACC/DEC limit when vector control	0: Limited 1: Not limited	1: Not limited	o	0411H
F3.18	SVC speed calculation filter	0~31	28	o	0412H
F3.19	SVC mode	0: Mode1 1: Mode2	0: Mode1	o	0413H
F3.20	SVC mode2 flux weaken coefficient	20~500 %	100 %	o	0414H
F3.21	Flux weaken control selection	0: Disable 1: Enable	0: Disable	o	0415H
F3.22	Torque limit compensation coefficient while constant power output	60.0~300.0 %	② 85.0 % ③ 200.0 %	o	0416H
F3.23	Reserved	Reserved	Reserved	Reserved	
F3.24	Torque ref. terminal single modulation	0.0~10.0 %	0.0 %	o	0418H
F3.25	Torque ref. terminal total modulation	0.0~100.0 %	50.0 %	o	0419H
F3.26	Torque limit in vector control mode	0~300.0 %	150.0 %	o	041AH
F3.27	Torque boost cut-off frequency in torque control mode	0.00~15.00 Hz	12.00 Hz	o	041BH
F3.28	Torque boost amount in torque control mode	0.0~20.0 %	15.0 %	o	041CH
F3.29	Synchro parameters Option 2	Units: 0: PM-SVC1 (Strong low speed carrying capacity) 1: PM-SVC2 (Good performance at high speed) 2: Automatic switch between low speed PM-SVC1 and high speed PM-SVC2 Tens: 0: The current loop parameter is not adjusted when the motor self-learning 1: The current loop parameter is adjusted when the motor self-learning	0101	x	041DH

Code	Description	Setting range	Default	Modify	Modbus Address
F3.31	Synchronous motor initial position detection	0: Do not detect 1: Detect in power-on first run 2: Detect every time	2: Detect every time	o	041FH
F3.32	Synchronous motor initial position detection current	50~120 %	90 %	o	0420H
F3.33	Initial position detection pulse width	0~1200 μ s	0	o	0421H
F3.34	Initial position detection pulse width actual value	0~1200 μ s	0	*	0422H
F3.35	Synchronous motor braking torque limit	0.0~300.0 %	150.0 %	o	0423H
F3.36	Synchronous motor flux weaken mode	0: Flux weaken mode is invalid 1: Flux weaken mode is valid	0: Flux weaken mode is invalid	o	0424H
F3.37	Max flux weaken current	0~100.0 %	50.0 %	o	0425H
F3.38	Flux weaken regulation proportional coefficient	0~3000	500	o	0426H
F3.39	Flux weaken regulation integration coefficient	0~3000	800	o	0427H
F3.40	Synchronous motor low speed Min. current	0~100 %	30 %	o	0428H
F3.41	Synchronous motor low speed switching frequency	1.0~16.0 kHz	2.0 kHz	o	0429H
F3.42	Synchronous motor Min excitation current	-100.0~100.0 %	0.0 %	o	042AH
F3.43	② Switching frequency between I/F and SVC	0~550.00 Hz	0.00 Hz	o	042BH
F3.44	Synchronous motor position evaluating low speed filter	2~100	40	o	042CH
F3.45	Synchronous motor position evaluating high speed filter	2~100	15	o	042DH
F3.46	③ Encoder type	0: encoderless 1: ABZ incremental encoder 2: UVW incremental encoder 3: Rotating transformer	0: encoderless	x	042EH

Code	Description	Setting range	Default	Modify	Modbus Address
F3.47	③ Number of rotating transformer poles	2~80	2	x	042FH
F3.48	③ Redundancy number of rotating transformer fault detection	0~500	200	o	0430H
F3.51	③ Initial Angle of synchronous motor	0.0~359.9°	0.0°	x	0433H
F3.52	③ Z-axis pulse Angle of synchronous motor	0.0~359.9°	0.0°	x	0434H
F3.53	③ Encoder mechanical Angle	0.0~359.9°	0.0°	-	0435H
F3.54	③ ABZ encoder power-on first running position detection	0: Do not detect 1: Detect	1: Detect	x	0436H
F3.55	③ Self-learning encoder detection	Units: 0: The number of AB phase pulses is not detected 1: Detect the number of AB phase pulses Tens: 0: Encoder direction is not detected 1: Detecting encoder direction	11: Detecting encoder direction	x	0437H
F3.56	③ Calibration Z position	0: The Z signal does not calibrate the position 1: Z signal calibration position	1: Z signal calibration position	x	0438H
F3.57	③ Disconnection fault detection	Units: 0: Z signal break is not detected 1: Detection when Z signal breaks Tens: 0: AB phase break is not detected 1: AB phase break detection Hundreds: 0: Encoder reverse function failure is not detected 1: Detection when the encoder reverse function fails	111: Detection when the encoder reverse function fails	x	0439H
F3.58	③ Stall detection	0.00~100.00 Hz	10.00 Hz	o	043AH
F3.59	③ Stall detection time	0.0~100.0 s	0.0 s	o	043BH

Code	Description	Setting range	Default	Modify	Modbus Address
F3.60	③ Current angle of motor	0.0~359.9°	0.0°	-	043CH
F3.61	③ UVW state of UVW encoder	0~7	1	-	043DH
F3.62	③ Encoder and motor operating status	0: Encoder and motor in the same direction 1: Encoder and motor in reverse direction	0: Encoder and motor in the same direction	-	043EH
F3.63	③ Z signal counting status	0~0xFFFF	0	-	043FH
F3.64	③ ABZ encoder position calibration count	0~0xFFFF	0	-	0440H
F3.65	③ Torque current set selection	0: Speed loop output 1: CAN communication (reserved) 2: AI1 3: AI2 4: 485 communication	0: Speed loop output	x	0441H
F3.66	③ Motor turns	-32767~32767	0	-	0442H
F3.67	③ Current position of motor	- Encoder pulse number *4~ encoder pulse number *4	0	-	0443H
F3.68	The acceleration and deceleration time of the given torque current When F3.65 is non-0	0.00~50.00 s	0	o	0444H
F3.69	The speed positive limiting selection When F3.65 is not 0	0: Digital setting (F3.70) 1: AI1 2: AI2 3: Pulse input 4: 485 Communication Settings 5: Keyboard potentiometer	0: Digital setting (F3.70)	o	0445H
F3.70	Digital positive limiting Setting	0~550.0 Hz	50.0 Hz	o	0446H
F3.71	The speed reverse limiting selection when F3.65 is not 0	0: Digital setting (F3.72) 1: AI1 2: AI2 3: Pulse input 4: 485 Communication Setting 5: Keyboard potentiometer	0: Digital setting (F3.72)	o	0447H
F3.72	Digital reverse limiting Setting	0~550.0 Hz	0.00 Hz	o	0448H

F4: V/F Control Parameters

Code	Description	Setting range	Default	Modify	Modbus Address
F4.00	V/F curve setting	0: Constant torque load V/F 1: 2.0 power decreasing torque 2: 1.5 power decreasing torque 3: 1.2 power decreasing torque 4: Multiple points V/F	0: Constant torque load V/F	x	0500H
F4.01	V/F freq. F1	0.0~F4.03	10.00 Hz	x	0501H
F4.02	V/F voltage V1	0.0~100.0 %	20.0 %	x	0502H
F4.03	V/F freq. F2	F4.01~F4.05	25.00 Hz	x	0503H
F4.04	V/F voltage V2	0.0~100.0 %	50.0 %	x	0504H
F4.05	V/F freq. F3	F4.03~F0.10	40.00 Hz	x	0505H
F4.06	V/F voltage V3	0.0~100.0 %	80.0 %	x	0506H
F4.07	Torque boost	0.0 %: Auto boost 000.0~030.0 %: Manual boost	0.0 %	o	0507H
F4.08	Manual torque boost cutoff point	0.00~60.00 Hz	50.00 Hz	o	0508H
F4.09	Slip compensation coefficient	0.0~200.0 %	0.0 %	o	0509H
F4.10	Slip compensation filtering time	0.01~2.55 s	0.20 s	o	050AH
F4.11	V/F separation control voltage source	0: Disabled 1: Digital setting (F4.12) 2: AI1 3: AI2 4: Pulse 5: communication	0: Disabled	x	050BH
F4.12	V/F separation voltage digital setting	0 V~max output voltage	380 V	o	050CH
F4.13	V/F separation voltage rising time	0.0 s~1000.0 s	0.0 s	o	050DH
F4.14	V/F oscillation suppression	0~500	Determined by model size	o	050EH
F4.15	Vibration suppressor	0~10	2	o	050FH
F4.17	③ V/F oscillation suppression mode	0: Mode 1 1: Mode 2	1: Mode 2	o	0511H

