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CP700-INT Series AC Drive for Air Compressors

User Guide

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

Data code 19012294A02

Preface

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

The CP700-INT series AC drive for air compressors has the following features:
Easy mounting: The product adopts the sheet metal structure and supports the wall-mounting method.
Simplified wiring and commissioning: The control circuit terminals are plug-in with mistake proofing design.
High integration: The AC drive is equipped with the built-in 220 VAC power supply, mains frequency contactor, and built-in detection and protection circuits such as PT100 and PTC, and provides 24 V output power supply to external devices. The AC drive uses dedicated software to communicate with the human machine interface (HMI) and Internet of Things (IoT) equipment without commissioning, and supports one-button startup.

This user guide describes the correct use of the CP700-INT 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

Starters must read through this guide before use for the first time. If you have any question concerning product functions or performance, contact Inovance for technical support.

§ Standard Compliance

The following table lists the certifications and standards that the product may comply with. For details about the acquired certificates, see the certification marks on the product nameplate.

Certification	Directive		Standard
CE Certification	EMC Directive	2014/30/EU	EN IEC 61800-3
	LVD	2014/35/EU	EN 61800-5-1
	RoHS Directive	2011/65/EU	EN 50581
UL/cUL certification	-		UL61800-5-1 C22.2 No.274-17

§ Revision History

Date	Version	Description
April 2024	A02	◆ Added Appredix B Communication Address. ◆ Added descriptions of the STO in 1.2 Components. ◆ Deleted IoT-related information in 1.5.2 Peripheral Device Descriptions. ◆ In 2.2.3 Control Terminal Layout, added DIP switch descriptions, modified RS485 output terminals, changed DI3to DI6, and added descriptions of DI5 to DI6. ◆ Added diagrams and descriptions of wiring for DI in sink input mode or source input mode in 2.2.4 Control Terminal Wiring. ◆ Deleted closed-loop vector-related information in 4.2 Common Faults and Solutions. ◆ In A.2 Monitoring Parameter List, changed communication addresses of parameters in group U0, deleted U0-52, and added parameters in group U2.
November 2023	A01	◆ Added 1.5.3 Selection of Fuses, Contactors, and Circuit Breakers. ◆ Added A.3 Parameters in Group AB. ◆ In A.1 Basic Parameter List, 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, and B1-26, 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 4.1 Fault Codes and Solutions, modofied E16.00, E33.00, E37.00, E38.00, and E39.00 and deleted E20.01 to E20.09 and E25.00.
July 2023	A00	Initial release

§ Access to the Guide

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

- Access Inovance's website (http://www.inovance.com), choose "Support" > "Download", search for the user guide by its name, and then download the PDF file.
- Scan the QR code on the product with your smart phone.

§ Warranty

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. You will be charged for any repair work after the warranty period expires.

Within the warranty period,maintenance fee will be charged for the following damage:

- Damage caused by operations not following the instructions in the user guide
- Damage caused by fire, flood, or abnormal voltage
- Damage caused by unintended use of the product
- Damage caused by use beyond the specified scope of application of the product
- Damage or secondary damage caused by force majeure (natural disaster, earthquake, and lightning strike)

The maintenance fee is charged according to the latest Price List of Inovance. If otherwise agreed upon, the terms and conditions in the agreement shall prevail.

Fundamental Safety Instructions

Safety Precautions

- This chapter presents essential safety instructions for a proper use of the equipment. Before operating the equipment, read through the guide and comprehend all the safety instructions. Failure to comply with the safety instructions may result in death, severe personal injuries, or equipment damage.
- "CAUTION", "WARNING", and "DANGER" items in the guide only indicate some of the precautions that need to be followed; they just supplement the safety precautions.
- Use this equipment according to the designated environment requirements. Damage caused by improper use is not covered by warranty.
- Inovance shall take no responsibility for any personal injuries or property damage caused by improper use.

Safety Levels and Definitions

Indicates that failure to comply with the notice will result in severe personal injuries or even death.

"WARNING" Indicates that failure to comply with the notice may result in death or severe personal injury.

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

General Safety Instructions

- Drawings in the guide are sometimes shown without covers or protective guards. Remember to install the covers or protective guards as specified first, 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.
- Users 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 equipment if you find damage, rust, or signs of use on the equipment or accessories upon unpacking.
- Do not install the equipment if you find water seepage or missing or damaged components upon unpacking.
- Do not install the equipment if you find the packing list does not conform to the equipment you received.

Caution

- Check whether the packing is intact and whether there is damage, water seepage, dampness, and deformation before unpacking.
- Unpack the package by following the unpacking sequence. Do not strike the package violently.
- Check whether there is damage, rust, or injuries on the surface of the equipment and equipment accessories before unpacking.
- Check whether the package contents are consistent with the packing list before unpacking.

Storage and Transportation

Warning

- Large-scale or heavy equipment must be transported by qualified professionals using specialized hoisting equipment. Failure to comply may result in personal injuries or equipment damage.
- Before hoisting the equipment, ensure the equipment components such as the front cover and terminal blocks are secured firmly with screws. Loosely-connected components may fall off and result in personal injuries 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 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 may result in personal injuries or equipment damage.

Caution

- Handle the equipment with care during transportation and mind your steps to prevent 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.
- Store and transport the equipment based on the storage and transportation requirements. Failure to comply will result in equipment damage.
- Avoid storing or transporting the equipment in environments with water splash, rain, direct sunlight, strong electric field, strong magnetic field, and strong vibration.
- Avoid storing the equipment for more than three months. Long-term storage requires stricter protection and necessary inspections.
- Pack the equipment strictly before transportation. Use a sealed box for long-distance transportation.
- Never transport the equipment with other equipment or materials that may harm or have negative impacts on this equipment.

Installation

Danger

- The equipment must be operated only by professionals with electrical knowledge. Non-professionals are not allowed.

Warning

- Read through the guide and safety instructions before installation.
- Do not install this equipment in places with strong electric or magnetic fields.
- Before installation, check that the mechanical strength of the installation site can bear the weight of the equipment. Failure to comply will 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 a closed environment (such as a cabinet or casing), use a cooling device (such as a fan or air conditioner) to cool the environment down to the required temperature. Failure to comply may result in equipment over-temperature or a fire.
- 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 final assembly, a fireproof enclosure providing both electrical and mechanical protections must be provided. The IP rating must meet IEC standards and local laws and regulations.
- Before installing equipments with strong electromagnetic interference, such as a transformer, install a shielding equipment 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 will result in a fire.

Caution

- Cover the top of the equipment 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 equipment and causing faults. After the installation is completed, remove the protective guard. Failure to comply will block the vent and affect heat dissipation, causing overheat of the product.
- 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

Danger

- Equipment installation, wiring, maintenance, inspection, or parts replacement must be performed only by professionals.
- Before wiring, cut off all the power supplies of the equipment. and wait for at least the time designated on the equipment warning label before further operations because residual voltage still exists after power-off. Measure the direct voltage of the main circuit and ensure that the voltage is within the safety range. Failure to comply will result in an electric shock.
- Do not perform wiring, remove the equipment cover, or touch the circuit board with power ON. Failure to comply will result in an electric shock.
- Check that the equipment is grounded properly. Failure to comply can result in electric shock.

Warning

- Do not connect the input power supply to the output end of the equipment. Failure to comply can result in equipment damage or even a fire.
- When connecting a drive to the motor, check that the phase sequences of the drive and motor terminals are consistent to prevent reverse motor rotation.
- Cables used for wiring must meet cross sectional area and shielding requirements. The shield of the cable must be reliably grounded at one end.
- Fix the terminal screws with the tightening torque specified in the user guide. Improper tightening torque may overheat or damage the connecting part, resulting in a fire.
- After wiring is done, check that all cables are connected properly and no screws, washers or exposed cables are left inside the equipment. Failure to comply may result in an electric shock or equipment damage.

Caution

- Follow the proper electrostatic discharge (ESD) procedure and wear an anti-static wrist strap to perform wiring. Failure to comply may result in damage to the equipment or to the internal circuit of the product.
- Use shielded twisted pairs for the control circuit. Connect the shield to the grounding terminal of the equipment for grounding purpose. Failure to comply will result in equipment malfunction.

Power-on

Danger

- Before power-on, check that the equipment is installed and wired properly and the motor can be restarted.
- Check that the power supply meets equipment requirements before power-on to prevent equipment damage or a fire.
- After power-on, do not open the cabinet door or protective cover of the equipment, touch any terminal, or disassemble any unit or component of the equipment. Failure to comply will result in an electric shock.

Warning

- Perform a trial run after wiring and parameter setting to ensure 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 will result in a fire.
- Before power-on, check that no one is near the equipment, motor, or machine. Failure to comply may result in death or personal injuries.

Operation

Danger

- The equipment must be operated only by professionals. Failure to comply will result in death or personal injuries.
- Do not touch any connecting terminals or disassemble any unit or component of the equipment during operation. Failure to comply will result in an electric shock.

Warning

- Do not touch the equipment casing, fan, or resistor with bare hands to feel the temperature. Failure to comply may result in personal injuries.
- 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 maintain the equipment with power ON. Failure to comply will result in an electric shock.
- Before maintenance, cut off all the power supplies of the equipment and wait for at least the time designated on the equipment warning label.
- In case of a permanent magnet motor, do not touch the motor terminals immediately after power-off because the motor terminals will generate induced voltage during rotation even after the equipment power supply is off. Failure to comply will result in an electric shock.

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 will result in an electric shock.
- Before inspection and repair, cut off all the power supplies of the equipment and wait for at least the time designated on the equipment warning label.

Warning

- Submit the repair request according to 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 injuries or equipment damage.
- When the equipment is faulty or damaged, the troubleshooting and repair work must be performed by professionals that follow the repair instructions, with repair records kept properly.
- Replace quick-wear parts of the equipment according to the replacement instructions.
- Do not use damaged equipment. Failure to comply may result in death, personal injuries, or severe equipment damage.
- After the equipment is replaced, check the wiring and set parameters again.

Disposal

Warning

- Dispose of retired equipment in accordance with local regulations and standards. Failure to comply may result in property damage, personal injuries, or even death.
- Recycle retired equipment by observing industry waste disposal standards to avoid environmental pollution.

Safety Label

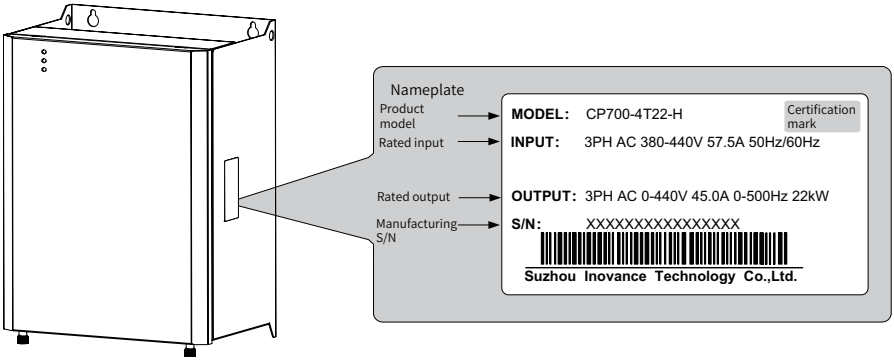
For safe equipment operation and maintenance, comply with the safety labels on the equipment. Do not damage or remove the safety labels. The following table describes the meaning of the safety labels.

Safety label	Description
	◆ Read through the safety instructions before operating the equipment. Failure to comply may result in death, personal injuries, 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 will result in an electric shock.

Contents

1 Product Information

1.1 Nameplate and Model



CP700 - 4T 22 - H - ***

Code	Product Series
CP700	AC drive for air compressors

Code	Voltage Class
2T	Three-phase 200 V to 240 V
4T	Three-phase 380 V to 440 V

Code	Description
INT	Global version

Code	Installation Mode
H	Backplate mounting

Code	Applicable Motor (kW)
5.5	5.5
…	
200	200

Figure 1-1 Figure 1-1 Nameplate and model

NOTE

- CP700-4Txx-H1-INT (xx stands for 45, 55, 75, or 90) models support three-phase 380 V to 480 V input voltage.
- Models with the name containing "H1" indicate that the control board delay of the model outputs 24 VDC for electromagnetic valve control. The control board delay of other models supports 220 VAC output.

1.2 Components

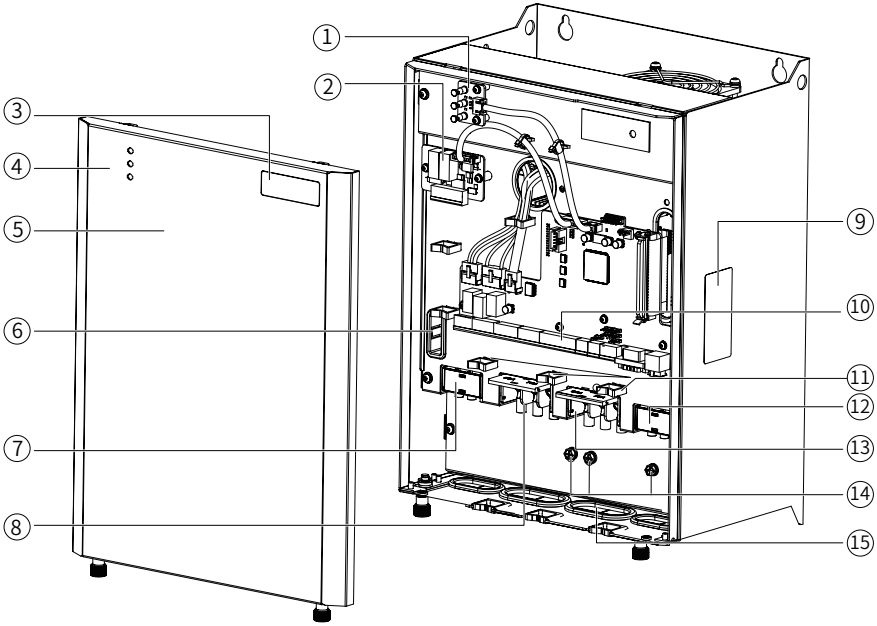


Figure 1-2 Figure 1-2 Components of CP700-4T18.5-H-INT to CP700-4T22-H-INT

No.	Name	No.	Name
①	LED indicator panel	⑨	Nameplate
②	STO card[Note] (optional)	⑩	Control circuit terminal
③	Logo	⑪	Wire bracket
④	Indicator	⑫	Variable frequency blower terminal
⑤	Front cover	⑬	Air end output terminal
⑥	EMC screw/ voltage dependent resistor (VDR) grounding terminal	⑭	Grounding terminal
⑦	Mains frequency blower terminal	⑮	Grommet
⑧	Input terminal	-	-

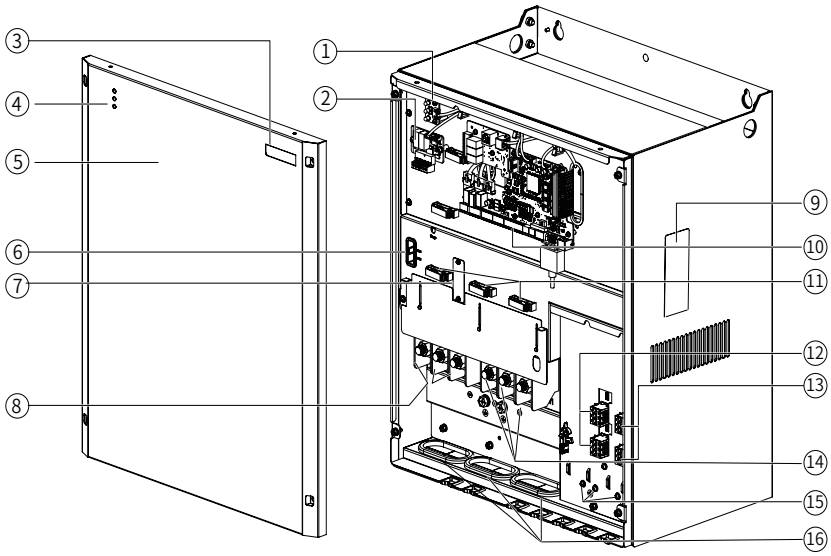


Figure 1-3 Figure 1-3 Components of CP700-4T110-H to CP700-4T132-H

No.	Name	No.	Name
①	LED indicator panel	⑨	Nameplate
②	STO card (optional)	⑩	Control circuit terminal
③	Logo	⑪	Wire bracket
④	Indicator	⑫	Variable frequency blower terminal
⑤	Front cover	⑬	Mains frequency blower terminal
⑥	EMC screw/VDR grounding terminal	⑭	Air end output terminal
⑦	Bus measurement terminal [Note]	⑮	Grounding terminal
⑧	Input terminal	⑯	Grommet

NOTE

- Figure 1-2 takes CP700-4T18.5-H-INT to CP700-4T22-H-INT as examples to describe components of products with the low power rating. Figure 1-3 takes CP700-4T110-H to CP700-4T132-H as examples to describe components of products with the high power rating. For components of other models, refer to the received product.
- The bus measurement terminal is used to test whether the bus and IGBT rectifier bridge are normal.
- The CP700-INT does not support the STO (only the CP500 supports the STO).

1.3 Technical Data

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

Model	Main Blower			Variable Frequency Blower		Mains Frequency Blower	
	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-H	7.5	20.5	17	/	/	0.4	1.5
CP700-4T11-H-INT	11	26	25	/	/	0.4	1.5
CP700-4T15-H-INT	15	35	32	/	/	0.4	1.5
CP700-4T18.5-H-INT	18.5	47.2	37.0	0.75	2.1	0.75	2.1
CP700-4T22-H-INT	22	57.5	45.0	0.75	2.1	0.75	2.1
CP700-4T30-H-INT	30	65.0	60.0	1.5	3.8	0.75	2.1
CP700-4T37-H-INT	37	80.0	75.0	1.5	3.8	0.75	2.1
CP700-4T45-H1-INT	45	101.4	91.0	3.7	9.0	0.75	2.1
CP700-4T55-H1-INT	55	122.3	112.0	3.7	9.0	0.75	2.1
CP700-4T75-H1-INT	75	164.6	150.0	3.7	9.0	0.75	2.1
CP700-4T90-H1-INT	90	186.0	176.0	3.7	9.0	0.75	2.1

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

Model	Main Blower			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-H	110	214	210	3.7	9.5	0.75	3.4
CP700-4T132-H	132	257	253	3.7	9.5	0.75	3.4
CP700-4T160-H	160	315	304	3.7	9.5	0.75	3.4
CP700-4T200-H	200	384	377	3.7	9.5	0.75	3.4

Table 1-3 Technical specifications

Item		Specification
Basic parameter	Output frequency	Vector control: 0-500 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 Three-phase 380 VAC to 440 VAC
	Voltage fluctuation range	-15% to +10%
	Control mode	Air end: synchronous motor, SVC Blower: asynchronous motor, V/f control
	Speed regulation range	1:50 (SVC, motoring)
	Speed control precision	±0.1% (SVC)
	Speed fluctuation	1.5% (SVC) 3.0% (field weakening area)
	Torque response	< 15 ms (SVC)
	Torque fluctuation	< 15% (SVC, generating) <12 % (motoring)
	Torque control mode	Air end: SVC
	Overload capacity	The air end overload current multiple and overload time are automatically calculated based on the module temperature.
Customized function	Acceleration/ deceleration curve	Straight line, S-curve mode 1, S-curve mode 2
	Built-in PID	Built-in dedicated pressure and temperature PID parameters used for pressure and temperature control
	Communication/Bus	RS-485 communication as standard
	Running command channel	Terminal and communication
	Frequency source	Digital setting, communication, air compressor dedicated control (pressure PID)
I/O interface	Analog input	Two-channel pressure sensor: 0–20 mA input; 12-bit resolution; correction accuracy of 0.5%
		2-channel temperature sensor: resistance input; 12-bit resolution; correction accuracy of 0.5%
	Digital input	Four-channel common input: NPN input mode
		Two-channel PTC protection circuit (compatible with common input)
	Digital output	CP700-2T7.5-H, and CP700-4T5.5-H to CP700-4T15-H-INT models: One normally open (NO) delay output terminal (220 V, active, for electromagnetic valve control) CP700-2T11-H to CP700-2T45-H, and CP700-4T18.5-H-INT to CP700-4T37-H-INT models: Two NO delay output terminals (220 V, active, for electromagnetic valve control) CP700-4T45-H1-INT to CP700-4T90-H1-INT models: Two NO delay output terminals (24 V, active, for electromagnetic valve control; maximum current: 2 A) CP700-4T110-H to CP700-4T200-H models: Two NO delay output terminals (220 V, active, for electromagnetic valve control) Three NO replay dry contact output terminals
	LED diode display	Three LED diodes as standard

Item		Specification
Protection function		Short-circuit to ground upon power-on, motor overheat (PTC), AC drive overcurrent, AC drive overload, motor overload, AC drive overvoltage, AC drive undervoltage, AC drive overheat, output phase loss, input phase loss, communication fault, phase detection, current detection fault, motor auto-tuning fault, EEPROM read-write fault, and buffer resistance fault
Air compressor control logic		Constant pressure value, unloading pressure, wake-up pressure from the sleep state, 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, and electromagnetic valve control
Environment	Operating location	Clear and dry indoors and free from direct sunlight, dusts, corrosive gases, combustible gases, oil mists, vapors, water drips, and salty elements
	Altitude	Maximum altitude: 3000 m; 1000 m < altitude ⩽ 3000 m, derate 1% for every additional 100 m
	Operation ambient temperature	-10°C to +50°C
	Storage ambient temperature	-20°C to +60°C
	Transportation ambient temperature	-40°C to +70°C
	Operation relative humidity	Without condensation, ice formation, rain drops, snow, or hail 20% to 95%
	Storage relative humidity	5% to 95%
	Transportation relative humidity	< 95% (⩾ 40°C)
	Vibration	< 9.8m/s^2 (1G)

1.4 Installation Dimensions

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

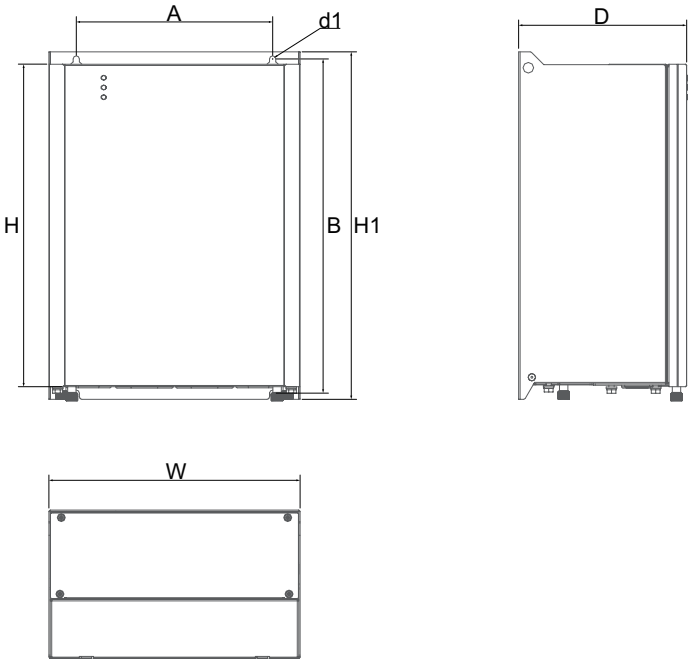


Figure 1-4 Figure 1-4 Dimensions of backplate mounting for CP700-2T7.5-H to CP700-2T45-H, and CP700-4T5.5-H to CP700-4T37-H-INT models

Table 1-4 Dimensions of backplate mounting for CP700-2T7.5-H to CP700-2T45-H, and CP700-4T5.5-H to CP700-4T37-H-INT models

AC Drive Model	Physical Dimensions (mm)				Installation 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	344	317	168	176	140	331	φ6	7.0
CP700-4T7.5-H	344	317	168	176	140	331	φ6	7.0
CP700-4T11-H-INT	384	357	208	176	180	371	φ6	9.5
CP700-4T15-H-INT	384	357	208	176	180	371	φ6	9.5
CP700-4T18.5-H-INT	393	365	284	190	222	378	φ7	14.5
CP700-4T22-H-INT	393	365	284	190	222	378	φ7	14.5
CP700-4T30-H-INT	423	395	315	215	253	408	φ7	24.3
CP700-4T37-H-INT	423	395	315	215	253	408	φ7	24.3

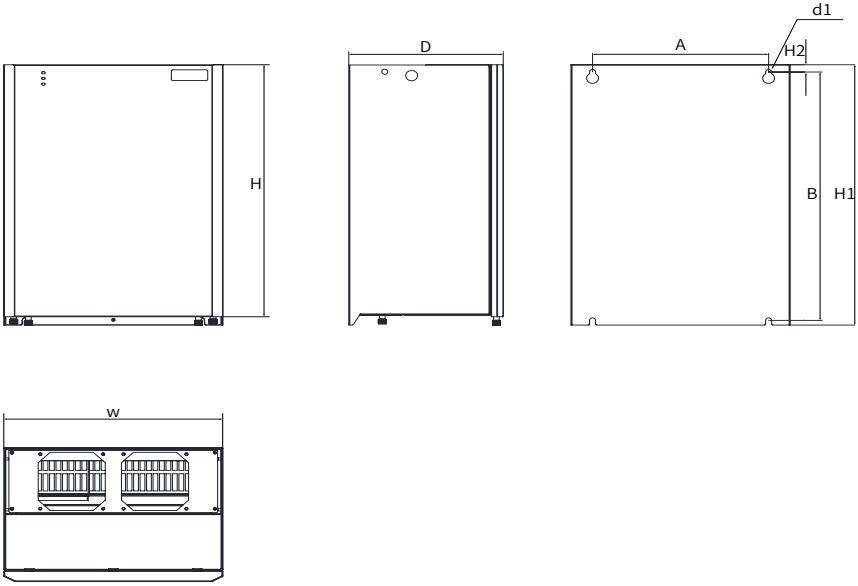


Figure 1-5 Figure 1-5 Dimensions of backplate mounting for CP700-4T45-H1-INT to CP700-4T90-H1-INT models

Table 1-5 Dimensions of backplate mounting for CP700-4T45-H1-INT to CP700-4T90-H1-INT models

AC Drive Model	Physical Dimensions (mm)					Installation Dimensions (mm)			Weight (kg)
	H1	H	W	D	H2	A	B	d1	
Three-phase 380 VAC to 440 VAC, 50/60 Hz									
CP700-4T45-H1-INT	501	485	366	258	14.0	294	478	ϕ10	33.8
CP700-4T55-H1-INT	501	485	366	258	14.0	294	478	ϕ10	33.8
CP700-4T75-H1-INT	525	509	400	260	14.0	328	502	ϕ10	42.0
CP700-4T90-H1-INT	525	509	400	260	14.0	328	502	ϕ10	42.0

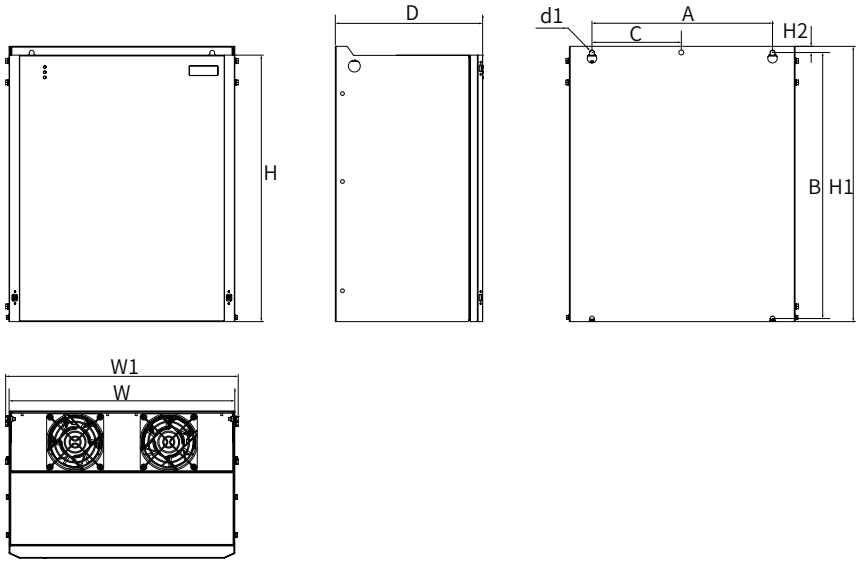


Figure 1-6 Figure 1-6 Dimensions of backplate mounting for CP700-4T110-H to CP700-4T132-H models

Table 1-6 Dimensions of backplate mounting for CP700-4T110-H to CP700-4T132-H models

AC Drive Model	Physical Dimensions (mm)						Installation 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-H	580	561	475	490	310	13.0	380	560	190	ϕ10	55
CP700-4T132-H	580	561	475	490	310	13.0	380	560	190	ϕ10	58

