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CP700 Series
AC Drive for Air Compressors

User Guide

Industrial Automation | New Energy Vehicle | Intelligent Elevator | Intelligent Robot | Digital Energy | Rail Transit

Data code 19010796B09

Legal Information

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The contents are subject to change without notice due to product upgrade.

Waste Disposal

Storage, use, and disposal of this product (including optional accessories) must comply with local laws and regulations.

Qualified Personnel

The product/system described in this documentation may be operated only by personnel qualified for the specific task in accordance with the relevant documentation, in particular its warning notices and safety instructions. Qualified personnel can identify the risks of the product/system and prevent possible dangers.

Proper Use of the Product

Proper transportation, storage, assembly, installation, commissioning, operation, and maintenance are required to ensure the safe operation of the product without any problems. The required ambient conditions must be met. All operations must follow the guidelines provided in this documentation.

Preface

Thank you for purchasing the CP700 series AC drive for air compressors developed and manufactured by Inovance.

The CP700 series AC drive is housed in a sheet metal enclosure and can be wall-mounted for easy installation. It is easy to wire and commission, with pluggable control terminals that prevent incorrect connection. Featuring high integration, the drive provides a built-in 220 VAC power supply, a 24 VDC output, a mains frequency contactor, along with detection and protection circuits such as PT100 and PTC. The AC drive uses dedicated software to communicate with HMI and IoT devices without commissioning, and supports one-button startup.

This user guide describes the correct use of the CP700 series AC drive for air compressors, including selection, mounting, wiring, and commissioning. Read and understand the user guide before use and deliver the user guide to end users.

§ First Use

For the users who use this product for the first time, read through the manual carefully. If you have any questions concerning the functions or performance, contact technical support engineers.

§ Revision history

Date	Document version	Software version	Revision
June 2026	B09	Software code: 03021860 Version tag: F7-10=U70.19/F7-11=U71.25/F7-15=000.00/F7-16=000.00 Version: A18.3.	◆ Updated safety compliance information in "Safety Precautions". ◆ Added short circuit rated value SCCR in "1.3 Technical Data". ◆ Updated "2.7 Post-wiring Inspection". ◆ Added notes in "3.2 Commissioning Procedure". ◆ Deleted the PC tool software name "InoDriveStudio" from "3.4 SOP-20-CP Operating Panel". ◆ Added notes in "4.2 Common Faults and Solutions". ◆ Added brake check items in "5.1 Daily Inspection". ◆ Added "2.2.6 Backplate Mounting", "2.2.3 Installation Orientation", "2.1 Unpacking and Transportation", "2.3.3 Main Circuit Wiring Requirements", "2.4 Grounding Requirements", and "C.1 Compliance List". ◆ Added STO and CP701 series models.
March 2026	B08	-	◆ Modified parameters F0-10 and F0-22 in "A.1 Basic Parameter List". ◆ Updated the safety precautions and safety labels in "Safety Precautions". ◆ Updated the front cover. ◆ Updated the product image in "Figure 1-8 CP700 system composition". ◆ Added "Industrial Information Security".

Date	Document version	Software version	Revision
July 2025	B07	-	◆ Added F9-97 to F9-99 in "A.1 Basic Parameter List". ◆ Added fault code E44.00 in "4.1 Fault List". ◆ Added "Legal Information" and "Service and Support".
March 2025	B06	-	◆ Added descriptions in "1.1 Nameplate and Model". ◆ Added descriptions of the overvoltage motor, grid type, shock, pollution degree, IP rating, and protection level and updated descriptions of vibration in "1.3 Technical Data". ◆ Updated the system composition diagram in "1.5.1 System Composition". ◆ Updated the selection data in "1.5.3 Selection of Fuses, Contactors, and Circuit Breakers". ◆ Added "1.5.4 Selection of AC Input Reactors". ◆ Added "2.2.5 Heat Dissipation Design". ◆ Deleted the STO terminal description in "2.3.4 Control Terminal Layout". ◆ Added the RJ45 wiring diagram in "2.3.4 Control Terminal Layout". ◆ Added "2.7 Post-wiring Inspection". ◆ Updated the cable selection table and added the terminal selection table in "2.6.1 Main Power Cable". ◆ Added "3.4 SOP-20-CP Operating Panel". ◆ Updated solutions for E21.01 to E21.05 in "4 Troubleshooting". ◆ Modified value 47 of F9-14 to "Reserved" in "Appendix A Parameter List".

Date	Document version	Software version	Revision
April 2024	B05	-	Modified the following: ◆ Added STO-related descriptions in "1.2 Components". ◆ Deleted IoT-related descriptions from 1.5.2 System Peripheral Electrical Components. ◆ Added the DIP switch description table in 2.2.3 Control Terminal Layout. Modified the 485 output terminals, changed DI3 to DI6, and added the terminal descriptions of DI5 to DI6. ◆ Added descriptions of the source and sink wiring diagram of the DI terminal in 2.2.4 Control Terminal Wiring. ◆ Modified E16.00, E33.00, E37.00, E38.00, and E39.00 and deleted E20.01 to E20.09 and E25.00 in 4.1 Faults, Alarms and Solutions. ◆ Deleted descriptions of the closed-loop vector control mode in 4.2 Common Faults and Solutions. ◆ Modified F0-14, F0-16, F0-22, F2-03, F2-21, F2-37 to F2-46, F3-16, F4-00 to F4-05, F4-18, F4-23, F4-41, F5-00, F5-01, F7-09, F7-14, F9-47, A5-12, A5-13, A5-20, A9-37, A9-38, U1-09, A8-02, A8-03, A8-05, A8-36, A8-56, A8-77 to A8-79, A8-89, A8-91, A9-13 to A9-16, A9-21, A9-28, F5-00, F5-01, F9-00, F9-07, F9-10, F9-14, F9-50, FA-06, FA-19, FA-25, FD-04, FP-02, FP-03, A0-01, A5-06, A5-11, B1-00 to B1-05, B1-22, B1-26, and deleted F1-23, F1-27 to F1-36, F2-23. A4-01 to A4-68, F6-23 to F6-25, F8-56, and B1-35 to B1-39, and added parameters in group B3 in A.1 List of Basic Function Parameters. ◆ Modified communication addresses of parameters in group U0, deleted U0-52, added parameters in group U2 in A.2 List of Monitoring Parameters. ◆ Made minor corrections. Added: ◆ Appendix B Communication Address
October 2023	B04	-	Added "1.5.3 Selection of Fuses, Contactors, and Circuit Breakers". Added A.3 Parameters in Group A8 Updated Appendix A Parameter List and 4.1 Faults and Solutions. Added models of CP700-4T110-H-7.5 to CP700-4T200-H-7.5 in the following sections: Preface 1.1 Nameplate and Model 1.2 Internal Component Layout 1.3 Technical Data 1.4 Installation Dimensions 1.5.1System Composition 1.5.2 Peripheral Device Descriptions 2.1.2 Requirements for Mounting Clearances 2.1.3 Cover Removal and Installation 2.2.1 Main Circuit Terminal Layout 2.2.2 Wiring of Main Circuit Terminals 2.2.3 Control Terminal Layout 2.2.4 Control Terminal Wiring 2.4.1 Main Power Cables 2.4.2 Control Cables 5.3.2 Fan Quantity 5.3.3 Replacing Fans

Date	Document version	Software version	Revision
August 2023	B03	-	4.1 Faults and Solutions Appendix A Parameter List Made minor corrections.
June 2023	B02	-	Added 2.2.3 Control Terminal Layout
May 2023	B01	-	4.1 Faults and Solutions Appendix A Parameter List
Aug 2022	B00	-	Added 110 kW to 200 kW models (three-phase 380 V to 440 V) in the following sections: Preface Safety Precautions 1.1 Nameplate and Model 1.2 Internal Component Layout 1.3 Technical Data 1.4 Installation Dimensions 1.5.1System Composition 1.5.2 Peripheral Device Descriptions 2.1.2 Requirements for Mounting Clearances 2.1.3 Cover Removal and Installation 2.2.1 Main Circuit Terminal Layout 2.2.2 Wiring of Main Circuit Terminals 2.2.3 Control Terminal Layout 2.2.4 Control Terminal Wiring 2.4.1 Main Power Cables 2.4.2 Control Cables 4.1 Faults and Solutions 5.3.2 Fan Quantity 5.3.3 Replacing Fans Appendix A Parameter List
April 2021	A06	-	Deleted silkscreen.
November 2020	A05	-	Made minor corrections.
August 2020	A04	-	Deleted the customer phone.
September 2020	A03	-	Added information related to 90 kW models in the following sections: 1.1 Nameplate and Model 1.3 Technical Data 1.4 Overall Dimensions 2.4.1 Main Power Cables 5.3.2 Number of Cooling Fans Added parameters in group A4 and A8-80 to A8-86 in A.1 Basic Parameter List.
September 2018	A02	-	Added 5.5 to 15 kW models (three-phase 380 V). Added 7.5 kW to 45 kW models (three-phase 220 V).
January 2018	A01	-	Added 45–75 kW models.
August 2017	A00	-	First release

§ Access to the guide

The guide is not delivered along with the product. You can obtain the PDF version in the following ways:

- Visit https://www.inovance.com/global, and choose Service&Support > Support > Documentation Download.
- Scan the QR code on the product with your smartphone.
- Scan the QR code below to install the My Inovance app, and search for the user guide in the app.

§ Warranty disclaimer

Inovance provides warranty service within the warranty period (as specified in your order) for any fault or damage that is not caused by improper operation of the user. Maintenance will be charged after the warranty expires.

Even within the warranty period, maintenance can be charged for the following product damage:

- Damage caused by operations not following the instructions in the guide
- Damage caused by fire, flood, or abnormal voltage
- Damage caused by using the product for unintended functions
- Damage caused by using the product outside the specified scope
- Damage or secondary damage caused by force majeure (natural disaster, earthquake, and lightning strike)

When applicable, relevant maintenance fee will be charged according to the latest Price List of Inovance. If otherwise agreed upon, the agreed terms and conditions shall prevail.

For details, see the Warranty Card.

Safety Precautions

§ Safety Disclaimer

- This chapter provides essential safety instructions for proper use of the product. Before using this product, read through the guide and comprehend all the safety instructions. Failure to comply with the safety instructions may result in death, severe injury, or equipment damage.
- "DANGER", "WARNING", and "CAUTION" signs in this guide are only supplements to the safety instructions, and do not reflect all safety instructions to be followed.
- Use this product according to the designated environment requirements. Damage caused by improper use is not covered by warranty.
- Inovance shall take no responsibility for any personal injury or property damage caused by improper use.

§ Safety Levels and Definitions



The "DANGER" sign indicates that failure to comply with the notice will result in death or serious injury.



The "WARNING" sign indicates that failure to comply with the notice could result in death or serious injury.



The "CAUTION" sign indicates that failure to comply with the notice could result in minor or moderate injury, or equipment damage.

§ Safety Precautions

- Drawings in the user guide are sometimes shown without covers or protective guards. Install the covers or protective guards as specified, and then perform

operations in accordance with the instructions.

- The drawings in the guide are shown for illustration only and may be different from the product you purchased.
- Operators must take mechanical precautions to protect personal safety and wear protective equipment, such as anti-smashing shoes, safety clothing, safety glasses, protective gloves, and protective sleeves.

Unpacking
WARNING ◆ Do not install the product in the case of any damage, rust, or signs of use on the product or accessories upon unpacking. ◆ Do not install the product in the case of water seepage into the product or missing or damaged components upon unpacking. ◆ Do not install the product in the case of any discrepancy between the product you received and the product name on the packing list.
CAUTION ◆ Check whether the packing is intact and free from damage, water seepage, moisture, and deformation. ◆ Unpack the package layer by layer. Do not strike the package violently. ◆ Check the equipment and its accessories for any signs of damage, rust, or scratches upon unpacking. ◆ Check whether the package contents are consistent with the packing list before unpacking.
Storage and transportation

WARNING

- Large or heavy equipment must be handled by qualified professionals using specialized hoisting equipment. Failure to comply could result in personal injury or equipment damage.
- Before hoisting the equipment, ensure that components such as the front cover and terminal blocks are secured firmly with screws. Loosely connected components may fall off and result in personal injury or equipment damage.
- Do not stand or stay below the product which is being hoisted.
- When hoisting the equipment with a steel rope, ensure the equipment is hoisted at a constant speed without suffering from vibration or shock. Do not turn the equipment over or let the equipment stay hanging in the air. Failure to comply could result in personal injury or equipment damage.

CAUTION

- Handle the equipment with care and mind your step during transportation to prevent personal injury or equipment damage.
- When carrying the equipment with bare hands, hold the equipment casing firmly with care to prevent parts from falling. Failure to comply could result in personal injury.
- Store and transport the equipment based on the storage and transportation requirements. Failure to comply could result in equipment damage.
- Do not store or transport the equipment in locations where the equipment may be exposed to splashing water or rain, direct sunlight, strong electric field, strong magnetic field, or strong vibration.
- Store the equipment for up to three months. Take stricter protective measures and carry out the necessary inspections for a longer storage time.
- Pack the equipment securely and properly before transportation. Use a fully enclosed container for long-distance transportation.
- Do not transport the equipment with other devices or items that may impact or cause harm to the equipment.

Installation


DANGER

- This equipment must be operated only by trained and qualified electrical personnel. Operations can be performed by professionals only.
- Failure to follow the following instructions will pose a fire risk:
  - Ensure peripheral power distribution requirements are met, and select air switches, fuses, cables, and cable terminals correctly.
  - Use standard torque to fasten screws, and use appropriate terminal crimping tools to crimp terminals.
  - Ensure heat dissipation requirements are met and design inlet and outlet airflow duct properly.
  - Avoid environments with dripping water, conductive foreign objects (such as carbon fiber filaments, conductive metal dust, and metal chips), and salt spray.

WARNING

- Read through the guide and safety instructions before installation.
- Do not install this equipment in places with strong electric or magnetic field.
- Before installation, check that the mechanical strength of the installation site can bear the weight of the equipment. Failure to comply may result in mechanical hazards.
- Do not wear loose clothes or accessories during installation. Failure to comply may result in an electric shock.
- When installing the equipment in an enclosed environment (such as a cabinet or case), use cooling devices (such as fans or air conditioners) to cool the space and meet the installation environment requirements. Failure to do so can result in equipment overtemperature or fire accidents.
- Do not retrofit the equipment.
- Do not fiddle with the bolts used to fix equipment components or the bolts marked in red.
- When the equipment is installed in a cabinet or terminal device, appropriate guard devices (guards for fire, electrical, and mechanical protection) meeting applicable IEC standards and local laws and regulations must be provided.
- Before installing devices with strong electromagnetic interference, such as a transformer, install a shielding device for the equipment to prevent malfunction.
- Install the equipment onto an incombustible object such as a metal. Keep the equipment away from combustible objects. Failure to comply may result in a fire.
- The edges of the equipment metal enclosure are sharp. Note the following precautions during installation to avoid personal injury or cable damage:
  - When performing installation, handling, or maintenance operations, always wear cut-resistant gloves.
  - Avoid direct skin contact with enclosure edges and cut surfaces during operation.



- Cover the top of the product with a piece of cloth or paper during installation. This is to prevent unwanted objects such as metal chippings, oil, and water from falling into the product and causing faults. After installation, remove the cloth or paper on top of the product to prevent over-temperature caused by poor ventilation due to blocked ventilation holes.
- Resonance may occur when the equipment operating at a constant speed executes variable speed operations. In this case, install the vibration-proof rubber under the motor frame or use the vibration suppression function to reduce resonance.

Wiring



- Equipment installation, wiring, maintenance, inspection, or parts replacement must be performed only by professionals.
- Before wiring, switch off all power supplies of the device. Wait for at least the time designated on the warning label before further operations because residual voltage still exists after power-off. After waiting for the designated time, measure the DC voltage in the main circuit to ensure the DC voltage is within the safe voltage range. Failure to comply can result in electric shock.
- Do not perform wiring, remove the equipment cover, or touch the circuit board and other exposed live parts with power on. Failure to comply can result in electric shock.
- Make sure that the equipment and product are grounded properly. Failure to comply can result in the risk of electric shock.

WARNING

- Do not connect the power cable to output terminals of the equipment or product. Failure to comply may cause equipment damage or even a fire.
- When connecting a drive with the motor, make sure that the phase sequences of the drive and motor terminals are consistent to prevent reverse motor rotation.
- Cables used must comply with corresponding cross-sectional area and shielding requirements. The shield of the shielded cable must be grounded at one end properly.
- Tighten the terminal screws with the torque specified in the user guide. Insufficient or excessive torque may cause overheating and damage to the joint, which could result in fire.
- After wiring is done, ensure that all cables are connected properly and no screws, washers or exposed cables are left inside the equipment. Failure to comply could result in electric shock or equipment damage.
- Avoid direct skin contact with enclosure edges and cut surfaces during operation.
- Route cables carefully during wiring. Keep them away from sharp edges to prevent squeezing or cutting. It is recommended to use protective sleeves.
- If the enclosure is covered with a protective film, do not remove it until all installation is completed and any further contact with sharp edges is no longer required.

CAUTION

- During wiring, follow the proper electrostatic discharge (ESD) procedures, and wear an antistatic wrist strap. Failure to comply may result in damage to the equipment or internal circuits.
- Use the shielded twisted pair cable to wire the control circuit, and connect the shield to the grounding terminal of the equipment. Failure to comply may result in equipment malfunction.

Power-on

DANGER

- Before power-on, check that the equipment is installed properly with reliable wiring and the motor can be restarted.
- Before power-on, make sure that the power supply meets equipment requirements to prevent equipment damage or even a fire.
- After power-on, do not open the cabinet door or protective cover of the equipment. Do not touch any terminals, or remove any part of the equipment at power-on. Failure to comply will result in an electric shock.

WARNING

- Perform a trial run after wiring and parameter setting to ensure that the equipment operates safely. Failure to comply may result in personal injuries or equipment damage.
- Before power-on, check that the rated voltage of the equipment is consistent with that of the power supply. Failure to comply may result in a fire. Using an incorrect supply voltage may cause a fire.
- Before power-on, check that no one is near the equipment, motor, or other mechanical parts. Failure to comply may result in personal injury or even death.

Operation

DANGER

- The equipment must be operated only by professionals. Failure to comply can result in injury or death.
- Do not touch any connecting terminals or disassemble any unit or component of the equipment during operation. Failure to comply can result in electric shock.
- The equipment is equipped with the automatic restart function. After power supply restoration or fault clearance, do not enable this function when the equipment is running, being inspected, or when personnel are in contact with the drive mechanism. Before enabling the automatic restart function, check the following:
  - No personnel are working on the load side, and no foreign objects cause blockages.
  - All safety protection devices (such as safety doors and emergency stop circuits) are properly engaged.
  - Prominent "Automatic restart" safety warning signs have been posted on the equipment and the site.

WARNING

- Do not touch the enclosure, fan, or resistor with bare hands. Failure to comply may result in burns.
- Prevent metal or other objects from falling into the equipment during operation. Failure to comply may result in a fire or equipment damage.

Maintenance

DANGER

- Equipment installation, wiring, maintenance, inspection, or parts replacement must be performed only by professionals.
- Do not perform maintenance on the equipment with power-on. Failure to comply may result in an electric shock.
- Before maintenance, disconnect all the power supplies of the equipment and wait for at least the time specified on the warning label.
- When using a permanent magnet (PM) motor, do not touch the motor terminals while the motor is rotating, because induced voltage may be present at the terminals even after the product is powered off. Failure to comply may result in electric shocks.

WARNING

- Perform routine and periodic inspection and maintenance on the equipment according to maintenance requirements and keep a maintenance record.

Repair

DANGER

- Equipment installation, wiring, maintenance, inspection, or parts replacement must be performed only by professionals.
- Do not repair the equipment with power-on. Failure to comply may result in electric shock.
- Before inspection or repair, disconnect all the power supplies of the equipment and wait for at least the time specified on the warning label.

WARNING

- Submit a request for repair based on the warranty agreement.
- When the fuse is blown or the circuit breaker or earth leakage current breaker (ELCB) trips, wait for at least the time designated on the equipment warning label before power-on or further operations. Failure to comply may result in death, personal injury or equipment damage.
- Troubleshooting and repair of a faulty or damaged equipment must be performed by professionals based on the repair instructions, with the repair records kept properly.
- Replace quick-wear parts of the equipment according to the replacement instructions.
- Do not use damaged equipment. Failure to comply can result in death, personal injury, or severe equipment damage.
- Recheck the wiring and reset the parameters after equipment replacement.

Disposal

WARNING

- Dispose of the retired equipment in accordance with applicable national regulations and standards. Failure to comply can result in property damage, personal injury, or death.
- Recycle retired equipment in accordance with industry waste disposal standards to avoid environmental pollution.

§ Safety Labels

To ensure safe operation, comply with safety labels on the equipment and do not damage or remove the labels. The following table describes the meanings of the safety labels.

Safety Labels	Description
	◆ Before using the equipment, read the guide and safety precautions carefully. Failure to comply may result in personal injury, death, or equipment damage. ◆ Do not touch the terminals or remove the cover with power-on or within 10 min after power-off. Failure to comply may result in electric shock.

Industrial Information Security

The product provides interfaces for network connection and data transmission. To protect factories, systems, machines, and networks from cyberattacks, it is essential to implement proper protection mechanism for industrial security.

Customers are responsible for providing and maintaining a secure connection between the product and their network or any other network to protect their factories, systems, machines, and networks from unauthorized access. Such systems or machines can be connected to an enterprise network or the Internet only when a secure connection is established and appropriate security measures (such as using antivirus software or installing firewalls) are in place.

Inovance continuously develops and improves its products and solutions to enhance safety. It is strongly recommended that you update the product promptly and always use the latest version.



Malware (such as viruses, Trojans, and worms) can bring the device into an unsafe operating state, resulting in death, serious injury, and property damage. Observe the following precautions:

- Always use the latest software version. If the product version is no longer supported or the latest version is not used, you will be exposed to increased risk of cyber attacks.
- Check all safety-related interfaces and settings after commissioning.

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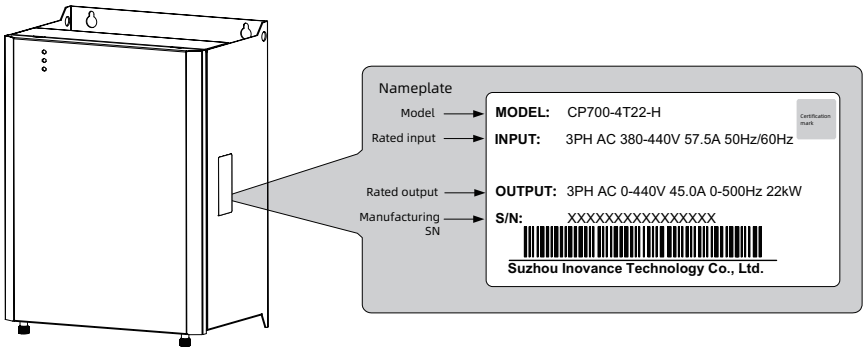
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1 Product Information

1.1 Nameplate and Model



CP700 - 4T 22 S - H 1

Code	Product series
CP700	CP700 series AC drive for air compressors
CP701	CP701 series AC drive for air compressors

Code	Voltage class
2T	Three-phase 200–240 V
4T	Three-phase 380–440 V

Code	Applicable motor
5.5	5.5 kW
...	...
200	200 kW

Code	Power supply
1	24 V power supply output
Null	Not supported

Code	Installation method
H	Backplate mounting

Code	Safety function
S	With STO
Null	Without STO

Figure 1-1 Nameplate and model

NOTE

- The preceding nameplate is for reference purpose only. Actual nameplates may vary.

1.2 Internal Component Layout

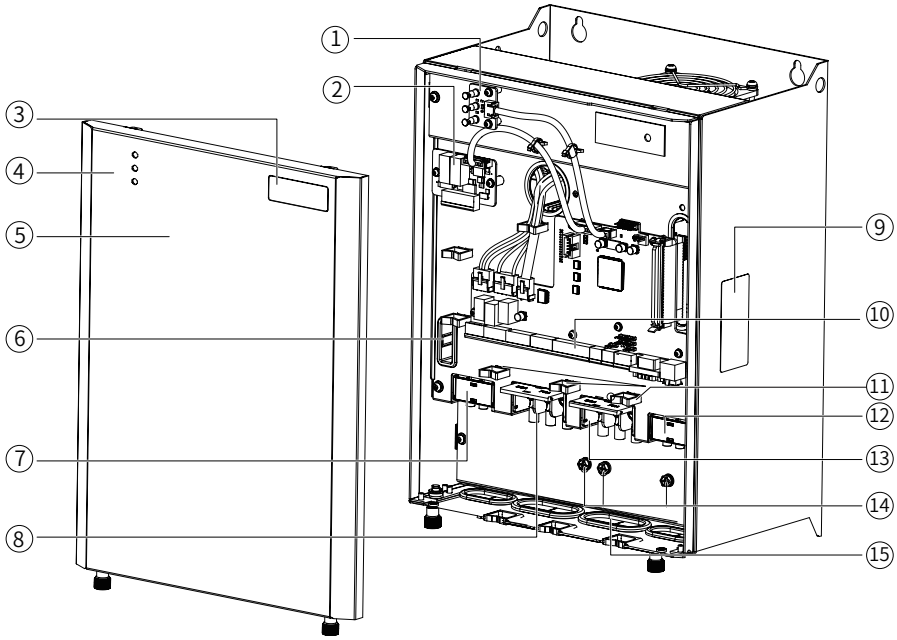


Figure 1-2 Components (18.5 kW to 22 kW)

No.	Component	No.	Component
1	LED indicator panel	9	Nameplate
2	STO card (for STO model)	10	Control circuit terminal
3	Logo	11	Wire bracket
4	Indicator	12	Variable frequency fan terminal
5	Cover	13	Main motor output terminal
6	EMC screw/VDR grounding terminal	14	Grounding terminal
7	Mains frequency fan terminal	15	Protective ring
8	Input terminal	-	-

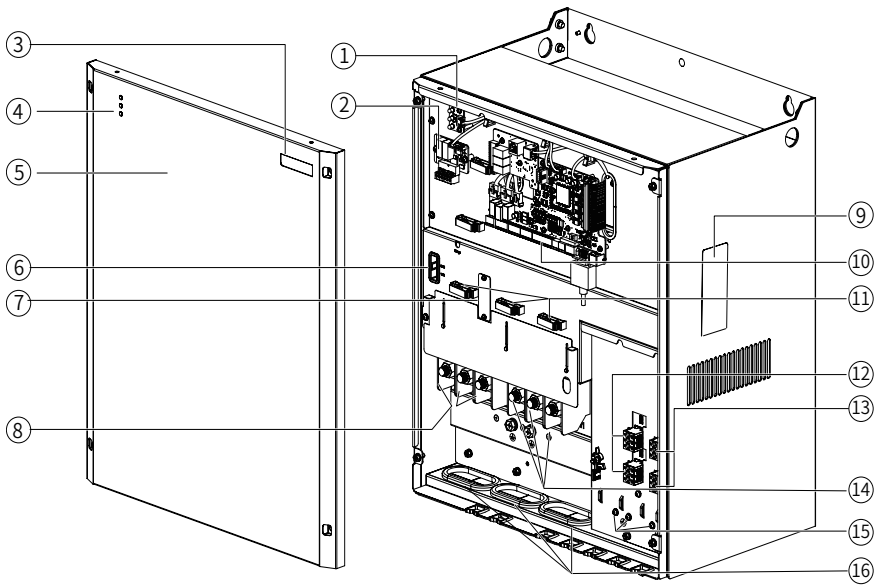


Figure 1-3 Components (110 kW to 132 kW)

No.	Component	No.	Component
1	LED indicator panel	9	Nameplate
2	STO card (for STO model)	10	Control circuit terminal
3	Logo	11	Wire bracket
4	Indicator	12	Variable frequency fan terminal
5	Cover	13	Mains frequency fan terminal
6	EMC screw/VDR grounding terminal	14	Main motor output terminal
7	Bus measurement terminal*	15	Grounding terminal
8	Input terminal	16	Protective ring

NOTE

- Figure 1-2 takes CP700-4T18.5(S)-H(1) to CP700-4T22(S)-H(1) models as examples to describe the components of models with the power of 90 kW and below. Figure 1-3 takes CP700-4T110(S)-H(1) to CP700-4T132(S)-H(1) models as examples to describe the components of models with the power of 110 kW and above. For components of other models, refer to the received product.
- Item with *: The bus measurement terminal after the cover is removed is used to test whether the bus and IGBT rectifier bridge are normal.

1.3 Technical Data

Table 1-1 Model and technical data of CP700 7.5 kW to 90 kW models

Model	Variable frequency main motor			Variable frequency fan		Mains frequency fan	
	Power (kW)	Input current (A)	Output current (A)	Power (kW)	Rated current (A)	Power (kW)	Rated current (A)
Three-phase 200 VAC to 240 VAC, 50/60 Hz							
CP700-2T7.5-H	7.5	35.0	32.0	-	-	0.25	1.5
CP700-2T11-H	11	49.5	45.0	0.45	2.1	0.45	2.1
CP700-2T15-H	15	60.0	55.0	0.45	2.1	0.45	2.1
CP700-2T18.5-H	18.5	65.0	60.0	0.75	3.8	0.45	2.1
CP700-2T22-H	22	80	75	0.75	3.8	0.45	2.1
CP700-2T30-H	30	120.9	112	2.2	9.0	0.45	2.1
CP700-2T37-H	37	134.0	125.0	2.2	9.0	0.45	2.1
CP700-2T45-H	45	159.2	150.0	2.2	9.0	0.45	2.1
Three-phase 380 VAC to 440 VAC, 50/60 Hz							
CP700-4T5.5-H	5.5	15.9	13	-	-	0.4	1.5
CP700-4T7.5(S)-H	7.5	20.5	17	-	-	0.4	1.5
CP700-4T11(S)-H	11	26	25	-	-	0.4	1.5
CP700-4T15(S)-H	15	35	32	-	-	0.4	1.5
CP700-4T18.5(S)-H(1)	18.5	47.2	37.0	0.75	2.1	0.75	2.1
CP701-4T18.5(S)-H(1)	18.5	47.2	37.0	0.75	2.1	-	-
CP700-4T22(S)-H(1)	22	57.5	45.0	0.75	2.1	0.75	2.1
CP701-4T22(S)-H(1)	22	57.5	45.0	0.75	2.1	-	-
CP700-4T30(S)-H(1)	30	65.0	60.0	1.5	3.8	0.75	2.1
CP701-4T30(S)-H(1)	30	65.0	60.0	1.5	3.8	-	-
CP700-4T37(S)-H(1)	37	80.0	75.0	1.5	3.8	0.75	2.1
CP701-4T37(S)-H(1)	37	80.0	75.0	1.5	3.8	-	-
CP700-4T45(S)-H(1)	45	101.4	91.0	3.7	9.0	0.75	2.1
CP701-4T45(S)-H(1)	45	101.4	91.0	3.7	9.0	-	-
CP700-4T55(S)-H(1)	55	120.9	112.0	3.7	9.0	0.75	2.1
CP701-4T55(S)-H(1)	55	120.9	112.0	3.7	9.0	-	-
CP700-4T75(S)-H(1)	75	159.2	150.0	3.7	9.0	0.75	2.1
CP701-4T75(S)-H(1)	75	159.2	150.0	3.7	9.0	-	-
CP700-4T90(S)-H(1)	90	186.0	176.0	3.7	9.0	0.75	2.1

Model	Variable frequency main motor			Variable frequency fan		Mains frequency fan	
	Power (kW)	Input current (A)	Output current (A)	Power (kW)	Rated current (A)	Power (kW)	Rated current (A)
CP701-4T90(S)-H(1)	90	186.0	176.0	3.7	9.0	-	-

Table 1-2 Model and technical data of CP700 110 kW to 200 kW models

Model	Variable frequency main motor			Variable Frequency Blower (Two-Channel)		Mains Frequency Blower (Two-Channel)	
	Power (kW)	Input current (A)	Output current (A)	Power (kW)	Rated current (A)	Power (kW)	Rated current (A)
Three-phase 380 VAC to 440 VAC, 50/60 Hz							
CP700-4T110(S)-H(1)	110	214	210	3.7	9.5	0.75	3.4
CP700-4T132(S)-H(1)	132	257	253	3.7	9.5	0.75	3.4
CP700-4T160(S)-H(1)	160	315	304	3.7	9.5	0.75	3.4
CP700-4T200(S)-H(1)	200	384	377	3.7	9.5	0.75	3.4

Table 1-3 Model and technical data of 110 kW to 200 kW models

Model	Variable frequency main motor			Variable frequency fan (one channel)		Mains Frequency Blower (Two-Channel)	
	Power (kW)	Input current (A)	Output current (A)	Power (kW)	Rated current (A)	Power (kW)	Rated current (A)
Three-phase 380 VAC to 440 VAC, 50/60 Hz							
CP700-4T110-H-7.5	110	214	210	7.5	17	0.75	3.4
CP700-4T132-H-7.5	132	257	253	7.5	17	0.75	3.4
CP700-4T160-H-7.5	160	315	304	7.5	17	0.75	3.4
CP700-4T200-H-7.5	200	384	377	7.5	17	0.75	3.4

Table 1-4 Technical specifications of the CP700 series AC drive

Item		Specification
Basic Parameters	Output frequency	Vector control: 0 Hz to 500 Hz
	Carrier frequency	2 kHz to 8 kHz The carrier frequency is automatically adjusted based on the heatsink temperature.
	Output frequency resolution	Digital setting: 0.01 Hz
	AC drive capacity	Three-phase 220 V: 7.5 kW to 45 kW Three-phase 380 V: 5.5 kW to 200 kW
	Input voltage	Three-phase 200 VAC to 240 VAC (with the offset from -15% to 10%) Three-phase 380 VAC to 440 VAC (with the offset from -15% to +10%)
	Overvoltage category	OVCIII
	Grid type	TN/TT
	Control mode	Main motor: synchronous motor, SVC Blower: Asynchronous motor, V/f
	Speed regulation range	1:50 (SVC, motoring)
	Speed control accuracy	±0.1% (SVC)
	Speed fluctuation	1.5% (SVC) 3.0% (field weakening area)
	Torque response	< 15 ms (SVC)
	Torque fluctuation	< 15% (SVC, generating state); <12 % (motoring)
	Torque control mode	Main motor: SVC
	Overload capacity	The overload current multiple and overload time of the main motor are automatically calculated based on module temperature.
Individualized functions	Acceleration/ Deceleration curve	Straight line and S-curve mode 1 S-curve mode 2
	Built-in PID	Built-in pressure, temperature PID parameters, used for pressure and temperature control
	Communication/Bus	Standard RS485
	Operation command source	Two channels: terminal, communication command preset
	Frequency source	Three frequency source: Digital setting, communication, air compressor dedicated control (pressure PID)

Item		Specification
I/O interface	Analog input	Pressure sensor: 4-20 mA input; 12-bit resolution; full range of correction accuracy: 0.5%
		Temperature sensor: PT100 resistor input; 12-bit resolution; temperature detection range: -25° C to +220° C; temperature error: ±3° C
	Digital input.	Four common input channels: NPN
		Two PTC protective circuits (compatible with common inputs)
	Digital output	1) CP700-2T7.5-H, and CP700-4T5.5-H to CP700-4T15(S)-H models: One normally open (NO) delay output terminal (220 V, active, for electromagnetic valve control) Note that when the maximum input voltage reaches 440 VAC, the power supply voltage of the solenoid valve reaches 255 VAC. 2) CP700-2T11-H to CP700-2T45-H, CP700-4T18.5(S)-H(1) to CP700-4T90(S)-H(1), and CP701-4T18.5(S)-H(1) to CP701-4T90(S)-H(1) models: Two NO delay output terminals (220 V, active, for solenoid valve control) 3) CP700-4T110(S)-H(1) to CP700-4T200(S)-H(1), and CP700-4T110-H-7.5 to CP700-4T200-H-7.5 models: Two NO delay output terminals (220 V, active, for solenoid valve control) Three NO relay dry contact output terminals
	LED diode display	Three LED indicators as standard
Protective functions		Providing protections against short-circuit-to-ground upon power-on, motor overtemperature (PTC), drive overcurrent, drive overload, motor overload, drive overvoltage, drive undervoltage, drive overtemperature, output phase loss, input phase loss, communication fault, phase detection fault, current detection fault, motor auto-tuning fault, EEPROM read-write fault, and pre-charging resistor fault
Air compressor control logic		Constant pressure value, unloading pressure, sleep wake-up pressure, shutdown preparation time, shutdown block time, constant temperature value, fan startup temperature, fan stop temperature, pre-operation frequency, pre-operation time, PID pressure adjustment, PID temperature adjustment, electromagnetic valve control

Item		Specification
Environment	Applicable scenarios	Clear and dry indoors and free from direct sunlight, dust, corrosive gases, combustible gases, oil mists, vapors, water drips, and salty elements
	Altitude	Maximum altitude: 3000 m. For altitudes above 1000 m, derate 1% for every additional 100 m.
	Ambient temperature	-10° C to +50° C (40° C to 50° C: derate by 1.5% for every additional 1° C.)
	Storage ambient temperature	-20° C to +60° C
	Transportation ambient temperature	-40° C to +70° C
	Relative humidity for operation	Without condensation, ice formation, rain drops, snow, or hail 20% to 95 %
	Storage relative humidity	5% to 95 %
	Relative humidity for transportation	< 95% (≥ 40℃)
	Vibration	Operation scenario: Tested according to IEC 60068-2-6. Vibration amplitude at 5 Hz to 8.4 Hz: 3.5 mm; gravitational acceleration at 8.4 Hz to 200 Hz: 1 g; 10 cycles in each of X/Y/Z-axis direction Transportation scenario: Tested according to IEC 60068-2-64. Power spectrum density at 5 Hz to 100 Hz: 0.01 g^2/Hz; power spectrum density at 200 Hz: 0.001 g^2/Hz; Grms: 1.14 g
	Shock	Operating/Transport environment: Tested according to IEC 60068-2-27. Acceleration: 15 g; pulse width; 11 ms; 18 times in directions of three axes
	Pollution degree	PD2
	IP rating	IP20
	Protection class	Class I
	Short circuit rating	5 kA

1.4 Installation Dimensions

The CP700 series AC drive for air compressors can be mounted on wall. The specific mounting dimensions are as follows.

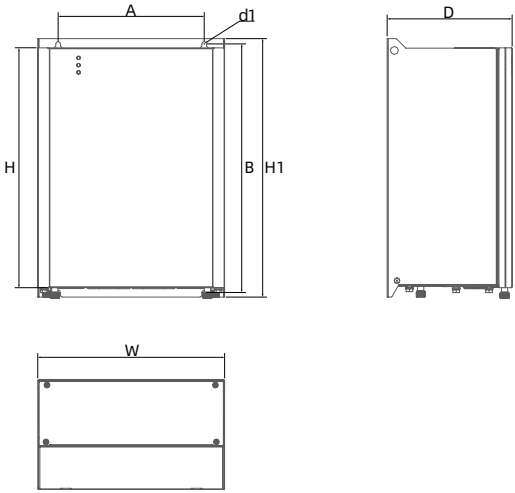


Figure 1-4 Dimensions of backplate mounting for CP700-2T7.5-H to CP700-2T45-H, CP700-4T5.5-H to CP700-4T37(S)-H(1), and CP701-4T18.5(S)-H(1) to CP701-4T37(S)-H(1)

Table 1-5 Dimensions of backplate mounting for CP700-2T7.5-H to CP700-2T45-H, CP700-4T5.5-H to CP700-4T37(S)-H(1), and CP701-4T18.5(S)-H(1) to CP701-4T37(S)-H(1)

AC drive model	Overall dimensions (mm)				Mounting dimensions (mm)			Weight (kg)
	H1	H	W	D	A	B	d1	
Three-phase 200 VAC to 240 VAC, 50/60 Hz								
CP700-2T7.5-H	384	357	208	176	180	371	Φ6	9.5
CP700-2T11-H	393	365	284	190	222	378	Φ7	14.5
CP700-2T15-H	393	365	284	190	222	378	Φ7	14.5
CP700-2T18.5-H	423	395	315	215	253	408	Φ7	24.3
CP700-2T22-H	423	395	315	215	253	408	Φ7	24.3
CP700-2T30-H	501	485	366	258	294	478	Φ10	33.8
CP700-2T37-H	501	485	366	258	294	478	Φ10	33.8
CP700-2T45-H	525	509	400	260	328	502	Φ10	42.0
Three-phase 380 VAC to 440 VAC, 50/60 Hz								
CP700-4T5.5-H CP700-4T7.5-H	344	317	168	176	140	331	Φ6	7.0
CP700-4T7.5S-H CP700-4T11(S)-H	384	357	208	176	180	371	Φ6	9.5
CP700-4T15(S)-H	384	357	208	176	180	371	Φ6	9.5
CP700-4T18.5(S)-H(1) CP701-4T18.5(S)-H(1)	393	365	284	190	222	378	Φ7	14.5
CP700-4T22(S)-H(1) CP701-4T22(S)-H(1)	393	365	284	190	222	378	Φ7	14.5
CP700-4T30(S)-H(1) CP701-4T30(S)-H(1)	423	395	315	215	253	408	Φ7	24.3
CP700-4T37(S)-H(1) CP701-4T37(S)-H(1)	423	395	315	215	253	408	Φ7	24.3

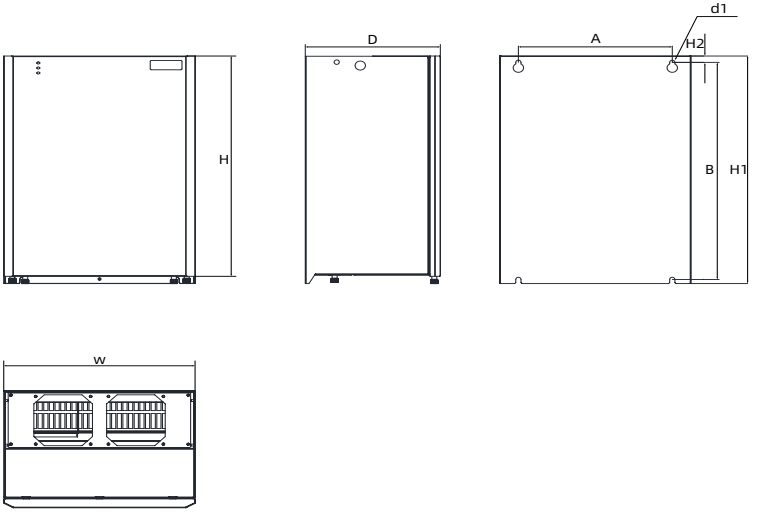


Figure 1-5 Dimensions of backplate mounting for CP700-4T45(S)-H(1) to CP700-4T90(S)-H(1) and CP701-4T45(S)-H(1) to CP701-4T90(S)-H(1)

Table 1-6 Dimensions of backplate mounting for CP700-4T45(S)-H(1) to CP700-4T90(S)-H(1) and CP701-4T45(S)-H(1) to CP701-4T90(S)-H(1)

AC drive model	Overall dimensions (mm)					Mounting dimensions (mm)			Weight (kg)
	H1	H	W	D	H2	A	B	d1	
Three-phase 380 VAC to 440 VAC, 50/60 Hz									
CP700-4T45(S)-H(1) CP701-4T45(S)-H(1)	501	485	366	258	14.0	294	478	Φ10	33.8
CP700-4T55(S)-H(1) CP701-4T55(S)-H(1)	501	485	366	258	14.0	294	478	Φ10	33.8
CP700-4T75(S)-H(1) CP701-4T75(S)-H(1)	525	509	400	260	14.0	328	502	Φ10	42.0
CP700-4T90(S)-H(1) CP701-4T90(S)-H(1)	525	509	400	260	14.0	328	502	Φ10	42.0

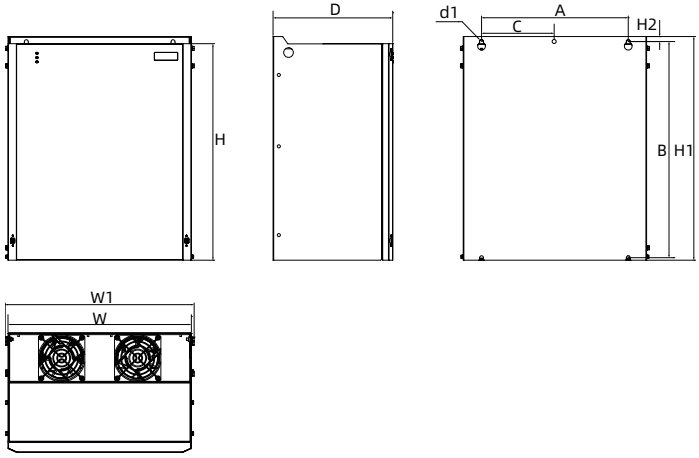


Figure 1-6 Dimensions of backplate mounting for CP700-4T110(S)-H(1) to CP700-4T132(S)-H(1) and CP700-4T110-H-7.5 to CP700-4T132-H-7.5

Table 1-7 Dimensions of backplate mounting for CP700-4T110(S)-H(1) to CP700-4T132(S)-H(1) and CP700-4T110-H-7.5 to CP700-4T132-H-7.5

AC drive model	Overall dimensions (mm)						Mounting dimensions (mm)				Weight (kg)
	H1	H	W	W1	D	H2	A	B	C	d1	
Three-phase 380 VAC to 440 VAC, 50/60 Hz											
CP700-4T110(S)-H(1) CP700-4T110-H-7.5	580	561	475	490	310	13.0	380	560	190	Φ10	55
CP700-4T132(S)-H(1) CP700-4T132-H-7.5	580	561	475	490	310	13.0	380	560	190	Φ10	58

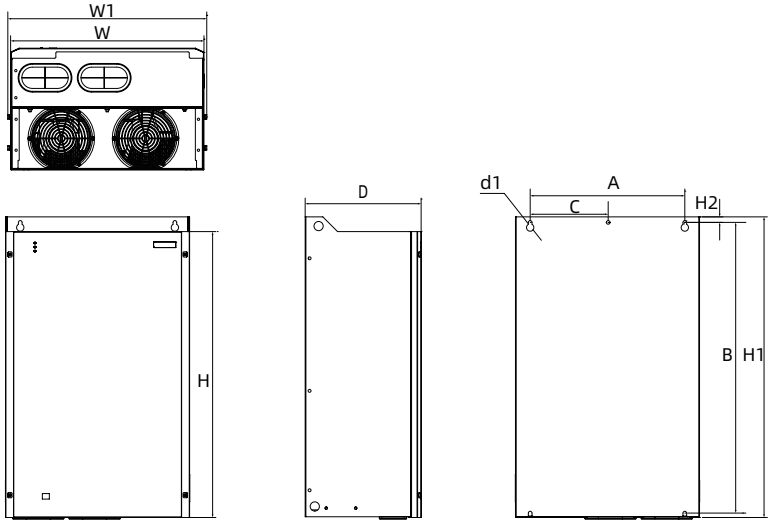


Figure 1-7 Dimensions of backplate mounting for CP700-4T160(S)-H(1) to CP700-4T200(S)-H(1) and CP700-4T160-H-7.5 to CP700-4T200-H-7.5

Table 1-8 Dimensions of backplate mounting for CP700-4T160(S)-H(1) to CP700-4T200(S)-H(1) and CP700-4T160-H-7.5 to CP700-4T200-H-7.5

AC drive model	Overall dimensions (mm)						Mounting dimensions (mm)				Weight (kg)
	H1	H	W	W1	D	H2	A	B	C	d1	
Three-phase 380 VAC to 440 VAC, 50/60 Hz											
CP700-4T160(S)-H(1) CP700-4T160-H-7.5	817	777	500	514	315	15.0	420	790	210	Φ10	72
CP700-4T200(S)-H(1) CP700-4T200-H-7.5	817	777	500	514	315	15.0	420	790	210	Φ10	77

1.5 System Solution

1.5.1 System Composition

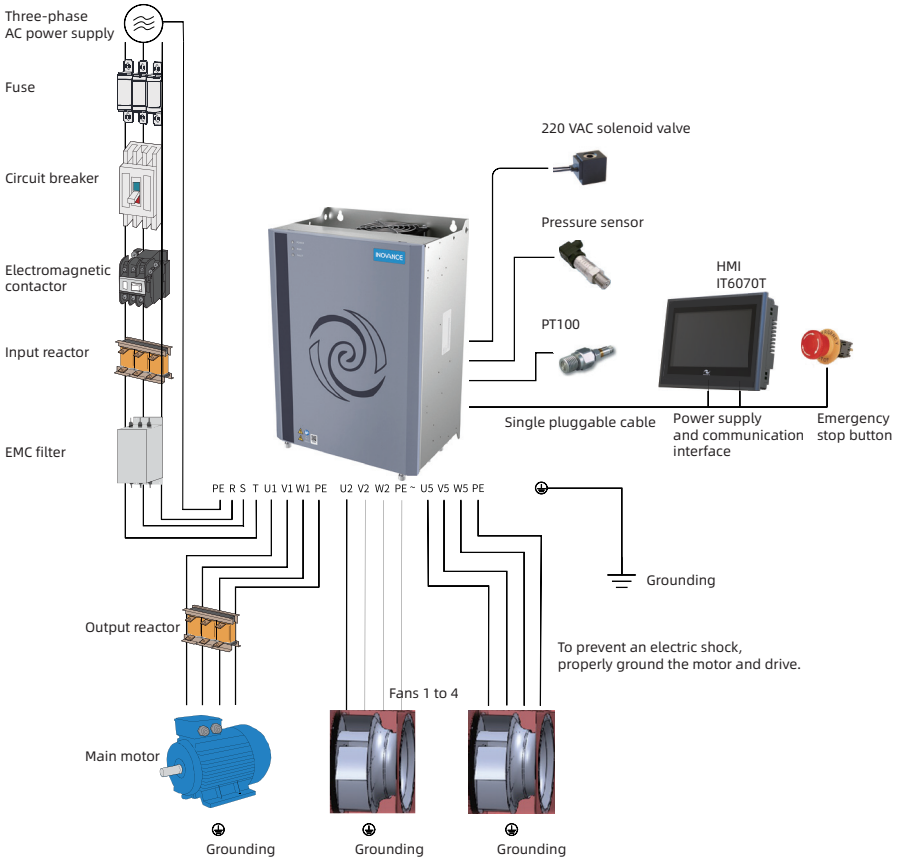


Figure 1-8 CP700 system composition

NOTE

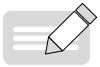
- The preceding figure takes the CP700-4T160(S)-H(1) to CP700-4T200(S)-H(1) models as an example to illustrate the system composition. For the system composition of other models, refer to the received product.

1.5.2 Peripheral Device Descriptions

Table 1-9 Instructions for using the peripheral electrical components of the CP700

Name	Installation position	Function description
Fuse	Between the power supply and the AC drive input side	It prevents accidents caused by short circuit and overload.
Circuit breaker	Between the power supply and the AC drive input side	Circuit breaker: It cuts off the power supply when the downstream equipment is overloaded or short-circuited to prevent accidents.
		Residual current device (RCD): It cuts off the power supply when overload or short circuit occurs on downstream devices to prevent accidents. The drive may generate high-frequency leakage current during running. To prevent electric shock which may cause a fire, select a proper RCD based on actual applications.
Electromagnetic contactor	Between the breaker and AC drive input side	It is used to connect to or cut off the power supply of the AC drive. Do not power on and power off the AC drive frequently by switching the contactor on and off (at least 1-hour interval) or use it to directly start the AC drive.
AC Input Reactor	Input side of the drive	Effectively eliminates high-order harmonics on the input side and improves the input-side power factor.
EMC filter	Input side of the drive	It provides the following functions: Reduces the conduction and radiation interference generated by the AC drive to external devices.
Output reactor	Between the AC drive output side and the motor (close to the AC drive)	It protects the motor insulation and prolongs the service life of the motor.
Magnetic ring	Output side of the AC drive (close to the AC drive)	Reduces external interference and lowers bearing currents.
Magnetic buckle	Signal cable	Improves the anti-interference performance of signals.
Main motor	Output side of the drive	Used to drive the main motor of the air compressor system.
Cooling blower	Output side of the drive	Supply cooling air to system
220 VAC solenoid valve	AC drive control side	It is used for air intake of the control system. Note: When the input voltage is higher than 440 V, the electromagnetic valve power supply requires a proper external transformer.
Pressure sensor	AC drive control side	It detects output system pressure of the air compressor.
PT100	AC drive control side	It detects the circulating oil temperature of the air compressor head.
HMI	System Connection	It is the air compressor display.
Emergency stop	System Connection	It is the emergency stop button for the air compressor.
IoT	System Connection	It is the connection network interface of the air compressor system.

1.5.3 Selection of Fuses, Contactors, and Circuit Breakers



NOTE

- To avoid electric shocks, do not power on the AC drive or operate peripherals immediately after a fuse burns or a circuit breaker trips. Instead, wait at least a period of time specified on the product warning label before further operations. Failure to comply will result in product damage, several injuries, or even death.

To comply with standards EN 618005-1 and UL 61800-5-1, install the fuse and circuit breaker on the input side to prevent accidents caused by short circuit in the internal circuit.

The following table lists the recommended models.

Table 1-10 Selection guide for fuses, contactors, and circuit breakers (5.5 kW to 90 kW models) (CE-certified)

Model	Power (kW)	Input current of the variable frequency main motor (A)	Fuse (Bussmann, UL-certified)		Recommended Contactor Specifications (ABB)	Circuit breaker specifications (ABB, inverse time)
			Rated current (A)	Model	Rated current (A)	Rated current (A)
Three-phase 200 VAC to 240 VAC, 50/60 Hz						
CP700-2T7.5-H	7.5	35.0	50	170M1364	50	50
CP700-2T11-H	11	49.5	63	170M1365	65	80
CP700-2T15-H	15	60.0	80	170M1366	95	80
CP700-2T18.5-H	18.5	65.0	100	170M1367	95	100
CP700-2T22-H	22	80.0	100	170M1367	95	125
CP700-2T30-H	30	120.9	160	170M1369	150	160
CP700-2T37-H	37	134.0	200	170M1370	150	200
CP700-2T45-H	45	159.2	200	170M1370	185	250
Three-phase 380 VAC to 440 VAC, 50/60 Hz						
CP700-4T5.5-H	5.5	15.9	20	170M1360	25	25
CP700-4T7.5(S)-H	7.5	20.5	25	170M1361	25	32

Model	Power (kW)	Input current of the variable frequency main motor (A)	Fuse (Bussmann, UL-certified)		Recommended Contactor Specifications (ABB)	Circuit breaker specifications (ABB, inverse time)
			Rated current (A)	Model	Rated current (A)	Rated current (A)
CP700-4T11(S)-H	11	26.0	40	170M1363	32	40
CP700-4T15(S)-H	15	35.0	50	170M1364	40	50
CP700-4T18.5(S)-H(1)	18.5	47.2	63	170M1365	65	63
CP700-4T22(S)-H(1)	22	57.5	80	170M1366	65	80
CP700-4T30(S)-H(1)	30	65.0	100	170M1367	95	100
CP700-4T37(S)-H(1)	37	80.0	100	170M1367	95	125
CP700-4T45(S)-H(1)	45	101.4	160	170M1369	115	160
CP700-4T55(S)-H(1)	55	122.3	160	170M1369	150	160
CP700-4T75(S)-H(1)	75	164.6	250	170M1371	225	250
CP700-4T90(S)-H(1)	90	186.0	250	170M1371	225	250

Note: The recommended values in the preceding table are based on the following conditions.
1. The ambient temperature of the device is 40℃ without forced air cooling.
The altitude is 2000 m.
Only a single drive is installed.
The conductor or copper busbar current-carrying density is 1.3 A/mm².
2. If conditions vary, select the model according to actual conditions.
3. CE-certified fuses are recommended.

Table 1-11 Selection guide for fuses, contactors, and circuit breakers (110 kW to 200 kW models) (CE-certified)

Model	Power (kW)	Input current of the variable frequency main motor (A)	Fuse (Bussmann, UL-certified)		Recommended Contactor Specifications (ABB)	Circuit breaker specifications (ABB, inverse time)
			Rated current (A)	Model	Rated current (A)	Rated current (A)
Three-phase 380 VAC to 440 VAC, 50/60 Hz						
CP700-4T110(S)-H(1)	110	214	315	170M4410	265	250
CP700-4T132(S)-H(1)	132	257	350	170M4411	330	320
CP700-4T160(S)-H(1)	160	315	400	170M4412	400	400
CP700-4T200(S)-H(1)	200	384	500	170M4414	500	500

Model	Power (kW)	Input current of the variable frequency main motor (A)	Fuse (Bussmann, UL-certified)		Recommended Contactor Specifications (ABB)	Circuit breaker specifications (ABB, inverse time)
			Rated current (A)	Model	Rated current (A)	Rated current (A)
CP700-4T110-H-7.5	110	214	315	170M4410	265	250
CP700-4T132-H-7.5	132	257	350	170M4411	330	320
CP700-4T160-H-7.5	160	315	400	170M4412	400	400
CP700-4T200-H-7.5	200	384	500	170M4414	500	500

Note: The recommended values in the preceding table are based on the following conditions.
1. The ambient temperature of the device is 40℃ without forced air cooling.
The altitude is 2000 m.
Only a single drive is installed.
The conductor or copper busbar current-carrying density is 1.3 A/mm².
2. If conditions vary, select the model according to actual conditions.
3. CE-certified fuses are recommended.