Code	Description	Setting range	Default	Modify	Modbus Address
F4.18	Motor 2 V/F curve setting	0: Constant torque characteristic curve 1: Torque reduction characteristic curve1(2.0) 2: Torque reduction characteristic curve1(1.5) 3: Torque reduction characteristic curve1(1.2) 4: User setting V/F curve	0: Constant torque characteristic curve	x	0512H
F4.19	③ F4.19 Motor 2 V/F frequency value F1	0.0~F4.03	10.00 Hz	x	0513H
F4.20	Motor 2 V/F voltage value V1	0.0~100.0 %	20.0 %	x	0514H
F4.21	Motor 2 V/F frequency value F2	F4.01~F4.05	25.00 Hz	x	0515H
F4.22	Motor 2 V/F voltage value V2	0.0~100.0 %	50.0 %	x	0516H
F4.23	Motor 2 V/F frequency value F3	F4.03~F0.10	40.00 Hz	x	0517H
F4.24	Motor 2 V/F voltage value V3	0.0~100.0 %	80.0 %	x	0518H
F4.25	Motor 2 torque boost	0.0 %: Automatic torque boost 0.1~30.0 %: Manual torque boost	0.0 %	o	0519H
F4.26	Motor 2 Manual torque lift cut-off point	0.00~60.00 Hz	50.00 Hz	o	051AH
F4.27	Motor 2 slip frequency compensation	0.00~200.00 Hz	0.0 %	o	051BH
F4.28	Motor 2 slip compensation time constant	0.01~2.55 s	0.20 s	o	051CH

F5: Motor Parameters

Code	Description	Setting range	Default	Modify	Modbus Address
F5.00	Motor type	0: Common asynchronous motor 1: Variable frequency asynchronous motor 2: PM motor 3: PM auxiliary reluctance motor	0: Common asynchronous motor	x	0600H
F5.01	Number of motor poles	2~56	4	x	0601H
F5.02	Rated power	② 0.1~6553.5 kW ③ 0.4~999.9 kW	Determined by model size	o	0602H
F5.03	Rated current	② 0.01~655.35 A ③ 0.1~999.9 A	Determined by model size	o	0603H
F5.04	Rated speed	② 0~65535 rpm * ③ 0~24000 rpm *	Determined by model size	o	0604H
F5.05	No-load current I ₀	② 0.01~655.35 A ③ 0.1~999.9A	Determined by model size	o	0605H
F5.06	Stator resistance R ₁	② 1~65535 mΩ * ③ 1~65535 mΩ (Drive rated power ≤22 kW) * ③ 0.1~6553.5 mΩ (Drive rated power >22 kW)	Determined by model size	o	0606H
F5.07	Leakage inductive reactance X	② 0.01~655.35 mH ③ 0.01~655.35 mH (Drive rated power ≤22 kW) ③ 0.001~65.535 mH (Drive rated power >22 kW)	Determined by model size	o	0607H
F5.08	Rotor resistance R ₂	② 1~65535 mΩ * ③ 1~65535 mΩ (Drive rated power ≤22 kW) * ③ 0.1~6553.5 mΩ (Drive rated power >22 kW)	Determined by model size	o	0608H
F5.09	Mutual Inductive reactance X _m	② 0.01~655.35 mH ③ 0.1~6553.5 mH (Drive rated power ≤22 kW) ③ 0.01~655.35 mH (Drive rated power >22 kW)	Determined by model size	o	0609H
F5.10	Auto tune	0: No operation 1: Static tuning 2: Rotary tuning	0: No operation	x	060AH

Code	Description	Setting range	Default	Modify	Modbus Address
F5.11	Synchronous motor stator resistor Rs	② 1~65535 mΩ * ③ 1~65535 mΩ (Drive rated power ≤22 kW) ③ 0.1~6553.5 mΩ (Drive rated power >22 kW)	Determined by model size	o	060BH
F5.12	Synchronous motor D-axis inductance Ld	② 0.01~655.35 mH ③ 0.01~655.35 mH (Drive rated power ≤22 kW) ③ 0.001~65.535 mH (Drive rated power >22 kW)	Determined by model size	o	060CH
F5.13	Synchronous motor Q-axis inductance Lq	② 0.01~655.35 mH ③ 0.01~655.35 mH (Drive rated power ≤22 kW) ③ 0.001~65.535 mH (Drive rated power >22 kW)	Determined by model size	o	060DH
F5.14	Synchronous motor counter EMF constant	0.1~6553.5 V	300.0 V	o	060EH
F5.15	Motor 2 type	0: Common asynchronous motor 1: Variable frequency asynchronous motor 2: PM motor 3: PM auxiliary reluctance motor	0: Common asynchronous motor	x	060FH
F5.16	Motor 2 polarity number	2~80	4	x	0610H
F5.17	Motor 2 rated power	0.4~999.9 kW	Determined by model size	o	0611H
F5.18	Motor 2 rated frequency	0.00~550.0 Hz	50.00 Hz	x	0612H
F5.19	Motor 2 rated voltage	0~440 V	380 V	x	0613H
F5.20	Motor 2 rated current	0.1~999.9 A	Determined by model size	o	0614H
F5.21	Motor rated speed	0~24000 rpm	1500 rpm	0	0615H
F5.22	No-load current IO	0.1~999.9 A	Determined by model size	0	0616H
F5.23	Motor 2 stator resistance R1	1~65535 mΩ (Converter power ≤22 kW) 0.1~6553.5 mΩ (Converter power >22 kW)	Determined by model size	0	0617H
F5.24	Motor 2 leakage reactance X	0.01~655.35mH (Converter power ≤22 kW) 0.001~65.535mH (Converter power >22 kW)	Determined by model size	0	0618H

Code	Description	Setting range	Default	Modify	Modbus Address
F5.25	Motor 2 rotor resistance R2	1~65535 mΩ (Converter power ≤22 kW) 0.1~6553.5 mΩ (Converter power >22 kW)	Determined by model size	o	0619H
F5.26	Motor 2 mutual inductance Xm	0.01~655.35mH (Converter power ≤22 kW) 0.001~65.535mH (Converter power >22 kW)	Determined by model size	o	061AH
F5.27	Synchronous motor 2 stator resistance Rs	1~65535 mΩ (Converter power ≤22 kW) 0.1~6553.5 mΩ (Converter power >22 kW)	Determined by model size	o	061BH
F5.28	Synchronous motor 2 Ld inductance	0.01~655.35mH (Converter power ≤22 kW) 0.001~65.535mH (Converter power >22 kW)	Determined by model size	o	061CH
F5.29	Synchronous motor 2 Lq inductance	0.01~655.35mH (Converter power ≤22 kW) 0.001~65.535mH (Converter power >22 kW)	Determined by model size	o	061DH
F5.30	Synchronous motor 2 back emf constant	0.0~6553.5 V	300.0 V	o	061EH
F5.31	Motor selection	0~1	0	o	061FH

*Display shows most significant 4 digits e.g. 12345 rpm will display 1234 rpm or 65535 mΩ will display 6553 mΩ.