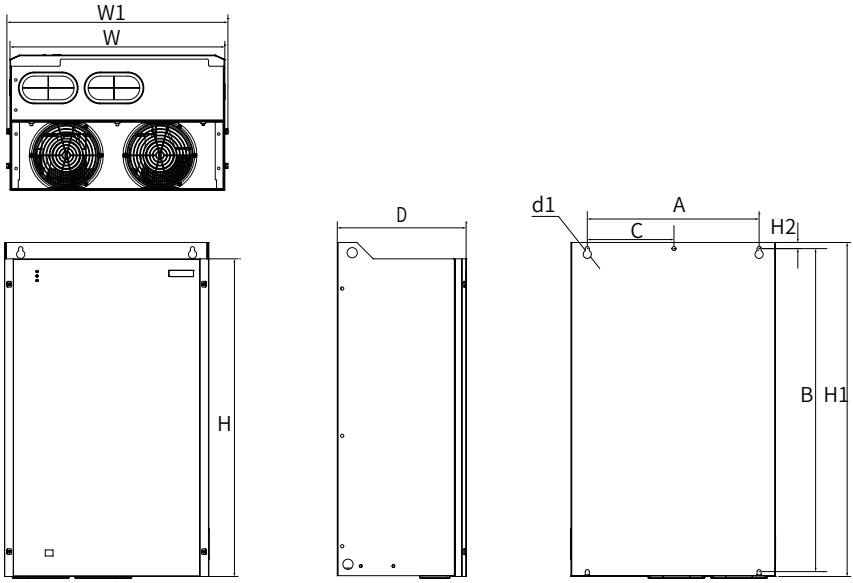


Figure 1-7 Figure 1-7 Dimensions of backplate mounting for CP700-4T160-H to CP700-4T200-H models

Table 1-7 Dimensions of backplate mounting for CP700-4T160-H to CP700-4T200-H models

AC Drive Model	Physical Dimensions (mm)						Installation 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-H	817	777	500	514	315	15.0	420	790	210	ϕ10	72
CP700-4T200-H	817	777	500	514	315	15.0	420	790	210	ϕ10	77

1.5 System Solution

1.5.1System Composition

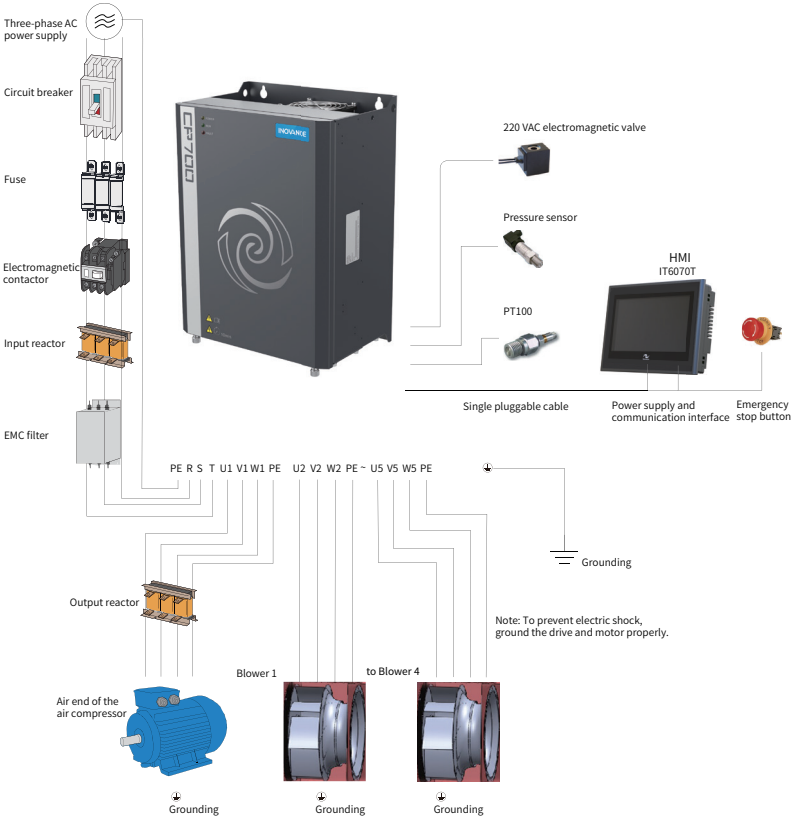


Figure 1-8 Figure 1-8 System composition

NOTE

◆ The preceding figure takes the CP700-4T160-H to CP700-4T200-H 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 1-8 Descriptions of peripheral devices

Device Name	Installation Position	Function
Circuit breaker	Between the power supply and the AC drive input side	Short circuit breaker: It cuts off the power supply when overcurrent occurs on downstream devices to prevent accidents.
		Earth leakage circuit breaker (ELCB): It provides protection against potential high-frequency leakage current during AC drive running to prevent electric shock and even a fire. Select proper ELCBs as needed.
Fuse	Between the power supply and AC drive input side	It protects downstream semiconductor components in case of short circuit.
Electromagnetic contactor	Between the circuit breaker and the 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	AC drive input side	It is used to eliminate the high harmonics of the input side effectively and improve the power factor of the input side.
EMC filter	AC drive input side	It 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 ensures motor insulation and prolongs the service life of the motor.
Magnetic ring	AC drive output side and close to the AC drive	It reduces interferences to the outside and the bearing current.
Ferrite clamp	Signal cable	It improves the anti-interference performance of signals.
Air compressor air end	AC drive output side	It provides energy.
Air compressor blower	AC drive output side	It supplies cooling air to the system.
220 VAC electromagnetic 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.

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

The following tables list recommended circuit breakers, fuses, and contactors.

Table 1.9 Selection of fuses, circuit breakers, and contactors (7.5 kW to 90 kW)

AC Drive Model	Power (kW)	Blower Input Current (A)	Fuse (Bussmann, Compliant with UL)		Contactor	Circuit Breaker (3P/C Curve)
			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	50	50FE	50	50
CP700-2T11-H	11	49.5	80	80ET	65	63
CP700-2T15-H	15	60	100	100FE	95	80
CP700-2T18.5-H	18.5	65	100	100FE	95	80
CP700-2T22-H	22	80	140	140EET	95	100
CP700-2T30-H	30	120.9	200	200FEE	150	160
CP700-2T37-H	37	134	200	200FEE	150	160
CP700-2T45-H	45	159.2	250	250FM	185	200
Three-phase 380 VAC to 440 VAC, 50/60 Hz						
CP700-4T5.5-H	5.5	15.9	25	25ET	25	20
CP700-4T7.5-H	7.5	20.5	32	32ET	25	25
CP700-4T11-H-INT	11	26	40	40ET	32	32
CP700-4T15-H-INT	15	35	50	50FE	40	40
CP700-4T18.5-H-INT	18.5	47.2	80	80ET	65	63
CP700-4T22-H-INT	22	57.5	100	100FE	65	80
CP700-4T30-H-INT	30	65	100	100FE	95	80
CP700-4T37-H-INT	37	80	140	140EET	95	100
CP700-4T45-H1-INT	45	101.4	160	160EET	115	125
CP700-4T55-H1-INT	55	122.3	200	200FEE	150	160
CP700-4T75-H1-INT	75	164.6	250	250FM	225	200
CP700-4T90-H1-INT	90	186	315	315FM	225	225

Table 1.9 Selection of fuses, circuit breakers, and contactors (110 kW to 200 kW)

AC Drive Model	Power (kW)	Blower Input Current (A)	Fuse (Bussmann, Compliant with UL)		Recommended Contactor	Circuit Breaker (3P/C Curve)
			Rated Current (A)	Model	Rated Current (A)	Rated Current (A)
Three-phase 380 VAC to 440 VAC, 50/60 Hz						
CP700-4T110-H	110	214	350	350FM	265	250
CP700-4T132-H	132	257	400	400FMM	330	320
CP700-4T160-H	160	315	500	500FMM	400	400
CP700-4T200-H	200	384	630	630FMM	500	500

NOTE

- Pole: 3P
- Tripping type: Type-C thermomagnetic trip characteristics curve

2 Installation and Wiring

2.1 Installation

2.1.1 Installation Environment

1) Ambient temperature: To reduce impact on the service life of the AC drive, the AC drive must operate within the allowed temperature range (–10°C to +50°C).
2) The AC drive generates large amount of heat during operation. Therefore, install the AC drive on a flame-retardant surface, and ensure that sufficient space is left around the enclosure to allow for efficient heat dissipation. Use screws to fasten the AC drive to the mounting support vertically.
3) Install the cabinet unit in a place with minimum vibration. The vibration must be lower than or equal to 1 g. Keep the AC drive away from equipment which may generate strong vibration, such as punch presses.
4) Install the AC drive in a place free from direct sunlight, humidity, and water drops.
5) Avoid places with corrosive, combustible, or explosive gas.
6) Install the AC drive in a place free from greasy dirt and dust.

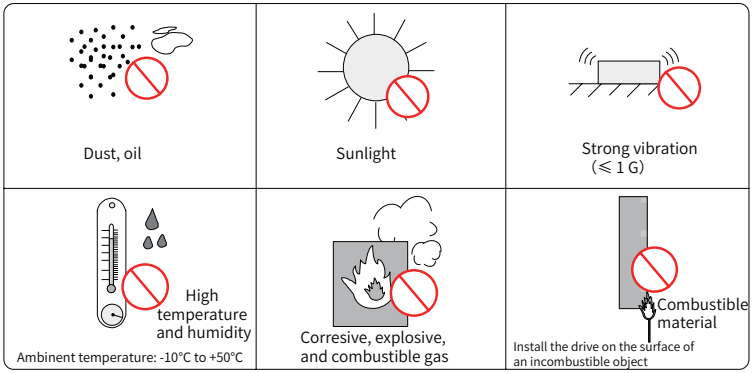
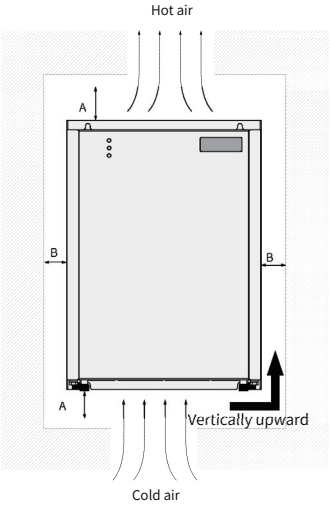


Figure 2-1 Installation environment

7) 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.

2.1.2 Requirements for Mounting Clearances



Installation clearance requirements on three-phase 220 V models

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

Installation clearance requirements on three-phase 380 V models

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

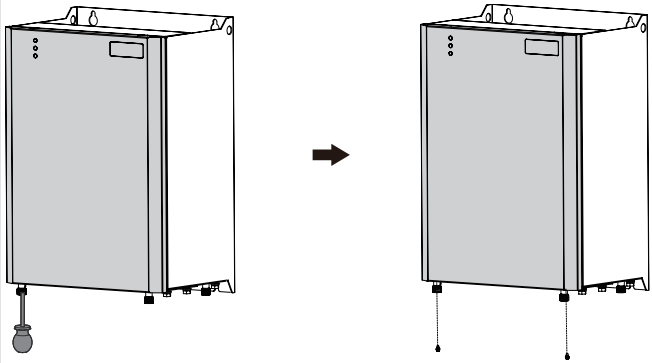
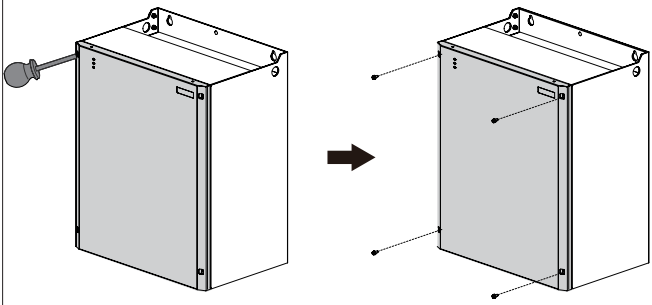
Figure 2-2 Installation clearance

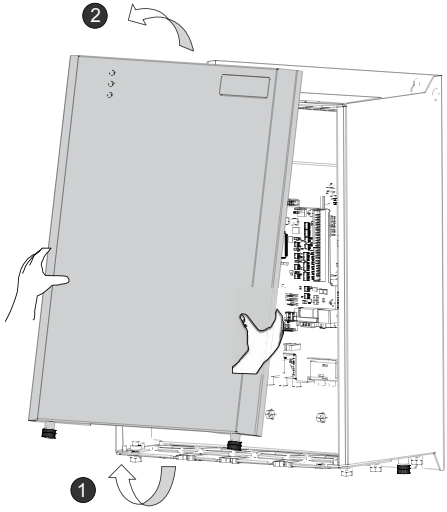
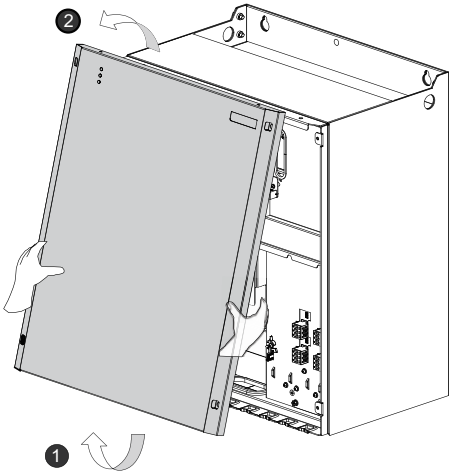
2.1.3 Cover Removal and Installation

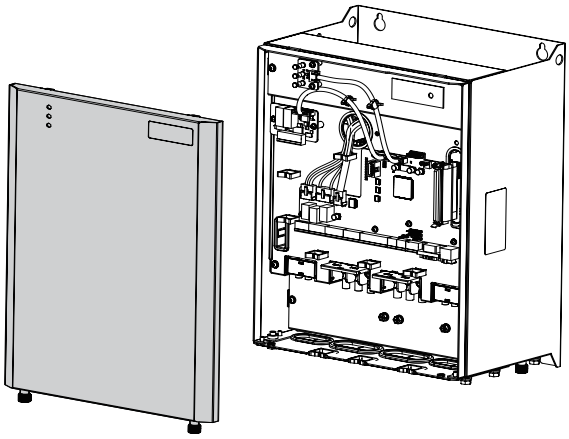
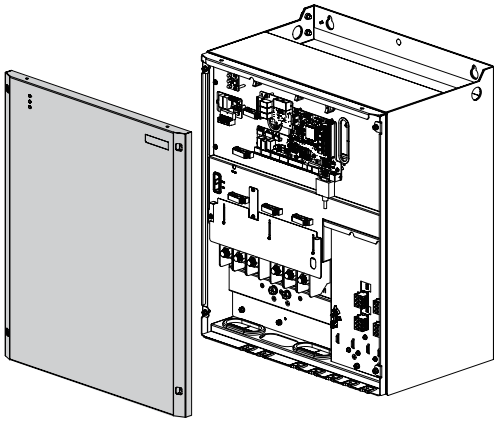
Follow the guidelines below for cover removal and installation.

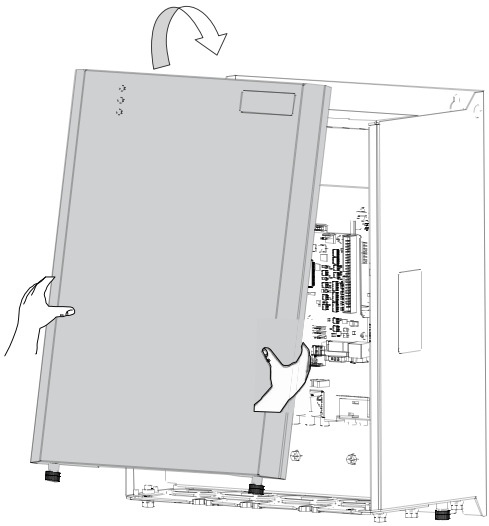
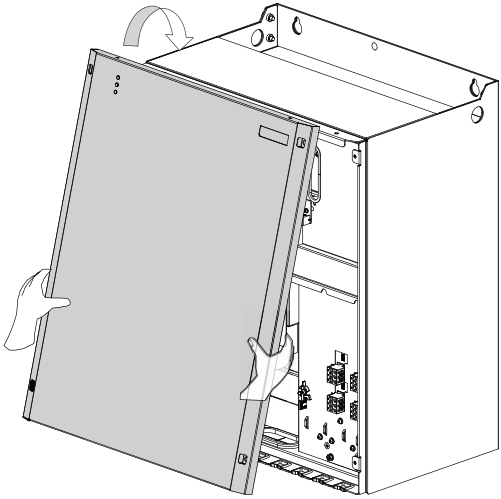
NOTE

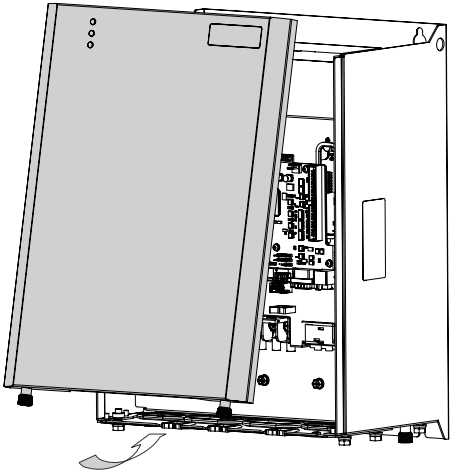
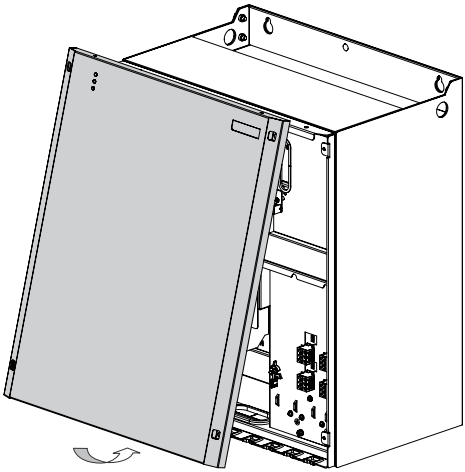
- Install a structural element at the top of the AC drive to prevent water from falling to the inside of the drive.

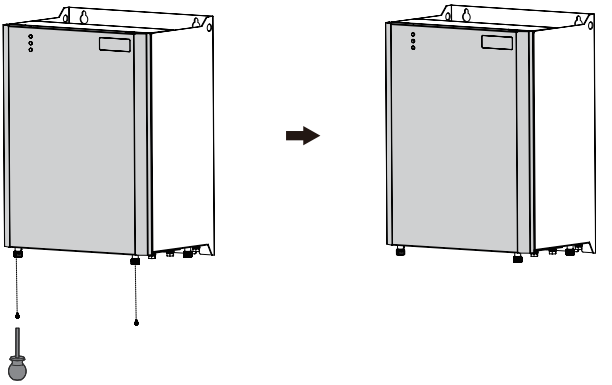
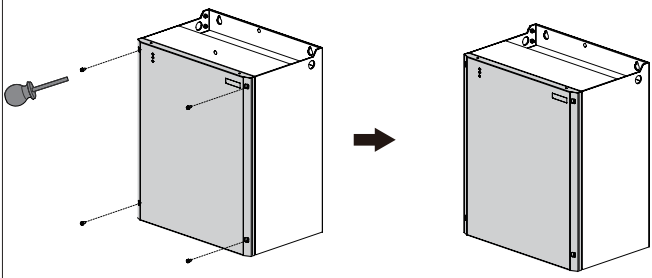
Cover removal procedure	
 (CP700-2T7.5-H to CP700-2T45-H, and CP700-4T5.5-H to CP700-4T90-H1-INT models)  (CP700-4T110-H to CP700-4T200-H models)	CP700-2T7.5-H to CP700-CP700-2T45-H, and CP700-4T5.5-H to CP700-4T90-H1-INT models: Step 1: Use an inner hexagon screwdriver or inner hexagon wrench to remove the two captive screws at the bottom of the cover. CP700-4T110-H to CP700-4T200-H models: Use a screwdriver to remove the four screws of the cover.

Cover removal procedure	
 (CP700-2T7.5-H to CP700-2T45-H, and CP700-4T5.5-H to CP700-4T90-H1-INT models)  (CP700-4T110-H to CP700-4T200-H models)	Step 2: Hold the cover with both hands, lift the lower part of the cover by 15° (①), and then lift the upper part of the cover. Or hold the cover with both hands, push the cover up, and then lift the upper part of the cover (②).

Cover removal procedure	
 (CP700-2T7.5-H to CP700-2T45-H, and CP700-4T5.5-H to CP700-4T90-H1-INT models)  (CP700-4T110-H to CP700-4T200-H models)	Step 3: Cover removal is complete.

Cover installation procedure	
 (CP700-2T7.5-H to CP700-2T45-H, and CP700-4T5.5-H to CP700-4T90-H1-INT models)  (CP700-4T110-H to CP700-4T200-H models)	Step 1:Hold the cover with both hands, align the positioning pin on the upper edge of the cover to the cabinet hole.

Cover installation procedure	
 (CP700-2T7.5-H to CP700-2T45-H, and CP700-4T5.5-H to CP700-4T90-H1-INT models)  (CP700-4T110-H to CP700-4T200-H models)	Step 2: Push down the cover by following the arrow direction shown in the figure.

Cover installation procedure	
 (CP700-2T7.5-H to CP700-2T45-H, and CP700-4T5.5-H to CP700-4T90-H1-INT models)  (CP700-4T110-H to CP700-4T200-H models)	Step 3: Tighten the screws. Cover installation is complete.

2.2 Wiring

2.2.1 Main Circuit Terminal Layout

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

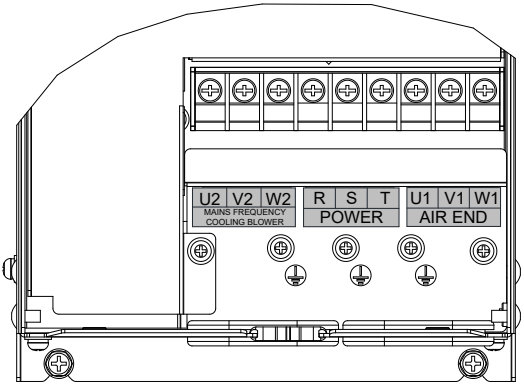


Figure 2-3 Main circuit terminal layout of CP700-4T5.5-H to CP700-4T7.5-H

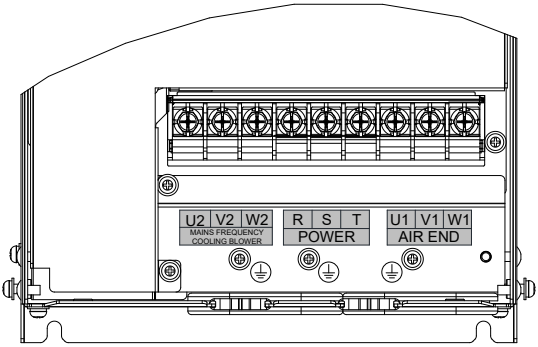


Figure 2-4 Main circuit terminal layout of CP700-2T7.5-H, and CP700-4T11-H-INT to CP700-4T15-H-INT

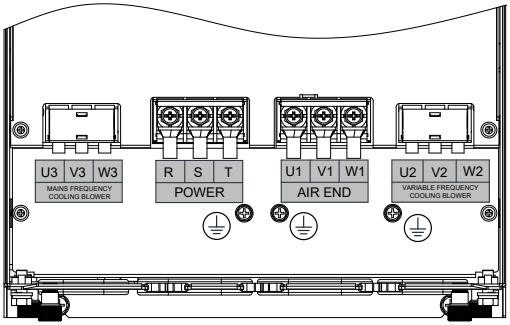


Figure 2-5 Main circuit terminal layout of CP700-2T11-H to CP700-2T15-H, and CP700-4T18.5-H-INT to CP700-4T22-H-INT

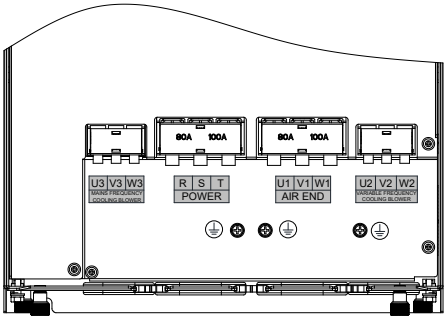


Figure 2-6 Main circuit terminal layout of CP700-2T18.5-H to CP700-2T22-H, and CP700-4T30-H-INT to CP700-4T37-H-INT

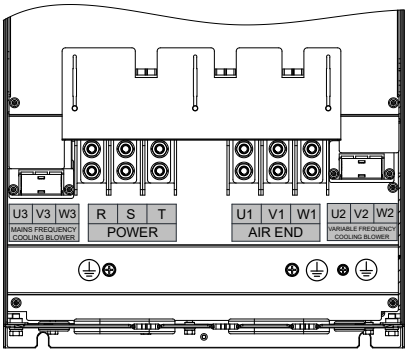


Figure 2-7 Main circuit terminal layout of CP700-2T30-H to CP700-2T45-H, and CP700-4T45-H1-INT to CP700-4T90-H1-INT

Table 2-1 Main circuit terminal descriptions of CP700-2T7.5-H to CP700-2T45-H, and CP700-4T5.5-H to CP700-4T90-H1-INT models

Terminal	Name	Function
R, S, T	Input terminal	Three-phase AC input
U1, V1, W1	Output terminal	Three-phase AC output of the air end
U2, V2, W2	Terminal of the mains frequency blower	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)
	Terminal of the variable frequency blower	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, W3	Terminal of the mains frequency blower	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	Used for protective grounding

If the product is intended to be used in the 480 V grid system, select the -H1-INT models with the

power from 45 kW to 90 kW.

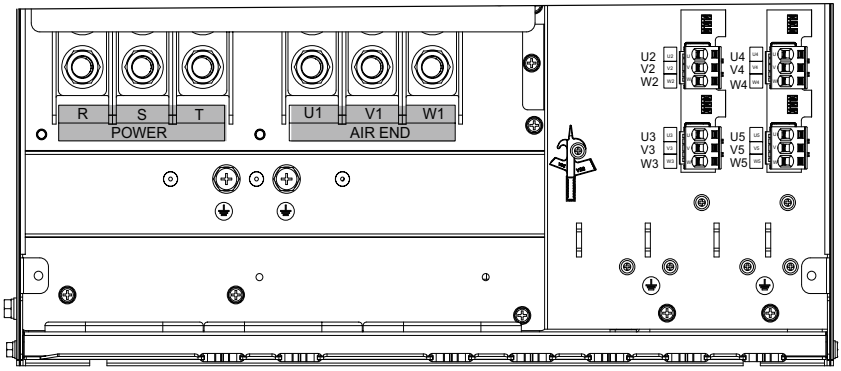


Figure 2-8 Main circuit terminal layout of CP700-4T110-H to CP700-4T200-H models

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

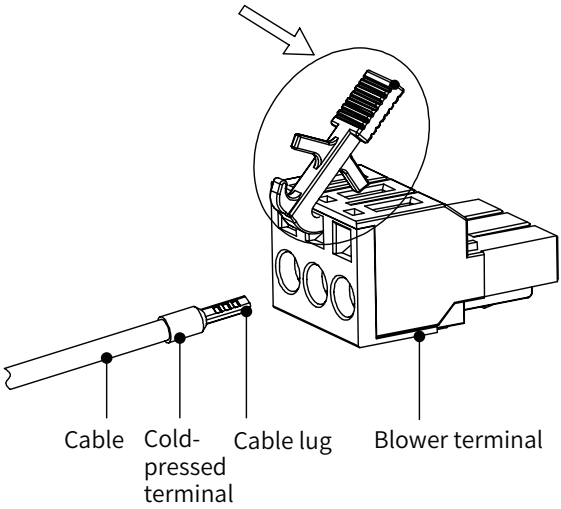
Terminal	Name	Function
R, S, T	Input terminal	Three-phase AC input
U1, V1, W1	Output terminal	Three-phase AC output of the air end
U2, V2, W2	Terminal of the variable frequency blower	Three-phase 380 V: 3.7 kW three-phase AC output
U3, V3, W3		
U4, V4, W4	Terminal of the mains frequency blower	Three-phase 380 V: 0.75 kW three-phase AC output
U5, V5, W5		
⏚	Grounding terminal	Used for protective grounding

2.2.2 Blower Output Terminal Wiring

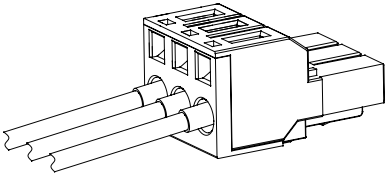
1) Secure the grounding cable to the grounding terminal using the screw.

2) Crimp the cable to the blower terminal.

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



The wiring is as follows.



2.2.3 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 *"2.1.3 Cover Removal and Installation" on Page 30*.) The following figure shows the control board and STO board locations after the cover is removed.