Table 1-12 Selection guide for fuses, contactors, and circuit breakers (7.5 kW to 90 kW models) (CE-certified)

Model	Power (kW)	Input current of the variable frequency main motor (A)	Fuse (Bussmann, UL-certified)		Recommended Contactor Specifications (ABB)	Circuit breaker specifications (ABB, inverse time)
			Rated current (A)	Model	Rated current (A)	Rated current (A)
Three-phase 200 VAC to 240 VAC, 50/60 Hz						
CP700-2T7.5-H	7.5	35	63	63FE	50	50
CP700-2T11-H	11	49.5	80	80ET	65	80
CP700-2T15-H	15	60	100	100FE	95	80
CP700-2T18.5-H	18.5	65	100	100FE	95	100
CP700-2T22-H	22	80	140	140FE	95	125
CP700-2T30-H	30	120.9	200	200FEE	150	160
CP700-2T37-H	37	134	200	200FEE	150	200
CP700-2T45-H	45	159.2	250	250FM	185	250
Three-phase 380 VAC to 440 VAC, 50/60 Hz						
CP700-4T5.5-H	5.5	15.9	25	25ET	25	25
CP700-4T7.5(S)-H	7.5	20.5	32	32ET	25	32

Model	Power (kW)	Input current of the variable frequency main motor (A)	Fuse (Bussmann, UL-certified)		Recommended Contactor Specifications (ABB)	Circuit breaker specifications (ABB, inverse time)
			Rated current (A)	Model	Rated current (A)	Rated current (A)
CP700-4T11(S)-H	11	26	40	40FE	32	40
CP700-4T15(S)-H	15	35	63	63FE	40	50
CP700-4T18.5(S)-H(1) CP701-4T18.5(S)-H(1)	18.5	47.2	80	80ET	65	63
CP700-4T22(S)-H(1) CP701-4T22(S)-H(1)	22	57.5	100	100FE	65	80
CP700-4T30(S)-H(1) CP701-4T30(S)-H(1)	30	65	100	100FE	95	100
CP700-4T37(S)-H(1) CP701-4T37(S)-H(1)	37	80	140	140EET	95	125
CP700-4T45(S)-H(1) CP701-4T45(S)-H(1)	45	101.4	160	160EET	115	160
CP700-4T55(S)-H(1) CP701-4T55(S)-H(1)	55	122.3	200	200FEE	150	160
CP700-4T75(S)-H(1) CP701-4T75(S)-H(1)	75	164.6	250	250FM	225	250
CP700-4T90(S)-H(1) CP701-4T90(S)-H(1)	90	186	315	315FM	225	250

Note: The recommended values in the preceding table are based on the following conditions.
1. The ambient temperature of the device is 40℃ without forced air cooling.
The altitude is 2000 m.
Only a single drive is installed.
The conductor or copper busbar current-carrying density is 1.3 A/mm².
2. If conditions vary, select the model according to actual conditions.
3. UL-certified fuses are recommended.

Table 1-13 Selection guide for fuses, contactors, and circuit breakers (7.5 kW to 90 kW models) (CE-certified)

Model	Power (kW)	Input current of the variable frequency main motor (A)	Fuse (Bussmann, UL-certified)		Recommended Contactor Specifications (ABB)	Circuit breaker specifications (ABB, inverse time)
			Rated current (A)	Model	Rated current (A)	Rated current (A)
Three-phase 380 VAC to 440 VAC, 50/60 Hz						
CP700-4T110(S)-H(1)	110	214	350	350FM	265	250

Model	Power (kW)	Input current of the variable frequency main motor (A)	Fuse (Bussmann, UL-certified)		Recommended Contactor Specifications (ABB)	Circuit breaker specifications (ABB, inverse time)
			Rated current (A)	Model	Rated current (A)	Rated current (A)
CP700-4T132(S)-H(1)	132	257	400	400FMM	330	320
CP700-4T160(S)-H(1)	160	315	500	500FMM	400	400
CP700-4T200(S)-H(1)	200	384	630	630FMM	500	500
CP700-4T110-H-7.5	110	214	350	350FM	265	250
CP700-4T132-H-7.5	132	257	400	400FMM	330	320
CP700-4T160-H-7.5	160	315	500	500FMM	400	400
CP700-4T200-H-7.5	200	384	630	630FMM	500	500

Note: The recommended values in the preceding table are based on the following conditions.

1. The ambient temperature of the device is 40℃ without forced air cooling.
   The altitude is 2000 m.
   Only a single drive is installed.
   The conductor or copper busbar current-carrying density is 1.3 A/mm².
2. If conditions vary, select the model according to actual conditions.
3. UL-certified fuses are recommended.

1.5.4 Selection of AC Input Reactors

An AC input reactor is optional and mainly used to reduce harmonic waves in the input current. In applications where strong suppression of harmonics is required, install an external reactor.

If an AC input reactor is required for models with the power over 200 kW, reserve sufficient installation space in the cabinet for the reactor.

Recommended AC input reactor manufacturers and models are listed in the following tables.

Table 1-14 Models of AC input reactors for drive models of 7.5 kW to 90 kW

Model	Rated output (kW)	Rated input current (A)	Applicable reactor	Inductance (mH)	Loss (W)
Three-phase 200 VAC to 240 VAC, 50/60 Hz					
CP700-2T7.5-H	7.5	35.0	MD-ACL-50-1.2-4T	1.2	150
CP700-2T11-H	11	49.5	MD-ACL-80-0.17-4T-2%	0.17	-
CP700-2T15-H	15	60.0	MD-ACL-80-0.17-4T-2%	0.17	-
CP700-2T18.5-H	18.5	65.0	MD-ACL-90-0.16-4T-2%	0.16	-
CP700-2T22-H	22	80	MD-ACL-120-0.12-4T-2%	0.12	-
CP700-2T30-H	30	120.9	MD-ACL-150-0.095-4T-2%	0.095	-
CP700-2T37-H	37	134.0	MD-ACL-200-0.07-4T-2%	0.07	-
CP700-2T45-H	45	159.2	MD-ACL-250-0.056-4T-2%	0.056	-
Three-phase 380 VAC to 440 VAC, 50/60 Hz					
CP700-4T5.5-H	5.5	15.9	MD-ACL-15-3-4T	3	50
CP700-4T7.5(S)-H	7.5	20.5	MD-ACL-40-1.45-4T	1.45	100
CP700-4T11(S)-H	11	26	MD-ACL-40-1.45-4T	1.45	100
CP700-4T15(S)-H	15	35	MD-ACL-50-1.2-4T	1.2	150
CP700-4T18.5(S)-H(1) CP701-4T18.5(S)-H(1)	18.5	47.2	MD-ACL-60-0.24-4T-2%	0.24	-
CP700-4T22(S)-H(1) CP701-4T22(S)-H(1)	22	57.5	MD-ACL-80-0.17-4T-2%	0.17	-
CP700-4T30(S)-H(1) CP701-4T30(S)-H(1)	30	65.0	MD-ACL-80-0.17-4T-2%	0.17	
CP700-4T37(S)-H(1) CP701-4T37(S)-H(1)	37	80.0	MD-ACL-90-0.16-4T-2%	0.16	-
CP700-4T45(S)-H(1) CP701-4T45(S)-H(1)	45	101.4	MD-ACL-120-0.12-4T-2%	0.12	-

Model	Rated output (kW)	Rated input current (A)	Applicable reactor	Inductance (mH)	Loss (W)
Three-phase 200 VAC to 240 VAC, 50/60 Hz					
CP700-4T55(S)-H(1) CP701-4T55(S)-H(1)	55	122.3	MD-ACL-150-0.095-4T-2%	0.095	-
CP700-4T75(S)-H(1) CP701-4T75(S)-H(1)	75	164.6	MD-ACL-200-0.07-4T-2%	0.07	-
CP700-4T90(S)-H(1) CP701-4T90(S)-H(1)	90	186.0	MD-ACL-250-0.056-4T-2%	0.056	-

Table 1-15 Selection guide for AC input reactors (110 kW to 200 kW models)

Model	Rated output (kW)	Rated input current (A)	Applicable reactor	Inductance (mH)	Loss (W)
Three-phase 380 VAC to 440 VAC, 50/60 Hz					
CP700-4T110(S)-H(1)	110	214	MD-ACL-250-0.056-4T-2%	0.056	-
CP700-4T132(S)-H(1)	132	257	MD-ACL-330-0.042-4T-2%	0.042	-
CP700-4T160(S)-H(1)	160	315	MD-ACL-330-0.042-4T-2%	0.042	-
CP700-4T200(S)-H(1)	200	384	MD-ACL-490-0.028-4T-2%	0.028	-
CP700-4T110-H-7.5	110	214	MD-ACL-250-0.056-4T-2%	0.056	-
CP700-4T132-H-7.5	132	257	MD-ACL-330-0.042-4T-2%	0.042	-
CP700-4T160-H-7.5	160	315	MD-ACL-330-0.042-4T-2%	0.042	-
CP700-4T200-H-7.5	200	384	MD-ACL-490-0.028-4T-2%	0.028	-

The following figure describes model of the AC input reactor.

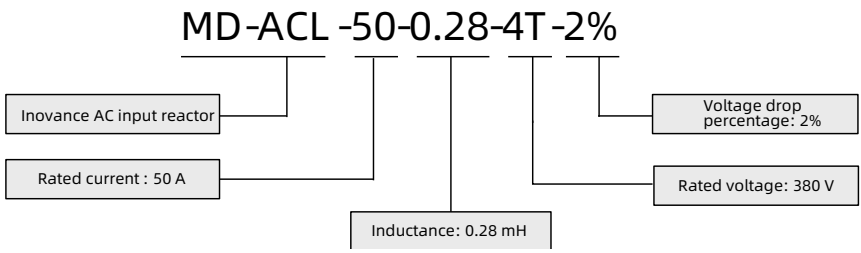


Figure 1-9 AC Input Reactor Model

Dimensions

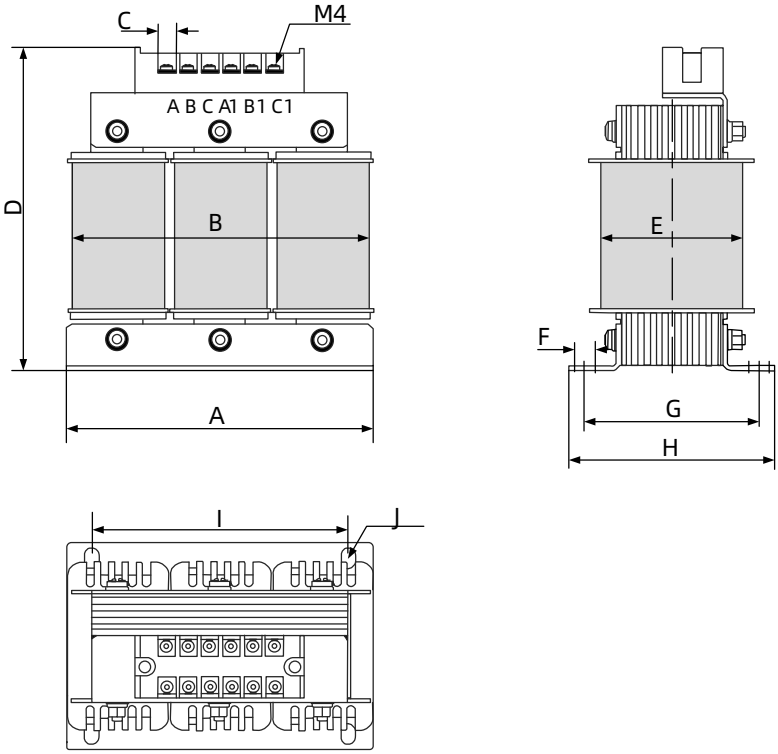


Figure 1-10 Dimensions of AC input reactors (10 A to 15 A)

Table 1-16 Dimensions of 10 A to 15 A AC input reactors (unit: mm)

Rated current (A)	A	B	C	D	E	F	G	H	I	J
10	150±2	155	8	160	80	10	85±2	100±2	125±1	Φ7 × 10
15	150±2	155	8	160	80	10	85±2	100±2	125±1	Φ7 × 10

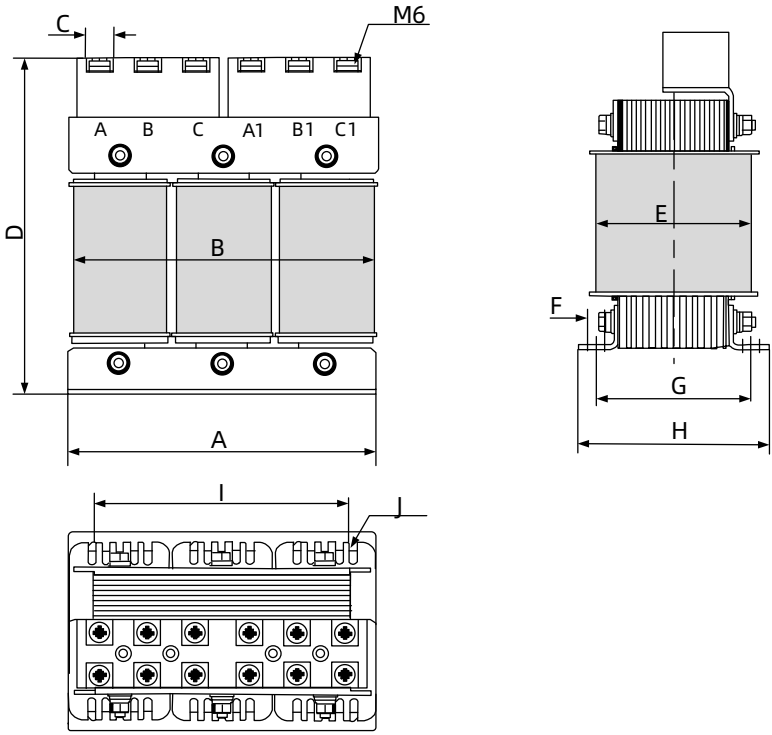


Figure 1-11 Dimensions of AC input reactors (40 A to 50 A, 1.2 mH)

Table 1-17 Dimensions of AC input reactors (40 A to 50 A, 1.2 mH, unit: mm)

Rated current (A)	A	B	C	D	E	F	G	H	I	J
40	180±2	185	16	200	105	10	95±2	117±2	150±1	Φ7 × 10
50	200±2	210	16	230	110	10	115±2	130±2	170± 2	Φ7 × 10

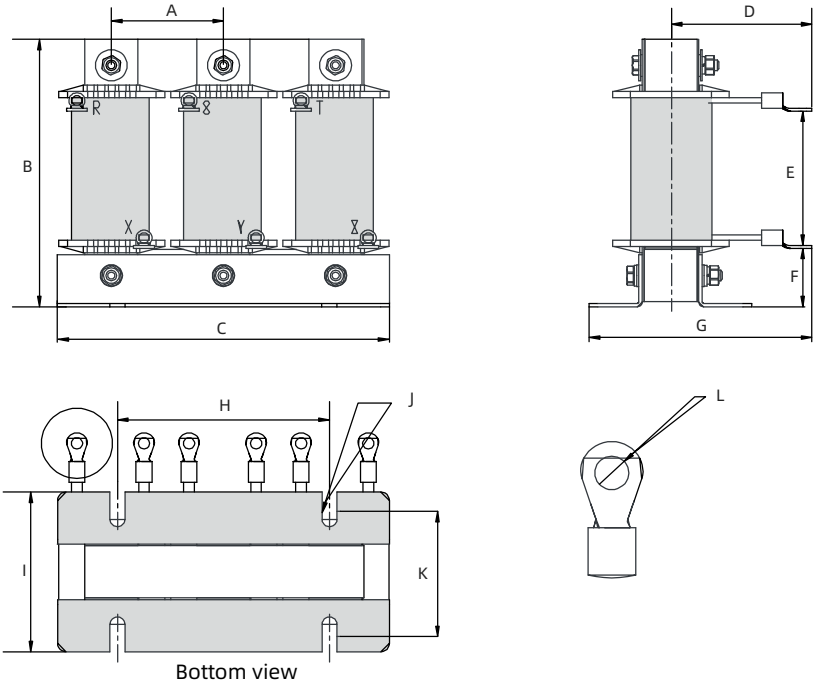


Figure 1-12 Dimensions of 50 A (0.28 mH)/60 A AC input reactors

Table 1-18 Dimensions of 50 A(0.28 mH)/60 A AC input reactors (unit: mm)

Rated current (A)	A	B	C	D	E	F	G	H	I	J	K	L
50	64	160	195	80±10	75±5	35±5	135	120±1	92±2	Φ8.5 × 20	72±2	Φ6.4
60	64	160	195	80±10	75±5	35±5	135	120±1	92±2	Φ8.5 × 20	72±2	Φ6.4

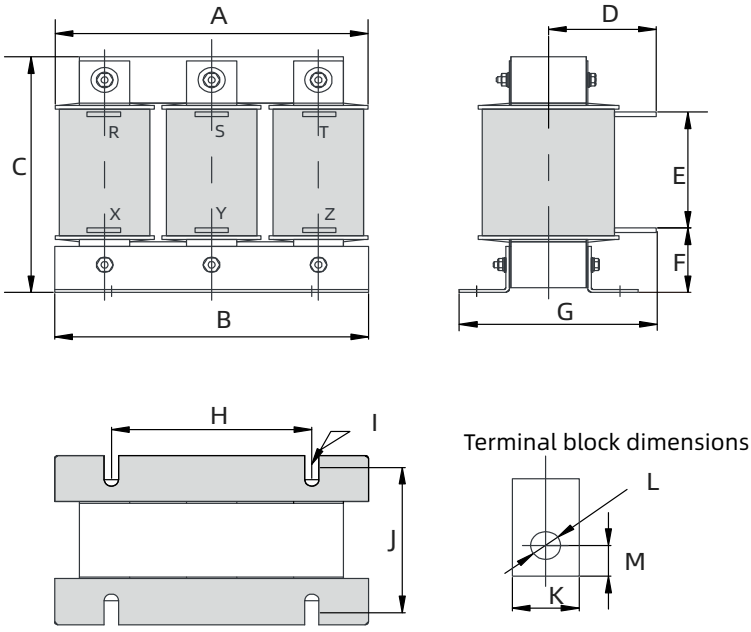


Figure 1-13 Dimensions of AC input reactors (80 A to 120 A)

Table 1-19 Dimensions of AC input reactors (80 A to 120 A, unit: mm)

Rated current (A)	A	B	C	D	E	F	G	H	I	J	K	L	M
80	195	188±1	160	-	-	-	150	120±1	Φ8.5 × 20	72±2	-	-	-
90	195	188±1	160	-	-	-	150	120±1	Φ8.5 × 20	72±2	-	-	-
120	195	188±1	160	78±10	79±5	40±5	135	120±1	Φ8.5 × 20	92±2	20	Φ9	10

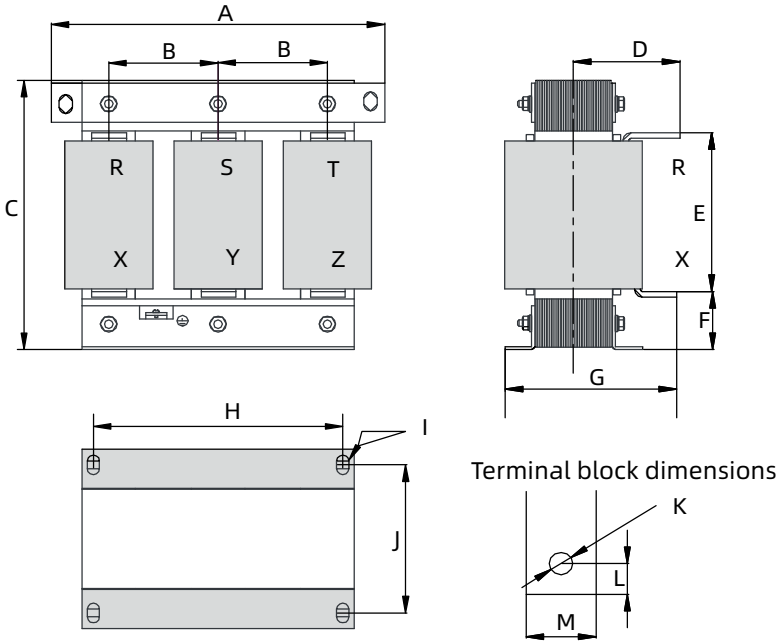


Figure 1-14 Dimensions of AC input reactors (150 A to 330 A)

Table 1-20 Dimensions of AC input reactors (150 A to 330 A, unit: mm)

Rated current (A)	A	B	C	D	E	F	G	H	I	J	K	L	M
150	250	81±5	230	92±10	145±5	38±5	155	182±1	Φ11 × 18	76±2	Φ11	13	25
200	250	81±5	230	102±10	145±5	40±5	175	182±1	Φ11 × 18	96±2	Φ11	13	25
250	250	81±5	260	102±10	160±5	50±5	175	182±1	Φ11 × 18	96±2	Φ11	13	25
330	290	95±5	275	107±10	160±5	60±5	180	214±1	Φ11 × 18	100±2	ϕ12	15	30

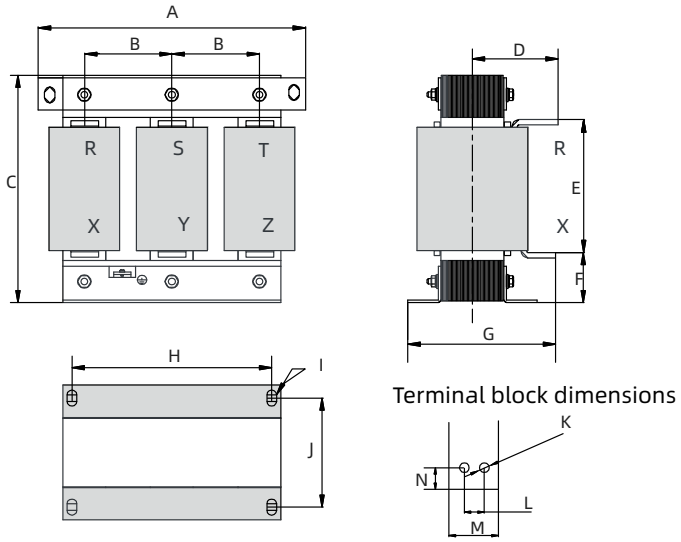


Figure 1-15 Dimensions of 490 A to 660 A AC input reactors

Table 1-21 Dimensions of 490 A to 660 A AC input reactors (unit: mm)

Rated current (A)	A	B	C	D	E	F	G	H	I	J	K	L	M	N
490	320	106± 5	305	137± 10	198± 5	60±5	220	243 ± 1	Φ12x20	122 ± 2	ϕ12	22	50	23
660	320	106± 5	305	145± 10	203± 5	50±5	240	243 ± 1	Φ12x20	137 ± 2	ϕ12	22	50	23

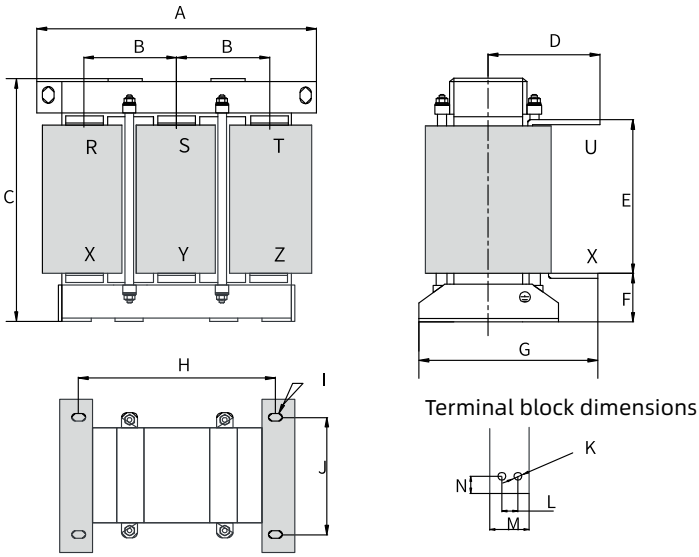


Figure 1-16 Dimensions of 800 A to 1000 A AC input reactors

Table 1-22 Dimensions of 800 A to 1000 A AC input reactors (unit: mm)

Rated current (A)	A	B	C	D	E	F	G	H	I	J	K	L	M	N
800	385	123±5	390	142± 10	238± 5	70± 5	250	260± 2	Φ12x20	175± 1	ϕ12	22	50	23
1000	385	123±5	390	142± 10	238± 5	70± 5	250	260± 2	Φ12x20	175± 1	ϕ12	22	50	23

NOTE

- The dimensions of reactor provided are for reference only. The actual dimensions are subject to the actual product.

■ Unpacking 110 kW to 132 kW models

The documentation suite and accessories are placed in different partitions in the package. To unpack the drive cabinet, do as follows:

1. Cut the straps on the outer packing box, and remove the carton and honeycomb cardboard inside.

2. Remove the cushion, cardboard cover, and paper corner protector.

3. Open the PE film and take out the product.

4. Handle the packing materials.

The following figure shows the packing list.

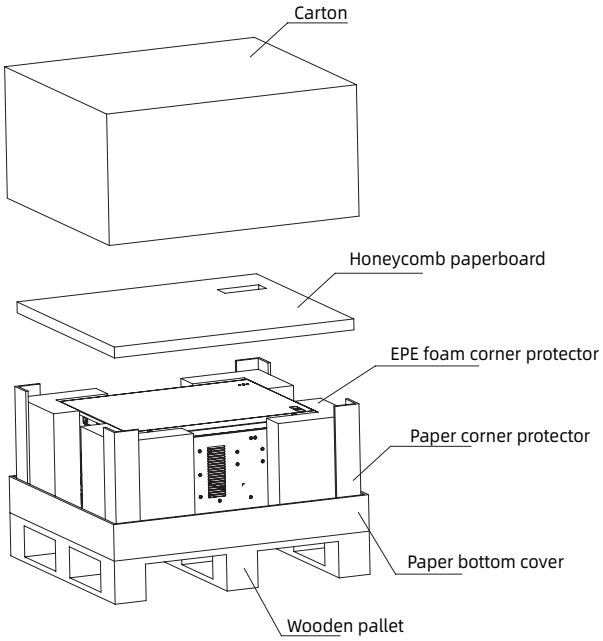


Figure 1-17 Packing list of the AC drive (110 kW to 132 kW)

■ Unpacking 160 kW to 200 kW models

The documentation suite and accessories are placed in different partitions in the

package. To unpack the drive cabinet, do as follows:

1. Cut the straps on the outer packing box, and remove the carton and honeycomb cardboard inside.

2. Remove the cushion and cardboard cover.

3. Open the PE film and take out the product.

4. Handle the packing materials.

The following figure shows the packing list.

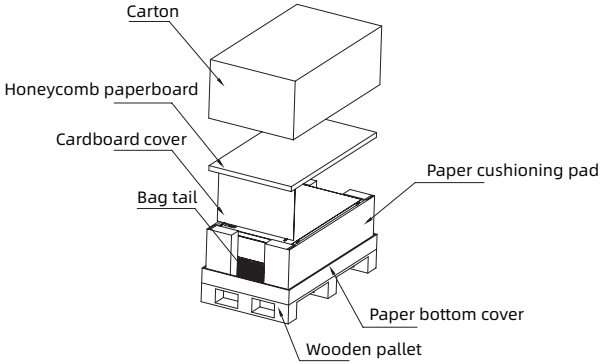


Figure 2-19 Package list of 160 kW to 200 kW models

2 Installation and Wiring

2.1 Unpacking and Transportation

2.1.1 Unpacking

■ Unpacking 5.5 kW to 37 kW models

The documentation suite and accessories are placed in different partitions in the package. To unpack the drive cabinet, do as follows:

1. Open the carton.

2. Take out the user guide or accessories in the carton.

3. Take out the product and the EPE foam on both sides.

4. Remove the EPE foam and take the product out of the bag.

The following figure shows the packing list.

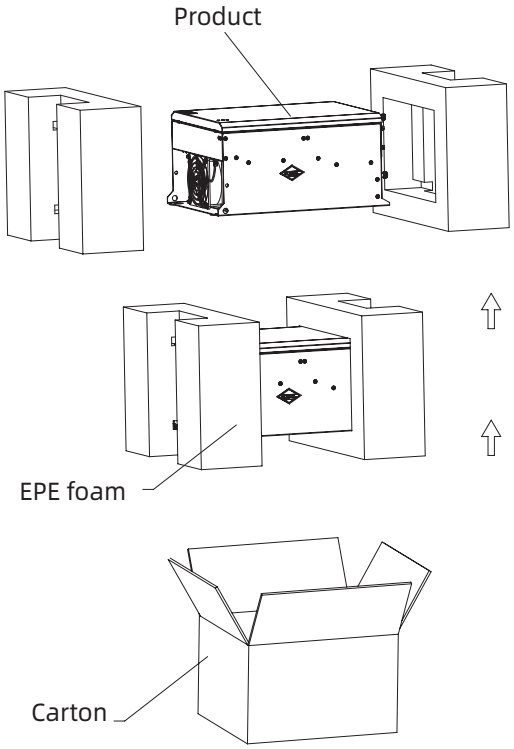


Figure 2-1 Packing list of the AC drive (5.5–37 kW)

■ Unpacking 45 kW to 90 kW models

The documentation suite and accessories are placed in different partitions in the package. To unpack the drive cabinet, do as follows:

1. Cut the PET straps outside the carton.
2. Remove the top plywood and the carton.
3. Remove the cushion and paper corner protector around the product.
4. Open the PE sheet and take out the product.
5. Remove the pallet.

The following figure shows the packing list.

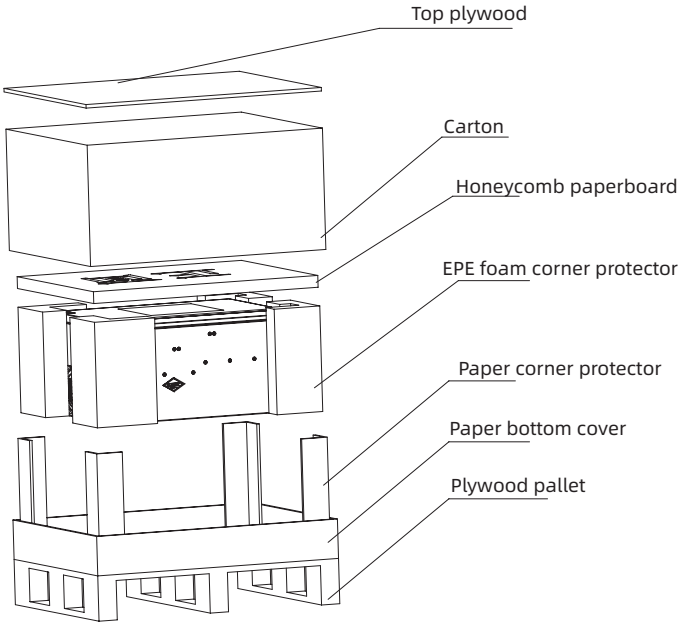


Figure 2-2 Packing list of the AC drive (45 kW to 90 kW)

■ Unpacking 110 kW to 132 kW models

The documentation suite and accessories are placed in different partitions in the package. To unpack the drive cabinet, do as follows:

1. Cut the straps on the outer packing box, and remove the carton and honeycomb cardboard inside.

2. Remove the cushion, cardboard cover, and paper corner protector.

3. Open the PE film and take out the product.

4. Handle the packing materials.

The following figure shows the packing list.

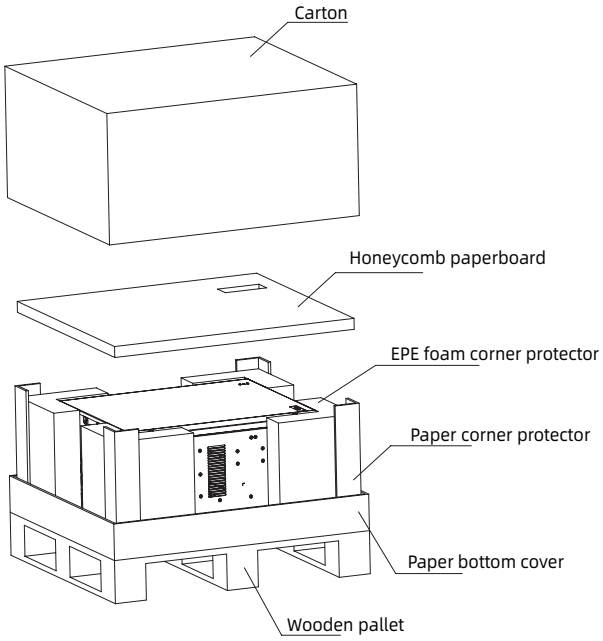


Figure 2-3 Packing list of the AC drive (110 kW to 132 kW)

■ Unpacking 160 kW to 200 kW models

The documentation suite and accessories are placed in different partitions in the package. To unpack the drive cabinet, do as follows:

1. Cut the straps on the outer packing box, and remove the carton and honeycomb cardboard inside.

2. Remove the cushion and cardboard cover.

3. Open the PE film and take out the product.

4. Handle the packing materials.

The following figure shows the packing list.

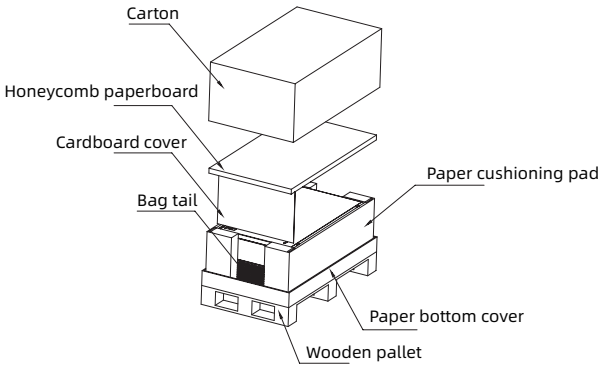


Figure 2-4 Package list of 160 kW to 200 kW models

2.1.2 Transportation

● Large-scale or heavy equipment must be transported by qualified professionals using specialized hoisting equipment. Failure to comply could result in personal injury or equipment damage.

● Before hoisting the equipment, ensure components such as the front cover and terminal blocks are secured firmly with screws. Loosely-connected components

may fall off and result in personal injury or equipment damage.

● Never stand or stay below the equipment when the equipment is being hoisted by the hoisting equipment.

● When hoisting the equipment with a wire rope, ensure the equipment is hoisted at a constant speed without suffering from vibration or shock. Do not turn the equipment over or let the equipment stay hanging in the air. Failure to comply may result in personal injuries or equipment damage.

● When carrying the equipment with bare hands, hold the equipment casing firmly with care to prevent parts from falling. Failure to comply may result in personal injuries.

● Handle the equipment with care during transportation and mind your steps to prevent personal injuries or equipment damage.

2.2 Installation

2.2.1 Installation Environment

1) Ambient temperature: To reduce impact on the service life of the AC drive, the AC drive must operate within the allowable temperature range (–10°C to +50°C).
2) The AC drive generates large amount of heat during operation. Install the AC drive on the surface of an incombustible object and leave sufficient space for heat dissipation. The drive generates significant heat during working. In addition, install it to the mounting bracket vertically with screws.
3) Not prone to vibration and away from equipment that may generate strong vibration, such as a punch press (vibration ≤ 1 g)
4) Free from direct sunlight, humidity, and water drops
5) Free from corrosive, flammable, and explosive gases
6) Free from greasy dirt and dust

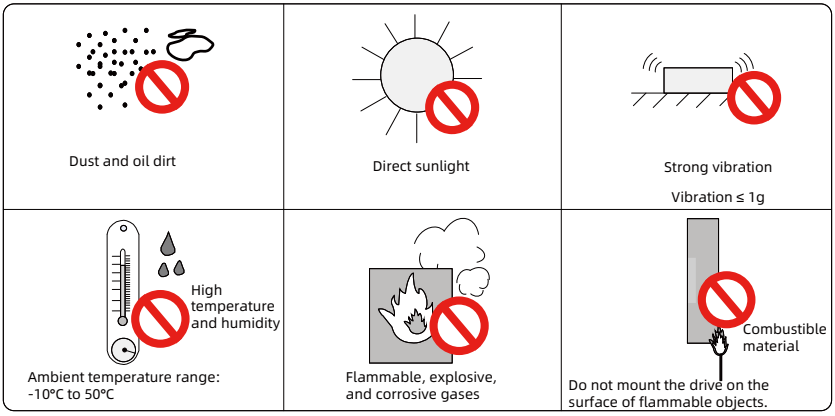
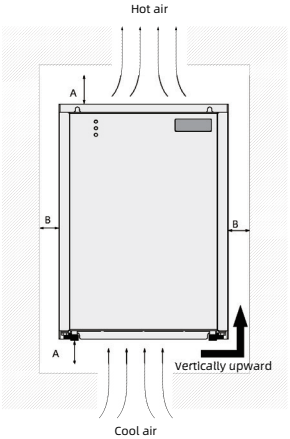


Figure 2-5 Environment Requirements

7) The AC drive must be installed in a fireproof cabinet with doors that provide effective electrical and mechanical protection. The installation must conform to local and regional laws and regulations, and to relevant IEC requirements.

2.2.2 Installation Clearance



Installation clearance for three-phase 220 V models

Power rating	Dimension	
7.5-22 kW	A ≥ 200 mm	B ≥ 50 mm
30-45 kW	A ≥ 300 mm	B ≥ 50 mm

Installation clearance for three-phase 380 V models

Power rating	Dimension	
5.5-37 kW	A ≥ 200 mm	B ≥ 50 mm
45-200 kW	A ≥ 300 mm	B ≥ 50 mm

Figure 2-6 Clearance Requirements

2.2.3 Installation Orientation

Install the AC drive vertically upwards. Do not install it in horizontal, side, upside-down, or other directions.

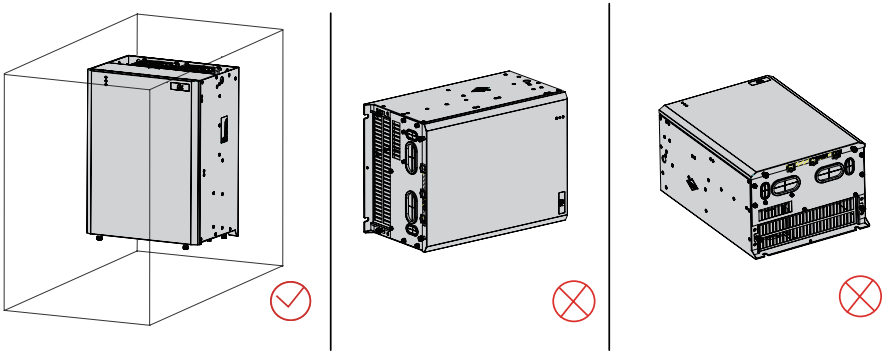


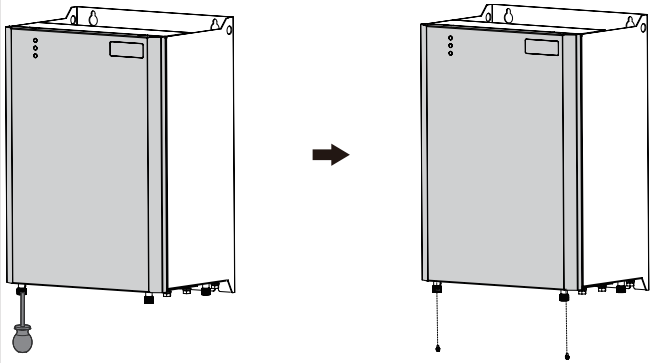
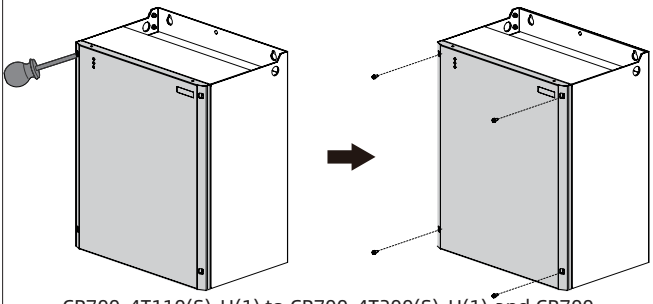
Figure 2-7 Installation direction

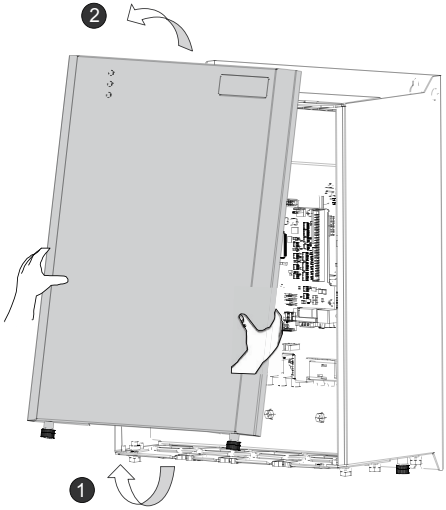
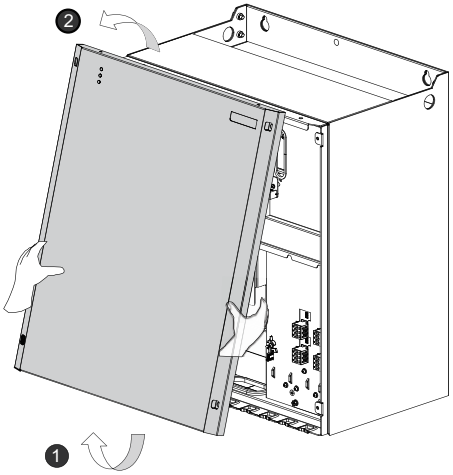
2.2.4 Cover Removal and Installation

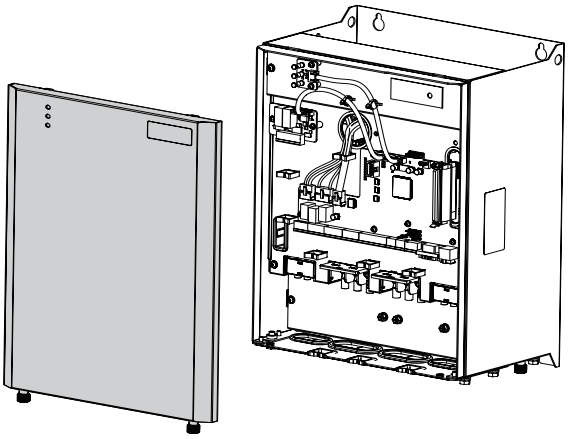
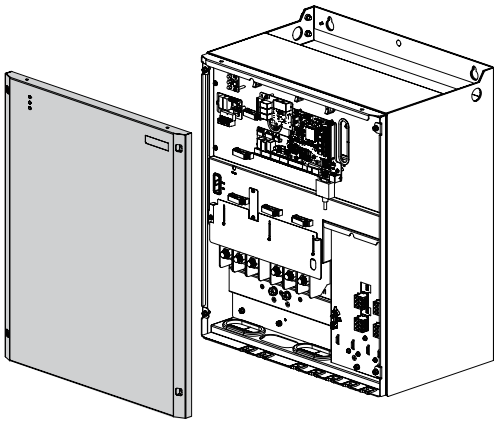
Follow the guidelines below for cover removal and installation.

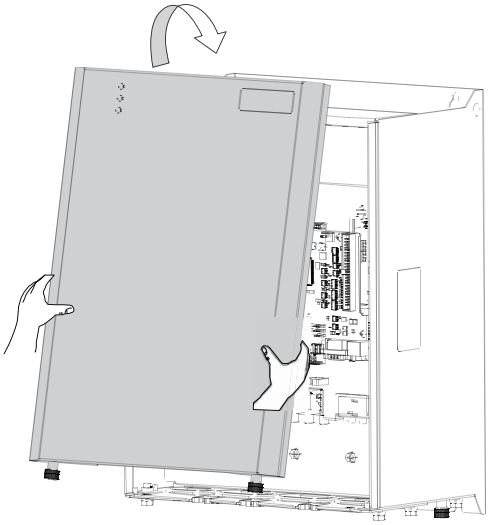
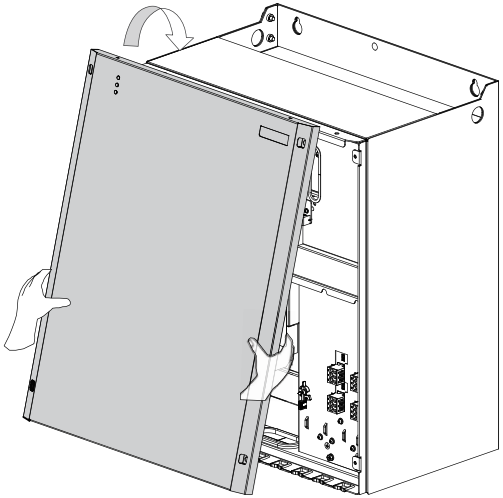
NOTE

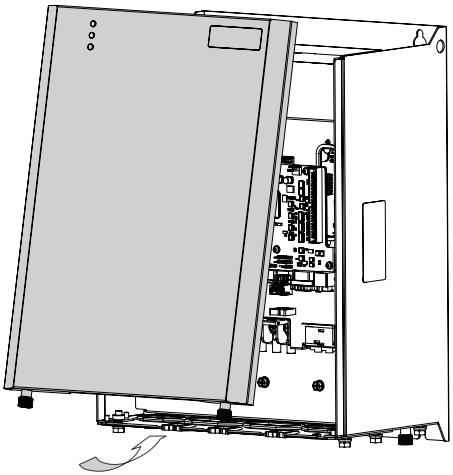
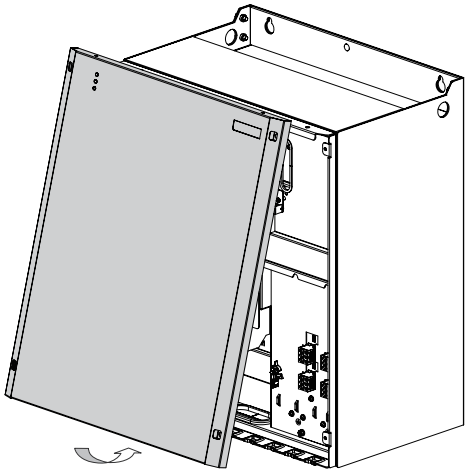
- Install a structural element at the top of the AC drive to prevent water from falling to the inside of the drive.

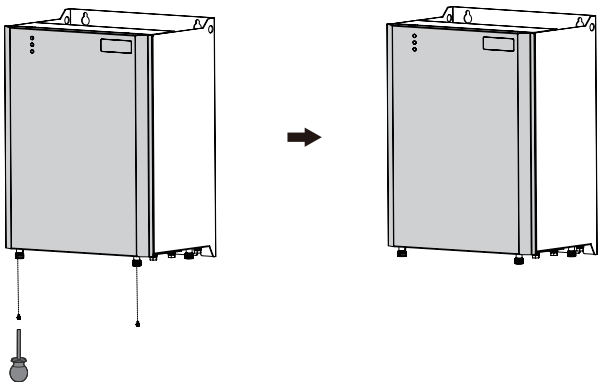
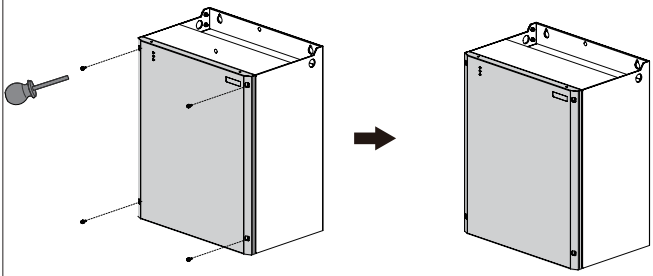
Cover removal procedures	
 CP700-2T7.5-H to CP700-2T45-H, CP700-4T5.5-H to CP700-4T90(S)-H(1), and CP701-4T18.5(S)-H(1) to CP701-4T90(S)-H(1) models	CP700-2T7.5-H to CP700-2T45-H, CP700-4T5.5-H to CP700-4T90(S)-H(1), and CP701-4T18.5(S)-H(1) to CP701-4T90(S)-H(1) models: Step 1: Use an inner hexagon screwdriver or inner hexagon wrench to remove the two captive screws at the bottom of the cover.
 CP700-4T110(S)-H(1) to CP700-4T200(S)-H(1) and CP700-4T110-H-7.5 to CP700-4T200-H-7.5 models	CP700-4T110(S)-H(1) to CP700-4T200(S)-H(1) and CP700-4T110-H-7.5 to CP700-4T200-H-7.5 models: Step 1: Use a screwdriver to remove the four screws of the cover.

Cover removal procedures	
 CP700-2T7.5-H to CP700-2T45-H, CP700-4T5.5-H to CP700-4T90(S)-H(1), and CP701-4T18.5(S)-H(1) to CP701-4T90(S)-H(1) models  CP700-4T110(S)-H(1) to CP700-4T200(S)-H(1) and CP700-4T110-H-7.5 to CP700-4T200-H-7.5 models	Step 2: Hold the cover with both hands and turn it up by 15° , push it up, and then take it down.

Cover removal procedures	
 CP700-2T7.5-H to CP700-2T45-H, CP700-4T5.5-H to CP700-4T90(S)-H(1), and CP701-4T18.5(S)-H(1) to CP701-4T90(S)-H(1) models  CP700-4T110(S)-H(1) to CP700-4T200(S)-H(1) and CP700-4T110-H-7.5 to CP700-4T200-H-7.5 models	Cover removal is complete.

Cover mounting procedures	
 CP700-2T7.5-H to CP700-2T45-H, CP700-4T5.5-H to CP700-4T90(S)-H(1), and CP701-4T18.5(S)-H(1) to CP701-4T90(S)-H(1) models  CP700-4T110(S)-H(1) to CP700-4T200(S)-H(1) and CP700-4T110-H-7.5 to CP700-4T200-H-7.5 models	Step 1:Hold the cover plate with both hands, align the positioning pin of the cover at the top to the cabinet hole.

Cover mounting procedures	
 CP700-2T7.5-H to CP700-2T45-H, CP700-4T5.5-H to CP700-4T90(S)-H(1), and CP701-4T18.5(S)-H(1) to CP701-4T90(S)-H(1) models  CP700-4T110(S)-H(1) to CP700-4T200(S)-H(1) and CP700-4T110-H-7.5 to CP700-4T200-H-7.5 models	Step 2: Push down the cover by following the arrow direction shown in the figure.

Cover mounting procedures	
 CP700-2T7.5-H to CP700-2T45-H, CP700-4T5.5-H to CP700-4T90(S)-H(1), and CP701-4T18.5(S)-H(1) to CP701-4T90(S)-H(1) models  CP700-4T110(S)-H(1) to CP700-4T200(S)-H(1) and CP700-4T110-H-7.5 to CP700-4T200-H-7.5 models	Step 3: Tighten the screws. Cover installation is complete.

2.2.5 Heat Dissipation Design

Table 2-1 Heat dissipation parameters of the cabinet (7.5 kW to 90 kW)

Model	Rated output (kW)	Air volume (CFM)
Three-phase 200 VAC to 240 VAC, 50/60 Hz		
CP700-2T7.5-H	7.5	-
CP700-2T11-H	11	-
CP700-2T15-H	15	-
CP700-2T18.5-H	18.5	-
CP700-2T22-H	22	-
CP700-2T30-H	30	-
CP700-2T37-H	37	-
CP700-2T45-H	45	-
Three-phase 380 VAC to 440 VAC, 50/60 Hz		
CP700-4T5.5-H	5.5	28.5
CP700-4T7.5(S)-H	7.5	28.5
CP700-4T11(S)-H	11	39
CP700-4T15(S)-H	15	39
CP700-4T18.5(S)-H(1) CP701-4T18.5(S)-H(1)	18.5	74
CP700-4T22(S)-H(1) CP701-4T22(S)-H(1)	22	74
CP700-4T30(S)-H(1) CP701-4T30(S)-H(1)	30	88
CP700-4T37(S)-H(1) CP701-4T37(S)-H(1)	37	88
CP700-4T45(S)-H(1) CP701-4T45(S)-H(1)	45	170
CP700-4T55(S)-H(1) CP701-4T55(S)-H(1)	55	170
CP700-4T75(S)-H(1) CP701-4T75(S)-H(1)	75	170
CP700-4T90(S)-H(1) CP701-4T90(S)-H(1)	90	170

Table 2-2 Heat dissipation parameters of the cabinet (110 kW to 200 kW)

Model	Rated output (kW)	Air volume (CFM)
Three-phase 380 VAC to 440 VAC, 50/60 Hz		
CP700-4T110(S)-H(1)	110	390
CP700-4T132(S)-H(1)	132	390
CP700-4T160(S)-H(1)	160	598
CP700-4T200(S)-H(1)	200	755
CP700-4T110-H-7.5	110	390
CP700-4T132-H-7.5	132	390
CP700-4T160-H-7.5	160	598
CP700-4T200-H-7.5	200	755

2.2.6 Backplate Mounting

Fix the AC drive with all nuts. Do not fasten only the upper two nuts on the drive. Otherwise, the drive may fall off due to uneven force during long-time running.

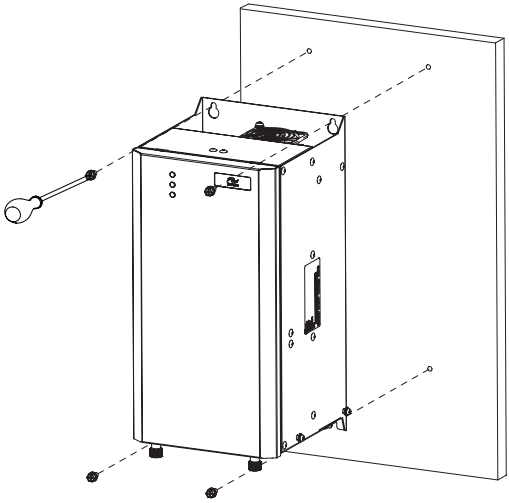


Figure 2-8 Backplate mounting of CP700-2T7.5-H, and CP700-4T5.5-H to CP700-4T15(S)-H models

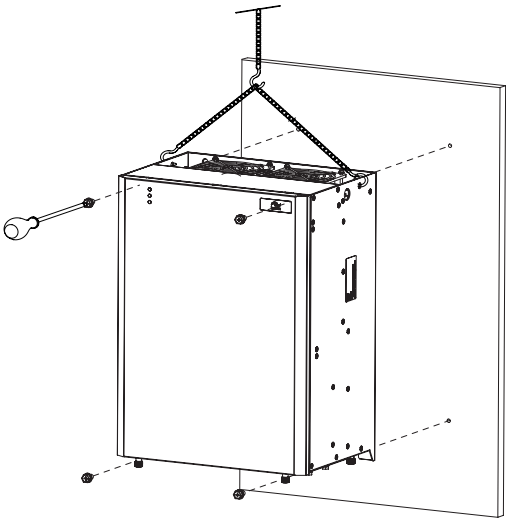


Figure 2-9 Backplate mounting of CP700-2T11-H to CP700-2T45-H, CP700-4T18.5(S)-H(1) to CP700-4T200-H-7.5, and CP701-4T18.5(S)-H(1) to CP701-4T90(S)-H(1)

2.3 Wiring

2.3.1 Main Circuit Terminal Layout

Main circuit terminals adopt the bottom-in and bottom-out mode, as shown below.

