Hopewind

HV300 Series General Purpose Drives

0.4kW - 500kW

(0.5hp -660hp)

User Manual

Shenzhen Hopewind Electric Co.,Ltd

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User Manual

Version：1.0

General information

Dear customer,

Thank you for purchasing and using our products. We hope that our products adequately address your needs. While we strive to design and produce the best products we can, your suggestions and ideas for improvement are always welcome.

About this Manual

Target Audience

This manual is intended for qualified electricians and service technicians involved in the installation and service of the HV300 series drives. Read this manual before working on the drive. Installers and technicians are expected to understand standard electrical wiring practices, electronic components, electronic schematic symbols and mechanical drawings.

Contents of The Manual

	Safety Precautions	This chapter contains the safety precautions which must be followed during installation, operation, and maintenance of the drive.
	Product	This chapter contains basic product information such as operating principles, dimensions, and technical data of the drive.
	Installation and Cabling	This chapter contains instructions for safely and properly installing and connecting the product to your electrical bus and controlled products.
	Operation and Display	This chapter contains details about the operation of the HV300 series drives and usage of the included keypad.
	Parameters	This chapter contains parameter groups of the drive and their functions and description.
	Troubleshooting	This chapter contains general problems of the product and trouble-shooting method.
	Maintenance	This chapter mainly introduces how to maintain the main parts of the product.
	Appendix	Communication, Options, parameters

Service and Consultation

Visit our website http://www.hopewindusa.com for further information about our products, technical solutions, case studies, and more information.

Symbols and Labels

There are safety instructions throughout this manual. Warning symbols caution you about conditions which can result in serious injury or death and/or damage to the equipment, and advise you how to avoid the danger.

There are also warning labels on the body of drive. These caution you to follow the safety instructions when operating corresponding parts.

Warning Symbols in This Manual

 WARNING
This symbol is the “Electricity Warning” which warns of hazards from electricity which can cause serious physical injury and/or damage to the equipment.

 WARNING
This symbol is the “General Warning” which warns about conditions, other than those caused by electricity, which can result in physical injury and/or damage to the equipment.

Note： The "Note" is additional information in the manual meant to emphasize and/or explain the contents. It may be able to help you solve a problem or make it easier to understand.

Table of Contents

1 Safety Instructions

This chapter contains safety instructions which you must follow. If ignored, physical injury or death may follow, or damage may occur to the drive. Please carefully read the safety instructions before you work on the drive.

1.1 General Warnings

WARNING

1. Only qualified or professional electricians are allowed to work on the drive.
2. The process of placing or lifting the unit must be slow. Quick movements and rough handling may cause damage to drive.
3. During installation or maintenance, liquid, dust or debris must be kept away from the drive internals.
4. Never work on the drive or motor when input power is applied.
5. Use appropriate electrical safety equipment to avoid electric shock, personal injury, or fire.

1.2 Storage and Transportation

WARNING

1. When transporting or handling the drive, handle with care.
2. Load carefully without impact!
3. If the drive has been stored without use for a period in excess of 2 years, input voltage should be gradually increased upon energization to avoid capacitor failure.
4. When moving or transporting the larger size drives, ensure that the center of gravity is kept low. An overturning drive can cause physical injury and damage to the drive.
5. Requirements of storage:

- At standard atmospheric pressure, the unit can be stored at temperatures between -104° F (-40° C) to 158° F (70° C), with a rate of change less than 1° per minute.
- Relative humidity 0-90%, absolute humidity 0-29g/m^3. Lbs water per lb dry air

1.3 Installation

WARNING

1. The installation area must be of non-flammable material, and strong enough to support the weight of the drive.
2. Make sure that there are no inductive and explosive dust or gas near the installation.
3. Protect the drive against dust and electrically conductive debris. Electrically conductive debris inside the drive may cause damage or malfunction.
4. Make sure that the installation site is without direct sunlight or violent vibrations.
5. Make sure there is sufficient cooling.
6. Make sure that all cable terminations are tightened to the proper torque values.
7. Wire conductor connected to the drive must comply with the local and state standards.