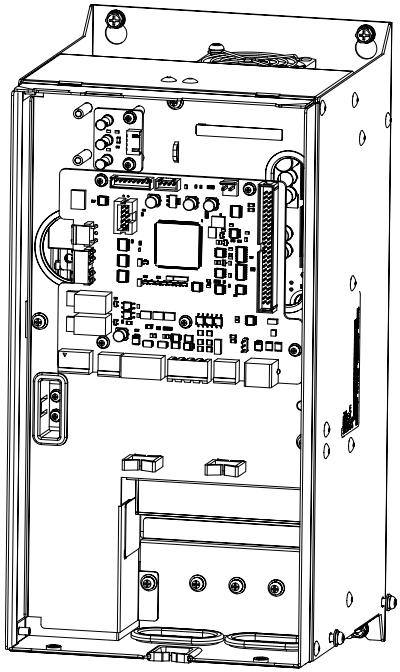


Figure 2-9 Control board position of the CP700-2T7.5-H, and CP700-4T5.5-H to CP700-4T15-H-INT models

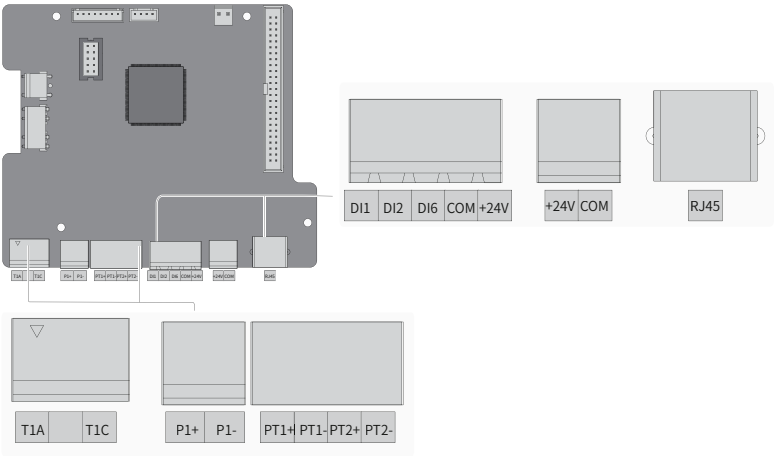


Figure 2-10 Control terminal layout of the CP700-2T7.5-H, and CP700-4T5.5-H to CP700-4T15-

H-INT models

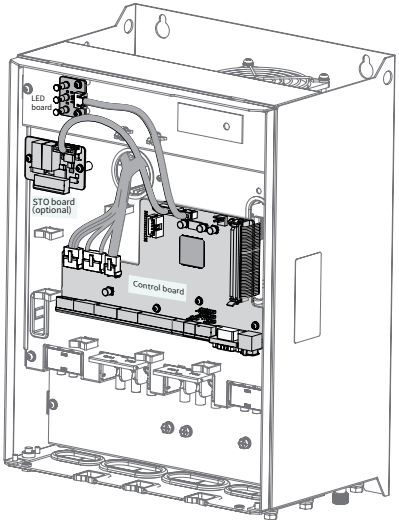


Figure 2-11 Control board position of the CP700-2T11-H to CP700-2T45-H, and CP700-4T18.5-H-INT to CP700-4T90-H1-INT models

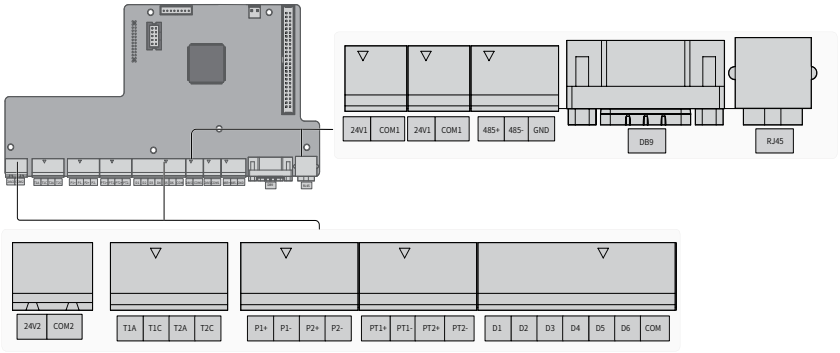


Figure 2-12 Control terminal layout of the CP700-2T11-H to CP700-2T45-H, and CP700-4T18.5-H-INT to CP700-4T90-H1-INT models

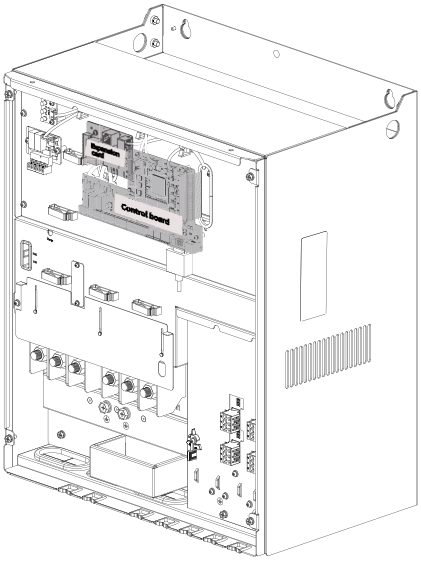


Figure 2-13 Control board position of the CP700-4T110-H to CP700-4T200-H models

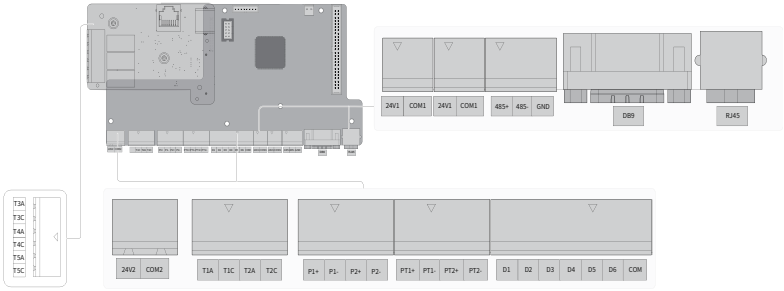


Figure 2-14 Control terminal layout of the CP700-4T110-H to CP700-4T200-H models

Table 2-3 Control terminal descriptions

Type	Terminal	Function Description	Technical Specification
Relay output	T1A, T1C T2A, T2C	Relay output T1A and T1C are for electromagnetic valves by default.	Built-in 220 VAC power supply; power supply capacity: 50 VA; T1A-T1C and T2A-T2C current output supported, with the total output less than 0.2 A For 45-90 kW relays, the output voltage is 24 VDC and the maximum output current of a single channel is 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-H to CP700-4T200-H models	T3A-T3C: NO T4A-T4C: NO T5A-T5C: NO Contact capacity: 250 VAC/3 A
Pressure sensor input	P1+, P2+	Pressure sensor power supply input	24 VDC; 4-20 mA input; active
	P1-, 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-, PT2-		
Digital input	DI1-DI4	Common multi-function input terminal	Isolated drain input; input frequency: < 100 Hz
	DI5-DI6	Three-phase 220 V (2T) models: 11-45 kW; Three-phase 380 V (4T) models: 18.5-200 kW Common multi-function input terminal (PTC protection supported) Note that three-phase 380 V models with the power from 5.5 kW to 15 kW and three-phase 220 V models with the power of 7.5 kW have only one DI6.	Isolated drain input; input frequency: < 100 Hz; active when the PTC resistance is 2.3 kΩ
	COM	Multi-functional input common terminal	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	Intra-board 24 V power supply ground	
24V2 external power supply port	24V2	Independent 24 V power supply	24 V power supply output (optional); output current: 4 A
	COM2	Independent 24 V power supply grounding	
RS485 output A	485-	RS485 communication+	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.
	485-	RS485 communication-	
	GND	RS485 reference ground	

<table>
<tr><th>Type</th><th>Terminal</th><th>Function Description</th><th>Technical Specification</th></tr>
<tr><td>DB9 interface</td><td>DB9</td><td>Two-channel 485 communication</td><td>Standard DB9 female socket with built-in two RS485 communication port Pin definitions are as below:
Definition of the first RS485 port:
<table><tr><td>Pin 6</td><td>Pin 9</td><td>Pin 5</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>Pin 1</td><td>Pin 2</td><td>Pin 5</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>Pin 4</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>Pin 5</td><td>RS485 communication-</td></tr>
<tr><td>GND</td><td>RS485 reference ground</td></tr>
</table>

Table 2-4 DIP switch descriptions

Type	DIP Switch	Function
RS485 communication	S1	DIP switch for RS485 communication termination resistor. If the S1 is switched to ON, the 120 Ω termination resistor is enabled for RS485 communication.
DB9 terminal	S2	DIP switch for the GND cable. If the S2 is switched to HMI-GND, the GND cable is connected through pin 5 of the DB9 terminal.
DB9 terminal	S4	DIP switch for the DB9 terminal enclosure (shield) grounding. If the S4 is switched to HMI-PE, the DB9 terminal enclosure (shield) is connected to PE.
Digital input	S3	DIP switch for DI sink input and DI source input switchover. If the S3 is switched to 24V1, sink input is selected. If the S3 is switched to COM, source input is selected.

Table 2-5 STO input terminal descriptions (for models with the STO function)

No.	Terminal	Name	Function
1	STO1	STO channel 1	Internal connection: By default, STO1 and STO2 are connected to +24V by using a jumper upon factory delivery. External connection: STO1, STO2, and +24V can be connected to an external 24 V power supply. See the STO function for the detailed wiring.
2	STO2	STO channel 2	
3	+24V	STO1 and STO2 power supply+	
4	COM	STO1 and STO2 power supply ground	

2.2.4 Control Terminal Wiring

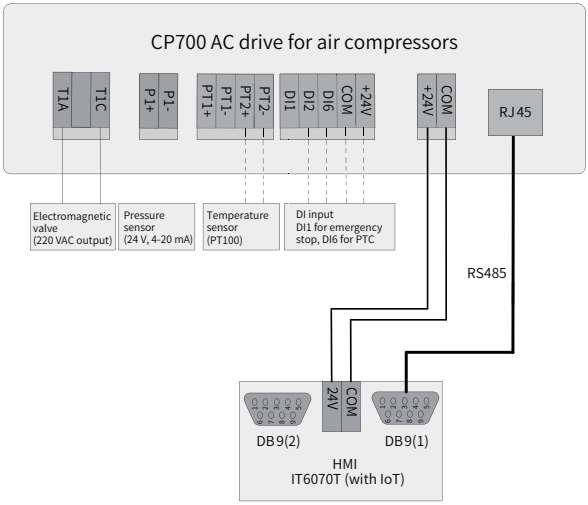


Figure 2-15 Control terminal wiring for three-phase 380 V 5.5-15 kW models and three-phase 220 V 7.5 kW models

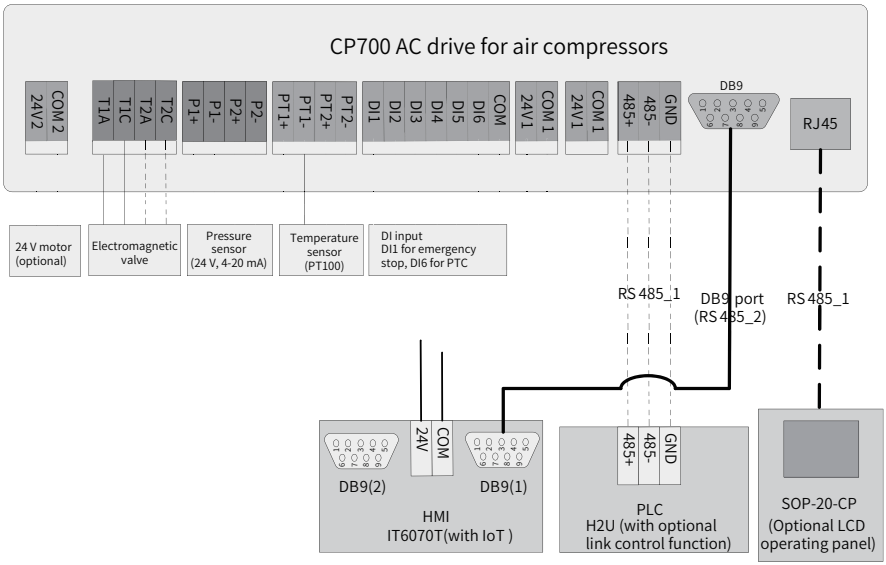


Figure 2-16 Control terminal wiring for three-phase 380 V 18.5-200 kW models and three-phase 220 V 11-45 kW models

NOTE

- In figure 2-16, the electromagnetic valve output of the CP700-2T11-H to CP700-2T45-H, CP700-4T18.5-H-INT to CP700-4T37-H-INT, and CP700-4T110-H and CP700-4T200-H models is 220 VAC, and the electromagnetic valve output of the CP700-4T45-H1-INT to CP700-4T90-H1-INT models is 24 VDC.
- 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.

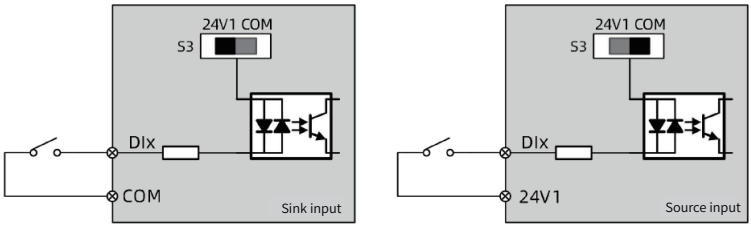


Figure 2-17 Wiring for DI in sink input mode or source input mode

NOTE

- When the S3 is switched to 24V1, sink input is selected. When the S3 is switched to COM, source input is selected.

2.3 Power Grid System Requirement

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, screw 1 shown in the following figure must be removed to remove the jumper of the VDR. Failure to comply may result in personal injury or damages to the AC drive.

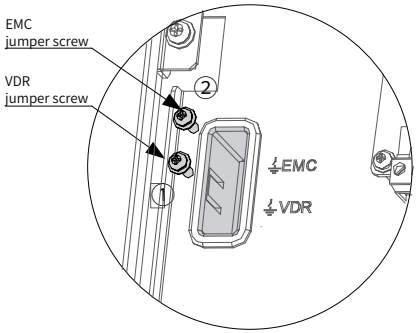


Figure 2-18 VDR and EMC grounding jumper positions

2.4 Cabling Recommendations

2.4.1 Main Power Cable

Connect main power cables as shown below, and ground the air end input/output cables and blower cables.

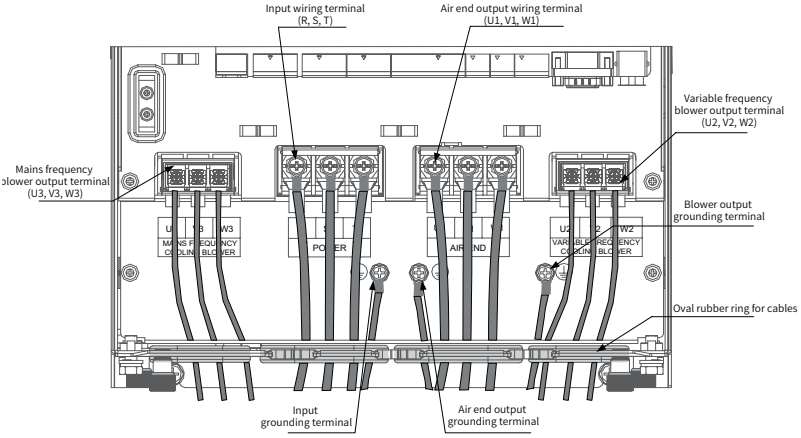


Figure 2-19 Main power cable wiring of the CP700-2T7.5-H to CP700-2T45H, CP700-4T5.5-H to CP700-4T37-H-INT, and CP700-4T45-H1-INT to CP700-4T90-H1-INT models

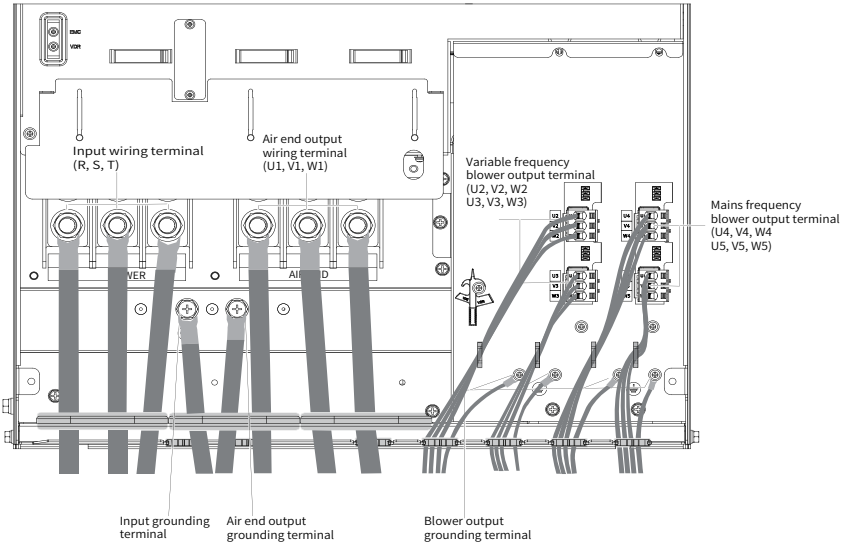


Figure 2-20 Main power cable wiring of the CP700-4T110-H~CP700-4T132-H models

Table 2-6 Main power cable selection of the CP700-2T7.5-H to CP700-2T45-H, CP700-4T5.5-H to CP700-4T37-H-INT, and CP700-4T45-H1-INT to CP700-4T90-H1-INT models

AC Drive Model	Rated Input Current A	Air End Input/Output (U1/V1/W1)		Blower Output (U2/V2/W2)		Blower Output (U3/V3/W3)		Grounding Terminal Screw/ Torque of Torque Driver (N·m)
		Cable (AWG)	Terminal Screw/ Torque of Torque Driver	Cable (AWG)	Terminal Screw/ Torque of Torque Driver	Cable (AWG)	Terminal Screw/ Torque of Torque Driver	
Three-phase 200 VAC to 240 VAC, 50/60 Hz								
CP700-2T7.5-H	35.0	8	M5 (2.8 N.m)	18	M5 (2.8 N.m)	/	/	M4 (1.2 N.m)
CP700-2T11-H	49.5	6	M6 (4.8 N.m)	18	M4 (1.2 N.m)	18	M4 (1.2 N.m)	M5 (2.8 N.m)
CP700-2T15-H	60.0	4	M6 (4.8 N.m)	18	M4 (1.2 N.m)	18	M4 (1.2 N.m)	M5 (2.8 N.m)
CP700-2T18.5-H	65.0	4	M6 (4.8 N.m)	18	M4 (1.2 N.m)	18	M4 (1.2 N.m)	M5 (2.8 N.m)
CP700-2T22-H	80	2	M6 (4.8 N.m)	18	M4 (1.2 N.m)	18	M4 (1.2 N.m)	M5 (2.8 N.m)
CP700-2T30-H	120.9	1/0	M8 (13 N.m)	14	M4 (1.2 N.m)	18	M4 (1.2 N.m)	M6 (4.8 N.m)
CP700-2T37-H	134.0	2/0	M8 (13 N.m)	14	M4 (1.2 N.m)	18	M4 (1.2 N.m)	M6 (4.8 N.m)
CP700-2T45-H	159.2	3/0	M12 (35 N.m)	14	M4 (1.2 N.m)	18	M4 (1.2 N.m)	M8 (13 N.m)
Three-phase 380 VAC to 440 VAC, 50/60 Hz								
CP700-4T5.5-H	15.9	14	M4 (1.2 N.m)	18	M4 (1.2 N.m)	/	/	M4 (1.2 N.m)
CP700-4T7.5-H	20.5	12	M4 (1.2 N.m)	18	M4 (1.2 N.m)	/	/	M4 (1.2 N.m)
CP700-4T11-H-INT	26	10	M5 (2.8 N.m)	18	M5 (2.8 N.m)	/	/	M4 (1.2 N.m)
CP700-4T15-H-INT	35	8	M5 (2.8 N.m)	18	M5 (2.8 N.m)	/	/	M4 (1.2 N.m)
CP700-4T18.5-H-INT	47.2	6	M6 M5 (4.8 N·m)	18	M4 M5 (1.2 N·m)	18	M4 (1.2 N·m)	M5 (2.8 N·m)
CP700-4T22-H-INT	57.5	4	M6 (4.8 N.m)	18	M4 (1.2 N.m)	18	M4 (1.2 N·m)	M5 (2.8 N.m)
CP700-4T30-H-INT	65.0	4	M6 (4.8 N.m)	18	M4 (1.2 N.m)	18	M4 (1.2 N·m)	M5 (2.8 N.m)
CP700-4T37-H-INT	80.0	2	M6 (4.8 N.m)	18	M4 (1.2 N.m)	18	M4 (1.2 N·m)	M5 (2.8 N.m)
CP700-4T45-H1-INT	101.4	1/0	M8 (13 N.m)	14	M4 (1.2 N.m)	18	M4 (1.2 N·m)	M6 (4.8 N.m)
CP700-4T55-H1-INT	122.3	1/0	M8 (13 N.m)	14	M4 (1.2 N.m)	18	M4 (1.2 N·m)	M6 (4.8 N.m)
CP700-4T75-H1-INT	164.6	3/0	M12 (35 N.m)	14	M4 (1.2 N.m)	18	M4 (1.2 N·m)	M8 (13 N.m)
CP700-4T90-H1-INT	186.0	4/0	M12 (35 N.m)	14	M4 (1.2 N.m)	18	M4 (1.2 N·m)	M8 (13 N.m)

Table 2-7 Main power cable selection of the CP700-4T110-H to CP700-4T200-H models

AC Drive Model	Rated Input Current (A)	Air End Output (U1/V1/W1)		Blower Output (U3/V3/W3 and U3/V3/W3)		Blower Output (U4/V4/W4 and U5/V5/W5)		Grounding Terminal Screw/Torque of Torque Driver (N·m)
		Cable (AWG)	Terminal Screw/ Torque of Torque Driver (N.m)	Cable (AWG)	Terminal Screw/ Torque of Torque Driver (N.m)	Cable (AWG)	Terminal Screw/ Torque of Torque Driver (N.m)	
Three-phase 380 VAC to 440 VAC, 50/60 Hz								
CP700-4T110-H	214	250 kcmil	M12 (70 N.m)	16	N/A	18	N/A	Air end: M8/20 N.m Blower: M4/2.9 N.m
CP700-4T132-H	257	300 kcmil	M12 (70 N.m)	16	N/A	18	N/A	Air end: M8/20 N.m Blower: M4/2.9 N.m
CP700-4T160-H	315	400 kcmil	M12 (70 N.m)	16	N/A	18	N/A	Air end: M10/40 N.m Blower: M4/2.9 N.m
CP700-4T200-H	384	500 kcmil	M12 (70 N.m)	16	N/A	18	N/A	Air end: M10/40 N.m Blower: M4/2.9 N.m

NOTE

- For the selection of power cables, follow national or regional regulations. The cable in the preceding table meets the following: 1. The cable meets the requirements of UL758/UL1581, and is resistant to 75°C; 2. PVC insulation and pure copper conductors are adopted; 3. The cable is resistant to 40°C of the ambient temperature and 75°C of the cable surface temperature (Note: When the ambient temperature exceeds 40°C, contact the manufacturer).

2.4.2 Control Cables

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.

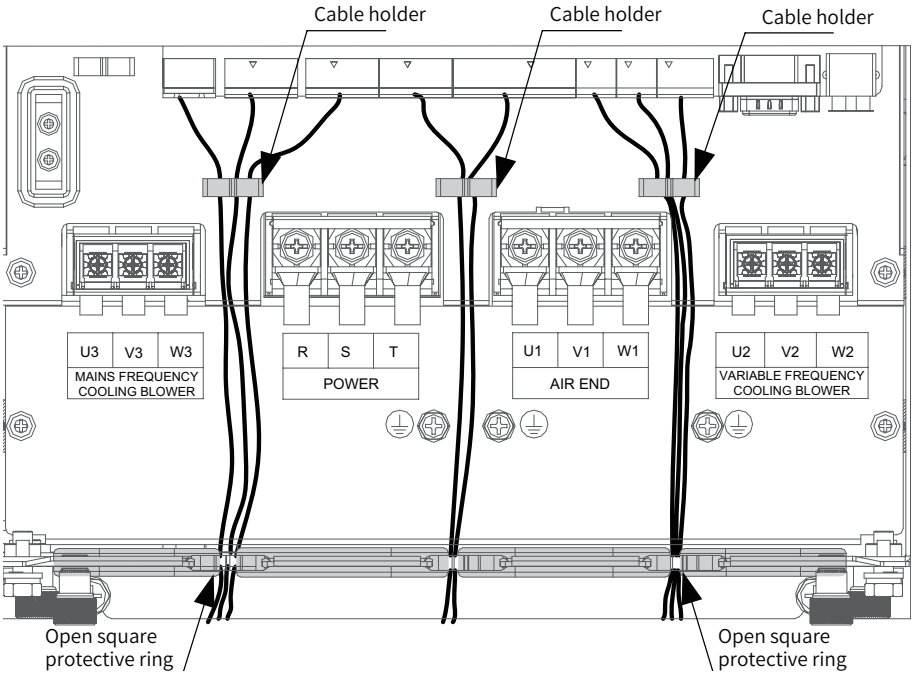


Figure 2-21 Control cable wiring of the CP700-2T7.5-H to CP700-2T45-H, and CP700-4T5.5-H to CP700-4T90-H1-INT models

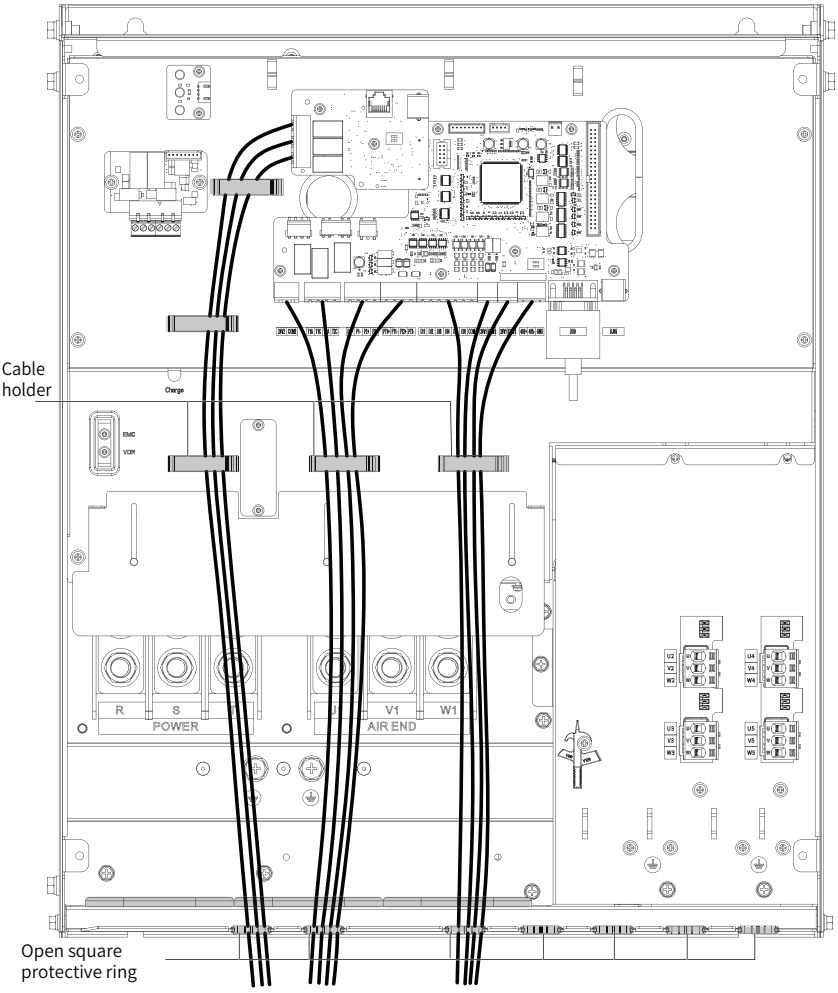


Figure 2-22 Control cable wiring of the CP700-4T110-H to CP700-4T200-H models

3 Display and Commissioning

3.1 Indicator Description

The AC drive has three LED indicators, indicating the power supply, running, and fault status. Indicator positions are shown below.