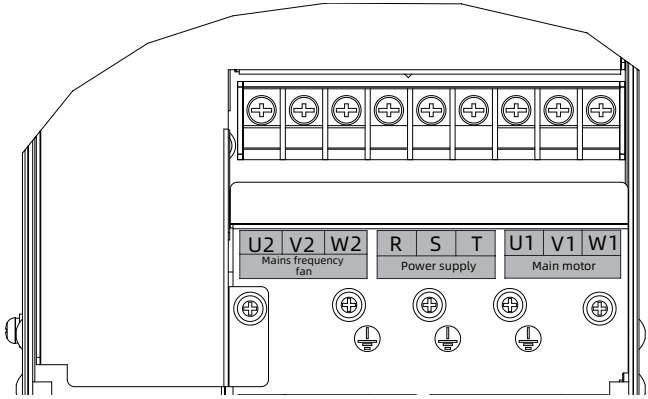


Figure 2-10 Main circuit terminal layout of CP700-4T5.5-H to CP700-4T7.5(S)-H

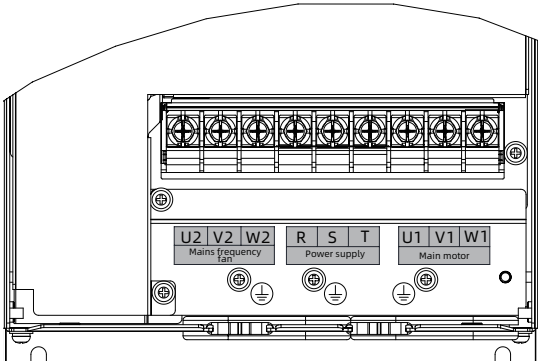


Figure 2-11 Main circuit terminal layout of CP700-2T7.5-H, and CP700-4T11(S)-H to CP700-4T15(S)-H

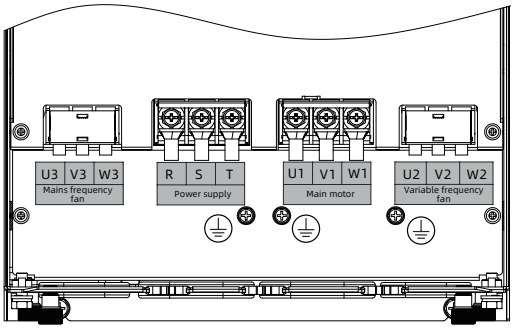


Figure 2-12 Main circuit terminal layout of CP700-2T11-H to CP700-2T15-H, CP700-4T18.5(S)-H(1) to CP700-4T22(S)-H(1), and CP701-4T18.5(S)-H(1) to CP701-4T22(S)-H(1)

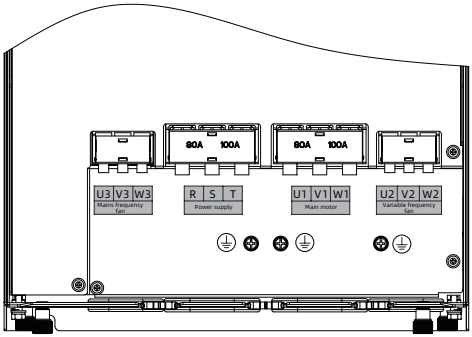


Figure 2-13 Main circuit terminal layout of CP700-2T18.5-H to CP700-2T22-H, CP700-4T30(S)-H(1) to CP700-4T37(S)-H(1), and CP700-4T30(S)-H(1) to CP700-4T37(S)-H(1)

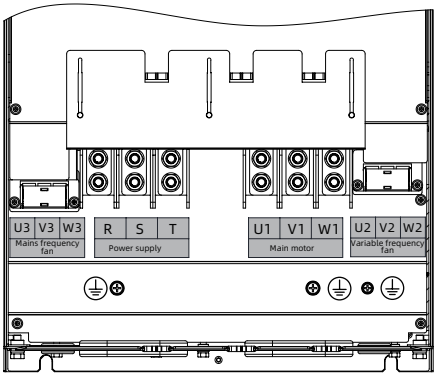


Figure 2-14 Main circuit terminal layout of CP700-2T30-H to CP700-2T45-H, CP700-4T45(S)-H(1) to CP700-4T90(S)-H(1), and CP701-4T45(S)-H(1) to CP701-4T90(S)-H(1)

Table 2-3 Main circuit terminal description of CP700-2T7.5-H to CP700-2T45-H, CP700-4T5.5-H to CP700-4T90(S)-H(1), and CP701-4T45(S)-H(1) to CP701-4T90(S)-H(1)

Symbol	Name	Function description
R, S, T	Input terminal	Three-phase AC input
U1. V1. W1	Output terminals	Three-phase AC output of the variable frequency main motor
U2. V2. W2	Mains frequency fan terminal	Three-phase 220 V: 0.25 kW, three-phase AC output (7.5 kW models)
		Three-phase 380 V: 0.4 kW, three-phase AC output (5.5-15 kW models)
	Variable frequency fan terminal	Three-phase 380 V: 0.75 kW three-phase AC output (18.5-22 kW models) 1.5 kW three-phase AC output (30-37 kW models) 3.7 kW three-phase AC output (45-90 kW models)
U3, V3, and W3	Mains frequency fan terminal	Three-phase 220 V: 0.45 kW three-phase AC output (11-45 kW models)
		Three-phase 380 V: 0.75 kW three-phase AC output (18.5-90 kW models)
⏚	Grounding terminal	PE protective grounding

Note: If the drive is used in a 480 V power grid, the mains frequency transformer must be replaced. Contact the service engineer.

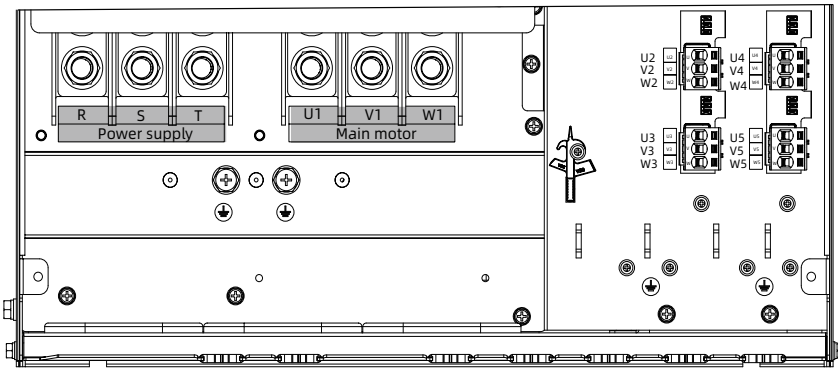


Figure 2-15 Main circuit terminal layout of CP700-4T110(S)-H(1) to CP700-4T200(S)-H(1)

Table 2-4 Main circuit terminal descriptions of CP700-4T110(S)-H(1) to CP700-4T200(S)-H(1)

Symbol	Name	Function description
R, S, T	Input terminal	Three-phase AC input
U1. V1. W1	Output terminals	Three-phase AC output of the main motor
U2. V2. W2	Variable frequency fan terminal	Three-phase 380 V: 3.7 kW three-phase AC output
U3, V3, and W3		
U4, V4, W4	Mains frequency fan terminal	Three-phase 380 V: 0.75 kW three-phase AC output
U5, V5, W5		
⏚	Grounding terminal	PE protective grounding

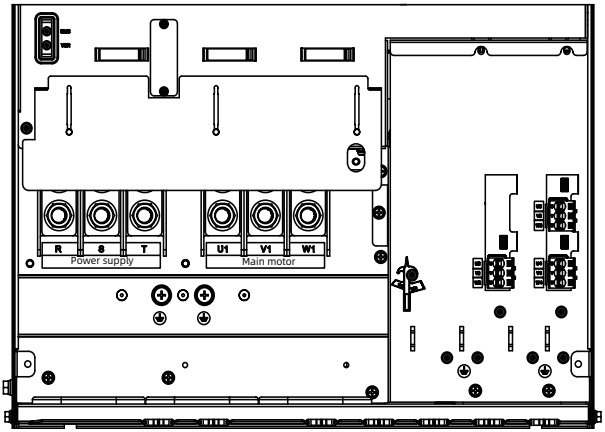


Figure 2-16 Main circuit terminal layout of CP700-4T110-H-7.5 to CP700-4T200-H-7.5

Table 2-5 Main circuit terminal descriptions of CP700-4T110-H-7.5 to CP700-4T200-H-7.5

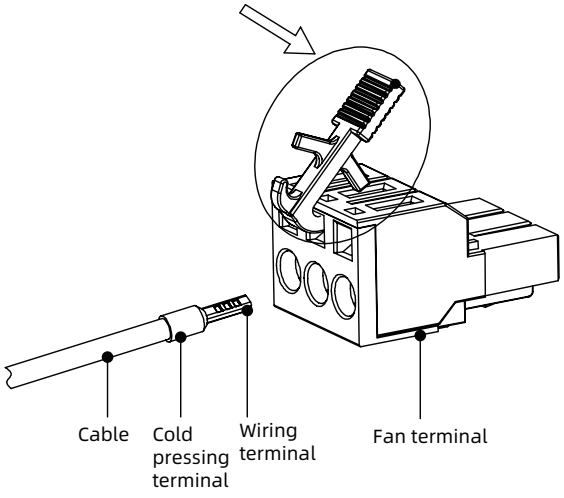
Symbol	Name	Function description
R, S, T	Input terminal	Three-phase AC input
U1. V1. W1	Output terminals	Three-phase AC output of the main motor
U2. V2. W2	Variable frequency fan terminal	Three-phase 380 V: 7.5 kW three-phase AC output
U3, V3, and W3	Mains frequency fan terminal	Three-phase 380 V: 0.75 kW three-phase AC output
U4, V4, W4		
⏚	Grounding terminal	PE protective grounding

2.3.2 Fan Output Terminal Wiring

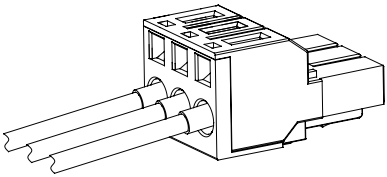
1) Secure the grounding cable to the grounding terminal using the screw.

2) Crimp the cable to the blower terminal.

Press the wiring tool (shown as the arrow in the following figure) to open the spring of the terminal, and insert the crimped cable into the round hole.



The wiring is as follows.



2.3.3 Main Circuit Wiring Requirements

- To protect the main circuit, isolate and cover it from surfaces that may come into contact.
- The control circuit is the internal safety extra-low voltage (SELV) circuit, which must be insulated and isolated from other circuits. Make sure that the control circuit is connected to the external SELV circuit.
- Prevent foreign matters from entering the wiring part of the terminal block.
- Do not solder twisted conductors (if used).
- The tightening torque may vary with terminals. Tighten terminal screws with the specified tightening torque. You can use the torque screwdriver, ratchet, or wrench.
- When using an electric screwdriver to tighten terminal screws, set a low speed to prevent damage to the terminal screws.
- Tighten the terminal screws at an angle within 5 degrees. Failure to comply may result in screw damage.

2.3.4 Control Terminal Layout

If STO board connection is required during control circuit wiring, remove the cover of the AC drive before connecting control cables. (For details, see "2.2.4 Cover Removal and Installation".) The following figure shows control board and STO board locations.

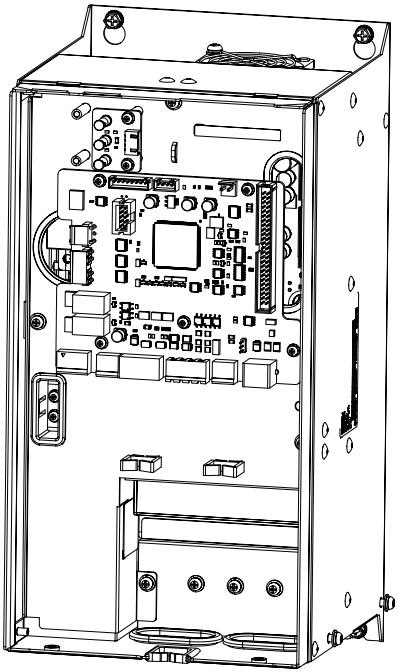


Figure 2-17 Control board position of CP700-2T7.5-H, and CP700-4T5.5-H to CP700-4T15(S)-H

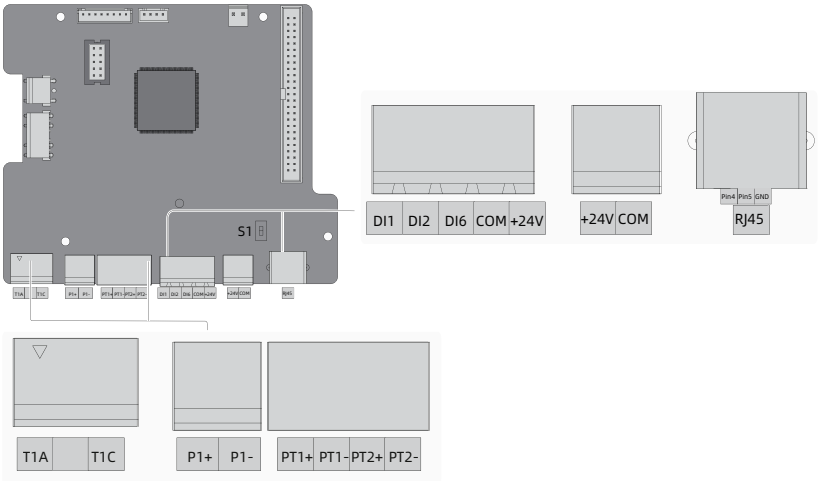


Figure 2-18 Control terminal layout of CP700-2T7.5-H, and CP700-4T5.5-H to CP700-4T15(S)-H

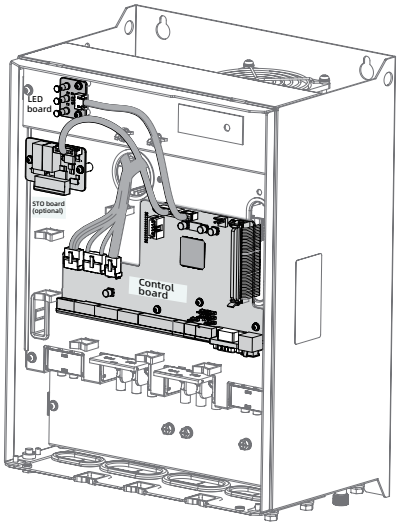


Figure 2-19 Control board position of CP700-2T11-H to CP700-2T45-H, CP700-4T18.5(S)-H(1) to CP700-4T90(S)-H(1), and CP701-4T18.5(S)-H(1) to CP701-4T90(S)-H(1)

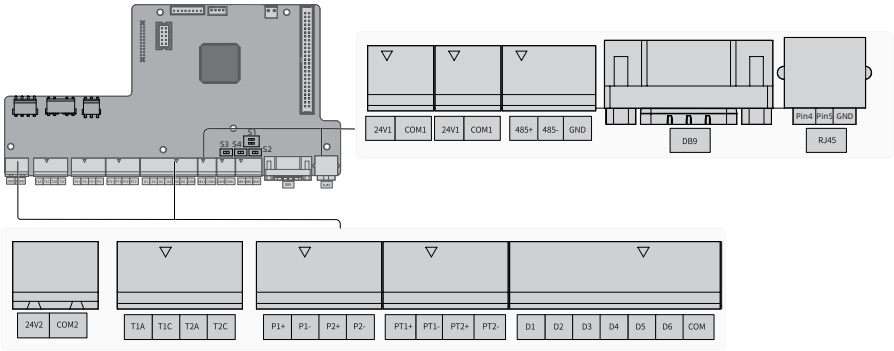


Figure 2-20 Control terminal layout of CP700-2T11-H to CP700-2T45-H, CP700-4T18.5(S)-H(1) to CP700-4T90(S)-H(1), and CP701-4T18.5(S)-H(1) to CP701-4T90(S)-H(1)

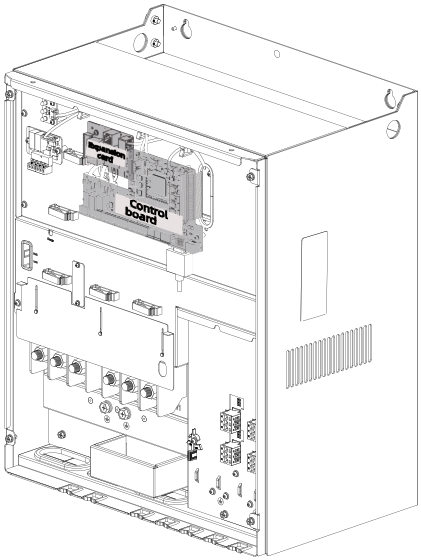


Figure 2-21 Control board position of CP700-4T110(S)-H(1) to CP700-4T200(S)-H(1) and CP700-4T110-H-7.5 to CP700-4T200-H-7.5

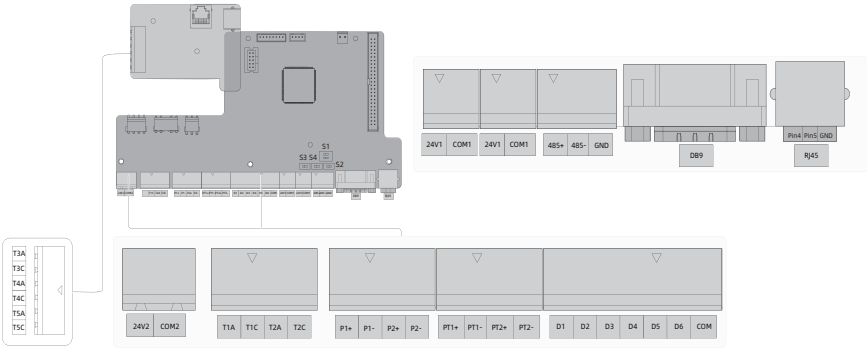


Figure 2-22 Control terminal layout and expansion card terminal layout of CP700-4T110(S)-H(1) to CP700-4T200(S)-H(1) and CP700-4T110-H-7.5 to CP700-4T200-H-7.5

Table 2-6 Control terminal descriptions

Category	Terminal mark	Function	Technical Specifications
Relay output	T1A, T1C T2A, and T2C	Relay output T1A and T1C are for electromagnetic valves by default.	220 VAC control power supply converted from 380 VAC input power supply; power supply capacity: 50 VA; T1A-T1C and T2A-T2C current output supported, with the total output less than 0.2 A T1A-T1C: NO T2A-T2C: NO
	T3A, T3C T4A, T4C T5A, T5C	Relay output terminal on the expansion card of the CP700-4T110(S)-H(1) to CP700-4T200(S)-H(1) models	T3A-T3C: NO T4A-T4C: NO T5A-T5C: NO Contact capacity: 250 VAC/3 A
Pressure sensor input	P1+ and P2+	Pressure sensor power input	24 VDC;4 mA to 20 mA input; active
	P1- and P2-	Pressure sensor signal input	
Temperature sensor input	PT1+, PT2+	Temperature sensor PT100 input	Temperature range detection: -25° C to +220° C; detection error: ±3° C; passive
	PT1- and PT2-		
Digital input.	DI1 to DI4	Common multi-function input terminal	Isolated drain input; input frequency: < 100 Hz
	DI5-DI6	Multi-functional input terminals of the following models: CP700-2T11-H to CP700-2T45-H, CP700-4T18.5(S)-H(1) to CP700-4T200(S)-H(1), CP701-4T18.5(S)-H(1) to CP701-4T90(S)-H(1), and CP700-4T110-H-7.5 to CP700-4T200-H-7.5. (PTC protection supported) For three-phase 380 V models of 5.5 kW to 15 kW and three-phase 220 V models of 7.5 kW, only DI6 is available.	Isolated sink input; Input frequency < 100 Hz; Action when the PTC resistance is 2.3 kΩ
	COM	Common terminal of multi-function input terminals	Internally connected to GND
24V1 external power supply port	24V1	24 V power supply provided by the board	24 V±10%; maximum output current: 500 mA; powers the HMI
	COM1	24 V power supply ground provided by the board	

<table>
<tr><th>Category</th><th>Terminal mark</th><th>Function</th><th>Technical Specifications</th></tr>
<tr><td rowspan="2">24V2 external power supply port</td><td>24V2</td><td>Independent 24 V power supply</td><td rowspan="2">24 V power supply output (optional); output current: 4 A</td></tr>
<tr><td>COM2</td><td>Independent 24 V power supply ground</td></tr>
<tr><td rowspan="3">RS485 output A</td><td>485+</td><td>RS485 communication+</td><td rowspan="3">Half-duplex RS485 communication; baud rate: < 230 kbps
The RS485 communication port and the first RS485 port of the DB9 are the same and are used to connect to the PLC.</td></tr>
<tr><td>485-</td><td>RS485 Communication-</td></tr>
<tr><td>GND</td><td>RS485 reference ground</td></tr>
<tr><td>DB9 port</td><td>DB9</td><td>Two-channel RS485 communication</td><td>Standard DB9 female socket with built-in two-channel 485 communication resources Pin definitions are as below:
Definition of the first RS485 port:<table><tr><td>Pin6</td><td>Pin9</td><td>Pin5</td></tr><tr><td>A_485-</td><td>A_485+</td><td>GND</td></tr></table>Definition of the second RS485 port (used to connect to the HMI):<table><tr><td>Pin1</td><td>Pin2</td><td>Pin5</td></tr><tr><td>B_485-</td><td>B_485+</td><td>GND</td></tr></table></td></tr>
<tr><td rowspan="3">RS485 output A (RJ45)</td><td>Pin4</td><td>RS485 communication+</td><td rowspan="3">Half-duplex RS485 communication; baud rate: < 230 kbps
Connected to the LCD panel iPanel
The RS485 communication port and the first RS485 port of the DB9 are the same.</td></tr>
<tr><td>Pin5</td><td>RS485 communication-</td></tr>
<tr><td>GND</td><td>RS485 reference ground</td></tr>
</table>

Table 2-7 DIP switches of the CP700

Category	Mark	Function description
RS485 communication	S1	RS485 communication termination resistor DIP switch. When 1 and 2 are set to ON, the 120 Ω termination resistor is connected. When 1 and 2 are set to OFF, the termination resistor is not connected.
DB9 interface	S2	S2 is the DIP switch for connecting pin 5 of the DB9 interface to GND. When S2 is set to "HMI-GND", pin 5 of the DB9 interface is connected to GND.
DB9 interface	S4	S4 is the DIP switch for grounding the enclosure (shield) of the DB9 interface. When S4 is set to "HMI-PE", the enclosure (shield) of the DB9 interface is connected to PE.
Digital input.	S3	S3 is the DIP switch for switching the DI sink/source input. When S3 is set to "24V1", sink input applies. When S3 is set to "COM", source input applies.

2.3.5 Control Terminal Wiring

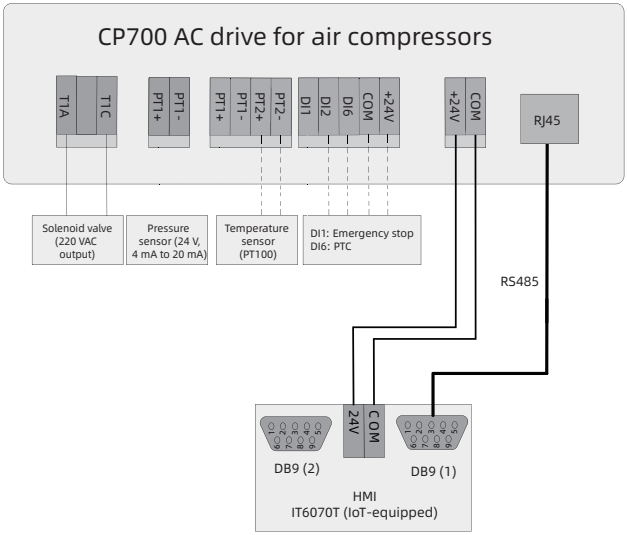


Figure 2-23 Control terminal wiring for three-phase 380 V 5.5-15 kW models and three-phase 220 V 7.5 kW models

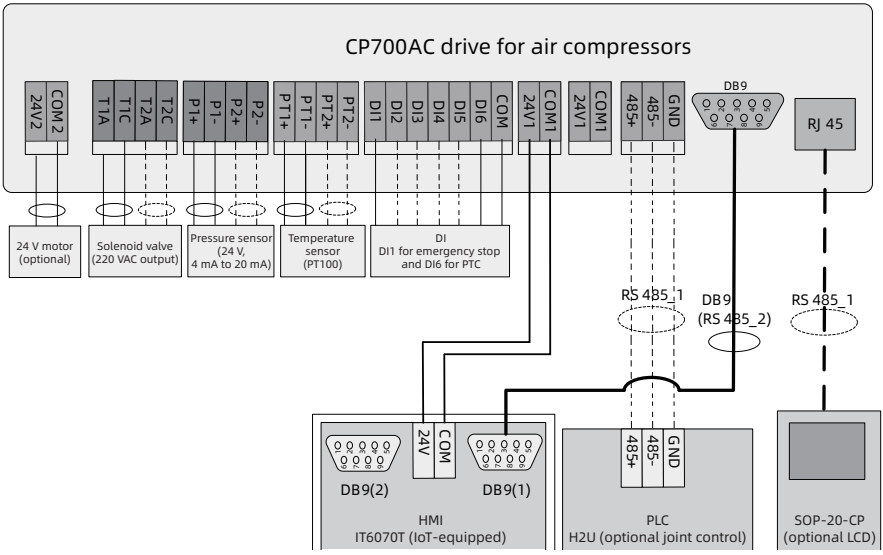
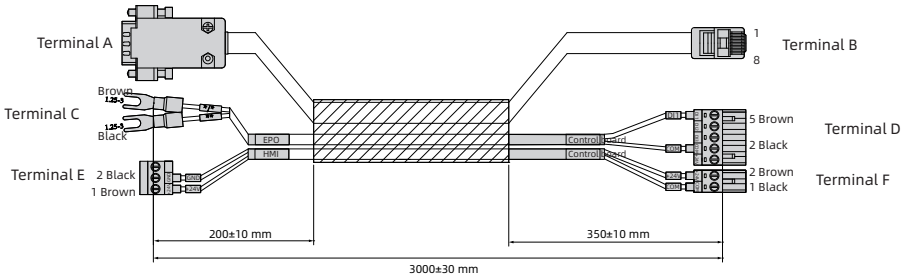


Figure 2-24 Control terminal wiring for three-phase 380 V 18.5-200 kW models and three-phase 220 V 11-45 kW models



Connection between RJ45 and DB9

Terminal A (DB9)			5	2	1			
Terminal B (RJ45)	1	2	3	4	5	6	7	8

Connection between terminal C and terminal D

Terminal C		
Terminal D	5	2
Remarks	Brown	Black

Connection between terminals E and F

Terminal E (3-pin)	2	1	3
Terminal F (2-pin)	1	2	
Remarks	Black	Brown	

Figure 2-25 Wiring between CP700 and IT6070T

NOTE

In the preceding figure, solid lines indicate the recommended shortest wiring during system running, while dotted lines indicate the recommended wiring when air compressor configuration varies.

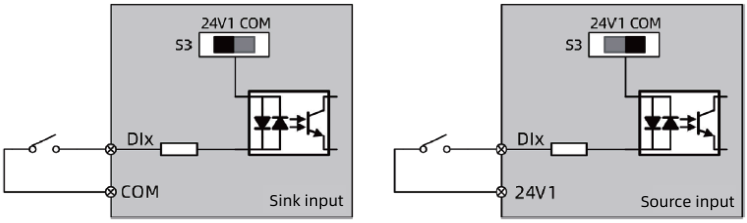
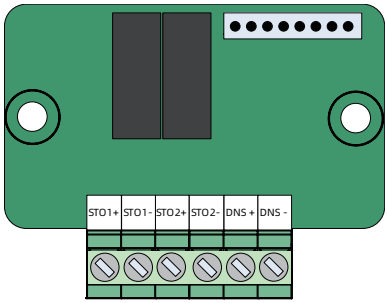


Figure 2-26 Source/Sink wiring of digital input terminals

NOTE

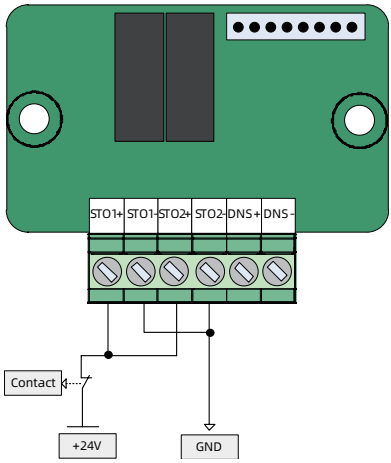
- When DIP switch S3 is set to 24V1, sink input applies. When DIP switch S3 is set to COM, source input applies.

2.3.6 STO Terminal Descriptions



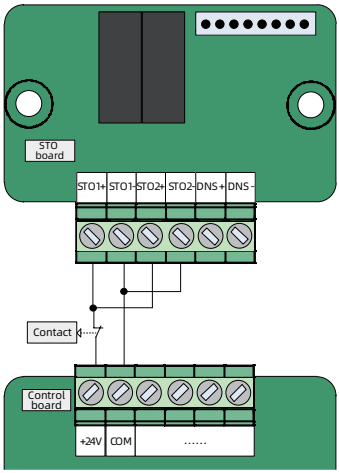
Terminal signal name	Function description	Remarks
STO1+	Positive input of 1st security signal	Vin1: Voltage difference between STO1+ and STO1-
STO1-	Negative input of 1st security signal	
STO2+	Positive input of 2nd security signal	Vin2: Voltage difference between STO2+ and STO2-
STO2-	Negative input of 2nd security signal	
DNS+	Positive output of external detection signal	DNS: Voltage difference between DNS+ and DNS-; OC door output
DNS-	Negative output of external detection signal	

External 24 V power supply for the STO board



STO1+ and STO2+ are connected by NC contacts to the positive pole of the 24 V power supply. STO1- and STO2- are directly connected to the negative pole. When contacts are closed, the AC drive runs properly with 24 V input. When contacts are open, the AC drive executes an emergency stop.

Internal power supply for the STO board



STO1+ and STO2+ are connected by NC contacts to the positive pole of the 24 V power supply for the control board. STO1- and STO2- are directly connected to the COM terminal of the control board. When contacts are closed, the AC drive runs properly with 24 V input. When contacts are open, the AC drive executes an emergency stop.

2.4 Grounding Requirements

To properly ground the drive, observe the following requirements.

NOTE

- To prevent electric shocks, ground the grounding terminal properly. Observe related national or regional regulations during grounding.
- To prevent electric shocks, ensure that the protective grounding conductor meets the technical specifications and local safety standards, and shorten the grounding cable length as much as possible.
- In any case, the cross-sectional area of each protective grounding conductor that is not part of the power cable or its outer sheath must be larger than or equal to 2.5 mm^2.
- The leakage current of a single drive does not exceed 3.5 mA AC or 10 mA DC. You only need to configure one protective grounding conductor with the same specifications as the phase cable.
- When using multiple devices, follow the instructions for grounding all devices. Incorrect grounding can result in misoperation of devices.

2.5 Power Grid System Requirements

The AC drive is applicable to power grid systems with neutral points grounded. If the

AC drive is used in an IT power grid system, remove the jumper of the VDR (screw 1 shown in the following figure). Failure to comply may result in danger or damages to the AC drive.

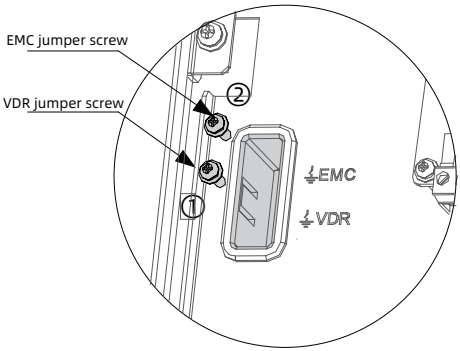


Figure 2-27 Positions of VDR and EMC grounding jumpers

2.6 Cabling Recommendations

2.6.1 Main Power Cable

Connect main power cables as shown below, and ground the input/output cables of the variable-frequency main motor and fan cables.

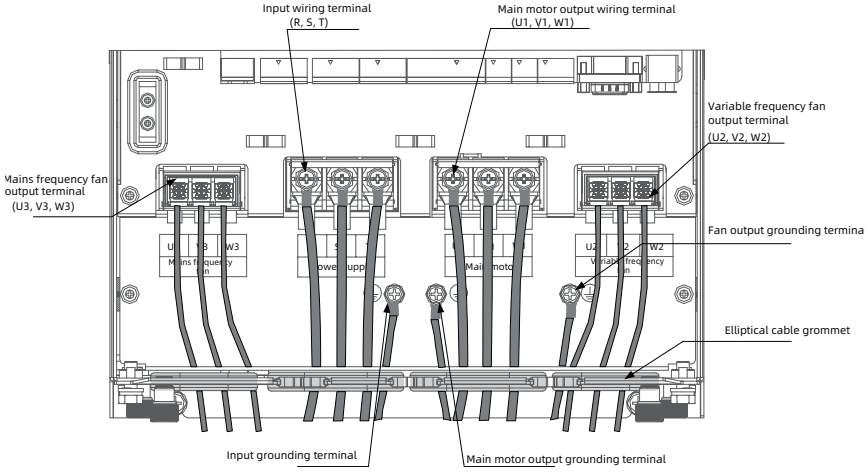


Figure 2-28 Main power cable wiring of CP700-2T7.5-H to CP700-4T90(S)-H(1) and CP701-4T18.5(S)-H(1) to CP701-4T90(S)-H(1)

Table 2-8 Main power cable selection of CP700-2T7.5-H to CP700-4T90(S)-H(1) and CP701-4T18.5(S)-H(1) to CP701-4T90(S)-H(1)

Model	Rated input current (A)	Input RST/Main motor output (U1/V1/W1)			Fan output (U2/V2/W2)			Fan output (U3/V3/W3)			Protective grounding (PE)		
		Cable (mm^2) <1>	Terminal model	Terminal screw/ torque (N·m)	Cable (mm^2) <1>	Terminal model	Terminal screw/ torque	Cable (mm^2) <1>	Terminal model	Terminal screw/ torque (N·m)	Cable (mm^2) <1>	Terminal model	Terminal screw/ torque (N·m)
Three-phase 200 VAC to 240 VAC, 50/60 Hz													
CP700-2T7.5-H	35.0	6	TLK6-5	M5 (2.8 N·m)	0.75	RNB 1-5	M5 (2.8 N·m)	N/A	N/A	N/A	6	TLK 6-4	M4 (1.2 N·m)
CP700-2T11-H	49.5	10	TLK10-6	M6 (4.8 N·m)	0.75	RNB 1 to 4	M4 (1.2 N·m)	0.75	RNB 1 to 4	M4 (1.2 N·m)	10	TLK 10-5	M5 (2.8 N·m)
CP700-2T15-H	60.0	16	TLK16-6	M6 (4.8 N·m)	0.75	RNB 1 to 4	M4 (1.2 N·m)	0.75	RNB 1 to 4	M4 (1.2 N·m)	16	TLK 16-5	M5 (2.8 N·m)
CP700-2T18.5-H	65.0	16	TLK16-6	M6 (4.8 N·m)	0.75	RNB 1 to 4	M4 (1.2 N·m)	0.75	RNB 1 to 4	M4 (1.2 N·m)	16	TLK 16-5	M5 (2.8 N·m)
CP700-2T22-H	80	25	TLK25-6	M6 (4.8 N·m)	0.75	RNB 1 to 4	M4 (1.2 N·m)	0.75	RNB 1 to 4	M4 (1.2 N·m)	16	TLK 16-5	M5 (2.8 N·m)
CP700-2T30-H	120.9	50	TLK50-8	M8 (13 N·m)	1.5	RNB 1 to 4	M4 (1.2 N·m)	0.75	RNB 1 to 4	M4 (1.2 N·m)	25	TLK 25-6	M6 (4.8 N·m)
CP700-2T37-H	134.0	70	TLK70-8	M8 (13 N·m)	1.5	RNB 1 to 4	M4 (1.2 N·m)	0.75	RNB 1 to 4	M4 (1.2 N·m)	35	TLK 35-6	M6 (4.8 N·m)
CP700-2T45-H	159.2	70	TLK70-12	M12 (35 N·m)	1.5	RNB 1 to 4	M4 (1.2 N·m)	0.75	RNB 1 to 4	M4 (1.2 N·m)	35	TLK 35-6	M8 (13 N·m)
Three-phase 380 VAC to 440 VAC, 50/60 Hz													
CP700-4T5.5-H	15.9	2.5	TLK2.5-4	M4 (1.2 N·m)	0.75	RNB 1 to 4	M4 (1.2 N·m)	N/A	N/A	N/A	2.5	TLK 2.5-4	M4 (1.2 N·m)
CP700-4T7.5(S)-H	20.5	4	TLK4-4	M4 (1.2 N·m)	0.75	RNB 1 to 4	M4 (1.2 N·m)	N/A	N/A	N/A	4	TLK 4-4	M4 (1.2 N·m)
CP700-4T11(S)-H	26	4	TLK4-5	M5 (2.8 N·m)	0.75	RNB 1-5	M5 (2.8 N·m)	N/A	N/A	N/A	4	TLK 4-4	M4 (1.2 N·m)
CP700-4T15(S)-H	35	6	TLK6-5	M5 (2.8 N·m)	0.75	RNB 1-5	M5 (2.8 N·m)	N/A	N/A	N/A	6	TLK 6-4	M4 (1.2 N·m)
CP700-4T18.5(S)-H(1) CP701-4T18.5(S)-H(1)	47.2	10	TLK10-6	M6 (4.8 N·m)	0.75	RNB 1 to 4	M4 (1.2 N·m)	0.75	RNB 1 to 4	M4 (1.2 N·m)	10	TLK 10-5	M5 (2.8 N·m)
CP700-4T22(S)-H(1) CP701-4T22(S)-H(1)	57.5	16	TLK16-6	M6 (4.8 N·m)	0.75	RNB 1 to 4	M4 (1.2 N·m)	0.75	RNB 1 to 4	M4 (1.2 N·m)	16	TLK 16-5	M5 (2.8 N·m)
CP700-4T30(S)-H(1) CP701-4T30(S)-H(1)	65	16	TLK16-6	M6 (4.8 N·m)	0.75	RNB 1 to 4	M4 (1.2 N·m)	0.75	RNB 1 to 4	M4 (1.2 N·m)	16	TLK 16-5	M5 (2.8 N·m)
CP700-4T37(S)-H(1) CP701-4T37(S)-H(1)	80	25	TLK25-6	M6 (4.8 N·m)	0.75	RNB 1 to 4	M4 (1.2 N·m)	0.75	RNB 1 to 4	M4 (1.2 N·m)	16	TLK 16-5	M5 (2.8 N·m)
CP700-4T45(S)-H(1) CP701-4T45(S)-H(1)	101.4	35	TLK35-8	M8 (13 N·m)	1.5	RNB 1 to 4	M4 (1.2 N·m)	0.75	RNB 1 to 4	M4 (1.2 N·m)	25	TLK 25-6	M6 (4.8 N·m)

Model	Rated input current (A)	Input RST/Main motor output (U1/V1/W1)			Fan output (U2/V2/W2)			Fan output (U3/V3/W3)			Protective grounding (PE)		
		Cable (mm^2) <1>	Terminal model	Terminal screw/ torque (N·m)	Cable (mm^2) <1>	Terminal model	Terminal screw/ torque	Cable (mm^2) <1>	Terminal model	Terminal screw/ torque (N·m)	Cable (mm^2) <1>	Terminal model	Terminal screw/ torque (N·m)
CP700-4T55(S)-H(1) CP701-4T55(S)-H(1)	122.3	50	TLK50-8	M8 (13 N·m)	1.5	RNB 1 to 4	M4 (1.2 N·m)	0.75	RNB 1 to 4	M4 (1.2 N·m)	25	TLK 25-6	M6 (4.8 N·m)
CP700-4T75(S)-H(1) CP701-4T75(S)-H(1)	164.6	70	TLK70-12	M12 (35 N·m)	1.5	RNB 1 to 4	M4 (1.2 N·m)	0.75	RNB 1 to 4	M4 (1.2 Nm)	35	TLK 35-8	M8 (13 N·m)
CP700-4T90(S)-H(1) CP701-4T90(S)-H(1)	186.0	95	TLK95-12	M12 (35 N·m)	1.5	RNB 1 to 4	M4 (1.2 N·m)	0.75	RNB 1 to 4	M4 (1.2 Nm)	50	TLK 50-8	M8 (13 N·m)

< 1> Applicable to standards in China. The value 6 represents one cable with a cross sectional area of 6 mm^2. The value 10 represents one cable with a cross sectional area of 10 mm^2.

The preceding recommended terminals are TLK and RNB series terminals from KST.

Note:

1. Observe national or regional regulations during selection. The recommended values in the preceding table are based on the following conditions:
   PVC insulation and copper conductor
   Heat resistance: maximum cable surface temperature not exceeding 70° C at an ambient temperature of 40° C (Note: When the ambient temperature exceeds 40° C, contact Inovance.)
   Cable layout type E (see IEC 60204-1).
2. If conditions vary, select the model according to actual conditions.

Table 2-9 Main power cable selection of CP700-2T7.5-H to CP700-4T90(S)-H(1) and CP701-4T18.5(S)-H(1) to CP701-4T90(S)-H(1) (UL-certified)

Model	Rated input current (A)	Input RST/Main motor output (U1/V1/W1)			Fan output (U2/V2/W2)			Fan output (U3/V3/W3)			Protective grounding (PE)		
		Cable <2>	Terminal model	Terminal screw/ torque (N·m)	Cable <2>	Terminal model	Terminal screw/ torque (N·m)	Cable <2>	Terminal model	Terminal screw/ torque (N·m)	Cable <2>	Terminal model	Terminal screw/ Torque driver torque (N·m)
Three-phase 200 VAC to 240 VAC, 50/60 Hz													
CP700-2T7.5-H	35.0	8AWG	TLK 10-5	M5 (2.8 N·m)	14AWG	RNBS 2-5	M5 (2.8 N·m)	N/A	N/A	N/A	8AWG	TLK 10-4	M4 (1.2 N·m)
CP700-2T11-H	49.5	6AWG	TLK 16-6	M6 (4.8 N·m)	14AWG	RNBL 2-4	M4 (1.2 N·m)	14AWG	RNBL 2-4	M4 (1.2 N·m)	6AWG	TLK 16-5	M5 (2.8 N·m)
CP700-2T15-H	60.0	4AWG	TLK 25-6	M6 (4.8 N·m)	14AWG	RNBL 2-4	M4 (1.2 N·m)	14AWG	RNBL 2-4	M4 (1.2 N·m)	4AWG	TLK 25-5	M5 (2.8 N·m)
CP700-2T18.5-H	65.0	4AWG	TLK 25-6	M6 (4.8 N·m)	14AWG	RNBL 2-4	M4 (1.2 N·m)	14AWG	RNBL 2-4	M4 (1.2 N·m)	4AWG	TLK 25-5	M5 (2.8 N·m)
CP700-2T22-H	80	2AWG	TLK 35-6	M6 (4.8 N·m)	14AWG	RNBL 2-4	M4 (1.2 N·m)	14AWG	RNBL 2-4	M4 (1.2 N·m)	4AWG	TLK 25-5	M5 (2.8 N·m)
CP700-2T30-H	120.9	2/0AWG	TLK 70-8	M8 (13 N·m)	14AWG	RNBL 2-4	M4 (1.2 N·m)	14AWG	RNBL 2-4	M4 (1.2 N·m)	2AWG	TLK 35-6	M6 (4.8 N·m)
CP700-2T37-H	134.0	2/0AWG	TLK 70-8	M8 (13 N·m)	14AWG	RNBL 2-4	M4 (1.2 N·m)	14AWG	RNBL 2-4	M4 (1.2 N·m)	2AWG	TLK 35-6	M6 (4.8 N·m)
CP700-2T45-H	159.2	3/0AWG	TLK 95-12	M12 (35 N·m)	14AWG	RNBL 2-4	M4 (1.2 N·m)	14AWG	RNBL 2-4	M4 (1.2 N·m)	1/0AWG	TLK 50-8	M8 (13 N·m)
Three-phase 380 VAC to 440 VAC, 50/60 Hz													

Model	Rated input current (A)	Input RST/Main motor output (U1/V1/W1)			Fan output (U2/V2/W2)			Fan output (U3/V3/W3)			Protective grounding (PE)		
		Cable <2>	Terminal model	Terminal screw/ torque (N·m)	Cable <2>	Terminal model	Terminal screw/ torque (N·m)	Cable <2>	Terminal model	Terminal screw/ torque (N·m)	Cable <2>	Terminal model	Terminal screw/ Torque driver torque (N·m)
CP700-4T5.5-H	15.9	12AWG	TLK 4-4	M4 (1.2 N·m)	14AWG	RNBL 2-4	M4 (1.2 N·m)	N/A	N/A	N/A	12AWG	TLK 4-4	M4 (1.2 N·m)
CP700-4T7.5(S)-H	20.5	10AWG	RNBL 5 - 4	M4 (1.2 N·m)	14AWG	RNBL 2-4	M4 (1.2 N·m)	N/A	N/A	N/A	10AWG	RNBL 5 - 4	M4 (1.2 N·m)
CP700-4T11(S)-H	26	8AWG	TLK 10-5	M5 (2.8 N·m)	14AWG	RNBS 2-5	M5 (2.8 N·m)	N/A	N/A	N/A	8AWG	TLK 10-4	M4 (1.2 N·m)
CP700-4T15(S)-H	35	8AWG	TLK 10-5	M5 (2.8 N·m)	14AWG	RNBS 2-5	M5 (2.8 N·m)	N/A	N/A	N/A	8AWG	TLK 10-4	M4 (1.2 N·m)
CP700-4T18.5(S)-H(1) CP701-4T18.5(S)-H(1)	47.2	6AWG	TLK 16-6	M6 (4.8 N·m)	14AWG	RNBL 2-4	M4 (1.2 N·m)	14AWG	RNBL 2-4	M4 (1.2 N·m)	6AWG	TLK 16-5	M5 (2.8 N·m)
CP700-4T22(S)-H(1) CP701-4T22(S)-H(1)	57.5	4AWG	TLK 25-6	M6 (4.8 N·m)	14AWG	RNBL 2-4	M4 (1.2 N·m)	14AWG	RNBL 2-4	M4 (1.2 N·m)	6AWG	TLK 16-5	M5 (2.8 N·m)
CP700-4T30(S)-H(1) CP701-4T30(S)-H(1)	65	4AWG	TLK 25-6	M6 (4.8 N·m)	14AWG	RNBL 2-4	M4 (1.2 N·m)	14AWG	RNBL 2-4	M4 (1.2 N·m)	6AWG	TLK 16-5	M5 (2.8 N·m)
CP700-4T37(S)-H(1) CP701-4T37(S)-H(1)	80	2AWG	TLK 35-6	M6 (4.8 N·m)	14AWG	RNBL 2-4	M4 (1.2 N·m)	14AWG	RNBL 2-4	M4 (1.2 N·m)	4AWG	TLK 25-5	M5 (2.8 N·m)
CP700-4T45(S)-H(1) CP701-4T45(S)-H(1)	101.4	1/0AWG	TLK 50-8	M8 (13 N·m)	14AWG	RNBL 2-4	M4 (1.2 N·m)	14AWG	RNBL 2-4	M4 (1.2 N·m)	2AWG	TLK 35-6	M6 (4.8 N·m)
CP700-4T55(S)-H(1) CP701-4T55(S)-H(1)	122.3	2/0AWG	TLK 70-8	M8 (13 N·m)	14AWG	RNBL 2-4	M4 (1.2 N·m)	14AWG	RNBL 2-4	M4 (1.2 N·m)	2AWG	TLK 35-6	M6 (4.8 N·m)
CP700-4T75(S)-H(1) CP701-4T75(S)-H(1)	164.6	4/0AWG	TLK 120-12	M12 (35 N·m)	14AWG	RNBL 2-4	M4 (1.2 N·m)	14AWG	RNBL 2-4	M4 (1.2 N·m)	2/0AWG	TLK 70-8	M8 (13 N·m)
CP700-4T90(S)-H(1) CP701-4T90(S)-H(1)	186.0	250 kcmil	SQNBS 150-12	M12 (35 N·m)	14AWG	RNBL 2-4	M4 (1.2 N·m)	14AWG	RNBL 2-4	M4 (1.2 N·m)	3/0AWG	TLK 95-8	M8 (13 N·m)

<2> Applicable to AWG cables. 8 represents 8AWG, 2/0 represents 00AWG, and 250 represents 250 kcmil.

The preceding recommended terminals are TLK, SQNBS, and RNB series terminals from KST.

Note:

1. Observe national or regional regulations during selection. The recommended values in the preceding table are based on the following conditions:
   PVC insulation and copper conductor
   Heat resistance: maximum cable surface temperature not exceeding 75° C at an ambient temperature of 40° C (Note: When the ambient temperature exceeds 40° C, contact Inovance.)
   Cable layout type E (see IEC 60204-1).
2. The recommended cables must meet requirements for 125% overload.
3. If the conditions vary, select the cable model according to actual conditions.

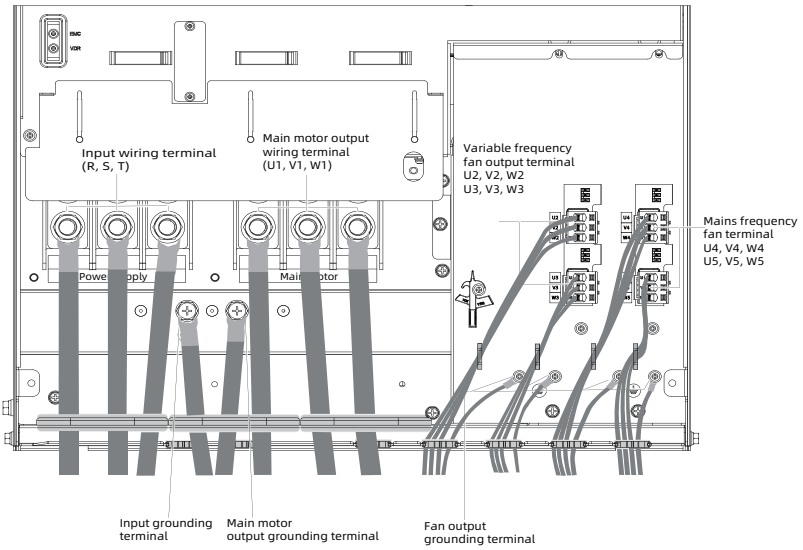


Figure 2-29 Main power cable wiring of CP700-4T110(S)-H(1) to CP700-4T200(S)-H(1)

Table 2-10 Main power cable selection of P700-4T110(S)-H(1) to CP700-4T200(S)-H(1)

Model	Rated input current (A)	Input RST/Main motor output (U1/V1/W1)			Blower output (U2/V2/W2 and U3/V3/W3)			Fan output (U4/V4/W4/U5/V5/W5)			Protective grounding (PE)		
		Cable (mm^2) <1>	Terminal model	Terminal screw/ torque (N·m)	Cable (mm^2) <1>	Terminal model	Terminal screw/ torque (N·m)	Cable (mm^2) <1>	Terminal model	Terminal screw/ torque (N·m)	Cable (mm^2) <1>	Terminal model	Terminal screw/ torque (N·m)
Three-phase 200 VAC to 240 VAC, 50/60 Hz													
CP700-4T110(S)-H(1)	214	120	TLK 120-12	M12 (70 N·m)	1.5	E1512	N/A	0.75	E7510	N/A	70	TLK 70-8	Main motor: M8/20 N·m Fan: M4/2.9 N·m
CP700-4T132(S)-H(1)	257	150	SQNBS 150-12	M12 (70 N·m)	1.5	E1512	N/A	0.75	E7510	N/A	95	TLK 95-8	Main motor: M8/20 N·m Fan: M4/2.9 N·m
CP700-4T160(S)-H(1)	315	240	SQNBS 250-12	M12 (70 N·m)	1.5	E1512	N/A	0.75	E7510	N/A	120	TLK 120-10	Main motor: M10/40 N·m Fan: M4/2.9 N·m
CP700-4T200(S)-H(1)	384	300	SQNBS 325-12	M12 (70 N·m)	1.5	E1512	N/A	0.75	E7510	N/A	150	TLK 150-10	Main motor: M10/40 N·m Fan: M4/2.9 N·m

< 1> Applicable to standards in China. The value 120 represents one cable with a cross sectional area of 120 mm^2. The value 150 represents one cable with a cross sectional area of 150 mm^2.

The preceding recommended terminals are TLK, SQNBS, and E series terminals from KST.

Note:

1. Observe national or regional regulations during selection. The recommended values in the preceding table are based on the following conditions:

PVC insulation and copper conductor

Heat resistance: maximum cable surface temperature not exceeding 70° C at an ambient temperature of 40° C (Note: When the ambient temperature exceeds 40° C, contact Inovance.)

Cable layout type E (see IEC 60204-1).

2. If conditions vary, select the model according to actual conditions.

Table 2-11 Main power cable selection of CP700-4T110(S)-H(1) to CP700-4T200(S)-H(1) (UL-certified)

Model	Rated input current (A)	Input RST/Main motor output (U1/V1/W1)			Blower output (U2/V2/W2 and U3/V3/W3)			Fan output (U4/V4/W4/U5/V5/W5)			Protective grounding (PE)		
		Cable <2>	Terminal model	Terminal screw/torque (N·m)	Cable <2>	Terminal model	Terminal screw/torque (N·m)	Cable <2>	Terminal model	Terminal screw/torque (N·m)	Cable <2>	Terminal model	Terminal screw/torque (N·m)
Three-phase 200 VAC to 240 VAC, 50/60 Hz													
CP700-4T110(S)-H(1)	214	300 kcmil	SQNBS 150-12	M12 (70 N·m)	14AWG	E2512	N/A	14AWG	E2512	N/A	3/0AWG	TLK 95-8	Main motor: M8/20 N·m Fan: M4/2.9 N·m
CP700-4T132(S)-H(1)	257	2 × 3/0 AWG	SQNBS 80-12	M12 (70 N·m)	14AWG	E2512	N/A	14AWG	E2512	N/A	3/0AWG	TLK 95-8	Main motor: M8/20 N·m Fan: M4/2.9 N·m
CP700-4T160(S)-H(1)	315	2 × 4/0 AWG	SQNBS 100-12	M12 (70 N·m)	14AWG	E2512	N/A	14AWG	E2512	N/A	4/0AWG	TLK 120-10	Main motor: M10/40 N·m Fan: M4/2.9 N·m
CP700-4T200(S)-H(1)	384	2x300 kcmil	SQNBS 150-12	M12 (70 N·m)	14AWG	E2512	N/A	14AWG	E2512	N/A	300 kcmil	TLK 150-10	Main motor: M10/40 N·m Fan: M4/2.9 N·m

<2> Applicable to AWG cables. 300 represents 300AWG, 2x3/0 represents two 000AWG cables, and 2x300 represents two 300 kcmil cables.

The preceding recommended terminals are TLK, SQNBS, and E series terminals from KST.

Note:

1. Observe national or regional regulations during selection. The recommended values in the preceding table are based on the following conditions:
   PVC insulation and copper conductor
   Heat resistance: maximum cable surface temperature not exceeding 75° C at an ambient temperature of 40° C (Note: When the ambient temperature exceeds 40° C, contact Inovance.)
   Cable layout type E (see IEC 60204-1).
2. The recommended cables must meet requirements for 125% overload.
3. If the conditions vary, select the cable model according to actual conditions.

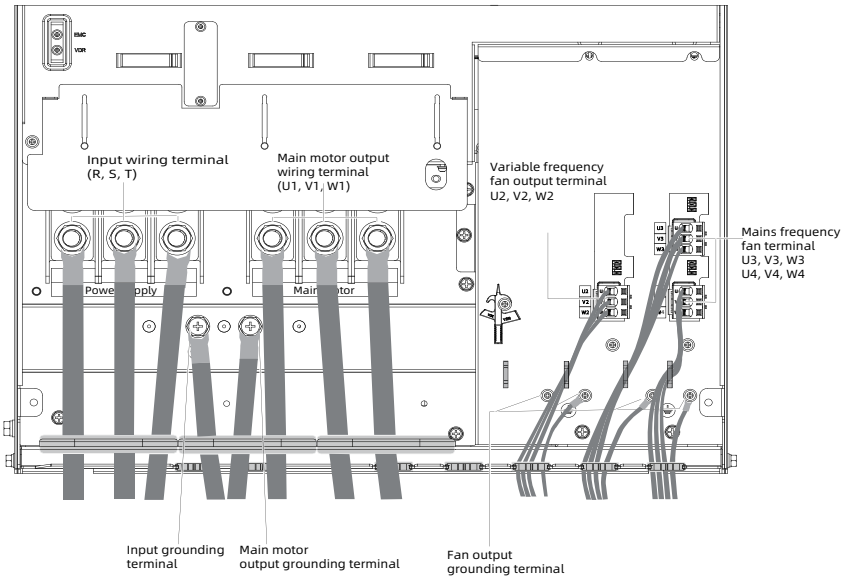


Figure 2-30 Main power cable wiring of CP700-4T110-H-7.5 to CP700-4T200-H-7.5

Table 2-12 Main power cable selection of CP700-4T110-H-7.5 to CP700-4T200-H-7.5 models

Model	Rated input current (A)	Input RST/Main motor output (U1/V1/W1)			Fan output (U2/V2/W2)			Fan output (U3/V3/W3/U4/V4/W4)			Protective grounding (PE)		
		Cable (mm^2) <1>	Terminal model	Terminal screw/ torque (N·m)	Cable (mm^2) <1>	Terminal model	Terminal screw/ torque (N·m)	Cable (mm^2) <1>	Terminal model	Terminal screw/ torque (N·m)	Cable (mm^2) <1>	Terminal model	Terminal screw/ torque (N·m)
Three-phase 200 VAC to 240 VAC, 50/60 Hz													
CP700-4T110-H-7.5	214	120	TLK 120-12	M12 (70 N·m)	2.5	E2512	N/A	0.75	E7510	N/A	70	TLK 70-8	Main motor: M8/20 N·m Fan: M4/2.9 N·m
CP700-4T132-H-7.5	257	150	SQNBS 150-12	M12 (70 N·m)	2.5	E2512	N/A	0.75	E7510	N/A	95	TLK 95-8	Main motor: M8/20 N·m Fan: M4/2.9 N·m
CP700-4T160-H-7.5	315	240	SQNBS 250-12	M12 (70 N·m)	2.5	E2512	N/A	0.75	E7510	N/A	120	TLK 120-10	Main motor: M10/40 N·m Fan: M4/2.9 N·m

Model	Rated input current (A)	Input RST/Main motor output (U1/V1/W1)			Fan output (U2/V2/W2)			Fan output (U3/V3/W3/U4/V4/W4)			Protective grounding (PE)		
		Cable (mm^2) <1>	Terminal model	Terminal screw/ torque (N·m)	Cable (mm^2) <1>	Terminal model	Terminal screw/ torque (N·m)	Cable (mm^2) <1>	Terminal model	Terminal screw/ torque (N·m)	Cable (mm^2) <1>	Terminal model	Terminal screw/ torque (N·m)
CP700-4T200-H-7.5	384	300	SQNBS 325-12	M12 (70 N·m)	2.5	E2512	N/A	0.75	E7510	N/A	150	TLK 150-10	Main motor: M10/40 N·m Fan: M4/2.9 N·m

< 1> Applicable to standards in China. The value 120 represents one cable with a cross sectional area of 120 mm^2. The value 150 represents one cable with a cross sectional area of 150 mm^2.