F6: Input terminals

Code	Description	Setting range	Default	Modify	Modbus Address
F6.00	Terminal Command mode	0: Two-wire mode 1 1: Two-wire mode 2 2: Three-wire mode 1 3: Three-wire mode 2	0: Two-wire mode 1	x	0700H

Code	Description	Setting range	Default	Modify	Modbus Address
F6.01	X1 terminal Function selection	0: NULL, 1: FWD, 2: REV, 3: RUN, 4: F/R direction, 5: HLD self-hold 6: FWD jog run (FJOG) 7: REV jog run (RJOG), 8: RESET 9: Freq. source switching 10: Terminal UP, 11: Terminal DOWN 12: UP/DOWN setup clear 13: Coast to stop, 14: DC brake 15: Acc./Dec. prohibit 16: Drive running prohibit 17: Multi-step terminal 1 18: Multi-step terminal 2 19: Multi-step terminal 3 20: Multi-step terminal 4 21: torque control disable 22: Acc./Dec. time selector 1 23: Acc./Dec. time selector 2 24: Running pause normally open 25: Running pause normally closed 26: External fault normally open 27: External fault normally closed 28: Run command switch to terminal 29: Run command switch to keypad 30: External stop terminal; same to STOP key in keypad control mode. 31: Reserved 32: PLC status reset 33: Wobble freq.pause 34: Wobble freq. status reset, 35: PID pause, 36: PID parameters switching 37: PID direction reversion; Active this terminal to reverse PID direction set by F8.04. 38: Timing drive input 39: Counter signal input 40: Counter clear, 41: Actual length clear 42: FWD running (FWD NC) 43: REV running (REV NC) 44: HLD (Normally open), 45: Increase torque 46: Torque increment clear 47: Decrease torque 48: One key recover user parameters(Valid in stop state) 49: Reserved, 50: PID Channel selection ③ 51: Motor position reset (F3.66, F3.67 clear) 52: Brake torque switch to digital setting 1 (F5.35) 53: Fire mode activation 54: Switch to motor 2 ③ 55: Zero servo enable signal 56: Emergency stop 57: Pulse input (Take X4 in case 2 inputs) ③ 58: Single phase measuring speed input ③ 59: Speed measuring input A ③ 60: Speed measuring input B 61: The torque given switches to the speed loop output	1: FWD	x	0701H
F6.02	X2 terminal Function selection		2: REV	x	0702H
F6.03	X3 terminal Function selection		8: RESET	x	0703H
F6.04	X4 terminal Function selection		17: Multi-step terminal 1	x	0704H
F6.05	X5 terminal Function selection		18: Multi-step terminal 2	x	0705H
F6.06	③ X6 terminal Function selection ② AI1 terminal function selection		0: NULL	x	0706H
F6.07	③ X7 terminal Function selection ② AI2 terminal function selection		0: NULL	x	0707H
F6.08	② Reserve ③ X8 terminal function selection		0: NULL	x	0708H
F6.09	② Reserve ③ AI1 terminal function selection		0: NULL	x	0709H

Code	Description	Setting range	Default	Modify	Modbus Address
F6.10	Analog Nonlinear Selection	0: None 1: AI1 2: AI2 3: Pulse	0: None	x	070AH
F6.11	AI1 Min. input	0.00~F6.13	0.00 V	o	070BH
F6.12	AI1 Min. input corresponding setup	-200.0~200.0 % **	0.0 %	o	070CH
F6.13	AI1 Max. input	F6.11~10.00 V	10.00 V	o	070DH
F6.14	AI1 Max. input corresponding setup	-200.0~200.0 % **	100.0 %	o	070EH
F6.15	AI1 input filter time	0.01~50.00 s	0.05 s	o	070FH
F6.16	AI2 Min. input	0.00~F6.18	0.00 V	o	0710H
F6.17	AI2 Min. input corresponding setup	-200.0~200.0 %	0.0 %	o	0711H
F6.18	AI2 Max. input	F6.16~10.00 V	10.00 V	o	0712H
F6.19	AI2 Max. input corresponding setup	-200.0~200.0 % **	100.0 %	o	0713H
F6.20	AI2 input filter time	0.01~50.00 s	0.05 s	o	0714H
F6.21	PULSE Min. input frequency	0.00~F6.23	0.00 kHz	o	0715H
F6.22	PULSE Min. input corresponding setup	-200.0 %~200.0 % **	0.0 %	o	0716H
F6.23	PULSE Max. input frequency	F6.21~50.00 kHz	50.00 kHz	o	0717H
F6.24	PULSE Max. input corresponding setup	-200.0 %~200.0 % **	100.0 %	o	0718H
F6.25	Pulse filter time	0.01~50.00 s	0.05 s	o	0719H
F6.26	Terminal up/down initial increment	0.00~10.00 Hz	0.01 Hz	o	071AH
F6.27	Freq. ref.2 datum	0: Max. freq. 1: Freq. ref.1	0: Max. freq.	o	071BH
F6.28	Delay duration of X1 terminal close	0.0~100.0 s	0.0 s	o	071CH
F6.29	Delay duration of X1 terminal open	0.0~100.0 s	0.0 s	o	071DH
F6.30	Delay duration of X2 terminal close	0.0~100.0 s	0.0 s	o	071EH
F6.31	Delay duration of X2 terminal open	0.0~100.0 s	0.0 s	o	071FH

Code	Description	Setting range	Default	Modify	Modbus Address
F6.32	Pos. and Neg. logic terminal X 1	Units: Logic of X1 terminal Tens: Logic of X2 terminal Hundreds: Logic of X3 terminal Thousands: Logic of X4 terminal	0000	x	0720H
F6.33	Pos. and Neg. logic terminal X 2	Units: Logic of X5 terminal ② Tens: Logic of AI1 terminal ③ Tens: Logic of X6 terminal ② Hundreds: Logic of AI2 terminal ③ Hundreds: Logic of X7 terminal ③ Thousands: Logic of X8 terminal NOTE Terminal 24, 25, 26, 27, 42, 43, 44 and 49 are not impacted by this parameter.	0000	x	0721H
F6.34	AI2 voltage and current signal selection	0: Voltage signal 1: Current signal	0: Voltage signal	x	0722H
F6.35	Multi-function input terminal NPN/ PNP selection	0: NPN 1: PNP	0: NPN	x	0723H
F6.36	AI1 Line break detection threshold	0.00~10.00 V	0.00 V	o	0724H
F6.37	AI1 Line break detection time	0~1000 ms	50 ms	o	0725H
F6.38	AI2 Line break detection threshold	0.00~10.00 V	0.00 V	o	0726H
F6.39	AI2 Line break detection time	0~1000 ms	50 ms	o	0727H

Code	Description	Setting range	Default	Modify	Modbus Address
F6.40	AI disconnection action	Units actions after disconnection: 0: Continue to run the alarm on the given signal 1: Run according to the given value before disconnection until shutdown, alarm prompt 2: Continue to run the alarm on the given signal 3: Keep running at the lower frequency until the machine stops, and the alarm prompts 4: Press the frequency set by F0.06 to run straight until the machine stops, and the alarm prompts 5: Run according to the given value before dropping the line, the alarm prompts, and continue to run according to the given signal after the fault is eliminated 6: Run according to the upper limit frequency, the alarm prompts, and continue to run according to the given signal after the fault is eliminated 7: Run according to the lower limit frequency, the alarm prompts, and continue to run according to the given signal after the fault is eliminated 8: Run according to the frequency set by F0.06, the alarm prompts, and continue to run according to the given signal after the fault is eliminated 9: Failure shutdown Tens actions after disconnection: Same as above	0000	o	0728H
F6.41	Select the terminal AI3 function	0: Analog AI3 (-10~10 V) 1: PT100 thermistor 2: PT100 thermistor 3: KTY-84 thermistor	0: Analog AI3 (-10~10 V)	o	0729H
F6.42	③ AI3 Minimum input value	0.00~F6.44	0000	o	072AH
F6.43	③ AI3 Minimum input corresponding value	-200.0~200.0 %	0.0 %	o	072BH
F6.44	③ AI3 Maximum input value	F6.16~10.00 V	10.00 V	o	072CH
F6.45	AI3 Maximum input value	-200.0~200.0 %	100.0 %	o	072DH

Code	Description	Setting range	Default	Modify	Modbus Address
F6.46	③ AI3 input filtering time constant	0.01~50.00 s	0.20 s	o	072EH

** Will display sign when negative and 3 most significant digits e.g. -199.0 will display -199. and 199.0 will display as is.