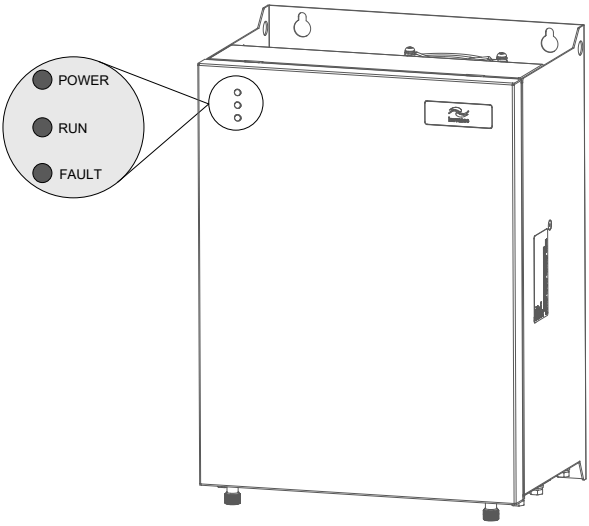


Figure 3-23 Descriptions of indicators

Indicator status		Description
Power supply indicator (green)	POWER	Off: Power supply disconnected
	POWER	On: Power supply connected
Running indicator (green)	RUN	Off: Stop
	RUN	On: Running
Fault indicator (red)	FAULT	Off: Normal
	FAULT	On: Faulty

3.2 Commissioning Process

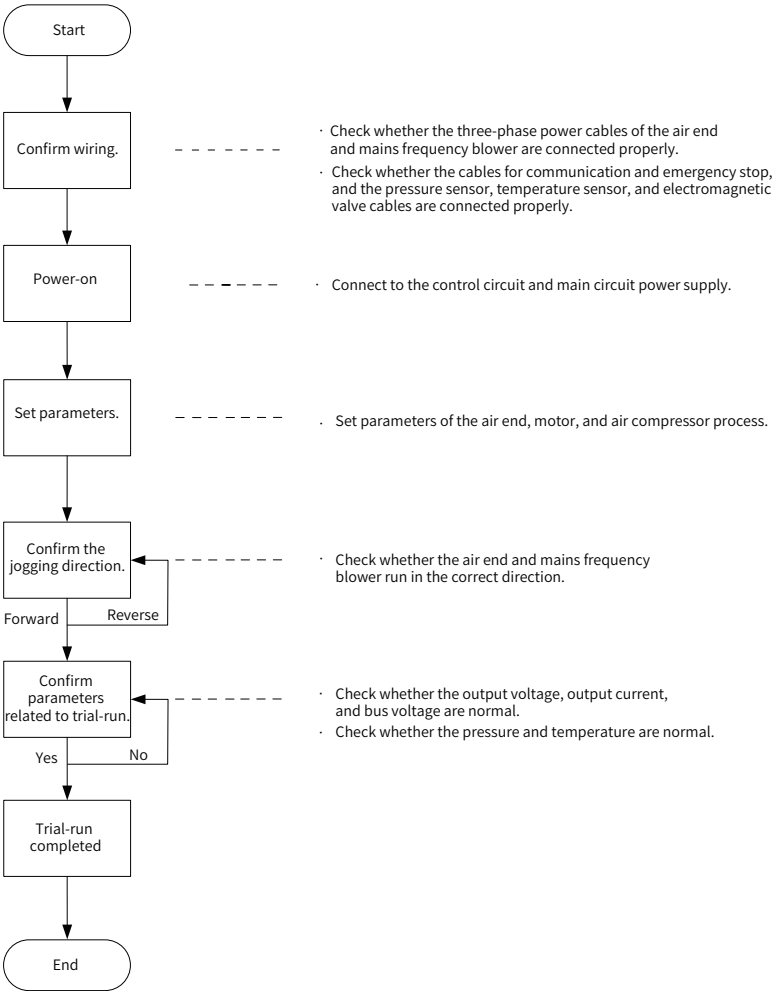


Table 3-8 Commissioning process of the CP700 series AC drive for air compressors

3.3 System Commissioning Case

1) When the power supply is connected, the HMI automatically switches to the following interface.

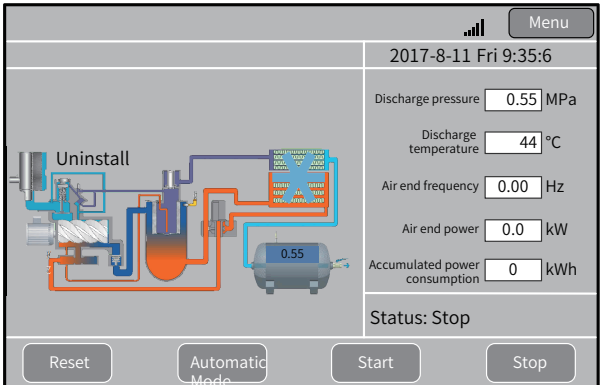


Figure 3-24 HMI main interface (example)

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**, **Timing Switch**, **Alarms**, and **Manufacturer Information** in sequence to view more details.

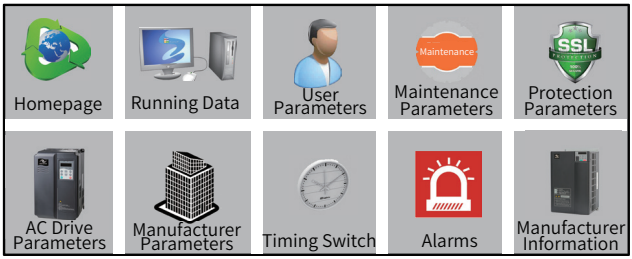


Figure 3-25 Menu (example)

3) Tap **User Parameters** to open the **Rights Management** dialog box for password settings.

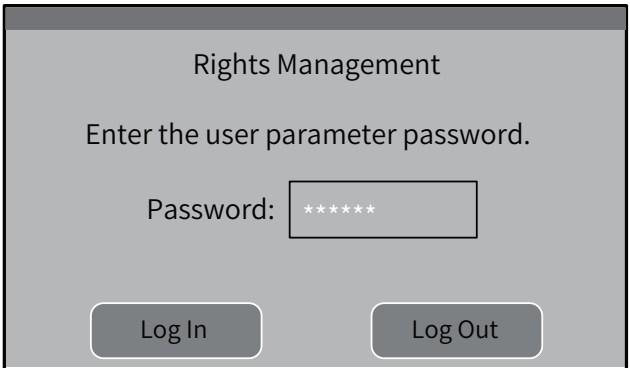


Figure 3-26 Password setting dialog box (example)

Tap the **Password** text box to access Figure 3-27 and enter a password.

Figure 3-27 Entering a password (example)

NOTE

- In Figure 3-27, after entering a correct password, tap ENT to access Figure 3-28. If an incorrect password is input, tap CR and enter the password again.

In the **User Parameters** interface, set parameters related to the air end and cooling blower, as shown in the following figure.

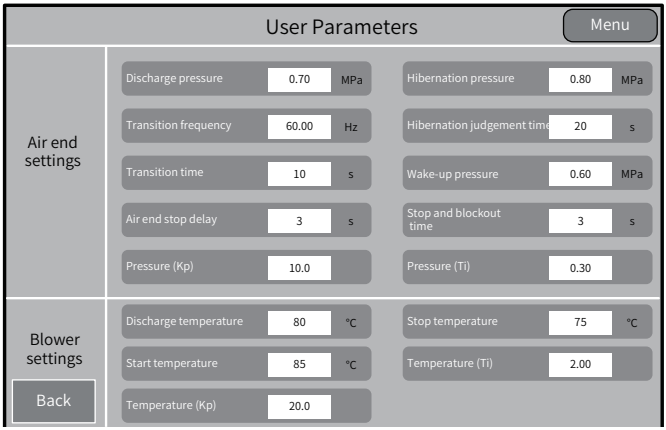


Figure 3-28 User parameter settings (example)

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

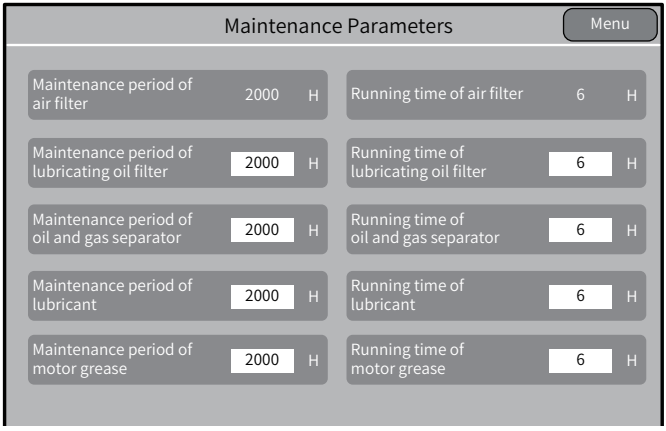


Figure 3-29 Maintenance parameter settings (example)

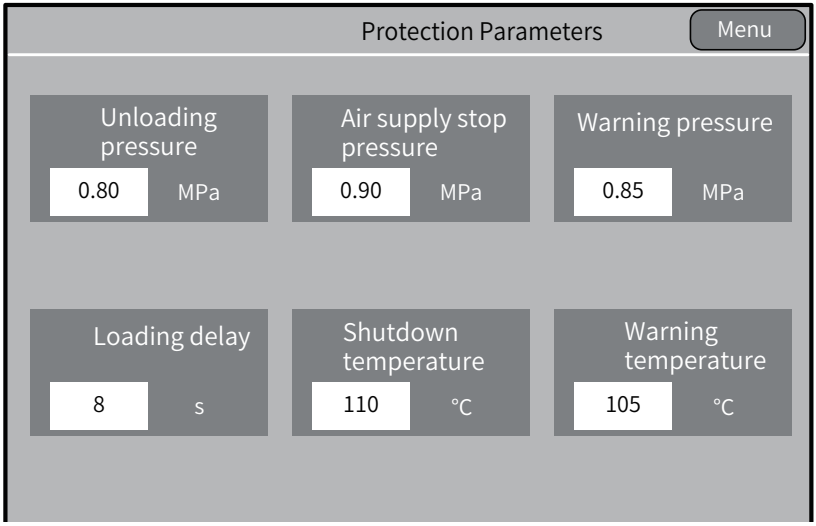


Figure 3-30 Protection parameter settings (example)

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

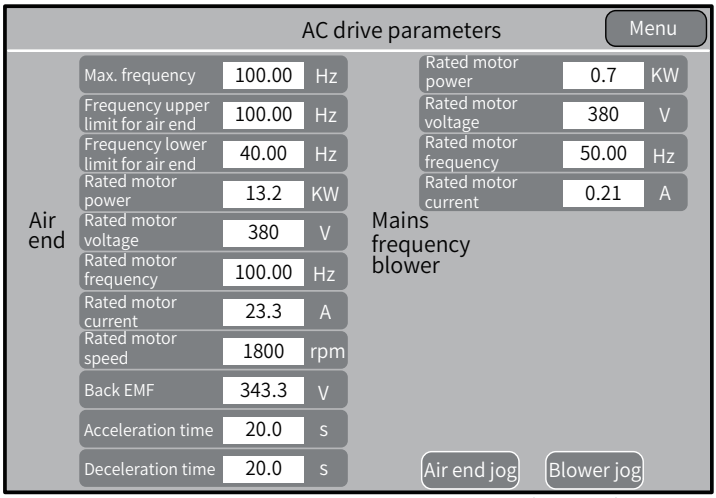


Figure 3-31 AC drive parameter settings (example)

6) Tap **Air end jogging** and **Cooling blower jogging** to conduct trial running. Observe the motor (air end and blower) operation direction. If the motor operates in a wrong direction, disconnect the power supply and change the R/S phase sequence. Then, conduct trial running again until the motor operates in a correct direction.

7) Tap **Start** on the *Figure 3-24* interface to run the air compressor. Check whether the current and temperature are within the normal range, whether the electromagnetic valve status is correct, and whether pressure and temperature change are normal during operation.

8) Shut down the air compressor and complete the commissioning.

4 Troubleshooting

4.1 Fault Codes and Solutions

The following faults may occur during the use of the AC drive. Troubleshoot the faults according to the solutions described in the following table.

Fault Code	Fault Description	Cause	Solution
E01.00	Hardware fault	The driver board is abnormal.	Contact the agent or Inovance for technical support.
E02.00	Overcurrent during acceleration	1. The output circuit of the AC drive is grounded or short circuited.	1. Eliminate external faults. Check whether short-circuit occurs on the motor or contactor.
		2. The control mode is SVC but motor auto-tuning is not performed.	2. Set the motor parameters according to the motor nameplate and perform motor auto-tuning.
		3. The acceleration time is too short under V/f control.	3. Increase the acceleration time.
		4. The overcurrent stall suppression parameters are set improperly under V/f control.	4. Ensure that the overcurrent stall suppression function (F3-19) is enabled. The set value of F3-18 (Overcurrent stall actuating current) is too large. Modify it to a value between 120% and 150%. The set value of F3-20 (Overcurrent stall suppression gain) is too small. Change it to a value between 20 and 40.
		5. The customized torque boost value or the V/f curve is improper under V/f control.	5. Adjust the manual torque boost value or V/f curve.
		6. The motor is started while rotating.	6. Enable the flying start function for the asynchronous motor or start the motor after it stops.
		7. The AC drive suffers external interference.	7. View historical fault records. If the current value is far from the overcurrent level, find the interference source. If no external interference source exists, the drive board or the HALL device may be faulty.
		8. The motor is short-circuited to ground or between phases.	8. Check whether the motor is short-circuited to ground using a multimeter.

Fault Code	Fault Description	Cause	Solution
E03.00	Overcurrent during deceleration	1. The output circuit of the AC drive is grounded or short circuited.	1. Eliminate external faults. Check whether short-circuit occurs on the motor or contactor.
		2. The control mode is SVC but motor auto-tuning is not performed.	2. Set the motor parameters according to the motor nameplate and perform motor auto-tuning.
		3. The deceleration time is too short under V/f control.	3: Increase the deceleration time.
		4. The overcurrent stall suppression parameters are set improperly under V/f control.	4. Ensure that the overcurrent stall suppression function (F3-19) is enabled. The set value of F3-18 (Overcurrent stall actuating current) is too large. Change it to a value between 120% and 150%. The set value of F3-20 (Overcurrent stall suppression gain) is too small. Change it to a value between 20 and 40.
		5. The manual torque boost value or the V/f curve is improper under V/f control.	5. Adjust the manual torque boost value or V/f curve.
		6. The motor is started while rotating.	6. Enable the flying start function for the asynchronous motor or start the motor after it stops.
		7. The AC drive suffers external interference.	7. View historical fault records. If the current upon the fault is far below the overcurrent threshold, check for interference sources. If no external interference source exists, the drive board or the HALL device may be faulty.
		8. The motor is short-circuited to ground or between phases.	8. Check whether the motor is short-circuited to ground using a multimeter.

Fault Code	Fault Description	Cause	Solution
E04.00	Overcurrent during operation at constant speed	1. The output circuit of the AC drive is grounded or short circuited.	1. Eliminate external faults. Check whether short-circuit occurs on the motor or contactor.
		2. The control mode is SVC but motor auto-tuning is not performed.	2. Set the motor parameters according to the motor nameplate and perform motor auto-tuning.
		3. The acceleration time is too short under V/f control.	3. Increase the acceleration time.
		4. The overcurrent stall suppression parameters are set improperly under V/f control.	4. Ensure that the overcurrent stall suppression function (F3-19) is enabled. The set value of F3-18 (Overcurrent stall actuating current) is too large. Change it to a value between 120% and 150%. The set value of F3-20 (Overcurrent stall suppression gain) is too small. Change it to a value between 20 and 40.
		5. The manual torque boost value or the V/f curve is improper under V/f control.	5. Adjust the manual torque boost value or V/f curve.
		6. The motor is started while rotating.	6. Enable the flying start function for the asynchronous motor or start the motor after it stops.
		7. The AC drive suffers external interference.	7. View historical fault records. If the current upon the fault is far below the overcurrent threshold, check for interference sources. If no external interference source exists, the drive board or the HALL device may be faulty.
		8. The motor is short-circuited to ground or between phases.	8. Check whether the motor is short-circuited to ground using a multimeter.
E05.00	Overvoltage during acceleration	1. The input voltage is too high.	1. Adjust the voltage to the normal range.
		2. External force drives the motor during acceleration.	2. Remove the external force.
		3. The overvoltage suppression parameters are set improperly.	3. Check that the overvoltage suppression function (F3-23) is enabled. If the set value of F3-22 (Overvoltage suppression action voltage) is too large, change it to value between 700 V and 770 V. If the set value of F3-24 (Overvoltage suppression gain) is too small, change it to a value between 30 and 50.
		4. The acceleration time is too short.	4. Increase the acceleration time.

Fault Code	Fault Description	Cause	Solution
E06.00	Overvoltage during deceleration	1. The overvoltage suppression parameters are set improperly.	1. Check that the overvoltage suppression function (F3-23) is enabled. If the set value of F3-22 (Overvoltage suppression action voltage) is too large, change it to value between 700 V and 770 V. If the set value of F3-24 (Overvoltage suppression gain) is too small, change it to a value between 30 and 50.
		2. External force drives the motor during deceleration.	2. Remove the external force or install a braking resistor.
		3. The deceleration time is too short.	3. Increase the deceleration time.
E07.00	Overvoltage during operation at constant speed	1. The overvoltage suppression parameters are set improperly.	1. Check that the overvoltage suppression function (F3-23) is enabled. If the set value of F3-22 (Overvoltage suppression action voltage) is too large, change it to value between 700 V and 770 V. If the set value of F3-24 (Overvoltage suppression gain) is too small, change it to a value between 30 and 50. If the set value of F3-26 (Maximum frequency rise threshold for overvoltage suppression) is too low, change it to a value ranging from 5 Hz and 20 Hz.
		2. External force drives the motor during running.	2. Remove the external force.
		3. The input voltage fluctuates greatly in the field.	3. Adjust the input voltage fluctuation range to an allowed range.
E08.00	Pre-charge resistor fault	The input voltage is not within the permissible range, leading to frequent ON/OFF of the contactor.	Check whether the input grid voltage fluctuates greatly. Adjust the voltage to a value within the normal range to ensure that bus voltage fluctuation does not cause frequent contactor ON/OFF.
E09.00	Undervoltage	1. An instantaneous power failure occurs.	1. Enable the power dip ride-through function (F9-59).
		2. The input voltage of the AC drive is out of the allowable range.	2. Adjust the voltage to the normal range.
		3. The bus voltage is abnormal.	3. Contact the agent or Inovance for technical support.
		4. The rectifier bridge, pre-charge resistor, driver board, or the control board is abnormal.	4. Contact the agent or Inovance for technical support.

Fault Code	Fault Description	Cause	Solution
E10.00	Drive overload	1. The load is too heavy or locked-rotor occurs on the motor.	1. Reduce the load and check the motor and mechanical conditions.
		2. The AC drive power class is too low.	2. Select an AC drive of a higher power rating.
		3. The air end of the air compressor rotates in the reverse direction.	3. Check that the motor wiring is correct.
E11.00	Motor overload	1. F9-01 (Motor overload protection gain) is set incorrectly.	1. Set F9-01 (Motor overload protection gain) properly.
		2. The load is too heavy or locked-rotor occurs on the motor.	2. Reduce the load and check the motor and mechanical conditions.
E12.00	Input phase loss	1. The three-phase input power supply is abnormal.	1. Check and eliminate the problems in the peripheral circuits.
		2. The driver board, lightning protection board, control board, or rectifier bridge is abnormal.	2. Contact the agent or Inovance for technical support.
E13.00	Output phase loss	1. The motor is faulty.	1. Check whether the motor is disconnected.
		2. The cable connecting the AC drive and the motor is abnormal.	2. Eliminate external faults.
		3. The three-phase outputs of the AC drive are unbalanced when the motor is running.	3. Check whether the motor three-phase winding is normal.
		4. The driver board or the IGBT is abnormal.	4. Contact the agent or Inovance for technical support.
E14.00	Drive overtemperature	1. The ambient temperature is too high.	1. Reduce the ambient temperature.
		2. The air duct is blocked.	2. Clean the air duct.
		3. The fan is damaged.	3. Replace the damaged fan.
		4. The IGBT thermistor is damaged.	4. Contact the agent or Inovance for technical support.
		5. The IGBT is damaged.	5. Contact the agent or Inovance for technical support.
E15.00	The external device is faulty.	External fault signals are input through the multi-function DI.	Eliminate peripheral faults, and ensure that restart (F8-18) is allowed under the mechanical condition and reset the operation.

Fault Code	Fault Description	Cause	Solution
E16.00	Communication error	1. The host controller is abnormal.	1. Check wiring of the host controller.
		2. The communication cable is faulty.	2. Check connection of the communication cable.
		3. Communication parameters in group FD are set improperly.	3. Set communication parameters in group FD properly.
		/	If the fault persists after the preceding measures are taken, restore default settings.
E17.00	Contactor fault	1. The driver board and power supply are abnormal.	Contact the agent or Inovance for technical support.
		2. The contactor is abnormal.	
		3. The lightning protection board is abnormal.	
E18.00	Current detection fault	1. The Hall device is abnormal.	1. Replace the Hall device.
		2. The driver board is abnormal.	2. Replace the driver board.
E19.00	Motor auto-tuning fault	1. The motor parameters are not set according to the nameplate.	1. Set the motor parameters according to the nameplate properly.
		2. Motor auto-tuning times out.	2. Check the cables connecting the AC drive and the motor.
E21.01	Uninterrupted operation on the EEPROM timeout	Read and write operations on the EEPROM are abnormal.	For parameters written to the EEPROM through communication, check the RAM addresses of the parameters. For the RAM address mapping of parameters, see section 6.2.4 "Parameter Address Rules". If the EEPROM chip is damaged, contact the manufacturer to replace the control board.
E21.02	An EEPROM read error occurs.	Read and write operations on the EEPROM are abnormal.	For parameters written to the EEPROM through communication, check the RAM addresses of the parameters. For the RAM address mapping of parameters, see section 6.2.4 "Parameter Address Rules". If the EEPROM chip is damaged, contact the manufacturer to replace the control board.
E21.03	An EEPROM write error occurs.	Read and write operations on the EEPROM are abnormal.	For parameters written to the EEPROM through communication, check the RAM addresses of the parameters. For the RAM address mapping of parameters, see section 6.2.4 "Parameter Address Rules". If the EEPROM chip is damaged, contact the manufacturer to replace the control board.

Fault Code	Fault Description	Cause	Solution
E21.04	The number of write-read operations on the EEPROM exceeds the setpoint within 1s.	Read and write operations on the EEPROM are abnormal.	For parameters written to the EEPROM through communication, check the RAM addresses of the parameters. For the RAM address mapping of parameters, see section 6.2.4 "Parameter Address Rules". If the EEPROM chip is damaged, contact the manufacturer to replace the control board.
E21.05	The internal buffer of the EEPROM exceeds the limit.	The internal buffer of the EEPROM exceeds the limit.	For parameters written to the EEPROM through communication, check the RAM addresses of the parameters. For the RAM address mapping of parameters, see section 6.2.4 "Parameter Address Rules". If the EEPROM chip is damaged, contact the manufacturer to replace the control board.
E22.00	Stator resistance auto-tuning alarm	The motor parameters are not set according to the nameplate.	Set the motor parameters in group F1 correctly according to the motor nameplate. Before auto-tuning, check that the motor is not connected to any load.
E23.00	Output short-circuited to ground	The motor is short-circuited to the ground.	Replace the cable or motor.
E24.00	Inter-phase short circuit occurs on output phases.	Check whether short circuit occurs on any two phases of U/V/W phases.	Replace the output cable or motor.
E26.00	Accumulative operating time reached	The accumulative operating time reaches the set value.	Clear the record by parameter initialization.
E27.00	User-defined fault 1	1. The signal of user-defined fault 1 is input through the multi-functional DI. 2. The signal of user-defined fault 1 is input through the virtual I/O.	1: Perform a reset operation. 2: Perform a reset operation.
E28.00	User-defined fault 2	1. The signal of user-defined fault 2 is input through the multi-functional DI. 2. The signal of user-defined fault 2 is input through the virtual I/O.	1: Perform a reset operation. 2: Perform a reset operation.
E29.00	Accumulative power-on time reached	The accumulative power-on time reaches the set value.	Clear the record by parameter initialization.
E30.00	Load loss	The operation current of the drive is lower than the value of F9-64.	Check whether the load is disconnected or ensure that F9-64 (Load loss detection level) and F9-65 (Load loss detection time) are set based on the actual conditions.
E31.00	PID feedback loss during operation	The PID feedback is lower than the setpoint of FA-26.	Check the PID feedback signal or set FA-26 (Detection level of PID feedback loss) correctly.

Fault Code	Fault Description	Cause	Solution
E32.00	Capacitor capacitance alarm	The detected bus capacitor capacitance is lower than the theoretical value during power-off.	1. Check whether the bus capacitor is abnormal and whether there is a leakage error. 2. Check whether the model is set correctly.
E33.00	Internal over-temperature of variable frequency blower	The temperature is too high due to poor heat dissipation.	Check whether the air duct is clogged and the fan rotates in the correct direction.
E34.00	Demagnetization protection fault	The motor back EMF drops to a value below a specific threshold.	1. Check whether the motor is demagnetized. 2. Check whether the rated frequency and other parameters of the motor are set accurately. 3. Increase the value of B0-27 (Demagnetization protection threshold). 4. Change B0-27 to 0 to shield the fault.
E35.00	Oscillation fault	The motor control is abnormal and the oscillation coefficient exceeds the threshold.	1. Check whether the motor parameters are set normally and whether the parameters are tuned. 2. Reduce the speed loop gain and increase the speed loop integral time. 3. Increase the protection threshold (B0-26) or change B0-26 to 0 to shield the fault.
E36.00	Blower 1 fault	The driver of control blower 1 is faulty.	Check whether the driver of control blower 1 is faulty.
E37.00	Blower 2 fault	The driver of control blower 2 is faulty.	Check whether the driver of control blower 2 is faulty.
E38.00	Blower 3 fault	The driver of control blower 3 is faulty.	Check whether the driver of control blower 3 is faulty.
E39.00	Blower 4 fault	The driver of control blower 4 is faulty.	Check whether the driver of control blower 4 is faulty.
E40.00	Pulse-by-pulse current limit fault	1. The load is too heavy or locked-rotor occurs on the motor. 2. The AC drive power rating is too low.	1. Reduce the load and check the motor and mechanical conditions. 2. Select an AC drive of a higher power rating.
E42.00	Excessive speed deviation	1. Motor auto-tuning is not performed.	1. Perform motor auto-tuning.
		2. Parameters related to excessive speed deviation F9-69 and F9-70 are set improperly.	2. Set F9-69 and F9-70 properly according to actual situations.
		3. The load is too heavy.	3. Select a proper AC drive.

Fault Code	Fault Description	Cause	Solution
E43.00	Motor overspeed	1. The encoder parameters are incorrectly set. 2. Motor parameters are not tuned. 3. Motor overspeed detection parameters F9-67 and F9-68 are incorrectly set.	1. Set the encoder parameters correctly. 2. Perform auto-tuning on motor parameters. 3. Set motor overspeed detection parameters properly according to actual situations.
E45.00	Motor temperature fault	1. Cable connection of the temperature sensor becomes loose.	1. Check cable connection of the temperature sensor.
		2. The motor temperature is too high.	2. Increase the carrier frequency or take other measures to cool the motor.
E47.02	STO triggering inconsistency fault	STO1 and STO2 signals are disconnected.	Check the wiring of STO1 and STO2.
E47.03	STO power supply fault	Undervoltage or overvoltage occurs on the STO circuit.	Contact the agent or Inovance for technical support.
E47.04	STO input subsystem fault	The STO circuit input subsystem is abnormal.	Contact the agent or Inovance for technical support.
E47.05	STO buffer chip fault	The STO blocking output chip is abnormal.	Contact the agent or Inovance for technical support.
E48.00	NTC disconnection	1. An NTC wiring error occurs.	Contact the agent or Inovance for technical support.
		2: An NTC error occurs.	
E60.00	Braking transistor short circuit	The braking transistor is short-circuited.	Check whether the braking resistor is short-circuited.
E64.00	The PID parameter is set incorrectly.	1. When A4-00 is set to 3, data overlimit exists (A8-05 > 7 x A8-07).	1. Set A8-07 properly.
		2. When A4-00 is set to 3, data overlimit exists (F0-14 > F0-10 x A8-48/100 + 0.05).	2. Set F0-14 properly.