The preceding recommended terminals are TLK, SQNBS, and E series terminals from KST.

Note:

1. Observe national or regional regulations during selection. The recommended values in the preceding table are based on the following conditions:

PVC insulation and copper conductor

Heat resistance: maximum cable surface temperature not exceeding 70° C at an ambient temperature of 40° C (Note: When the ambient temperature exceeds 40° C, contact Inovance.)

Cable layout type E (see IEC 60204-1).

2. If conditions vary, select the model according to actual conditions.

Table 2-13 Main power cable selection of CP700-4T110-H-7.5 to CP700-4T200-H-7.5 (UL-certified)

Model	Rated input current (A)	Input RST/Main motor output (U1/V1/W1)			Fan output (U2/V2/W2)			Fan output (U3/V3/W3/U4/V4/W4)			Protective grounding (PE)		
		Cable <2>	Terminal model	Terminal screw/ torque (N·m)	Cable <2>	Terminal model	Terminal screw/ torque (N·m)	Cable <2>	Terminal model	Terminal screw/ torque (N·m)	Cable <2>	Terminal model	Terminal screw/ torque (N·m)
Three-phase 200 VAC to 240 VAC, 50/60 Hz													
CP700-4T110-H-7.5	214	300 kcmil	SQNBS 150-12	M12 (70 N·m)	10AWG	E6012	N/A	14AWG	E2512	N/A	3/0AWG	TLK 95-8	Main motor: M8/20 N·m Fan: M4/2.9 N·m
CP700-4T132-H-7.5	257	2x 3/0AWG	SQNBS 80-12	M12 (70 N·m)	10AWG	E6012	N/A	14AWG	E2512	N/A	3/0AWG	TLK 95-8	Main motor: M8/20 N·m Fan: M4/2.9 N·m
CP700-4T160-H-7.5	315	2x 4/0AWG	SQNBS 100-12	M12 (70 N·m)	10AWG	E6012	N/A	14AWG	E2512	N/A	4/0AWG	TLK 120-10	Main motor: M10/40 N·m Fan: M4/2.9 N·m
CP700-4T200-H-7.5	384	2x300 kcmil	SQNBS 150-12	M12 (70 N·m)	10AWG	E6012	N/A	14AWG	E2512	N/A	300 kcmil	TLK 150-10	Main motor: M10/40 N·m Fan: M4/2.9 N·m

<2> Applicable to AWG cables. 300 represents 300AWG, 2x3/0 represents two 000AWG cables, and 2x300 represents two 300 kcmil cables.

The preceding recommended terminals are TLK, SQNBS, and E series terminals from KST.

Note:

1. Observe national or regional regulations during selection. The recommended values in the preceding table are based on the following conditions:

PVC insulation and copper conductor

Heat resistance: maximum cable surface temperature not exceeding 75° C at an ambient temperature of 40° C (Note: When the ambient temperature exceeds 40° C, contact Inovance.)

Cable layout type E (see IEC 60204-1).

2. The recommended cables must meet requirements for 125% overload.

3. If the conditions vary, select the cable model according to actual conditions.

Terminal

The preceding recommended terminals are TLK series terminals from KST. RNB series and SQNBS series

Table 2-14 Models and dimensions of the TLK series terminals (unit: mm)

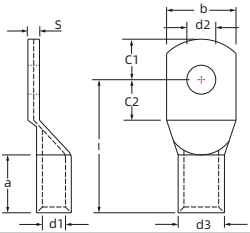
Model	S	a	b	C1	C2	d1	d2	d3	l
									
TLK2.5-4	1.25	6.0	7.5	4.0	5.0	2.3	4.3	4.2	13.0
TLK4-4	-	8.0	8.5	4.7	5.5	3.0	4.3	5.0	17.0
TLK4-5	-	8.0	9.0	4.7	6.0	3.0	5.3	5.0	17.0
TLK6-4	2.4	9.0	10.0	5.0	7.5	3.5	4.3	6.5	20.0
TLK6-5	2.4	9.0	10.0	6.5	7.5	3.5	5.5	6.5	21.0
TLK6-10	1.3	9.0	17.0	12.0	12.0	12.0	3.5	10.5	6.5
TLK10-4	1.8	10.0	12.0	7.5	7.5	4.6	4.3	7.0	21.0
TLK10-5	1.8	10	12	6.5	7.5	4.6	5.5	7.0	22.0
TLK10-6	1.8	10.0	12.0	6.5	7.5	4.6	6.4	7.0	22.0
TLK16-5	2.8	13	12	5.5	6.5	5.5	5.5	8.5	26
TLK16-6	2.8	13	12	6.25	7.5	5.5	6.5	8.5	27
TLK25-5	2.8	15.0	14.0	7.5	7.5	7.0	5.5	10.0	30.0
TLK25-6	2.8	15.0	14.0	7.5	7.5	7.0	6.4	10.0	30.0
TLK35-6	3.2	17.0	17.0	7.5	7.5	8.5	6.4	12.0	32.0
TLK35-8				10	10		8.4		34.0
TLK50-8	3.7	19.0	20.0	10	10	10	8.4	14	37.0
TLK70-8	4.3	21.0	23.0	10	10	12	8.4	16.5	43.0
TLK70-12	4.3	21.0	23.0	13.0	13.0	12.0	13.0	16.5	46.0
TLK95-8	4.2	25.0	26.0	12	12	13.5	8.4	18	48
TLK95-12	4.2	25.0	26.0	13.0	13.0	13.5	13.0	18.0	49.0
TLK120-10	4.3	26.0	28.0	14.0	14.0	15.0	10.5	19.5	51.0
TLK120-12	4.3	26.0	28.0	14.0	14.0	15.0	13.0	19.5	51.0
TLK150-10	4.3	30.0	31.0	14.0	14.0	16.5	10.5	21.0	56.0

Table 2-15 Appearances, models, and dimensions of the RNBL series terminals (unit: mm)

Model	d2	W	F	L	E	D	d1	T
RNBL2-4	4.3	8.5	7.4	16.5	4.8	4.1	2.3	0.8
RNBL5-4	4.3	9.5	8.3	19.0	6.0	5.6	3.4	1.0

Table 2-16 Appearances, models, and dimensions of the SQNBS series terminals (unit: mm)

Model	d2	W	F	L	E	D	d1	T
SQNBS80-12	13	21.8	20	49	19	19.5	14.5	2.3
SQNBS100-12	13.0	21.8	21.0	53.0	20.0	22.3	16.4	2.7
SQNBS150-12	13.0	22.0	22.3	61.0	26.5	26.5	19.5	3.2

2.6.2 Control Cable

Route control cables and main power cables through different routes, and bind the cables with cable ties near the terminals to ensure the connection is tight and reliable.

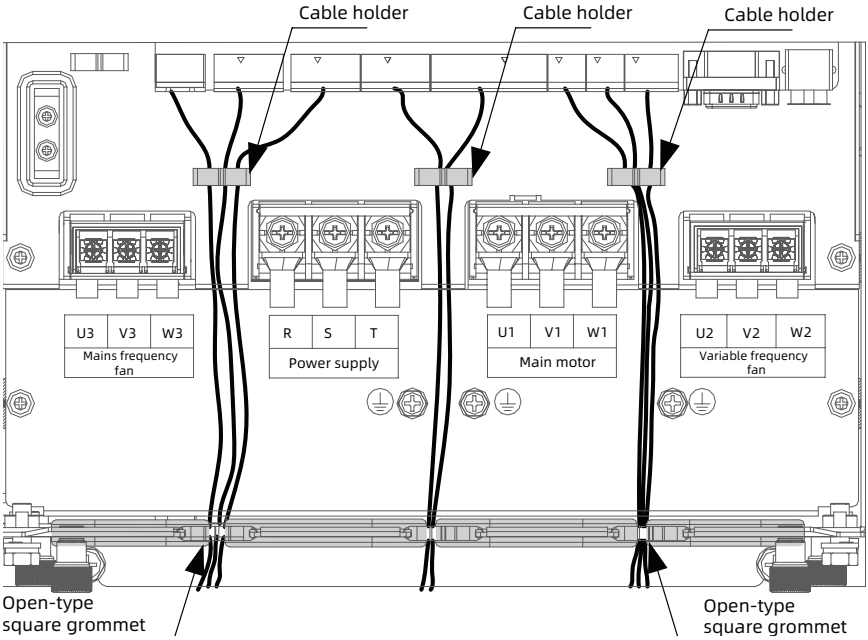


Figure 2-31 Control cable routing of CP700-2T7.5-H~CP700-2T45-H, CP700-4T5.5-H~CP700-4T90(S)-H(1), and CP701-4T18.5(S)-H(1) to CP701-4T90(S)-H(1)

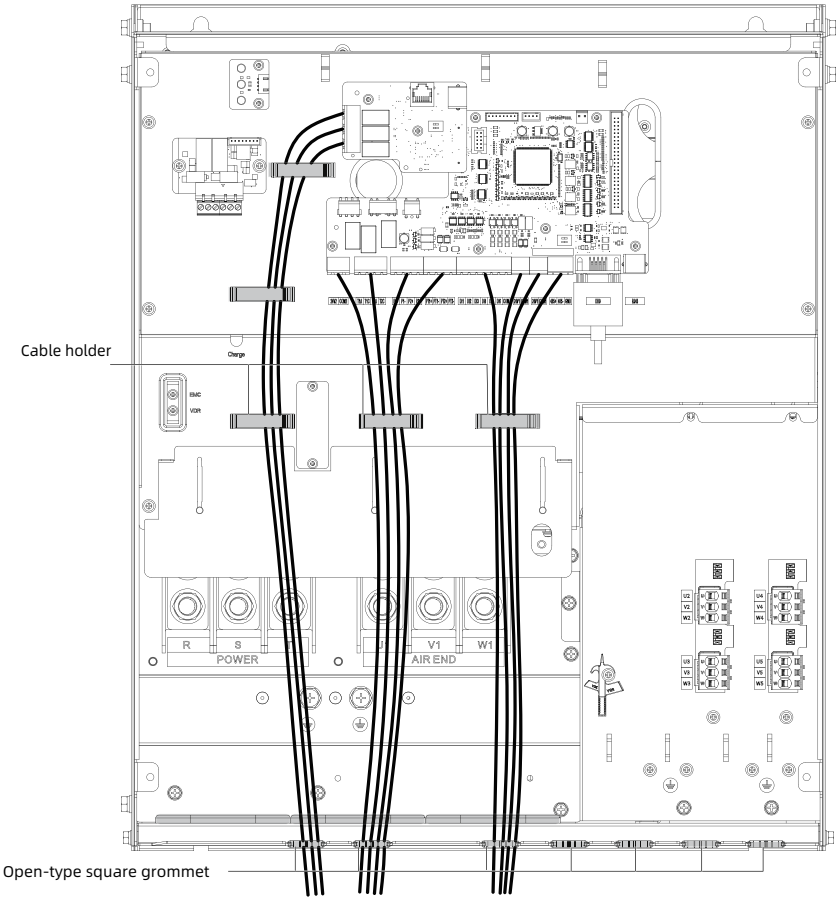


Figure 2-32 Control cable routing for CP700-4T110(S)-H(1) to CP700-4T200(S)-H(1) and CP700-4T110-H-7.5 to CP700-4T200-H-7.5

2.7 Post-wiring Inspection

After the wiring is completed, check the items in the following checklist one by one and put a tick for compliance.

Table 2-17 Wiring checklist

Item	Item	Compliance
1	Check that the power supply input cables are connected to the R, S, and T terminals.	□
2	The motor input cables are connected to the U, V, and W terminals.	□
3	The cross sectional area of the main circuit cable meets the requirements.	□
4	Heat-shrink tubing is applied to copper tube terminals and conductors of main circuit cables, and completely covers the cable conductors.	□
5	The carrier frequency (F0-15) is reduced if the motor output cable is longer than 50 m.	□
6	The grounding cable is connected properly.	□
7	The output terminals and control signal terminals are securely fastened.	□
8	The braking resistor and braking unit with proper resistance are wired properly.	□
9	The control circuit signal cables are shielded twisted pair cables.	□
10	The optional cards are connected correctly.	□
11	The control circuit cables and main circuit power cables are routed through different routes.	□
12	When wiring multiple motors, ensure the connections are correct and avoid cross-wiring between the motors and the drive. Cross-wring may cause abnormal motor operation.	□

3 Display and Commissioning

3.1 Indicator Description

The CP700 series AC drive for air compressors has three LED indicators, indicating real-time status for power, running, and faults. Indicator positions are shown below.

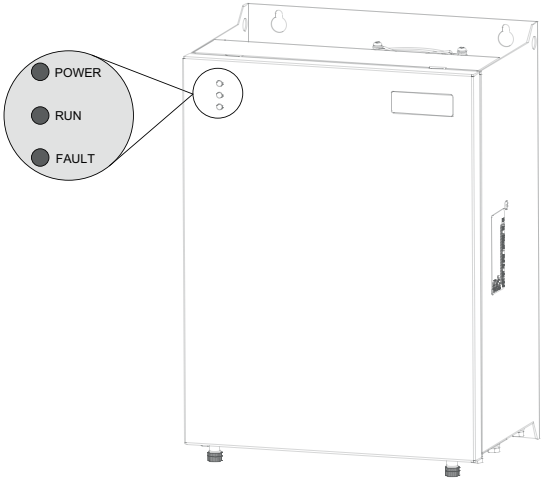


Figure 3-1 Descriptions of indicators

Indicator Status		Description
Power supply indicator (green)	POWER	Off: Power supply disconnected
	POWER	On: Power supply connected
	POWER	Flashing: Faulty
Running state indicator (green)	RUN	Off: shut down
	RUN	ON: Running
Fault indicator (red)	FAULT	Off: Normal
	FAULT	On: Faulty

3.2 Commissioning Procedure

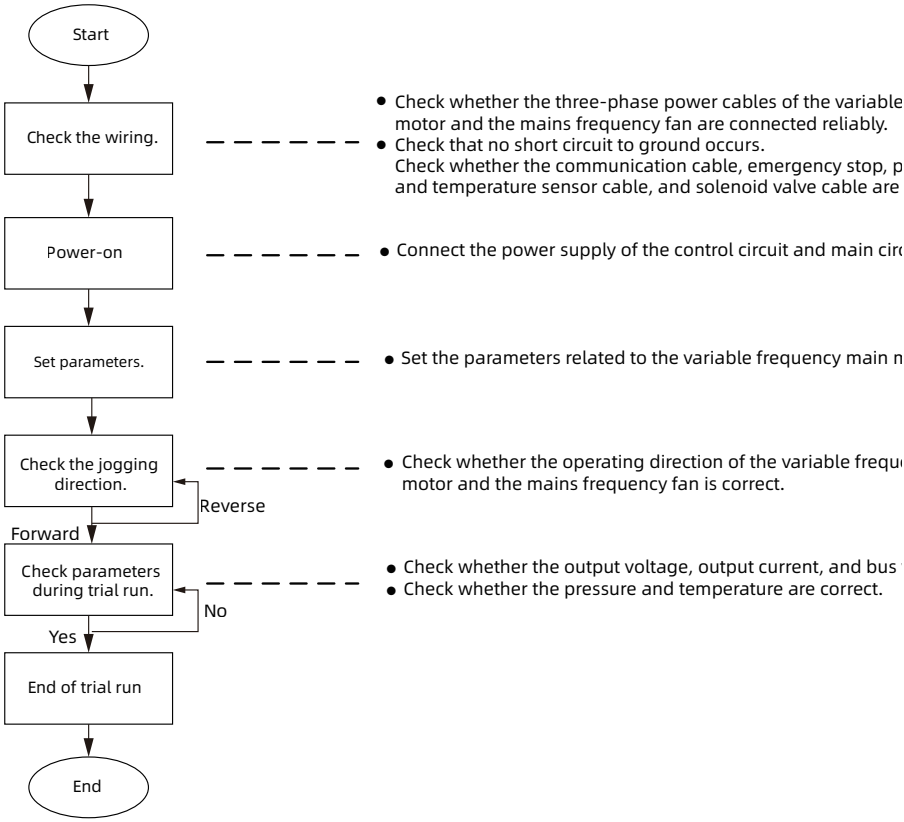


Figure 3-2 Commissioning process of the CP700 series AC drive for air compressors

NOTE

- After re-installing and re-wiring the synchronous motor on the field, perform motor parameter auto-tuning to prevent abnormal motor operation.
- When the synchronous motor carries an ABZ encoder, Z signal must be connected to avoid motor operation errors.

3.3 System Commissioning Case

1) When power is on, HMI display automatically switches to the following page.

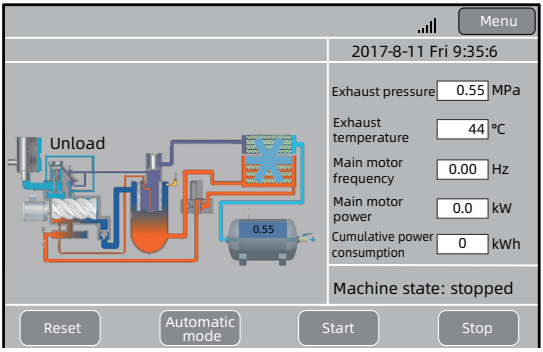


Figure 3-3 HMI main interface (example)

2) Tap "Menu" in the upper right corner of the main interface to access the following figure. Tap "Homepage", "Running data", "User parameters", "Maintenance parameters", "Protection parameters", "AC drive parameters", "Manufacturer parameters", "Timed power-on/off", "Alarm information", and "Manufacturer Information" in sequence to view more details, as shown below.

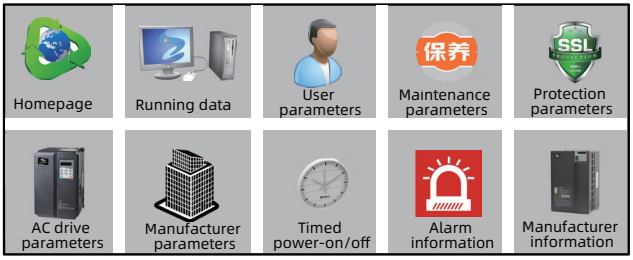


Figure 3-4 Menu selection (example)

3) Tap "User Parameters" to open the "Permission Management" dialog box to set passwords.

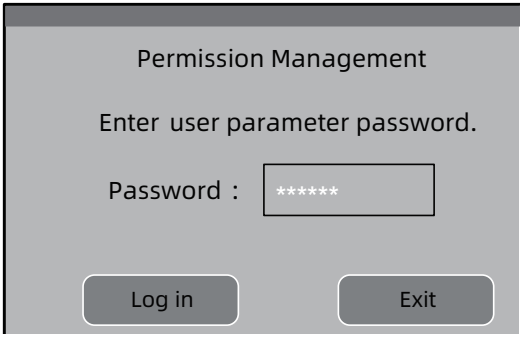


Figure 3-5 Password setting dialog box (example)

Tap the "Password" text box to access the following figure and enter a password.

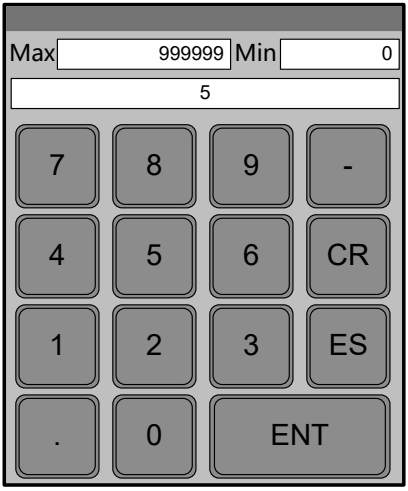


Figure 3-6 Entering a password (example)

NOTE

- After entering a correct password in the preceding figure, tap "ENT" to access Figure 3-7. If an incorrect password is input, tap "CR" and enter the password again.

In the "User Parameters" interface, set parameters related to the main motor and cooling fan, as shown in the figure below.

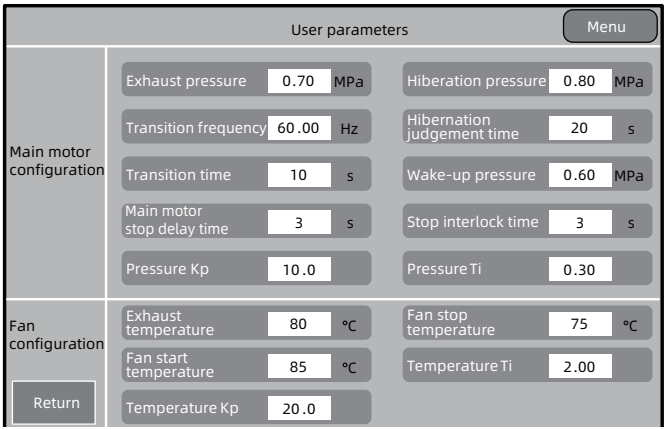


Figure 3-7 User parameter settings (example)

4) Tap "Maintenance Parameters" and "Protection Parameters" in sequence to set parameters related to the air compressor.

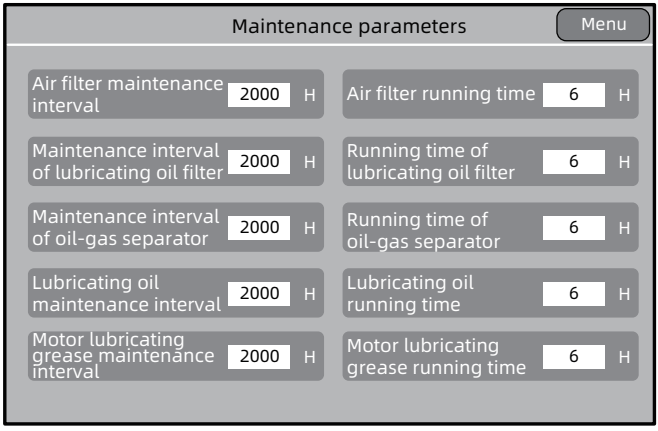


Figure 3-8 Maintenance parameter settings (example)

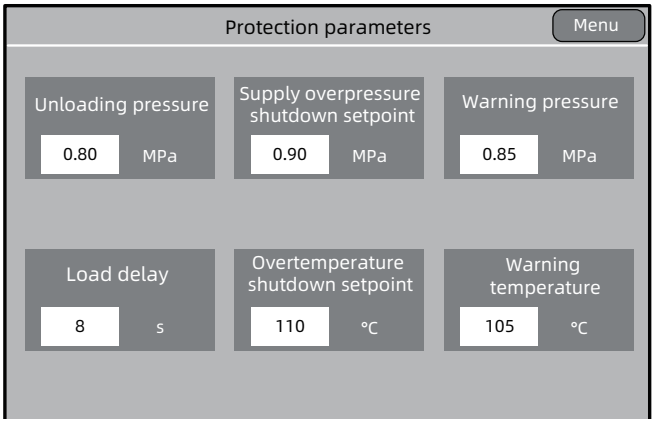


Figure 3-9 Protection parameter settings (example)

5) Tap "AC Drive Parameters" to set parameters related to the AC drive.

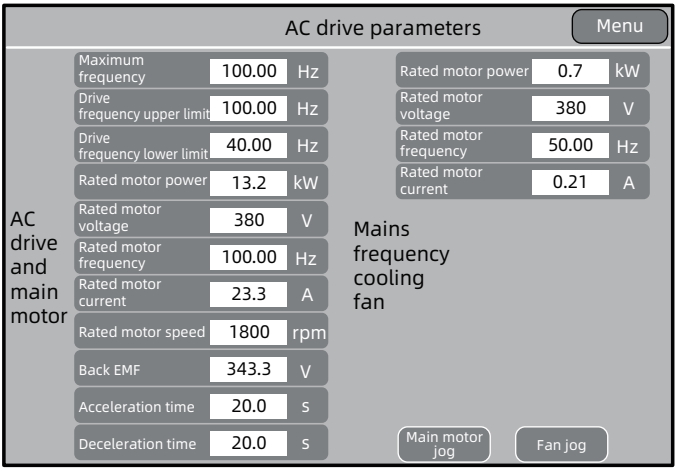


Figure 3-10 AC drive parameter settings (example)

6) Conduct trial running, and tap "Main motor jog" and "Fan jog". Observe the operation direction of the motor (main motor and mains frequency fan). If the motor operates in a wrong direction, disconnect the power supply and change the R/S phase sequence. Then, perform jogging again until the motor operates in a correct direction.

7) Tap "Start" on the "Figure 3-3 HMI main interface (example)" interface to run the air compressor. Check whether operating current and temperature are within normal range, electromagnetic valve status is correct, as well as pressure and

temperature changes are normal.

8) Shutdown the air compressor and complete the debugging.

3.4 SOP-20-CP Operating Panel

3.4.1 Overview

The SOP-20-CP intelligent operating panel is a new generation of commissioning assistant of Inovance that supports HE and MD880 series products.

SOP-20-CP has a wide power supply range and LCD display. It supports multiple buses and applies to the single-drive/multi-drive system. It provides such functions as parameter setting, state monitoring, fault analysis, program download, and USB relay.

NOTE

- The SOP-20-CP operating panel is optional.
- The operating panel and communication modes cannot be used simultaneously.
- The SOP-20-CP operating panel does not support SD card or CAN communication.

3.4.2 Dimensions

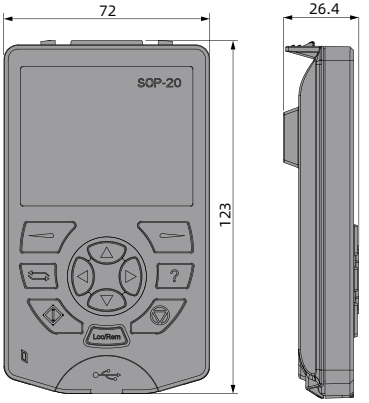


Figure 3-11 Dimensions of the SOP-20-CP (mm)

3.4.3 Components

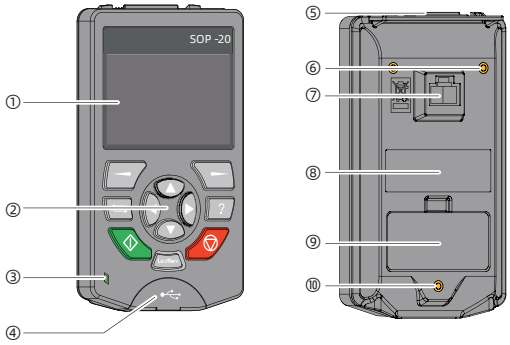
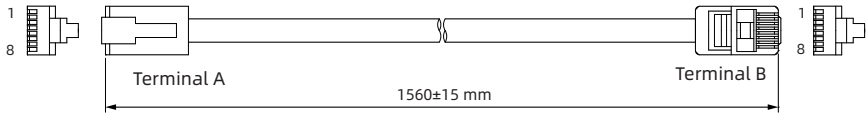


Figure 3-12 Components of SOP-20-CP

Table 3-18 Interface description

No.	Name	Description
①	Display	-
②	Key	-
③	Status indicator	-
④	USB port	It is used to connect the SOP-20-CP to a PC with a USB cable for data exchange. Once connected to a PC, the SOP-20-CP can work in the relay mode as a PC tool for data communication with the drive. It can also operate in the mass storage mode, allowing the PC to perform operations on the files stored on its SD card.
⑤	Snap-fit joint	The snap-fit joint on the top is used to fix the SOP-20-CP to the base.
⑥	Fixing screw	The SOP-20-CP rated at IP20 can be installed on the cabinet door by using an installation kit. When the system protection class is high (IP54), you may select the installation kit with a higher protection class (SOP-20-CP with the installation kit protected by IP54), and then fix the panel with the fastening screws.
⑦	RJ45 interface	It is used to connect the SOP-20-CP to the drive. Mechanical connection is performed through the snap-fit joint on the top.
⑧	Product nameplate	The nameplate displays the product model and serial number.
⑨	Battery cover	The battery and SD card slot are beneath the cover. The battery provides power to the real-time clock. The SD card saves factory parameters and real-time data of the drive, which helps in fault diagnosis and analysis. The SD card can also be used to save user programs, update firmware, and burn the device programs.
⑩	Fixing screw	-



8P8C RJ45 connector (terminal A)	1	2	3	4	5	6	7	8
8P8C RJ45 connector (terminal B)	1	2	3	4	5	6	7	8

Figure 3-13 Cable for connecting the external operating panel

3.4.4 Introduction to the Interface

SOP-20-CP adopts the monocolour LCD with white backlight and a resolution of 240x160 pixels.

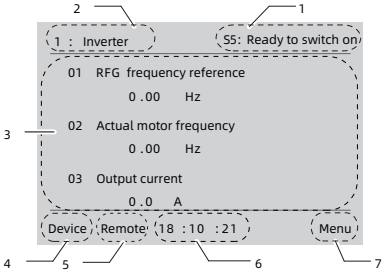


Figure 3-14 Example of the SOP-20-CP interface

Table 3-19 Interface description

No.	Display	Description
①	Device status and fault information	Displays the operating state of current device.
②	Current device information	1: Current device station number; Inverter:Current device name
③	Content	Displays monitored information in real time.
④	Device list	Used to enter the device list of the current network.
⑤	Local/remote	Local: The SOP-20-CP control mode applies. Remote: The SOP-20-CP control mode is unavailable. Blank: This function is not available on the equipment or the equipment is connected improperly.
⑥	Clock	Displays current time.
⑦	Menu	Used to access the function menu options of current device.

3.4.5 Introduction to Keys

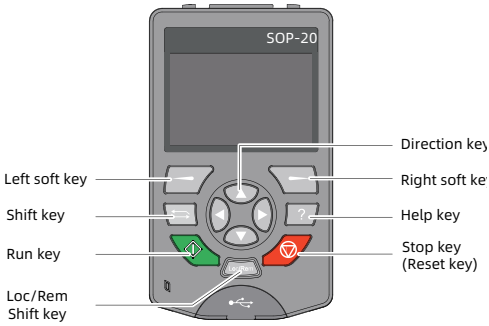


Figure 3-15 Position of the keys

Table 3-20 Name and function

Key	Name	Function
	Left soft key	Used for exit or cancellation.
	Right soft key	Used for selection or acknowledgement.
	Shift key	Used to quickly enter the device selection page. On some interfaces where operations cannot be interrupted, the quick device switchover function is disabled and this key is inactive.
	Help key	Used to open the help page. The help page depends on the context, which is related to the menu or view.
	Run key	Used to start the equipment in the local control mode.
	Stop key	Used to stop the equipment in the local control mode. When the device is in the fault state, use this key to reset the fault.
	Loc/Rem Shift key	Used to switch between the local SOP-20-CP control and remote control.
	Direction keys	The up and down keys are used to select options in a displayed menu and list, scroll up and down a text page, and adjust a value (such as setting time, entering a password, or changing a parameter value). The left and right keys are used to move the cursor left and right.

Table 3-21 Description of the shortcut keys

Shortcut	Available in	Function
Left+Up	Any view	Adjusts the backlight brightness.
Left+Down		
Right+Up	Any view	Adjusts the contrast.
Right+Down		
Left+Help	Parameter list view	Adds the parameter where the cursor is directed at to the shortcut interface.
Right+Help	Parameter list view	Adds the parameter where the cursor is directed at to the boot screen.
Left+Help	Shortcut view	Deletes the parameter from the shortcut commissioning interface.
Right+Help	Shortcut view	Deletes all the parameters from the shortcut interface.
Left+Help	Boot screen view	Deletes the parameter from the boot screen.
Right+Help	Boot screen view	Clears all parameters in the boot screen.

3.4.6 Status Indicators

The status indicator on the SOP-20-CP is used to indicate whether a fault or alarm exists.

Table 3-22 Indicator status descriptions

Symptom	Demonstration	Meaning
Steady green		The equipment is running properly.
Flashing green		The data is being transferred between the SOP-20-CP and the PC connected by USB cable.
Steady red		Communication between the SOP-20-CP and the device is normal, but the device is faulty.
Flashing red		Communication between the SOP-20-CP and the device is interrupted.

3.4.7 Connection Between SOP-20-CP and PC

The mini-B type USB connector of the SOP-20-CP is to connect the PC, the USB cable length cannot exceed 3 m. The USB 2.0 communication protocol is used between the SOP-20-CP and the PC.

① Open the cover at the USB connection terminal.

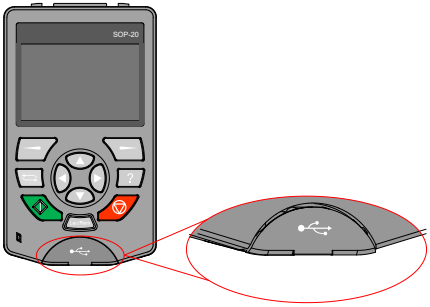


Figure 3-16 Connecting the SOP-20-CP to the PC (step 1)

② Plug in the USB cable and connect the cable to the PC. It is recommended to use cables with ferrite rings.

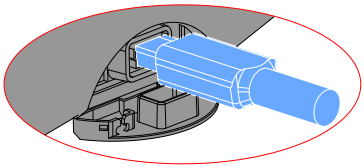


Figure 3-17 Connecting SOP-20-CP to PC (step 2)

NOTE

USB relay mode and USB mass storage mode are available when the USB cable is connected to PC.

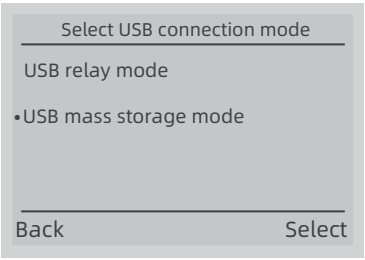


Figure 3-18 Display of the SOP-20-CP after being connected to the PC

In the USB relay mode, the SOP-20-CP is used for interaction between the PC tool and the drive.

After selecting the USB mass storage mode, the SOP-20-CP can be used as a memory.

4 Troubleshooting

4.1 Fault List

Fault code	Fault name	Fault description	Fault severity level range	Default fault severity level	Resettable
E01.01	Current detection circuit fault	Current zero drift detection error	0: Coast to stop	0: Coast to stop	Supported
		Possible cause	Verification method	Solution	
		The current sampling circuit of the drive is abnormal.	Check whether the values of channels 18, 19, and 20 are normal through the software tool.	Check whether the main circuit is powered on. If the Hall sensor or current sampling circuit is damaged, contact the manufacturer.	
Fault code	Fault name	Fault description	Fault severity level range	Default fault severity level	Resettable
E01.02	External device fault	The pre-charge contactor is considered to be faulty when abnormal signals are detected for 1s continuously based on hardware contactor exception signal detection.	0: Coast to stop	0: Coast to stop	Supported
		Possible cause	Verification method	Solution	
		The driver board and power supply are abnormal.	Check whether the input grid voltage is normal. The input voltage of the three-phase 380 V model ranges from 342 VAC to 418 VAC.	Contact the agent or Inovance.	
		The contactor is abnormal.	Contact the agent or Inovance.	Contact the agent or Inovance.	
		The lightning protection board is abnormal.	Contact the agent or Inovance.	Contact the agent or Inovance.	
Fault code	Fault name	Fault description	Fault severity level range	Default fault severity level	Resettable
E01.05	Product model setting error	The set product model does not match the hardware.	0: Coast to stop	0: Coast to stop	Supported
		Possible cause	Verification method	Solution	
		The set product model does not match the hardware.	Check whether the FF-01 matches the hardware model.	Check whether the model is set improperly.	
Fault code	Fault name	Fault description	Fault severity level range	Default fault severity level	Resettable

E01.06	STO model setting error	Product hardware does not support STO.	0: Coast to stop	0: Coast to stop	Supported
		Possible cause	Verification method	Solution	
		Product hardware does not support STO.	The STO function is not supported.	Check whether the drive supports the STO function. If the model does not support the STO function, contact Inovance.	
Fault code	Fault name	Fault description	Fault severity level range	Default fault severity level	Resettable
E02.00	Overcurrent during acceleration	This fault occurs when the transient current outputted exceeds 1.8 x 1.414 x rated current of the drive during acceleration.	0: Coast to stop	0: Coast to stop	Supported
		Possible cause	Verification method	Solution	
		The output circuit of the drive is grounded or short-circuited.	Check whether three-phase output grounding points are available. Detect the impedance to ground with a megger.	Check whether short circuit occurs on the motor or relay contactor.	
		The control mode is FVC or SVC but parameter auto-tuning is not performed.	Check whether parameter auto-tuning has been performed. Set F1-37 to select the auto-tuning method based on the motor type.	Set the motor parameters according to the motor nameplate and perform auto-tuning on motor parameters.	
		The acceleration time is too short under abrupt acceleration conditions.	Check whether the acceleration/deceleration time is appropriate. Increase the acceleration/deceleration time parameters F0-17 and F0-18 to test whether the output current decreases.	Increase the acceleration time (F0-17).	
E02.00	Overcurrent during acceleration	Overcurrent stall suppression parameters are set improperly.	Check whether the V/f overcurrent stall suppression function (F3-19) is enabled and whether the overcurrent stall action current (F3-18) is set properly.	-Ensure that the overcurrent stall suppression function (F3 19) is enabled. If F3-18 (overcurrent stall action current) is set to an excessively high value, change it to a value between 120% and 160%. If F3 20 (overcurrent stall suppression gain) is set to an excessively low value, change it to a value between 20 and 40.-	
		The manual torque boost or the V/f curve is improper.	Check whether the manual torque boost or V/f curve is proper. Reduce the value of F3-01 and check whether the output current decreases.	Adjust the manual torque boost or V/f curve.	

E02.00	Overcurrent during acceleration	A running motor is started.	Check whether the motor is rotating at start. To start a rotating asynchronous motor, set F6-00 to 1.	Enable the flying start function or start the motor after it stops.	
		The drive is subject to external interference.	Check whether the encoder is being disturbed or disconnected in FVC control mode.	View the fault log to check whether the current upon the fault reaches the overcurrent value (F3-18). If not, the fault may be caused by external interference. In this case, find out the external interference source and rectify the fault. If no external interference source is found, the driver board or Hall device may be faulty. Contact the manufacturer to replace them.	
Fault code	Fault name	Fault description	Fault severity level range	Default fault severity level	Resettable
E03.00	Overcurrent during deceleration	This fault occurs when the transient current outputted exceeds 1.8 x 1.414 x rated current of the drive during deceleration.	0: Coast to stop	0: Coast to stop	Supported
		Possible cause	Verification method	Solution	
		The output circuit of the drive is grounded or short-circuited.	Check whether three-phase output grounding points are available. Detect the impedance to ground with a megger.	Check whether short circuit or open circuit occurs on the motor.	
		The control mode is FVC or SVC but parameter auto-tuning is not performed.	Check whether parameter auto-tuning has been performed. Set F1-37 to select the auto-tuning method based on the motor type.	Set the motor parameters according to the motor nameplate and perform auto-tuning on motor parameters.	
		The deceleration time is too short under abrupt deceleration conditions.	Check whether the acceleration/ deceleration time is appropriate. Increase the acceleration/ deceleration time parameters F0-17 and F0-18 to test whether the output current decreases.	Increase the deceleration time (F0-18).	

E03.00	Overcurrent during deceleration	Overcurrent stall suppression parameters are set improperly.	Check whether the V/f overcurrent stall suppression function (F3-19) is enabled and whether the overcurrent stall action current (F3-18) and the overcurrent stall suppression gain (F3-20) are set properly.	-Ensure that the overcurrent stall suppression function (F319) is enabled. If F318 (overcurrent stall action current) is set to an excessively high value, change it to a value between 120% and 150%. If F320 (overcurrent stall suppression gain) is set to an excessively low value, change it to a value between 20 and 40. - -	
		No braking unit or braking resistor is installed.	Check whether the braking unit and braking resistor are installed.	Install the braking unit and braking resistor.	
		The drive is subject to external interference.	Check whether the encoder is being disturbed or disconnected in FVC control mode.	Check whether the fault current reaches the current limit level (F3-18) by viewing the fault log. If not, the fault is possibly caused by external interference. Find out the external interference source and rectify the fault. If no external interference source is found, the driver board or Hall device may be damaged. Contact Inovance for replacement.	
Fault code	Fault name	Fault description	Fault severity level range	Default fault severity level	Resettable
E04.00	Overcurrent during operation at constant speed	This fault occurs when the transient current outputted exceeds 1.8 x 1.414 x rated current of the drive during operation at constant speed.	0: Coast to stop	0: Coast to stop	Supported
		Possible cause	Verification method	Solution	
		The output circuit of the drive is grounded or short-circuited.	Check whether three-phase output grounding points are available. Detect the impedance to ground with a megger.	Check whether short circuit or open circuit occurs on the motor.	
		The control mode is FVC or SVC but parameter auto-tuning is not performed.	Check whether parameter auto-tuning has been performed. Set F1-37 to select the auto-tuning method based on the motor type.	Set the motor parameters according to the motor nameplate and perform auto-tuning on motor parameters.	

E04.00	Overcurrent during operation at constant speed	Overcurrent stall suppression parameters are set improperly.	Check whether the V/f overcurrent stall suppression function (F3-19) is enabled and whether the overcurrent stall action current (F3-18) and the overcurrent stall suppression gain (F3-20) are set properly.	- -Ensure that the overcurrent stall suppression function (F319) is enabled. If F318 (overcurrent stall action current) is set to an excessively high value, change it to a value between 120% and 150%. If F320 (overcurrent stall suppression gain) is set to an excessively low value, change it to a value between 20 and 40. -	
		The power rating of the drive is excessively low.	Check whether the power of the drive is lower than the power of the motor. Check whether the value of FF-03 (Power of the drive) matches the nameplate of the drive.	In the stable operation state, if the operating current exceeds the rated current of the motor or the rated output current of the drive, select a drive with a higher power rating.	
		The drive is subject to external interference.	Check whether the encoder is being disturbed or disconnected in FVC control mode.	View the fault log to check whether the current upon the fault reaches the overcurrent value (F3-18). If not, the fault may be caused by external interference. In this case, find out the external interference source and rectify the fault. If no external interference source is found, the driver board or Hall device may be damaged. Contact Inovance for replacement.	
Fault code	Fault name	Fault description	Fault severity level range	Default fault severity level	Resettable

E05.00	Overvoltage during acceleration	An overvoltage fault is reported when the bus voltage exceeds 820 V during acceleration.	0: Coast to stop	0: Coast to stop	Supported
		Possible cause	Verification method	Solution	
		The input grid voltage is excessively high.	Check whether the input grid voltage is normal. The input voltage of the three-phase 380 V model ranges from 342 VAC to 418 VAC.	Adjust the voltage to a value within the normal range.	
		External force drives the motor during acceleration.	Check whether the external force drives the motor during acceleration.	-Cancel the external force or install a braking resistor. The frequency rise threshold during overvoltage suppression (F3-26) is set too low. The recommended range is 5 Hz to 15 Hz. Adjust this parameter when external force is applied.	
		The overvoltage suppression parameters are set improperly.	Check whether the overvoltage suppression function (F3-23) is enabled and check the overvoltage suppression action voltage.	-Check that the overvoltage suppression function (F3 23) is enabled. If F3-22 (Overvoltage suppression action voltage) is set to an excessively high value, change it to a value between 700 V and 770 V. If F3 24 (Overvoltage suppression gain) is set to an excessively low value, change it to a value between 30 and 50.-	
		No braking unit or braking resistor is installed.	Check whether a braking unit and resistor are required.	Install the braking unit and braking resistor.	
		The acceleration time is too short.	Check whether the acceleration time (F0-17) is too short.	Increase the acceleration time.	
Fault code	Fault name	Fault description	Fault severity level range	Default fault severity level	Resettable

E06.00	Overvoltage during deceleration	During deceleration, the bus voltage exceeds 820 V and an overvoltage fault is reported.	0: Coast to stop	0: Coast to stop	Supported
		Possible cause	Verification method	Solution	
		The overvoltage suppression parameters are set improperly.	Check whether F3-23 (Overvoltage suppression) is enabled. Check whether F3-22 (Overvoltage suppression action voltage) and F3-24 (Overvoltage suppression gain) are set properly.	-Check that the overvoltage suppression function (F3 23) is enabled. If F3-22 (Overvoltage suppression action voltage) is set to an excessively high value, change it to a value between 700 V and 770 V. If F3 24 (Overvoltage suppression gain) is set to an excessively low value, change it to a value between 30 and 50.-	
		An external force drives the motor during deceleration.	Check whether the external force drives the motor during acceleration.	-Cancel the external force or install a braking resistor. The frequency rise threshold during overvoltage suppression (F3-26) is set too low. The recommended range is 5 Hz to 15 Hz. Adjust this parameter when external force is applied.	
		The deceleration time is too short.	Check whether the deceleration time (F0-18) is too short.	Increase the deceleration time.	
		No braking unit or braking resistor is installed.	Check whether a braking unit and resistor are required.	Install the braking unit and braking resistor.	
Fault code	Fault name	Fault description	Fault severity level range	Default fault severity level	Resettable
E07.00	Overvoltage at constant speed	An overvoltage fault is reported when the bus voltage exceeds 820 V during acceleration.	0: Coast to stop	0: Coast to stop	Supported
		Possible cause	Verification method	Solution	
		The overvoltage suppression parameters are set improperly.	Check whether F3-23 (Overvoltage suppression) is enabled. Check whether F3-22 (Overvoltage suppression action voltage) and F3-24 (Overvoltage suppression gain) are set properly.	-Check that the overvoltage suppression function (F3 23) is enabled. If F3-22 (Overvoltage suppression action voltage) is set to an excessively high value, change it to a value between 700 V and 770 V. If F3 24 (Overvoltage suppression frequency gain) is set to an excessively low value, change it to a value between 30 and 50.-	
		An external force drives the motor during operation.	Check whether the external force drives the motor during acceleration.	-Cancel the external force or install a braking resistor. The frequency rise threshold during overvoltage suppression (F3-26) is set too low. The recommended range is 5 Hz to 15 Hz. Adjust this parameter when external force is applied.	
Fault code	Fault name	Fault description	Fault severity level range	Default fault severity level	Resettable

E08.00	Pre-charge resistor fault	The relay is closed repeatedly within a short period of time.	0: Coast to stop	0: Coast to stop	Supported
		Possible cause	Verification method	Solution	
		The input voltage is not within the permissible range, leading to frequent open/close of the contactor.	Capture the input voltage and bus voltage through the software tool and oscilloscope to check whether these two values jumps repeatedly within a short period of time.	Check whether the input voltage and bus voltage are normal.	
Fault code	Fault name	Fault description	Fault severity level range	Default fault severity level	Resettable
E09.00	Undervoltage fault	The bus voltage is lower than the undervoltage threshold set by A5-06 (unit: V).	0: Coast to stop	0: Coast to stop	Supported
		Possible cause	Verification method	Solution	
		Instantaneous power failure occurs.	1. Check whether the input grid voltage or power supply ranges from 342 VAC and 418 VAC. 2. Check whether voltage dip occurs.	Enable the power dip ride through function (F9-59).-	
		The input voltage of the drive is outside the specified range.	Check whether the input grid or power supply is within the normal range of 342 VAC to 418 VAC.	Adjust the voltage to a value within the normal range.	
		The bus voltage is abnormal.	1. Check whether U0-02 (Bus voltage) is about 540 VDC. 2. Measure whether the bus voltage is about 540 VDC with a multimeter.	Contact technical support.	
		The rectifier, driver board, or inverter control board is abnormal.	1. Check whether the effective value of the DC bus voltage is about 1.414 x the effective value of the input voltage. 2. On the basis of step 1, check whether the bus voltage on the AC drive is consistent with that detected by the multimeter.	Contact technical support.	
Fault code	Fault name	Fault description	Fault severity level range	Default fault severity level	Resettable

<table>
<tr><td rowspan="6">E10.00</td><td rowspan="6">AC drive overload</td><td>The drive is considered to be overloaded when the overload time is reached based on the overload curve of the drive.</td><td>0: Coast to stop</td><td>0: Coast to stop</td><td>Supported</td></tr>
<tr><td>Possible cause</td><td>Verification method</td><td colspan="2">Solution</td></tr>
<tr><td>The load is excessive, or the motor is stalled.</td><td>1. Check whether the load (output current) is too heavy during normal operation. 2. When an overload fault occurs, check whether the motor is stalled (the motor does not rotate).</td><td colspan="2">Reduce the load and check the motor and mechanical conditions.</td></tr>
<tr><td>The power rating of the drive is excessively low.</td><td>Check whether the power of the drive is lower than the power of the motor. Check whether the value of FF-03 (Power of the drive) matches the nameplate of the drive.</td><td colspan="2">Replace with a drive of a higher power rating.</td></tr>
<tr><td>The control mode is FVC or SVC but parameter auto-tuning is not performed.</td><td>Set the motor parameters according to the motor nameplate. Check whether the fault is rectified after motor parameter auto-tuning is done.</td><td colspan="2">Set the motor parameters according to the motor nameplate and perform auto-tuning on motor parameters.</td></tr>
<tr><td>The V/f control mode is used.</td><td>The torque boost (F3-01) is set to an excessively high value. Decrease the value of F3-01 by a step value of 1.0% every time or set it to 0 (Automatic torque boost mode) to check whether the fault can be rectified.</td><td colspan="2">Decrease the value of F3-01 (Torque boost) by 1.0% gradually or set F3-01 to 0 (Automatic torque boost).</td></tr>
<tr><td>Fault code</td><td>Fault name</td><td>Fault description</td><td>Fault severity level range</td><td>Default fault severity level</td><td>Resettable</td></tr>
</table>

E11.00	Motor overload	The motor is considered to be overloaded when the overload time is met based on the motor overload curve.	0: Coast to stop 1: Decelerate to stop 4: Alarm 5: Cancel	0: Coast to stop	Supported
		Possible cause	Verification method	Solution	
		F9-01 (motor overload protection gain) is set improperly.-	Set F9-01 (Motor overload protection gain) to a value lower than 1.0. The default value is 1.0.	Set F9-01 properly. Increasing the value of F9-01 prolongs the motor overload time.-	
		The load is excessive, or the motor is stalled.	Check whether the average value of the output current (U0-04) in steady state is greater than 1.15 x rated motor current, and the duration reaches the design time of the motor overload curve.	Reduce the load or check motor and mechanical conditions.	
Fault code	Fault name	Fault description	Fault severity level range	Default fault severity level	Resettable
E12.00	Input phase loss	Check the input voltage and determine whether the deviation between the input voltage is greater than 30 V.	0: Coast to stop 1: Decelerate to stop 4: Alarm 5: Cancel	0: Coast to stop	Supported
		Possible cause	Verification method	Solution	
		The input voltage or input cable is abnormal.	Use a multimeter or oscilloscope to measure the input voltage.	Replace the power supply or cable.	
Fault code	Fault name	Fault description	Fault severity level range	Default fault severity level	Resettable

<table>
<tr><td rowspan="6">E13.00</td><td rowspan="6">Output phase loss</td><td>The average value of three-output current is detected when the operating frequency is higher than 0.8 Hz. When the ratio of the maximum phase output current to the minimum phase output current is larger than 10, phase loss occurs on the phase with the smallest current.</td><td>0: Coast to stop
1: Decelerate to stop
4: Alarm
5: Cancel</td><td>0: Coast to stop</td><td>Supported</td></tr>
<tr><td>Possible cause</td><td>Verification method</td><td colspan="2">Solution</td></tr>
<tr><td>The motor is faulty.</td><td>Check whether open circuit occurs on U/V/W phase of the motor.</td><td colspan="2">Check whether open circuit occurs on the motor.</td></tr>
<tr><td>The drain wire between the drive and the motor is abnormal.</td><td>Check whether the drain wire between the drive output end and the motor end is proper.</td><td colspan="2">Rectify the peripheral faults.</td></tr>
<tr><td>The three-phase outputs of the AC drive are unbalanced during motor running.</td><td>Check whether the effective values of the three-phase output current of the drive are consistent.</td><td colspan="2">Check whether the motor three-phase winding is normal. If not, rectify the fault.</td></tr>
<tr><td>The driver board or IGBT module is faulty.</td><td>If the fault persists after preceding causes are rectified, the driver board and IGBT module are abnormal.</td><td colspan="2">Contact technical support.</td></tr>
<tr><td>Fault code</td><td>Fault name</td><td>Fault description</td><td>Fault severity level range</td><td>Default fault severity level</td><td>Resettable</td></tr>
</table>

E14.00	AC drive overtemperature	The module temperature exceeds the overtemperature threshold, leading to a drive overtemperature fault.	0: Coast to stop	0: Coast to stop	No
		Possible cause	Verification method	Solution	
		The ambient temperature is excessively high.	Check whether the ambient temperature exceeds 40℃ .	Lower down the ambient temperature.	
		The air duct is blocked.	Check whether the air duct is blocked.	Clean the air duct.	
		The fan is damaged.	Check whether the fan stops running.	Replace the fan.	
		The thermistor of module is damaged.	Stop the drive for more than 1 h and check whether the temperature increases or stays unchanged.	Contact technical support.	
		The module is damaged.	Contact technical support.	Contact technical support.	
Fault code	Fault name	Fault description	Fault severity level range	Default fault severity level	Resettable
E15.01	External device fault (NO)	The DI terminal should be normally open, but it is detected to be closed. In this case, the drive reports the fault.	0: Coast to stop 1: Decelerate to stop 4: Alarm 5: Cancel	0: Coast to stop	Supported
		Possible cause	Verification method	Solution	
		An external fault signal is input through the DI (NO).	Check the parameter of the DI terminal (group F4) to see which DI is assigned with function 11, and check whether the corresponding physical DI is closed.	Eliminate external faults and ensure that restart (F8-18) is allowed under the mechanical condition for reset.-	
		An external fault signal is input through virtual I/O (NO).	Check the parameter of the VDI terminal (group A1) to see which VDI is assigned with function 11, and check whether the corresponding physical VDI is closed.	Confirm that the virtual I/O parameters in group A1 are set correctly, and then perform a reset operation.	
Fault code	Fault name	Fault description	Fault severity level range	Default fault severity level	Resettable

E15.02	External device fault (NC)	The DI terminal should be normally closed, but it is detected to be open. In this case, the drive reports a fault.	0: Coast to stop 1: Decelerate to stop 4: Alarm 5: Cancel	1: Decelerate to stop	Supported
		Possible cause	Verification method	Solution	
		An external fault signal is input through the NC DI.	Check the parameter of the DI terminal (group F4) to see which DI is assigned with function 33, and check whether the corresponding physical DI is disconnected.	Eliminate external faults and ensure that restart (F8-18) is allowed under the mechanical condition for reset.-	
		An external fault is input through virtual I/O (NC).	Check the VDI parameters in group A1 to see which VDI is assigned with function 33, and check whether the corresponding physical VDI is disconnected.	Confirm that the virtual I/O parameters in group A1 are set correctly, and then perform a reset operation.	
Fault code	Fault name	Fault description	Fault severity level range	Default fault severity level	Resettable
E16.01	Modbus communication timeout	No data is received after communication is established.	0: Coast to stop 1: Decelerate to stop 4: Alarm 5: Cancel	0: Coast to stop	Supported
		Possible cause	Verification method	Solution	
		Modbus communication timeout	1. Check whether the RS485 communication cable is correctly connected. 2. Check whether Fd-04 (Communication timeout) is proper (Fd-04 = 2 x Number of sent bytes x 10/(1/Fd-00)).	Check that RS485 communication cable is connected properly. Check that Fd-04 and PLC communication cycle are set properly.-	
Fault code	Fault name	Fault description	Fault severity level range	Default fault severity level	Resettable

<table>
<tr><td rowspan="4">E16.11</td><td rowspan="4">CANopen communication timeout</td><td>No data is received after communication is established.</td><td>0: Coast to stop
1: Decelerate to stop
4: Alarm
5: Cancel</td><td>0: Coast to stop</td><td>Supported</td></tr>
<tr><td>Possible cause</td><td>Verification method</td><td colspan="2">Solution</td></tr>
<tr><td>CANopen communication timeout</td><td>1. Check whether the CAN communication cable is correctly connected. 2. Check whether the master is operating normally. 3. Check whether the values of FD-15 to FD-17 keep increasing. If yes, it indicates interference exists.</td><td colspan="2">In this case, check whether the CAN communication cable is connected properly.