F7: Output terminal

Code	Description	Setting range	Default	Modify	Modbus Address
F7.00	② Reserve ③ DO terminal output selection	0: NULL 1: RUN 2: Freq. arrival(FAR) 3: Freq. level detection 1 (FDT1) 4: Freq. level detection 2 (FDT2) 5: Freq. detection when speed-up 6: Freq. detection when speed-down 7: Zero-speed running 8: Zero-speed 9: PLC circulation completion 10: Reserved 11: Ready for running (RDY) 12: Timing arrival 13: Counting arrival 14: Reserved 15: Preset torque value arrival 16: Drive fault output 17: Under voltage status output 18: Drive overload pre-warning 19: Fixed-length arrived, level signal 20: PID in sleep mode 21: AI1>AI2 22: AI1<F7.16 23: AI1>F7.16 24: F7.16<AI1<F7.17 25: Frequency lower limit arrival 26: Multi-pumps system auxiliary pump control signal 27: Communication setting 28: Drive running time arrival ③ 29: Running in FWD ③ 30: Running in REV ③ 31: Instantaneous power loss processing 32: Current arrival 33: Brake control 34: Run command channel indicator	② Reserve ③ 0: NULL	② Reserve ③ o	0800H
F7.01	Y1 terminal output selection		1: RUN	o	0801H
F7.02	② Reserve ③ Y2 terminal output selection		② Reserve ③ 0: NULL	② Reserve ③ 0: NULL	0802H
F7.03	Relay 1 (TA/TB/TC) output selection		16: Drive fault output	o	0803H
F7.04	② Reserve ③ Relay 2 (BRA/BRB/BRC) output selection		② Reserve ③ 0: NULL	② Reserve ③ o	0804H
F7.05	Freq. arrival (FAR) detection width	0.00~10.00 Hz	2.50 Hz	o	0805H

Code	Description	Setting range	Default	Modify	Modbus Address
F7.06	Frequency detection value 1 (FDT1 level)	0.00~600.0 Hz	5.00 Hz	o	0806H
F7.07	Freq. detection lag1 (FDT1-lag)	0.00~10.00 Hz	1.00 Hz	o	0807H
F7.08	Frequency detection value 2 (FDT2 level)	0.00~320.0 Hz	② 5.00 Hz ③ 25.00 Hz	o	0808H
F7.09	Freq. detection lag2 (FDT2-lag)	0.00~10.00 Hz	1.00 Hz	o	0809H
F7.10	Up detection frequency	00.00~550.0 Hz	50.00 Hz	o	080AH
F7.11	Down detection frequency	00.00~550.0 Hz	00.00 Hz	o	080BH
F7.12	Torque detection reference	0.0~200.0 %	100.0 %	o	080CH
F7.13	Preset Counting arrival value	0~9999	0	o	080DH
F7.14	Preset Timing arrival value	0.0~6553.0 s	0.0 s	o	080EH
F7.16	AI1 compare threshold 1	0.00~10.00 V	0.00 V	o	0810H
F7.17	AI1 compare threshold 2	0.00~10.00 V	0.00 V	o	0811H
F7.18	Analog compare hysteresis error	0.00~30.00 V	0.20 V	o	0812H
F7.19	② AO function definition ③ AO1 output selection	0: NULL 1: Running freq. (0~max frequency) 2: Setting freq. (0~max frequency) 3: Output current(0~2 x of drive rated current) 4: Output voltage (0~Max Voltage) 5: PID setup (0~10 V) 6: PID feedback (0~10 V) 7: Calibrating signal (5 V) 8: Output torque (0~2 x motor rated torque) 9: Output power (0~2 x drive rated power) 10: Bus voltage (0~1000 V) 11: 9: AI1 (0~10 V) 12: AI2 (0~10V / 4~20 mA) 13: Pulse frequency 14: Communication setting 15: Reserve 16: Current output (0~2 x rated value)	1: Running freq. (0~max frequency)	o	0813H
F7.20	② Reserve ③ AO2 output selection		② Reserve ③ 0: NULL	② Reserve ③ o	0814H
F7.21	② Y1 function definition ③ DO output selection		0: NULL	o	0815H
F7.22	Voltage and current signal selection		0: voltage signal 0 -10V 1: current signal 4-20mA	o	816H

Code	Description	Setting range	Default	Modify	Modbus Address
F7.23	Reserved	Reserved	Reserved	o	817H
F7.24	② Gain of AO ③ Gain of AO1	1~200 %	100 %	o	818H
F7.25	② Reserved ③ Gain of AO2	② Reserved ③ 1:200 %	② Reserved ③ 100 %	② Reserved ③ o	819H
F7.26	② Y1 Max. output pulse freq. ③ DO Max. output pulse freq.	② Y1 Min. output pulse freq.~50.00 kHz ③ DO Min. output pulse freq.~50.00 kHz	10.00 kHz	o	081AH
F7.27	② Y1 Min. output pulse freq. ③ DO Min. output pulse freq.	② 0.00~Y1 Max. output pulse freq. ③ 0.00~DO Max. output pulse freq.	0.00 kHz	o	081BH
F7.28	Auxiliary pump start lag time	0~9999 s	0	o	081CH
F7.29	Auxiliary pump stop lag time	0~9999 s	0	o	081DH
F7.30	② Y1 Max. output ③ DO Max. output	0: 50.00 kHz 1: 500.0 Hz	0: 50.00 kHz	x	081EH
F7.31	FDT/RUN signal Jog selection	0: Include Jog signal 1: Do not include Jog signal	0: Include Jog signal	x	081FH
F7.32	Running time arrival setup	0~65530 Mins *	0	o	0820H
F7.33	Running time arrival stop selection	0: Do not stop 1: Stop	0: Do not stop	o	0821H
F7.34	AO1 minimum output	0.0~100.0 %	0.0 %	o	0822H
F7.35	③ AO2 minimum output	0.0~100.0 %	20.0 %	o	0823H
F7.36	Digital output terminal Pos./Neg. logic	Units: Logic of Y1 terminal ② Tens: Reserve ③ Tens: Logic of Y2 terminal Hundreds: Logic of Relay 1 ② Thousands: Reserve ③ Thousands: Logic of Relay 2	0000	o	0824H
F7.37	Current reaches the upper limit	0.0~655.35 A	0.0 A	o	0825H
F7.38	Current upper limit check time	0.00~50.00 s	0.00 s	o	0826H
F7.39	Current reaches lower limit	0.0~655.35 A	0.0 A	o	0827H

Code	Description	Setting range	Default	Modify	Modbus Address
F7.40	Current lower limit check time	0.00~50.00 s	0.00 s	o	0828H
F7.41	AO torque output range selection	0: 0~200 % the rated torque of motor 1: -200~200% Motor rated torque output	0: 0~200 % the rated torque of motor	o	0829H
F7.42	Brake Release Frequency	0.00~50.00 Hz	2.00 Hz	o	082AH
F7.43	Brake Release Current Threshold	0~100.0 %	20.0 %	o	082BH
F7.44	Current detection time	0.00~5.00 s	0.0 s	o	082CH
F7.45	Brake Release time	0.00~10.00 s	1.00 s	o	082DH
F7.46	Current limiting while brake is released	0.00~200.0 %	120.0 %	o	082EH
F7.47	Brake Apply Frequency	0.00~10.00 Hz	2.00 Hz	o	082FH
F7.48	Brake Apply Delay	0.00~10.00 s	0.00 s	o	0830H
F7.49	Brake Apply time	0.00~10.00 s	0.00 s	o	0831H

*Display shows most significant 4 digits e.g. 65530 will display 6553.