Fault Code	Fault Description	Cause	Solution
A65	Pressure sensor 2 warning	1. The temperature sensor cable is connected 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 small values. 4. The pressure sensor is abnormal.	1. Connect the pressure sensor correctly. 2. Set the P2 pressure range according to the pressure sensor nominal value. 3. Set the pressure properly based on actual requirements. 4. Replace the faulty pressure sensor.
E66.00	Overpressure of pressure sensor 2		
E67.00	Overtemperature of temperature sensor 2	1. The pressure sensor is connected by mistake. 2. The sensor temperature is too high due to poor heat dissipation.	1. Connect the temperature sensor cable correctly. 2. Check whether the air duct is clogged and the fan rotates in the correct direction.
A68	Temperature sensor 2 warning		
E69.00	Low temperature of the temperature sensor	1. After the low temperature protection function is enabled by setting the ones position of A8-52, the temperature is continuously lower than the value of A8-58.	1. Set A8-58 properly. 2. Check the temperature sensor wiring.
A70	Pressure sensor 1 warning	1. The temperature sensor cable is connected by mistake. 2. The setting of P1 pressure range does not correspond to the pressure sensor nominal value. 3. A8-10 and A8-11 are set to small values. 4. The pressure sensor is abnormal.	1. Connect the pressure sensor cable correctly. 2. Set the P1 pressure range according to the requirements of the pressure sensor. 3. Set the pressure properly based on actual requirements. 4. Replace the faulty pressure sensor.
E71.00	Overpressure of pressure sensor 1		
E72.00	Overtemperature of temperature sensor 1	1. The pressure sensor is connected by mistake. 2. The sensor temperature is too high due to poor heat dissipation.	1. Connect the temperature sensor cable correctly. 2. Check whether the air duct is clogged and the fan rotates in the correct direction.
A73	Temperature sensor warning 1		
E74.00	Pressure sensor disconnection fault	1. The pressure sensor wiring is abnormal. 2. The pressure or temperature sensor is abnormal.	1. Check the wiring. 2. Replace the faulty pressure or temperature sensor.
E75.00	Temperature sensor disconnection fault		

Fault Code	Fault Description	Cause	Solution
A76	Air filter maintenance warning	The air filter running time reaches the air filter maintenance time.	Maintain the air filter and clear the air filter running time.
A77	Oil filter maintenance warning	The oil filter running time reaches the oil filter maintenance time.	Maintain the oil filter and clear the oil filter running time.
A78	Oil and gas separator maintenance warning	The oil and gas separator running time reaches the oil and gas separator maintenance time.	Maintain the oil and gas separator and clear the oil and gas separator running time.
A79	Motor lubricating grease maintenance warning	The motor lubricating grease applying time reaches the motor lubricating grease maintenance time.	Apply the lubricating grease and clear the motor lubricating grease applying time.
A80	Lubricating oil maintenance warning	The lubricating oil applying time reaches the lubricant maintenance time.	Apply the lubricating oil and clear the lubricating oil applying time.
E81.00	PTC2 overtemperature	The PTC thermistor is disconnected due to motor overtemperature. The DI detects that the motor PTC signal is disconnected.	1. Check the wiring. PTC2 indicates the blower PTC, which must be connected to DI5 with function 58 allocated and COM. If no blower PTC is available, DI5 must be allocated with function 0. 2. Check whether the motor temperature is high. Check the blower motor. 3. Check whether the blower PTC is damaged. Check whether the PTC resistance is less than 3 kΩ (by disconnecting it from other devices). 4. Short DI5 and COM or allocate DI5 with function 0 temporarily to disable PTC2.
E82.01	Oil fine separator blocked	1. The oil fine separator is blocked. 2. The DI setting and wiring are incorrect.	1. Clean the oil fine separator. 2. Check the DI function setting and wiring.
E83.00	Separator blocked	1. The separator is blocked. 2. The DI setting and wiring are incorrect.	1. Clean the separator. 2. Check the DI function setting and wiring.
E84.01	Oil filter blocked	1. The oil filter is blocked. 2. The DI setting and wiring are incorrect.	1. Clean the oil filter. 2. Check the DI function setting and wiring.
E85.01	Air filter blocked	1. The air filter of the oil fine separator is blocked. 2. The DI setting and wiring are incorrect.	1. Clean the air filter. 2. Check the DI function setting and wiring.

Fault Code	Fault Description	Cause	Solution
E86.00	PTC overtemperature	The PTC thermistor is disconnected due to motor overtemperature. The DI detects that the motor PTC signal is disconnected.	1. Check the wiring. PTC indicates the main motor PTC, which must be connected to DI6 with function 57 allocated and COM. If no main motor PTC is available, DI6 must be allocated with function 0. 2. Check whether the motor temperature is high. Check heat dissipation of the main motor. 3. Check whether the main motor PTC is damaged. Check whether the PTC resistance is less than 3 kΩ (by disconnecting it from other devices). Short DI6 and COM or allocate DI6 with function 0 temporarily to disable PTC.
A87	Limited running time warning	The running time reaches the set limited running time.	Clear the running time or disable the limited running function.
E88.00	Stop for air filter maintenance	Air filter running time - Air filter maintenance time ⩾ Stop time for long-time warning	1. Maintain the equipment and clear related running time. 2. Contact the agent or Inovance for technical support.
E89.00	Stop for oil filter maintenance	Oil filter running time - Oil filter maintenance time ⩾ Stop time for long-time warning	1. Maintain the equipment and clear related running time. 2. Contact the agent or Inovance for technical support.
E90.00	Stop for oil and gas separator maintenance	Oil and gas separator running time - Oil and gas separator maintenance time ⩾ Stop time for long-time warning	1. Maintain the equipment and clear related running time. 2. Contact the agent or Inovance for technical support.
E91.00	Stop for motor lubricating grease maintenance	Lubricating grease applying time - Lubricating grease maintenance time ⩾ Stop time for long-time warning	1. Maintain the equipment and clear related running time. 2. Contact the agent or Inovance for technical support.
E92.00	Stop for lubricating oil maintenance	Lubricating oil applying time - Lubricating oil maintenance time ⩾ Stop time for long-time warning	1. Maintain the equipment and clear related running time. 2. Contact the agent or Inovance for technical support.
E93.00	Stop after pressure warning time exceeded	Pressure warning time ⩾ Stop time for long-time warning	See the solutions for Err70/71.
E94.00	Stop after temperature warning time exceeded	Temperature warning time ⩾ Stop time for long-time warning	See the solutions for Err70/73.

Fault Code	Fault Description	Cause	Solution
E95.00	Electromagnetic valve overcurrent	1. The model and specifications of the electromagnetic valve do not match the transformer.	1. Check whether the model and specifications of the electromagnetic valve match the transformer (110/220 VAC).
		2. The electromagnetic valve is damaged.	2: Replace the electromagnetic valve.
		3. When the AC drive is running with load, the TA/TC terminal has no 220 V output.	3. Contact technical support engineers of Inovance.
E96.00	Phase sequence abnormal	The sequence of three input phases R/S/T is abnormal.	Exchange any two phases among the three input phases R/S/T.
E97.00	Output phase loss of mains frequency blower	1. The motor wiring is incorrect.	1. Wire the motor properly.
		2. The motor cooling fan is damaged.	2. Use a multimeter to measure the resistance between phases. If open circuit exists, replace the motor cooling fan.
		3. The fuse is loose or damaged.	3. Fix the fuse properly or replace the fuse.
E98.00	Low pump pressure	1. The water pump function is not provided, and the DI is allocated with function 59 by mistake.	1. Allocate the DI with function 0.
		2. The water pump function is provided, and the DI is allocated with function 59.	2. If the water pump is abnormal, repair or replace it.
E99.00	Mains frequency blower overload	1. The power class of the mains frequency blower is too high.	1. Select a suitable blower.
		2. The motor cooling fan is blocked or stuck with the foreign matter.	2. Clean the fan or the foreign matter.

4.2 Common Faults and Solutions

No.	Fault	Possible Cause	Solution
1	There is no display upon power-on.	There is no voltage input or the input 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 control board is disconnected from the driver board and operating panel.	Re-connect the 8-conductor and 40-conductor flat cables.
		The pre-charge resistor of the AC drive is damaged.	Contact the agent or Inovance for technical support.
		The control board or operating panel is faulty.	
		The rectifier bridge is damaged.	
2	"HC" is displayed after power-on.	The cable connecting the driver board and the control board is in poor contact.	Re-connect the 8-conductor and 28-conductor flat cables.
		Components on the control board are damaged.	Contact the agent or Inovance for technical support.
		The motor or the motor cable is shorted to the ground.	
		The Hall device is faulty.	
		The grid voltage is too low.	
3	"Err23" is displayed after power-on.	The motor or the motor cable is shorted to ground.	Use an insulation tester to measure the insulation resistance of the motor and motor cable.
		The AC drive is damaged.	Contact the agent or Inovance for technical support.
4	The display is normal after power-on. After the AC drive is running, "HC" is displayed and the AC drive stops immediately.	The cooling fan is damaged or does not rotate.	Replace the fan.
		Short circuit occurs on external control terminals.	Rectify the short circuit fault.
5	"Err14" (IGBT overheat) is detected frequently.	The carrier frequency is set to a too high value.	Reduce the value of F0-15 (Carrier frequency).
		The fan is damaged or the air duct is clogged.	Replace the cooling fan or clean the air duct.
		Components (thermocouple or others) inside the AC drive are damaged.	Contact the agent or Inovance for technical support.

No.	Fault	Possible Cause	Solution
6	The motor does not rotate after the drive runs.	The motor or motor cable is abnormal.	Check that wiring between the AC drive and motor is normal.
		AC drive parameters (motor parameters) are set improperly.	Restore default settings and reset related parameters. Check that the rated motor parameters are set properly, including the rated motor frequency and rated motor speed. Check that F0-01 (Control mode) and F0-02 (Operation mode) are set properly. Modify F3-01 (Torque boost) in the V/f control mode under heavy-load start.
		The cable connecting the drive board and the control board is in poor contact.	Re-connect the cable and ensure that the cable is connected firmly.
		The driver board is faulty.	Contact the agent or Inovance for technical support.
7	DI inactive	The related parameters are set incorrectly.	Check and set the parameters in group F4 again.
		The external signal is incorrect.	Re-connect the external signal cable.
		The jumper between OP and +24 V becomes loose.	Secure the jumper across OP and +24V.
		The control board is faulty.	Contact the agent or Inovance for technical support.
8	Frequent overcurrent and overvoltage faults	Motor parameters are set incorrectly.	Set the motor parameters or perform motor auto-tuning again.
		The acceleration/deceleration time is improper.	Set proper acceleration/deceleration time.
		The load fluctuates.	Contact the agent or Inovance for technical support.
9	"Err17" is reported after power-on or 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 the agent or Inovance for technical support.

5. Maintenance and Inspection

5.1 Routine Maintenance

Check the following items on a daily basis to prevent the AC drive or the performance from be compromised. It is recommended to make a copy of this checklist and sign the "Checked" column after each inspection.

Item	Content	Checked
Installation environment	● Check whether 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.	
Electric cabinet	● Check whether the mounting bracket is loose. ● Check whether the copper bar and cable terminal become loose or get corroded.	
Motor	● Check whether abnormal noise exists. ● Check whether abnormal oscillation exists. ● Check whether the connection between the motor and AC drive becomes loose. ● Check whether the motor fixing screws become loose.	
Fan	● Check whether abnormal noise or vibration exists on the cooling fan of the AC drive. ● Check whether abnormal noise or vibration exists on the cooling fan of the motor.	
Load	● Check whether the motor parameters are set properly. ● Check whether the motor is overloaded. ● Check for mechanical vibration (< 1G under normal conditions).	
Voltage	● Check whether the main circuit voltage is within the permissible range. ● Check whether the control circuit voltage is normal. ● Check whether a heavy load is being started around the drive.	
Operating panel	● Check whether the operating panel display is clear. ● Check whether any character disappears.	
Main circuit	● Check whether any screw is loose.	
Filter capacitor	● Check whether liquid leakage, discoloring, cracking, or swollen housing occurs on the filter capacitor.	
Electromagnetic contactor	● Check whether the contactor is loose or abnormal noise exists during operation. ● Check whether short circuit, water stain, swelling, or cracking occurs on external components.	

5.2 Periodic Inspection

Item	Content	Inspection Method and Troubleshooting	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 dust with a vacuum cleaner, and wipe surface dirt gently with soft cloth immersed in neutral detergent.	Once per half a year	
Cables	Check whether discoloration exists on the cables and connections. Check the cable insulation layer for aging or wear.	● Replace the cracked cable. ● Replace the aged or cracked terminal.	Once per half a year	
Air filter	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.	Once per 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 the damaged or corroded control cables.	Once per half a year	

5.3 Replacement of Wear Parts

5.3.1 Service Life of Quick-wear Parts

The quick-wear parts of the AC drive include the cooling fan and filter electrolytic capacitor. The service lift of such devices is closely related to the operating environment and maintenance conditions. The standard service life of the two components is listed in the following table.

Name	Service Life [1]
Fan	⩾ 5 years
Electrolytic capacitor	⩾ 5 years

[Note]: The standard service life indicates the life time when the component is used in the following conditions. You can determine when to replace these parts according to the actual

operating time.

1) Ambient temperature: 40°C
2) Load rate: 80%
3) Operating rate: 24 hours per day

5.3.2 Fan Quantity

Model	Quantity of Fans for Main Components	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-H	1	Top of the cabinet	0	/
CP700-4T11-H-INT	2	Top of the cabinet	0	/
CP700-4T15-H-INT	2	Top of the cabinet	0	/
CP700-4T18.5-H-INT	1	Top of the cabinet	0	/
CP700-4T22-H-INT	1	Top of the cabinet	0	/
CP700-4T30-H-INT	1	Top of the cabinet	0	/
CP700-4T37-H-INT	1	Top of the cabinet	0	/
CP700-4T45-H1-INT	2	Top of the cabinet	0	/
CP700-4T55-H1-INT	2	Top of the cabinet	0	/
CP700-4T75-H1-INT	2	Top of the cabinet	0	/
CP700-4T90-H1-INT	2	Top of the cabinet	0	/
CP700-4T110-H	2	Top of the cabinet	1	Bottom of the cabinet
CP700-4T132-H	2	Top of the cabinet	1	Bottom of the cabinet
CP700-4T160-H	2	Bottom of the cabinet	1	Inside the cabinet
CP700-4T200-H	2	Bottom of the cabinet	1	Inside the cabinet

5.3 Replacing Fans

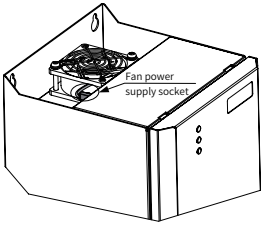
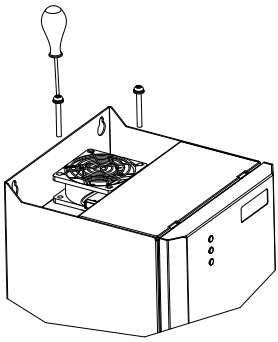
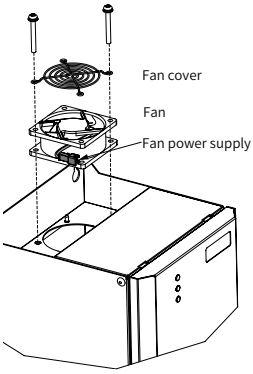
1) Possible causes of damage: bearing wear and blade aging

2) Diagnosis: cracks on the blade, abnormal vibration noise upon startup, and abnormal running of fan blades

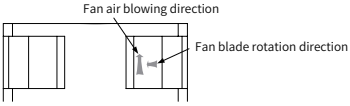
3) Replacement:

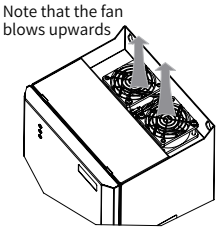
- To remove the fan, press the snap-fit joint on the fan protective plastic cover and pull the fan outward.
- After replacing the fan, ensure the fan blows the air upwards.

1 Replacing one fan for main components at the top of the cabinet

Removing the Fans for Main Components (CP700-4T5.5-H to CP700-4T7.5-H)		
① Disconnect the fan power cable connector from the socket (top view).	② Remove the two screws from the fan cover using a screwdriver.	③ Remove the fan and fan cover from the AC drive.
		
Installing the Fans for Main Components (CP700-4T5.5-H to CP700-4T7.5-H)		

① Install the fan in the reverse order of 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 fan and fan cover with the AC drive, as shown in ③ of the removal procedure.
④ After replacement is completed, check that the air flow direction is upright.

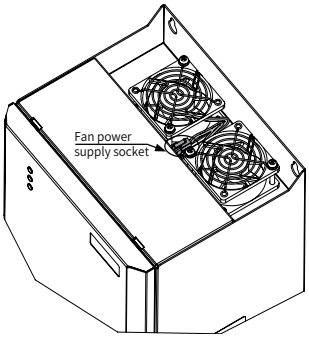
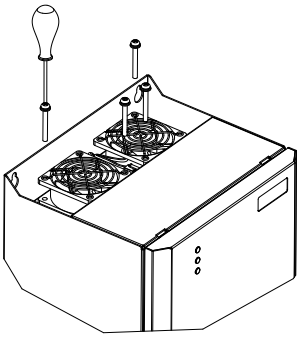
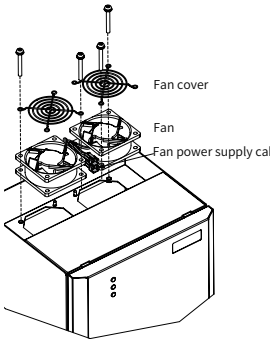




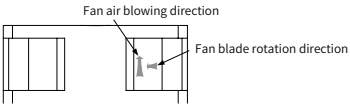
NOTE

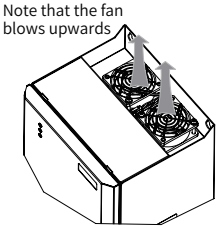
- The fan removal and installation methods for models CP700-2T11-H to CP700-2T22-H and CP700-4T18.5-H-INT to CP700-4T37-H-INT are similar to those for models CP700-4T5.5-H to CP700-4T7.5-H, expect that you need to remove four screws in ② of the removal procedure.

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

Removing the Fans for Main Components (CP700-4T11-H-INT to CP700-4T15-H-INT)		
① Disconnect the fan power cable connector from the socket (top view).	② Remove the four screws from the fan cover using a screwdriver.	③ Remove the fan and fan cover from the AC drive.
		
Installing the Fans for Main Components (CP700-4T11-INT-H to CP700-4T15-H-INT)		

① Install the fan in the reverse order of 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 fan and fan cover with the AC drive, as shown in ③ of the removal procedure.
④ After replacement is completed, check that the air flow direction is upright.





NOTE

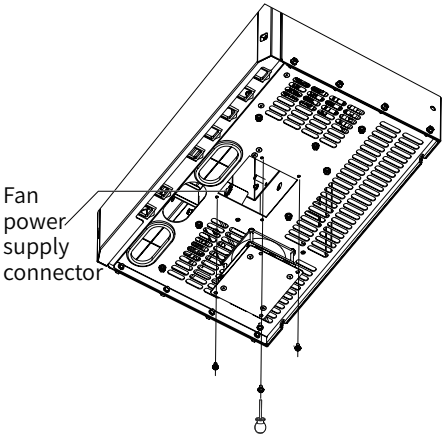
- The fan removal and installation methods for models CP700-2T7.5, CP700-2T30-H to CP700-2T45-H, CP700-4T45-H1-INT to CP700-4T90-H1-INT, and CP700-4T110-H to CP700-4T132-H are similar to those for models CP700-4T11-H-INT to CP700-4T15-H-INT.
- The fan removal and installation methods for models CP700-4T160-H to CP700-4T200-H are similar to those for models CP700-4T11-H-INT to CP700-4T15-H-INT, expect that the fans are installed at the bottom of the cabinet and you need to remove four screws for each fan.

3 Replacing the fans for internal components

NOTE

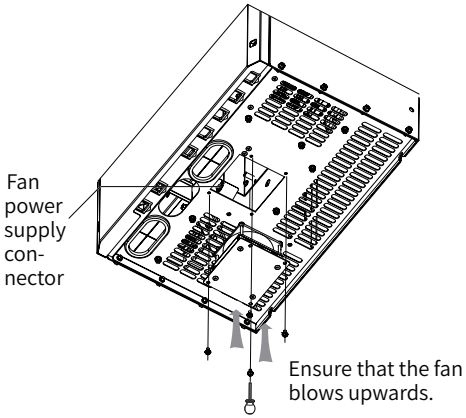
- CP700-4T110-H to CP700-4T132-H models have one fan at the bottom. CP700-4T160-H to CP700-4T200-H models have one fan at the top.
- The following section describes how to remove and install fans for CP700-4T110-H to CP700-4T132-H models and for CP700-4T160-H to CP700-4T200-H models.

Removing the Fans for Internal Components (CP700-4T110-H to CP700-4T132-H)	
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.

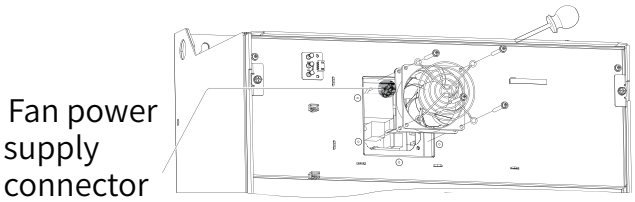


Installing the Fans for Internal Components (CP700-4T110-H to CP700-4T132-H)

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 replacement is complete, check that the air flows upwards.

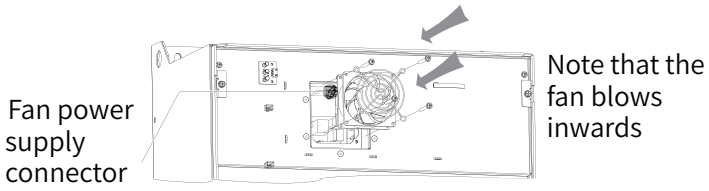


Removing the Fans for Internal Components (CP700-4T160-H to CP700-4T200-H)	
① Refer to *"2.1.3 Cover Removal and Installation" on Page 30* to open the front cover of the cabinet. Remove the four M4 x 45 screws that fix the fan at the top of the cabinet.	② Unplug the fan power cable connector from the socket.



Installing the Fans for Internal Components (CP700-4T160-H to CP700-4T200-H)

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 replacement is complete, check that the air flows inward.



5.4 Storage

For storage of the AC drive for a short or long period, observe the following aspects:

1) To store the AC drive, pack the drive with the original packing box provided by Inovance.

2) Do not expose the AC drive to moisture, high temperature, or direct sunlight for a long time.

3) The electrolytic capacitor will deteriorate after being stored for a long time. Therefore, the AC drive must be switched on once for at least five hours every six months. The input voltage must be increased slowly to the rated value by using a voltage regulator. Contact professionals for technical support if necessary.

Appendix A Parameter List

☆ : The parameter can be modified when the AC drive is in the stop or running state.

★ : The parameter cannot be modified when the AC drive is in the running state.

● : The parameter value is the actual measured value and cannot be changed.

*: The parameter is the "factory parameter" that can be set only by the manufacturer.

A.1 Basic Parameter List

Para. Code	Parameter Name	Value	Default	Attribute
Group F0: Basic Function Parameters				
F0-00	G/P type display	1: G type (constant torque load)	1	●
F0-01	Motor 1 control mode	0: SVC 1: Reserved 2: V/f control	0	★
F0-02	Command source	0: External LCD operating panel/Software 1: Terminal 2: Communication	0	★
F0-03	Main frequency source X	0: Digital setting (preset frequency F0-08 that can be changed by UP or DOWN key, non-retentive upon power failure) 1: Digital setting (preset frequency F0-08 that can be changed by UP or DOWN key, retentive upon power failure) 2: AI1 3: AI2 4: Reserved 5: Pulse reference (DIO1) 6: Multi-reference 7: Simple PLC 8: PID 9: Communication 10: Synchronous control 11: Air compressor control	11	★
F0-04	Auxiliary frequency source Y	0: Digital setting (preset frequency F0-08 that can be changed by UP or DOWN key, non-retentive upon power failure) 1: Digital setting (preset frequency F0-08 that can be changed by UP or DOWN key, retentive upon power failure) 2: AI1 3: AI2 4: Reserved 5: Pulse reference (DIO1) 6: Multi-reference 7: Simple PLC 8: PID 9: Communication 10: Synchronous control	0	★
F0-05	Base value of range of auxiliary frequency Y for superposition	0: Relative to the maximum frequency 1: Relative to main frequency X	0	☆
F0-06	Range of auxiliary frequency Y for superposition	0% to 150%	100%	☆

Para. Code	Parameter Name	Value	Default	Attribute
F0-07	Frequency source superposition selection	Ones position: Frequency source selection 0: Main frequency X 1: Main and auxiliary frequency operation result (based on tens position) 2: Switchover between main frequency X and auxiliary frequency Y 3: Switchover between main frequency X and the main and auxiliary frequency operation result 4: Switchover between auxiliary frequency Y and the main and auxiliary frequency operation result Tens: Main and auxiliary frequency operation 0: Main frequency + auxiliary frequency 1: Main frequency - auxiliary frequency 2: Max. (main frequency, auxiliary frequency) 3: Min. (main frequency, auxiliary frequency) 4: Main frequency x auxiliary frequency	0	☆
F0-08	Preset frequency	0.00 Hz to F0-10 (maximum frequency)	50.00 Hz	☆
F0-09	Running direction	0: Run in the same direction 1: Run in the opposite direction	0	☆
F0-10	Maximum frequency	5.00 Hz to 600.00 Hz	155.00 Hz	☆
F0-11	Source of frequency upper limit	0: Set by F0-12 1: AI1 2: AI2 4: Pulse reference (DIO1) 5: Communication 6: Multi-reference	0	★
F0-12	Frequency upper limit	F0-14 (frequency lower limit) to F0-10 (maximum frequency)	155.00 Hz	☆
F0-13	Frequency upper limit offset	0.00 Hz to F0-10 (maximum frequency)	0.00 Hz	☆
F0-14	Frequency lower limit	0.00 Hz to F0-12 (frequency upper limit)	40.00 Hz	☆
F0-15	Carrier frequency	2.0 kHz to 8.0 kHz	4.0 kHz	☆
F0-16	Carrier frequency change with temperature	0: Disable 1: Enable	0	☆
F0-17	Acceleration time 1	0.00s and 6500.0s	20.0s	☆
F0-18	Deceleration time 1	0.00s and 6500.0s	20.0s	☆
F0-19	Acceleration/Deceleration time unit	0: 1s 1: 0.1s 2: 0.01s	1	★
F0-21	Auxiliary frequency offset during superposition	0.00 Hz to F0-10 (maximum frequency)	0.00 Hz	☆
F0-22	Frequency reference resolution	1: 0.1 Hz 2: 0.01 Hz	2	★
F0-23	Retention of digit-set frequency upon stop	0: Non-retentive 1: Retentive	0	☆
F0-25	Base frequency for acceleration/ deceleration time	0: Maximum frequency (F0-10) 1: Frequency reference 2: 100 Hz	0	★
F0-26	Base value for frequency adjusted by UP/DOWN key during operation	0: Operating frequency 1: Frequency reference	0	★
F0-27	Main frequency coefficient	0.00% to 100.00%	10.00%	☆
F0-28	Auxiliary frequency coefficient	0.00% to 100.00%	10.00%	☆
F1: Motor 1 Parameters				
F1-00	Motor type	0: Common asynchronous motor 1: Variable frequency asynchronous motor 2: Synchronous motor	2	★
F1-01	Rated motor power	0.1 kW to 1000.0 kW	Model dependent	★
F1-02	Rated motor voltage	1 V to 2000 V	Model dependent	★

Para. Code	Parameter Name	Value	Default	Attribute
F1-03	Rated motor current	0.01 to 655.35 A (AC drive power ⩽ 55 kW) 0.1 to 6553.5 A (AC drive power > 55 kW)	Model dependent	★
F1-04	Rated motor frequency	0.01 Hz to F0-10 (maximum frequency)	Model dependent	★
F1-05	Rated motor speed	1 to 65535	Model dependent	★
F1-06	Asynchronous/Synchronous motor stator resistance	0.001 Ω to 65.535 Ω (AC drive power ⩽ 55 kW) 0.0001 Ω to 6.5535 Ω (AC drive power > 55 kW)	Auto-tuning parameter	★
F1-07	Asynchronous motor rotor resistance	0.001 Ω to 65.535 Ω (AC drive power ⩽ 55 kW) 0.0001 Ω to 6.5535 Ω (AC drive power > 55 kW)	Auto-tuning parameter	★
F1-08	Leakage inductive reactance of asynchronous motor	0.01 mH to 655.35 mH (AC drive power ⩽ 55 kW) 0.001 mH to 65.535 mH (AC drive power > 55 kW)	Auto-tuning parameter	★
F1-09	Mutual inductive reactance of asynchronous motor	0.1 mH to 6553.5 mH (AC drive power ⩽ 55 kW) 0.01 mH to 655.35 mH (AC drive power > 55 kW)	Auto-tuning parameter	★
F1-10	No-load current of asynchronous motor	0.01 A to F1-03 (AC drive power ⩽ 55 kW) 0.1 A to F1-03 (AC drive power > 55 kW)	Auto-tuning parameter	★
F1-11	Core saturation coefficient 1 of asynchronous motor	50.0% to 100.0%	86.0%	☆
F1-12	Core saturation coefficient 2 of asynchronous motor	100.0% to 150.0%	130.0%	☆
F1-13	Core saturation coefficient 3 of asynchronous motor	100.0% to 170.0%	140.0%	☆
F1-14	Core saturation coefficient 4 of asynchronous motor	100.0% to 180.0%	150.0%	☆
F1-17	D axis inductance of synchronous motor	0.01 mH to 655.35 mH (AC drive power ⩽ 55 kW) 0.001 mH to 65.535 mH (AC drive power > 55 kW)	Auto-tuning parameter	★
F1-18	Q axis inductance of synchronous motor	0.01 mH to 655.35 mH (AC drive power ⩽ 55 kW) 0.001 mH to 65.535 mH (AC drive power > 55 kW)	Auto-tuning parameter	★
F1-19	Synchronous motor back EMF coefficient	0 V to 65535 V	1	★
F1-26	Auto-tuning operation direction	0 to 1	1	★
F1-37	Auto-tuning selection	0: No operation 1: Static auto-tuning of the asynchronous motor 2: No-load auto-tuning on all parameters of the asynchronous motor 3: With-load auto-tuning on all parameters of the asynchronous motor 4: Reserved 11: No-load auto-tuning on partial parameters (back EMF excluded) of the synchronous motor 12: Dynamic no-load auto-tuning of the synchronous motor 13: Static auto-tuning on all parameters of synchronous motor 14: Reserved	0	★
Group F2: Motor 1 Vector Control Parameters				
F2-00	Low-speed speed loop Kp	1–200	30	☆
F2-01	Low-speed speed loop Ti	0.001s and 10.000s	0.500s	☆
F2-02	Switchover frequency 1	0.00 to F2-05	5.00 Hz	☆
F2-03	High-speed speed loop Kp	1–200	10	☆
F2-04	High-speed speed loop Ti	0.001s and 10.000s	1.000s	☆
F2-05	Switchover frequency 2	F2-02 to maximum frequency	10.00 Hz	☆
F2-06	VC slip compensation adjustment	50% to 200%	100%	☆
F2-07	Speed feedback filter time	0.000s and 0.100s	0.004s	☆
F2-08	VC deceleration over-excitation gain	0 to 200	64	☆