View Fd-15 to Fd-17 to check for interference.-</td></tr>
<tr><td></td></tr>
<tr><td>Fault code</td><td>Fault name</td><td>Fault description</td><td>Fault severity level range</td><td>Default fault severity level</td><td>Resettable</td></tr>
<tr><td rowspan="4">E16.12</td><td rowspan="4">Inconsistence between PDO mapping configured by CANopen and actual communication mapping</td><td>The PDO configuration information does not match the setting of the drive parameter.</td><td>0: Coast to stop
1: Decelerate to stop
4: Alarm
5: Cancel</td><td>0: Coast to stop</td><td>Supported</td></tr>
<tr><td>Possible cause</td><td>Verification method</td><td colspan="2">Solution</td></tr>
<tr><td>The PDO mapping configured for CANopen is not consistent with the actual communication mapping.</td><td>1. Check whether the version of the communication configuration file (.eds format) is correct. 2. The parameters in group AF are consistent with the description in the eds file.</td><td colspan="2">Check the PDO mapping in group AF.</td></tr>
<tr><td></td></tr>
<tr><td>Fault code</td><td>Fault name</td><td>Fault description</td><td>Fault severity level range</td><td>Default fault severity level</td><td>Resettable</td></tr>
</table>

E16.13	Timeout of inverter in receiving interaction data from rectifier	This fault is reported when rectifier data is not received 3s after power-on.	0: Coast to stop 1: Decelerate to stop 4: Alarm 5: Cancel	0: Coast to stop	Supported
		Possible cause	Verification method	Solution	
		Timeout of inverter in receiving interaction data from rectifier	Check whether the inverter receives the rectifier data within 3.2s.	Check whether the rectifier operates normally. Check whether the network cables of the rectifier and inverter are connected. Check whether the termination resistor is connected properly. View Fd-12 to check whether the CAN baud rate is consistent.	
Fault code	Fault name	Fault description	Fault severity level range	Default fault severity level	Resettable
E16.14	Error in receiving interaction data from rectifier by inverter	A fault can be reported when the data received by the inverter is not from the matching rectifier.	0: Coast to stop 1: Decelerate to stop 4: Alarm 5: Cancel	0: Coast to stop	Supported
		Possible cause	Verification method	Solution	
		Error in receiving interaction data from rectifier by inverter	Check whether data exchange error occurs for more than 5 times.	The power supply unit is faulty. Eliminate the faults.	
Fault code	Fault name	Fault description	Fault severity level range	Default fault severity level	Resettable
E16.15	Synchronous control communication times out.	A fault is reported when the value of A8-02 is exceeded.	0: Coast to stop 1: Decelerate to stop 4: Alarm 5: Cancel	0: Coast to stop	Supported
		Possible cause	Verification method	Solution	
		Synchronous control communication times out.	1. Check whether the CAN2 communication cable is connected properly. 2. Check whether A8-02 (Synchronous communication timeout time) is set properly.	Check whether the master/slave station number set in group A8 is correct and check whether CAN2 cable is connected properly.	
Fault code	Fault name	Fault description	Fault severity level range	Default fault severity level	Resettable

E16.21	CANlink heartbeat timeout	The heartbeat frame is not received after the CANopen heartbeat configuration is done.	0: Coast to stop 1: Decelerate to stop 4: Alarm 5: Cancel	0: Coast to stop	Supported
		Possible cause	Verification method	Solution	
		CANlink heartbeat times out.	1. Check whether the CAN communication cable is correctly connected. 2. Check whether the master is operating normally. 3. Check whether the values of FD-15 to FD-17 keep increasing. If yes, it indicates interference exists.	In this case, check whether the CAN communication cable is connected properly. View Fd-15 to Fd-17 to check for interference.-	
Fault code	Fault name	Fault description	Fault severity level range	Default fault severity level	Resettable
E16.22	CANlink station number conflict	The same station number exists in the parameter setting.	0: Coast to stop 1: Decelerate to stop 4: Alarm 5: Cancel	0: Coast to stop	Supported
		Possible cause	Verification method	Solution	
		CANlink station No. conflict	Read the value of FD-02 for comparison.	Modify the repeated CAN station numbers by using Fd-13.-	
Fault code	Fault name	Fault description	Fault severity level range	Default fault severity level	Resettable
E16.31	PROFIBUS DP communication timeout	No data is received after communication is established.	0: Coast to stop 1: Decelerate to stop 4: Alarm 5: Cancel	0: Coast to stop	Supported
		Possible cause	Verification method	Solution	
		PROFIBUS DP communication times out (dedicated for PROFIBUS DP-to-CANopen bridge mode).	1. Check whether the DP communication cable is correctly connected. 2. Check whether the master is operating normally.	Check that the DP communication cable is correctly connected.	
Fault code	Fault name	Fault description	Fault severity level range	Default fault severity level	Resettable

E17.05	External pre-charge unit fault	An abnormal signal is detected, indicating a fault in the pre-charge contactor. If hardware contactor error signals are detected continuously for 1s, the pre-charge contactor is considered faulty.	0: Coast to stop 5: Cancel	0: Coast to stop	Supported
		Possible cause	Verification method	Solution	
		The external pre-charge unit is not connected or fails.	Contact Inovance for technical support.	Check whether the external pre-charge unit is a must. If not, set the tens of F9-49 to the default value, which is 5.	
Fault code	Fault name	Fault description	Fault severity level range	Default fault severity level	Resettable
E18.00	Current detection circuit fault	The three-phase current sampling ADC value is detected at stop. If the ADC value is greater than 8% of the rated current of the drive, a fault is reported.	0: Coast to stop 5: Cancel	0: Coast to stop	Supported
		Possible cause	Verification method	Solution	
		Hardware	Contact Inovance for technical support.	Contact Inovance for technical support.	
Fault code	Fault name	Fault description	Fault severity level range	Default fault severity level	Resettable
E19.02	Magnetic pole position angle parameter auto-tuning fault of synchronous motor	During magnetic pole position angle auto-tuning of the synchronous motor, the output current is detected to be low, which may be caused by output phase loss or disconnection of the motor.	0: Coast to stop 4: Alarm 5: Cancel	0: Coast to stop	Supported
		Possible cause	Verification method	Solution	
		Encoder open circuit	1. Check whether the wiring is correct. 2. Check whether the encoder is normal. 3. Check whether the encoder parameters are set correctly.	Connect the encoder properly. Connect the PE cable properly. Connect the power supply of the PG cable properly. Check that the encoder pulses per revolution is consistent with the value of F1-27. Connect the AB signal cables properly. -	
Fault code	Fault name	Fault description	Fault severity level range	Default fault severity level	Resettable

E19.06	Quick stator resistance parameter auto-tuning fault	The stator resistance auto-tuning cannot be done, the motor is not connected or the motor is faulty.	0: Coast to stop 4: Alarm 5: Cancel	0: Coast to stop	Supported
		Possible cause	Verification method	Solution	
		The encoder is faulty.	1. Check whether the wiring is correct. 2. Check whether the encoder is normal. 3. Check whether the encoder parameters are set correctly. 4. Check whether the encoder shield is grounded to the drive end. 5. Check whether the motor enclosure is grounded. 6. Check whether the encoder cable is far away from the power cable or install a magnetic ring to the encoder cable. 7. Select a twisted pair cable with a dense metal mesh shield for the encoder cable. Use the minimum amount of adapter connectors.	Connect the encoder properly. Connect the PE cable properly. Connect the power supply of the PG cable properly. Check that the encoder pulses per revolution is consistent with the value of F1-27. Connect the AB signal cables properly. -	
Fault code	Fault name	Fault description	Fault severity level range	Default fault severity level	Resettable

E19.07	Stator resistance parameter auto-tuning fault	The stator resistance auto-tuning cannot be done, the motor is not connected or the motor is faulty.	0: Coast to stop 4: Alarm 5: Cancel	0: Coast to stop	Supported
		Possible cause	Verification method	Solution	
		The encoder is disconnected.	1. Check whether the wiring is correct. 2. Check whether the encoder is normal. 3. Check whether the encoder parameters are set correctly. 4. Check whether the encoder shield is grounded to the drive end. 5. Check whether the motor enclosure is grounded. 6. Check whether the encoder cable is far away from the power cable or install a magnetic ring to the encoder cable. 7. Select a twisted pair cable with a dense metal mesh shield for the encoder cable. Use the minimum amount of adapter connectors.	Connect the encoder properly. Connect the PE cable properly. Connect the power supply of the PG cable properly. Check that the encoder pulses per revolution is consistent with the value of F1-27. Connect the AB signal cables properly. -	
Fault code	Fault name	Fault description	Fault severity level range	Default fault severity level	Resettable

<table>
<tr><td rowspan="4">E19.08</td><td rowspan="4">Error in ending stator resistance auto-tuning</td><td>The stator resistance auto-tuning cannot be done, the motor is not connected or the motor is faulty.</td><td>0: Coast to stop
4: Alarm
5: Cancel</td><td>0: Coast to stop</td><td>Supported</td></tr>
<tr><td>Possible cause</td><td>Verification method</td><td colspan="2">Solution</td></tr>
<tr><td>An encoder fault occurs during no-load parameter auto-tuning of synchronous motor.</td><td>1. Check whether the wiring is correct. 2. Check whether the encoder is normal. 3. Check whether the encoder parameters are set correctly. 4. Check whether the encoder shield is grounded to the drive end. 5. Check whether the motor enclosure is grounded. 6. Check whether the encoder cable is far away from the power cable or install a magnetic ring to the encoder cable. 7. Select a twisted pair cable with a dense metal mesh shield for the encoder cable. Use the minimum amount of adapter connectors.</td><td colspan="2">Connect the encoder properly.
Connect the PE cable properly.
Connect the power supply of the PG cable properly.
Check that the encoder pulses per revolution is consistent with the value of F1-27.
Connect the AB signal cables properly.
-</td></tr>
<tr><td></td><td></td><td></td><td></td></tr>
<tr><td>Fault code</td><td>Fault name</td><td>Fault description</td><td>Fault severity level range</td><td>Default fault severity level</td><td>Resettable</td></tr>
<tr><td rowspan="4">E19.09</td><td rowspan="4">Auto-tuning on the transient leakage inductance of the asynchronous motor fails.</td><td>The output current exceeds 2 x rated current during auto-tuning.</td><td>0: Coast to stop
4: Alarm
5: Cancel</td><td>0: Coast to stop</td><td>Supported</td></tr>
<tr><td>Possible cause</td><td>Verification method</td><td colspan="2">Solution</td></tr>
<tr><td>An encoder fault occurs during no-load parameter auto-tuning of synchronous motor.</td><td>1. Check whether the wiring is correct. 2. Check whether the encoder is normal. 3. Check whether the encoder parameters are set correctly.</td><td colspan="2">Connect the encoder properly.
Connect the PE cable properly.
Connect the power supply of the PG cable properly.
Check that the encoder pulses per revolution is consistent with the value of F1-27.
Connect the AB signal cables properly.
-</td></tr>
<tr><td></td><td></td><td></td><td></td></tr>
</table>

Fault code	Fault name	Fault description	Fault severity level range	Default fault severity level	Resettable
E19.10	Auto-tuning of asynchronous motor leakage inductance	The current feedback cannot be tracked or set normally, which may be caused by disconnection of the motor, output phase loss, or current detection fault.	0: Coast to stop 4: Alarm 5: Cancel	0: Coast to stop	Supported
		Possible cause	Verification method	Solution	
		Encoder fault during with-load parameter auto-tuning of the synchronous motor	1. Check whether the wiring is correct. 2. Check whether the encoder is normal. 3. Check whether the encoder parameters are set correctly.	Connect the encoder properly. Connect the PE cable properly. Connect the power supply of the PG cable properly. Check that the encoder pulses per revolution is consistent with the value of F1-27. Connect the AB signal cables properly. -	
Fault code	Fault name	Fault description	Fault severity level range	Default fault severity level	Resettable
E19.23	Magnetic pole position angle parameter auto-tuning fault of synchronous motor (pulse-by-pulse current limit)	The current during auto-tuning is excessively high, resulting in pulse-by-pulse current limit and auto-tuning error.	0: Coast to stop 4: Alarm 5: Cancel	0: Coast to stop	Supported
		Possible cause	Verification method	Solution	
		An encoder fault occurs during no-load parameter auto-tuning of synchronous motor.	1. Check whether the wiring is correct. 2. Check whether the encoder is normal. 3. Check whether the encoder parameters are set correctly.	Connect the encoder properly. Connect the PE cable properly. Connect the power supply of the PG cable properly. Check that the encoder pulses per revolution is consistent with the value of F1-27. Connect the AB signal cables properly. -	
Fault code	Fault name	Fault description	Fault severity level range	Default fault severity level	Resettable

E19.24	Transient leakage inductance parameter auto-tuning fault of asynchronous motor (pulse-by-pulse current limit)	Pulse-by-pulse current limit occurs during auto-tuning, leading to auto-tuning error.	0: Coast to stop 4: Alarm 5: Cancel	0: Coast to stop	Supported
		Possible cause	Verification method	Solution	
		An encoder fault occurs during no-load parameter auto-tuning of synchronous motor.	1. Check whether the wiring is correct. 2. Check whether the encoder is normal. 3. Check whether the encoder parameters are set correctly.	Connect the encoder properly. Connect the PE cable properly. Connect the power supply of the PG cable properly. Check that the encoder pulses per revolution is consistent with the value of F1-27. Connect the AB signal cables properly. -	
Fault code	Fault name	Fault description	Fault severity level range	Default fault severity level	Resettable
E20.00	ABZ encoder disconnection	When hardware open circuit signal is activated, this fault is reported.	0: Coast to stop 4: Alarm 5: Cancel	0: Coast to stop	Supported
		Possible cause	Verification method	Solution	
		Encoder fault during parameter auto-tuning of synchronous motor	1. Check whether the wiring is correct. 2. Check whether the encoder is normal. 3. Check whether the encoder parameters are set correctly.	Check feedback signal Z and the wiring of PG card.	
Fault code	Fault name	Fault description	Fault severity level range	Default fault severity level	Resettable
E20.01	ABZ encoder speed feedback error	In the FVC mode, after the encoder disconnection detection is enabled, if the time within which no AB pulse is received lasts for 0.8s, this fault is reported.	0: Coast to stop 4: Alarm 5: Cancel	0: Coast to stop	Supported
		Possible cause	Verification method	Solution	
		The 23-bit encoder is disconnected.	1. Check whether the wiring is correct. 2. Check whether the encoder is normal. 3. Check whether the encoder parameters are set correctly.	Check the wiring of the encoder.	
Fault code	Fault name	Fault description	Fault severity level range	Default fault severity level	Resettable

		In the FVC mode, after the encoder disconnection detection is enabled, if the AB signal is disconnected during operation and the AB pulse is not received within the set time, this fault is reported.	0: Coast to stop 4: Alarm 5: Cancel	0: Coast to stop	Supported
		Possible cause	Verification method	Solution	
E20.02	ABZ encoder software detection disconnected	The encoder is disconnected.	1. Check whether the wiring is correct. 2. Check whether the encoder is normal. 3. Check whether the encoder parameters are set correctly. 4. Check whether the encoder shield is grounded to the drive end. 5. Check whether the motor enclosure is grounded. 6. Check whether the encoder cable is far away from the power cable or install a magnetic ring to the encoder cable. 7. Select a twisted pair cable with a dense metal mesh shield for the encoder cable. Use the minimum amount of adapter connectors.	Connect the encoder properly. Connect the PE cable properly. Connect the power supply of the PG cable properly. Check that the encoder pulses per revolution is consistent with the value of F1-27. Connect the AB signal cables properly. -	
Fault code	Fault name	Fault description	Fault severity level range	Default fault severity level	Resettable

E20.03	Encoder AB signal fault during no-load parameter auto-tuning of synchronous motor	In the FVC mode, the AB signal error is detected during no-load parameter auto-tuning of the synchronous motor in rotation.	0: Coast to stop 4: Alarm 5: Cancel	0: Coast to stop	Supported
		Possible cause	Verification method	Solution	
		An encoder fault occurs during no-load parameter auto-tuning of synchronous motor.	1. Check whether the wiring is correct. 2. Check whether the encoder is normal. 3. Check whether the encoder parameters are set correctly. 4. Check whether the encoder shield is grounded to the drive end. 5. Check whether the motor enclosure is grounded. 6. Check whether the encoder cable is far away from the power cable or install a magnetic ring to the encoder cable. 7. Select a twisted pair cable with a dense metal mesh shield for the encoder cable. Use the minimum amount of adapter connectors.	Connect the encoder properly. Connect the PE cable properly. Connect the power supply of the PG cable properly. Check that the encoder pulses per revolution is consistent with the value of F1-27. Connect the AB signal cables properly. -	
Fault code	Fault name	Fault description	Fault severity level range	Default fault severity level	Resettable

E20.04	The encoder absolute position signal is faulty during no-load auto-tuning of the synchronous motor.	In the FVC mode, an absolute position signal error is detected during no-load parameter auto-tuning of the synchronous motor in rotation.	0: Coast to stop 4: Alarm 5: Cancel	0: Coast to stop	Supported
		Possible cause	Verification method	Solution	
		An encoder fault occurs during no-load parameter auto-tuning of synchronous motor.	1. Check whether the wiring is correct. 2. Check whether the encoder is normal. 3. Check whether the encoder parameters are set correctly.	Connect the encoder properly. Connect the PE cable properly. Connect the power supply of the PG cable properly. Check that the encoder pulses per revolution is consistent with the value of F1-27. Connect the AB signal cables properly. -	
Fault code	Fault name	Fault description	Fault severity level range	Default fault severity level	Resettable
E20.06	Z signal of ABZ encoder lost during with-load parameter auto-tuning of synchronous motor	In the FVC mode, if the Z signal is not detected during with-load parameter auto-tuning of the synchronous motor in rotation, the Z signal is lost.	0: Coast to stop 4: Alarm 5: Cancel	0: Coast to stop	Supported
		Possible cause	Verification method	Solution	
		Encoder fault during with-load parameter auto-tuning of the synchronous motor	1. Check whether the wiring is correct. 2. Check whether the encoder is normal. 3. Check whether the encoder parameters are set correctly.	Connect the encoder properly. Connect the PE cable properly. Connect the power supply of the PG cable properly. Check that the encoder pulses per revolution is consistent with the value of F1-27. Connect the AB signal cables properly. -	
Fault code	Fault name	Fault description	Fault severity level range	Default fault severity level	Resettable

<table>
<tr><td rowspan="4">E20.07</td><td rowspan="4">Z signal of ABZ encoder lost during no-load parameter auto-tuning of synchronous motor</td><td>In the FVC mode, if the Z signal is not detected during no-load parameter auto-tuning of the synchronous motor in rotation, the Z signal is lost.</td><td>0: Coast to stop
4: Alarm
5: Cancel</td><td>0: Coast to stop</td><td>Supported</td></tr>
<tr><td>Possible cause</td><td>Verification method</td><td colspan="2">Solution</td></tr>
<tr><td>An encoder fault occurs during no-load parameter auto-tuning of synchronous motor.</td><td>1. Check whether the wiring is correct. 2. Check whether the encoder is normal. 3. Check whether the encoder parameters are set correctly.</td><td colspan="2">Connect the encoder properly.
Connect the PE cable properly.
Connect the power supply of the PG cable properly.
Check that the encoder pulses per revolution is consistent with the value of F1-27.
Connect the AB signal cables properly.
-</td></tr>
<tr><td>Fault code</td><td>Fault name</td><td>Fault description</td><td>Fault severity level range</td><td>Default fault severity level</td><td>Resettable</td></tr>
<tr><td rowspan="4">E20.08</td><td rowspan="4">Encoder PPR incorrect</td><td>The encoder PPR is incorrect during no-load dynamic parameter auto-tuning of the synchronous motor in FVC mode.</td><td>0: Coast to stop
4: Alarm
5: Cancel</td><td>0: Coast to stop</td><td>Supported</td></tr>
<tr><td>Possible cause</td><td>Verification method</td><td colspan="2">Solution</td></tr>
<tr><td>An encoder fault occurs during no-load parameter auto-tuning of synchronous motor.</td><td>1. Check whether the wiring is correct. 2. Check whether the encoder is normal. 3. Check whether the encoder parameters are set correctly.</td><td colspan="2">Connect the encoder properly.
Connect the PE cable properly.
Connect the power supply of the PG cable properly.
Check that the encoder pulses per revolution is consistent with the value of F1-27.
Connect the AB signal cables properly.
-</td></tr>
<tr><td>Fault code</td><td>Fault name</td><td>Fault description</td><td>Fault severity level range</td><td>Default fault severity level</td><td>Resettable</td></tr>
</table>

E20.09	Encoder absolute position signal error during with-load parameter auto-tuning of the synchronous motor	If the absolute position signal is lost after the motor rotates for one revolution during no-load parameter auto-tuning of the synchronous motor in FVC mode, this fault can be reported.	0: Coast to stop 4: Alarm 5: Cancel	0: Coast to stop	Supported
		Possible cause	Verification method	Solution	
		Encoder fault during parameter auto-tuning of synchronous motor	1. Check whether the wiring is correct. 2. Check whether the encoder is normal. 3. Check whether the encoder parameters are set correctly.	Check feedback signal Z and the wiring of PG card.	
Fault code	Fault name	Fault description	Fault severity level range	Default fault severity level	Resettable
E20.17	The 23-bit encoder is disconnected.	In the FVC mode, after the encoder disconnection detection is enabled, if a hardware disconnection signal is activated for the 23-bit encoder, this fault is reported.	0: Coast to stop	0: Coast to stop	Supported
		Possible cause	Verification method	Solution	
		The 23-bit encoder is disconnected.	1. Check whether the wiring is correct. 2. Check whether the encoder is normal. 3. Check whether encoder parameters are set properly.	Check the wiring of the encoder.	
Fault code	Fault name	Fault description	Fault severity level range	Default fault severity level	Resettable
E21.01	EEPROM parameter-write timeout	The continuous EEPROM operation time exceeds the threshold defined internally.	0: Coast to stop	0: Coast to stop	Supported
		Possible cause	Verification method	Solution	
		EEPROM read/write errors occur.	Check whether parameters are operated through communication, and check whether the RAM address or EEPROM address is operated.	For parameters written to the EEPROM through communication, check whether the RAM addresses of the parameters are used, and check the RAM address mapping of the parameters and parameter address expression rules. If the EEPROM integrated circuit is damaged, contact the manufacturer to replace the control board.	
Fault code	Fault name	Fault description	Fault severity level range	Default fault severity level	Resettable

E21.02	EEPROM parameter-read timeout	The continuous operation time on EEPROM exceeds the threshold time defined internally.	0: Coast to stop	0: Coast to stop	Supported
		Possible cause	Verification method	Solution	
		EEPROM read/write errors occur.	Check whether parameters are operated through communication, and check whether the RAM address or EEPROM address is operated.	For parameters written to the EEPROM through communication, check whether the RAM addresses of the parameters are used, and check the RAM address mapping of the parameters and parameter address expression rules. If the EEPROM integrated circuit is damaged, contact the manufacturer to replace the control board.	
Fault code	Fault name	Fault description	Fault severity level range	Default fault severity level	Resettable
E21.03	EEPROM operation timeout	The time for continuous EEPROM write operations exceeds the threshold defined internally.	0: Coast to stop	0: Coast to stop	Supported
		Possible cause	Verification method	Solution	
		EEPROM read/write errors occur.	Check whether parameters are operated through communication, and check whether the RAM address or EEPROM address is operated.	For parameters written to the EEPROM through communication, check whether the RAM addresses of the parameters are used, and check the RAM address mapping of the parameters and parameter address expression rules. If the EEPROM integrated circuit is damaged, contact the manufacturer to replace the control board.	
Fault code	Fault name	Fault description	Fault severity level range	Default fault severity level	Resettable
E21.04	EEPROM buffer overflow	EEPROM internal cache exceeds the cache queue length defined internally.	0: Coast to stop	0: Coast to stop	Supported
		Possible cause	Verification method	Solution	
		EEPROM read/write errors occur.	Check whether parameters are operated through communication, and check whether the RAM address or EEPROM address is operated.	For parameters written to the EEPROM through communication, check whether the RAM addresses of the parameters are used, and check the RAM address mapping of the parameters and parameter address expression rules. If the EEPROM integrated circuit is damaged, contact the manufacturer to replace the control board.	
Fault code	Fault name	Fault description	Fault severity level range	Default fault severity level	Resettable

E22.00	Stator resistance parameter auto-tuning result alarm	The auto-tuned stator resistance is out of the allowed range.	0: Coast to stop 5: Cancel	0: Coast to stop	Supported
		Possible cause	Verification method	Solution	
		The auto-tuned stator resistance is out of the allowable range.	Check that parameters (F1-00 to F1-05) are set correctly.	-The rated motor voltage and current are set incorrectly. Set F1-02 (rated motor voltage) and F1-03 (rated motor current) correctly according to the motor nameplate.-	
Fault code	Fault name	Fault description	Fault severity level range	Default fault severity level	Resettable
E22.01	Rotor resistance auto-tuning result alarm	The auto-tuned rotor resistance is out of the allowed range.	0: Coast to stop 5: Cancel	0: Coast to stop	Supported
		Possible cause	Verification method	Solution	
		The auto-tuned rotor resistance is out of the allowable range.	Check that parameters (F1-00 to F1-05) are set correctly.	Check whether auto-tuning is performed when the motor is at a standstill.	
Fault code	Fault name	Fault description	Fault severity level range	Default fault severity level	Resettable
E22.02	No-load current and mutual inductance motor parameter auto-tuning alarm	The auto-tuned no-load current and mutual inductance are out of the allowed range.	0: Coast to stop 5: Cancel	0: Coast to stop	Supported
		Possible cause	Verification method	Solution	
		The auto-tuned asynchronous motor no-load current and mutual inductance exceed the permissible range. If this fault is reported, the AC drive calculates the mutual inductance and no-load current values based on known motor parameters. The calculated values may be different from optimal values.	Check that parameters (F1-00 to F1-05) are set correctly.	Set the motor parameters in group F1 correctly according to the motor nameplate. Check that the motor is disconnected from the load before auto-tuning.	
Fault code	Fault name	Fault description	Fault severity level range	Default fault severity level	Resettable
E22.03	Back EMF auto-tuning result alarm	The auto-tuned back EMF is out of the allowed range.	0: Coast to stop 5: Cancel	0: Coast to stop	Supported
		Possible cause	Verification method	Solution	
		The auto-tuned back EMF of the synchronous motor exceeds the permissible range.	Check that parameters (F1-00 to F1-05) are set correctly.	-Check that the rated motor voltage (F102) is set according to the motor nameplate. Check that the motor is disconnected from the load during auto-tuning.	
Fault code	Fault name	Fault description	Fault severity level range	Default fault severity level	Resettable

E22.04	Inertia parameter auto-tuning alarm	The auto-tuned inertia exceeds the normal range.	0: Coast to stop 5: Cancel	0: Coast to stop	Supported
		Possible cause	Verification method	Solution	
		Inertia auto-tuning fault	Check that parameters (F1-00 to F1-05) are set correctly.	Set F103 (Rated motor current) according to the motor nameplate.-	
Fault code	Fault name	Fault description	Fault severity level range	Default fault severity level	Resettable
E23.00	Overcurrent during detection on output-to-ground short circuit	The drive output is short-circuited to ground when the current between the output phase and ground exceeds the designed threshold.	0: Coast to stop 5: Cancel	0: Coast to stop	No
		Possible cause	Verification method	Solution	
		The motor is short-circuited to the ground.	Check whether each adapter connector is normal.	Check whether each adapter is normal, and measure the impedance to ground with a megger. Replace the cable or motor if the problem persists. Note: Do not run the motor before the short circuit fault is rectified.	
Fault code	Fault name	Fault description	Fault severity level range	Default fault severity level	Resettable
E24.00	Interphase short circuit occurs on output phases.	During phase-to-phase short circuit detection, the output phase-to-phase current exceeds the designed threshold.	0: Coast to stop 5: Cancel	5: Disabled	No
		Possible cause	Verification method	Solution	
		Motor phase-to-phase short circuit	Use a multimeter to check whether any two phases among U, V, and W are short-circuited.	Check whether two-phase short circuit occurs in three-phase (U, V, W) output.	
Fault code	Fault name	Fault description	Fault severity level range	Default fault severity level	Resettable

		The rectifier reports a fault/alarm.	0: Coast to stop 2: Automatic restart 5: Cancel	0: Coast to stop	Supported
		Possible cause	Verification method	Solution	
E25.00	Rectifier fault	A rectifier fault occurs.	Check whether the rectifier displays a fault or whether the inverter displays 25.xx.	Eliminate the rectifier fault, such as input phase loss and overtemperature fault. Check the terminal configuration of the rectifier. If the terminal is assigned with one of the following functions and there is no feedback signal, a fault is reported: 1. Operation enable 2. Incoming circuit breaker feedback 3. Auxiliary circuit breaker feedback 4. RCD feedback. If the terminal assigned with one of the following functions is active, a fault is reported: 1. Inverter operation inhibited 2. Inverter coasts to stop 3. Inverter stops based on the set mode.	
Fault code	Fault name	Fault description	Fault severity level range	Default fault severity level	Resettable
E26.00	Cumulative operating time arrival fault	This fault is reported when the cumulative operating time is greater than F8-75 + F8-17 x 3600s.	0: Coast to stop 1: Decelerate to stop 4: Alarm 5: Cancel	1: Decelerate to stop	Supported
		Possible cause	Verification method	Solution	
		The cumulative operating time reaches the setpoint.	Check whether this condition is met: F7-09 + F7-28 x 3600 ≥ F8-75 + F8-17 x 3600.	Clear the log by initializing parameters.	
Fault code	Fault name	Fault description	Fault severity level range	Default fault severity level	Resettable

E27.00	User-defined fault 1	When DI/VDI is assigned with function 44 and the function signal is active, the fault is reported.	0: Coast to stop 1: Decelerate to stop 4: Alarm 5: Cancel	1: Decelerate to stop	Supported
		Possible cause	Verification method	Solution	
		1. The signal of custom fault 1 is input through the multi-functional DI. 2. The signal of custom fault 1 is input through the virtual I/O terminal.	Check whether the terminal specified by parameters in groups F4/A1 is assigned with function 44 and the signal is active.	Perform a reset.	
Fault code	Fault name	Fault description	Fault severity level range	Default fault severity level	Resettable
E28.00	User-defined fault 2	When DI/VDI is assigned with function 45 and the function signal is active, the fault is reported.	0: Coast to stop 1: Decelerate to stop 4: Alarm 5: Cancel	1: Decelerate to stop	Supported
		Possible cause	Verification method	Solution	
		Input user-defined fault 2 signals through the DI terminal. The signal of custom fault 2 is input through the virtual I/O terminal.	Check whether the terminal in groups F4/A1 is assigned with function 45 and the terminal signal is active.	Perform a reset.	
Fault code	Fault name	Fault description	Fault severity level range	Default fault severity level	Resettable
E29.00	Cumulative power-on time arrival fault	This fault is reported when the cumulative power-on time is greater than F8-74 + F8-16 x 3600s.	0: Coast to stop 1: Decelerate to stop 4: Alarm 5: Cancel	1: Decelerate to stop	Supported
		Possible cause	Verification method	Solution	
		The cumulative power-on time reaches the setpoint.	Check whether this condition is met: F7-09 + F7-29 x 3600 ≥ F8-74 + F8-16 x 3600.	Clear the log by initializing parameters.	
Fault code	Fault name	Fault description	Fault severity level range	Default fault severity level	Resettable

E30.00	Output load lost	This fault is reported when the operating current of the motor keeps lower than F9-64 for a period longer than the load loss detection time.	0: Coast to stop 1: Decelerate to stop 4: Alarm 5: Cancel	5: Cancel	Supported
		Possible cause	Verification method	Solution	
		The operating current of the drive reaches the setpoint.	The operation current of the drive is lower than the value of F9-64.-	Check whether the load is disconnected or whether F964 and F9-65 are set based on actual running conditions.-	
Fault code	Fault name	Fault description	Fault severity level range	Default fault severity level	Resettable
E31.00	PID feedback loss during operation of PID	If the PID feedback keeps lower than the value of FA-26 (Lower limit of PID feedback loss detection) after the time defined by FA-27 (Detection time of PID feedback loss) elapses, this fault can be reported.	0: Coast to stop 1: Decelerate to stop 4: Alarm 5: Cancel	1: Decelerate to stop	Supported
		Possible cause	Verification method	Solution	
		The PID feedback is lower than the value of FA-26.-	Check whether the values in the feedback channel is correct through monitoring the feedback channel of the software tool.	Check the PID feedback signal or set FA-26 properly.-	
Fault code	Fault name	Fault description	Fault severity level range	Default fault severity level	Resettable
E32.00	Capacitor capacitance alarm	The detected capacitance of the bus is lower than the standard value.	0: Coast to stop	0: Coast to stop	Supported
		Possible cause	Verification method	Solution	
		Hardware fault	Disassemble the device for inspection. Contact technical support for confirmation.	Disassemble the device for inspection. Contact the technical support.	
Fault code	Fault name	Fault description	Fault severity level range	Default fault severity level	Resettable

E34.00	Demagnetization protection fault	The deviation between the detected back EMF value and the set value of F1-19 keeps exceeding B0-27 x B0-24 for a period longer than 30s.	0: Coast to stop	0: Coast to stop	Supported
		Possible cause	Verification method	Solution	
		The back EMF of the motor is reduced, and demagnetization risks exist.	Disconnect the motor shaft, use an oscilloscope to capture the back EMF, and check whether demagnetization occurs by comparing it with the design value.	Replace the motor if demagnetization occurs.	
Fault code	Fault name	Fault description	Fault severity level range	Default fault severity level	Resettable
E35.00	Oscillation fault	The detected output current harmonics keep higher than B0-26 for a period longer than B0-25.	0: Coast to stop	0: Coast to stop	Supported
		Possible cause	Verification method	Solution	
		The current harmonics increase upon demagnetization or control error.	The motor generates unusual noise or the current waveform of the software tool oscillates.	Reduce the values of speed loop parameters (F2-00 to F2-04) or contact Inovance technical support.	
Fault code	Fault name	Fault description	Fault severity level range	Default fault severity level	Resettable
E36.00	Fan 1 fault	Related faults occur on fan 1.	0: Coast to stop	0: Coast to stop	Supported
		Possible cause	Verification method	Solution	
		Related faults occur on fan 1.	Check whether the fault occurs on the drive that matches fan 1.	Analyze the fault according to the fault code reported by the drive that matches fan 1.	
Fault code	Fault name	Fault description	Fault severity level range	Default fault severity level	Resettable
E37.00	Fan 2 fault	Related faults occur on fan 2.	0: Coast to stop	0: Coast to stop	Supported
		Possible cause	Verification method	Solution	
		Related faults occur on fan 2.	Check whether the fault occurs on the drive that matches fan 2.	Analyze the fault according to the fault code reported by the drive that matches fan 2.	
Fault code	Fault name	Fault description	Fault severity level range	Default fault severity level	Resettable

E38.00	Fan 3 fault	Related faults occur on fan 3.	0: Coast to stop	0: Coast to stop	Supported
		Possible cause	Verification method	Solution	
		Related faults occur on fan 3.	Check whether the fault occurs on the drive that matches fan 3.	Analyze the fault according to the fault code reported by the drive that matches fan 3.	
Fault code	Fault name	Fault description	Fault severity level range	Default fault severity level	Resettable
E39.00	Fan 4 fault	Related faults occur on fan 4.	0: Coast to stop	0: Coast to stop	Supported
		Possible cause	Verification method	Solution	
		Related faults occur on fan 4.	Check whether the fault occurs on the drive that matches fan 4.	Analyze the fault according to the fault code reported by the drive that matches fan 4.	
Fault code	Fault name	Fault description	Fault severity level range	Default fault severity level	Resettable

E40.00	Pulse-by-pulse current limit fault	When the three-phase output current exceeds the pulse-by-pulse current limit threshold, the PWM output is blocked to limit the output current rise. When the current is lower than the pulse-by-pulse current limit threshold, the PWM output is released. This fault is reported when the pulse-by-pulse current limit threshold is triggered repeatedly within 500 ms.	0: Coast to stop	0: Coast to stop	Supported
		Possible cause	Verification method	Solution	
		The load is excessive or the motor is stalled.	If the load and current are reduced, the starting load may be too heavy, requiring a drive with higher power rating. After disconnecting from the load, check whether the motor runs properly. If not or the operating current is excessively high, the motor may be stalled.	1. If the startup current is excessively high, replace with a drive of higher power rating. 2. If the motor is stalled, check the external cause.	
		The power rating of the drive is excessively low.	Capture the waveform through the software tool to determine the magnitude of the output current. If the output current is far higher than the rated current of the drive, the load is excessively heavy.	Select a drive of higher power rating.	
Fault code	Fault name	Fault description	Fault severity level range	Default fault severity level	Resettable

E42.00	Speed deviation excessively high	This fault is reported when the set frequency and output frequency keep higher than F9-69 for a period longer than F9-70.	0: Coast to stop 1: Decelerate to stop 4: Alarm 5: Cancel	5: Cancel	Supported
		Possible cause	Verification method	Solution	
		The encoder parameter is set improperly.	Set encoder parameters properly.	Set encoder parameters properly.	
		Parameter auto-tuning is not performed.	Perform motor parameter auto-tuning.	Perform motor parameter auto-tuning.	
		-F9-69 (Excessive speed deviation detection value) and F9-70 (Excessive speed deviation detection time) are set incorrectly.-	Set these parameters based on actual conditions.	Set these parameters based on actual conditions.	
Fault code	Fault name	Fault description	Fault severity level range	Default fault severity level	Resettable
E43.00	Motor overspeed fault	This fault is reported when the set frequency and output frequency keep higher than F9-67 for a period longer than F9-68.	0: Coast to stop 1: Decelerate to stop 4: Alarm 5: Cancel	0: Coast to stop	Supported
		Possible cause	Verification method	Solution	
		The encoder parameter is set improperly.	Set encoder parameters properly.	Set encoder parameters properly.	
		Parameter auto-tuning is not performed.	Perform motor parameter auto-tuning.	Perform motor parameter auto-tuning.	
		-F9-69 (Excessive speed deviation detection value) and F9-70 (Excessive speed deviation detection time) are set incorrectly.-	Set these parameters based on actual conditions.	Set these parameters based on actual conditions.	
Fault code	Fault name	Fault description	Fault severity level range	Default fault severity level	Resettable

E44.00	Bus oscillation fault	-	0: Coast to stop 2: Restart 4: Alarm 5: Cancel	4: Alarm	Supported
		Possible cause	Verification method	Solution	
		-	-	Contact the agent or Inovance for technical support.	
Fault code	Fault name	Fault description	Fault severity level range	Default fault severity level	Resettable
E45.00	Motor overtemperature fault	This fault is reported when the temperature collected by the PTC sensor exceeds F9-57.	0: Coast to stop 1: Decelerate to stop 4: Alarm 5: Cancel	0: Coast to stop	Supported
		Possible cause	Verification method	Solution	
		The temperature sensor is connected loosely.	Check that the cable of the temperature sensor is connected, and rectify the fault.	Check that the cable of the temperature sensor is connected, and rectify the fault.	
		Motor temperature excessively high	Increase the carrier frequency or take other heat dissipation measures to cool the motor.	Increase the carrier frequency or take other heat dissipation measures to cool the motor.	
		The value of F9-57 (Motor over-temperature protection threshold) is too small.-	Increase the motor overtemperature protection threshold (90° C to 100° C for regular motors).	Increase the motor overtemperature protection threshold (90° C to 100° C for regular motors).	
Fault code	Fault name	Fault description	Fault severity level range	Default fault severity level	Resettable
E47.00	STO fault	This fault is reported when STO1 or STO2 keeps low level after the STO function is enabled.	0: Coast to stop	0: Coast to stop	Supported
		Possible cause	Verification method	Solution	
		STO detection abnormality	Check whether the STO function is enabled through F8-54. If the STO function is enabled, check whether STO1 and STO2 of the inverter module have 24 V input.	Check the STO module.	
Fault code	Fault name	Fault description	Fault severity level range	Default fault severity level	Resettable

E64.00	The PID parameter is set improperly.	A4-49 (Rated pressure) = 0 or 65535, A8-07 (Constant pressure setpoint) > A4-49 x 7, or A8-05 (Range of pressure sensor 1) > A4-49 x 7	0: Coast to stop	0: Coast to stop	Supported
		Possible cause	Verification method	Solution	
		The new PID base pressure is set incorrectly.	Check whether the following conditions are met: 1. A4-49 (Rated pressure) = 0 or 65535; 2. A8-07 (Constant pressure setpoint) > A4-49 x 7; 3. A8-05 (Range of pressure sensor 1) > A4-49 x 7	Detect the rated pressure, constant pressure, and range setting of the pressure sensor.	
Fault code	Fault name	Fault description	Fault severity level range	Default fault severity level	Resettable
E64.01	The PID parameter is set improperly.	The value of A4-48 (Frequency percentage upon low valve opening degree) is lower than ((F0-14 x 100/F0-10) + 10).	0: Coast to stop	0: Coast to stop	Supported
		Possible cause	Verification method	Solution	
		The new PID frequency base calculation is incorrect.	Check whether the following condition is met: A4-48 (Frequency percentage upon low valve opening degree) < ((F0-14 x 100/F0-10) + 10)	Check the setpoints of A4-48, F0-14, and F0-10.	
Fault code	Fault name	Fault description	Fault severity level range	Default fault severity level	Resettable

E65.00	Pressure sensor 2 pre-alarm	This fault is reported when the current pressure judgment condition (A8-03 = 1) is pressure sensor 2 and the current pressure exceeds the value of A8-47 for 1s.	5: Operating continuously upon alarm	5: Operating continuously upon alarm	Supported
		Possible cause	Verification method	Solution	
		1. The pressure sensor is wired incorrectly. 2. The setting of P2 pressure range does not correspond to the pressure sensor nominal value. 3. The setting of A8-10 protective pressure and A8-11 pre-alarm pressure is inconsistent with the threshold expected by the customer. 4. The sensor is abnormal. 5. The pressure calibration (AC-0B) and pressure calibration (A8-41) are set incorrectly. 6. The exhaust valve is not opened.	1. Check the wiring. 2. Check whether A8-05 corresponds to the range of the external pressure sensor. 3. Check the protective pressure (A8-10) and the pre-alarm pressure (A8-11). 4. Check the reading, which should remain unchanged. 5. Check whether the calibration parameters are within the proper range. 6. Check whether the exhaust valve is open.	1. Connect the pressure sensor cable properly. 2. Set the P2 pressure range according to the nominal value of the pressure sensor. 3. Set the pressure value according to the actual application on the customer site. 4. Replace the sensor. 5. Set the calibration parameters correctly. 6. Check whether the exhaust valve is open.	
Fault code	Fault name	Fault description	Fault severity level range	Default fault severity level	Resettable

E66.00	Overpressure of pressure sensor 2	This fault is reported when the current pressure judgment condition (A8-03 = 1) is pressure sensor 2 and current pressure is greater than the protection value defined by A8-48 for 1s.	0: Coast to stop	0: Coast to stop	Supported
		Possible cause	Verification method	Solution	
		1. The pressure sensor is wired incorrectly. 2. The setting of P2 pressure range does not correspond to the pressure sensor nominal value. 3. The setting of A8-10 protective pressure and A8-11 pre-alarm pressure is inconsistent with the threshold expected by the customer. 4. The sensor is abnormal. 5. The pressure calibration (AC-0B) and pressure calibration (A8-41) are set incorrectly. 6. The exhaust valve is not opened.	1. Check the wiring. 2. Check whether A8-05 corresponds to the range of the external pressure sensor. 3. Check the protective pressure (A8-10) and the pre-alarm pressure (A8-11). 4. Check the reading, which should remain unchanged. 5. Check whether the calibration parameters are within the proper range. 6. Check whether the exhaust valve is open.	1. Connect the pressure sensor cable properly. 2. Set the P2 pressure range according to the nominal value of the pressure sensor. 3. Set the pressure value according to the actual application on the customer site. 4. Replace the sensor. 5. Set the calibration parameters correctly. 6. Check whether the exhaust valve is open.	
Fault code	Fault name	Fault description	Fault severity level range	Default fault severity level	Resettable

		This fault is reported when current temperature threshold (A8-04 = 1) is temperature sensor 2 and the current temperature keeps higher than the protection value of A8-50 temperature 2 for 1s.	0: Coast to stop	0: Coast to stop	Supported
		Possible cause	Verification method	Solution	
E67.00	Overtemperature of temperature sensor 2	1. The temperature sensor is wired incorrectly. 2. The temperature is too high due to poor heat dissipation. 3. AC-17 and A8-42 are set incorrectly. 4. Insufficient lubricating oil leads to poor heat dissipation. 5. The heatsink is clogged, leading to poor heat dissipation. 6. The oil return pipe is clogged, resulting in insufficient oil return.	1. Check whether the temperature sensor cable and pressure sensor cable are connected correctly. 2. Check whether the current sensor temperature is higher than the protection threshold defined by A8-50. 3. Check whether the calibration parameters are within the proper range. 4. Check whether the air pressure oil level is within the proper range during operation. 5. Check whether the heatsink is blocked by dust or unwanted objects. 6. Check the oil return pipe to determine whether the temperature is normal.	1. Connect the temperature sensor cable correctly. 2. Ensure that the air duct is not blocked and the fan does not rotate reversely. 3. Set the calibration parameters correctly. 4. Maintain and replenish/replace the lubricating oil timely. 5. Clean the heatsink. 6. Check the oil return pipe to determine whether the temperature is normal. If abnormal, check whether it is clogged.	
Fault code	Fault name	Fault description	Fault severity level range	Default fault severity level	Resettable

		This fault is reported when the current temperature judgment condition (A8-04 = 1) is temperature sensor 2 and the current temperature is greater than the value of A8-49 for 1s.	5: Operating continuously upon alarm	5: Operating continuously upon alarm	Supported
		Possible cause	Verification method	Solution	
E68.00	Temperature sensor 2 warning	1. The temperature sensor is wired incorrectly. 2. The temperature is too high due to poor heat dissipation. 3. AC-17 and A8-42 are set incorrectly. 4. Insufficient lubricating oil leads to poor heat dissipation. 5. The heatsink is clogged, leading to poor heat dissipation. 6. The oil return pipe is clogged, resulting in insufficient oil return.	1. Check whether the temperature sensor cable and pressure sensor cable are connected correctly. 2. Check whether the current sensor temperature is higher than the re-alarm threshold defined by A8-49. 3. Check whether the calibration parameters are within the proper range. 4. Check whether the air pressure oil level is within the proper range during operation. 5. Check whether the heatsink is blocked by dust or unwanted objects. 6. Check the oil return pipe to determine whether the temperature is normal.	1. Connect the temperature sensor cable correctly. 2. Ensure that the air duct is not blocked and the fan does not rotate reversely. 3. Set the calibration parameters correctly. 4. Maintain and replenish/replace the lubricating oil timely. 5. Clean the heatsink. 6. Check the oil return pipe to determine whether the temperature is normal. If abnormal, check whether it is clogged.	
Fault code	Fault name	Fault description	Fault severity level range	Default fault severity level	Resettable

<table>
<tr><td rowspan="3">E69.00</td><td rowspan="3">Low temperature fault of the temperature sensor occurs.</td><td>When the low temperature protection delay defined by A8-59 is not 0, the low temperature detection judgment is enabled. If the current temperature is lower than or equal to the low temperature protection temperature defined by A8-58 for 1s, this fault is reported.</td><td>0: Coast to stop</td><td>0: Coast to stop</td><td>Supported</td></tr>
<tr><td>Possible cause</td><td>Verification method</td><td colspan="2">Solution</td></tr>
<tr><td>1. The temperature sensor is damaged due to short circuit, resulting in an excessively low temperature.
2. The ambient temperature is lower than the value of A8-58.</td><td>1. Check whether the temperature sensor is short-circuited.
2. Check whether the current temperature is lower than the low temperature protection temperature defined by A8-58.</td><td colspan="2">1. Connect the temperature sensor cable properly.
2. Replace the temperature sensor.
3. Reduce the value of A8-53 or enable the pre-heating function (set the ones place of A8-52 to 1).</td></tr>
<tr><td>Fault code</td><td>Fault name</td><td>Fault description</td><td>Fault severity level range</td><td>Default fault severity level</td><td>Resettable</td></tr>
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<tr><td rowspan="3">E70.00</td><td rowspan="3">Pressure sensor pre-alarm</td><td>When the ones of A8-46 is 0, the current pressure judgment condition (A8-03 = 0) is pressure sensor 1, and the current pressure is greater than the pre-alarm value defined by A8-11 for 1s. This fault can be reported.</td><td>5: Operating continuously upon alarm</td><td>5: Operating continuously upon alarm</td><td>Supported</td></tr>
<tr><td>Possible cause</td><td>Verification method</td><td colspan="2">Solution</td></tr>
<tr><td>1. The pressure sensor is connected with the temperature sensor cable by mistake. 2. The setting of P2 pressure range does not correspond to the pressure sensor nominal value. 3. A8-10 and A8-11 are set to excessively low values. 4. The sensor is abnormal. 5. The pressure calibration (AC-0B) and pressure calibration (A8-41) are set incorrectly. 6. The exhaust valve is not opened.</td><td>1. Check the wiring. 2. Check whether the pressure range defined by A8-05 matches the pressure sensor range. 3. Adjust the protective pressure (A8-10) and the pre-alarm pressure (A8-11) properly. 4. Replace the sensor and run it again. Check whether the sensor is faulty. 5. Check whether the calibration parameters are within the proper range. 6. Check whether the exhaust valve is open.</td><td colspan="2">1. Connect the pressure sensor correctly. 2. Set the P2 pressure range according to the nominal value of the pressure sensor.