F8: PID Parameters

Code	Description	Setting range	Default	Modify	Modbus Address
F8.00	Given quantity 1, choose	0: PID digital setting (F8.02) 1: AI1 2: AI2 3: Pulse input 4: serial communication	0: PID digital setting (F8.02)	o	0900H
F8.01	PID feedback channel selection	0: AI1 1: AI2 2: Pulse input 3: serial communication 4: AI1-AI2 5: AI1+AI2 6: MAX (AI1, AI2) 7: MIN (AI1, AI2)	1: AI2	o	0901H
F8.02	Analog PID digital setup	0.0~999.9	50.0	o	0902H
F8.03	Analog closed loop measuring range	1.0~999.9	100.0	o	0903H
F8.04	PID action polarity	0: Positive 1: Negative	0: Positive	o	0904H
F8.05	PID proportional gain 1 (KP1)	0.1~9.9	1.0	o	0905H

Code	Description	Setting range	Default	Modify	Modbus Address
F8.06	PID integration time 1	0~100.0 s	② 10.0 s ③ 3.0 s	o	0906H
F8.07	PID differential time 1	0.00~1.00 s	0.00 s	o	0907H
F8.08	PID proportional gain 2 (KP2)	0.1~9.9	1.0	o	0908H
F8.09	PID integration time 2	00.00~100.0 s	10.00 s	o	0909H
F8.10	PID differential time 2	0.00~1.00 s	0.00 s	o	090AH
F8.11	PID parameters switching	0: No switching, use the first group parameters 1: switching by terminal 2: auto-switching by deviation	0: No switching, use the first group parameters	o	090BH
F8.12	PID parameter switching Deviation 1	0.0~999.9	20.0	o	090CH
F8.13	PID parameter switching Deviation 2	0.0~999.9	80.0	o	090DH
F8.14	PID delay time constant	00.00~100.0 s	00.00 s	o	090EH
F8.15	Deviation limit	0.0~999.9	0.2	o	090FH
F8.16	PID output positive limit	0.0~550.0 Hz	50.00 Hz	o	0910H
F8.17	PID output negative limit	-320~320.0 Hz	00.00 Hz	0	0911H
F8.18	PID preset freq.	0.00~550.0 Hz	0.00 Hz	x	0912H
F8.19	Hold time of PID preset frequency	0.0~3600 s	0.0 s	x	0913H
F8.20	Enable sleep mode	0: Disabled 1: Lower limit frequency sleep mode 2: Disturbance sleep mode	0: Disabled	x	0914H
F8.21	Sleep mode delay	0~999 s	120 s	o	0915H
F8.22	Sleep mode threshold	0.0~320.0 Hz	20.0 Hz	o	0916H
F8.23	Wake threshold	0.0~200.0 % (relative to pre-set value)	80.0 %	o	0917H
F8.24	PID feedback offline detection range	0.0~100.0 % (relative to feedback measuring range, 0.0% no detection)	0.0 %	o	0918H
F8.25	PID feedback offline detection time	0.0~50.0 s	2.0 s	o	0919H

Code	Description	Setting range	Default	Modify	Modbus Address
F8.26	PID feedback offline detection Min. Freq.	0.00~50.00 Hz	10.00 Hz	o	091AH
F8.27	PID feedback disconnection handling	0: Not processed 1: Alarm and shutdown 2: Alarm but without shutdown, maintain the frequency before disconnection 3: Alarm but without shutdown, operate at a preset frequency (F8.28)	0: Not processed	o	091BH
F8.28	PID feedback dropout preset frequency	0.00~550.0 Hz	50.00 Hz	o	091CH
F8.29	PID given quantity 2 options	0: PID digital setting (F8.02) 1: AI1 2: AI2 3: Pulse input 4: serial communication	0: PID digital setting (F8.02)	o	091DH
F8.30	PID given channel selection preset frequency	0: PID pre-set 1(F8.00) 1: PID pre-set 2(F8.29) 2: PID pre-set 1 + PID pre-set 2 3: PID pre-set 1 and PID pre-set 2 is selected by terminals (50 function), the terminal is pre-set 1 when invalid and pre-set 2 when valid 4: PID pre-set 1 + PID pre-set 2, the terminal is preset 1 + pre-set 2 when invalid and pre-set 2 when valid 5: MIN(PID pre-set 1, pre-set 2) 6: MAX(PID pre-set 1, pre-set 2)	0: PID pre-set 1 (F8.00)	o	091EH
F8.31	Frequency stabilization time	0.0~10.0 min	2.0 min	o	091FH
F8.32	Pressure error threshold in dormancy	0.0~100.0 %	3.0 %	o	0920H

F9: Multi-step speed and PLC

Code	Description	Setting range	Default	Modify	Modbus Address
F9.00	Multi-step freq.1	0.00~Max frequency	5.00 Hz	o	0A00H
F9.01	Multi-step freq.2		10.00 Hz	o	0A01H
F9.02	Multi-step freq.3		15.00 Hz	o	0A02H
F9.03	Multi-step freq.4		20.00 Hz	o	0A03H
F9.04	Multi-step freq.5		30.00 Hz	o	0A04H
F9.05	Multi-step freq.6		40.00 Hz	o	0A05H
F9.06	Multi-step freq.7		50.00 Hz	o	0A06H

Code	Description	Setting range	Default	Modify	Modbus Address
F9.07	PLC running mode	0: Single cycle 1: Single cycle and hold final value 2: Continuous cycle	2: Continuous cycle	x	0A07H
F9.08	PLC restarting mode after interrupt	0: Restart from first step 1: Continue from the step where the drive interrupted	0: Restart from first step	x	0A08H
F9.09	PLC status recorded or not at power failure	0: Not save 1: Save	0: Not save	x	0A09H
F9.10	Time unit select for each duration of PLC processing	0: Second 1: Minute	0: Second	x	0A0AH
F9.11	PLC step1 duration (T1)	0.1~3600	20.0	o	0A0BH
F9.12	PLC step2 duration (T2)	0.0~3600	20.0	o	0A0CH
F9.13	PLC step3 duration (T3)	0.0~3600	20.0	o	0A0DH
F9.14	PLC step4 duration (T4)	0.0~3600	20.0	o	0A0EH
F9.15	PLC step5 duration (T5)	0.0~3600	20.0	o	0A0FH
F9.16	PLC step6 duration (T6)	0.0~3600	20.0	o	0A10H
F9.17	PLC step7 duration (T7)	0.1~3600	20.0	o	0A11H
F9.18	Step T1 program running setting	1 F/r ~ 4 F/r	1F	o	0A12H
F9.19	Step T2 program running setting	1 F/r ~ 4 F/r	1F	o	0A13H
F9.20	Step T3 program running setting	1 F/r ~ 4 F/r	1F	o	0A14H
F9.21	Step T4 program running setting	1 F/r ~ 4 F/r	1F	o	0A15H
F9.22	Step T5 program running setting	1 F/r ~ 4 F/r	1F	o	0A16H
F9.23	Step T6 program running setting	1 F/r ~ 4 F/r	1F	o	0A17H
F9.24	Step T7 program running setting	1 F/r ~ 4 F/r	1F	o	0A18H
F9.25	② Current step running time ③ Current running step	② 0.0~3600 ③ 1~7	0 0	*	0A19H

Code	Description	Setting range	Default	Modify	Modbus Address
F9.26	② Current running step ③ Current step running time	② 1~7 ③ 0.0~3600	0 0	*	0A1AH
F9.27	Multi-step freq.8	0.00~Max frequency	50.00 Hz	o	0A1BH
F9.28	Multi-step freq.9	0.00~Max frequency	50.00 Hz	o	0A1CH
F9.29	Multi-step freq.10	0.00~Max frequency	50.00 Hz	o	0A1DH
F9.30	Multi-step freq.11	0.00~Max frequency	50.00 Hz	o	0A1EH
F9.31	Multi-step freq.12	0.00~Max frequency	50.00 Hz	o	0A1FH
F9.32	Multi-step freq.13	0.00~Max frequency	50.00 Hz	o	0A20H
F9.33	Multi-step freq.14	0.00~Max frequency	50.00 Hz	o	0A21H
F9.34	Multi-step freq.15	0.00~Max frequency	50.00 Hz	o	0A22H
F9.35	PLC Multi-step Freq.1 selection	0: Multi-step digital setting 1: AI1	0: Multi-step digital setting	o	0A23H
F9.36	PLC Multi-step Freq.7 selection	2: AI2 3: Keypad potentiometer 4: Pulse input		o	0A24H