1.4 Cabling

WARNING

1. Cabling of optional features should follow the procedures in this manual.
2. Make sure that supply wiring is de-energized prior to electrical connection.
3. Grounding of the drive must comply with local electrical code requirements.
4. Do not interrupt power to the drive with a contactor.
5. Observer proper phase rotation on supply wiring.
6. Do not directly connect the brake resistor to DC bus(+) and bus (-) , or a fire can occur.
7. Cable selection should refer to this manual.
8. Do not open the cover when the power is on.
9. Do not touch any parts of the drive with wet hands.
10. Isolate the cables from the drive when testing the insulation resistance or withstand voltage of the power cables or the motor.

WARNING

1. Make sure that voltage level of input power supply is corresponding to the drive.
2. Do not subject the drive to any withstand voltage tests.
3. The control cables should be shielded, and ground the shield.
4. Cabling should comply with related EMC requirements.

1.5 Operation and Troubleshooting

WARNING

1. Avoid contact with moving parts of the drive
2. Avoid contacting discharge resistors due to shock and burn risk!
3. Only a qualified electrician should perform measurements on the drive while energized.
4. Do not let foreign matter go into the drive while it is running.
5. Do not block or cover the ventilation openings while the drive is running.
6. Do not open the cover of the drive when the drive runs!

1.6 Maintenance

 WARNING

1. Only qualified or professional electricians are allowed to maintain the drive
2. Do not perform maintenance on the drive or motor when power is on. After you disconnect the drive, wait at least 10 minutes to let the DC capacitors discharge.
3. Make sure that the voltage between the DC bus and the grounding terminal (PE) is close to 0V before maintenance.
4. Do not leave any tools inside the drive.

1.7 Electrostatic

 WARNING

Do not touch the boards unless it is necessary for troubleshooting or maintenance. The boards contain components sensitive to electrostatic discharge.

1.8 Additional Safety Precautions

1）Checking insulation of the motor and cable

Check insulation of the motor and cable prior to first use.

Measure the insulation resistance between the phase conductors and between each phase conductor and the PE. Disconnect the motor from the drive. Use a measuring voltage of 500V DC. The resistance of the motor must exceed 5MΩ.

2）Thermal protection of motor

It is essential that the correct value is entered in the drive. This affects the thermal protection of the motor.

3）Low speed operation

If the motor runs at low speed for an extended period of time, overheating may occur. It may be necessary to derate the output tourque, or use a variable frequency motor.

4）Resonance point with the load

Set the skip frequency parameter of the drive to avoid the resonance point with the load.

5）Frequent startup/stop

Interface with the input terminals to control frequent drive startup and stop commands.

6）Motor parameters

Modify the default motor parameters according to actual conditions, or through the use of the autotune function.

2

Product introduction

2.1 Operating Principles

HV300 drives, through AC-DC-AC conversion, supply variable frequency power to a motor. When the voltage in the DC bus is over limit, the brake unit will be activated and absorb the feedback energy so as to protect the drive.

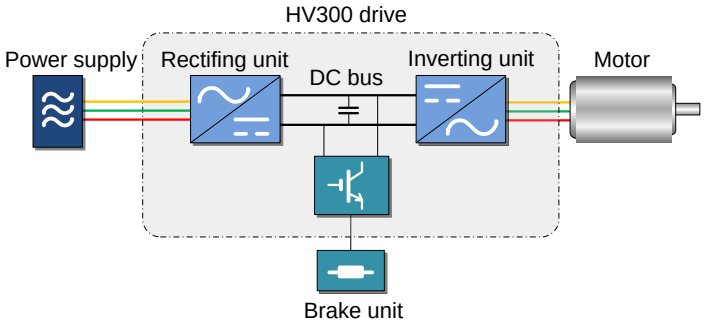

Figure 2-1 HV300 drive

2.2 Rating Label

Hopewind

Model	HV300-A04T00022GB
Input	3PH 380VAC~480VAC 48Hz~62Hz 8.3A
Output	3PH 0V~Input 0Hz~300Hz 5.8A
Power	2.2kW/3.8kVA

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Figure 2-2 HV300 rating label (Single power type)

Hopewind

Model	HV300-A04T00110
Input	3PH 380VAC~480VAC 48Hz~62Hz 24A/31A
Output	3PH 0V~Input 0Hz~300Hz 25A/32A
Power	G:11kW/16.5kVA P:15kW/21kVA

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Figure 2-3 HV300 rating label (Double power type)

NOTE: Size A, B, C are single type. Size D and above are G/P type.