3. Set the pressure properly based on actual requirements. 4. Replace the faulty pressure sensor. 5. Set the calibration parameters correctly. 6. Check whether the exhaust valve is open.</td></tr>
<tr><td>Fault code</td><td>Fault name</td><td>Fault description</td><td>Fault severity level range</td><td>Default fault severity level</td><td>Resettable</td></tr>
</table>

		When the ones of A8-46 is set to 0, the pressure judgment condition (A8-03 = 0) is pressure sensor 1, and the current pressure is greater than the protection value defined by A8-10 for 1s. This fault can be reported.	0: Coast to stop	0: Coast to stop	Supported
		Possible cause	Verification method	Solution	
E71.00	Pressure sensor overpressure	1. The pressure sensor is connected with the temperature sensor cable by mistake. 2. The setting of P2 pressure range does not correspond to the pressure sensor nominal value. 3. A8-10 and A8-11 are set to excessively low values. 4. The sensor is abnormal. 5. The pressure calibration (AC-0B) and pressure calibration (A8-41) are set incorrectly. 6. The exhaust valve is not opened.	1. Check the wiring. 2. Check whether the pressure range defined by A8-05 matches the pressure sensor range. 3. Adjust the protective pressure (A8-10) and the pre-alarm pressure (A8-11) properly. 4. Replace the sensor and run it again. Check whether the sensor is faulty. 5. Check whether the calibration parameters are within the proper range. 6. Check whether the exhaust valve is open.	1. Connect the pressure sensor cable properly. 2. Set the P2 pressure range according to the nominal value of the pressure sensor. 3. Set the pressure value according to the actual application. 4. Replace the sensor. 5. Set the calibration parameters correctly. 6. Check whether the exhaust valve is open.	
Fault code	Fault name	Fault description	Fault severity level range	Default fault severity level	Resettable

E72.00	Temperature sensor overtemperature	When the tens of A8-46 is 0, the temperature judgment condition (A8-04 = 0) is temperature sensor 1, and the current temperature is greater than the protection value defined by A8-12 for 1s. This fault can be reported.	0: Coast to stop	0: Coast to stop	Supported
		Possible cause	Verification method	Solution	
		1. The temperature sensor is mistakenly connected to the pressure sensor cable. 2. The temperature is too high due to poor heat dissipation. 3. AC-17 and A8-42 are set incorrectly. 4. Insufficient lubricating oil leads to poor heat dissipation. 5. The heatsink is clogged, leading to poor heat dissipation. 6. The oil return pipe is clogged, resulting in insufficient oil return.	1. Check whether the temperature sensor cable and pressure sensor cable are connected correctly. 2. Check the current sensor temperature. 3. Check whether the calibration parameters are within the proper range. 4. Check whether the air pressure oil level is within the proper range during operation. 5. Check whether the heatsink is blocked by dust or unwanted objects. 6. Check the oil return pipe to determine whether the temperature is normal.	1. Connect the temperature sensor cable correctly. 2. Check whether the air duct is blocked and the fan rotates in the correct direction. 3. Set the calibration parameters correctly. 4. Maintain and replenish/replace the lubricating oil timely. 5. Clean the heatsink. 6. Check the oil return pipe to determine whether the temperature is normal. If abnormal, check whether it is clogged.	
Fault code	Fault name	Fault description	Fault severity level range	Default fault severity level	Resettable

E73.00	Temperature sensor pre-warning	When the tens of A8-46 is 0 and the temperature judgment condition (A8-04 = 0) is temperature sensor 1, this fault is reported when current temperature keeps exceeding the protection value defined by A8-13 for 1s.	5: Operating continuously upon alarm	5: Operating continuously upon alarm	Supported
		Possible cause	Verification method	Solution	
		1. The temperature sensor is mistakenly connected to the pressure sensor cable. 2. The temperature is too high due to poor heat dissipation. 3. AC-17 and A8-42 are set incorrectly. 4. Insufficient lubricating oil leads to poor heat dissipation. 5. The heatsink is clogged, leading to poor heat dissipation. 6. The oil return pipe is clogged, resulting in insufficient oil return.	1. Check whether the temperature sensor cable and pressure sensor cable are connected correctly. 2. Check the current sensor temperature. 3. Check whether the calibration parameters are within the proper range. 4. Check whether the air pressure oil level is within the proper range during operation. 5. Check whether the heatsink is blocked by dust or unwanted objects. 6. Check the oil return pipe to determine whether the temperature is normal.	1. Connect the temperature sensor cable correctly. 2. Check whether the air duct is blocked and the fan rotates in the correct direction. 3. Set the calibration parameters correctly. 4. Maintain and replenish/replace the lubricating oil timely. 5. Clean the heatsink. 6. Check the oil return pipe to determine whether the temperature is normal. If abnormal, check whether it is clogged.	
Fault code	Fault name	Fault description	Fault severity level range	Default fault severity level	Resettable
E74.00	Pressure sensor disconnected	After the displayed pressure before AI correction is lower than or equal to 0.1 V within 10s, an open circuit can be reported.	0: Coast to stop	0: Coast to stop	Supported
		Possible cause	Verification method	Solution	
		1. The sensor is wired improperly. 2. The pressure or temperature sensor is abnormal.	1. Check the wiring. 2. Check whether the sensor operates properly.	1. Check that the encoder is wired properly. 2. Replace the faulty pressure or temperature sensor.	
Fault code	Fault name	Fault description	Fault severity level range	Default fault severity level	Resettable

E75.00	The temperature sensor is disconnected.	If current temperature is higher than 222° C and remains higher than 1s, an open circuit fault can be reported.	0: Coast to stop	0: Coast to stop	Supported
		Possible cause	Verification method	Solution	
		1. The sensor is wired improperly. 2. The pressure or temperature sensor is abnormal.	1. Check the wiring. 2. Check whether the sensor operates properly.	1. Check that the encoder is wired properly. 2. Replace the faulty pressure or temperature sensor.	
Fault code	Fault name	Fault description	Fault severity level range	Default fault severity level	Resettable
E76.00	Air filter maintenance pre-alarm	The value of A8-28 is greater than or equal to A8-23 and A8-23 is not zero.	5: Operating continuously upon alarm	5: Operating continuously upon alarm	Supported
		Possible cause	Verification method	Solution	
		The air filter operating time in the maintenance parameters reaches the setpoint of air filter maintenance cycle.	Check the current air filter running time defined by A8-28. The default operating time is 2000h.	Maintain the air filter and clear the air filter running time.	
Fault code	Fault name	Fault description	Fault severity level range	Default fault severity level	Resettable
E77.00	Oil filter maintenance pre-alarm	The value of A8-29 greater than or equal to A8-24 and A8-29 is not zero.	5: Operating continuously upon alarm	5: Operating continuously upon alarm	Supported
		Possible cause	Verification method	Solution	
		The oil filter operating time reaches the oil filter maintenance deadline.	Check the value of A8-29. The default operating time is 2000h.	Maintain the oil filter and clear the oil filter running time.	
Fault code	Fault name	Fault description	Fault severity level range	Default fault severity level	Resettable
E78.00	Oil-air separator maintenance pre-alarm	The value of A8-30 is greater than or equal to A8-24 and A8-25 is not zero.	5: Operating continuously upon alarm	5: Operating continuously upon alarm	Supported
		Possible cause	Verification method	Solution	
		The separator operating time exceeds the maintenance deadline.	Check the value of A8-30. The default running time is 2000h.	Maintain the oil and gas separator and clear the oil and gas separator running time.	
Fault code	Fault name	Fault description	Fault severity level range	Default fault severity level	Resettable

E79.00	Motor lubricating grease maintenance pre-alarm	The value of A8-31 is higher than or equal to A8-26 and A8-26 is not zero.	5: Operating continuously upon alarm	5: Operating continuously upon alarm	Supported
		Possible cause	Verification method	Solution	
		The operating time of the motor lubricating grease reaches the motor lubricating grease maintenance deadline.	Check the value of A8-31, The default operating time is 2000h.	Apply the lubricating grease and clear the motor lubricating grease applying time.	
Fault code	Fault name	Fault description	Fault severity level range	Default fault severity level	Resettable
E80.00	Lubricating oil maintenance pre-alarm	The value of A8-32 is higher than or equal to A8-27 and A8-27 is not zero.	5: Operating continuously upon alarm	5: Operating continuously upon alarm	Supported
		Possible cause	Verification method	Solution	
		The operating time of the lubricating oil reaches the lubricating oil maintenance deadline.	Check the value of A8-32. The default operating time is 2000h.	Apply the lubricating oil and clear the lubricating oil applying time.	
Fault code	Fault name	Fault description	Fault severity level range	Default fault severity level	Resettable
E81.01	PTC2 overtemperature	If the terminal function selection (F4-00 to 05) is 58 and the terminal is disconnected, the PTC2 overtemperature fault is reported.	0: Coast to stop	0: Coast to stop	Supported
		Possible cause	Verification method	Solution	
		The PTC thermistor trips due to motor overtemperature. The DI detects that the motor PTC signal is disconnected.	The PTC thermistor trips due to motor overtemperature. The DI detects that the motor PTC signal is disconnected.	1. Check the wiring. PTC2 indicates the fan PTC, which must be connected to COM and DI5. The DI5 must be assigned with function 58. If no fan PTC is available, DI5 must be assigned with function 0. 2. Check whether the motor is damaged due to high temperature. If yes, replace the motor. 3. Check whether the fan PTC is damaged. Check whether the PTC resistance is lower than 3 kΩ. 4. Short DI5 and COM or assign function 0 to DI5 temporarily to disable PTC2 function.	
Fault code	Fault name	Fault description	Fault severity level range	Default fault severity level	Resettable

E82.01	Oil fine separator blocked	If the terminal function selection (F4-00 to 05) is 53 and terminal is closed, the oil fine separator is blocked.	0: Coast to stop	0: Coast to stop	Supported
		Possible cause	Verification method	Solution	
		1. The oil separator element is clogged. 2. The DI terminal setting and wiring are incorrect.	1. The oil separator element is clogged. 2. Check the DI function setting and wiring.	1. Clean the oil fine separator. 2. The wiring sequence is incorrect. After power-off, connect the cables again.	
Fault code	Fault name	Fault description	Fault severity level range	Default fault severity level	Resettable
E82.02	Pre-charge contactor feedback error	The pre-charge contactor is restarted repeatedly for more than x times without power off.	0: Coast to stop	0: Coast to stop	Supported
		Possible cause	Verification method	Solution	
		The contactor is abnormal.	The contactor is abnormal.	1. Replace the contactor. 2. Check whether the contactor power supply is normal.	
Fault code	Fault name	Fault description	Fault severity level range	Default fault severity level	Resettable
E83.00	The separator is blocked.	If the terminal function (F4-00 to F4-05) is set to 54 and the terminal is closed, the fault indicating that the oil separator element is clogged is reported.	0: Coast to stop	0: Coast to stop	Supported
		Possible cause	Verification method	Solution	
		1. The separator is clogged. 2. The DI terminal setting and wiring are incorrect.	1. The separator is clogged. 2. Check the DI function setting and wiring.	1. Clean the separator. 2. The wiring sequence is incorrect. After power-off, connect the cables again.	
Fault code	Fault name	Fault description	Fault severity level range	Default fault severity level	Resettable
E84.01	Oil filter blocked	If the terminal function (F4-00 to F0-05) is set to 55 and the terminal is closed, the fault indicating that the oil separator element is clogged is reported.	0: Coast to stop	0: Coast to stop	Supported
		Possible cause	Verification method	Solution	
		1. The oil filter is clogged. 2. The DI terminal setting and wiring are incorrect.	1. The oil filter is clogged. 2. Check the DI function setting and wiring.	1. Clean the oil filter. 2. The wiring sequence is incorrect. After power-off, connect the cables again.	
Fault code	Fault name	Fault description	Fault severity level range	Default fault severity level	Resettable

E85.01	Air filter blocked	If the terminal function (F4-00 to F4-05) 56 is selected and terminal is closed, the oil separator element is clogged.	0: Coast to stop 1: Stop at maximum capacity 2: Quick stop 3: Decelerate to stop 4: Limited operation 5: Operating continuously upon alarm 6: Prompt 7: No fault	0: Coast to stop	Supported
		Possible cause	Verification method	Solution	
		1. The air filter of the oil fine separator is blocked. 2. The DI terminal setting and wiring are incorrect.	1. The air filter of the oil separator element is clogged. 2. Check the DI function setting and wiring.	1. Clean the air filter. 2. The wiring sequence is incorrect. After power-off, connect the cables again.	
Fault code	Fault name	Fault description	Fault severity level range	Default fault severity level	Resettable
E85.04	Timing fault	If the running time in the current state is greater than the maximum stop running time, a sequence error can be reported.	0: Coast to stop 1: Stop at maximum capacity 2: Quick stop 3: Decelerate to stop 4: Limited operation 5: Operating continuously upon alarm 6: Prompt 7: No fault	0: Coast to stop	Supported
		Possible cause	Verification method	Solution	
		Software sequence calling errors occur.	1. Try receiving information through communication or interaction with the HMI. If the interaction information is abnormal, the calling sequence is abnormal. 2. Try modifying any parameter value. If the operation fails, the calling sequence is abnormal.	Try restarting the control board.	
Fault code	Fault name	Fault description	Fault severity level range	Default fault severity level	Resettable

Fault code	Fault name	Fault description	Fault severity level range	Default fault severity level	Resettable
E87.00	Timed operation pre-alarm	If A8-02 is not zero and the accumulative running time defined by F7-09 is greater than or equal to A8-02, a limited operation alarm is reported.	5: Operating continuously upon alarm	5: Operating continuously upon alarm	Supported
		Possible cause	Verification method	Solution	
		The operating time reaches the timed operation setpoint.	The operating time reaches the timed operation setpoint.	Clear the operating time (FP-01 = 0) or disable the limited operation function (A8-02 = 0).	
Fault code	Fault name	Fault description	Fault severity level range	Default fault severity level	Resettable
E88.00	Stop for air filter maintenance	This fault is reported when A8-23 or A8-68 is not zero and the air filter operating time is greater than or equal to the air filter maintenance cycle + operating time upon stop at alarm.	0: Coast to stop	0: Coast to stop	Supported
		Possible cause	Verification method	Solution	
		Air filter operating time - Air filter alarm time ≥ Stop time upon prolonged alarm	Air filter operating time - Air filter maintenance cycle ≥ Stop time for excessively long pre-alarm	Maintain the air filter and clear the air filter running time (A8-28 = 0).	
Fault code	Fault name	Fault description	Fault severity level range	Default fault severity level	Resettable
E89.00	Stop for oil filter maintenance	If A8-24 or A8-68 is not zero and the oil filter operating time (A8-68) is greater than or equal to the oil filter time + pre-alarm stop operating time, the oil filter maintenance alarm is reported	0: Coast to stop	0: Coast to stop	Supported
		Possible cause	Verification method	Solution	
		Oil filter operating time - Oil filter maintenance time ≥ Stop time for excessively long pre-alarm	Oil filter operating time - Oil filter maintenance time ≥ Stop time for excessively long pre-alarm	Maintain the air filter and clear the oil filter running time (A8-29 = 0).	
Fault code	Fault name	Fault description	Fault severity level range	Default fault severity level	Resettable

E90.00	Stop for oil-air separator maintenance	If A8-25 or A8-68 is not zero and A8-30 is greater than or equal to the oil-gas separator maintenance cycle + operating time upon stop at alarm.	0: Coast to stop	0: Coast to stop	Supported
		Possible cause	Verification method	Solution	
		Oil-air separator operating time - Oil-gas separator maintenance cycle ≥ Stop time for excessively long pre-alarm	Oil-air separator operating time - Oil-gas separator maintenance cycle ≥ Stop time for excessively long pre-alarm	Maintain the oil separator and clear the oil gas separator running time (A8-30 = 0).	
Fault code	Fault name	Fault description	Fault severity level range	Default fault severity level	Resettable
E91.00	Stop for motor lubricating grease maintenance	This fault is reported when A8-26 or A8-68 is not zero and A8-31 is greater than or equal to the motor lubrication cycle + operating time upon stop at alarm.	0: Coast to stop	0: Coast to stop	Supported
		Possible cause	Verification method	Solution	
		Lubricating grease operating time - Lubricating grease maintenance time ≥ Stop time for excessively long pre-alarm	Lubricating grease operating time - Lubricating grease maintenance time ≥ Stop time for excessively long pre-alarm	Clear the lubricating grease apply time (A8-31 = 0).	
Fault code	Fault name	Fault description	Fault severity level range	Default fault severity level	Resettable
E92.00	Stop for lubricating oil maintenance	This fault is reported when A8-27 or A8-68 is not zero and A8-32 is greater than or equal to the lubricating oil maintenance cycle of the motor + operating time upon stop at alarm.	0: Coast to stop	0: Coast to stop	Supported
		Possible cause	Verification method	Solution	
		Lubricating oil operating time - Lubricating oil maintenance cycle ≥ Stop time for excessively long pre-alarm	Lubricating oil operating time - Lubricating oil maintenance cycle ≥ Stop time for excessively long pre-alarm	Clear the lubricating oil apply time (A8-32 = 0).	
Fault code	Fault name	Fault description	Fault severity level range	Default fault severity level	Resettable

E93.00	Stop after excessively long pressure warning time	When the current pressure keeps higher than or equal to the pressure warning threshold for longer than the time defined by A8-44, the fault is reported.	0: Coast to stop	0: Coast to stop	Supported
		Possible cause	Verification method	Solution	
		The pressure warning time is longer than or equal to the stop time for prolonged pressure warning.	The pressure warning time is longer than or equal to the stop time for prolonged pressure warning.	Check whether the air exhaust is low, and whether the stop function caused by prolonged pressure warning is normal. Maintain the drive and clear the running time after pressure warning report (A8-44 = 0).	
Fault code	Fault name	Fault description	Fault severity level range	Default fault severity level	Resettable
E94.00	Stop for excessively long temperature pre-alarm	Current temperature keeps higher than or equal to the pre-alarm temperature after the time defined by A8-45 elapses.	0: Coast to stop	0: Coast to stop	Supported
		Possible cause	Verification method	Solution	
		Temperature pre-alarm timer start time ≥ Stop time for excessively long pre-alarm	1. The start time for temperature pre-alarm is later than or equal to the stop time for excessively long pre-alarm time. 2. Check the software version and set motor parameter properly.	1. Connect the temperature sensor cable correctly. 2. Check whether the air duct is blocked and the fan rotates in the correct direction. 3. Set the calibration parameters correctly. 4. Maintain and replenish/replace the lubricating oil timely. 5. Clean the heatsink. 6. Check the oil return pipe to determine whether the temperature is normal. If abnormal, check whether it is clogged. 7. Check the software version and set the motor parameters correctly.	
Fault code	Fault name	Fault description	Fault severity level range	Default fault severity level	Resettable

<table>
<tr><td rowspan="3">E95.00</td><td rowspan="3">Solenoid valve overcurrent</td><td>If the current of the solenoid valve is greater than 1 A for 4 ms, it is counted once. If it is counted 60 times within 1s, solenoid valve overcurrent fault is reported.</td><td>0: Coast to stop</td><td>0: Coast to stop</td><td>Supported</td></tr>
<tr><td>Possible cause</td><td>Verification method</td><td colspan="2">Solution</td></tr>
<tr><td>1. The model and specifications of the solenoid valve do not match the transformer.
2. The solenoid valve is damaged. 3. During loaded operation of the drive, the TA/TC terminal does not generate any output.</td><td>1. Check whether the solenoid valve specifications match the transformer.
2. Check whether the solenoid valve is damaged.
3. Check whether there is output at the TA/TC terminal during with-load operation of the drive.</td><td colspan="2">1. Check whether the solenoid valve specifications match the transformer (110 VAC/220 VAC).
2. Power off and then disconnect the wiring terminals of the solenoid valve. If no alarm occurs at next power-on, replace the solenoid valve.
3. If the current keeps exceeding 1 A after the new solenoid valve is installed, inspect the drive.</td></tr>
<tr><td>Fault code</td><td>Fault name</td><td>Fault description</td><td>Fault severity level range</td><td>Default fault severity level</td><td>Resettable</td></tr>
<tr><td rowspan="3">E96.00</td><td rowspan="3">The phase sequence is abnormal.</td><td>The detected three-phase voltage angle is lower than -5.5 degrees, the effective value of the voltage is higher than 200 V within 1s.</td><td>0: Coast to stop</td><td>0: Coast to stop</td><td>Supported</td></tr>
<tr><td>Possible cause</td><td>Verification method</td><td colspan="2">Solution</td></tr>
<tr><td>The three-phase input sequence is abnormal (R, S, T).</td><td>Check whether the wiring sequence corresponds to the U/V/W terminal respectively.</td><td colspan="2">1. Adjust the wiring of any two phases of UVW.
2. Measure whether the deviation among the three-phase input voltages is equal to or lower than 30 V.</td></tr>
<tr><td>Fault code</td><td>Fault name</td><td>Fault description</td><td>Fault severity level range</td><td>Default fault severity level</td><td>Resettable</td></tr>
</table>

E97.00	Mains frequency fan output phase loss	If the maximum and minimum values of the three-phase current of the fan exceed 10, and the maximum current exceeds 12% of the rated current of the fan, the phase loss fault can be reported.	0: Coast to stop	0: Coast to stop	Supported
		Possible cause	Verification method	Solution	
		1. The motor cable is connected improperly. 2. The cooling fan of the motor is damaged. 3. The fuse is loose or damaged.	1. Check the motor wiring. 2. The cooling fan of the motor is damaged. 3. The fuse is loose or damaged. 4. Disconnect the cable of the fan and tighten the screws again. When the temperature is reached, measure whether the phase-to-phase output voltage (voltage-to-ground) of the fan is balanced.	1. Connect the motor cables properly. 2. Measure the phase-to-phase resistance with a multimeter to check whether open circuit occurs. If yes, replace the motor fan. 3. If the fuse is normal, check whether the drive operates properly. 4. If the phase-to-phase voltage (voltage to ground) of the mains frequency fan blower is unbalanced, the drive is faulty.	
Fault code	Fault name	Fault description	Fault severity level range	Default fault severity level	Resettable
E98.00	The pump pressure is too low.	When the terminal (F4-00 to F4-05) is assigned with function 59, and the terminal is closed within the time defined by A8-76, the fault indicating excessively low pump pressure is reported.	0: Coast to stop	0: Coast to stop	Supported
		Possible cause	Verification method	Solution	
		1. The water pump function is not available, and the DI is assigned with function 59 by mistake. 2. The water pump function is available, and the DI terminal is assigned with function 59.	1. The water pump function is not available, and the DI is assigned with function 59 by mistake. 2. The water pump function is available, and the DI terminal is assigned with function 59.	1. If the water pump function is not provided, assign function 0 to the DI. 2. The water pump is abnormal. Repair or replace the water pump.	
Fault code	Fault name	Fault description	Fault severity level range	Default fault severity level	Resettable

<table>
<tr><td rowspan="4">E99.00</td><td rowspan="4">Mains frequency fan overload</td><td>If the effective current value keeps greater than the protection value A8-73 within the time defined by A8-74, an overload fault can be reported.</td><td>0: Coast to stop</td><td>0: Coast to stop</td><td>Supported</td></tr>
<tr><td>Possible cause</td><td>Verification method</td><td colspan="2">Solution</td></tr>
<tr><td>1. The power rating of the fan is excessively high.
2. The fan is blocked or stuck with unwanted objects.</td><td>1. Check whether the current motor power meets the selection requirements.
2. Check whether the motor is abnormal.
3. Check the operating environment of the fan.</td><td colspan="2">1. Select a suitable cooling fan. 2. Clear the foreign matter. 3. If the fan is not connected or reports a fault, the drive is faulty.</td></tr>
</table>

4.2 Common Faults and Solutions

NOTE

When automatic fault reset and automatic restart are enabled, ensure that unexpected equipment operation will not cause personal injury or mechanical damage. This function is strictly prohibited for vertical lifting applications; otherwise, heavy loads may fall out of control.

No.	Fault symptom	Possible cause	Solution
1	There is no display upon power-on.	The drive is not connected to the grid or the grid voltage is too low.	Check the input power supply.
		The switched-mode power supply on the drive board of the AC drive is faulty.	Check the bus voltage.
		The cable connecting the control board and the drive board and the operating panel is broken.	Re-connect the 8-pin wire and 40-pin wire.
		The pre-charge resistor of the AC drive is damaged.	Contact Inovance for technical support.
		The control board or the operating panel is faulty.	
		The rectifier bridge is damaged.	
2	"HC" is displayed upon power-on.	The cable connecting the drive board and the control board is in poor contact.	Re-connect the 8-pin and 28-pin flat cables.
		Related components on the control board are damaged.	Contact Inovance for technical support.
		The motor or the motor cable is short-circuited to ground.	
		The Hall sensor is faulty.	
		The grid voltage is excessively low.	

No.	Fault symptom	Possible cause	Solution
3	"Err23" is displayed after power-on.	The motor or the motor cable is short-circuited to ground.	Use an insulation tester to measure the insulation resistance of the motor and motor cable.
		The AC drive is damaged.	Contact Inovance for technical support.
4	The display is normal after power-on. After the drive is operating, "HC" is displayed and the drive stops immediately.	The cooling fan is damaged or does not rotate.	Replace the fan.
		The cable of the external control terminal is short-circuited.	Rectify external short circuit fault.
5	"Err14" (IGBT overheat) is detected frequently.	The carrier frequency is set to a too high value.	Reduce the carrier frequency (F0-15).
		The cooling fan is damaged or the air duct is clogged.	Replace the fan or clean the air duct.
		Components (thermistor or others) inside the drive are damaged.	Contact Inovance for technical support.
6	The motor does not rotate after the drive runs.	Check the motor and motor cables.	Check that the wiring between the AC drive and the motor is proper.
		AC drive parameters (motor parameters) are set improperly.	Restore the factory parameters and reset related parameters properly. Check that the rated motor parameters are set properly, including the rated motor frequency and rated motor speed. Check that F0-01 (Motor 1 control mode) and F0-02 (Command source selection) are set properly. Adjust F3-01 (torque boost) in V/f control mode under heavy load.
		The cable connecting the drive board and control board is in poor contact.	Re-connect the cable to ensure it is connected securely.
		The driver board is faulty.	Contact Inovance for technical support.
7	DI terminals are deactivated.	Parameters are set improperly.	Check and set the parameters in group F4 again.
		The external signal is incorrect.	Re-connect the external signal cable.
		The jumper across OP and +24 V becomes loose.	Secure the jumper across OP and +24V.
		The control board is faulty.	Contact Inovance for technical support.
8	The drive detects overcurrent and overvoltage frequently.	Settings of the motor parameters are incorrect.	Set the motor parameters again or perform motor parameter auto-tuning.
		The acceleration/deceleration time is improper.	Set a proper acceleration/deceleration time.
		The load fluctuates.	Contact Inovance for technical support.
9	"Err17" is reported upon power-on (or during running).	The soft start contactor is not closed.	Check whether the contactor cable is loose. Check whether the contactor is faulty. Check whether 24 V power supply of the contactor is faulty. Contact Inovance for technical support.

5 Maintenance and Inspection

5.1 Daily Inspection

Check the following items on a daily basis to ensure proper operation of the drive. It is recommended to make a copy of this checklist and sign the "Checked" column after each inspection.

Item	Item	Compliance
Installation environment	● Check that the ambient temperature, humidity, and vibration are within the permissible range. ● Check whether the AC drive is installed in an environment without dust, combustible and explosive gases, oil mist, and water drops.	□
Control cabinet	● Check whether the mounting bracket is loose. ● Check that the copper busbar and cable terminals are connected properly or are not corroded.	□
Motor	● Check that the motor is free from abnormal noise. ● Check that the motor is free from abnormal oscillation. ● Check that the motor is connected to the AC drive. ● Check that the motor fixing screws are fastened.	□
Fan	● Check that no abnormal noise or vibration exists on the cooling fan of the AC drive. ● Check that no abnormal noise or vibration exists on the cooling fan of the motor.	□
Load	● Check that motor parameters are set properly. ● Check that the motor is not overloaded. ● Check that excessive mechanical vibration (< 1 g under normal conditions) does not occur.	□
Voltage	● Check that the main circuit voltage is within the permissible range. ● Check that the control circuit voltage is normal. ● Check that no heavy loads are starting nearby.	□
Operating panel	● Check that the operating panel display is clear. ● Check that no character is missing on the operating panel.	□
Main circuit	● Check that no bolt is loose or missing.	□
Filter capacitor	● Check that no liquid leakage, discoloring, cracking, or swollen housing occurs on the filter capacitor.	□
Electromagnetic contactor	● Check that the contactor is closed properly and no abnormal noise exists during operation. ● Check that no short circuit, water stain, swelling, or cracking occurs on external components.	□

5.2 Periodic Inspection

Item	Description	Method and Solution	Inspection Period	Checked
Mechanical components	Check whether abnormal noise or vibration exists. Check whether fasteners such as screws are loose. Check whether deformation or damage occurs. Check whether discoloring occurs due to overheat. Check whether dust or defacement exists.	● Check by observing and hearing. ● Tighten fasteners. ● Replace the deformed or damaged component. ● Clean the dust with a vacuum cleaner, and wipe surface dirt gently with a soft cloth immersed in neutral detergent.	Half a year	□
Cable	Check whether discoloration exists on the cables and connections. Check the cable insulation layer for aging or wear.	● Replace the cracked cable. ● Replace the damaged terminal.	Half a year	□
Air flow duct	Check whether the air filter and heatsink are clogged or stuck with any foreign matter. Check whether the air inlet and outlet are clogged or stuck with any foreign matter.	● Clean the air filter and heatsink. ● Clean the air inlet and outlet.	Half a year	□
Control circuit	Check whether control components are in poor contact. Check whether terminal screws are loose. Check whether control cable insulation is cracked.	● Clean up the surface of control circuit cables and terminals. ● Replace control circuit cables that are damaged or corroded.	Half a year	□

5.3 Replacement of Wear Parts

5.3.1 Lifetime of Wear Parts

The wear parts of the drive include the cooling fan and electrolytic capacitor. The service life of such devices is closely related to the operating environment and maintenance conditions. The general service life is shown in the following table.

Part	Service life [Note]
Fan	≥ Two years
Electrolytic capacitor	≥ Five years



NOTE

The standard lifetime indicates the lifetime when the parts are used in the following conditions. You can determine when to replace these parts according to the actual operating time.

- Ambient temperature: 40° C
- Load rate: 80%
- Operating rate: 24 hours per day

5.3.2 Fan Quantity

Model	Quantity of Fans	Installation Position of Fans for Main Components	Quantity of Fans for Internal Components	Installation Position of Fans for Internal Components
CP700-2T7.5-H	2	Top of the cabinet	0	-
CP700-2T11-H	1	Top of the cabinet	0	-
CP700-2T15-H	1	Top of the cabinet	0	-
CP700-2T18.5-H	1	Top of the cabinet	0	-
CP700-2T22-H	1	Top of the cabinet	0	-
CP700-2T30-H	2	Top of the cabinet	0	-
CP700-2T37-H	2	Top of the cabinet	0	-
CP700-2T45-H	2	Top of the cabinet	0	-
CP700-4T5.5-H	1	Top of the cabinet	0	-
CP700-4T7.5(S)-H	1	Top of the cabinet	0	-
CP700-4T11(S)-H	2	Top of the cabinet	0	-
CP700-4T15(S)-H	2	Top of the cabinet	0	-
CP700-4T18.5(S)-H(1) CP701-4T18.5(S)-H(1)	1	Top of the cabinet	0	-
CP700-4T22(S)-H(1) CP701-4T22(S)-H(1)	1	Top of the cabinet	0	-
CP700-4T30(S)-H(1) CP701-4T30(S)-H(1)	1	Top of the cabinet	0	-
CP700-4T37(S)-H(1) CP701-4T37(S)-H(1)	1	Top of the cabinet	0	
CP700-4T45(S)-H(1) CP701-4T45(S)-H(1)	2	Top of the cabinet	0	-
CP700-4T55(S)-H(1) CP701-4T55(S)-H(1)	2	Top of the cabinet	0	-
CP700-4T75(S)-H(1) CP701-4T75(S)-H(1)	2	Top of the cabinet	0	-
CP700-4T90(S)-H(1) CP701-4T90(S)-H(1)	2	Top of the cabinet	0	-
CP700-4T110(S)-H(1)	2	Top of the cabinet	1	Bottom of the cabinet
CP700-4T132(S)-H(1)	2	Top of the cabinet	1	Bottom of the cabinet
CP700-4T160(S)-H(1)	2	Bottom of the cabinet	1	Inside the cabinet
CP700-4T200(S)-H(1)	2	Bottom of the cabinet	1	Inside the cabinet
CP700-4T110-H-7.5	2	Top of the cabinet	1	Bottom of the cabinet

Model	Quantity of Fans	Installation Position of Fans for Main Components	Quantity of Fans for Internal Components	Installation Position of Fans for Internal Components
CP700-4T132-H-7.5	2	Top of the cabinet	1	Bottom of the cabinet
CP700-4T160-H-7.5	2	Bottom of the cabinet	1	Inside the cabinet
CP700-4T200-H-7.5	2	Bottom of the cabinet	1	Inside the cabinet

5.3.3 Replacing Fans

The possible fan damages include the worn-out bearing or aging blades.

How to determine whether the cooling fan needs to be replaced:

1. Check whether there are signs of cracking on the blade.

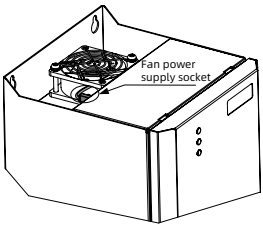
2. Check whether the fan generates an unexpected noise during start.

3. Check whether the blade works properly.

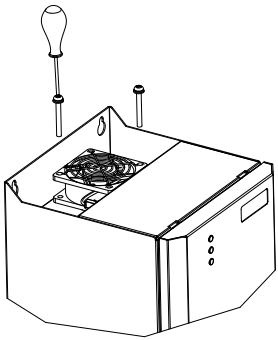
1 Replace one fan at the top of the drive.

Removing the fan of CP700-4T5.5-H to CP700-4T7.5(S)-H

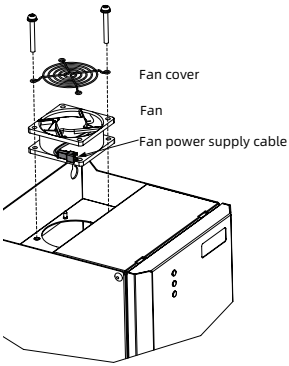
① Disconnect the fan power cable. (Top view)



② Remove the two screws from the fan cover using a screwdriver.

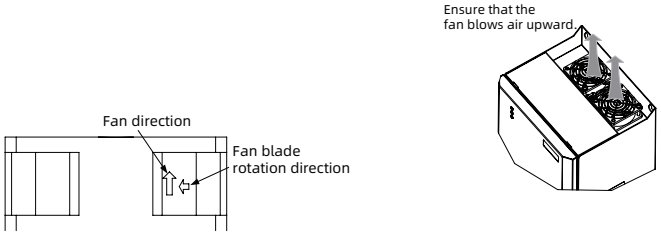


Remove the fan and fan cover from the AC drive.



Installing the fan of CP700-4T5.5-H to CP700-4T7.5(S)-H

① Install the fan in a reverse procedure to removal.
② Pay attention to the direction of the fan. Note that the airflow direction arrow (on the side of the fan) must be upright after the fan is installed.
③ Install the fan and fan cover on the AC drive. Align the mounting holes of the cooling fan, fan cover and the AC drive, as shown in figure 3 of the removal procedure.
④ After replacing the fan, ensure the fan blows air upward.



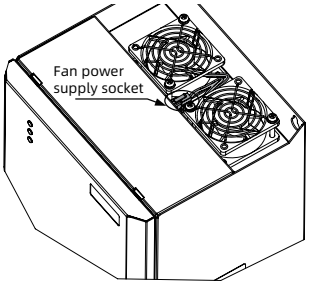
NOTE

- The fan removal and installation methods for the following models are the same as those for the CP700-4T5.5-H to CP700-4T7.5(S)-H models, except that four screws must be removed as shown in figure ② . These models include CP700-2T11-H to CP700-2T22-H, CP700-4T18.5(S)-H(1) to CP700-4T37(S)-H(1), and CP701-4T18.5(S)-H(1) to CP701-4T37(S)-H(1).

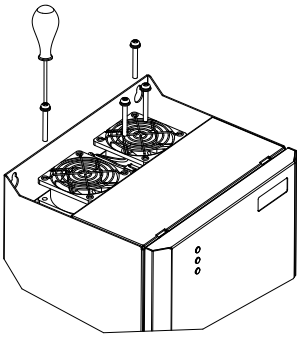
2 Replacing two fans for main components at the top of the cabinet

Removing the fan of CP700-4T11(S)-H to CP700-4T15(S)-H

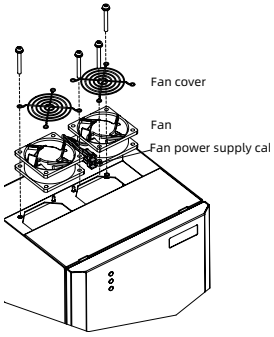
① Disconnect the fan power cable. (Top view)



② Remove the four screws from the fan cover using a screwdriver.

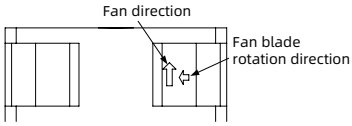


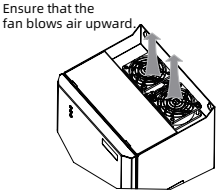
Remove the fan and fan cover from the AC drive.



Installing the fan of CP700-4T11(S)-H to CP700-4T15(S)-H

① Install the fan in a reverse procedure to removal.
② Pay attention to the direction of the fan. Note that the airflow direction arrow (on the side of the fan) must be upright after the fan is installed.
③ Install the fan and fan cover on the AC drive. Align the mounting holes of the cooling fan, fan cover and the AC drive, as shown in figure 3 of the removal procedure.
④ After replacing the fan, ensure the fan blows air upward.





NOTE

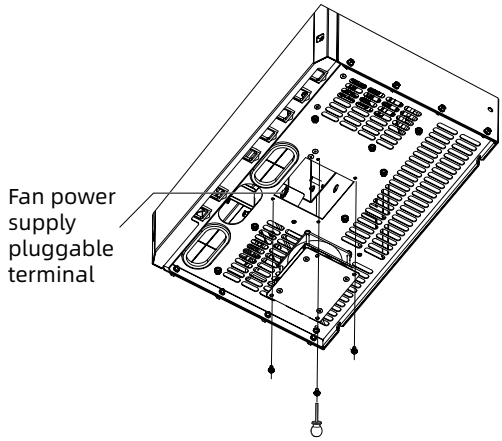
- The fan removal and installation methods for the following models are the same as those for the CP700-4T11(S)-H to CP700-4T15(S)-H models. These models include CP700-2T7.5-H、CP700-2T30-H to CP700-2T45-H, CP700-4T55(S)-H(1) to CP700-4T90(S)-H(1), CP701-4T55(S)-H(1) to CP701-4T90(S)-H(1), CP700-4T110(S)-H(1) to CP700-4T132(S)-H(1), CP700-4T110-H-7.5 to CP700-4T132-H-7.5.
- The fan removal and installation methods for the following models are the same as those for the CP700-4T11(S)-H to CP700-4T15(S)-H models, except that the fan is installed at the bottom of the cabinet and four screws of each fan must be removed. These models include CP700-4T160(S)-H(1) to CP700-4T200(S)-H(1) and CP700-4T160-H-7.5 to CP700-4T200-H-7.5.

3 Replacing the fans for internal components

NOTE

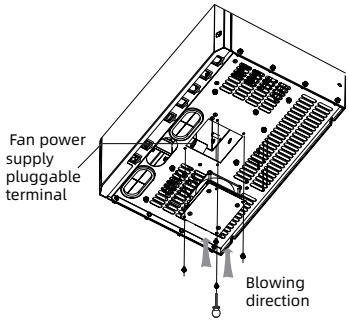
- The CP700-4T110(S)-H(1) to CP700-4T132(S)-H(1) and CP700-4T110-H-7.5 to CP700-4T132-H-7.5 models have one internal cooling fan at the bottom. The CP700-4T160(S)-H(1) to CP700-4T200(S)-H(1) and CP700-4T160-H-7.5 to CP700-4T200-H-7.5 models have one internal cooling fan in the upper part.
- The following part describes how to remove and install the cooling fan at the bottom of the CP700-4T110(S)-H(1) to CP700-4T132(S)-H(1) and CP700-4T110-H-7.5 to CP700-4T132-H-7.5 models and the cooling fan inside the CP700-4T160(S)-H(1) to CP700-4T200(S)-H(1) and CP700-4T160-H-7.5 to CP700-4T200-H-7.5 models.

Removing the internal cooling fan of CP700-4T110(S)-H(1) to CP700-4T132(S)-H(1) and CP700-4T110-H-7.5 to CP700-4T132-H-7.5	
① Remove the four M4 x 10 screws that fix the fan at the bottom of the cabinet.	② Unplug the fan power cable connector from the socket.

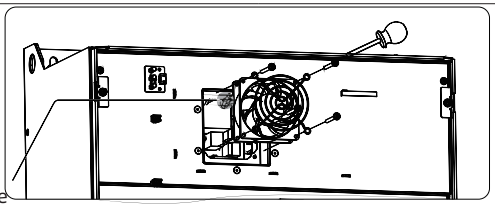


Installing the internal cooling fan of CP700-4T110(S)-H(1) to CP700-4T132(S)-H(1) and CP700-4T110-H-7.5 to CP700-4T132-H-7.5

① Install the fan in the reverse order of removal. Before installing the fan, plug the fan power cable connector.
② Pay attention to the direction of the fan. Note that the airflow direction arrow (on the side of the fan) must be upright after the fan is installed.
③ After the fan is replaced, ensure that the fan blows air upward.

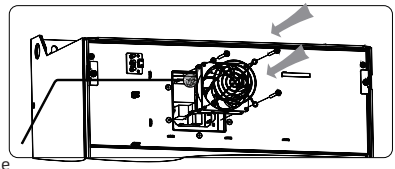


Removing the internal cooling fan of CP700-4T160(S)-H(1) to CP700-4T200(S)-H(1) and CP700-4T160-H-7.5 to CP700-4T200-H-7.5	
① Refer to "2.2.4 Cover Removal and Installation" to open the cover of the cabinet. Remove the four M4 x 45 screws that fix the fan at the top of the cabinet.	② Unplug the fan power cable connector from the socket.



Installing the internal cooling fan of CP700-4T160(S)-H(1) to CP700-4T200(S)-H(1) and CP700-4T160-H-7.5 to CP700-4T200-H-7.5

① Install the fan in the reverse order of removal. Before installing the fan, plug the fan power cable connector.
② Pay attention to the direction of the fan. Note that the airflow direction arrow (on the side of the fan) must be inward after the fan is installed.
③ After the fan is replaced, ensure that the fan blows air inward.



5.4 Storage

To store the AC drive properly, observe the following:

1) Pack the drive into the original packing box provided by Inovance.

2) Do not expose the equipment to environments with moisture, high temperatures, or direct sunlight for a long time.

3) The electrolytic capacitor will deteriorate after long-term storage. Therefore, the AC drive must be switched on once for at least 5 hours every 6 months. The input voltage must be increased slowly to the rated value by using a voltage regulator.

Appendix A Parameter List

For more detailed parameter descriptions, download the My Inovance app (follow the guidance in "Service and Support") and view parameters in the app.

A.1 Basic Parameter List

Para. code	Comm. address	Para. name	Setpoint	Default value	Unit	Change method
F0-00	0xF000	G/P type	1: G model (constant-torque load)	1	-	Unchangeable
F0-01	0xF001	Motor 1 control mode	0: Sensorless vector control (SVC) If the synchronous motor encounters runaway during startup, tune the magnetic pole position current according to actual conditions. Caution: Disabling the magnetic pole position auto-tuning function may cause abnormal motor control. Exercise caution. 2: V/f control	0	-	Change at stop
F0-02	0xF002	Command source selection	0: LCD operating panel/ Software tool 1: Terminal 2: Communication	0	-	Change at stop
F0-03	0xF003	Selection of main frequency source X	0: Digital reference (preset frequency F0-08, which can be changed by UP/DOWN keys and non-retentive upon power failure) 1: Digital reference (preset frequency F0-08, which can be changed by UP/DOWN keys and retentive upon power failure) 2: AI1 3: AI2 5: Pulse reference (DIO1) 6: Multi-reference 7: Simple PLC 8: PID 9: Communication 10: Synchronous control 11: Air compressor control	11	-	Change at stop

Para. code	Comm. address	Para. name	Setpoint	Default value	Unit	Change method
F0-04	0xF004	Auxiliary frequency source Y	0: Digital reference (preset frequency F0-08, which can be changed by UP/DOWN keys and non-retentive upon power failure) 1: Digital reference (preset frequency F0-08, which can be changed by UP/DOWN keys and retentive upon power failure) 2: AI1 3: AI2 5: Pulse reference (DIO1) 6: Multi-reference 7: Simple PLC 8: PID 9: Communication 10: Synchronous control	0	-	Change at stop
F0-05	0xF005	Base value of auxiliary frequency Y range upon superposition	0: Relative to maximum frequency 1: Relative to main frequency X	0	-	Real time
F0-06	0xF006	Range of auxiliary frequency Y upon superposition	0% to 150%	100	%	Real time
F0-07	0xF007	Frequency superposition selection	Ones: Frequency source superposition mode 0: Product of X x Y (operation relationship defined by tens) 2: X x Y switchover 3: X x Y operation result switchover 4: Switching between Y and product of X x Y Tens: Operation result selection 0: X x Y 1: X x Y 2: Max. (X, Y) 3: Min. (X, Y) 4: Main frequency x auxiliary frequency	0	-	Real time
F0-08	0xF008	Preset frequency	0.00 Hz to F0-10	50.00	Hz	Real time
F0-09	0xF009	Operating direction	0: Same direction 1: Opposite direction	0	-	Real time
F0-10	0xF00A	Maximum frequency	50.00–599.00 Hz	155.00	Hz	Change at stop

Para. code	Comm. address	Para. name	Setpoint	Default value	Unit	Change method
F0-11	0xF00B	Frequency upper limit source	0: F0-12 1: AI1 2: AI2 4: Pulse setting (DIO1) 5: Communication 6: Multi-reference	0	-	Change at stop
F0-12	0xF00C	Frequency upper limit	F0-14 to F0-10	155.00	Hz	Real time
F0-13	0xF00D	Frequency upper limit offset	0.00 Hz to F0-10	0.00	Hz	Real time
F0-14	0xF00E	Frequency lower limit	0.00 Hz to F0-12	40.00	Hz	Real time
F0-15	0xF00F	Carrier frequency	2.0 to 8.0	4.0	-	Real time
F0-16	0xF010	Carrier frequency change with temperature	0: Inactive 1: Active	0	-	Real time
F0-17	0xF011	Acceleration time	0.0 to 6500.0	50.0	-	Real time
F0-18	0xF012	Deceleration time	0.0 to 6500.0	50.0	-	Real time
F0-19	0xF013	Acceleration/ Deceleration time unit	0: 1s 1: 0.1s 2: 0.01s	1	-	Change at stop
F0-21	0xF015	Offset frequency of auxiliary frequency upon superposition	0.00 Hz to F0-10	0.00	Hz	Real time
F0-22	0xF016	Frequency reference resolution	2	2	-	Change at stop
F0-23	0xF017	Retention of digital frequency reference upon stop	0: Non-retentive 1: Retentive	0	-	Real time
F0-25	0xF019	Acceleration/ Deceleration time base frequency	0: Maximum frequency (F0-10) 1: Frequency reference 2: 100 Hz	0	-	Change at stop
F0-26	0xF01A	Base value for frequency adjusted by UP/DOWN key during operation	0: Operating frequency 1: Frequency reference	0	-	Change at stop
F0-27	0xF01B	Main frequency coefficient	0.00 % to 100.00%	10.00	%	Real time
F0-28	0xF01C	Auxiliary frequency coefficient	0.00 % to 100.00%	10.00	%	Real time

Para. code	Comm. address	Para. name	Setpoint	Default value	Unit	Change method
F1-00	0xF100	Motor type selection	0: Regular asynchro-nous motor 1: Variable frequency asynchronous motor 2: Permanent magnet synchronous motor	2	-	Change at stop
F1-01	0xF101	Rated power of the motor	0.1 to 1000.0	3.7	-	Change at stop
F1-02	0xF102	Rated motor voltage	1 V to 2000 V	380	V	Change at stop
F1-03	0xF103	Rated current of the motor	0.1 A to 6553.5 A	9.0	A	Change at stop
F1-04	0xF104	Rated motor frequency	0.01 Hz to F0-10	50.00	Hz	Change at stop
F1-05	0xF105	Rated motor speed	1 rpm to 65535 rpm	1460	rpm	Change at stop
F1-06	0xF106	Asynchronous/ Synchronous motor stator resistance	0.0001 to 6.5535	0.1204	-	Change at stop
F1-07	0xF107	Rotor resistance of asynchronous motor	0.0001 to 6.5535	0.0908	-	Change at stop
F1-08	0xF108	Leakage inductance of asynchronous motor	0.001 to 65.535	0.528	-	Change at stop
F1-09	0xF109	Mutual inductance of asynchronous motor	0.01 to 655.35	15.86	-	Change at stop
F1-10	0xF10A	No-load current of asynchronous motor	0.1 A to F1-03	4.2	A	Change at stop
F1-11	0xF10B	Iron core saturation coefficient 1 of asynchronous motor	50.0% to 100.0%	86.0	%	Real time
F1-12	0xF10C	Iron core saturation coefficient 2 of asynchronous motor	100.0% to 150.0%	130.0	%	Real time
F1-13	0xF10D	Iron core saturation coefficient 3 of asynchronous motor	100.0% to 170.0%	140.0	%	Real time
F1-14	0xF10E	Iron core saturation coefficient 4 of asynchronous motor	100.0% to 180.0%	150.0	%	Real time

Para. code	Comm. address	Para. name	Setpoint	Default value	Unit	Change method
F1-17	0xF111	d-axis inductance of synchronous motor	0.001 to 65.535	1.586	-	Change at stop
F1-18	0xF112	Q-axis inductance of synchronous motor	0.001 to 65.535	1.586	-	Change at stop
F1-19	0xF113	Synchronous motor back EMF factor	0.0 V to 6553.5 V	350.0	V	Change at stop
F1-23	0xF117	Friction torque percentage	0.00 to 100.00	0.00	-	Change at stop
F1-26	0xF11A	Direction auto-tuning (inertia auto-tuning and synchronous motor)	0 to 1	1	-	Change at stop
F1-37	0xF125	Motor parameter auto-tuning selection	0: Not applied 1: Static partial auto-tuning of asynchronous motor 2: Dynamic auto-tuning of asynchronous motor 3: Static complete auto-tuning of asynchronous motor 4: Inertia auto-tuning of asynchronous motor (applicable only to FVC mode) 5: Reserved 6: Reserved 7: Reserved 8: Reserved 9: Reserved 10: Reserved 11: No-load dynamic partial parameter auto-tuning of synchronous motor (back EMF excluded) 12: Dynamic no-load auto-tuning of synchronous motor 13: Static complete auto-tuning of synchronous motor 14: Synchronous motor inertia auto-tuning (only in FVC)	0	-	Change at stop
F2-00	0xF200	Speed loop Kp at low speed	1 to 200	30	-	Real time
F2-01	0xF201	Speed loop Ti at low speed	0.001 to 10.000	0.500	-	Real time

Para. code	Comm. address	Para. name	Setpoint	Default value	Unit	Change method
F2-02	0xF202	Switchover frequency 1	0.00 Hz to F2-05	5.00	Hz	Real time
F2-03	0xF203	Speed loop Kp at high speed	1 to 200	10	-	Real time
F2-04	0xF204	Speed loop Ti at high speed	0.001 to 10.000	1.000	-	Real time
F2-05	0xF205	Switchover frequency 2	F2-02 to F0-10	10.00	Hz	Real time
F2-06	0xF206	Vector slip compensation adjustment	50% to 200%	100	%	Real time
F2-07	0xF207	Speed feedback filter time	0.000 to 0.100	0.004	-	Real time
F2-08	0xF208	Vector control overexcitation gain	0 to 200	64	-	Real time
F2-09	0xF209	Torque upper limit source in speed control (motoring)	0: F2-10 1: AI1 2: AI2 3: Reserved 4: Pulse setting (DIO1) 5: Communication 6: Min. (AI1, AI2) 7: Max. (AI1, AI2)	0	-	Real time
F2-10	0xF20A	Torque upper limit in speed control (motoring)	0.0% to 200.0%	150.0	%	Real time
F2-11	0xF20B	Torque upper limit source in speed control (generating)	0: F2-10 1: AI1 2: AI2 3: Reserved 4: Pulse setting (DIO1) 5: Communication 6: Min. (AI1, AI2) 7: Max. (AI1, AI2) 8: Digital reference (F2-11)	8	-	Real time
F2-12	0xF20C	Torque upper limit in speed control (generating)	0.0% to 200.0%	30.0	%	Real time
F2-13	0xF20D	Current loop Kp adjustment at low speed	0.1 to 10.0	1.0	-	Real time
F2-14	0xF20E	Current loop Ki adjustment at low speed	0.1 to 10.0	1.0	-	Real time
F2-15	0xF20F	Current loop Kp adjustment at high speed	0.1 to 10.0	1.0	-	Real time

Para. code	Comm. address	Para. name	Setpoint	Default value	Unit	Change method
F2-16	0xF210	Current loop Ki adjustment at high speed	0.1 to 10.0	1.0	-	Real time
F2-17	0xF211	Speed loop Kp upon zero speed clamp	1 to 100	30	-	Real time
F2-18	0xF212	Speed loop Ti upon zero speed clamp	0.001 to 10.000	0.500	-	Real time
F2-20	0xF214	Speed loop switchover frequency upon zero speed clamp	0.00 Hz to F2-02	0.05	Hz	Real time
F2-21	0xF215	Maximum output voltage coefficient	100 to 110	110	-	Real time
F2-22	0xF216	Output voltage filter time	0.000 to 0.010	0.000	-	Real time
F2-23	0xF217	Zero speed clamp	0: Inactive 1: Active	0	-	Change at stop
F2-24	0xF218	Overvoltage suppression Kp in vector control mode	0 to 1000	40	-	Real time
F2-27	0xF21B	Overvoltage suppression in vector control mode	0: Inactive 1: Active	1	-	Real time
F2-28	0xF21C	Cut-off frequency for torque reference filter	50 to 1000	500	-	Real time
F2-29	0xF21D	Initial position angle detection current of synchronous motor	50 to 180	80	-	Real time
F2-30	0xF21E	Automatic calculation of speed loop parameters	0: Inactive 1: Active	0	-	Change at stop
F2-31	0xF21F	Expected speed loop bandwidth (high speed)	1.0 Hz to 200.0 Hz	10.0	Hz	Real time
F2-32	0xF220	Expected speed loop bandwidth (low speed)	1.0 Hz to 200.0 Hz	10.0	Hz	Real time
F2-33	0xF221	Expected speed loop bandwidth at zero speed	1.0 Hz to 200.0 Hz	10.0	Hz	Real time
F2-34	0xF222	Damping ratio of the expected speed loop	0.100 to 65.000	1.000	-	Real time

Para. code	Comm. address	Para. name	Setpoint	Default value	Unit	Change method
F2-35	0xF223	System inertia (equivalent to the start time)	0.001 to 50.000	0.201	-	Change at stop
F2-36	0xF224	Single motor inertia ($kg·m^2$)	0.001 to 50.000	9.600	-	Change at stop
F2-48	0xF230	Speed loop bandwidth for inertia auto-tuning	0.1 Hz to 100.0 Hz	10.0	Hz	Change at stop
F2-50	0xF232	Inertia auto-tuning mode	0: Acceleration/deceleration mode 1: Triangular wave mode	0	-	Change at stop
F2-51	0xF233	Acceleration/ Deceleration coefficient for inertia auto-tuning	0.1 to 10.0	1.0	-	Change at stop
F2-52	0xF234	Decoupling control enable	0: Inactive 1: Active	1	-	Change at stop
F2-53	0xF235	Generating power limit	0: Inactive 1: Active	0	-	Change at stop
F2-54	0xF236	Generating power limit threshold	0.0% to 200.0%	10.0	%	Change at stop
F3-00	0xF300	V/f curve setting	0: V/f line 1: Multi-point V/f curve 2: Square V/f curve 3: V/f curve (with exponent 1.2) 4: V/f curve (with exponent 1.4) 5: Reserved 6: V/f curve (with exponent 1.6) 8: V/f curve (1.8th power) 7: Reserved 10: Fully-decoupled V/f mode 11: V/f semi-decoupled mode	0	-	Change at stop
F3-01	0xF301	Torque boost	0.0 to 30.0	0.5	%	Real time
F3-02	0xF302	Cut-off frequency of torque boost	0.00 Hz to F0-10	50.00	Hz	Change at stop
F3-03	0xF303	Frequency 1 on multi-point V/f curve	0.00 Hz to F3-05	0.00	Hz	Change at stop
F3-04	0xF304	Voltage 1 on multi-point V/f curve	0.0% to 100.0%	0.0	%	Change at stop

Para. code	Comm. address	Para. name	Setpoint	Default value	Unit	Change method
F3-05	0xF305	Frequency 2 on multi-point V/f curve	F3-03 to F3-07	0.00	Hz	Change at stop
F3-06	0xF306	Voltage 2 on multi-point V/f curve	0.0% to 100.0%	0.0	%	Change at stop
F3-07	0xF307	Frequency point 3 on multi-point V/f curve	F3-05 to F1-04	0.00	Hz	Change at stop
F3-08	0xF308	Voltage point 3 on multi-point V/f curve	0.0% to 100.0%	0.0	%	Change at stop
F3-09	0xF309	Slip compensation gain in V/f mode	0.0% to 200.0%	0.0	%	Real time
F3-10	0xF30A	Over-excitation gain in V/f mode	0 to 200	64	-	Real time
F3-11	0xF30B	Oscillation suppression gain in V/f mode	0 to 100	40	-	Real time
F3-12	0xF30C	Oscillation suppression gain mode	0: Inactive 1: Reserved 2: Reserved 3: Valid	3	-	Change at stop
F3-13	0xF30D	Voltage source in V/f decoupled mode	0: Digital reference (F3-14) 1: AI1 2: AI2 3: Reserved 4: Pulse setting (DIO1) 5: Multi-reference 6: Simple PLC 7: PID 8: Communication	0	-	Real time
F3-14	0xF30E	Voltage digital setting in V/f decoupled mode	0 V to F1-02	0	V	Real time
F3-15	0xF30F	Voltage acceleration time in V/f decoupled mode	0.0 to 1000.0	0.0	-	Real time
F3-16	0xF310	Voltage deceleration time in V/f decoupled mode	0.0 to 1000.0	0.0	-	Real time
F3-17	0xF311	Stop mode in V/f decoupled mode	0: Frequency and voltage decline to 0. 1: Frequency declines after voltage declines to 0.	0	-	Change at stop
F3-18	0xF312	Overcurrent stall action current in V/f mode	50 to 200	150	-	Change at stop

Para. code	Comm. address	Para. name	Setpoint	Default value	Unit	Change method
F3-19	0xF313	Overcurrent stall in V/f mode	0: Inactive 1: Active	1	-	Change at stop
F3-20	0xF314	Overcurrent stall suppression gain in V/f mode	0 to 100	20	-	Real time
F3-21	0xF315	Overcurrent stall action current compensation coefficient upon overspeed in V/f mode	50 to 200	50	-	Change at stop
F3-22	0xF316	Overvoltage stall action voltage in V/f mode	350.0 to 800.0	770.0	-	Change at stop
F3-23	0xF317	Overvoltage stall in V/f mode	0: Inactive 1: Active	1	-	Change at stop
F3-24	0xF318	Overvoltage stall suppression frequency gain in V/f mode	0 to 100	30	-	Real time
F3-25	0xF319	Overvoltage stall suppression voltage gain in V/f mode	0 to 100	30	-	Real time
F3-26	0xF31A	Maximum frequency rise limit upon overvoltage stall	0 to 50	5	-	Change at stop
F7-27	0xF31B	Slip compensation time constant	0.1 to 10.0	0.5	-	Real time
F3-29	0xF31D	Minimum motoring torque current	10 to 100	50	-	Change at stop
F3-30	0xF31E	Maximum generating torque current	10 to 100	20	-	Change at stop
F3-33	0xF321	Online torque compensation gain	80 to 150	100	-	Change at stop

Para. code	Comm. address	Para. name	Setpoint	Default value	Unit	Change method
F4-00	0xF400	DI1 function selection	0: Not assigned 1: Forward run (FWD) 2: Reverse run (REV) 3: Three-wire operation control 4: Forward jog (FJOG) 5: Reverse jog (RJOG) 6: Functioning as the UP key 7: Function as the DOWN key 8: Coast to stop 9: Fault reset (RESET) 10: Operation pause 11: External fault NO input 12: Multi-reference terminal 1 13: Multi-reference terminal 2 14: Multi-reference terminal 3 15: Multi-reference terminal 4 16: Acceleration/Deceleration time selection terminal 1 17: Acceleration/Deceleration time selection terminal 2 18: Frequency source switchover 19: UP and DOWN setting clear (terminal, operating panel) 20: Command source switchover 21: Acceleration/Deceleration inhibited 22: PID pause 23 to 28: Reserved 29: Torque control prohibited 31: Reserved 32: Immediate DC braking 33: External fault NC input	33	-	Change at stop

Para. code	Comm. address	Para. name	Setpoint	Default value	Unit	Change method
F4-00	0xF400	DI1 function selection	34: Frequency modification enable 35: PID action direction reversal 36: External stop terminal 1 37: Command source switchover terminal 2 38: PID integral pause 39: Switchover between main frequency reference X and preset frequency 40: Switchover between auxiliary frequency reference Y and preset frequency 41 to 42: Reserved 43: PID parameter switchover 44: User-defined fault 1 45: User-defined fault 2 46: Speed control/ Torque control switchover 47: Emergency stop 48: External stop terminal 2 49: Decelerate to DC braking 50: Present operating time clear 51: Two-wire/Three-wire control switchover 52: Startup protection terminal 53: Oil separator element clogged 54: Separator clogged 55: Oil filter clogged 56: Air filter clogged 57: PTC1 input 58: PTC2 input 59: Water pump pressure difference too low 60: Remote start/stop 61 to 63: Reserved	33	-	Change at stop
F4-01	0xF401	DI2 function	Same as F4-00	1	-	Change at stop
F4-02	0xF402	DI3 function	Same as F4-00	1	-	Change at stop
F4-03	0xF403	DI4 function	Same as F4-00	0	-	Change at stop
F4-04	0xF404	DI5 function	Same as F4-00	0	-	Change at stop