Para. Code	Parameter Name	Value	Default	Attribute
F2-09	Torque upper limit source in speed control (motoring)	0: Set by F2-10 1: AI1 2: AI2 4: Pulse reference (DIO1) 5: Communication (1000H) 6: Min. (AI1, AI2) 7: Max. (AI1, AI2) The full range of options 1 to 7 is the value of F2-10.	0	☆
F2-10	Torque upper limit in speed control (motoring)	0.0% to 200.0%	150.0%	☆
F2-11	Torque upper limit source in speed control (regenerating)	0: F2-10 1: AI1 2: AI2 4: Pulse reference (DIO1) 5: Communication (1000H) 6: Min. (AI1, AI2) 7: Max. (AI1, AI2) 8: F2-12	8	☆
F2-12	Torque upper limit in speed control (generating)	0.0% to 200.0%	30.0%	☆
F2-13	Low-speed current loop Kp adjustment	0.1 to 10.0	1.0	☆
F2-14	Low-speed current loop Ki adjustment	0.1 to 10.0	1.0	☆
F2-15	High-speed current loop Kp adjustment	0.1 to 10.0	1.0	☆
F2-16	High-speed current loop Ki adjustment	0.1 to 10.0	1.0	☆
F2-17	Speed loop Kp upon zero speed lock	1–100	30	☆
F2-18	Speed loop Ti upon zero speed lock	0.001s and 10.000s	0.500s	☆
F2-20	Speed loop switchover frequency upon zero speed lock	0.00 to F2-02	0.05 Hz	☆
F2-21	Maximum output voltage coefficient	100 to 110	110	☆
F2-22	Output voltage filter time	0.000 to 0.010s	0.000s	☆
F2-24	Vector overvoltage suppression Kp	0 to 1000	40	☆
F2-25	Acceleration compensation gain	0 to 200	0	☆
F2-26	Acceleration compensation filter	0 to 500	10	☆
F2-27	Overvoltage suppression in vector control	0: Disable 1: Enable	1	☆
F2-28	Cut-off frequency for torque reference filter	50 Hz to 1000 Hz	500 Hz	☆
F2-29	Initial position angle detection current of synchronous motor	50% to 180%	80%	☆

Para. Code	Parameter Name	Value	Default	Attribute
F2-30	Auto-calculation of speed loop parameters	0: Disable 1: Enable	0	★
F2-31	Expected speed loop bandwidth (high speed)	1.0 Hz to 200.0 Hz	10.0 Hz	☆
F2-32	Expected speed loop bandwidth (low speed)	1.0 Hz to 200.0 Hz	10.0 Hz	☆
F2-33	Expected speed loop bandwidth (zero speed)	1.0 Hz to 200.0 Hz	10.0 Hz	☆
F2-34	Expected speed loop damping ratio	0.100 to 65.000	1.000	☆
F2-35	System inertia	0.001s to 50.000s (equivalent to start-up time in the unit of second)	Model dependent	★
F2-36	Motor inertia	0.001 kg·m² to 50 kg· m²	Model dependent	★
F2-47	Inertia auto-tuning	0: Disable 1: Enable	0	★
F2-48	Speed loop bandwidth reference during inertia auto-tuning	0.1-100.0 Hz	10.0 Hz	★
F2-49	Back EMF calculation	0: Disable 1: Enable	1	★
F2-50	Inertia auto-tuning mode	0: Acceleration/deceleration mode 1: Triangular wave mode	0	★
F2-51	Acceleration/deceleration coefficient during inertia auto-tuning	0.1 to 10.0	1.0	★
F2-52	Decoupling control	0: Disable 1: Enable	0	★
F2-53	Generating power limit	0: Disable 1: Enable	0	★
F2-54	Generating power limit threshold	0.0° to 200.0%	0.0%	★
Group F3: V/f Control Parameters				
F3-00	V/f curve	0: Linear V/f 1: Multi-point V/f 2: Square V/f 3: V/f (1.2th power) 4: V/f (1.4th power) 6: V/f (1.6th power) 8: V/f (1.8th power) 10: V/f complete separation 11: V/f half separation	0	★
F3-01	Torque boost	0.0%: Automatic torque boost 0.1% to 30.0%	Model dependent	☆
F3-02	Cutoff frequency of torque boost	0.00 Hz to F0-10 (maximum frequency)	50.00 Hz	★
F3-03	Multi-point V/f frequency 1	0.00 Hz to F3-05	0.00 Hz	★
F3-04	Multi-point V/f voltage 1	0.0% to 100.0%	0.0%	★
F3-05	Multi-point V/f frequency 2	F3-03 and F3-07	0.00 Hz	★
F3-06	Multi-point V/f voltage 2	0.0% to 100.0%	0.0%	★
F3-07	Multi-point V/f frequency 3	F3-05 to rated motor frequency (F1-04)	0.00 Hz	★
F3-08	Multi-point V/f voltage 3	0.0% to 100.0%	0.0%	★
F3-09	V/f slip compensation gain	0.0% to 200.0%	0.0%	☆
F3-10	V/f over-excitation gain	0 to 200	64	☆

Para. Code	Parameter Name	Value	Default	Attribute
F3-11	V/f oscillation suppression gain	0 to 100	Model dependent	☆
F3-12	Oscillation suppression gain mode	0: Disable 3: Enable	3	★
F3-13	Voltage source for V/f separation	0: Set by F3-14 1: AI1 2: AI2 4: Pulse reference (DIO1) 5: Multi-reference 6: Simple PLC 7: PID 8: Communication	0	☆
F3-14	V/f separation voltage	0 V to rated motor voltage	0 V	☆
F3-15	Voltage rise time of V/f separation	0.0s and 1000.0s Note: This parameter indicates the time that the voltage changes from 0 V to the rated motor voltage.	0.0s	☆
F3-16	Voltage decline time of V/f separation	0.0s and 1000.0s Note: This parameter indicates the time that the voltage changes from the rated motor voltage to 0 V.	0.0s	☆
F3-17	Stop mode selection in V/f control mode	0: The frequency and voltage decline to 0 separately. 1: The frequency declines after the voltage declines to 0.	0	★
F3-18	Action current for V/f overcurrent stall	50% to 200%	150%	★
F3-19	V/f overcurrent stall selection	0: Disable 1: Enable	1	★
F3-20	V/f overcurrent stall suppression gain	0 to 100	20	☆
F3-21	Action current compensation coefficient for V/f overcurrent stall at multiplied rated frequency	50 to 200	50	★
F3-22	Action voltage for V/f overvoltage stall	650.0 V to 800.0 V	770.0 V	★
F3-23	V/f overvoltage stall selection	0: Disable 1: Enable	1	★
F3-24	Frequency gain for V/f overvoltage stall suppression	0 to 100	30	☆
F3-25	Voltage gain for V/f overvoltage stall suppression	0 to 100	30	☆
F3-26	Frequency rise threshold for overvoltage stall	0 to 50	5	★
F3-27	Slip compensation time constant	0.1 to 10.0	0.5	☆
F3-28	Automatic frequency rise	0: Disable 1: Enable	0	★
F3-29	Minimum motoring torque current	10 to 100	50	★
F3-30	Maximum generating torque current	10 to 100	20	★
F3-31	Automatic frequency rise Kp	0 to 100	50	☆
F3-32	Automatic frequency rise Ki	0 to 100	50	☆
F3-33	Online torque compensation gain	80 to 150	100	★
Group F4 Input Terminals				

Para. Code	Parameter Name	Value		Default	Attribute
F4-00	DI1 function selection	0: No function 1: Forward running (FWD) 2: Reverse running (REV) 3: Three-wire motion control 4: Forward jog (FJOG) 5: Reverse JOG (RJOG) 6: Function as the UP key 7: Function as the DOWN key 8: Coast to stop 9: Fault reset (RESET) 10: Running 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: Terminal 1 for acceleration/deceleration time selection 17: Terminal 2 for acceleration/deceleration time selection 18: Frequency source switchover 19: Clear data set by UP/DOWN key or by terminal functioning as UP/DOWN key 20: Running command switchover 21: Prohibit acceleration/deceleration 22: PID pause 23: Reserved 24: Reserved 25: Reserved 26: Reserved 27: Reserved 28: Reserved 29: Prohibit torque control 31: Reserved	32: Immediate DC braking 33: External fault NC input 34: Frequency modification enable 35: Opposite to the PID action direction 36: External stop terminal 1 37: Control command switchover terminal 2 38: PID integral pause 39: Switchover between main frequency X and preset frequency 40: Switchover between auxiliary frequency Y and preset frequency 41: Reserved 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: Deceleration DC braking 50: Clear the current running time 51: Switchover between two-wire mode and three-wire mode 52: Startup protection terminal 53: Block oil fine separator 54: Block separator 55: Block oil filter 56: Block air filter 57: PTC1 input 58: PTC2 input 59: Low pressure difference of water pump 60: Remote start/stop 61 to 63: Reserved	33	★
F4-01	DI2 function selection			1	★
F4-02	DI3 function selection			0	★
F4-03	DI4 function selection			0	★
F4-04	DI5 function selection			0	★
F4-05	DI6 function selection			0	★
F4-10	DI filter time	0.000s and 1.000s		0.010s	☆
F4-11	Terminal command mode	0: Two-wire mode 1 1: Two-wire mode 2 2: Three-wire mode 1 3: Three-wire mode 2		0	★
F4-12	Step value of the terminal functioning as UP/DOWN keys	0.001 Hz/s to 65.535 Hz/s		1.000 Hz/s	☆
F4-13	Minimum input of AI curve 1	-10.00 V to F4-15		-10.00 V	☆
F4-14	Percentage corresponding to minimum input of AI curve 1	-100.0% to +100.0%		-100.0%	☆
F4-15	Maximum input of AI curve 1	F4-13 to +10.00 V		10.00 V	☆
F4-16	Percentage corresponding to maximum input of AI curve 1	-100.0% to +100.0%		100.0%	☆
F4-17	AI1 filter time	0.00s and 10.00s		0.10s	☆
F4-18	Minimum input of AI curve 2	0.00 V to F4-20		2.00V	☆
F4-19	Percentage corresponding to minimum input of AI curve 2	-100.0% to +100.0%		0.0%	☆
F4-20	Maximum input of AI curve 2	F4-18 to +10.00 V		10.00 V	☆
F4-21	Percentage corresponding to maximum input of AI curve 2	-100.0% to +100.0%		100.0%	☆
F4-22	AI2 filter time	0.00s and 10.00s		0.10s	☆
F4-23	Minimum input of AI curve 3	0.00 V to F4-25		2.00V	☆

Para. Code	Parameter Name	Value	Default	Attribute
F4-24	Percentage corresponding to minimum input of AI curve 3	-100.0% to +100.0%	0.0%	☆
F4-25	Maximum input of AI curve 3	F4-23 to +10.00 V	10.00V	☆
F4-26	Percentage corresponding to maximum input of AI curve 3	-100.0% to +100.0%	100.0%	☆
F4-27	AI3 filter time	0 to 100.0	1.0	☆
F4-28	Pulse minimum input	0.00 kHz to F4-30	0.00 kHz	☆
F4-29	Percentage corresponding to pulse minimum input	-100.0% to +100.0%	0.0%	☆
F4-30	Pulse maximum input	F4-28 to 100.00 kHz	50.00 kHz	☆
F4-31	Percentage corresponding to pulse maximum input	-100.0% to +100.0%	100.0%	☆
F4-32	Pulse filter time	0.00s and 10.00s	0.10s	☆
F4-33	AI curve	Ones position: AI1 curve 1: Curve 1 (2 points, see F4-13 to F4-16) 2: Curve 2 (2 points, see F4-18 to F4-21) 3: Curve 3 (2 points, see F4-23 to F4-26) 4: Curve 4 (4 points, see A6-00 to A6-07) 5: Curve 5 (4 points, see A6-08 to A6-15) Tens position: AI2 curve (same as AI1 curve) Hundreds position: Reserved	321	☆
F4-34	Selection when AI value < minimum input value	Ones position: Selection when AI1 value < minimum input value 0: Corresponding to min. input 1: 0.0% Tens position: Selection when AI2 value < minimum input; same as the ones position Hundreds position: Reserved	0	☆
F4-35	DI1 delay time	0.0s and 3600.0s	0.0s	☆
F4-36	DI2 delay time	0.0s and 3600.0s	0.0s	☆
F4-37	DI3 delay time	0.0s and 3600.0s	0.0s	☆
F4-38	DI active mode selection 1	0: Active high 1: Active low Ones position: DI1 Tens position: DI2 Hundreds position: DI3 Thousands position: DI4 Ten thousands position: DI5	0	★
F4-39	DI active mode selection 2	0: Active high 1: Active low Ones position: DI1 Tens position: DI2 Hundreds position: DI3 Thousands position: DI4 Ten thousands position: DI5	0	★
F4-40	AI input type	0: Voltage input 1: Current input (input impedance 500 Ω) 1: Current input (input impedance 250 Ω)	0	★
F4-41	Reserved	/	00	★
Group F5: Output Terminal Parameters				
F5-00	Reserved	/	0	☆

Para. Code	Parameter Name	Value		Default	Attribute
F5-01	First electromagnetic valve action selection (T1A-T1C) (applicable only to the standard AC drive mode and not applicable to the air compressor mode)	0: No output 1: AC drive running 2: Fault output (stop upon fault) 3: Frequency-level detection FDT1 output 4: Frequency reach 5: Zero-speed running (no output at stop) 6: Motor overload warning 7: AC drive overload warning 8: Set count value reach 9: Designated count value reach 10: Length reach 11: PLC cycle completed 12: Accumulative running time reach 13: Frequency limited 14: Torque limited 15: Ready for operation 16: AI1 > AI2 17: Frequency upper limit reach 18: Frequency lower limit reach (related to operation) 19: Undervoltage status output	20: Communication setting Address 0x2001: Bit 0: T4A-T4C Bit 1: T5A-T5C Bit 2: T3A-T3C Bit 3: T2A-T2C 23: Zero-speed running 2 (output at stop) 24: Accumulative power-on time reach 25: Frequency-level detection FDT2 output 26: Frequency 1 reach 27: Frequency 2 reach 28: Current 1 reach 29: Current 2 reach 30: Timing duration reach 31: AI1 input limit exceeded 32: AC drive output load loss 33: Reverse running 34: Zero current state 35: IGBT temperature reach 36: Output current out of limit 37: Frequency lower limit reach (output at stop) 38: Abnormality output (direct output upon fault or warning) 39: Motor overheat warning 40: Current running time reach 41: Fault output 2 42: Fault output 3	0	☆
F5-02	Expansion board relay 1 (T3A/T3C)			0	☆
F5-03	Second electromagnetic valve action selection (T2A-T2C)			1	☆
F5-04	Expansion board relay 2 (T4A/T4C)			0	☆
F5-05	Expansion board relay 3 (T5A/T5C)			4	☆
Group F6 Start/Stop Control Parameters					
F6-00	Start Mode	0: Direct startup 1: Flying start (AC asynchronous motor) 2: Pre-excitation start (AC asynchronous motor)		0	☆
F6-01	Flying start mode	0: From stop frequency 1: From 50 Hz 2: From the maximum frequency		1	★
F6-02	Flying start speed	1–100		20	☆
F6-03	Starting frequency	0.00 Hz to 10.00 Hz		0.00 Hz	☆
F6-04	Starting frequency hold time	0.0s and 100.0s		0.5s	★
F6-05	DC braking current upon start	0% to 100%		0%	★
F6-06	DC braking time/Pre-excitation time upon start	0.0s and 100.0s		0.0s	★
F6-07	Acceleration/Deceleration mode	0: Linear acceleration/deceleration 1: S-curve acceleration/deceleration		0	★
F6-08	Time proportion of S-curve start segment	0.0% to (100.0% - F6-09)		30.0%	★
F6-09	Time proportion of S-curve end segment	0.0% to (100.0% - F6-09)		30.0%	★
F6-10	Stop mode	0: Decelerate to stop 1: Coast to stop		0	★
F6-11	DC braking/Position lock start frequency upon stop	0.00 Hz to F0-10 (maximum frequency)		0.00 Hz	☆

Para. Code	Parameter Name	Value	Default	Attribute
F6-12	Waiting time of DC braking upon stop	0.0s and 100.0s	0.0s	☆
F6-13	DC braking current upon stop	0% to 100%	0%	☆
F6-14	DC braking time at stop	0.0s and 100.0s	0.0s	☆
F6-15	Brake usage rate	0% to 100%	100%	★
F6-16	Closed-loop current Kp of speed tracking	0 to 1000	500	☆
F6-17	Closed-loop current Ki of torque tracking	0 to 1000	800	☆
F6-18	Current during speed tracking	30 to 200	100	☆
F6-20	Voltage rise time of speed tracking	0.5s and 3.0s	1.0s	☆
F6-21	Demagnetization time	00.00s and 10.00s	1.00s	☆
F6-22	Start pre-torque setting	000.0% to 200.0%	0.0%	☆
Group F7: Operating Panel and Display				
F7-06	Load speed display coefficient	0.0001 to 6.5000	1	☆
F7-07	Drive unit heatsink temperature	0.0°C to 100.0°C	-	●
F7-08	Product code	810	-	●
F7-09	Accumulative running time	0 hour and 65535 hours	-	☆
F7-10	Performance software version	-	-	●
F7-11	Function software version	-	-	●
F7-12	Number of decimal places for load speed display	0: 0 decimal place 1: 1 decimal place 2: 2 decimal places 3: 3 decimal places	1	☆
F7-13	Accumulative power-on time	0 hour and 65535 hours	-	●
F7-14	Accumulative power consumption	0 kWh to 65535 kWh	-	☆
F7-15	Temporary performance software version	0	0	●
F7-16	Temporary function software version	0	0	●
Group F8: Auxiliary Functions				
F8-00	Jog frequency	0.00 Hz to F0-10 (maximum frequency)	2.00 Hz	☆
F8-01	Jog acceleration time	0.0s and 6500.0s	20.0s	☆
F8-02	Jog deceleration time	0.0s and 6500.0s	20.0s	☆
F8-03	Acceleration time 2	0.0s and 6500.0s	Model dependent	☆
F8-04	Deceleration time 2	0.0s and 6500.0s	Model dependent	☆
F8-05	Acceleration time 3	0.0s and 6500.0s	Model dependent	☆
F8-06	Deceleration time 3	0.0s and 6500.0s	Model dependent	☆
F8-07	Acceleration time 4	0.0s and 6500.0s	Model dependent	☆
F8-08	Deceleration time 4	0.0s and 6500.0s	Model dependent	☆
F8-09	Jump frequency 1	0.00 Hz to F0-10 (maximum frequency)	0.00 Hz	☆
F8-10	Jump frequency 2	0.00 Hz to F0-10 (maximum frequency)	0.00 Hz	☆

Para. Code	Parameter Name	Value	Default	Attribute
F8-11	Jump frequency amplitude	0.00 Hz to F0-10 (maximum frequency)	0.00 Hz	☆
F8-12	Dead-zone time of forward/ reverse run	0.0s and 3000.0s	0.0s	☆
F8-13	Reverse run	0: Enable 1: Disable	0	☆
F8-14	Running mode when frequency reference < lower limit	0: Run at frequency lower limit 1: Stop 2: Run at zero speed	0	☆
F8-16	Accumulative power-on time threshold	0 hour and 65000 hours	0h	☆
F8-17	Accumulative running time threshold	0 hour and 65000 hours	0 hour	☆
F8-18	Protection upon start	0: Disable 1: Enable	0	☆
F8-19	Detection frequency (FDT1)	0.00 Hz to F0-10 (maximum frequency)	50.00 Hz	☆
F8-20	Frequency detection hysteresis value (FDT1)	0.0% to 100.0% (FDT1 level)	5.0%	☆
F8-21	Detection frequency amplitude	0.0% to 100.0% (maximum frequency)	0.0%	☆
F8-22	Jump frequency state during acceleration/deceleration	0: Invalid 1: Valid	0	☆
F8-23	Action upon operating time reach	0 to 1	0	●
F8-24	Action selection upon accumulative power-on time reach	0 to 1	0	●
F8-25	Frequency threshold for switching between acceleration time 1 and acceleration time 2	0.00 Hz to F0-10 (maximum frequency)	0.00 Hz	☆
F8-26	Frequency threshold for switching between deceleration time 1 and deceleration time 2	0.00 Hz to F0-10 (maximum frequency)	0.00 Hz	☆
F8-27	Jog preference	0: Invalid 1: Valid	0	☆
F8-28	Detection frequency (FDT2)	0.00 Hz to F0-10 (maximum frequency)	50.00 Hz	☆
F8-29	Frequency detection hysteresis (FDT2)	0.0% to 100.0% (FDT2 level)	5.0%	☆
F8-30	Detection frequency 1	0.00 Hz to F0-10 (maximum frequency)	50.00 Hz	☆
F8-31	Detection frequency amplitude 1	0.0% to 100.0% (maximum frequency)	0.0%	☆
F8-32	Detection frequency 2	0.00 Hz to F0-10 (maximum frequency)	50.00 Hz	☆
F8-33	Detection frequency amplitude 2	0.0% to 100.0% (maximum frequency)	0.0%	☆
F8-34	Zero current detection level	0.0% to 300.0% The value 100.0% corresponds to the rated motor current.	5.0%	☆
F8-35	Zero current detection delay time	0.01s and 600.00s	0.10s	☆
F8-36	Output current overlimit threshold	0.0% (no detection) 0.1% to 300.0% (rated motor current)	200.0%	☆
F8-37	Delay time for output current overlimit detection	0.00s and 600.00s	0.00s	☆
F8-38	Detection current 1	0.0% to 300.0% (rated motor current)	100.0%	☆
F8-39	Detection current amplitude 1	0.0% to 300.0% (rated motor current)	0.0%	☆
F8-40	Detection current 2	0.0% to 300.0% (rated motor current)	100.0%	☆
F8-41	Detection current amplitude 2	0.0% to 300.0% (rated motor current)	0.0%	☆
F8-42	Timing function	0: Disable 1: Enable	0	★

Para. Code	Parameter Name	Value	Default	Attribute
F8-43	Timed operation time setting source	0: Set by F8-44 1: AI1 2: AI2 The analog input range corresponds to the value of F8-44.	0	★
F8-44	Timed operation duration	0.0 min to 6500.0 min	0.0 min	★
F8-45	Lower limit of AI1 input voltage protection value	0.00 V to F8-46	3.10 V	☆
F8-46	Upper limit of AI1 input voltage protection value	F8-45 to 11.00 V	6.80V	☆
F8-47	IGBT temperature reach	0°C to 100°C	75°C	☆
F8-48	Cooling fan control	0: Working during AC drive running 1: Working continuously	0	☆
F8-49	Wakeup frequency	F8-51 (hibernation frequency) to F0-10 (maximum frequency)	0.00 Hz	☆
F8-50	Wakeup delay time	0.0s and 6500.0s	0.0s	☆
F8-51	Hibernation frequency	0.00 Hz to wakeup frequency (F8-49)	0.00 Hz	☆
F8-52	Hibernation delay time	0.0s and 6500.0s	0.0s	☆
F8-53	Current running duration threshold	0.0 min to 6500.0 min	0.0 min	☆
F8-54	STO reset mode selection	0: Manual reset (default) 1: Automatic reset	0	★
F8-55	Deceleration time for emergency stop	0.0s and 6500.0s	0.0	☆
Group F9: Fault and Protection				
F9-00	Motor overload protection	0 to 1	0	☆
F9-01	Motor overload protection gain	0.20 to 10.00	1.00	☆
F9-02	Motor overload warning coefficient	50% to 100%	80%	☆
F9-04	Overvoltage threshold	150.0 V to 820.0 V	820.0 V	☆
F9-06	Output phase loss detection before startup	0: Invalid 1: Valid	0	☆
F9-07	Detection of software short-circuited to ground	0: No detection 1: Detection before power-on 2: Detection before running 3: Detection before power-on and running	0	★
F9-09	Number of automatic reset times upon fault	0 to 20	0	☆
F9-10	DO (relay) action during automatic fault reset	0: The DO does not act. 1: The DO acts.	0	☆
F9-11	Time for automatic reset upon fault	0.1s and 100.0s	1.0s	☆
F9-12	Time for restart and reset upon fault	0.0s and 6000.0s	10.0	☆

Para. Code	Parameter Name	Value		Default	Attribute
F9-14	Type of the 1st fault	0: No fault 1: Hardware fault 2: Overcurrent during acceleration 3: Overcurrent during deceleration 4: Overcurrent during operation at constant speed 5: Overvoltage during acceleration 6: Overvoltage during deceleration 7: Overvoltage at constant speed 9: Undervoltage 10: AC drive overload 11: Motor overload 12: Input phase loss 13: Output phase loss 14: AC drive over-temperature 15: External device fault 16: Communication fault 17: Contactor fault 18: Current detection fault 19: Motor auto-tuning fault 21: EEPROM reading and writing fault 22: Motor auto-tuning result error 23: AC drive output short-circuited to ground 24: Output inter-phase short circuit 26: Cumulative running time reach 27: User-defined fault 1 28: User-defined fault 2 29: Cumulative power-on time reached 30: Load loss 31: PID feedback loss during running 33: Variable frequency blower overheat 34: Demagnetization protection fault 35: Oscillation fault 36: Blower 1 fault 37: Blower 2 fault 38: Blower 3 fault	39: Blower 4 fault 40: Pulse-by-pulse current limit 42: Excessive speed deviation 43: Motor overspeed 45: Motor overheat 47: STO fault 48: NTC disconnection 60: Braking transistor short circuit 64: Quick PID parameter setting error 66: Pressure sensor 2 overpressure 67: Temperature sensor 2 overheat 69: Temperature sensor 2 low temperature 71: Pressure sensor 1 overpressure 72: Temperature sensor 1 overheat 74: Pressure sensor disconnection 75: Temperature sensor disconnection 81: PTC2 overheat 82: Oil fine separator blocked 83: Separator blocked 84: Oil filter blocked 85: Air filter blocked 86: PTC overheat 88: Stop for air filter maintenance 89: Stop for oil filter maintenance 90: Stop for oil and gas separator maintenance 91: Stop for motor lubricating grease maintenance 92: Stop for lubricating oil maintenance 93: Stop after pressure warning time expires 94: Stop after temperature warning time expires 95: Electromagnetic valve overcurrent 96: Phase sequence error 97: Output phase loss of mains frequency blower 98: Low pump pressure 99: Mains frequency blower overload	0	●
F9-15	Type of the 2nd fault	0 to 99		0	●
F9-16	Type of the 3rd (latest) fault	0 to 99		0	●
F9-17	Frequency upon the 3rd (latest) fault	0		0	●
F9-18	Current upon the 3rd fault (latest)	0		0	●
F9-19	Bus voltage upon the 3rd (latest) fault	0		0	●
F9-20	Input terminal state upon the 3rd fault (latest)	0		0	●
F9-21	Output terminal state upon the 3rd fault (latest)	0		0	●
F9-22	AC drive status upon the 3rd fault (latest)	0		0	●
F9-23	Power-on time upon the 3rd fault (latest)	0		0	●
F9-24	Running time upon the 3rd fault (latest)	0		0	●