2.3 Model Reference

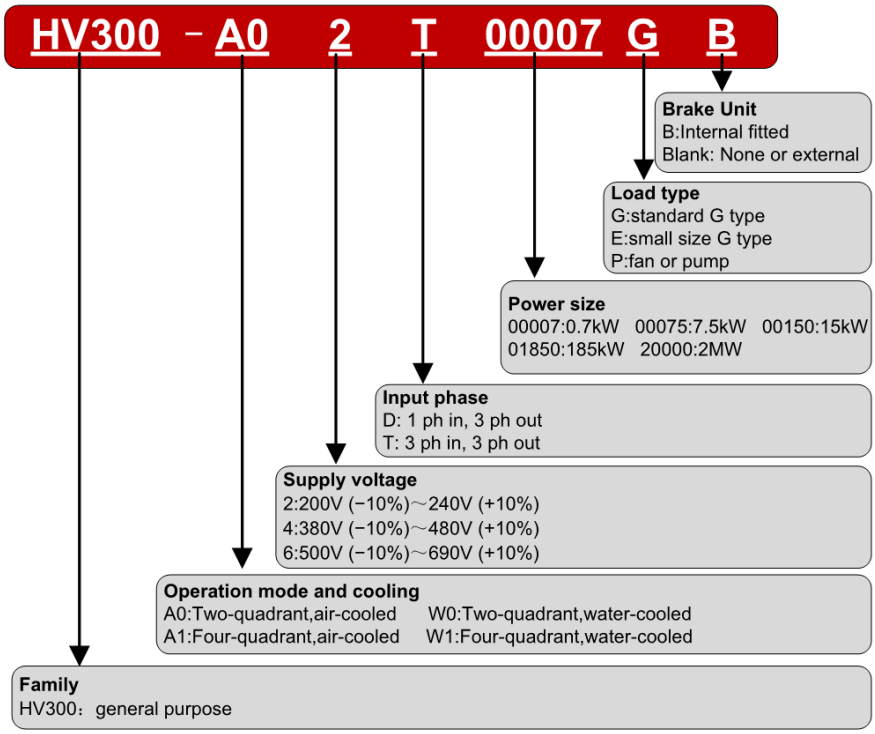
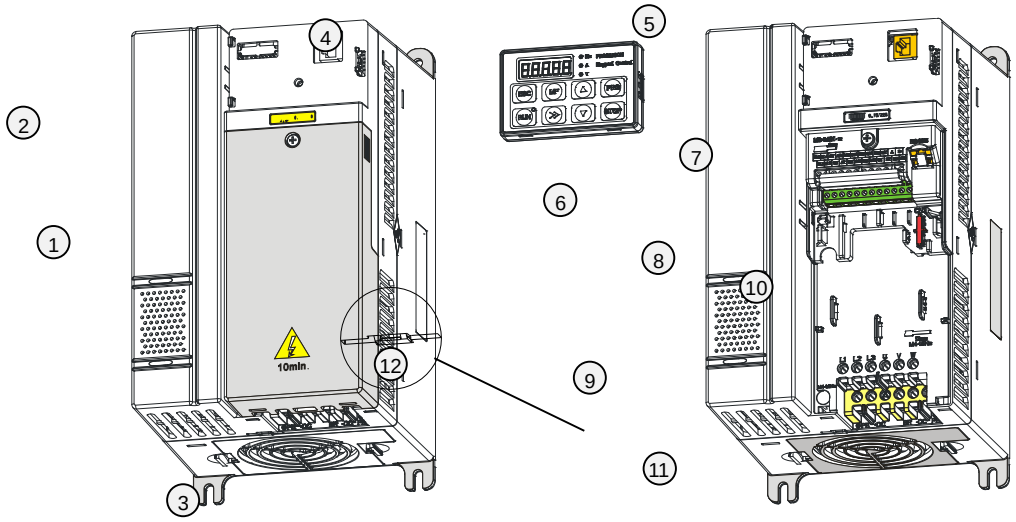