Para. code	Comm. address	Para. name	Setpoint	Default value	Unit	Change method
F4-05	0xF405	DI6 terminal function selection	Same as F4-00	0	-	Change at stop
F4-10	0xF40A	DI filter time	0.000 to 1.000	0.100	-	Real time
F4-11	0xF40B	Terminal command mode	0: Two-wire mode 1 1: Two-wire mode 2 2: Three-wire mode 1 3: Three-wire mode 2	0	-	Change at stop
F4-12	0xF40C	Step value of frequency adjusted by terminal functioning as UP/DOWN keys	0.001 Hz to 65.535 Hz	1.000	Hz	Real time
F4-13	0xF40D	Minimum input of AI curve 1	-10.00 V to F4-15	-10.00	V	Real time
F4-14	0xF40E	Percentage corresponding to the minimum input of AI curve 1	-100.0% to +100.0%	-100.0	%	Real time
F4-15	0xF40F	Maximum input of AI curve 1	F4-13 to 10.00 V	10.00	V	Real time
F4-16	0xF410	Percentage corresponding to the maximum input of AI curve 1	-100.0% to +100.0%	100.0	%	Real time
F4-17	0xF411	AI1 filter time	0.00 to 10.00	0.10	-	Real time
F4-18	0xF412	AI curve 2 minimum input	0.00 V to F4-20	2.00	V	Real time
F4-19	0xF413	Percentage corresponding to the minimum input of AI curve 2	-100.0% to +100.0%	0.0	%	Real time
F4-20	0xF414	Maximum input of AI curve 2	F4-18 to 10.00 V	10.00	V	Real time
F4-21	0xF415	Percentage corresponding to the maximum input of AI curve 2	-100.0% to +100.0%	100.0	%	Real time
F4-22	0xF416	AI2 filter time	0.00 to 10.00	0.10	-	Real time
F4-23	0xF417	Minimum input of AI curve 3	-10.00 V to F4-25	2.00	V	Real time
F4-24	0xF418	Corresponding percentage of AI curve 3 minimum input	-100.0% to +100.0%	0.0	%	Real time

Para. code	Comm. address	Para. name	Setpoint	Default value	Unit	Change method
F4-25	0xF419	Maximum input of AI curve 3	F4-23 to 10.00 V	10.00	V	Real time
F4-26	0xF41A	Percentage corresponding to the maximum input of AI curve 3	-100.0% to +100.0%	100.0	%	Real time
F4-28	0xF41C	Minimum frequency for pulse input	0.00 to F4-30	0.00	-	Real time
F4-29	0xF41D	Percentage corresponding to the minimum pulse input	-100.0% to +100.0%	0.0	%	Real time
F4-30	0xF41E	Pulse input maximum frequency	F4-28 to 100.00	50.00	-	Real time
F4-31	0xF41F	Corresponding setting of maximum pulse input	-100.0% to +100.0%	100.0	%	Real time
F4-32	0xF420	Pulse input filter time	0.00 to 10.00	0.10	-	Real time
F4-34	0xF422	Setting for the AI lower than the minimum input	Ones: AI1 0: Minimum value 1: 0.0% Tens: AI2 0: Minimum value 1: 0.0% Hundreds: Reserved	0x0	-	Real time
F4-35	0xF423	DI1 delay time	0.0 to 3600.0	0.0	-	Real time
F4-36	0xF424	DI2 delay time	0.0 to 3600.0	0.0	-	Real time
F4-37	0xF425	DI3 delay time	0.0 to 3600.0	0.0	-	Real time
F4-38	0xF426	DI active state setting 1	0: Active high 1: Active low Ones: DI1 Tens: DI2 Hundreds: DI3 Thousands: DI4 Ten-thousands: DI5	0	-	Change at stop
F4-40	0xF428	AI input type	0: Voltage input 1: Current input (input impedance 500 Ω) 2: Current input (input impedance: 250 Ω)	0	-	Change at stop

Para. code	Comm. address	Para. name	Setpoint	Default value	Unit	Change method
F5-01	0xF501	First solenoid valve T1A/T1C action selection (available only in standard AC drive mode)	0: No output 1: AC drive in operation 2: Fault output (stop at fault) 3: Frequency-level detection 1 (FDT1) output 4: Frequency arrival 5: Operating at zero speed (no output at stop) 6: Motor overload pre-alarm 7: AC drive overload pre-alarm 8: Set count value arrival 9: Designated count value arrival 10: Length arrival 11: PLC cycle completed 12: Cumulative operating time arrival 13: Frequency limited 14: Torque limited 15: Ready to run 16: AI1 > AI2 17: Frequency upper limit arrival 18: Frequency lower limit arrival (operation-related) 19: Undervoltage state 20: Communication	0	-	Real time

Para. code	Comm. address	Para. name	Setpoint	Default value	Unit	Change method
F5-01	0xF501	First solenoid valve T1A/T1C action selection (available only in standard AC drive mode)	0x2001 address: bit0: T4A-T4C bit1: T5A-T5C bit2: T3A-T3C bit3: T2A-T2C 23: Operating at zero speed 2 (generating output at stop) 24: Cumulative power-on time arrival 25: Frequency-level detection 2 (FDT2) output 26: Frequency 1 arrival 27: Frequency 2 arrival 28: Current 1 arrival 29: Current 2 arrival 30: Timing arrival 31: AI1 input limit exceeded 32: AC drive output load loss 33: Reverse run in progress 34: Zero current state 35: Module temperature arrival 36: Output current limit exceeded 37: Frequency lower limit arrival (generating output at stop) 38: Output upon fault or alarm 39: Motor overtemperature pre-alarm 40: Current operating time reached 41: Fault 2 42: Fault 3	0	-	Real time
F5-02	0xF502	Expansion board relay 1 (T3A/T3C)	Same as F5-01	0	-	Real time
F5-03	0xF503	Action selection of the 2nd solenoid valve (T2A/T2C)	Same as F5-01	0	-	Real time
F5-04	0xF504	Expansion board relay 2 (T4A/T4C)	Same as F5-01	0	-	Real time
F5-05	0xF505	Expansion board relay 3 (T5A/T5C)	Same as F5-01	0	-	Real time
F5-18	0xF512	Relay output delay	0.0 to 3600.0	0.0	-	Real time

Para. code	Comm. address	Para. name	Setpoint	Default value	Unit	Change method
F6-00	0xF600	Start-up mode	0: Direct start 1: Flying start (asynchronous AC motor) 2: Pre-excited startup (asynchronous motor)	0	-	Real time
F6-01	0xF601	Flying start mode	0: Starting from stop frequency 1: Starting from 50 Hz 2: Starting from the maximum frequency	0	-	Change at stop
F6-02	0xF602	Flying start speed	1 to 100	20	-	Real time
F6-03	0xF603	Start frequency	0.00 Hz to 10.00 Hz	0.00	Hz	Real time
F6-04	0xF604	Start frequency hold time	0.0 to 100.0	0.5	-	Change at stop
F6-05	0xF605	DC braking current/ Pre-excitation current at start	0% to 100%	0	%	Change at stop
F6-06	0xF606	DC braking time/ Pre-excitation time at start	0.0 to 100.0	0.0	-	Change at stop
F6-07	0xF607	Acceleration/ Deceleration mode	0: Linear 1: S-curve	0	-	Change at stop
F6-08	0xF608	Time proportion of S-curve start segment	0.0% to 100.0%	30.0	%	Change at stop
F6-09	0xF609	Time proportion of S-curve end segment	0.0% to 100.0%	30.0	%	Change at stop
F6-10	0xF60A	Stop mode	0: Decelerate to stop 1: Coast to stop	1	-	Change at stop
F6-11	0xF60B	Start frequency of DC braking at stop	0.00 Hz to F0-10	0.00	Hz	Real time
F6-12	0xF60C	DC braking waiting time at stop	0.0 to 100.0	0.0	-	Real time
F6-13	0xF60D	DC braking current at stop	0% to 100%	0	%	Real time
F6-14	0xF60E	DC braking time at stop	0.0 to 100.0	0.0	-	Real time
F6-15	0xF60F	Braking utilization rate	0% to 100%	100	%	Change at stop
F6-16	0xF610	Closed loop current Kp of flying start	0 to 1000	500	-	Real time

Para. code	Comm. address	Para. name	Setpoint	Default value	Unit	Change method
F6-17	0xF611	Closed-loop current Ki in speed tracking	0 to 1000	800	-	Real time
F6-18	0xF612	Flying start current	30 to 200	100	-	Real time
F6-20	0xF614	Voltage rise time of flying start	0.5 to 3.0	1.0	-	Real time
F6-21	0xF615	Demagnetization time	0.00 to 10.00	1.00	-	Real time
F7-03	0xF703	Parameter 1 displayed on LED operating panel during operation	bit0: Operating frequency (Hz) bit1: Frequency reference (Hz) bit2: Bus voltage (V) bit3: Output voltage (V) bit4: Output current (A) bit5: Output power (kW) bit6: Output torque (%) bit7: DI input status bit8: DO output status bit9: AI1 voltage (V) bit10: AI2 voltage (V) bit11: Reserved bit12: Count value bit13: Length value bit14: Load speed bit15: PID reference	0x001F	-	Real time
F7-04	0xF704	Parameter 2 displayed on LED operating panel during operation	bit0: PID feedback bit1: PLC stage bit2: Pulse input frequency (kHz) bit3: Operating frequency 2 (Hz) bit4: Remaining operating time bit5: Pre-correction AI1 voltage (V) bit6: Pre-correction AI2 voltage (V) bit7: Reserved bit8: Linear speed bit9: Current power-on time (hour) bit10: Current running time (min) bit11: Pulse input frequency (kHz) bit12: Value set via communication bit13: Reserved bit14: Display of main x auxiliary frequency Y (Hz)	0x0	-	Real time

Para. code	Comm. address	Para. name	Setpoint	Default value	Unit	Change method
F7-05	0xF705	Parameter displayed on LED operating panel at stop	bit0: Frequency reference (Hz) bit1: Bus voltage (V) bit2: DI input status bit3: DO output status bit4: AI1 voltage (V) bit5: AI2 voltage (V) bit6: Reserved bit7: Count value bit8: Length value bit9: PLC stage bit10: Load speed display bit11: PID reference bit12: Pulse input reference (kHz) bit13: Reserved bit14: Reserved bit15: Reserved	0x0033	-	Real time
F7-06	0xF706	Load speed display coefficient	0.0001 to 6.5000	1.0000	-	Real time
F7-12	0xF70C	Number of decimal places of load speed display	0: Zero decimal places 1: One decimal place 2: Two decimal places 3: Three decimal places	1	-	Real time
F8-00	0xF800	Jog frequency	0.00 Hz to F0-10	2.00	Hz	Real time
F8-01	0xF801	Jog acceleration time	0.0 to 6500.0	20.0	-	Real time
F8-02	0xF802	Jog deceleration time	0.0 to 6500.0	20.0	-	Real time
F8-03	0xF803	Acceleration time 2	0.0 to 6500.0	50.0	-	Real time
F8-04	0xF804	Deceleration time 2	0.0 to 6500.0	50.0	-	Real time
F8-05	0xF805	Acceleration time 3	0.0 to 6500.0	50.0	-	Real time
F8-06	0xF806	Deceleration time 3	0.0 to 6500.0	50.0	-	Real time
F8-07	0xF807	Acceleration time 4	0.0 to 6500.0	50.0	-	Real time
F8-08	0xF808	Deceleration time 4	0.0 to 6500.0	50.0	-	Real time
F8-09	0xF809	Skip frequency 1	0.00 Hz to F0-10	0.00	Hz	Real time

Para. code	Comm. address	Para. name	Setpoint	Default value	Unit	Change method
F8-10	0xF80A	Skip frequency 2	0.00 Hz to F0-10	0.00	Hz	Real time
F8-11	0xF80B	Skip frequency amplitude	0.00 Hz to 5.00 Hz	0.00	Hz	Real time
F8-12	0xF80C	Dead time for forward/reverse run switchover	0.0 to 3000.0	0.0	-	Real time
F8-13	0xF80D	Reverse control enable	0: Active 1: Inactive	0	-	Real time
F8-14	0xF80E	Operation mode at frequencies below the lower limit	0: Operating at frequency lower limit 1: Stop 2: Operating at zero speed	0	-	Real time
F8-16	0xF810	Cumulative power-on time threshold	0 to 65000	0	-	Real time
F8-17	0xF811	Cumulative running time threshold	0 to 65000	0	-	Real time
F8-18	0xF812	Startup protection	0: Disable 1: Enable	0	-	Real time
F8-19	0xF813	Frequency detection value 1	0.00 Hz to F0-10	50.00	Hz	Real time
F8-20	0xF814	Frequency detection hysteresis rate 1	0.0% to 100.0%	5.0	%	Real time
F8-21	0xF815	Frequency arrival detection amplitude	0.0% to 100.0%	0.0	%	Real time
F8-22	0xF816	Skip frequency state during acceleration/ deceleration	0: Inactive 1: Active	0	-	Real time
F8-25	0xF819	Frequency for acceleration time 1/2 switchover	0.00 Hz to F0-10	0.00	Hz	Real time
F8-26	0xF81A	Frequency threshold for switching deceleration time 1/2	0.00 Hz to F0-10	0.00	Hz	Real time
F8-27	0xF81B	Jog control through terminal with priority	0: Inactive 1: Active	0	-	Real time
F8-28	0xF81C	Frequency detection value 2	0.00 Hz to F0-10	50.00	Hz	Real time

Para. code	Comm. address	Para. name	Setpoint	Default value	Unit	Change method
F8-29	0xF81D	Frequency detection hysteresis rate 2	0.0% to 100.0%	5.0	%	Real time
F8-30	0xF81E	Frequency detection base value 1	0.00 Hz to F0-10	50.00	Hz	Real time
F8-31	0xF81F	Frequency arrival detection amplitude 1	0.0% to 100.0%	0.0	%	Real time
F8-32	0xF820	Frequency detection base value 2	0.00 Hz to F0-10	50.00	Hz	Real time
F8-33	0xF821	Frequency arrival detection amplitude 2	0.0% to 100.0%	0.0	%	Real time
F8-34	0xF822	Zero current detection level	0.0% to 300.0%	5.0	%	Real time
F8-35	0xF823	Zero current detection delay time	0.01 to 600.00	0.10	-	Real time
F8-36	0xF824	Output current limit violation threshold	0.0% to 300.0%	200.0	%	Real time
F8-37	0xF825	Software overcurrent detection delay time	0.00 to 600.00	0.00	-	Real time
F8-38	0xF826	Current detection base value 1	0.0% to 300.0%	100.0	%	Real time
F8-39	0xF827	Amplitude of current arrival 1	0.0% to 300.0%	0.0	%	Real time
F8-40	0xF828	Current detection base value 2	0.0% to 300.0%	100.0	%	Real time
F8-41	0xF829	Amplitude of current arrival 2	0.0% to 300.0%	0.0	%	Real time
F8-42	0xF82A	Timing function	0: Inactive 1: Active	0	-	Change at stop
F8-43	0xF82B	Timed operation time selection	0: Set by F8-44 (Timing duration) 1: AI1 2: AI2	0	-	Change at stop
F8-44	0xF82C	Timing operation time	0.0 to 6500.0	0.0	-	Change at stop
F8-45	0xF82D	Lower limit of AI1 input voltage protection value	0.00 V to F8-46	3.10	V	Real time

Para. code	Comm. address	Para. name	Setpoint	Default value	Unit	Change method
F8-46	0xF82E	AI1 input voltage protection upper limit	F8-45 to 11.00 V	6.80	V	Real time
F8-47	0xF82F	Module temperature reach	0 to 100	75	-	Real time
F8-48	0xF830	Fan control	0: Working during operation 1: Working continuously	0	-	Real time
F8-49	0xF831	Wake-up frequency	F8-51 to F0-10	0.00	Hz	Real time
F8-50	0xF832	Wakeup delay time	0.0 to 6500.0	0.0	-	Real time
F8-51	0xF833	Hibernation frequency	0.00 Hz to F8-49	0.00	Hz	Real time
F8-52	0xF834	Hibernation delay time	0.0 to 6500.0	0.0	-	Real time
F8-53	0xF835	Present operating time threshold	0.0 to 6500.0	0.0	-	Real time
F8-55	0xF837	Ramp-down time for emergency stop	0.0 to 6500.0	0.0	-	Real time
F9-00	0xF900	Motor overload protection enable	0: Inactive 1: Active	0	-	Real time
F9-01	0xF901	Motor overload protection gain	0.20 to 10.00	1.00	-	Real time
F9-02	0xF902	Motor overload pre-alarm coefficient	50% to 100%	80	%	Real time
F9-06	0xF906	Output phase loss detection before start	0: Inactive 1: Active	0	-	Real time
F9-07	0xF907	Software-based short circuit to ground detection	0: Not detected 1: Detected before power-on 2: Detected before operation 3: Detected before power-on and operation	0	-	Change at stop
F9-09	0xF909	Number of automatic fault resets	0 to 20	0	-	Real time

Para. code	Comm. address	Para. name	Setpoint	Default value	Unit	Change method
F9-10	0xF90A	DO action during automatic fault reset	0: Not act 1: Act	0	-	Real time
F9-11	0xF90B	Time interval of automatic fault reset	0.1 to 100.0	1.0	-	Real time
F9-48	0xF930	Protection action selection 1 upon fault	Ones: E11 0: Coast to stop 1: Decelerate to stop 4: Alarm 5: Disabled Tens: Reserved 5: Disabled Hundreds: E13 0: Coast to stop 1: Decelerate to stop 4: Alarm 5: Disabled Thousands: E14 0: Coast to stop Ten thousands: E15 0: Coast to stop 1: Decelerate to stop 4: Alarm 5: Disabled	222	-	Change at stop
F9-49	0xF931	Protection action selection 2 upon fault	Ones: E16 0: Coast to stop 1: Decelerate to stop 4: Alarm 5: Disabled Tens: Reserved 5: Disabled Hundreds: Reserved 0: Coast to stop Thousands: E19 0: Coast to stop 4: Alarm 5: Disabled Ten-thousands: E20 0: Coast to stop 4: Alarm 5: Disabled	50000	-	Change at stop
F9-50	0xF932	Protection action selection 3 upon fault	Ones: E21 0: Coast to stop Tens: E22 0: Coast to stop 5: Disabled Hundreds: E23 0: Coast to stop 5: Disabled Thousands: E24 0: Coast to stop 5: Disabled Ten-thousands: E25 5: Disabled	55000	-	Change at stop

Para. code	Comm. address	Para. name	Setpoint	Default value	Unit	Change method
F9-51	0xF933	Protection action selection 4 upon fault	Ones: E26 0: Coast to stop 1: Decelerate to stop 4: Alarm 5: Disabled Tens: E27 0: Coast to stop 1: Decelerate to stop 4: Alarm 5: Disabled Hundreds: E28 0: Coast to stop 1: Decelerate to stop 4: Alarm 5: Disabled Thousands: E29 0: Coast to stop 1: Decelerate to stop 4: Alarm 5: Disabled Ten-thousands: E30 0: Coast to stop 1: Decelerate to stop 4: Alarm 5: Disabled	50000	-	Change at stop
F9-52	0xF934	Protection action selection 5 upon fault	Ones: E31 0: Coast to stop 1: Decelerate to stop 4: Alarm 5: Disabled Tens: Reserved 0: Coast to stop Hundreds: E41 0: Coast to stop 1: Decelerate to stop 4: Alarm 5: Disabled Thousands: E42 0: Coast to stop 1: Decelerate to stop 4: Alarm 5: Disabled Ten-thousands: E43 0: Coast to stop 1: Decelerate to stop 4: Alarm 5: Disabled	52525	-	Change at stop

Para. code	Comm. address	Para. name	Setpoint	Default value	Unit	Change method
F9-53	0xF935	Protective action selection 6 upon fault	Ones: E45 0: Coast to stop 1: Decelerate to stop 4: Alarm 5: Disabled Tens: Reserved 0: Coast to stop 5: Disabled Hundreds: Reserved 5: Disabled Thousands: Reserved 5: Disabled Ten-thousands: E80 5: Disabled	55500	-	Change at stop
F9-54	0xF936	Frequency for continuing operation upon fault	0: Operating at current frequency 1: Operating at set frequency 2: Operating at frequency upper limit 3: Operating at frequency lower limit 4: Backup frequency upon fault	1	-	Real time
F9-55	0xF937	Backup frequency upon fault	0.0% to 100.0%	100.0	%	Real time
F9-56	0xF938	Motor temperature sensor type	0: No temperature sensor (AI1 channel as analog input) 1: PT100 2: PT1000	0	-	Real time
F9-57	0xF939	Motor overtemperature protection threshold	0 to 200	110	-	Real time
F9-58	0xF93A	Motor overtemperature pre-alarm threshold	0 to 200	90	-	Real time
F9-59	0xF93B	Action upon power dip ride-through	0: Inactive 1: Bus voltage constant control 2: Decelerate to stop	0	-	Change at stop
F9-60	0xF93C	Voltage threshold for recovering from power dip ride-through	80% to 100%	85	%	Real time
F9-61	0xF93D	Time for judging voltage recovery from power dip ride-through	0.0 to 100.0	0.5	-	Real time
F9-62	0xF93E	Threshold for enabling power dip ride-through	60% to 100%	80	%	Real time

Para. code	Comm. address	Para. name	Setpoint	Default value	Unit	Change method
F9-64	0xF940	Load loss detection level	0.0% to 100.0%	10.0	%	Real time
F9-65	0xF941	Load loss detection time	0.0 to 60.0	1.0	-	Real time
F9-67	0xF943	Overspeed detection value	0.0% to 50.0%	5.0	%	Real time
F9-68	0xF944	Overspeed detection time	0.0 to 60.0	1.0	-	Real time
F9-69	0xF945	Detection value for excessive speed deviation	0.0% to 50.0%	20.0	%	Real time
F9-70	0xF946	Detection time for excessive speed deviation	0.0 to 60.0	10.0	-	Real time
F9-71	0xF947	Power dip ride-through gain	0 to 100	40	-	Real time
F9-72	0xF948	Power dip ride-through integral	0 to 100	30	-	Real time
F9-73	0xF949	Deceleration time of power dip ride-through	0.0 to 300.0	20.0	-	Real time
F9-97	0xF961	Bus oscillation threshold	40 to 100	55	-	Real time
F9-98	0xF962	Bus oscillation time	10 to 600	60	-	Real time
F9-99	0xF963	Bus oscillation suppression	0 to 1	1	-	Change at stop
FA-00	0xFA00	PID setting source	0: FA-01 1: AI1 2: AI2 3: Reserved 4: Pulse reference (DIO1) 5: Communication 6: Multi-reference	0	-	Real time
FA-01	0xFA01	PID value reference	0.0% to 100.0%	50.0	%	Real time

Para. code	Comm. address	Para. name	Setpoint	Default value	Unit	Change method
FA-02	0xFA02	PID feedback source	0: AI1 1: AI2 2: Reserved 3: AI1-AI2 4: Pulse reference (DIO1) 5: Communication 6: AI1+AI2 7: Max. (|AI1|, |AI2|) 8: Min. (|AI1|, |AI2|)	0	-	Real time
FA-03	0xFA03	PID acting direction	0: Direct acting 1: Reverse acting	0	-	Real time
FA-04	0xFA04	PID reference feed-back range	0 to 65535	1000	-	Real time
FA-05	0xFA05	Proportional gain Kp1	0.0 to 1000.0	20.0	-	Real time
FA-06	0xFA06	Integral time Ti 1	0.01 to 100.00	0.30	-	Real time
FA-07	0xFA07	Derivative time Td 1	0.000 to 10.000	0.000	-	Real time
FA-08	0xFA08	Cutoff frequency of PID reverse acting	0.00 Hz to F0-10	2.00	Hz	Real time
FA-09	0xFA09	PID deviation limit	0.0% to 100.0%	0.0	%	Real time
FA-10	0xFA0A	PID derivative limit	0.00 % to 100.00%	0.10	%	Real time
FA-11	0xFA0B	PID reference change time	0.00 to 650.00	0.00	-	Real time
FA-12	0xFA0C	PID feedback filter time	0.00 to 60.00	0.00	-	Real time
FA-13	0xFA0D	PID deviation gain	0.0% to 100.0%	100.0	%	Real time
FA-15	0xFA0F	Proportional gain Kp 2	0.0 to 1000.0	20.0	-	Real time
FA-16	0xFA10	Integral time Ti2	0.01 to 100.00	2.00	-	Real time
FA-17	0xFA11	Derivative time Td 2	0.000 to 10.000	0.000	-	Real time

Para. code	Comm. address	Para. name	Setpoint	Default value	Unit	Change method
FA-18	0xFA12	PID parameter switchover condition	0: Not switched 1: Switched based on DI terminal 2: Switched automatically based on deviation 3: Switched automatically based on operating frequency 4: Reserved 5: Reserved 6: Adjusted automatically based on roll diameter 7: Adjusted automatically based on percentage of maximum roll diameter	0	-	Real time
FA-19	0xFA13	PID parameter switchover deviation 1	0.0% to FA-20	20.0	%	Real time
FA-20	0xFA14	PID parameter switchover deviation 2	FA-19 to 100.0%	80.0	%	Real time
FA-21	0xFA15	PID initial value	0.0% to 100.0%	0.0	%	Real time
FA-22	0xFA16	PID initial value hold time	0.00 to 650.00	0.00	-	Real time
FA-23	0xFA17	Positive maximum deviation between two PID outputs	0.00 % to 100.00%	1.00	%	Real time
FA-24	0xFA18	Negative maximum deviation between two PID outputs	0.00 % to 100.00%	1.00	%	Real time
FA-25	0xFA19	PID integral property	0: Inactive 1: Active	1	-	Real time
FA-26	0xFA1A	Detection value for PID feedback loss	0.0% to 100.0%	0.0	%	Real time
FA-27	0xFA1B	Detection time for PID feedback loss	0.0 to 20.0	0.0	-	Real time
FC-00	0xFC00	Multi-reference 0	-100.0% to +100.0%	0.0	%	Real time
FC-01	0xFC01	Multi-reference 1	-100.0% to +100.0%	0.0	%	Real time
FC-02	0xFC02	Multi-reference 2	-100.0% to +100.0%	0.0	%	Real time
FC-03	0xFC03	Multi-reference 3	-100.0% to +100.0%	0.0	%	Real time

Para. code	Comm. address	Para. name	Setpoint	Default value	Unit	Change method
FC-04	0xFC04	Multi-reference 4	-100.0% to +100.0%	0.0	%	Real time
FC-05	0xFC05	Multi-reference 5	-100.0% to +100.0%	0.0	%	Real time
FC-06	0xFC06	Multi-reference 6	-100.0% to +100.0%	0.0	%	Real time
FC-07	0xFC07	Multi-reference 7	-100.0% to +100.0%	0.0	%	Real time
FC-08	0xFC08	Multi-reference 8	-100.0% to +100.0%	0.0	%	Real time
FC-09	0xFC09	Multi-reference 9	-100.0% to +100.0%	0.0	%	Real time
FC-10	0xFC0A	Multi-reference 10	-100.0% to +100.0%	0.0	%	Real time
FC-11	0xFC0B	Multi-reference 11	-100.0% to +100.0%	0.0	%	Real time
FC-12	0xFC0C	Multi-reference 12	-100.0% to +100.0%	0.0	%	Real time
FC-13	0xFC0D	Multi-reference 13	-100.0% to +100.0%	0.0	%	Real time
FC-14	0xFC0E	Multi-reference 14	-100.0% to +100.0%	0.0	%	Real time
FC-15	0xFC0F	Multi-reference 15	-100.0% to +100.0%	0.0	%	Real time
FC-16	0xFC10	Simple PLC operation mode	0: Stop after a single-shot operation 1: Keep final values after single-shot operation 2: Operating cyclically	0	-	Real time
FC-17	0xFC11	Simple PLC retention selection	Ones position: Retentive at power down 0: Non-retentive 1: Retentive Tens: Retention selection upon stop 0: No 1: Yes	0	-	Real time
FC-18	0xFC12	Operating time of multi-reference 0 set by simple PLC	0.0 to 6553.5	0.0	-	Real time
FC-19	0xFC13	Ramp-up/down time of multi-reference 0 set by simple PLC	0 to 3	0	-	Real time

Para. code	Comm. address	Para. name	Setpoint	Default value	Unit	Change method
FC-20	0xFC14	Operating time of multi-reference 1 set by simple PLC	0.0 to 6553.5	0.0	-	Real time
FC-21	0xFC15	Ramp-up/down time of multi-reference 1 set by simple PLC	0 to 3	0	-	Real time
FC-22	0xFC16	Running time of multi-reference 2 set by simple PLC	0.0 to 6553.5	0.0	-	Real time
FC-23	0xFC17	Ramp-up/down time of multi-reference 2 set by simple PLC	0 to 3	0	-	Real time
FC-24	0xFC18	Operating time of multi-reference 3 set by simple PLC	0.0 to 6553.5	0.0	-	Real time
FC-25	0xFC19	Ramp-up/down time of multi-reference 3 set by simple PLC	0 to 3	0	-	Real time
FC-26	0xFC1A	Operating time of multi-reference 4 set by simple PLC	0.0 to 6553.5	0.0	-	Real time
FC-27	0xFC1B	Ramp-up/down time of multi-reference 4 set by simple PLC	0 to 3	0	-	Real time
FC-28	0xFC1C	Operating time of multi-reference 5 set by simple PLC	0.0 to 6553.5	0.0	-	Real time
FC-29	0xFC1D	Ramp-up/down time of multi-reference 5 set by simple PLC	0 to 3	0	-	Real time
FC-30	0xFC1E	Operating time of multi-reference 6 set by simple PLC	0.0 to 6553.5	0.0	-	Real time
FC-31	0xFC1F	Ramp-up/down time of multi-reference 6 set by simple PLC	0 to 3	0	-	Real time
FC-32	0xFC20	Operating time of multi-reference 7 set by simple PLC	0.0 to 6553.5	0.0	-	Real time
FC-33	0xFC21	Ramp-up/down time of multi-reference 7 set by simple PLC	0 to 3	0	-	Real time
FC-34	0xFC22	Operating time of multi-reference 8 set by simple PLC	0.0 to 6553.5	0.0	-	Real time

Para. code	Comm. address	Para. name	Setpoint	Default value	Unit	Change method
FC-35	0xFC23	Acceleration/ Deceleration time of multi-reference 8 set by simple PLC	0 to 3	0	-	Real time
FC-36	0xFC24	Operating time of multi-reference 9 set by simple PLC	0.0 to 6553.5	0.0	-	Real time
FC-37	0xFC25	Acceleration/ Deceleration time of multi-reference 9 set by simple PLC	0 to 3	0	-	Real time
FC-38	0xFC26	Operating time of multi-reference 10 set by simple PLC	0.0 to 6553.5	0.0	-	Real time
FC-39	0xFC27	Ramp-up/down time of multi-reference 10 set by simple PLC	0 to 3	0	-	Real time
FC-40	0xFC28	Operating time of multi-reference 11 set by simple PLC	0.0 to 6553.5	0.0	-	Real time
FC-41	0xFC29	Ramp-up/down time of multi-reference 11 set by simple PLC	0 to 3	0	-	Real time
FC-42	0xFC2A	Operating time of multi-reference 12 set by simple PLC	0.0 to 6553.5	0.0	-	Real time
FC-43	0xFC2B	Ramp-up/down time of multi-reference 12 set by simple PLC	0 to 3	0	-	Real time
FC-44	0xFC2C	Operating time of multi-reference 13 set by simple PLC	0.0 to 6553.5	0.0	-	Real time
FC-45	0xFC2D	Ramp-up/down time of multi-reference 13 set by simple PLC	0 to 3	0	-	Real time
FC-46	0xFC2E	Operating time of multi-reference 14 set by simple PLC	0.0 to 6553.5	0.0	-	Real time
FC-47	0xFC2F	Ramp-up/down time of multi-reference 14 set by simple PLC	0 to 3	0	-	Real time
FC-48	0xFC30	Operating time of multi-reference 15 set by simple PLC	0.0 to 6553.5	0.0	-	Real time

Para. code	Comm. address	Para. name	Setpoint	Default value	Unit	Change method
FC-49	0xFC31	Acceleration/ Deceleration time of multi-reference 15 set by simple PLC	0 to 3	0	-	Real time
FC-50	0xFC32	Simple PLC operating time unit	0: s (second) 1: h (hour)	0	-	Real time
FC-51	0xFC33	Source of multi-reference 0	0: Multi-reference 0 (FC-00) 1: AI1 2: AI2 3: Reserved 4: Pulse setting (DIO1) 5: PID 6: F0-08 (Preset frequency), which can be modified by UP/DOWN key	0	-	Real time
FD-00	0xFD00	Modbus communication baud rate	0: 300 bps 1: 600 bps 2: 1200 bps 3: 2400 bps 4: 4800 bps 5: 9600 bps 6: 19200 bps 7: 38400 bps 8: 57600 bps 9: 115200 bps	7	-	Real time
FD-01	0xFD01	Modbus data format	0: No check (8-N-2) 1: Even parity check (8-E-1) 2: Odd parity check (8-O-1) 3: No check (8-N-1)	0	-	Unchangeable
FD-02	0xFD02	Modbus local address	1 to 247	1	-	Real time
FD-03	0xFD03	Modbus response delay time	0 to 20	2	-	Real time
FD-04	0xFD04	Modbus communication timeout period	0.0 to 60.0	0.0	-	Real time
FD-06	0xFD06	Automatic reset enable of communication fault	0 to 1	1	-	Change at stop
FF-00	0xFF00	Manufacturer password	0 to 65535	0	-	Real time
FF-01	0xFF01	AC drive model	1 to 537	24	-	Change at stop

Para. code	Comm. address	Para. name	Setpoint	Default value	Unit	Change method
FF-02	0xFF02	G/P model	1	1	-	Change at stop
FF-03	0xFF03	Drive power	0.0 to 6553.5	110.0	-	Unchangeable
FF-04	0xFF04	Temperature curve	1 to 2	2	-	Change at stop
FF-05	0xFF05	Current sampling gain error between phases U and V	90.00% to 110.00%	100.00	%	Change at stop
FF-06	0xFF06	Current sampling gain error between phases U and W	90.0% to 110.0%	100.0	%	Change at stop
FF-07	0xFF07	IGBT voltage drop	0.00 to 655.35	0.00	-	Unchangeable
FF-08	0xFF08	Voltage correction coefficient	85.0 % to 140.0%	100.0	%	Real time
FF-09	0xFF09	Current correction coefficient	85.0 to 115.0	100.0	%	Real time
FF-15	0xFF0F	DI terminal assignment 1	0x0 to 0x56CE	0x0	-	Change at stop
FF-16	0xFF10	DI terminal assignment 2	0x0 to 0x56CE	0x0	-	Change at stop
FF-17	0xFF11	Ambient temperature setting	0x0 to 0x3C	0x28	-	Change at stop
FF-18	0xFF12	Overload suppression coefficient	0x0 to 0xC8	0x0	-	Change at stop
FF-19	0xFF13	Low-frequency derating coefficient	0x0 to 0xC8	0x64	-	Change at stop
FP-00	0x1F00	User password	0 to 65535	0	-	Real time
FP-01	0x1F01	Parameter initialization	0: Not applied 1: Restore default parameter mode 1 2: Clear log information 4: Restore user backup parameters 501: Back up current user parameters	0	-	Change at stop

Para. code	Comm. address	Para. name	Setpoint	Default value	Unit	Change method
FP-02	0x1F02	Function parameter display selection	Ones: Group U display 0: Hide 1: Displayed Tens: Group A display 0: Hide 1: Displayed Hundreds: Group B 0: Hide 1: Displayed Thousands: Group C 0: Hide 1: Displayed	111	-	Real time
FP-03	0x1F03	Custom parameter display mode selection	Ones: User-defined parameter group display selection 0: Hidden 1: Displayed Tens: User-changed parameter group display selection 0: Hidden 1: Displayed	11	-	Real time
FP-04	0x1F04	Parameter modification property	0: Enable 1: Disable	0	-	Real time
FP-06	0x1F06	Industry macro	0 to 10	0	-	Real time
A0-00	0xA000	Speed/Torque control mode	0: Speed control 1: Torque control	0	-	Change at stop
A0-01	0xA001	Torque reference source	0: A0-03 1: AI1 2: AI2 3: Reserved 4: Pulse reference 5: Communication 6: Min. (AI1, AI2) 7: Max. (AI1, AI2)	0	-	Change at stop
A0-04	0xA004	Torque filter time	0.000 to 5.000	0.000	-	Real time
A0-05	0xA005	Digital reference of speed limit	-120.0% to +120.0 %	0.0	%	Real time
A0-07	0xA007	Torque acceleration time	0.00 to 650.00	1.00	-	Real time
A0-08	0xA008	Torque ramp-down time	0.00 to 650.00	1.00	-	Real time
A0-09	0xA009	Speed limit setting source selection	0: A0-05 1: Frequency source	0	-	Real time
A0-10	0xA00A	Speed limit offset	0.00 Hz to F0-10	5.00	Hz	Real time

Para. code	Comm. address	Para. name	Setpoint	Default value	Unit	Change method
A0-11	0xA00B	Active mode of speed limit offset	0: Bidirectional offset active 1: Unidirectional offset active	0	-	Change at stop
A0-12	0xA00C	Frequency ramp-up time	0.0 to 6500.0	1.0	-	Real time
A0-13	0xA00D	Frequency ramp-down time	0.0 to 6500.0	1.0	-	Real time
A0-14	0xA00E	Torque mode switchover	0: Not switched 1: Switched to speed mode at stop 2: Target torque changed to 0 at stop	1	-	Change at stop
A4-00	0xA400	Control mode selection	0: Standard PID 1: Model predictive MPC 2: Reserved 3: Quick PID (secondary compression not supported)	0	-	Change at stop
A5-00	0xA500	Frequency upper limit for DPWM switchover	0.00 Hz to F0-10	12.00	Hz	Real time
A5-01	0xA501	PWM modulation mode	0: Asynchronous modulation 1: Synchronous modulation	0	-	Real time
A5-02	0xA502	Dead time compensation mode	0: Disable 1: Enable	1	-	Change at stop
A5-03	0xA503	Random PWM depth	0 to 10	0	-	Real time
A5-04	0xA504	Fast current limiting enable	0: Inactive 1: Active	1	-	Real time
A5-05	0xA505	Sampling delay time	1 to 13	5	-	Real time
A6-00	0xA600	Minimum input of curve 4	-10.00 V to A6-02	0.00	V	Real time
A6-01	0xA601	Corresponding setting of curve 4 minimum input	-100.0% to +100.0%	0.0	%	Real time
A6-03	0xA603	Corresponding setting of curve 4 inflection point 1 input	-100.0% to +100.0%	30.0	%	Real time
A6-04	0xA604	Input of curve 4 inflection point 2	A6-02 to A6-06	6.00	V	Real time

Para. code	Comm. address	Para. name	Setpoint	Default value	Unit	Change method
A6-05	0xA605	Corresponding setting of curve 4 inflection point 2 input	-100.0% to +100.0%	60.0	%	Real time
A6-06	0xA606	Maximum input of curve 4	A6-04 to 10.00 V	10.00	V	Real time
A6-07	0xA607	Corresponding setting of curve 4 maximum input	-100.0% to +100.0%	100.0	%	Real time
A6-08	0xA608	Minimum input of curve 5	-10.00 V to A6-10	-10.00	V	Real time
A6-09	0xA609	Corresponding setting of curve 5 minimum input	-100.0% to +100.0%	-100.0	%	Real time
A6-10	0xA60A	Input of inflection point 1 of curve 5	A6-08 to A6-12	-3.00	V	Real time
A6-11	0xA60B	Corresponding setting of curve 5 inflection point 1 input	-100.0% to +100.0%	-30.0	%	Real time
A6-12	0xA60C	Input of inflection point 2 on curve 5	A6-10 to A6-14	3.00	V	Real time

Para. code	Comm. address	Para. name	Setpoint	Default value	Unit	Change method
A6-13	0xA60D	Corresponding setting of curve 5 inflection point 2 input	-100.0% to +100.0%	30.0	%	Real time
A6-14	0xA60E	Curve 5 maximum input	A6-12 to 10.00 V	10.00	V	Real time
A6-15	0xA60F	Corresponding setting of curve 5 maximum input	-100.0% to +100.0%	100.0	%	Real time
A6-16	0xA610	AI1 gain	-10.00 to +10.00	1.00	-	Real time
A6-17	0xA611	AI1 zero offset coefficient	-100.0% to +100.0%	0.0	%	Real time
A6-18	0xA612	AI2 gain	-10.00 to +10.00	1.00	-	Real time
A6-19	0xA613	AI2 zero offset coefficient	-100.0% to +100.0%	0.0	%	Real time
A6-24	0xA618	Skip point set by AI1	-100.0% to +100.0%	0.0	%	Real time

Para. code	Comm. address	Para. name	Setpoint	Default value	Unit	Change method
A6-25	0xA619	AI1 jump amplitude	0.0% to 100.0%	0.5	%	Real time
A6-26	0xA61A	Skip point set by AI2	-100.0% to +100.0%	0.0	%	Real time
A6-27	0xA61B	AI2 jump amplitude	0.0% to 100.0%	0.5	%	Real time
A8-00	0xA800	Test mode	0: Normal mode 1: Tooling test mode 2: Manual loading/ unloading mode 1 3: Manual loading/ unloading mode 2	0	-	Change at stop
A8-01	0xA801	Loading delay time	0 to 9999	8	-	Real time
A8-02	0xA802	Pre-alarm time setting	0 to F8-17	0	-	Real time
A8-03	0xA803	Pressure sensor function selection	0 to 1	0	-	Change at stop
A8-04	0xA804	Temperature sensor function selection	0 to 1	0	-	Change at stop
A8-05	0xA805	Pressure sensor 1 range	0.10 to 5.00	1.60	-	Real time
A8-07	0xA807	Constant pressure setpoint	A8-09 to A8-08	0.70	-	Real time
A8-08	0xA808	Unloading pressure setpoint	A8-07 to A8-11	0.80	-	Real time
A8-09	0xA809	Wakeup pressure (loading pressure)	0.00 to A8-07	0.60	-	Real time
A8-10	0xA80A	Stop pressure reference (protection pressure)	A8-11 to 5.00	0.90	-	Real time
A8-11	0xA80B	Pre-alarm pressure setpoint	A8-08 to A8-10	0.85	-	Real time
A8-12	0xA80C	Stop temperature	A8-13 to 200	110	-	Real time
A8-13	0xA80D	Pre-alarm temperature	A8-19 to A8-12	105	-	Real time
A8-14	0xA80E	Wakeup time	0 to 9999	0	-	Real time
A8-15	0xA80F	Stop preparation time	0 to 9999	20	-	Real time

Para. code	Comm. address	Para. name	Setpoint	Default value	Unit	Change method
A8-16	0xA810	Lockout time at stop	0 to 9999	20	-	Real time
A8-17	0xA811	Constant temperature setpoint	A8-18 to A8-19	80	-	Real time
A8-18	0xA812	Fan stop temperature	0 to A8-17	75	-	Real time
A8-19	0xA813	Fan startup temperature	A8-17 to A8-13	85	-	Real time
A8-20	0xA814	Pre-operational frequency	F0-14 to F0-12	60.00	Hz	Real time
A8-21	0xA815	Pre-operational time	0 to 9999	10	-	Real time
A8-22	0xA816	Sleep judgment time	0 to 65535	20	-	Real time
A8-23	0xA817	Air filter maintenance time	0 to 65535	2000	-	Real time
A8-24	0xA818	Oil filter maintenance time	0 to 65535	2000	-	Real time
A8-25	0xA819	Oil-air separator maintenance time	0 to 65535	2000	-	Real time
A8-26	0xA81A	Motor lubricating grease maintenance time	0 to 65535	2000	-	Real time
A8-27	0xA81B	Lubricating oil maintenance time	0 to 65535	2000	-	Real time
A8-28	0xA81C	Air filter operating time	0 to 65535	0	-	Real time
A8-29	0xA81D	Oil filter operating time	0 to 65535	0	-	Real time
A8-30	0xA81E	Oil-air separator operating time	0 to 65535	0	-	Real time
A8-31	0xA81F	Motor lubricating grease operating time	0 to 65535	0	-	Real time
A8-32	0xA820	Lubricating oil operating time	0 to 65535	0	-	Real time
A8-33	0xA821	Sleep pressure setpoint	A8-09 to A8-08	0.75	-	Real time
A8-34	0xA822	Sleep judgment time upon unloading	0 to 65535	5	-	Real time

Para. code	Comm. address	Para. name	Setpoint	Default value	Unit	Change method
A8-35	0xA823	Action selection 0 upon fault for application-specific drive	Ones: E95 0: Coast to stop 2: Restart upon fault 5: Disabled Tens: E96 0: Coast to stop 5: Disabled Hundreds: E97 0: Coast to stop 2: Restart upon fault 5: Disabled Thousands: Reserved Ten-thousands: Reserved	14202	-	Change at stop
A8-36	0xA824	Action selection 1 upon fault for application-specific drive	Ones: Reserved 0: Coast to stop 1: Decelerate to stop 4: Alarm 5: Disabled Tens: Reserved 0: Coast to stop 1: Decelerate to stop 4: Alarm 5: Disabled Hundreds: Reserved 0: Coast to stop 1: Decelerate to stop 4: Alarm 5: Disabled Thousands: Reserved 0: Coast to stop 1: Decelerate to stop 4: Alarm 5: Disabled Ten-thousands: E80 5: Disabled	51111	-	Change at stop
A8-39	0xA827	Output current correction coefficient	70.0% to 120.0%	100.0	%	Real time
A8-40	0xA828	Output power correction coefficient	70.0% to 120.0%	100.0	%	Real time
A8-41	0xA829	Pressure correction coefficient	0.0% to 200.0%	100.0	%	Real time
A8-42	0xA82A	Temperature correction coefficient	0.0% to 200.0%	100.0	%	Real time
A8-43	0xA82B	Cumulative operating time of the load	0 to 65535	0	-	Real time
A8-44	0xA82C	Running time after pressure warning report	0 to 65535	0	-	Real time

Para. code	Comm. address	Para. name	Setpoint	Default value	Unit	Change method
A8-45	0xA82D	Operating time of temperature pre-alarm	0 to 65535	0	-	Real time
A8-46	0xA82E	Pressure/ Temperature sensor 2 enable bit	Ones: Pressure sensor 2 0: Inactive 1: Active Tens: Temperature sensor 2 0: Inactive 1: Active	0	-	Change at stop
A8-47	0xA82F	Pre-alarm setpoint of pressure 2	0.00 to 5.00	0.85	-	Real time
A8-48	0xA830	Protection value of pressure sensor 2	0.00 to 5.00	0.90	-	Real time
A8-49	0xA831	Pre-alarm setpoint of temperature 2	0 to 222	105	-	Real time
A8-50	0xA832	Protection value of temperature sensor 2	0 to 222	100	-	Real time
A8-51	0xA833	Manual start of mains frequency fan	0: Inactive 1: Manual start valid	0	-	Real time
A8-52	0xA834	Special function enable bit	Ones: Reserved 0: Inactive 1: Active Tens: Reserved 0: Inactive 1: Active Hundreds: Reserved 0: Inactive 1: Active Thousands: Reserved 0: Inactive 1: Active Ten-thousands: Reserved 0: Inactive 1: Active	0	-	Change at stop
A8-53	0xA835	Low temperature value	-20 to +50	0	-	Real time
A8-54	0xA836	Temperature threshold for deactivating pre-heating	0 to 100	5	-	Real time
A8-55	0xA837	Frequency threshold for triggering pre-heating	0.00 to F0-12	10.00	-	Real time
A8-56	0xA838	Frequency lower limit enable	0 to 1	0	-	Real time

Para. code	Comm. address	Para. name	Setpoint	Default value	Unit	Change method
A8-57	0xA839	Immediate stop enable	0 to 1	0	-	Real time
A8-58	0xA83A	Low temperature protection threshold	-30 to +20	-30	-	Change at stop
A8-59	0xA83B	Low temperature protection delay	0 to 1200	120	-	Real time
A8-60	0xA83C	Low temperature protection delay during pre-heating	0 to 7200	1800	-	Change at stop
A8-61	0xA83D	Normal sleep shutdown delay	0 to 100	0	-	Real time
A8-63	0xA83F	Automatic displacement function enable	0: Inactive 1: Active	0	-	Change at stop
A8-64	0xA840	Start point pressure	0.00 to 5.00	0.00	-	Real time
A8-65	0xA841	Start frequency	0.00 Hz to F0-10	0.00	Hz	Real time
A8-66	0xA842	End pressure	0.00 to 5.00	0.00	-	Real time
A8-67	0xA843	End frequency	0.00 Hz to F0-10	0.00	Hz	Real time
A8-68	0xA844	Pre-alarm stop time	0 to 65535	100	-	Real time
A8-69	0xA845	Cumulative operating time (min)	0 to 65535	0	-	Real time
A8-70	0xA846	Sleep mode threshold	0: Based on frequency lower limit 1: Based on the sleep pressure	0	-	Real time
A8-71	0xA847	24 V output control enable	0: Inactive 1: Active	1	-	Change at stop
A8-72	0xA848	Mains frequency fan control enable	Ones: Automatic control of power frequency fan 0: Inactive 1: Active Tens: Power frequency fan priority control mode 0: Automatic control 1: Fully manual 2: Reserved 3: Reserved	1	-	Change at stop

Para. code	Comm. address	Para. name	Setpoint	Default value	Unit	Change method
A8-73	0xA849	Rated current of mains frequency fan	0.2 to 5.0	2.1	-	Change at stop
A8-74	0xA84A	Overload judgment time of mains frequency fan	0 to 3000	5	-	Change at stop
A8-75	0xA84B	Pump pressure detection delay	0 to 60000	10	-	Change at stop
A8-76	0xA84C	Pump pressure fault judgment delay	0 to 60000	10	-	Change at stop
A8-77	0xA84D	Fan start mode (above 100 kW)	0 to 4444 Ones: Fan 1 Tens: Fan 2 Hundreds: Fan 3 Thousands: Fan 4 (The ones place to thousands place of A8-77 can be set to one of the following values.) 0: Start/stop with the main motor 1:Start/stop with the temperature 1: (dependent on A8-18/A8-19/A8-81 to A8-86) 2: Terminal control (Terminal functions 52, 61, 62, and 63 correspond to fans 1, 2, 3, and 4.) 3: Communication control (0x2006 control address: The set value ranges from 0000 to 1111. The bits from high order to low order correspond to fans 4, 3, 2, and 1. The value 0 indicates "stop" and the value 1 indicates "running".) 4: Digital setting (set by B1-01; setting range: 0000 to 1111, corresponding to fans 4, 3, 2, and 1)	11	-	Change at stop

Para. code	Comm. address	Para. name	Setpoint	Default value	Unit	Change method
A8-78	0xA84E	Fan speed adjustment mode (above 100 kW)	0 to 2222 Ones: Fan 1 Tens: Fan 2 Hundreds: Fan 3 Thousands: Fan 4 0: Constant temperature PID speed regulation 1: Communication setting (Addresses 0X2007 to 0x200A correspond to fans 1, 2, 3 and 4 respectively. The setpoint is a percentage. For example, 10000 represents 100.00%, corresponding to the maximum frequency set by B1-08.) 2: Digital setting (set by B1-02 to B1-05)	0	-	Change at stop
A8-79	0xA84F	Simultaneous start/stop of variable frequency fan (above 100 kW)	0 to 1 Fans 1 and 2 start and stop simultaneously.	1	-	Change at stop
A8-80	0xA850	Number of fans	1 to 4	4	-	Change at stop
A8-81	0xA851	Fan stop temperature (fan 2)	0 to A8-17	75	-	Real time
A8-82	0xA852	Fan stop temperature (fan 3)	0 to A8-17	75	-	Real time
A8-83	0xA853	Fan stop temperature (fan 4)	0 to A8-17	75	-	Real time
A8-84	0xA854	Fan start temperature (fan 2)	A8-17 to A8-13	85	-	Real time
A8-85	0xA855	Fan start temperature (fan 3)	A8-17 to A8-13	85	-	Real time
A8-86	0xA856	Fan start temperature (fan 4)	A8-17 to A8-13	85	-	Real time
A8-87	0xA857	Action when sleep state deactivated	0: Enter operation state 1: Enter pre-running state	0	-	Real time
A8-88	0xA858	Skip frequency	0 Hz to 600 Hz	0	Hz	Real time
A8-89	0xA859	AC drive (MD800 module) temperature detection enable	0 to 1	1	-	Real time

Para. code	Comm. address	Para. name	Setpoint	Default value	Unit	Change method
A8-90	0xA85A	NTC open circuit detection time	0.0 to 6553.5	10.0	-	Real time
A8-91	0xA85B	Enable the sleep temperature condition	0 to 1	0	-	Real time
A8-98	0xA862	Air compressor operation state before power failure	0. Self-test upon power-on 1: Ready to run 2: Pre-operational 3: Operational 4: Overpressure 1 5: Overpressure 2 6: Sleep 7: Ready to stop 8: Stop lockout 9: Stop 10: Stop at fault 11: Stop lockout at fault 12: Sleep	0	-	Unchangeable
A8-99	0xA863	Restart upon power loss	0 to 1	0	-	Real time
A9-00	0xA900	Online auto-tuning of asynchronous motor rotor time constant	0: Disable 1: Enable 2: Reserved	0	-	Real time
A9-01	0xA901	Auto-tuning of asynchronous motor rotor resistance gain in FVC mode	0 to 100	5	-	Real time
A9-02	0xA902	Auto-tuning of rotor resistance start frequency for asynchronous motors in FVC mode	2 Hz to 100 Hz	7	Hz	Real time
A9-03	0xA903	Magnetic field efficient for asynchronous motor in FVC mode	30 to 150	40	-	Real time
A9-04	0xA904	Maximum torque limit factor for asynchronous motor in field weakening range	30 to 150	80	-	Real time
A9-05	0xA905	Speed filter of asynchronous motor in SVC mode	5 to 32	15	-	Real time

Para. code	Comm. address	Para. name	Setpoint	Default value	Unit	Change method
A9-06	0xA906	Speed feedback handling of asynchronous motor during speed control in SVC mode	0: Not processed 1: Limit the minimum synchronous frequency based on load change 2: Output fixed current during operation at low speed 3: Output fixed current during operation at high speed	1	-	Real time
A9-07	0xA907	Magnetic field adjustment bandwidth of asynchronous motor in SVC mode	0.0 to 8.0	2.0	-	Real time
A9-08	0xA908	Current setting of asynchronous motor at low running speed in SVC mode	30 to 170	100	-	Real time
A9-09	0xA909	Switchover frequency for fixed current output of asynchronous motor in SVC mode	2.0 Hz to 100.0 Hz	3.0	Hz	Real time
A9-10	0xA90A	Speed fluctuation suppression coefficient of asynchronous motor in SVC mode	0 to 6	3	-	Real time
A9-11	0xA90B	Acceleration/ Deceleration time of asynchronous motor in SVC mode	0.1 to 3000.0	20.0	-	Real time
A9-12	0xA90C	Quick auto-tuning of asynchronous motor stator resistance before startup	0: Disable 1: Enable	0	-	Real time
A9-18	0xA912	Initial position angle detection of synchronous motor	0: Detected every time upon operation 1: Not detected 2: Detected during initial operation upon power-on	0	-	Real time
A9-20	0xA914	Field weakening mode	0: Automatic field weakening 1: Field weakening through PMSM adjust-ment method 2: Field weakening through PMSM hybrid method 3: No field weakening	1	-	Change at stop

Para. code	Comm. address	Para. name	Setpoint	Default value	Unit	Change method
A9-21	0xA915	Field weakening gain of synchronous motor	0 to 50	2	-	Real time
A9-22	0xA916	Output voltage upper limit margin of synchronous motor	0% to 50%	5	%	Real time
A9-23	0xA917	Maximum torque output adjustment gain of synchronous motor	20 to 300	100	%	Real time
A9-24	0xA918	Excitation current adjustment gain calculated by synchronous motor	40% to 200%	100	%	Real time
A9-25	0xA919	Speed estimation integral gain of synchronous motor in SVC mode	5% to 1000%	30	%	Real time
A9-26	0xA91A	Speed estimation proportional gain of synchronous motor in SVC mode	5% to 300%	20	%	Real time
A9-27	0xA91B	Speed estimation filter of synchronous motor in SVC mode	10 to 2000	100	-	Real time
A9-28	0xA91C	Minimum carrier frequency of synchronous motor in SVC mode	0.8 to F0-15	1.5	-	Real time
A9-29	0xA91D	Low-speed excitation current of synchronous motor in SVC mode	0% to 80%	30	%	Real time
B0-00	0xB000	Auto-tuned inductance 1	0.001 to 65.535	1.586	-	Change at stop
B0-01	0xB001	Auto-tuned inductance 2	0.001 to 65.535	1.586	-	Change at stop
B0-02	0xB002	Auto-tuned inductance 3	0.001 to 65.535	1.586	-	Change at stop
B0-03	0xB003	Auto-tuned inductance 4	0.001 to 65.535	1.586	-	Change at stop
B0-04	0xB004	Auto-tuned inductance 5	0.001 to 65.535	1.586	-	Change at stop
B0-05	0xB005	Auto-tuned inductance 6	0.001 to 65.535	1.586	-	Change at stop