Para. Code	Parameter Name	Value	Default	Attribute
F9-25	IGBT temperature upon the 3rd (latest) fault	0	0	●
F9-26	Fault subcode of the 3rd (latest) fault	0	0	●
F9-27	Frequency upon the 2nd fault	0	0	●
F9-28	Current upon the 2nd fault	0	0	●
F9-29	Bus voltage upon the 2nd fault	0	0	●
F9-30	Input terminal state upon the 2nd fault	0	0	●
F9-31	Output terminal state upon the 2nd fault	0	0	●
F9-32	AC drive state upon the 2nd fault	0	0	●
F9-33	Power-on time upon the 2nd fault	0	0	●
F9-34	Running time upon the 2nd fault	0	0	●
F9-35	IGBT temperature upon the 2nd fault	0	0	●
F9-36	Fault subcode of the 2nd fault	0	0	●
F9-37	Frequency upon the 1st fault	0	0	●
F9-38	Current upon the 1st fault	0	0	●
F9-39	Bus voltage upon the 1st fault	0	0	●
F9-40	Input terminal state upon the 1st fault	0	0	●
F9-41	Output terminal state upon the 1st fault	0	0	●
F9-42	AC drive state upon the 1st fault	0	0	●
F9-43	Power-on time upon the 1st fault	0	0	●
F9-44	Running time upon the 1st fault	0	0	●
F9-45	IGBT temperature upon the 1st fault	0	0	●
F9-46	Fault subcode of the 1st fault	0	0	●
F9-47	Protection action selection 0 upon fault	Ones position: Overcurrent during acceleration (E02) Tens position: Overvoltage during acceleration (E05) Hundreds position: Reserved Thousands position: Undervoltage (E09) Ten thousands position: AC drive overload (E10)	22022 0: Coast to stop 1: Decelerate to stop 2: Restart allowed 3: Reserved 4: Warning 5: Cancel	★
F9-48	Protection action selection 1 upon fault	Ones position: Motor overload (E11) Tens position: Reserved Hundreds position: Output phase loss (E13) Thousands: Heatsink overheat (E14) Ten thousands position: External fault (E15) Note: For the output phase loss fault, "Decelerate to stop" and "Warning" are valid only in the V/f control mode.	222 0: Coast to stop 1: Decelerate to stop 2: Restart allowed 3: Reserved 4: Alarm 5: Cancel	★
F9-49	Protection action selection 2 upon fault	Ones position: Communication timeout (E16) Tens position: External DC soft charge unit fault (E17) (only applicable for 90 kW or higher models) Hundreds position: Reserved Thousands position: Motor auto-tuning fault (E19) Ten thousands position: Reserved	50000 0: Coast to stop 1: Decelerate to stop 2: Restart allowed 3: Reserved 4: Warning 5: Cancel	★

Para. Code	Parameter Name	Value	Default	Attribute
F9-50	Protection action selection 3 upon fault	Ones position: EEPROM read/write fault (E21) Tens position: Abnormal Motor auto-tuning (E22) Hundreds position: Motor short-circuited to the ground (E23) Thousands position: Inter-phase short circuit (E24) Ten thousands position: Reserved	55000 0: Coast to stop 1: Decelerate to stop 2: Restart allowed 3: Reserved 4: Warning 5: Cancel	★
F9-51	Protection action selection 4 upon fault	Ones position: Accumulative running time reached (E26) Tens position: User-defined fault 1 (E27) Hundreds position: User-defined fault 2 (E28) Thousands position: Accumulative power-on time reached (E29) Ten thousands: Load loss (E30)	50000 0: Coast to stop 1: Decelerate to stop 2: Reserved 3: Reserved 4: Warning 5: Cancel	★
F9-52	Protection action selection 5 upon fault	Ones position: PID feedback loss during running (E31) Tens position: Reserved Hundreds position: Reserved Thousands position: Excessive speed deviation (E42) Ten thousands: Motor overspeed (E43)	52525 0: Coast to stop 1: Decelerate to stop 2: Restart allowed 3: Reserved 4: Warning 5: Cancel	★
F9-53	Protection action selection 6 upon fault	Ones position: Motor overheat (E45) Tens position: Reserved Hundreds position: Reserved Thousands: Reserved Ten thousands position: Reserved	55500 0: Coast to stop 1: Decelerate to stop 2: Reserved 3: Reserved 4: Alarm 5: Cancel	★
F9-54	Frequency for continuing to run upon fault	0: Run at current frequency 1: Run at set frequency 2: Run at frequency upper limit 3: Run at frequency lower limit 4: Run at backup frequency	1	☆
F9-55	Backup frequency reference upon error	6.0% to 100.0% (100.0% corresponds to the maximum frequency F0-10.)	100.0%	☆
F9-56	Motor temperature sensor type	0: No temperature sensor (AI used for analog input) 1: PT100 2: Reserved	0	☆
F9-57	Motor overtemperature protection threshold	0°C to 200°C	⩽ 110°C	☆
F9-58	Motor overtemperature alarm threshold	0°C to 200°C	⩽ 90°C	☆
F9-59	Action upon instantaneous power failure	0: Disable 1: Deceleration 2: Decelerate to stop	0	★
F9-60	Voltage threshold for pausing power dip ride-through function	80% to 100%	85%	☆
F9-61	Time threshold for voltage recovery from power dip ride-through	0.0s and 100.0s	0.5s	☆
F9-62	Voltage threshold for enabling power dip ride-through	60% to 100% (standard bus voltage)	80%	☆
F9-64	Load loss detection level	0.0 to 100.0%	10.0%	☆
F9-65	Load loss detection time	0.0s and 60.0s	1.0s	☆

Para. Code	Parameter Name	Value	Default	Attribute
F9-66	Frequency decimal point upon fault	0 to 546	0	●
F9-67	Overspeed detection level	0.0% to 50.0% (maximum frequency) (Overspeed detection disabled at 0.0%)	5.0%	☆
F9-68	Overspeed detection time	0.0s and 60.0s	1.0s	☆
F9-69	Detection level of excessive speed deviation	0.0% to 50.0% (maximum frequency) (Speed error detection disabled at 0.0%)	20.0%	☆
F9-70	Excessive speed deviation detection time	0.0s and 60.0s	10.0s	☆
F9-71	Power dip ride-through gain	0 to 100	40	☆
F9-72	Power dip ride-through integral	0 to 100	30	☆
F9-73	Deceleration time of power dip ride-through	0.0 to 300.0s	20.0s	☆
Group FA: Process Control PID Function				
FA-00	PID reference source	0: Set by FA-01 1: AI1 2: AI2 4: Pulse reference (DIO1) 5: Communication (1000H) 6: Multi-reference	0	☆
FA-01	PID reference	0.0% to 100.0%	50.0%	☆
FA-02	PID feedback source	0: AI1 1: AI2 3: AI1-AI2 4: Pulse reference (DIO1) 5: Communication (1000H) 6: AI1 + AI2 7: Max. (|AI1|, |AI2|) 8: Min. (|AI1|, |AI2|)	0	☆
FA-03	PID action direction	0: Forward 1: Reverse	0	☆
FA-04	PID reference feedback range	0 to 65535	1000	☆
FA-05	Proportional gain Kp1	0.0 to 1000.0	20.0	☆
FA-06	Integral time Ti1	0.01s and 100.00s	0.30s	☆
FA-07	Derivative time Td1	0.000s and 10.000s	0.000s	☆
FA-08	Reverse PID cut-off frequency	0.00 to maximum frequency	2.00 Hz	☆
FA-09	PID deviation limit	0.0% to 100.0%	0.0%	☆
FA-10	PID differential limit	0.00% to 100.00%	0.10%	☆
FA-11	PID reference change time	0.00 to 650.00s	0.00s	☆
FA-12	PID feedback filter time	0.00 to 60.00s	0.00s	☆
FA-13	PID deviation gain	0.0% to 100.0%	100.0%	☆
FA-15	Proportional gain Kp2	0.0 to 1000.0	20.0	☆
FA-16	Integral time Ti2	0.01s and 100.00s	2.00s	☆
FA-17	Derivative time Td2	0.000s and 10.000s	0.000s	☆
FA-18	PID parameter switchover condition	0: Disable switchover 1: Switchover by DI 2: Automatic switchover based on deviation 3: Automatic switchover based on running frequency 6: Automatic adjustment based on roll diameter 7: Adjustment based on the maximum roll diameter percentage	0	☆

Para. Code	Parameter Name	Value	Default	Attribute
FA-19	PID parameter switchover deviation 1	0 to FA-20	20.0%	☆
FA-20	PID parameter switchover deviation 2	FA-19 to 100.0%	80.0%	☆
FA-21	PID initial value	0.0% to 100.0%	0.0%	☆
FA-22	Hold time of PID initial value	0.00 to 650.00s	0.00s	☆
FA-23	Maximum deviation between two outputs in forward direction	0.00% to 100.00%	1.00%	☆
FA-24	Maximum deviation between two outputs in reverse direction	0.00% to 100.00%	1.00%	☆
FA-25	PID integral property	Stop integral operation 0: Invalid 1: Valid	1	☆
FA-26	Detection level of PID feedback loss	0.0%: No detection on feedback loss 0.1% to 100.0%	0.0%	☆
FA-27	Detection time of PID feedback loss	0.0s and 20.0s	0.0s	☆
Group Fd: Communication Parameters				
Fd-00	Modbus 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	☆
Fd-01	Modbus data format	0: No check (8-N-2) 1: Even parity check (8-E-1) 2: Odd parity check (8-O-1) 3: 8-N-1	0	●
Fd-02	Modbus local address	0: Broadcast address; 1 to 247	1	☆
Fd-03	Modbus response delay time	0 ms to 20 ms	2	☆
Fd-04	Modbus communication timeout time	0.1s to 60.0s 0.0: Invalid	0	☆
FD-05	Current resolution read through RS485 communication	0 to 1	0	●
Fd-06	Automatic reset of communication fault	0: Disable 1: Enable	1	☆
Group FP: Parameter Management				
FP-00	User password	0 to 65535	0	☆
FP-01	Parameter initialization	0: No operation 01: Restore factory parameters (excluding motor parameters and F0-10) 02: Clear records 04: Back up current user parameters 501: Restore user backup parameters	0	★
FP-02	Display of function parameter groups	Ones position: Group U 0: Hide 1: Display Tens position: Group A 0: Hide 1: Display Hundreds position: Group B 0: Hide 1: Display	111	☆

Para. Code	Parameter Name	Value	Default	Attribute
FP-03	Display of user-defined parameter groups	Ones position: User-defined parameter group 0: Hide 1: Display Tens position: User-changed parameter group display 0: Hide 1: Display	11	☆
FP-04	Parameter modification	0: Parameters can be modified. 1: Parameters cannot be modified.	0	☆
FP-05	Parameter operation mode	0: User 1: Expert 2: Manufacturer	0	☆
FP-06	Parameter macro	0 to 10	0	☆
Group A0: Torque Control Parameters				
A0-00	Speed/Torque control selection	0: Speed control 1: Torque control	0	★
A0-01	Torque reference source in torque control mode	0: A0-03 1: AI1 2: AI2 4: Reserved 5: Communication (1000H) 6: Min. (AI1, AI2) 7: Max. (AI1, AI2) (The full range of options 1 to 7 corresponds to the value of A0-03.)	0	★
A0-03	Torque digital setting	-200.0% to +200.0%	100.0%	☆
A0-04	Torque filter time	0.000s to 5.000s	0.000s	☆
A0-05	Speed limit digital setting	-120.0% to +120.0%	0.00%	☆
A0-07	Acceleration time (torque)	0.0s and 650.00s	1.00s	☆
A0-08	Deceleration time (torque)	0.0s and 650.00s	1.00s	☆
A0-09	Speed limit reference source	0: Set by A0-05 1: Frequency reference	0	☆
A0-10	Speed limit offset	0 to F0-10 (maximum frequency)	5.00 Hz	☆
A0-11	Active mode of speed limit offset	0: Bi-directional offset 1: Uni-directional offset	1	★
A0-12	Acceleration time (frequency)	0.0s and 6500.0s	1.0s	☆
A0-13	Deceleration time (frequency)	0.0s and 6500.0s	1.0s	☆
A0-14	Torque mode switchover	0: Disable switchover 1: Switch to speed control mode at stop 2: The target torque is 0 at stop.	1	★
Group A4: Air Compressor PID Control				
A4-00	Air compressor control	0: Standard PID 1: Model predictive control (MPC) 2: Reserved 3: Quick PID (level-two compression unavailable)	0	☆
Group A5: Control Optimization Parameters				
A5-00	Frequency upper limit for DPWM switchover	0.00 Hz to F0-10 (maximum frequency)	12.00 Hz	☆
A5-01	PWM modulation pattern	0: Asynchronous modulation 1: Synchronous modulation	0	☆
A5-02	Dead-zone compensation	0: Disable 1: Enable	1	★
A5-03	Random PWM depth	0: Random PWM inactive 1 to 10: Random PWM carrier depth	0	☆
A5-04	Fast current limit	0: Disable 1: Enable	1 0 (asynchronous motor SVC)	☆

Para. Code	Parameter Name	Value	Default	Attribute
A5-05	Sampling delay time	1 to 13	5	☆
A5-06	Undervoltage threshold	150.0 V to 700.0 V	350.0 V	☆
A5-07	SVC optimization mode	0: No optimization 1: Optimization mode 1 2: Optimization mode 2	1	★
A5-08	Dead-zone time adjustment	100 to 200	150	★
A5-09	Overmodulation selection	0 to 1	0	●
A5-10	Narrow pulse control selection	0 to 1	0	●
A5-11	Switching frequency reduction in vector control	0 to 11	10	☆
A5-13	Bus voltage setting in function part	100 to 2000	5310	●
A5-14	Temperature correction	0: Disable 1: Enable	0	★
A5-16	Displayed parameter address 1	0 to 100	0	●
A5-17	Displayed parameter address 2	0 to 100	1	●
A5-18	Displayed parameter address 3	0 to 100	2	●
A5-19	Displayed parameter address 4	0 to 100	3	●
A5-20	Zero drift online correction	0: Disable 1: Enable	0	★
Group A6: AI Curve Setting				
A6-00	Minimum input of AI curve 4	-10.00 V to A6-02	0.00V	☆
A6-01	Percentage corresponding to minimum input of AI curve 4	-100.0% to +100.0%	0.0%	☆
A6-02	Inflection point 1 input of AI curve 4	A6-00 and A6-04	3.00 V	☆
A6-03	Percentage corresponding to inflection point 1 input of AI curve 4	-100.0% to +100.0%	30.0%	☆
A6-04	Inflection point 2 input of AI curve 4	A6-02 and A6-06	6.00 V	☆
A6-05	Percentage corresponding to inflection point 2 input of AI curve 4	-100.0% to +100.0%	60.0%	☆
A6-06	Maximum input of AI curve 4	A6-06 to +10.00 V	10.00 V	☆
A6-07	Percentage corresponding to maximum input of AI curve 4	-100.0% to +100.0%	100.0%	☆
A6-08	Minimum input of AI curve 5	-10.00 V to A6-10	-10.00V	☆
A6-09	Percentage corresponding to minimum input of AI curve 5	-100.0% to +100.0%	-100.0%	☆
A6-10	Inflection point 1 input of AI curve 5	A6-08 and A6-12	-3.00 V	☆
A6-11	Percentage corresponding to inflection point 1 input of AI curve 5	-100.0% to +100.0%	-30.0%	☆
A6-12	Inflection point 2 input of AI curve 5	A6-10 and A6-14	3.00 V	☆
A6-13	Percentage corresponding to inflection point 2 input of AI curve 5	-100.0% to +100.0%	30.0%	☆

Para. Code	Parameter Name	Value	Default	Attribute
A6-14	Maximum input of AI curve 5	A6-12 to +10.00 V	10.00V	☆
A6-15	Percentage corresponding to maximum input of AI curve 5	-100.0% to +100.0%	100.0%	☆
A6-16	AI1 gain	-10.00 to +10.00	1.00	☆
A6-17	AI1 zero offset coefficient	-100.0% to +100.0%	0.0%	☆
A6-18	AI2 gain	-10.00 to +10.00	1.00	☆
A6-19	AI2 zero offset coefficient	-100.0% to +100.0%	0.0%	☆
A6-24	Jump point set by AI1	-100.0% to +100.0%	0.0%	☆
A6-25	Jump amplitude set by AI1	0.0% to 100.0%	0.5%	☆
A6-26	Jump point set by AI2	-100.0% to +100.0%	0.0%	☆
A6-27	Jump amplitude set by AI2	0.0% to 100.0%	0.5%	☆
Group A8: Air Compressor-Specific Parameters				
A8-00	Test mode	0: Normal mode 1: Tooling test mode 2: Manual loading and unloading mode 1 3: Manual loading and unloading mode 2	0	★
A8-01	Loading delay time	0s to 9999s	8s	☆
A8-02	Warning time	0 hour to 65000 hours	0 hour	☆
A8-03	Pressure sensor function	0: AI3 as the pressure source (P1) 1: AI2 as the pressure source (P2)	0	★
A8-04	Temperature sensor function	0: Select temperature sensor 1 1: Select temperature sensor 2	0	★
A8-05	Pressure sensor range	0.10 Mpa to 5.00 Mpa	1.60 Mpa	☆
A8-07	Constant pressure	0.60 Mpa to 0.80 Mpa	0.70 Mpa	☆
A8-08	Unload pressure	0.70 Mpa to 0.85 Mpa	0.80 Mpa	☆
A8-09	Wakeup pressure (load pressure)	0.00 Mpa to 0.70 Mpa	0.60 Mpa	☆
A8-10	Stop pressure (protection pressure)	0.85 Mpa to 5.00 Mpa	0.90 Mpa	☆
A8-11	Warning pressure	0.80 Mpa to 0.90 Mpa	0.85 Mpa	☆
A8-12	Temperature for stop	105°C to 200°C	110°C	☆
A8-13	Warning temperature	85°C to 110°C	105°C	☆
A8-14	Wakeup time	0s to 9999s	0s	☆
A8-15	Stop preparation time	0s to 9999s	20s	☆
A8-16	Stop and lockout time	0s to 9999s	20s	☆
A8-17	Constant temperature	75°C to 78°C	80°C	☆
A8-18	Blower stop temperature	0°C to 80°C	75°C	☆
A8-19	Blower start temperature	80°C to 105°C	85°C	☆
A8-20	Pre-operation frequency	40.00 Hz to 155.00 Hz	60.00 Hz	☆
A8-21	Pre-operation duration	0s to 9999s	10s	☆
A8-22	Hibernation judgment time	0s to 65535s	20s	☆
A8-23	Air filter maintenance time	0 hour to 65535 hours	2000 h	☆
A8-24	Oil filter maintenance time	0 hour to 65535 hours	2000 h	☆
A8-25	Oil and gas separator maintenance time	0 hour to 65535 hours	2000 h	☆
A8-26	Motor grease maintenance time	0 hour to 65535 hours	2000 h	☆

Para. Code	Parameter Name	Value	Default	Attribute
A8-27	Lubricant maintenance time	0 hour to 65535 hours	2000 h	☆
A8-28	Air filter running time	0 hour to 65535 hours	0 h	☆
A8-29	Oil filter running time	0 hour to 65535 hours	0 h	☆
A8-30	Oil and gas separator running time	0 hour to 65535 hours	0 h	☆
A8-31	Motor grease running time	0 hour to 65535 hours	0 h	☆
A8-32	Lubricant running time	0 hour to 65535 hours	0 h	☆
A8-33	Hibernation pressure	0.60 Mpa to 0.80Mpa	0.75 Mpa	☆
A8-34	Hibernation judgment time upon unloading	0s to 65535s	5s	☆
A8-35	Equipment action selection 0 upon fault	0 to 55555 Ones position: E95 0: Coast to stop 2: Restart 5: Cancel Tens position: E96 0: Coast to stop 5: Cancel Hundreds position: E97 0: Coast to stop 2: Restart 5: Cancel Thousands position: E34 0: Coast to stop 1: Decelerate to stop 4: Warnings are reported and operation continues. 5: Cancel Ten thousands position: E35 0: Coast to stop 1: Decelerate to stop 4: Warnings are reported and operation continues. 5: Cancel	14202	★
A8-36	Equipment action selection 1 upon fault	0 to 55555 Ones position: E36 0: Coast to stop 1: Decelerate to stop 4: Warnings are reported and operation continues. 5: Cancel Tens position: E37 0: Coast to stop 1: Decelerate to stop 4: Warnings are reported and operation continues. 5: Cancel Hundreds position: E38 0: Coast to stop 1: Decelerate to stop 4: Warnings are reported and operation continues. 5: Cancel Thousands position: E39 0: Coast to stop 1: Decelerate to stop 4: Warnings are reported and operation continues. 5: Cancel Ten thousands position: Reserved	51111	★
A8-39	Output current calibration coefficient	70.0% to 120.0%	100.0%	☆
A8-40	Output power calibration coefficient	70.0% to 120.0%	100.0%	☆
A8-41	Pressure calibration coefficient	0.0% to 200.0%	100.0%	☆
A8-42	Temperature calibration coefficient	0.0% to 200.0%	100.0%	☆
A8-43	Accumulative with-load running time	0 hour and 65535 hours	0 hour	☆
A8-44	Running time after pressure warning report	0 hour and 65535 hours	0 hour	☆

Para. Code	Parameter Name	Value	Default	Attribute
A8-45	Running time after temperature warning report	0 hour and 65535 hours	0 hour	☆
A8-46	Pressure or temperature sensor 2 enabling	0 to 11 Ones position: Pressure sensor 2 0: Invalid 1: Valid Tens position: Temperature sensor 2 0: Invalid 1: Valid	0	★
A8-47	Warning value of pressure sensor 2	0.00 Mpa to 5.00 Mpa	0.85 Mpa	☆
A8-48	Protection value of pressure sensor 2	0.00 Mpa to 5.00 Mpa	0.90 Mpa	☆
A8-49	Warning value of temperature sensor 2	0°C to 222°C	105°C	☆
A8-50	Protection value of temperature sensor 2	0°C to 222°C	100°C	☆
A8-51	Mains frequency blower jog command	0 to 1	0	☆
A8-52	Special function enabling	Ones position: Pre-heating function Tens position: Reserved Hundreds position: Reserved Thousands position: Reserved Ten thousands position: Reserved	0	★
A8-53	Low temperature threshold	-20°C to +50°C	0°C	☆
A8-54	Pre-heating exiting threshold	0°C to 100°C	5°C	☆
A8-55	Pre-heating operating frequency threshold	0.00 Hz to 155.00 Hz	10.00 Hz	☆
A8-56	Forced operation at frequency lower limit	0 to 1	0	☆
A8-57	Immediate stop	0 to 1	0	☆
A8-58	Low temperature protection threshold (fault)	-30°C to +20°C	-30°C	★
A8-59	Low temperature protection delay	0 to 1200	120	☆
A8-60	Low temperature protection delay during pre-heating process	0 to 7200	1800	★
A8-61	Normal hibernation shutdown delay	0 to 100	0	☆
A8-62	Reserved	0 to 65535	0	☆
A8-63	Automatic displacement function	0: Disable 1: Enabled	0	★
A8-64	Start pressure	0.00 Mpa to 5.00 Mpa	0.00 Mpa to 5.00 Mpa	☆
A8-65	Start frequency	0.00 Hz to 155.00 Hz	0.00 Hz	☆
A8-66	End pressure	0.00 Mpa to 5.00Mpa	0.00 Mpa	☆
A8-67	End frequency	0.00 Hz to 155.00 Hz	0.00 Hz	☆
A8-68	Time for shutdown upon warning	0 hour to 65535 hours	100 hours	☆
A8-69	Accumulative running time	0 min to 65535 min	0 min	☆
A8-70	Hibernation mode judgment condition	0: Frequency lower limit 1: Hibernation pressure 2: Disable hibernation	0	☆
A8-71	24 V output control	0: Disable 1: Enabled	1	★

Para. Code	Parameter Name	Value	Default	Attribute
A8-72	Mains frequency blower control	Ones position: Automatic control 0: Disable automatic start/stop of the mains frequency blower 1: Enable automatic start/stop of the mains frequency blower Tens position: Manual control 0: Disable manual control of the mains frequency blower 1: Enable manual control of the mains frequency blower. If this option is selected, automatic control is deactivated.	1	★
A8-73	Rated current of mains frequency blower	0.2 A to 5.0 A	2.1 A	★
A8-74	Overload judgment time of mains frequency blower	0s to 3000s	5s	★
A8-75	Pump pressure detection delay	0s to 60000s	10s	★
A8-76	Pump pressure fault judgment delay	0s to 60000s	10s	★
A8-77	Blower start/stop mode (for models with the power above 100 kW)	0 to 4444 Ones position: Blower 1 Tens position: Blower 2 Hundreds position: Blower 3 Thousands position: Blower 4 Each position of A8-77 can be set to one of the following values: 0: Start with the air end 1: Start with the temperature (determined by A8-18, A8-19, and A8-81 to A8-86) 2: Terminal (terminal functions 52, 61, 62, and 63 correspond to blowers 1 to 4) 3: Communication (0x2006 control address: ranges from 0000 to 1111, corresponding to blowers 4 to 1. 0 indicates stop and 1 indicates start.) 4: Digital setting (set by B1-01, and ranges from 0000 to 1111, corresponding to blowers 4 to 1)	11	★
A8-78	Blower speed adjustment mode (for models with the power above 100 kW)	0 to 2222 Ones position: Blower 1 Tens position: Blower 2 Hundreds position: Blower 3 Thousands position: Blower 4 0: Constant temperature PID 1: Communication setting (Addresses 0X2007 to 0x200A correspond to blowers 1 to 4. The set value is a percentage. 10000 indicates 100.00%, and 100.00% corresponds to the maximum frequency B1-08.) 2: Digital setting (set by B1-02 to B1-05)	0	★
A8-79	Simultaneous start/stop of variable frequency blowers (for models with the power above 100 kW)	0 to 1 Simultaneous start/stop of variable frequency blowers 1 and 2	1	★
A8-80	Quantity of blowers (for models with the power above 100 kW)	1 to 4	4	★
A8-81	Stop judgment temperature for blower 2	0 to 80	75	☆
A8-82	Stop judgment temperature for blower 3	0 to 80	75	☆
A8-83	Stop judgment temperature for blower 4	0 to 80	75	☆
A8-84	Start judgment temperature for blower 2	80 to 105	85	☆
A8-85	Start judgment temperature for blower 3	80 to 105	85	☆
A8-86	Start judgment temperature for blower 4	80 to 105	85	☆
A8-87	Hibernation pre-operation	0: Disable 1: Enabled	0	☆
A8-88	Jump frequency	0-600 Hz	0 Hz	☆

Para. Code	Parameter Name	Value	Default	Attribute
A8-89	Temperature detection of variable frequency blower	0: Disable 1: Enable	1	☆
A8-90	NTC disconnection detection time	0s to 6553.5s	10.0	☆
A8-91	Hibernation temperature judgment	0 to 1	0	☆
A8-98	Air compressor running state before power failure	0. Self-inspection at power-on 1: Ready for operation 2: Pre-operational 3: In operation 4: Overpressure 1 5: Overpressure 2 6: Hibernation 7: Stop preparation 8: Stop and lockout 9: Stop 10: Stop upon a fault 11: Stop and lockout upon a fault 12: Hibernation	0	★
A8-99	Restart upon power failure	0: Disable 1: Enable	0	☆
Group A9: Vector Control Supplementary Parameters				
A9-00	Online auto-tuning of rotor time constant for asynchronous motor	0: Disable 1: Enable	0	☆
A9-01	Auto-tuning of rotor resistance gain for asynchronous motor in FVC mode	0 to 100	5	☆
A9-02	Start frequency for auto-tuning on rotor resistance of asynchronous motor in FVC mode	2 Hz to 100 Hz	7	☆
A9-03	Observed magnetic field coefficient of asynchronous motors in FVC mode	30 to 150	40	☆
A9-04	Maximum torque limit coefficient in field-weakening area in vector control	30 to 150	80	☆
A9-05	Speed filter of asynchronous motor in SVC mode	5-32 ms	15 ms	☆
A9-06	Speed feedback processing of asynchronous motor during speed control in SVC mode	0: No special processing 1: Limit the minimum synchronous frequency based on load change 2 and 3: Output the fixed current at low running speed	1	☆
A9-07	Magnetic field regulation bandwidth of asynchronous motor in SVC mode	0-8.0 Hz	2.0 Hz	☆
A9-08	Low-speed running current of asynchronous motor in SVC mode	30 to 170	100	☆
A9-09	Switchover frequency for fixed current output of asynchronous motor in SVC mode	2.0-100.0 Hz	3.0 Hz	☆
A9-10	Speed fluctuation suppression coefficient of asynchronous motor in SVC mode	0 to 6	3	☆
A9-11	Acceleration/Deceleration time of asynchronous motors in SVC mode	0.1s to 3000.0s	20.0s	☆
A9-12	Quick auto-tuning of stator resistance for asynchronous motor before startup	0: Disable 1: Enable	0	☆