Figure 2-4 HV300 model description

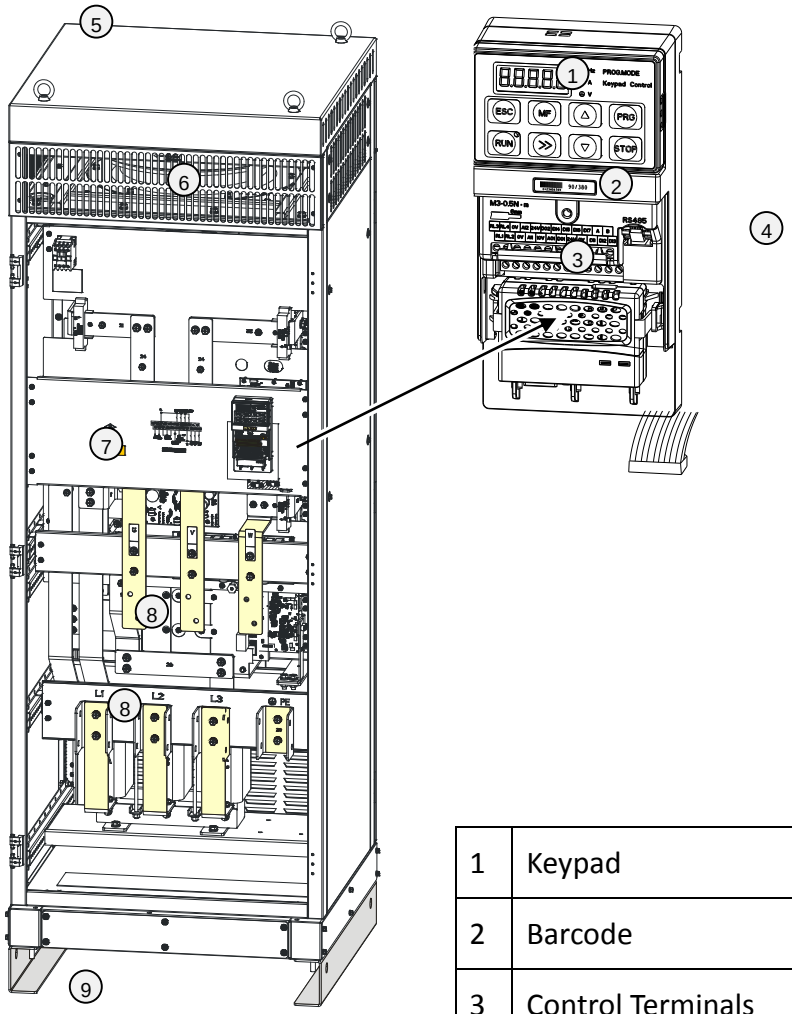
2.4 Standard Drive Components

2.4.1 Size C Drives



1	Terminal Cover	7	RS485 port
2	Barcode	8	Option Connector
3	Mounting holes	9	Power Terminals
4	Keypad	10	Rating Label
5	Keypad Connector	11	Cooling Fan
6	Control Terminals	12	EMC Filter Link

2.4.2 Size L Drives



1	Keypad
2	Barcode
3	Control Terminals
4	RS485 Port
5	Lifting Eyes
6	Cooling Fan
7	Rating Label
8	Power Terminals
9	Base

2.5 Power Ratings

The power ratings of the HV300 are based on applications utilizing a standard 4-pole induction motor at the rated voltage.

G：constant torque applications.

P：variable torque applications like fans and pumps.