Para. code	Comm. address	Para. name	Setpoint	Default value	Unit	Change method
B0-06	0xB006	Auto-tuned inductance 7	0.001 to 65.535	1.586	-	Change at stop
B0-07	0xB007	Auto-tuned inductance 8	0.001 to 65.535	1.586	-	Change at stop
B0-08	0xB008	Auto-tuned inductance 9	0.001 to 65.535	1.586	-	Change at stop
B0-09	0xB009	Auto-tuned inductance 10	0.001 to 65.535	1.586	-	Change at stop
B0-10	0xB00A	Auto-tuned inductance 11	0.001 to 65.535	1.586	-	Change at stop
B0-11	0xB00B	Auto-tuned inductance 12	0.001 to 65.535	1.586	-	Change at stop
B0-12	0xB00C	Auto-tuned inductance 13	0.001 to 65.535	1.586	-	Change at stop
B0-13	0xB00D	Auto-tuned inductance 14	0.001 to 65.535	1.586	-	Change at stop
B0-14	0xB00E	Auto-tuned inductance 15	0.001 to 65.535	1.586	-	Change at stop
B0-15	0xB00F	Auto-tuned inductance 16	0.001 to 65.535	1.586	-	Change at stop
B0-16	0xB010	Auto-tuned inductance 17	0.001 to 65.535	1.586	-	Change at stop
B0-17	0xB011	Auto-tuned inductance 18	0.001 to 65.535	1.586	-	Change at stop
B0-18	0xB012	Auto-tuned inductance 19	0.001 to 65.535	1.586	-	Change at stop
B0-19	0xB013	Auto-tuned inductance 20	0.001 to 65.535	1.586	-	Change at stop
B0-20	0xB014	Auto-tuned inductance 21	0.001 to 65.535	1.586	-	Change at stop
B0-21	0xB015	Auto-tuned inductance 22	0.001 to 65.535	1.586	-	Change at stop
B0-22	0xB016	Auto-tuned inductance 23	0.001 to 65.535	1.586	-	Change at stop
B0-23	0xB017	Auto-tuned inductance 24	0.001 to 65.535	1.586	-	Change at stop
B0-24	0xB018	Back EMF auto-tuned value	1 to 65535	1	-	Unchangeable

Para. code	Comm. address	Para. name	Setpoint	Default value	Unit	Change method
B0-25	0xB019	Oscillation duration	0.0 to 120.0	30.0	-	Real time
B0-26	0xB01A	Vibration threshold	0.0% to 50.0%	12.0	%	Real time
B0-27	0xB01B	Demagnetization threshold	0% to 50%	30	%	Real time
B0-28	0xB01C	Input phase loss threshold	10.0 V to 100.0 V	30.0	V	Real time
B0-29	0xB01D	High-pass filter cut-off frequency level	0 to 4	0	-	Real time
B0-30	0xB01E	Parameter auto-tuning mode	0 to 1	0	-	Real time
B0-31	0xB01F	Initial position auto-tuning mode	0 to 1	0	-	Real time
B0-32	0xB020	Saturation auto-tuning voltage	0 to 4000	0	-	Real time
B0-33	0xB021	Capacitance detection enable	0 to 1	1	-	Real time
B0-34	0xB022	Capacitor capacitance	1 to 20000	10000	-	Real time
B1-00	0xB100	Fan axis selection	1 to 4	1	-	Real time

Para. code	Comm. address	Para. name	Setpoint	Default value	Unit	Change method
B1-01	0xB101	Start/Stop command (active in the test mode)	Ones: Reserved 0: Reserved 1: Reserved 4: Reserved 5: Reserved Tens: Reserved 0: Reserved 1: Reserved 4: Reserved 5: Reserved Hundreds: Reserved 0: Reserved 1: Reserved 4: Reserved 5: Reserved Thousands: E14 0: Reserved 1: Reserved 4: Reserved 5: Reserved Ten-thousands: Reserved 0: Reserved 1: Reserved 4: Reserved 5: Reserved	0	-	Real time
B1-02	0xB102	Frequency reference of axis 1	-100.00 % to +100.00%	0.00	%	Real time
B1-03	0xB103	Frequency reference of axis 2	-100.00 % to +100.00%	0.00	%	Real time
B1-04	0xB104	Frequency reference of axis 3	-100.00 % to +100.00%	0.00	%	Real time
B1-05	0xB105	Frequency reference of axis 4	-100.00 % to +100.00%	0.00	%	Real time
B1-06	0xB106	Control mode	0: Sensorless vector control (SVC) 2: V/f control	2	-	Change at stop
B1-07	0xB107	Operating direction	0 to 1	0	-	Real time
B1-08	0xB108	Maximum frequency	5.00 Hz to 600.00 Hz	50.00	Hz	Change at stop
B1-09	0xB109	Frequency upper limit	B1-10 to B1-08	50.00	Hz	Real time
B1-10	0xB10A	Frequency lower limit	0.00 Hz to B1-09	0.00	Hz	Real time
B1-11	0xB10B	Acceleration time	0.0 to 6500.0	10.0	-	Real time

Para. code	Comm. address	Para. name	Setpoint	Default value	Unit	Change method
B1-12	0xB10C	Deceleration time	0.0 to 6500.0	10.0	-	Real time
B1-13	0xB10D	Motor type	0: Regular asynchronous motor 1: Variable frequency asynchronous motor 2: Synchronous motor	0	-	Change at stop
B1-14	0xB10E	Rated power of the motor	0.1 to 1000.0	3.7	-	Change at stop
B1-15	0xB10F	Rated motor voltage	1 V to 2000 V	380	V	Change at stop
B1-16	0xB110	Rated current of the motor	0.1 A to 6553.5 A	9.0	A	Change at stop
B1-17	0xB111	Rated motor frequency	0.01 Hz to B1-08	50.00	Hz	Change at stop
B1-18	0xB112	Rated motor speed	1 rpm to 65535 rpm	1460	rpm	Change at stop
B1-19	0xB113	Parameter auto-tuning selection	0: Disable 1: Auto-tuning of parameters for asynchronous motor in static state 2: Auto-tuning of all parameters for asynchronous motor 3: With-load complete auto-tuning of asynchronous motor 4: Reserved 11: No-load auto-tuning of some parameters for synchronous motor (excluding back EMF) 12: No-load auto-tuning of parameters for synchronous motor in dynamic state 13: Auto-tuning of all parameters for synchronous motor in static state 14: Reserved	0	-	Change at stop
B1-20	0xB114	Start-up mode	0: Direct start 1: Flying start 2: Pre-excitation start (asynchronous motor)	0	-	Real time
B1-21	0xB115	Flying start mode	0: Starting from stop frequency 1: Starting from 50 Hz 2: Starting from the maximum frequency	0	-	Change at stop

Para. code	Comm. address	Para. name	Setpoint	Default value	Unit	Change method
B1-22	0xB116	Stop mode	0: Decelerate to stop 1: Coast to stop	0	-	Real time
B1-23	0xB117	Fault protection action selection 0	Ones: E11 0: Coast to stop 1: Decelerate to stop 4: Alarm 5: Disabled Tens: Reserved 0: Coast to stop 1: Decelerate to stop 4: Alarm 5: Disabled Hundreds: E13 0: Coast to stop 1: Decelerate to stop 4: Alarm 5: Disabled Thousands: E14 0: Coast to stop Ten thousands: E15 0: Coast to stop 1: Decelerate to stop 4: Alarm 5: Disabled	500	-	Change at stop
B1-24	0xB118	Protection action selection 1 upon fault	Ones: E16 0: Coast to stop 1: Decelerate to stop 4: Alarm 5: Disabled Tens: Reserved 5: Disabled Hundreds: Reserved 0: Coast to stop Thousands: E19 0: Coast to stop 4: Alarm 5: Disabled Ten-thousands: Reserved 5: Disabled	10050	-	Change at stop
B1-25	0xB119	Protection action selection 2 upon fault	Ones: E21 0: Coast to stop Tens: E22 0: Coast to stop Hundreds: E23 0: Coast to stop 5: Disabled Thousands: Reserved 5: Disabled Ten-thousands: E25 2: Decelerate to stop 5: Disabled	50050	-	Change at stop

Para. code	Comm. address	Para. name	Setpoint	Default value	Unit	Change method
B1-26	0xB11A	Protection action selection 3 upon fault	Ones: E26 0: Coast to stop 1: Decelerate to stop 4: Alarm 5: Disabled Tens: E27 0: Coast to stop 1: Decelerate to stop 4: Alarm 5: Disabled Hundreds: E28 0: Coast to stop 1: Decelerate to stop 4: Alarm 5: Disabled Thousands: E29 0: Coast to stop 1: Decelerate to stop 4: Alarm 5: Disabled Ten-thousands: E30 0: Coast to stop 1: Decelerate to stop 4: Alarm 5: Disabled	15000	-	Change at stop
B1-27	0xB11B	V/f curve setting	0: V/f line 1: Multi-point V/f curve 2: Square V/f curve 3: V/f curve (with exponent 1.2) 4: V/f curve (with exponent 1.4) 6: V/f curve (with exponent 1.6) 8: V/f curve (1.8th power) 10: Fully-decoupled V/f mode 11: V/f semi-decoupled mode	0	-	Change at stop
B1-28	0xB11C	Voltage source for decoupled V/f	0: Digital reference (F3-14) 1: AI1 2: AI2 4: Pulse setting (DIO1) 5: Multi-reference 6: Simple PLC 7: PID 8: Communication	0	-	Real time
B1-29	0xB11D	Voltage setting in V/f decoupled mode	0 V to B1-15	0	V	Real time
B1-30	0xB11E	Voltage ramp-up time in decoupled V/f mode	0.0 to 1000.0	0.0	-	Real time

Para. code	Comm. address	Para. name	Setpoint	Default value	Unit	Change method
B1-31	0xB11F	Voltage ramp-down time in de-coupled V/f mode	0.0 to 1000.0	0.0	-	Real time
B1-32	0xB120	Stop mode in de-coupled V/f mode	0 to 1	0	-	Change at stop
B1-33	0xB121	Overcurrent stall enable	0 to 1	1	-	Real time
B1-34	0xB122	Overvoltage stall enable	0 to 1	1	-	Real time
U0-00	0x7000	Main motor operating frequency	0.00 to 655.35	0.00	Hz	Unchangeable
U0-01	0x7001	Frequency reference	0.00 to 655.35	0.00	Hz	Unchangeable
U0-02	0x7002	Bus voltage	0.0 to 655.35	0.0	V	Unchangeable
U0-03	0x7003	Output voltage	0 to 655.35	0	V	Unchangeable
U0-04	0x7004	Output current	0.0 to 6553.5	0.0	A	Unchangeable
U0-05	0x7005	Output power	0.0 to 3276.7	0.0	kW	Unchangeable
U0-06	0x7006	Output torque	0.0 to 200.0	0.0	%	Unchangeable
U0-07	0x7007	DI state	0x0 to 0xFFFF	0x0	-	Unchangeable
U0-08	0x7008	DO state	0x0 to 0xFFFF	0x0	-	Unchangeable
U0-09	0x7009	AI1 voltage	0.00 to 10.57	0.00	V	Unchangeable
U0-10	0x700A	AI2 voltage (P2+\P2-)	0.00 to 10.57	0.00	V	Unchangeable
U0-11	0x700B	AI3 voltage (P1+\P1-)	0 to 65535	0	V	Unchangeable
U0-12	0x700C	Count value	0 to 65535	0	-	Unchangeable
U0-13	0x700D	Length value	0 to 65535	0	-	Unchangeable
U0-14	0x700E	Load speed display	0 to 65535	0	-	Unchangeable

Para. code	Comm. address	Para. name	Setpoint	Default value	Unit	Change method
U0-15	0x700F	PID setting	0 to 65535	0	-	Unchangeable
U0-16	0x7010	PID feedback	0 to 65535	0	-	Unchangeable
U0-17	0x7011	Low-order bits of cumulative power consumption (range: 0 to 999.9)	0 to 65535	0	-	Unchangeable
U0-18	0x7012	High-order bits of cumulative power consumption (range: 0 to 65535)	0.00 to 100.00	0.00	kHz	Unchangeable
U0-19	0x7013	Feedback speed	0.00 to 327.67	0.00	Hz	Unchangeable
U0-20	0x7014	Remaining operating time	0.0 to 6553.5	0.0	min.	Unchangeable
U0-21	0x7015	Pre-calibration AI1 voltage	0.000 to 32.767	0.000	V	Unchangeable
U0-22	0x7016	Pre-correction AI2 voltage (P2+\P2-)	0.000 to 32.767	0.000	V	Unchangeable
U0-24	0x7018	Internal NTC temperature	0 to 65535	0	m/min	Unchangeable
U0-25	0x7019	Current power-on time	0 to 65535	0	min.	Unchangeable
U0-26	0x701A	Current operating time	0.0 to 6553.5	0.0	min.	Unchangeable
U0-27	0x701B	Pulse input frequency	0 to 65535	0	Hz	Unchangeable
U0-28	0x701C	Communication setpoint	0.00 to 100.00	0.00	%	Unchangeable
U0-29	0x701D	Encoder feedback speed	0.00 to 327.67	0.00	Hz	Unchangeable
U0-30	0x701E	Display of main frequency X	0.00 to 500.00	0.00	Hz	Unchangeable
U0-31	0x701F	Display of auxiliary frequency Y	0.00 to 500.00	0.00	Hz	Unchangeable
U0-34	0x7022	Motor temperature	0 to 200	0	° C	Unchangeable
U0-35	0x7023	Target torque	0.0 to 200.0	0.0	%	Unchangeable

Para. code	Comm. address	Para. name	Setpoint	Default value	Unit	Change method
U0-37	0x7025	Power factor angle	0.0 to 3276.7	0.0	°	Unchangeable
U0-38	0x7026	ABZ position	0 to 65535	0	-	Unchangeable
U0-39	0x7027	Target voltage in decoupled V/f mode	0 to F1-02	0	V	Unchangeable
U0-40	0x7028	Output voltage in decoupled V/f mode	0 to F1-02	0	V	Unchangeable
U0-45	0x702D	Fault subcode information	0 to 51	0	-	Unchangeable
U0-46	0x702E	Inverter module temperature	0 to F7-07	0	° C	Unchangeable
U0-47	0x702F	Voltage before PTC channel calibration	0.000 to 32.767	0.000	V	Unchangeable
U0-48	0x7030	Voltage after PTC channel calibration	0.000 to 32.767	0.000	V	Unchangeable
U0-49	0x7031	Machine identification code	0.000 to 32767	0	-	Unchangeable
U0-61	0x703D	AC drive state	0 to 65535	0	-	Unchangeable
U0-62	0x703E	Fault code display	0 to 65535	0	-	Unchangeable
U0-68	0x7044	Air compressor control state flag	0 to 65535	0	-	Unchangeable
U0-69	0x7045	Current displacement	0.00 to 327.67	0.00	Hz	Unchangeable
U0-70	0x7046	Current operating time (h)	0 to 65535	0	H	Unchangeable
U0-78	0x704E	Exhaust temperature	0.0 to 6553.5	0.0	A	Unchangeable
U0-79	0x704F	Exhaust temperature 2	0.0 to 6553.5	0.0	kW	Unchangeable
U1-00	0x7100	Pressure PID reference	0 to 65535	0	-	Unchangeable
U1-01	0x7101	Pressure PID feedback	0 to 65535	0	-	Unchangeable
U1-02	0x7102	Temperature PID reference	0 to 65535	0	-	Unchangeable

Para. code	Comm. address	Para. name	Setpoint	Default value	Unit	Change method
U1-03	0x7103	Temperature PID feedback	0 to 65535	0	-	Unchangeable
U1-04	0x7104	Temperature 1 pre-correction voltage (PT1+-PT1-)	0.000 to 65.535	0	V	Unchangeable
U1-05	0x7105	Temperature 2 pre-correction voltage (PT2+-PT2-)	0.000 to 65.535	0	V	Unchangeable
U1-06	0x7106	Temperature 1 post-correction voltage (PT1+-PT1-)	0.000 to 65.535	0	V	Unchangeable
U1-07	0x7107	Temperature 2 post-correction voltage (PT2+-PT2-)	0.000 to 65.535	0	V	Unchangeable
U1-08	0x7108	24 V output state	0 to 65535	0	-	Unchangeable
U1-09	0x7109	Mains frequency fan output state	0 to 65535	0	-	Unchangeable
U1-10	0x710A	Speed	0 to 65535	0	-	Unchangeable
U1-11	0x710B	Output current of mains frequency fan	0.0 to 6553.5	0	A	Unchangeable
U1-12	0x710C	Pump pressure too low	0 to 65535	0	-	Unchangeable
U1-13	0x710D	2nd pressure value	0.00 to 655.35	0	MPa	Unchangeable
U1-14	0x710E	Pre-heating flag state	0 to 65535	0	-	Unchangeable
U2-00	0x7200	Operation state 1	0 to 65535	0	-	Unchangeable
U2-01	0x7201	Fault state 1	0 to 65535	0	-	Unchangeable
U2-02	0x7202	Motor operating frequency 1	0.00 to 655.35	0.00	Hz	Unchangeable
U2-03	0x7203	Output voltage 1	0 to 65535	0	V	Unchangeable
U2-04	0x7204	Output current 1	0.00 to 655.35	0.00	A	Unchangeable
U2-05	0x7205	Output power 1	0.0 kW to 6553.5 kW	0.0	kW	Unchangeable
U2-06	0x7206	1st fault type 1	0 to 65535	0	-	Unchangeable
U2-07	0x7207	2nd fault type 1	0 to 65535	0	-	Unchangeable

Para. code	Comm. address	Para. name	Setpoint	Default value	Unit	Change method
U2-08	0x7208	3rd fault type 1	0 to 65535	0	-	Unchangeable
U2-09	0x7209	Frequency 1 upon the 3rd fault	0.00 to 655.35	0.00	Hz	Unchangeable
U2-10	0x720A	Current 1 upon the 3rd fault	0.0 to 6553.5	0.0	A	Unchangeable
U2-11	0x720B	Bus voltage 1 upon the 3rd fault	0.0 V to 6553.5 V	0.0	V	Unchangeable
U2-12	0x720C	Frequency 1 upon the 2nd fault	0.00 to 655.35	0.00	Hz	Unchangeable
U2-13	0x720D	Current 1 upon the 2nd fault	0.0 to 6553.5	0.0	A	Unchangeable
U2-14	0x720E	Bus voltage 1 upon the 2nd fault	0.0 V to 6553.5 V	0.0	V	Unchangeable
U2-15	0x720F	Frequency 1 upon the 1st fault	0.00 to 655.35	0.00	Hz	Unchangeable
U2-16	0x7210	Current 1 upon the 1st fault	0.0 to 6553.5	0.0	A	Unchangeable
U2-17	0x7211	Bus voltage 1 upon the 1st fault	0.0 V to 6553.5 V	0.0	V	Unchangeable
U2-18	0x7212	Operation state 2	0 to 65535	0	-	Unchangeable
U2-19	0x7213	Fault state 2	0 to 65535	0	-	Unchangeable
U2-20	0x7214	Motor operating frequency 2	0.00 to 655.35	0.00	Hz	Unchangeable
U2-21	0x7215	Output voltage 2	0 to 65535	0	V	Unchangeable
U2-22	0x7216	Output current 2	0.00 to 655.35	0.00	A	Unchangeable
U2-23	0x7217	Output power 2	0.0 kW to 6553.5 kW	0.0	kW	Unchangeable
U2-24	0x7218	1st fault type 2	0 to 65535	0	-	Unchangeable
U2-25	0x7219	2nd fault type 2	0 to 65535	0	-	Unchangeable
U2-26	0x721A	3rd fault type 2	0 to 65535	0	-	Unchangeable

Para. code	Comm. address	Para. name	Setpoint	Default value	Unit	Change method
U2-27	0x721B	Frequency 2 upon the 3rd fault	0.00 to 655.35	0.00	Hz	Unchangeable
U2-28	0x721C	Current 2 upon the 3rd fault	0.0 to 6553.5	0.0	A	Unchangeable
U2-29	0x721D	Bus voltage 2 upon the 3rd fault	0.0 V to 6553.5 V	0.0	V	Unchangeable
U2-30	0x721E	Frequency 2 upon the 2nd fault	0.00 to 655.35	0.00	Hz	Unchangeable
U2-31	0x721F	Current 2 upon the 2nd fault	0.0 to 6553.5	0.0	A	Unchangeable
U2-32	0x7220	Bus voltage 2 upon the 2nd fault	0.0 V to 6553.5 V	0.0	V	Unchangeable
U2-33	0x7221	Frequency 2 upon the 1st fault	0.00 to 655.35	0.00	Hz	Unchangeable
U2-34	0x7222	Current 2 upon the 1st fault	0.0 to 6553.5	0.0	A	Unchangeable
U2-35	0x7223	Bus voltage 2 upon the 1st fault	0.0 V to 6553.5 V	0.0	V	Unchangeable
U2-36	0x7224	Operation state 3	0 to 65535	0	-	Unchangeable
U2-37	0x7225	Fault state 3	0 to 65535	0	-	Unchangeable
U2-38	0x7226	Motor operating frequency 3	0.00 to 655.35	0.00	Hz	Unchangeable
U2-39	0x7227	Output voltage 3	0 to 65535	0	V	Unchangeable
U2-40	0x7228	Output current 3	0.00 to 655.35	0.00	A	Unchangeable
U2-41	0x7229	Output power 3	0.0 kW to 6553.5 kW	0.0	kW	Unchangeable
U2-42	0x722A	Type 3 upon the 1st fault	0 to 65535	0	-	Unchangeable
U2-43	0x722B	Type 3 upon the 2nd fault	0 to 65535	0	-	Unchangeable
U2-44	0x722C	Type 3 upon the 3rd fault	0 to 65535	0	-	Unchangeable
U2-45	0x722D	Frequency 3 upon the 3rd fault	0.00 to 655.35	0.00	Hz	Unchangeable

Para. code	Comm. address	Para. name	Setpoint	Default value	Unit	Change method
U2-46	0x722E	Current 3 upon the 3rd fault	0.0 to 6553.5	0.0	A	Unchangeable
U2-47	0x722F	Bus voltage 3 upon the 3rd fault	0.0 V to 6553.5 V	0.0	V	Unchangeable
U2-48	0x7230	Frequency 3 upon the 2nd fault	0.00 to 655.35	0.00	Hz	Unchangeable
U2-49	0x7231	Current 3 upon the 2nd fault	0.0 to 6553.5	0.0	A	Unchangeable
U2-50	0x7232	Bus voltage 3 upon the 2nd fault	0.0 V to 6553.5 V	0.0	V	Unchangeable
U2-51	0x7233	Frequency 3 upon the 1st fault	0.00 to 655.35	0.00	Hz	Unchangeable
U2-52	0x7234	Current 3 upon the 1st fault	0.0 to 6553.5	0.0	A	Unchangeable
U2-53	0x7235	Bus voltage 3 upon the 1st fault	0.0 V to 6553.5 V	0.0	V	Unchangeable
U2-54	0x7236	Operation state 4	0 to 65535	0	-	Unchangeable
U2-55	0x7237	Fault state 4	0 to 65535	0	-	Unchangeable
U2-56	0x7238	Motor operating frequency 4	0.00 to 655.35	0.00	Hz	Unchangeable
U2-57	0x7239	Output voltage 4	0 to 65535	0	V	Unchangeable
U2-58	0x723A	Output current 4	0.00 to 655.35	0.00	A	Unchangeable
U2-59	0x723B	Output power 4	0.0 kW to 6553.5 kW	0.0	kW	Unchangeable
U2-60	0x723C	Type 4 upon the 1st fault	0 to 65535	0	-	Unchangeable
U2-61	0x723D	Type 4 upon the 2nd fault	0 to 65535	0	-	Unchangeable
U2-62	0x723E	Type 4 upon the 3rd fault	0 to 65535	0	-	Unchangeable
U2-63	0x723F	Frequency 4 upon the 3rd fault	0.00 to 655.35	0.00	Hz	Unchangeable
U2-64	0x7240	Current 4 upon the 3rd fault	0.0 to 6553.5	0.0	A	Unchangeable

Para. code	Comm. address	Para. name	Setpoint	Default value	Unit	Change method
U2-65	0x7241	Bus voltage 4 upon the 3rd fault	0.0 V to 6553.5 V	0.0	V	Unchangeable
U2-66	0x7242	Frequency 4 upon the 2nd fault	0.00 to 655.35	0.00	Hz	Unchangeable
U2-67	0x7243	Current 4 upon the 2nd fault	0.0 to 6553.5	0.0	A	Unchangeable
U2-68	0x7244	Bus voltage 4 upon the 2nd fault	0.0 V to 6553.5 V	0.0	V	Unchangeable
U2-69	0x7245	Frequency 4 upon the 1st fault	0.00 to 655.35	0.00	Hz	Unchangeable
U2-70	0x7246	Current 4 upon the 1st fault	0.0 to 6553.5	0.0	A	Unchangeable
U2-71	0x7247	Bus voltage 4 upon the 1st fault	0.0 V to 6553.5 V	0.0	V	Unchangeable
U2-96	0x7260	Power of fan 1	0.0 kW to 6553.5 kW	0	kW	Unchangeable
U2-97	0x7261	Power of fan 2	0.0 kW to 6553.5 kW	0	kW	Unchangeable
U2-98	0x7262	Power of fan 3	0.0 kW to 6553.5 kW	0	kW	Unchangeable
U2-99	0x7263	Power of fan 4	0.0 kW to 6553.5 kW	0	kW	Unchangeable

A.2 Parameters in Group A8

Group A8: Air compressor process parameters (F0-03 = 11)

NOTE

- The setting range, data type and change method of parameters in this group have been introduced in the parameter lists. This section describes the parameters in details.

A8-00: test mode

Description:

0: Normal mode

1: Tooling test mode. When the temperature sensor or pressure sensor is not connected, the pressure and temperature related faults can be shielded for the

normal operation of the machine.

2: Manual loading mode: The electromagnetic valve can be manually opened.

3: Manual loading mode: In the air compressor mode, the electromagnetic valve can be manually closed.

A8-01 Loading delay time

Description:

This parameter indicates the delay for opening the electromagnetic valve after the air compressor is started in the air compressor mode.

A8-02 Warning time

Description:

In the air compressor mode, when the running time reaches the warning time, an alarm will be reported.

A8-03 Pressure sensor function

Description:

Two channels of pressure sensors are available. 0 and 1 indicate the first and second channels of the pressure sensors, respectively.

A8-04 Temperature sensor function

Description:

Two channels of temperature sensors are available. 0 and 1 indicate the first and second channels of the temperature sensors, respectively.

A8-05 Range of pressure sensor 1

Description:

This parameter indicates the range of the air compressor pressure.

A8-07 Constant pressure

Description:

This parameter indicates the constant pressure in the air compressor mode.

When the pressure is lower than the constant pressure, the air compressor will continue to operate. If the pressure is higher than or equal to the constant pressure, the operating frequency will gradually decrease until the lower limit frequency is reached. At the same time, the air compressor will automatically determine to enter the running or hibernation state according to the current conditions.

A8-08 Unload pressure

Description:

This parameter indicates the unload pressure in the air compressor mode.

When the pressure is higher than or equal to the unload pressure, the electromagnetic valve will be automatically closed. The air compressor will determine to continue to run or enter the hibernation state according to its processing logic.

A8-09 Wakeup pressure (load pressure)

Description:

This parameter indicates the wakeup pressure in the air compressor mode.

In the hibernation state, when the pressure is lower than the wakeup pressure, the air compressor will automatically restart.

A8-10 Stop pressure (protection pressure)

Description:

This parameter indicates the protection pressure.

When the pressure is higher than or equal to the protection pressure, the pressure sensor 1 will report a fault and the air compressor will stop.

A8-11 Warning pressure

Description:

This parameter indicates the warning pressure.

When the pressure is higher than or equal to the warning pressure, the pressure sensor 1 will report a fault but the air compressor will not stop and will maintain the current state.

A8-12 Temperature for stop

Description:

This parameter indicates the temperature at stop.

When the temperature is higher than or equal to the temperature for stop, the pressure sensor 1 will report a fault and the air compressor will stop.

A8-13 Warning temperature

Description:

This parameter indicates the warning temperature.

When the pressure is higher than or equal to the warning pressure, the pressure sensor 1 will report a fault but the air compressor will not stop and will maintain the current state.

A8-14 Wakeup time

Description:

This parameter indicates the delay for restart from the hibernation state.

In the hibernation state, if the wakeup time has elapsed and the hibernation restart

condition has been met, the air compressor can restart normally.

If the hibernation restart condition is met but the wakeup time is not reached, the air compressor cannot be restarted until the wakeup time is reached.

A8-15 Stop preparation time

Description:

This parameter indicates the stop preparation time.

After the stop command is received and the stop preparation time is reached, the air compressor will stop and the electromagnetic valve will be closed. At the same time, the air compressor will change from the "ready to stop" state to the "stop lockout" state.

A8-16 Stop lockout time

Description:

This parameter indicates the stop lockout time.

In the "stop lockout" state, the air compressor cannot be started. After the stop lockout time has elapsed, the air compressor will enter the "stop" state. Then the air compressor can be started again.

A8-17 Constant temperature

Description:

This parameter indicates the constant temperature.

It is used for temperature PID control.

A8-18 Blower stop temperature

Description:

This parameter indicates the temperature for variable frequency or mains frequency blower stop.

Under the premise that the main motor is running, when the temperature reaches the fan stop temperature, the variable frequency fan and the mains frequency fan with the power no more than 15 kW will automatically stop.

A8-19 Blower start temperature

Description:

This parameter indicates the temperature for variable frequency or mains frequency blower start.

Under the premise that the main motor is running, when the temperature reaches the fan start temperature, the variable frequency fan and the mains frequency fan with the power no more than 15 kW will automatically start.

A8-20 Pre-operation frequency

Description:

This parameter indicates the pre-operation frequency.

When the air compressor is in the "pre-operation" state, it will run at the pre-operation frequency (A8-20) for the time set by A8-21.

A8-21 Pre-operation time

Description:

This parameter indicates the pre-operation time.

When the air compressor is in the "pre-operation" state, it will run at the pre-operation frequency (A8-20) for the time set by A8-21.

A8-22 Hibernation judgment time

Description:

This parameter indicates the time to enter the hibernation state.

There are two ways to enter the hibernation state. The first way is from the "normal operation" state directly to the "hibernation" state, which is related to A8-22. The second way is from the "pre-operational" state to the "overpressure 1" state and then to the "hibernation" state, which will be introduced in A8-34.

The first way has the following two kinds of judgment logic:

First kind of judgment logic: The air compressor enters the hibernation state according to the frequency lower limit (A8-70=0). During normal operation, when the pressure is higher than or equal to the constant pressure set by A8-07, and the operating frequency is close to the frequency lower limit, the air compressor enters the hibernation state after the hibernation judgment time set by A8-22 expires.

Second kind of judgment logic: The air compressor enters the hibernation state according to the hibernation pressure (A8-70=1). During normal operation, when the pressure is higher than or equal to the hibernation pressure set by A8-33, the air compressor enters the hibernation state after the hibernation judgment time set by A8-22 expires.

A8-23 Air filter maintenance time

Description:

This parameter indicates the air filter maintenance time. It is used together with A8-28 (air filter running time) and A8-68 (time for shutdown upon warning) for air filter alarm or fault display.

When A8-23 is not 0, A8-68 is not 0, and A8-28 is larger than (A8-23 + A8-68), the "air filter maintenance time reach" fault will be triggered.

When A8-23 is not 0, and A8-28 is larger than A8-23, the "air filter maintenance time

reach" alarm will be triggered.

A8-24 Oil filter maintenance time

Description:

This parameter indicates the oil filter maintenance time. It is used together with A8-29 (oil filter running time) and A8-68 (time for shutdown upon warning) for oil filter alarm or fault display.

When A8-24 is not 0, A8-68 is not 0, and A8-29 is larger than (A8-24 + A8-68), the "oil filter maintenance time reach" fault will be triggered.

When A8-24 is not 0, and A8-29 is larger than A8-24, the "oil filter maintenance time reach" alarm will be triggered.

A8-25 Oil and gas separator maintenance time

Description:

This parameter indicates the oil and gas separator maintenance time. It is used together with A8-30 (oil and gas separator running time) and A8-68 (time for shutdown upon warning) for oil and gas separator alarm or fault display.

When A8-25 is not 0, A8-68 is not 0, and A8-30 is larger than (A8-25 + A8-68), the "oil and gas separator maintenance time reach" fault will be triggered.

When A8-25 is not 0, and A8-30 is larger than A8-25, the "oil and gas separator maintenance time reach" alarm will be triggered.

A8-26 Motor grease maintenance time

Description:

This parameter indicates the motor lubricating grease maintenance time. It is used together with A8-31 (operating time of motor lubricating grease) and A8-68 (time for shutdown upon warning) for motor grease alarm or fault display.

When A8-26 is not 0, A8-68 is not 0, and A8-31 is larger than (A8-26 + A8-68), the "motor grease maintenance time reach" fault will be triggered.

When A8-26 is not 0, and A8-31 is larger than A8-26, the "motor grease maintenance time reach" alarm will be triggered.

A8-27 Lubricant maintenance time

Description:

This parameter indicates the lubricant maintenance time. It is used together with A8-32 (operating time of lubricant) and A8-68 (time for shutdown upon warning) for lubricant alarm or fault display.

When A8-27 is not 0, A8-68 is not 0, and A8-32 is larger than (A8-27 + A8-68), the "lubricant maintenance time reach" fault will be triggered.

When A8-27 is not 0, and A8-32 is larger than A8-27, the "lubricant maintenance time reach" alarm will be triggered.

A8-28 Air filter running time

Description:

This parameter displays the air filter running time, which can be modified. It is used together with A8-23.

A8-29 Oil filter running time

Description:

This parameter displays the oil filter running time, which can be modified. It is used together with A8-24.

A8-30 Oil and gas separator running time

Description:

This parameter displays the oil and gas separator running time, which can be modified. It is used together with A8-25.

A8-31 Motor grease running time

Description:

This parameter displays the motor grease running time, which can be modified. It is used together with A8-26.

A8-32 Lubricant running time

Description:

This parameter displays the lubricant running time, which can be modified. It is used together with A8-27.

A8-33 Hibernation pressure

Description:

This parameter indicates the hibernation pressure in the air compressor mode.

The hibernation logic has been described in A8-22.

A8-34 Hibernation judgment time upon unloading

Description:

This parameter indicates the hibernation judgment time upon unloading.

There are two ways to enter the hibernation state.

The first way is from the "normal operation" state directly to the "hibernation" state, which has been described in A8-22.

The second way is from the "(pre-)operational" state to the "overpressure 1" state and then to the "hibernation" state, which is related to A8-34. The function is described as follows:

During pre-operation or normal operation, when the pressure is higher than or equal to the unload pressure (A8-08), the air compressor will enter the "overpressure 1" state. After the hibernation judgment time upon unloading (A8-34) expires, the air compressor will enter the "hibernation" state.

A8-35 Action selection 0 upon fault for application-specific drive

Description:

This parameter indicates the equipment action selection 0 upon a fault.

Ones position: Motor overheat

Tens position: Phase sequence abnormal

Hundreds position: Phase loss of the mains frequency blower

Thousands position: Demagnetization protection fault

Ten thousands: Oscillation fault

0: Coast to stop

1: Decelerate to stop

2: Restart upon fault;

4: Warnings are reported and operation continues.

5: Cancel detection

A8-36 Action selection 1 upon fault for application-specific drive

Description:

This parameter indicates the action selection 1 upon a fault for application-specific drives.

Ones position: Blower 1 fault

Tens position: Blower 2 fault

Hundreds: Fan 3 fault

Thousands position: Blower 4 fault

Ten-thousands: Reserved

0: Coast to stop

1: Decelerate to stop

2: Restart upon fault;

4: Warnings are reported and operation continues.

5: Cancel detection

A8-39 Output current calibration coefficient

Description:

This parameter displays the output current calibration coefficient.

A8-40 Output power calibration coefficient

Description:

This parameter displays the output power calibration coefficient.

A8-41 Pressure calibration coefficient

Description:

This parameter displays the pressure calibration coefficient.

A8-42 Temperature calibration coefficient

Description:

This parameter displays the temperature calibration coefficient.

A8-43 Accumulative with-load running time

Description:

This parameter indicates the accumulative running time of the electromagnetic valve, which can be changed.

A8-44 Running time after pressure warning report

Description:

This parameter indicates the running time after a pressure warning is reported, which can be changed. It is used together with A8-68.

When A8-44 is larger than A8-68 and A8-68 is not 0, the fault indicating stop caused by prolonged pressure warning is triggered.

A8-45 Running time after temperature warning report

Description:

This parameter indicates the running time after a temperature warning is reported, which can be changed. It is used together with A8-68.

When A8-45 is larger than A8-68 and A8-68 is not 0, the fault "stop caused by long-time existence of a temperature warning" is triggered.

A8-46 Pressure or temperature sensor 2 enabling

Description:

This parameter is used to enable or disable pressure or temperature sensor 2.

Ones position: Pressure sensor 2

Tens position: Temperature sensor 2

0: Disable

1: Enable

A8-47 Warning value of pressure sensor 2

Description:

This parameter is used to set the warning value of pressure sensor 2. It is used together with A8-46.

When the ones position of A8-46 is set to 1 and the pressure is higher than or equal to A8-47, the pressure sensor 2 warning is triggered.

A8-48 Protection value of pressure sensor 2

Description:

This parameter is used to set the protection value of pressure sensor 2. It is used together with A8-46.

When the ones position of A8-46 is set to 1 and the pressure is higher than or equal to A8-48, the pressure sensor 2 overpressure fault is triggered.

A8-49 Warning value of temperature sensor 2

Description:

This parameter is used to set the warning value of temperature sensor 2. It is used together with A8-46.

When the tens place of A8-46 is set to 1 and the temperature is higher than or equal to A8-49, the temperature sensor 2 warning is triggered.

A8-50 Protection value of temperature sensor 2

Description:

This parameter is used to set the protection value of temperature sensor 2. It is used together with A8-46.

When the tens position of A8-46 is set to 1 and the temperature is higher than or equal to A8-50, the temperature sensor 2 overtemperature is triggered.

A8-51 Mains frequency blower jog command

Description:

This parameter is used to set the mains frequency blower jog command.

0: Stop

1: Operation

A8-52 Special function enabling

Description:

This parameter is used to enable or disable the special function.

Ones position: Pre-heating function It is used together with A8-53 (low temperature threshold), A8-54 (warm-up exiting threshold), and A8-55 (warm-up operating frequency).

0: Disable

1: Enable

After the pre-heating function is enabled, when the temperature is lower than or equal to the low temperature threshold (A8-53), the air compressor will run at the

pre-heating operating frequency; When the temperature is higher than or equal to the warm-up exiting threshold (A8-54), the air compressor starts to run normally.

A8-53 Low temperature threshold

Description:

This parameter is used to set the low temperature threshold and used together with the pre-heating function.

A8-54 Pre-heating exiting temperature threshold

Description:

This parameter is used to set the temperature for exiting the pre-heating function and used together with the pre-heating function.

A8-55 Pre-heating operating frequency threshold

Description:

This parameter is used to set the frequency for pre-heating operation and used together with the pre-heating function.

A8-56 Operation at frequency lower limit forcibly

Description:

This parameter is used to enable or disable the frequency lower limit.

0: Disable

1: Enable

After the frequency lower limit is enabled, the maximum frequency of the air compressor is the frequency lower limit.

A8-57 Immediate stop

Description:

This parameter is used to enable or disable the immediate stop function.

0: Disable

1: Enable

When the immediate stop function is disabled, the air compressor transitions from the "stop preparation" state to the "stop lockout" state once the stop preparation time (A8-15) expires. Then it enters the "stop" state after the stop lockout time (A8-16) expires.

When the immediate stop function is enabled, the air compressor enters the "stop" state directly from the "stop preparation" state.

A8-58 Low temperature protection threshold

Description:

This parameter is used to set the low temperature protection threshold. It is used

together with the pre-heating function.

If the temperature is lower than or equal to the low temperature protection threshold for one second, the temperature sensor low temperature fault is triggered under the following conditions:

The low temperature protection delay time (A8-59) is not 0.

The pre-heating function is enabled.

The low temperature protection delay time during pre-heating process (A8-60) has expired.

A8-59 Low temperature protection delay

Description:

This parameter is used to set the low temperature protection delay time and used to determine the temperature sensor low temperature fault.

If the temperature is lower than or equal to the low temperature protection threshold (A8-58), the temperature sensor low temperature fault is triggered under the following conditions:

A8-59 is not 0.

The air compressor is not stopped or in the pre-heating state.

The low temperature protection delay time has expired.

A8-60 Low temperature protection delay during pre-heating process

Description:

This parameter is used to set the low temperature protection delay time during pre-heating process.

It has been introduced in A8-58.

A8-61 Normal hibernation shutdown delay

Description:

This parameter indicates the time for delaying shutdown after the air compressor enters the hibernation state.

When the air compressor is in the hibernation state, it will stop after the time set by A8-61 has expired.

A8-63 Automatic displacement function

Description:

Used to set the automatic displacement function. It is used together with A8-64 and A8-67. It is used to calculate the frequency upper limit.

0: Disable

1: Enable

After this function is enabled, frequency upper limit = A8-65 - ((A8-07 – A8-64) x (A8-65 – A8-67)/(A8-66 – A8-64))

A8-64 Start pressure

Description:

It is used together with the automatic displacement function and has been introduced in A8-63.

A8-65 Start frequency

Description:

It is used together with the automatic displacement function and has been introduced in A8-63.

A8-66 End pressure

Description:

It is used together with the automatic displacement function and has been introduced in A8-63.

A8-67 End frequency

Description:

It is used together with the automatic displacement function and has been introduced in A8-63.

A8-68 Time for shutdown upon warning

Description:

This parameter indicates the time for shutdown upon warning. It is used together with A8-23 to A8-35, A8-44, and A8-45 for related warnings or faults.

A8-69 Accumulative running time

Description:

Displays the cumulative operating time of the air compressor, which can be modified.

A8-70 Hibernation mode judgment condition

Description:

Used to select the judgment logic for entering the sleep state.

0: Frequency lower limit

1: Hibernation pressure

It has been introduced in A8-22.

A8-71 24 V output control

Description:

This parameter is used to set the 24 V water pump output.

0: Disable

1: Enable

A8-72 Mains frequency blower control

Description:

This parameter is used set the mains frequency blower control function.

Ones position: Automatic control of mains frequency blower

Set the ones position to 1:

For three-phase 380 V models with the power above 15 kW or three-phase 220 V models with the power above 7.5 kW, if the main motor is running and not in the tuning state, the mains frequency fan runs; if the main motor stops, the mains frequency fan stops.

For other models, if the main motor is running and the temperature reaches the fan start temperature, the mains frequency fan runs; if the main motor stops or the temperature is lower than or equal to the fan stop temperature, the mains frequency fan stops.

Tens: Manual control of mains frequency fan

Tens:

This parameter controls the manual mode of mains frequency fans of all power ratings. After the manual mode is enabled, the fan status is controlled only by A8-51.

In non-air compressor mode, setting the tens place to 0 stops the fan.

A8-73 Rated current of mains frequency blower

Description:

This parameter indicates the rated current (protective value) of the mains frequency blower.

When the output current of the mains frequency blower is greater than the rated current of the mains frequency blower for the overload judgment time of the mains frequency blower (A8-74), the mains frequency blower overload fault is reported.

A8-74 Overload judgment time of mains frequency blower

Description:

This parameter is used to set the overload judgment time of the mains frequency blower.

A8-75 Pump pressure detection delay

Description:

Used to set the delay for detecting excessively low pump pressure of the water-cooling system.

A8-76 Pump pressure fault judgment delay

Description:

It is used to determine the pump underpressure detection fault and used together with A8-75.

A8-77 Fan start/stop mode

Description:

This parameter is available only for models with the power above 100 kW.

It is used to set the start/stop mode of each blower.

Ones: Fan 1

Tens: Fan 2

Hundreds: Fan 3

Thousands: Fan 4

0: Start/stop with the main motor

1: Temperature-controlled start/stop

2: Terminal-controlled start/stop

3: Communication control (communication address: 0x2006) The ones place of the control command indicates blower 1; the tens place indicates blower 2; the hundreds place indicates blower 3; the thousands place indicates blower 4.)

4: Operating panel-controlled start/stop (The ones place to thousands place of B1-01 indicate fan 1 to fan 4, respectively.)

A8-78 Blower speed adjustment mode

Description:

This parameter is available only for models with the power above 100 kW.

Ones: Fan 1

Tens: Fan 2

Hundreds: Fan 3

Thousands: Fan 4

0: Constant temperature PID speed regulation

1: Communication setting (Address 0x2007 indicates blower 1 speed, 0x2008 indicates blower 2 speed, 0x2009 indicates blower 3 speed, and 0x200A indicates blower 4 speed.)

2: Digital setting (B1-02 to B1-05 indicate blowers 1 to 4, respectively.)

A8-79 Simultaneous start/stop of variable frequency blowers

Description:

This parameter is available only for models with the power above 100 kW.

0: Disable

1: Enable

After A8-79 is set to 1, variable frequency blowers 1 and 2 are started or stopped simultaneously.

A8-80 Quantity of blowers

Description:

This parameter indicates the number of fans and is available only for models with the power above 100 kW.

A8-81 Blower 2 stop judgment temperature

Description:

This parameter indicates the temperature to stop fan 2 and is available only for models with the power above 100 kW.

A8-82 Fan 3 stop judgment temperature

Description:

This parameter indicates the temperature to stop fan 3 and is available only for models with the power above 100 kW.

A8-83 Fan 4 stop judgment temperature

Description:

This parameter indicates the temperature to stop fan 4 and is available only for models with the power above 100 kW.

A8-84 Blower 2 start judgment temperature

Description:

This parameter indicates the temperature to start fan 2 and is available only for models with the power above 100 kW.

A8-85 Fan 3 start judgment temperature

Description:

This parameter indicates the temperature to start fan 3 and is available only for models with the power above 100 kW.

A8-86 Fan 4 start judgment temperature

Description:

This parameter indicates the temperature to start fan 4 and is available only for models with the power above 100 kW.

A8-87 Hibernation pre-operation

Description:

0: Disable

1: Enable

After this function is enabled, when the air compressor starts from the "hibernation stop" state, it enters the "pre-running" state and runs according to the preset frequency (A8-20). After the pre-running time (A8-21) has expired, the air compressor enters the "normal running" state.

A8-88 Jump frequency

Description:

Used to set the frequency to be skipped.

A8-89 Temperature detection of AC drive (MD800 module)

Description:

0: Disable; 1: Enable

This function is applicable only to models with the power above 100 kW. If this function is enabled, the NTC fault will be determined according to the overtemperature of the AC drive (MD800 module) and the temperature of the CP700 AC drive.

A8-90 NTC disconnection detection time

Description:

This parameter is used to set the NTC disconnection detection time for judging the NTC disconnection fault.

A8-98 Air compressor running state before power failure

Description:

This parameter indicates the running state of the air compressor before power failure and is used together with A8-99.

A8-99 Restart upon power failure

Description:

0: Disable

1: Enable

After this function is enabled and the power supply is connected after cutoff, the air compressor will automatically restart or stop according to the state set by A8-98.

Appendix B Communication Address

Read the AC drive state.

State word address	Status word function (in air compressor mode)	Status word function (in non-air compressor mode)
3000H	1. Ready for operation	1: Forward run
	2: Running	2: Reverse running
	3: Hibernation	3: At stop
	4: Preparing for stop	8: Fault
	5: Stop lockout	10: Auto-tuning
	6: Stop	-
	7: Stop lockout upon a fault	-
	8: Stop upon a fault	-
	9: Hibernation	-
	10: Auto-tuning	-

Control command input to AC drive

Control command address	Control command word function
2800H/2000H	0: Stop according to stop mode (F6-10)
	1: Forward run
	2: Reverse run
	3: Forward jog
	4: Reverse jog
	5: Coast to stop
	6: Decelerate to stop
	7: Reset upon fault

Appendix C Certification and Standard Compliance

C.1 Compliance List

Applicable standard	Applicable scenario
IEC/EN 61800-5-1	Adjustable Speed Electrical Drive Systems - Part 5-1: Safety Requirements - Electrical, Thermal, and Energy
IEC/EN 61800-3	Adjustable Speed Electrical Power Drive Systems - Part 3: EMC Requirements and Specific Test Methods

The drive complies with the following directives and standards. Actual certification is subject to the information on the product nameplate.

Mark	Directive	Standard	Description
CE	2014/35/EU	IEC/EN 61800-5-1	The drive complies with the EU Low Voltage Directive 2014/35/EU.
	2014/30/EU	IEC/EN 61800-3	The drive complies with the EU Electromagnetic Compatibility Directive 2014/30/EU.
	2011/65/EU & 2015/863/EU	-	The AC drive complies with EU Restriction of Hazardous Substances directives 2011/65/EU & 2015/863/EU.

C.2 CE Certification

C.2.1 Precautions for Compliance with European Standards

CE

■ The CE mark indicates compliance with the Low Voltage Directive (LVD),

Electromagnetic Compatibility (EMC), and Restriction of Hazardous Substances (RoHS) directives for commercial trades (production, import, and sales) in Europe.

- The CE mark is mandatory for engaging in commercial business (production, importation, and distribution) in Europe.
- The drive complies with LVD, EMC, and RoHS directives and carries the CE mark.
- Machines and devices integrated with this drive must also comply with CE requirements for distribution in Europe.
- The integrator who integrates this drive into other products and attaches CE mark to the final assembly has the responsibility of ensuring compliance with CE certification.

C.2.2 EMC Directive Compliance

- This drive is applicable to the first environment and second environment, and complies with EMC Directive 2014/30/EU and standard EN IEC 61800-3.



NOTE

If the product is used in the first environment, it may generate radio interference. In addition to CE compliance requirements, measures should be taken to prevent interference when necessary.

- As required by EMC Directive and standard, install an EMC filter on the input side and use shielded cables on the output side. Ensure the filter is grounded properly and the shield of the output cable is grounded 360 degrees.



NOTE

The manufacturer of the system integrated with this drive is responsible for ensuring compliance with EMC directives and EN IEC 61800-3 based on the application environment of the system.

EMC specifications

The drive complies with EN IEC 61800-3. The maximum length of the motor cable allowed by the conducted and radiated emission is shown in the following table.

Power supply system	Maximum Motor Cable Length Allowed by Conducted Emission				Maximum Motor Cable Length Allowed by Conducted Emission			
	C2		C3 Class		C2		C3 Class	
	Built-in filter	External EMC filter	Built-in filter	External EMC filter	Built-in filter	External EMC filter	Built-in filter	External EMC filter
CP700-2T7.5-H	-	-	-	3 m	-	-	-	3 m
CP700-2T11-H	-	-	-	3 m	-	-	-	3 m
CP700-2T15-H	-	-	-	3 m	-	-	-	3 m
CP700-2T18.5-H	-	-	-	3 m	-	-	-	3 m
CP700-2T22-H	-	-	-	3 m	-	-	-	3 m

Power supply system	Maximum Motor Cable Length Allowed by Conducted Emission				Maximum Motor Cable Length Allowed by Conducted Emission			
	C2		C3 Class		C2		C3 Class	
	Built-in filter	External EMC filter	Built-in filter	External EMC filter	Built-in filter	External EMC filter	Built-in filter	External EMC filter
CP700-2T30-H	-	3 m	-	-	-	3 m	-	-
CP700-2T37-H	-	3 m	-	-	-	3 m	-	-
CP700-2T45-H	-	3 m	-	-	-	3 m	-	-
CP700-4T5.5-H	-	-	-	3 m	-	-	-	3 m
CP700-4T7.5-H	-	-	-	3 m	-	-	-	3 m
CP700-4T7.5S-H	-	-	-	3 m	-	-	-	3 m
CP700-4T11(S)-H	-	-	-	3 m	-	-	-	3 m
CP700-4T15(S)-H	-	-	-	3 m	-	-	-	3 m
CP700-4T18.5(S)-H(1)	-	-	-	3 m	-	-	-	3 m
CP701-4T18.5(S)-H(1)	-	-	-	3 m	-	-	-	3 m
CP700-4T22(S)-H(1)	-	-	-	3 m	-	-	-	3 m
CP701-4T22(S)-H(1)	-	-	-	3 m	-	-	-	3 m
CP700-4T30(S)-H(1)	-	-	-	3 m	-	-	-	3 m
CP701-4T30(S)-H(1)	-	-	-	3 m	-	-	-	3 m
CP700-4T37(S)-H(1)	-	-	-	3 m	-	-	-	3 m
CP701-4T37(S)-H(1)	-	-	-	3 m	-	-	-	3 m
CP700-4T45(S)-H(1)	-	3 m	-	-	-	3 m	-	-
CP701-4T45(S)-H(1)	-	3 m	-	-	-	3 m	-	-
CP700-4T55(S)-H(1)	-	3 m	-	-	-	3 m	-	-
CP701-4T55(S)-H(1)	-	3 m	-	-	-	3 m	-	-
CP700-4T75(S)-H(1)	-	3 m	-	-	-	3 m	-	-
CP701-4T75(S)-H(1)	-	3 m	-	-	-	3 m	-	-
CP700-4T90(S)-H(1)	-	-	-	3 m	-	-	-	3 m
CP701-4T90(S)-H(1)	-	-	-	3 m	-	-	-	3 m
CP700-4T110(S)-H(1)	-	10 m	10 m	-	-	10 m	10 m	-
CP700-4T132(S)-H(1)	-	10 m	10 m	-	-	10 m	10 m	-
CP700-4T160(S)-H(1)	-	10 m	10 m	-	-	10 m	10 m	-
CP700-4T200(S)-H(1)	-	10 m	10 m	-	-	10 m	10 m	-
CP700-4T110-H-7.5	-	10 m	10 m	-	-	10 m	10 m	-
CP700-4T132-H-7.5	-	10 m	10 m	-	-	10 m	10 m	-
CP700-4T160-H-7.5	-	10 m	10 m	-	-	10 m	10 m	-
CP700-4T200-H-7.5	-	10 m	10 m	-	-	10 m	10 m	-

Introduction to EMC standards

Electromagnetic compatibility (EMC) describes the ability of electrical and electronic devices or systems to work properly in the electromagnetic environment without introducing electromagnetic interferences that disturb the operation of other local devices or systems. Therefore, EMC includes the following requirements:

- The electromagnetic interference generated by the device or system during normal operation must be within a certain limit.
- The device or system must have sufficient immunity to the electromagnetic interference in the environment.

EN IEC 61800-3 defines the following two types of environments.

- First environment: Environment that includes domestic premises, and establishments directly connected without intermediate transformers to a low-voltage power supply network which supplies buildings used for domestic purposes
- Second environment: Environment that includes all establishments other than those directly connected to a low-voltage power supply network which supplies buildings used for domestic purposes

Devices are divided into the following four categories based on the intended environment.

- C1 equipment: Power drive systems with the rated voltage less than 1000 V, intended for use in the first environment:
- Category C2 equipment: PDS with rated voltage less than 1000 V, which is neither a plug-in device nor a movable device and, when used in the first environment, is intended to be installed and commissioned only by professionals.
- Category C3 equipment: PDS of rated voltage less than 1000 V, intended for use in the Second Environment only and not the First Environment.
- Category C4 equipment: PDS of rated voltage greater than or equal to 1000 V, or rated current greater than or equal to 400 A, or intended for use in complex systems in the Second Environment.

C.2.3 Requirements for Compliance with the LVD

The product has been tested in accordance with EN61800-5-1 and complies with the Low Voltage Directive. Observe the following requirements to enable machines and devices integrated with this drive to comply with the LVD.

Installation location

Install the product in a place with overvoltage category III and pollution degree 1 or 2 as specified by IEC 60664-1.

Installation environment

For requirements of the installation environment, see "2.2.1 Installation Environment".

Installation protection requirements

- The drive serves as a part of a final system. Install the drive as the system component in a fireproof cabinet that provides effective electrical and mechanical protection, and install it in accordance with local laws and regulations and relevant IEC standards.
- Drives (IP20) intended to be installed inside the cabinet must be installed in a structure that prevents intrusion of unwanted objects from the top and the front.

Wiring requirements for main circuit terminals

For details, see "2.3.3 Main Circuit Wiring Requirements".

Requirements for protective devices

To comply with EN 61800-5-1 standards, install a fuse/circuit breaker on the input side of the drive to prevent accidents caused by short circuit in the internal circuit. Use a fuse that matches the maximum input value of the AC drive. For selection of fuses, see "1.5.3 Selection of Fuses, Contactors, and Circuit Breakers".

Service and Support

Should you encounter a safety accident during the use or operation of the product, or face challenges in operating and maintaining the equipment, which remain unresolved after the relevant documentation is consulted, we provide multiple channels to ensure prompt resolution:

- Channel #1: Contact service@inovance.com.
- Channel #2: Visit https://www.inovance.com/global to access document downloads, after-sales support, spare parts ordering, repair applications, and authenticity verification services.
- Channel #3: Download My Inovance app (https://zshc-eu.inovance.com/download-pc/) where you can access products info and documentation, and query product parameters.

We are committed to providing you with quick and professional technical support, and we look forward to your satisfaction and trust.

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