FA: Wobble Frequency

Code	Description	Setting range	Default	Modify	Modbus Address
FA.00	Wobble amplitude	0.0~50.0 %	0.0 %	o	0B00H
FA.01	Jitter frequency	0.0~50.0 % (to FA.00)	0.0 %	o	0B01H
FA.02	Jitter Time	5~50 ms	5 ms	o	0B02H
FA.03	Wobble freq. up time	0.1~999.9 s	5.0 s	o	0B03H
FA.04	Wobble freq. down time	0.1~999.9 s	5.0 s	o	0B04H
FA.05	Amplitude mode	0: Relative to the central freq. 1: Relative to Max. frequency	0: Relative to the central freq.	o	0B05H

Fb: Fixed Length

Code	Description	Setting range	Default	Modify	Modbus Address
Fb.00	Preset length	0~65530 *	0	o	0C00H
Fb.01	Actual length	0~65530 *	0	*	0C01H
Fb.02	Pulses number per unit	000.1~6553.0	100.0	o	0C02H
Fb.05	③ Zero servo enable	0: invalid 1: Start when the set frequency is below zero servo frequency 2: Terminal start zero servo (can be started without running command)	0: invalid	x	0C05H

Code	Description	Setting range	Default	Modify	Modbus Address
Fb.06	③ Zero servo enable starting frequency	0.00~10.00 Hz	1.00 Hz	o	0C06H
Fb.07	③ Position loop gain	0.001~10.00	1	o	0C07H

*Display shows most significant 4 digits e.g. 65530 will display 6553.

FC: Protection and Fault Parameters

Code	Description	Setting range	Default	Modify	Modbus Address
FC.00	Motor overload protection mode	0: Disabled 1: Common motor (with low speed compensation) 2: Variable frequency motor (without low speed compensation)	0: Disabled	x	0D00H
FC.01	Electro thermal protection value	② 20~110 % ③ 20~200 %	100 %	o	0D01H
FC.02	Overload Pre-alarm detection level	30.0~200.0 %	160.0 %	o	0D02H
FC.03	Overload Pre-alarm detection time	0.0~80.0 s	60.0 s	o	0D03H
FC.04	Current amplitude limit	0: Invalid 1: Acc./Dec. valid; Constant speed invalid 2: Valid all the time 3: Constant speed is valid, acceleration and deceleration are invalid	2: Valid all the time	o	0D04H
FC.05	Current amplitude limit level	Type G: 80.0~200.0 % Type P: 60.0~150.0 %	G: 160.0 % P: 120.0 %	o	0D05H
FC.06	Over voltage stall function	0: Invalid (Recommended if braking resistor mounted) 1: Valid for Acc/Dec. 2: Valid all the time	1: Valid for Acc/Dec.	x	0D06H
FC.07	Overvoltage point for stall	110.0~150.0 % (Bus voltage)	140.0%	x	0D07H
FC.08	Input phase loss detection	1~100 % (100% correspond to 800V)	20 %	x	0D08H
FC.09	Input phase loss detection delay time	2~255 s	10 s	x	0D09H
FC.10	Output phase loss detection	0: Invalid 1: Valid	1: Valid	o	0D0AH
FC.11	Terminal close fault detection	0: Invalid 1: Valid	1: Valid	o	0D0BH

Code	Description	Setting range	Default	Modify	Modbus Address
FC.12	Fault auto reset times	0~10,"0" means auto reset is disabled. Only 3 faults have auto reset function	0	x	0D0CH
FC.13	Fault auto reset interval	0.1~20.0 s/time	5.0 s	x	0D0DH
FC.14	Under-voltage fault treatment	0: No treatment 1: Auto reset at power recovery 2: Auto run at power recovery (Auto run time interval is F1.16)	0: No treatment	o	0D0EH
FC.15	Fast current limit	50.0 %~100.0 % (100 % means this function is disabled.)	Determined by model size	o	0D0FH
FC.16	Fast current limit time	0.01~1.00 s	② 0.10 s ③ 0.20 s	o	0D10H
FC.17	Overvoltage suppression mode	0.00~10.00 Hz	0.00 Hz	o	0D11H
FC.18	Select suppression overvoltage methods	0: Method 1 1: Method 2 2: Method 3	0: Method 1	o	0D12H
FC.19	Treatment select while overvoltage forewarning	0: Warning and continue running 1: Fault cause stopping	0: Warning and continue running	o	0D13H
FC.20	Undervoltage status indication	0: Yes 1: No	0: Yes	o	0D14H
FC.21	Low current detection value	0.0~200.0 %	0.0 %	o	0D15H
FC.22	Low current detection time	0.0~180.0 s	0.0 s	o	0D16H
FC.23	Low current detection alarm fault selection	0: Alarm, inverter continues to drive 1: Alarm, Inverter shutdown	0: Alarm, inverter continues to drive	o	0D17H
FC.24	Ground short circuit protection	0: Invalid 1: First running test of the power-on 2: Detected on every run	1: First running test of the power-on	o	0D18H
FC.25	③ Protection value of motor thermistor	0.0~300.0 °C	0 °C	o	0D19H
FC.26	③ Motor thermistor protection action	0: Alarm, inverter continues to drive 1: Alarm, Inverter shutdown	0: Alarm, inverter continues to drive	o	0D1AH

Fd: Communication Parameters

Code	Description	Setting range	Default	Modify	Modbus Address
Fd.00	485 Communication	0: Disabled RS485 1: Enabled RS485	1: Enabled RS485	○	0E00H
Fd.01	Local address	1~247	1	○	0E01H
Fd.02	Baud rate setup	0: 1200 bps 1: 2400 bps 2: 4800 bps 3: 9600 bps 4: 19200 bps 5: 38400 bps	② 3: 9600 bps ③ 4: 19200 bps	○	0E02H
Fd.03	Parity bit setup	0: Even parity check 1: Odd parity check 2: No parity check	0: Even parity check	○	0E03H
Fd.04	Communication timeout detection duration	Range: 0.0~100.0 s 0: No timeout detection Others: Timeout detection duration	0.0 s	○	0E04H
Fd.05	Response delay duration	0~500 ms	5 ms	○	0E05H
Fd.06	Communication Freq. setting coefficient	0.0~200.0 %	100.0 %	○	0E06H
Fd.07	Communication interrupt detection mode	0: Time interval between 2 packets receiving. 1: Time interval of 0005H Add. data writing	0: Time interval between 2 packets receiving	○	0E07H
Fd.08	Feedback or not (Y or N) While writing into COMMS setting	0: Y 1: N	0: Y	○	0E08H
Fd.09	Save the COMMS setting or not (Y or N) While power down	0: N 1: Y	0: N	○	0E09H
Fd.10	485 Terminal resistance	0: invalid 1: Valid	0: invalid	○	0E0AH

FE: Operation interface & display

Code	Description	Setting range	Default	Modify	Modbus Address
FE.00	Display parameter-type setup	0: Normal 3-levels menu display 1: Only display modified parameters	0: Normal 3-levels menu display	o	0F00H
FE.01	MFK Key function selection	0: MFK inactive 1: JOG running 2: FWD/REV switching 3: UP/DOWN clear 4: Running command switch (terminal or communication) 7: RUN for FWD, MFK for REV, STOP for STOP	0: MFK inactive	o	0F01H
FE.02	STOP key function	0: Valid only in keypad control mode 1: Valid in stop state of terminal/ communication control mode 2: Valid in Fault state of terminal/ communication control mode 3: Valid in both stop & fault state of terminal/ communication control mode	2: Valid in Fault state of terminal / communication control mode	o	0F02H