Para. Code	Parameter Name	Value	Default	Attribute
A9-13	Quick auto-tuning of stator resistance coefficient 1 for asynchronous motor	0 to 65535	10	★
A9-14	Quick auto-tuning of stator resistance coefficient 2 for asynchronous motor	0 to 65535	10	★
A9-15	Synchronous motor energy-saving control	0 to 10	0	☆
A9-16	Asynchronous motor energy-saving control	0: Disable 1: Enable	0	★
A9-17	Real-time angle of synchronous motor	0 to 65535	0	●
A9-18	Initial angle detection of synchronous motor	0: Detection upon running 1: No detection 2: Detection upon initial power-on	0	☆
A9-20	Field weakening method selection	0: Automatic field weakening 1: Adaptive field weakening for synchronous motor 2: Hybrid field weakening for synchronous motor 3: No field weakening	1	★
A9-21	Field weakening gain of synchronous motor	0 to 50	2	☆
A9-22	Margin of upper limit of synchronous motor output voltage	0% to 50%	5%	☆
A9-23	Maximum torque output tuning gain of synchronous motor	20% to 300%	100%	☆
A9-24	Adjustment gain of calculated excitation current of synchronous motor	40% to 200%	100%	☆
A9-25	Integral gain for speed estimation of synchronous motor in SVC mode	5 to 1000	30	☆
A9-26	Proportional gain for speed estimation of synchronous motor in SVC mode	5 to 300	20	☆
A9-27	Speed estimation filter of synchronous motor in SVC mode	10 to 2000	100	☆
A9-28	Minimum carrier frequency of synchronous motor in SVC mode	0.8 kHz to F0-15	1.5 kHz	☆
A9-29	Low-speed excitation current of synchronous motor	0% to 80%	30%	☆
A9-35	1st fault subcode	0 to 65535	0	●
A9-36	2nd fault subcode	0 to 65535	0	●
A9-37	3nd fault subcode	0 to 65535	0	●
Group AC: AI/AO Correction				
AC-00	AI1 measured voltage 1	-10.000 V to +10.000 V	Factory-calibrated	☆
AC-01	AI1 displayed voltage 1	-10.000 V to +10.000 V	Factory-calibrated	☆
AC-02	AI1 measured voltage 2	-10.000 V to +10.000 V	Factory-calibrated	☆
AC-03	AI1 displayed voltage 2	-10.000 V to +10.000 V	Factory-calibrated	☆
AC-04	AI2 measured voltage 1 (P2+/P2-)	-10.000 V to +10.000 V	Factory-calibrated	☆
AC-05	AI2 displayed voltage 1(P2+/P2-)	-10.000 V to +10.000 V	Factory-calibrated	☆

Para. Code	Parameter Name	Value	Default	Attribute
AC-06	AI2 measured voltage 2 (P2+/P2-)	-10.000 V to +10.000 V	Factory-calibrated	☆
AC-07	AI2 displayed voltage 2 (P2+/P2-)	-10.000 V to +10.000 V	Factory-calibrated	☆
AC-08	AI3 measured voltage 1 (P1+/P1-)	-10.000 V to +10.000 V	Factory-calibrated	☆
AC-09	AI3 displayed voltage 1 (P1+/P1-)	-10.000 V to +10.000 V	Factory-calibrated	☆
AC-10	AI3 measured voltage 2 (P1+/P1-)	-10.000 V to +10.000 V	Factory-calibrated	☆
AC-11	AI3 displayed voltage 2 (P1+/P1-)	-10.000 V to +10.000 V	Factory-calibrated	☆
AC-12	AO1 measured voltage 1	-10.000 V to +10.000 V	Factory-calibrated	☆
AC-13	AO1 target voltage 1	-10.000 V to +10.000 V	Factory-calibrated	☆
AC-14	AO1 measured voltage 2	-10.000 V to +10.000 V	Factory-calibrated	☆
AC-15	AO1 target voltage 2	-10.000 V to +10.000 V	Factory-calibrated	☆
AC-20	PT100 measured voltage 1	-3.300 V to +3.300 V	Factory-calibrated	☆
AC-21	PT100 target voltage 1	-3.300 V to +3.300 V	Factory-calibrated	☆
AC-22	PT100 measured voltage 2	-3.300 V to +3.300 V	Factory-calibrated	☆
AC-23	PT100 target voltage 2	-3.300 V to +3.300 V	Factory-calibrated	☆
AC-28	AO1 measured current 1	0 mA to 20 mA	Factory-calibrated	☆
AC-29	AO1 target current 1	0 mA to 20 mA	Factory-calibrated	☆
AC-30	AO1 target current 2	0 mA to 20 mA	Factory-calibrated	☆
AC-31	AO1 measured current 2	0 mA to 20 mA	Corrected by default	☆
Group B1 Blower Control Parameters (for 100 kW or above models)				
B1-00	Blower axis selection	1-4	1	☆
B1-01	Start/Stop command (valid in the test mode)	0-1111	0	☆
B1-02	Frequency reference of blower 1	-100.00% to +100.00%	0.00%	☆
B1-03	Frequency reference of blower 2	-100.00% to +100.00%	0.00%	☆
B1-04	Frequency reference of blower 3	-100.00% to +100.00%	0.00%	☆
B1-05	Frequency reference of blower 4	-100.00% to +100.00%	0.00%	☆
B1-06	Control mode	0: SVC 2: V/f control	2	★
B1-07	Operation direction	0-1	0	☆
B1-08	Maximum frequency	5.00 Hz to 600.00 Hz	50.00 Hz	★
B1-09	Frequency upper limit	0.00 Hz to 600.00 Hz	50.00 Hz	☆
B1-10	Frequency lower limit	0.00 Hz to 50.00 Hz	0.00 Hz	☆
B1-11	Acceleration time	0.0s to 6500.0s	10.0s	☆
B1-12	Deceleration time	0.0s to 6500.0s	10.0s	☆

Para. Code	Parameter Name	Value	Default	Attribute
B1-13	Motor type	0: Common asynchronous motor 1: Variable frequency asynchronous motor 2: Synchronous motor	0	★

Para. Code	Parameter Name	Value	Default	Attribute
B1-14	Rated motor power	0.1 kW to 10000. kW	3.7 kW	★
B1-15	Rated motor voltage	1 V to 2000 V	380 V	★
B1-16	Rated motor current	0.1 A to 65535.5 A	9.0 A	★
B1-17	Rated motor frequency	0.01 Hz to 50.00 Hz	50.00 Hz	★
B1-18	Rated motor speed	1 RPM to 65535 RPM	1460 RPM	★
B1-19	Auto-tuning mode selection	0: Disable 1: Static auto-tuning of asynchronous motor 2: Complete auto-tuning of asynchronous motor 3: With-load complete auto-tuning of asynchronous motor 4: Reserved 11: No-load partial auto-tuning of synchronous motor (excluding back EMF) 12: No-load dynamic auto-tuning of synchronous motor 13: Complete static auto-tuning of synchronous motor 14: Reserved	0	★
B1-20	Start mode	0: Direct start 1: Flying start (asynchronous motor) 2: Vector per-excitation start (asynchronous motor)	0	☆
B1-21	Flying start	0: From the frequency at stop 1: From 50 Hz 2: From the maximum frequency	0	★
B1-22	Stop mode	0: Decelerate to stop 1: Coast to stop	0	☆
B1-23	Fault protection action selection 0	0-55555	500	★
B1-24	Fault protection action selection 1	0-55555 Ones position: E11 0: Coast to stop 1: Decelerate to stop 2: Special action 4: Warning 5: Cancel Tens position: Reserved 0: Coast to stop 1: Decelerate to stop 4: Warning 5: Cancel Hundreds position: E13 0: Coast to stop 1: Decelerate to stop 2: Special action 4: Warning 5: Cancel Thousands position: E14 0: Coast to stop Ten thousands position: E15 0: Coast to stop 1: Decelerate to stop 4: Warning 5: Cancel	10050	★
B1-25	Fault protection action selection 2	0-55555 Ones position: E16 0: Coast to stop 1: Decelerate to stop 4: Warning 5: Cancel Tens position: Reserved 5: Cancel Hundreds position: Reserved 0: Coast to stop Thousands position: E19 0: Coast to stop 4: Warning 5: Cancel Ten thousands position: Reserved 5: Cancel	50050	★

Para. Code	Parameter Name	Value	Default	Attribute
B1-26	Fault protection action selection 3	0-55555 Ones position: E21 0: Coast to stop Tens position: E22 0: Coast to stop Hundreds position: E23 0: Coast to stop 5: Cancel Thousands position: Reserved 5: Cancel Ten thousands position: E25 2: Decelerate to stop 5: Cancel	15000	★
B1-28	V/f separation voltage source	0: Digital setting (F3-14) 1: AI1 2: AI2 4: Pulse setting (DIO1) 5: Multi-reference 6: Simple PLC 7: PID 8: Communication setting	0	☆
B1-29	V/f separation voltage digital setting	0 V to 380 V	0 V	☆
B1-30	V/f separation voltage acceleration time	0.0s to 1000.0s	0.0s	☆
B1-31	V/f separation voltage deceleration time	0.0s to 1000.0s	0.0s	☆
B1-32	V/f separation stop mode	0: The frequency and voltage decline to 0 independently. 1: The frequency declines to 0 after the voltage declines to 0.	0	★
B1-33	Overcurrent stall suppression function	0: Disable 1: Enable	1	★
B1-34	Overvoltage stall suppression function	0: Disable 1: Enable	1	★
Group B3 Air Compressor Process Parameters 2				
B3-00	Pressure and temperature fault shielding	Ones position: Pressure fault shielding 0: Disable 1: Enable Tens position: Temperature fault shielding 0: Disable 1: Enable	0	☆

A.2 Monitoring Parameter List

Para. Code	Parameter Name	Unit	Communication Address
Group U0: Basic Monitoring Parameters			
U0-00	Operating frequency	0.01 Hz	0x7000
U0-01	Frequency reference	0.01 Hz	0x7001
U0-02	Bus voltage	0.1 V	0x7002
U0-03	Output voltage	1 V	0x7003
U0-04	Output current	0.01 A	0x7004
U0-05	Output power	0.1 kW	0x7005
U0-06	Output torque	0.1%	0x7006
U0-07	DI input state	1	0x7007
U0-08	DO output state	1	0x7008
U0-09	AI1 voltage	0.01 V	0x7009
U0-10	AI2 voltage (P2+/P2-)	0.01 V	0x700A
U0-11	AI3 voltage (P1+/P1-)	0.01 V	0x700B
U0-12	Counting value	1	0x700C
U0-13	Length value	1	0x700D
U0-14	Load speed display	1	0x700E

Para. Code	Parameter Name	Unit	Communication Address
U0-15	PID reference	1	0x700F
U0-16	PID feedback	1	0x7010
U0-17	Low-order bits of accumulative power consumption	0.1	0x7011
U0-18	High-order bits of accumulative power consumption	1	0x7012
U0-19	Feedback speed	0.01 Hz	0x7013
U0-20	Remaining running time	0.1 min	0x7014
U0-21	AI1 voltage before correction	0.001 V	0x7015
U0-22	AI2 voltage before correction (P2+/P2-)	0.001 V	0x7016
U0-23	AI3 voltage before correction (P1+/P1-)	0.001 V	0x7017
U0-24	Internal NTC temperature	1°C	0x7018
U0-25	Current power-on time	1 min	0x7019
U0-26	Current operating time	0.1 min	0x701A
U0-27	Input pulse frequency	1 Hz	0x701B
U0-28	Communication setting value	0.01%	0x701C
U0-29	Encoder feedback speed	0.01 Hz	0x701D
U0-30	Display of main frequency X	0.01 Hz	0x701E
U0-31	Display of auxiliary frequency Y	0.01 Hz	0x701F
U0-33	Synchronous motor rotor position	0.1°	0x7021
U0-34	Motor temperature	1°C	0x7022
U0-35	Target torque	0.1%	0x7023
U0-37	Power factor angle	0.1°	0x7025
U0-38	ABZ position	1	0x7026
U0-39	Target voltage upon V/f separation	1 V	0x7027
U0-40	Output voltage upon V/f separation	1 V	0x7028
U0-41	DI input state display	1	0x7029
U0-42	DO output state display	1	0x702A
U0-43	DI function state display 1	1	0x702B
U0-44	DI function state display 2	1	0x702C
U0-45	Fault subcode	1	0x702D
U0-46	Drive unit temperature	1°C	0x702E
U0-47	Voltage before PTC correction	0.001V	0x702F
U0-48	Voltage after PTC correction	0.001V	0x7030
U0-49	Machine identification code	1	0x7031
U0-50	Total harmonics distortion	h	0x7032
U0-51	Back EMF auto-tuned value	V	0x7033
U0-56	Energy-saving control effective period	1	0x7038
U0-57	Current loading time	0.1h	0x7039
U0-58	Z signal counter	1	0x703A
U0-59	Frequency reference	0.01%	0x703B
U0-60	Operating frequency	0.01%	0x703C
U0-61	AC drive state	1: Ready for operation 2: In operation 3: Hibernation 4: Stop preparation 5: Stop and lockout 6: Stop 7: Stop and lockout upon a fault 8: Stop upon a fault 9: Hibernation 10: Auto-tuning 5744: STO state	0x703D
U0-62	Current fault code	1	0x703E

Para. Code	Parameter Name	Unit	Communication Address
U0-63	Actual running frequency delivered to performance software (after droop)	0.01%	0x703F
U0-65	Stator resistance auto-tuning	1	0x7041
U0-66	Communication expansion card model	1	0x7042
U0-67	Communication expansion card version	1	0x7043
U0-68	Air compressor control state flag	1	0x7044
U0-69	Current displacement	1	0x7045
U0-70	Current running time	1h	0x7046
U0-71	Output current display	1	0x7047
U0-72	Communication card error state	1	0x7048
U0-73	Target torque before filtering	1	0x7049
U0-74	Target torque after filtering	1	0x704A
U0-75	Torque limit mode view	0.1	0x704B
U0-76	Pressure sampling per unit value	0.1	0x704C
U0-77	Pressure display	0.01	0x704D
U0-78	Exhaust temperature	0.1°C	0x704E
U0-79	Exhaust temperature 2	0.1°C	0x704F
U0-81	Electromagnetic valve state	1	0x7051
U0-82	State remaining time	1s	0x7052
U0-83	Proportion (Kp)	0.1	0x7053
U0-84	Integral (Kt)	0.01	0x7054
U0-85	Air compressor running state	1	0x7055
U0-86	Enabling flag bit for restart upon fault	1	0x7056
U0-87	Control pressure reference	0	0x7057
U0-88	Control pressure feedback	0	0x7058
U0-89	Small valve opening mark	0	0x7059
U0-91	Step	0	0x705B
U0-92	Control output	0	0x705C
U0-93	Output factor	0	0x705D
U0-94	Pressure deviation	0	0x705E
U0-95	Protection pressure	0	0x705F
U0-96	Control output	1	0x7060
Group U1: Special Process Monitoring Parameters			
U1-00	Pressure PID reference	1	7100H
U1-01	Pressure PID feedback	1	7101H
U1-02	Temperature PID reference	1	7102H
U1-03	Temperature PID feedback	1	7103H
U1-04	Voltage before temperature 1 correction (PT1+/PT1-)	0.001 V	7104H
U1-05	Voltage before temperature 2 correction (PT2+/PT2-)	0.001 V	7105H
U1-06	Voltage after temperature 1 correction (PT1+/PT1-)	0.001 V	7106H
U1-07	Voltage after temperature 2 correction (PT2+/PT2-)	0.001 V	7107H
U1-08	24 V output state	1	7108H
U1-09	Mains frequency blower output state	1	7109H
U1-10	Motor speed	0.01 RPM	710AH
U1-11	Output current of mains frequency blower	0.1 A	710BH
U1-12	Low pump pressure state	1	710CH
U1-13	Second pressure	0.01 Mpa	710DH
U1-14	Pre-heating flag state	0.1	710EH
Group U2 Blower Monitoring Parameters			
U2-00	Running state 1	1	0x7200

Para. Code	Parameter Name	Unit	Communication Address
U2-01	Fault information 1	1	0x7201
U2-02	Motor running frequency 1	0.01 Hz	0x7202
U2-03	Output voltage 1	1 V	0x7203
U2-04	Output current 1	0.01 A	0x7204
U2-05	Output power 1	0.1 kW	0x7205
U2-06	Type 1 of the 1st fault	1	0x7206
U2-07	Type 1 of the 2nd fault	1	0x7207
U2-08	Type 1 of the 3rd fault	1	0x7208
U2-09	Frequency 1 upon the 3rd fault	0.01 Hz	0x7209
U2-10	Current 1 upon the 3rd fault	0.1 A	0x720A
U2-11	Bus voltage 1 upon the 3rd fault	0.1 V	0x720B
U2-12	Frequency 1 upon the 2nd fault	0.01 Hz	0x720C
U2-13	Current 1 upon the 2nd fault	0.1 A	0x720D
U2-14	Bus voltage 1 upon the 2nd fault	0.1 V	0x720E
U2-15	Frequency 1 upon the 1st fault	0.01 Hz	0x720F
U2-16	Current 1 upon the 1st fault	0.1 A	0x7210
U2-17	Bus voltage 1 upon the 1st fault	0.1 V	0x7211
U2-18	Running state 2	1	0x7212
U2-19	Fault information 2	1	0x7213
U2-20	Motor running frequency 2	0.01 Hz	0x7214
U2-21	Output voltage 2	1 V	0x7215
U2-22	Output current 2	0.01 A	0x7216
U2-23	Output power 2	0.1 kW	0x7217
U2-24	Type 2 of the 1st fault	1	0x7218
U2-25	Type 2 of the 2nd fault	1	0x7219
U2-26	Type 2 of the 3rd fault	1	0x721A
U2-27	Frequency 2 upon the 3rd fault	0.01 Hz	0x721B
U2-28	Current 2 upon the 3rd fault	0.1 A	0x721C
U2-29	Bus voltage 2 upon the 3rd fault	0.1 V	0x721D
U2-30	Frequency 2 upon the 2nd fault	0.01 Hz	0x721E
U2-31	Current 2 upon the 2nd fault	0.1 A	0x721F
U2-32	Bus voltage 2 upon the 2nd fault	0.1 V	0x7220
U2-33	Frequency 2 upon the 1st fault	0.01 Hz	0x7221
U2-34	Current 2 upon the 1st fault	0.1 A	0x7222
U2-35	Bus voltage 2 upon the 1st fault	0.1 V	0x7223
U2-36	Running state 3	1	0x7224
U2-37	Fault information 3	1	0x7225
U2-38	Motor running frequency 3	0.01 Hz	0x7226
U2-39	Output voltage 3	1 V	0x7227
U2-40	Output current 3	0.01 A	0x7228
U2-41	Output power 3	0.1 kW	0x7229
U2-42	Type 3 of the 1st fault	1	0x722A
U2-43	Type 3 of the 2nd fault	1	0x722B
U2-44	Type 3 of the 3rd fault	1	0x722C
U2-45	Frequency 3 upon the 3rd fault	0.01 Hz	0x722D
U2-46	Current 3 upon the 3rd fault	0.1 A	0x722E
U2-47	Bus voltage 3 upon the 3rd fault	0.1 V	0x722F
U2-48	Frequency 3 upon the 2nd fault	0.01 Hz	0x7230
U2-49	Current 3 upon the 2nd fault	0.1 A	0x7231
U2-50	Bus voltage 3 upon the 2nd fault	0.1 V	0x7232
U2-51	Frequency 3 upon the 1st fault	0.01 Hz	0x7233
U2-52	Current 3 upon the 1st fault	0.1 A	0x7234
U2-53	Bus voltage 3 upon the 1st fault	0.1 V	0x7235
U2-54	Running state 4	1	0x7236
U2-55	Fault information 4	1	0x7237
U2-56	Motor running frequency 4	0.01 Hz	0x7238
U2-57	Output voltage 4	1 V	0x7239
U2-58	Output current 4	0.01 A	0x723A

Para. Code	Parameter Name	Unit	Communication Address
U2-59	Output power 4	0.1 kW	0x723B
U2-60	Type 4 of the 1st fault	1	0x723C
U2-61	Type 4 of the 2nd fault	1	0x723D
U2-62	Type 4 of the 3rd fault	1	0x723E
U2-63	Frequency 4 upon the 3rd fault	0.01 Hz	0x723F
U2-64	Current 4 upon the 3rd fault	0.1 A	0x7240
U2-65	Bus voltage 4 upon the 3rd fault	0.1 V	0x7241
U2-66	Frequency 4 upon the 2nd fault	0.01 Hz	0x7242
U2-67	Current 4 upon the 2nd fault	0.1 A	0x7243
U2-68	Bus voltage 4 upon the 2nd fault	0.1 V	0x7244
U2-69	Frequency 4 upon the 1st fault	0.01 Hz	0x7245
U2-70	Current 4 upon the 1st fault	0.1 A	0x7246
U2-71	Bus voltage 4 upon the 1st fault	0.1 V	0x7247
U2-96	Blower 1 power	1 kW	0x7260
U2-97	Blower 2 power	1 kW	0x7261
U2-98	Blower 3 power	1 kW	0x7262
U2-99	Blower 4 power	1 kW	0x7263

A.3 Parameters in Group A8

Group A8: air compressor process-related 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

Setting 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 unloading mode: The electromagnetic valve can be manually closed.

A8-01 Loading delay time

Setting 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

Setting description:

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

A8-03 Pressure sensor function

Setting 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

Setting description:

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

A8-05 Pressure sensor range

Setting description:

This parameter indicates the range of the air compressor pressure.

A8-07 Constant pressure

Setting 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

Setting 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)

Setting 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)

Setting 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

Setting 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

Setting description:

This parameter indicates the temperature for 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

Setting description:

This parameter indicates the warning temperature.

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

A8-14 Wakeup time

Setting description:

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

In the hibernation state, if the wakeup time has expired 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

Setting 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 and lockout" state.

A8-16 Stop and lockout time

Setting description:

This parameter indicates the stop and lockout time.

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

A8-17 Constant temperature

Setting description:

This parameter indicates the constant temperature.

It is used for temperature PID control.

A8-18 Blower stop temperature

Setting description:

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

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

A8-19 Blower start temperature

Setting description:

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

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

A8-20 Pre-operation frequency

Setting 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

Setting 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

Setting 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

Setting 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

Setting 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

Setting 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

Setting description:

This parameter indicates the motor grease maintenance time. It is used together with A8-31 (motor grease running time) 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

Setting description:

This parameter indicates the lubricant maintenance time. It is used together with A8-32 (lubricant running time) 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

Setting 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

Setting 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

Setting 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

Setting 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

Setting description:

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

A8-33 Hibernation pressure

Setting 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

Setting 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 Equipment action selection 0 upon fault

Setting 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 position: Oscillation fault

0-Coast to stop

1-Decelerate to stop

2-Restart upon fault

4-Warnings are reported and operation continues.

5-Cancel

A8-36 Equipment action selection 1 upon fault

Setting description:

This parameter indicates the equipment action selection 1 upon a fault.

Ones position: Blower 1 fault

Tens position: Blower 2 fault

Hundreds position: Blower 3 fault

Thousands position: Blower 4 fault

Ten thousands position: Reserved

0-Coast to stop

1-Decelerate to stop

2-Restart upon fault

4-Warnings are reported and operation continues.

5-Cancel

A8-39 Output current calibration coefficient

Setting description:

This parameter displays the output current calibration coefficient.

A8-40 Output power calibration coefficient

Setting description:

This parameter displays the output power calibration coefficient.

A8-41 Pressure calibration coefficient

Setting description:

This parameter displays the pressure calibration coefficient.

A8-42 Temperature calibration coefficient

Setting description:

This parameter displays the temperature calibration coefficient.

A8-43 Accumulative with-load running time

Setting description:

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

A8-44 Running time after pressure warning report

Setting 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 "stop caused by long-time existence of a pressure warning" is triggered.

A8-45 Running time after temperature warning report

Setting 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

Setting 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

Setting 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

Setting 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

Setting description:

This parameter is used to set the warning 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 A8-49, the temperature sensor 2 warning is triggered.

A8-50 Protection value of temperature sensor 2

Setting 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

Setting description:

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

0-Stop

1-Operation

A8-52 Special function enabling

Setting 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 (pre-heating exiting temperature threshold), and A8-55 (pre-heating 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 pre-heating exiting temperature threshold (A8-54), the air compressor starts to run normally.

A8-53 Low temperature threshold

Setting 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

Setting 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

Setting description:

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

A8-56 Forced operation at frequency lower limit

Setting 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

Setting 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 enters the "stop and lockout" state from the "stop preparation" state after the stop preparation time (A8-15) expires. Then it enters the "stop" state after the stop and 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

Setting 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

Setting 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

Setting 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

Setting 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

Setting description:

This parameter is 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

Setting description:

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

A8-65 Start frequency

Setting description:

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

A8-66 End pressure

Setting description:

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

A8-67 End frequency

Setting description:

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

A8-68 Time for shutdown upon warning

Setting 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

Setting description:

This parameter displays the accumulative running time of the air compressor, which can be modified.

A8-70 Hibernation mode judgment condition

Setting description:

This parameter is used to select the judgment condition for hibernation.

0-Frequency lower limit

1-Hibernation pressure

It has been introduced in A8-22.

A8-71 24 V output control

Setting description:

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

0-Disable

1-Enable

A8-72 Mains frequency blower control

Setting description:

This parameter is used set the mains frequency blower control function. Ones position: Automatic control; tens position: Manual control

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 air end is running and not in the tuning state, the mains frequency blower runs; if the air end stops, the mains frequency blower stops.

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

Set the tens position to 1:

Start or stop of the mains frequency blower is determined by A8-51. When A8-51 is set to 1, the mains frequency blower starts. When A8-51 is set to 0, the mains frequency blower stops.

A8-73 Rated current of mains frequency blower

Setting 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

Setting description:

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

A8-75 Pump pressure detection delay

Setting description:

This parameter is used to set the pump pressure detection delay time.

A8-76 Pump pressure fault judgment delay

Setting description:

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

A8-77 Blower start/stop mode

Setting 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 position: Blower 1

Tens position: Blower 2

Hundreds position: Blower 3

Thousands position: Blower 4

0-Start/stop with the air end

1-Start/stop with the temperature

2-Terminal control

3-Communication control (communication address: 0x2006. The ones, tens, hundreds, and thousands positions of the control command indicate blowers 1 to 4, respectively.)

4-Operating panel control (The ones position to thousands position of B1-01 indicate blower 1 to blower 4.)

A8-78 Blower speed adjustment mode

Setting description:

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

Ones position: Blower 1

Tens position: Blower 2

Hundreds position: Blower 3

Thousands position: Blower 4

0-Constant temperature PID

1-Communication (communication address 0x2007: speed setting of blower 1; communication address 0x2008: speed setting of blower 2; communication address 0x2009: speed setting of blower 3; communication address 0x200A: speed setting of blower 4)

2-Operating panel to set the speed of blower 1 to blower 4 (B1-02 to B1-05)

A8-79 Simultaneous start/stop of variable frequency blowers

Setting 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

Setting description:

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

A8-81 Blower 2 stop judgment temperature

Setting description:

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

A8-82 Blower 3 stop judgment temperature

Setting description:

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

A8-83 Blower 4 stop judgment temperature

Setting description:

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

A8-84 Blower 2 start judgment temperature

Setting description:

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

A8-85 Blower 3 start judgment temperature

Setting description:

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

A8-86 Blower 4 start judgment temperature

Setting description:

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

A8-87 Hibernation pre-operation

Setting 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

Setting description:

This parameter is used to set the frequency that has been skipped.

A8-89 Temperature detection of variable frequency blower

Setting 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 variable frequency blower and the driver module temperature.

A8-90 NTC disconnection detection time

Setting 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

Setting 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

Setting 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

Status word used to read the AC drive status

Status Word Address	Status Word Function (Air Compressor Mode)	Status Word Function (Non-Air Compressor Mode)
3000H	1: Ready for operation	1: Forward running
	2: Operation	2: Reverse running
	3: Hibernation	3: Stop
	4: Ready for stop	8: Fault
	5: Stop blocked	10: Auto-tuning
	6: Stop	-
	7: Stop blocked due to fault	-
	8: Stop due to fault	-
	9: AC drive hibernation	-
	10: Auto-tuning	-

Control command input to the AC drive

Control Command Address	Control Command Function
2800H/2000H	0: Stop according to the value of F6-10
	1: Forward running
	2: Reverse running
	3: Forward jogging
	4: Reverse jogging
	5: Coast to stop
	6: Decelerate to stop
	7: Fault reset

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