Overload capacity of G type: 150% rated output current, 1 minute

Overload capacity of P type: 110% rated output current, 1 minute

(F_{dcf}: Default carrier frequency)

2.5.1 220V Rating Data

Power supply: 200Vac-240Vac, 50Hz/60Hz, single/three phase						
Model Name	F_{dcf} kHz	Drive Power Size kVA	Rated Input Current A	Rated Output Current A	Motor Power kW(HP)	Size
			1/3PH			
HV300-A02D00004GB	6	1.1	7.1/4	2.8	0.4(0.5)	A
HV300-A02D00007GB	6	1.9	12.8/7.1	5	0.75(1)	A
HV300-A02D00015GB	6	3.0	20.5/11.3	8	1.5(2)	A
HV300-A02D00022GB	6	4.2	24/14.5	11	2.2(3)	B
HV300-A02D00040GB	6	6.7	29/16.5	17.6	4(5)	C

2.5.2 380V Rating Data

Power supply: 380Vac-480Vac, 50Hz/60Hz, three phase										
Model Name	F_{dcf} kHz	G				P				Size
		Drive Power Size kVA	Rated Input Current A	Rated Output Current A	Motor Power kW(hp)	Drive Power Size kVA	Rated Input Curr A	Rated Output Curr A	Motor Power kW(hp)	
HV300-A04T00007GB	6	1.7	3.6	2.5	0.75(1)	–	–	–	–	A
HV300-A04T00015GB	6	2.8	5.7	4.2	1.5(2)	–	–	–	–	A
HV300-A04T00022EB	6	3.4	6.1	5.2	2.2(3)					A
HV300-A04T00022GB	6	3.8	8.3	5.8	2.2(3)	–	–	–	–	B
HV300-A04T00040GB	6	6.3	13.2	9.5	3.7(5)	–	–	–	–	B
HV300-A04T00055EB	3	8.6	14.3	13	5.5(7.5)	–	–	–	–	B
HV300-A04T00055PB	3	–	–	–	–	8.6	14.3	13	5.5(7.5)	B
HV300-A04T00055GB	6	8.6	12.4	13	5.5(7.5)	–	–	–	–	C
HV300-A04T00075GB	6	11	16.1	17	7.5(10)	–	–	–	–	C
HV300-A04T00110PB	3	–	–	–	–	15.2	21	23	11(15)	C
HV300-A04T00110B	6	16.5	24	25	11(15)	21	31	32	15(20)	D
HV300-A04T00150B	6	21	31	32	15(20)	25	36	38	18.5(25)	D
HV300-A04T00185B	6	25	36	38	18.5(25)	30	44	46	22(30)	E
HV300-A04T00220B	6	30	44	46	22(30)	40	58	60	30(40)	E
HV300-A04T00300EB	3	40	58	60	30(40)	50	72	75	37(50)	E1
HV300-A04T00370EB	3	50	72	75	37(50)	–	–	–	–	E1
HV300-A04T00300B	3	40	58	60	30(40)	50	72	75	37(50)	F
HV300-A04T00370B	3	50	72	75	37(50)	63	93	96	45(60)	F
HV300-A04T00450B	3	63	93	96	45(60)	83	121	125	55(75)	F
HV300-A04T00450EB	3	63	93	96	45(60)	–	–	–	–	F1
HV300-A04T00550B	3	83	121	125	55(75)	103	151	156	75(100)	F
HV300-A04T00750B	3	103	151	156	75(100)	119	175	180	90(125)	F
HV300-A04T00900B	3	119	175	180	90(125)	139	204	210	110(150)	G
HV300-A04T01100B	3	139	204	210	110(150)	169	248	256	132(200)	G
HV300-A04T01320B	3	169	248	256	132(200)	205	301	310	160(250)	G
HV300-A04T01600B	3	205	301	310	160(250)	231	340	350	185(-)	J
HV300-A04T01850B	3	231	340	350	185(-)	255	375	387	200(300)	J
HV300-A04T02000B	3	255	375	387	200(300)	280	415	427	220(300)	J
HV300-A04T02500B	3	310	457	471	250(400)	343	505	520	280(370)	K
HV300-A04T02800B	3	343	505	520	280(370)	403	592	610	315(500)	K
HV300-A04T03150B	2	403	592	610	315(500)	444	653	673	355(520)	L
HV300-A04T03550B	2	444	653	673	355(520)	495	728	750	400(530)	L
HV300-A04T04000B	2	495	728	750	400(530)	551	810	835	450(600)	L
HV300-A04T04500B	2	551	810	835	450(600)	622	915	943	500(660)	L