Code	Description	Setting range	Default	Modify	Modbus Address
FE.03	Running freq.(Hz) (before compensation)	0: No display 1: Display at stop 2: Display at running 3: Display at stop & running	2: Display at running	o	0F03H
FE.04	Running freq. (Hz) (After compensation)		0: No display	o	0F04H
FE.05	Reference frequency (Hz blinking)		1: Display at stop	o	0F05H
FE.06	Output current (A)		2: Display at running	o	0F06H
FE.07	Bus voltage (V)		3: Display at stop & running	o	0F07H
FE.08	Output voltage (V)		0: No display	o	0F08H
FE.09	Output torque (%)		0: No display	o	0F09H
FE.10	Reference torque (% blinking)		0: No display	o	0F0AH
FE.11	Rotate speed (r/min)		0: No display	o	0F0BH
FE.12	Reference speed (r/min blinking)		0: No display	o	0F0CH
FE.13	Output power (kW)		0: No display	o	0F0DH
FE.14	AI1 (V)		0: No display	o	0F0EH
FE.15	AI2 (V)		0: No display	o	0F0FH
FE.16	Analog PID feedback		0: No display	o	0F10H
FE.17	Analog PID setup		0: No display	o	0F11H
FE.18	Terminal status (no unit)		0: No display	o	0F12H
FE.19	Actual length		0: No display	o	0F13H
FE.20	Reference length		0: No display	o	0F14H
FE.21	Linear speed (m/min)		0: No display	o	0F15H
FE.22	External count value (no unit)		0: No display	o	0F16H
FE.23	Set line speed display		0: No display	o	0F17H
FE.24	③ AI3 voltage (V) display		0: No display	o	0F18H

FF: Running History Record

Code	Description	Setting range	Default	Modify	Modbus Address
FF.00	Type of latest fault	0~33 (Refer to Table 8-1 for detailed descriptions)	0: NULL	*	1000H
FF.01	Output freq. at latest fault	0~Frequency upper limit	0.00 Hz	*	1001H
FF.02	Reference frequency at latest fault	0~Frequency upper limit	0.00 Hz	*	1002H
FF.03	Output current at latest fault	0~2 drive rated current	0.0 A	*	1003H
FF.04	Bus voltage frequency at latest fault	0~1000 V	0 V	*	1004H
FF.05	Running status at latest fault	0: StP Stop 1: Acc acceleration 2: dEc deceleration 3: con constant speed	0: StP Stop	*	1005H
FF.06	Fault history 1 (Last One)	The same as FF.00	0: NULL	*	1006H
FF.07	Fault history 2	The same as FF.00	0: NULL	*	1007H
FF.08	Total power on time	0~65530 h	0 h	*	1008H
FF.09	Total running time	0~65530 h	0 h	*	
FF.10	Reserved	Reserved	Reserved	-	100AH
FF.11	Software version number of control board	1.00~10.00	1.00	-	100BH
FF.12	Non-standard version number of software	0~255	0	-	100CH
FF.13	② Heat sink temperature ③ IGBT temperature	② -30.0~120.0 °C (-22.0~248.0 °F) ③ 0.0~140.0 °C (32.0~284.0 °F)	0.0 °C (32 °F)	-	100DH
FF.14	② Flux current	-200.0~200.0 °C		*	100EH
FF.15	③ Torque current	-200.0~200.0 °C		*	100FH
FF.16	③ Encoder fault code	bit0: Rotatory fault bit8: Encoder direction error fault bit9: The AB phase disconnection is faulty bit10: The Z phase is faulty bit11: Cables to the UVW are faulty bit12: Stall fault	NULL	*	1010H

Code	Description	Setting range	Default	Modify	Modbus Address
FF.17	Accumulated kilowatt-hours (Upper 16 bits)	(0~9999)*10000 kWh	0	-	1011H
FF.18	Accumulated kilowatt-hours (Low 16 bits)	0~9999 kWh	0 kWh	-	1012H
FF.20	③ Thermistor temperature	-100~300 °C (-148~572 °F)	0.0 °C	*	1013H

*Display shows most significant 4 digits e.g. 65530 will display 6553.

FP: Protection Parameters

Code	Description	Setting range	Default	Modify	Modbus Address
FP.00	User password	0~9999 0: No password Others: password protection	0: No password	o	-
FP.01	Parameter write-in protection	0: All parameters are allowed modifying 1: Only FP.01 and FP.03 can be modified 2: All parameters aren't allowed read	0: All parameters are allowed modifying	o	--
FP.02	Parameter initialization	0: No operation 1: Clear fault history 2: Restore to defaults	0: No operation	x	--
FP.03	Parameter copy	0: No action 1: Parameters download 2: Parameters upload (except motor's parameters) 3: Parameters upload (all parameters)	0: No action	x	--
FP.04	Parameter upload protection	0: Protection enabled 1: Protection disabled	0: Protection enabled	x	--
FP.05	G/P model selection	0: Type G 1: Type P	0: Type G	x	--
FP.07	User parameters backup	0: Invalid 1: Valid	0: Invalid	x	--
FP.08	User parameters recovery	0: Invalid 1: Valid	0: Invalid	x	--

8 Fault information and trouble shooting

Once a fault is detected, the NE200/300 series of frequency converter would immediately block PWM output and enter the fault protection state; meanwhile TRIP on the keypad would flash and the digital control area display the fault code. At this point one must identify the cause of failure and its corresponding solutions according to the method suggested in this section, if it does not work, please contact your supplier. The series of frequency converter has 22 kinds of faults, which are shown together with their respective solutions in Table 8-1.

NOTE A fault code with a sign “③” indicates this trip code is only for NE300

Table 8-1 Fault diagnosis and its solutions

Trip code	Trip Type	Possible causes	Solutions
Uu1	Bus Under voltage during running	1. Power grid low voltage	1. Check the input power source.
OC1	Over current in Acceleration	1. Acceleration time too short	1. Increase the acceleration time.
		2. Power grid low voltage	2. Check the input power source.
		3. Drive power rating too small	3. Choose drive with higher power rating.
OC2	Over current at Deceleration	1. Deceleration time too short	1. Increase the deceleration time.
		2. Large load inertia	2. Add suitable braking devices.
		3. Drive power rating too small	3. Choose drive with higher power rating.
OC3	Over current at constant-speed	1. Abnormal Load mutation	1. Check the load.
		2. Power grid low voltage	2. Check the input power source.
		3. Drive power rating too small	3. Choose drive with higher power rating.
		4. Encoder sudden offline in closed-loop vector control	4. Check the encoder and its wiring.
Ou1	Over Voltage in Acceleration	1. Acceleration time too short	1. Increase the acceleration time.
		2. Power supply abnormal	2. Check the input power source.
Ou2	Over voltage in deceleration	1. Deceleration time too short	1. Increase the deceleration time.
		2. Large load inertia	2. Add suitable braking devices.
Ou3	Over voltage in constant speed	1. Power supply abnormal	1. Check the input power source.
		2. Large load inertia	2. Add suitable braking devices.
GF ③	Ground Fault	1. One output phase has ground fault	1. Check the motor insulation 2. Check connection between the drive and the motor.
SC	Load short-circuit	1. Wiring of drive and motor has phase-to-phase short circuit	1. Check the motor winding resistance.
		2. Drive IGBT module damaged	2. Contact the supplier.
OH1	Heat-sink over heat	1. Ambient temperature too high	1. Lower the ambient temperature.
		2. Fan is damaged	2. Change the fan.
		3. Fan air duct is blocked	3. Clear the air duct.

Trip code	Trip Type	Possible causes	Solutions
OL1	Motor overload	1. Power supply abnormal	1. Check the input power source.
		2. Motor rated current set wrongly	2. Check whether the motor rated current is correctly set up.
		3. The settings of V/F are not correct	3. Adjust the V/F curve and torque boosting performance.
		4. Motor always works with heavy load at low speed.	4. Use specialized electric motor.
		5. Motor blocked to stall or sudden large load change	5. Check whether the motor or the load is blocked to stall or not.
		6. Motor power too low	6. Use motor and drive of suitable power ratings
OL2	Drive overload	1. Low voltage in power grid	1. Check the input power source.
		2. Load too heavy	2. Select bigger power rating drive.
		3. Acceleration too fast	3. Increase the acceleration time.
		4. Restart the motor still in turning	4. Avoid restarting when the motor is in rotation.
EF0	Communication fault	1. Baud rate and parity checksum is set incorrect	1. Check communication parameters are correct or not
		2. Communication interrupted for long time	2. Check the interface wiring.
EF1	External terminal fault	1. Faults comes from external control circuit	1. Check the external input
SP1	Input phase loss	1. Input RST have phase loss or imbalance	1. Check input voltage
SPO	Output phase loss	1. There is lack of UVW when output	1. Check U-V-W motor wiring
		2. There is a serious unbalance in output	2. Check the load
EEP	EEPROM error	1. Function code parameter writing error	1. Recover factory defaults
		2. EEPROM damaged	2. Contact the supplier of the drive.
CCF	Keypad & control board communication interrupted	1. Connection cable between keyboard and control panel is broken	1. Check the connection cable between keyboard and control panel
bCE	Brake unit fault	1. The braking unit or braking resistor connection is broken	1. Check the brake unit, change the brake wiring.
		2. Brake resistor is too low	2. Choose the suitable braking resistor.
PCE	Parameter copy Error	1. Connection cable between keypad and control board is too long and has led to interference in parameters transmission	1. Shorten the cable between Keyboard and control board to reduce interference.
		2. The downloading parameters do not match the existed parameters in the drive.	2. Before downloading, make sure the parameters match the drive.
IDE	IDE Hall current detection fault	1. The current sensing or hall device is damaged.	1. Contact the supplier of the drive.

Trip code	Trip Type	Possible causes	Solutions
ECE ③	Encoder fault	1. Encoder signal wires are connected incorrectly	1. Check whether the encoder signal is correctly connected.
		2. Encoder signal wires are damaged	2. Check whether the encoder wiring is broke.
		3. Encoder damaged.	3. Change the encoder.
		4. Encoder detected motor direction does not match with drive direction.	4. Change the encoder direction (F3.16) or alter motor wiring sequence.
LC	Fast current limit fault	1. Load too large or motor blocked to stall	1. Decrease the load and check motor and mechanical part status
		2. Drive power rating too small	2. Choose higher power drive
		3. Drive output circuit loop grounded or SC.	3. Remove the external fault
EF2	Terminal close fault	1. The FWD or REV terminals close and get power on. But drive is set to not allow the restart after power failure recovery.	1. Disconnect the FWD or REV terminal first and then power on the drive. 2. Close the fault detection function for closed terminal fault (FC.11=0)
PIDE	PID feedback error	1. PID feedback offline	1. Check PID feedback line. 2. Disable PID feedback detection (F8.24=0.0 %) 3. Increase PID feedback offline detection time (F8.25)
OLP2	Overload pre-alarm error	1. Frequency drive output current is higher than set pre-alarm threshold	1. Disable pre-alarm function (FC.19=0) 2. Increase pre-alarm threshold value (FC.02) 3. Increase pre-alarm detection time (FC.03)
InPE	Initial position fault detected of synchronous moto	1. Too low Synchronous motor initial position detection current	1. Increase detection current (F3.32) 2. Synchronous motor initial position detection (F3.31 = 0)
bAe	Brake Release Current error	1. Connection between drive and motor is lost.	1. Check motor connection
		2. Brake Release Current Threshold is too high	2. Decrease Brake Release Current Threshold (F7.43)
		3. Motor current didn't reach Brake Release Current Threshold through Current detection time	3. Increase Current detection time (F7.44)

8.1 Hazardous substance limit table for electrical and electronic products

Part Name	Hazardous substances					
	Lead (Pb)	Mercury (Hg)	Cadmium (Cd)	Hexavalent Chromium (Cr +6)	Polybrominated biphenyls (PBB)	Polybrominated diphenyl ethers (PBDE)
Electronics assembly	X	O	O	O	O	O
Housing assembly	O	O	O	O	O	O
Keypad Battery	O	O	O	O	O	O

This table is in accordance with the provision of SJ/T11364

O: Indicates that said hazardous substance in all of the homogeneous materials for this part is below the limit requirement of GB/T 26572

X: Indicates that said hazardous substance contained in at least one of the homogeneous materials used for this part is above the limit requirement of GB/T 26572.



Warning Before using this product you must read and understand the safety information within the User Guide at the URL below.	Avertissement Avant d'utiliser ce produit, il est impératif de lire et de bien comprendre les consignes de sécurité du Guide de mise en service, disponible à l'adresse ci-dessous.
Avvertenza Prima di utilizzare questo prodotto leggere e assicurarsi di aver compreso le informazioni sulla sicurezza contenute nella Guida dell'utente consultabile all'URL indicato qui sotto.	Warnung Bevor Sie dieses Produkt verwenden, müssen Sie die Sicherheitshinweise in der Betriebsanleitung unter der nachstehenden URL lesen und verstehen.
Advertencia Antes de utilizar este producto, debe leer y comprender la información de seguridad de la Guía del usuario en la siguiente URL.	Предупреждение Преди да използвате този продукт, трябва да прочетете и разберете информацията за безопасност в ръководството за потребителя на URL адреса по-долу.
Upozorenje Prije upotrebe ovog proizvoda morate pročitati i razumjeti sigurnosne informacije iz Korisničkog vodiča na donjem URL-u.	Varovány Před použitím tohoto výrobku si musíte na níže uvedené adrese URL přečíst v návodu k použití bezpečnostní informace a porozumět jim.
Προειδοποίηση Πριν από τη χρήση αυτού του προϊόντος, πρέπει να διαβάσετε και να κατανοήσετε τις πληροφορίες ασφαλείας που περιλαμβάνει ο Οδηγός χρήστη στην παρακάτω διεύθυνση.	Aviso Antes de utilizar este produto, deve ler e compreender as informações de segurança contidas no guia do utilizador que pode encontrar no URL abaixo.
Advarsel Før du tager dette produkt i brug, skal du have læst og forstår sikkerhedsoplysningerne i brugervejledningen på webadressen nedenfor.	Figyelem A termék használatá előtt el kell olvasnia és meg kell értenie a Felhasználói útmutatóban található biztonsági információkat az alábbi URL-címen.
Avertizare Înainte de a utiliza acest produs, trebuie să citiți și să înțelegeți informațiile referitoare la siguranță din Ghidul de utilizare de la adresa URL de mai jos.	Waarschuwing Vóór gebruik van dit product moet u de veiligheidsinformatie in de Handleiding op de URL hieronder lezen en begrijpen..
Upozornenie Pred použitím tohto produktu si musíte prečítať a porozumieť všetkým bezpečnostným pokynom uvedeným v Používateľskej príručke, ktorú nájdete na nasledujúcej adrese URL.	Hoiatus Enne selle toote kasutamise alustamist peate lugema ja mõistma alltoodud URL-aadressil asuvas kasutusjuhendis toodud ohutusala teavet.
Brīdinājums Pirms šā produkta lietošanas ir jāizlasa un jāizprot informācija par drošību, kas iekļauta lietošanas pamācībā tālāk norādītajā URL.	Opozorilo Pred uporabo tega izdelka morate prebrati in razumeti varnostne informacije v navodilih za uporabo na spodnjem spletnem naslovu.



Varoitus Ennen kuin käytät tätä tuotetta, sinun on luettava ja ymmärrettävä turvallisuusohjeet, jotka sisältyvät alla mainitussa verkko-osoitteessa olevaan käyttöoppaaseen.	Ispėjimas Prieš pradėdami naudoti šį gaminį perskaitykite ir įsitikinkite, kad supratote saugos informaciją, pateiktą naudotojo vadove, esančiame toliau nurodytu universaliu adresu.
Twissija Qabel ma tuża dan il-prodott inti għandek taqra u tifhem l-istruzzjonijiet ta' sikurezza fi hdan il-Gwida għall-Utent fil-URL t'isfel.	Varning Innan du använder denna produkt måste du läsa och förstå säkerhetsinformationen i användarhandboken på nedanstående URL-adress.
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