2.5.3 690V Rating Data

Power supply: 500Vac-690Vac, 50Hz/60Hz, three phase										
Model Name	F_{dcf} kHz	G				P				Size
		Drive Power Size (kVA)	Rated Input Current (A)	Rated Output Current (A)	Motor Power kW(hp)	Drive Power Size (kVA)	Rated Input Current (A)	Rated Output Current (A)	Motor Power kW(hp)	
HV300-A06T00300B	3	43	36	36	30(40)	51	42	43	37(50)	F
HV300-A06T00370B	3	51	42	43	37(50)	65	52	54	45(60)	F
HV300-A06T00450B	3	65	52	54	45(60)	75	61	63	55(75)	F
HV300-A06T00550B	3	75	61	63	55(75)	103	83	86	75(100)	F
HV300-A06T00750B	3	103	83	86	75(100)	120	97	100	90(125)	F
HV300-A06T00900B	3	120	97	100	90(125)	157	127	131	110(150)	G
HV300-A06T01100B	3	157	127	131	110(150)	179	145	150	132(200)	G
HV300-A06T01320B	3	179	145	150	132(200)	209	170	175	160(250)	G
HV300-A06T01600B	3	209	170	175	160(250)	237	192	198	185(-)	J
HV300-A06T01850B	3	237	192	198	185(-)	276	224	231	200(300)	J
HV300-A06T02000B	3	276	224	231	200(300)	296	235	248	220(300)	J
HV300-A06T02500B	3	327	266	274	250(400)	350	285	293	280(370)	K
HV300-A06T02800B	3	350	285	293	280(370)	392	318	328	315(500)	K
HV300-A06T03150B	2	392	318	328	315(500)	462	375	387	355(520)	L
HV300-A06T03550B	2	462	375	387	355(520)	509	413	426	400(530)	L
HV300-A06T04000B	2	509	413	426	400(530)	576	468	482	450(600)	L
HV300-A06T04500B	2	576	468	482	450(600)	651	529	545	500(660)	L

NOTE:

1. Only those drives with a “B" in the model number are fitted with brake units. In addition:
   - 22kW and below, the drives have internal bake unit, the model name of these drives contain "B".
   - 30kW and above, the brake unit is optional. If no need, delete the "B" in the model name.
2. When HV300-A0xT01320 and HV300-A0xT03150 is used as P type, the default carrier frequency is 1kHz.

2.6 General Technical Data

Input Power	Input Voltage Uin	200V (-10%) – 240V (+10%) 1/3 PH 380V (-10%) - 480V (+10%) 3PH 500V (-10%) – 690V (+10%) 3PH
	Input Frequency	50/60Hz (±2Hz)
	Maximum Supply Imbalance	≤3%
Power Output	Output Voltage	0V — Uin
	Output Frequency	0Hz — 300Hz
Main Performance Function	Voltage Control	V/F, Open loop Vector Control
	Switching Frequency	1kHz — 15kHz
	Adjust Speedrange	Open loop vector -1:100, V/F mode -1:50
	Start Torque	0.5Hz: 100% rated torque, 1Hz: 150% rated torque
	Torque Accuracy	5%
	Reference resolution	Digit- 0.01Hz, Analog- 0.1%×Max. frequency
	Acce. & Dece. rate	0.1s — 3600min
	Voltage Boost	0.1% — 30.0%
	Overload	E, G type: 150% rated output current, 1 minute P type: 110% rated output current, 1 minute
	V/F	4 types: V/F (user can program) and ramp (2.0 power, 1.7 power, 1.2 power)
	DC Braking	Injection frequency: 0.0% — 100.0% Max. frequency Injection current: 0.0% — 300.0% rated current Injection time: 0.00s — 60.00s
	Dynamic Brake	Brake rate: 0.0% — 100.0%
	Jog	Jog frequency: 0.00Hz — maximum frequency Jog acceleration rate: 0.1s — 600.0s Jog interval time: 0.1s — 600.0s
	Preset	16 preset speeds (decided by control terminals)
	AVR	Maintain the rated output voltage when the input power supply voltage changed
Special Function	Textile	For textile machine control
	Simple PLC	Onboard PLC
	Length Control	Winding control
	PID Control	Process control (reference close loop control)
	Advanced Function Blocks	2 logic control blocks, 1 binary selector, 2 threshold control blocks, 3 variable selectors

Control Terminal	Reference Source	Digit: Keypad, motorized pot (E-Pot), preset speed, pulse, comms.
		Analog: AI1: 0V — 10V, 0(4) mA — 20mA. AI2: 0V — 10V
	Operating Mode	Keypad, Control terminal, Serial comms.
	Digital Input Terminals	DI1 — DI7: Programmable terminals and DI6 can be set as pulse input, 0Hz — 60Hz. DI7 can be high frequency pulse input (1kHz — 50.0kHz) or PTC thermistor input
	Digital output terminals	DO1 — DO2: Programmable terminals, Max. output current: 50mA, DO2can be the terminal to output pulse (0.1kHz — 50.0kHz), and output PWM
	Analog output	AO1: programmable terminal, 0V — 10V
	Status relay	2 programmable relays, contactor data: AC250V/2A(COSϕ=1) AC250V/1A(COSϕ=0.4) DC30V/1A
Comms.	Connector	2 terminals (A&B) and RJ45 Port
	Protocol	Modbus RTU
Environment	Altitude	1000m rated 1000m — 3000m, 1% rated current derating per 100m
	Operating Temperature	−10°C — +40°C
	Max. Humidity	≤90%RH, no-condensing
	Vibration	≤5.9m/s^2 (0.6g)
	Storage Temperature	−40°C — +70°C
	Running Environment	Indoor, non-flammable, no corrosive gasses, no contamination with electrically conductive material, avoide dust which may restrict the fan
Optional Module		LCD keypad, HV-232, HV-USB, Profibus module, keypad dock, HVSOFT (PCTools), etc.
Protection		Output shortage, over current, over load, over voltage, under Voltage, Phase loss, over heat (heatsink and junction), external trip, etc.
Efficiency		1.5kW(2hp) and below: ≥89% 2.2kW(3hp) — 22kW(30hp): ≥93% 30kW(40hp) and above: ≥95%
Mounting Method		Surface mounting, through hole, cubicle standing
Enclosure		IP20, IP21 (by adding optional device)
Cooling Method		220V/0.4kW(0.5hp) model is nature cool, others are forced air cool

3 Installation and Cabling

3.1 Preparing for Installation

The HV300 packaging includes the following markings:

Symbol	Description	Remarks
	Handle with care	
	This side up	
	Protect the packaging from water damage	
	Do not stack more than 2 high	

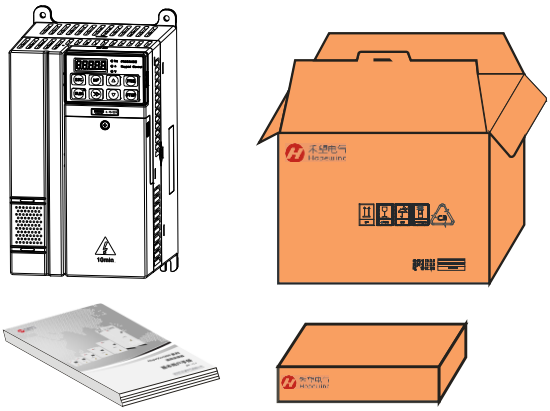
3.2 Unpacking and Examination

Upon delivery receipt, examine the packaging to ensure that all items are present and there are no signs of damage：

1. Open the packaging and examine the condition of the drive.
2. Read the data on the labeling of the drive to make sure that the drive is of the correct type.

Included in the packaging:

- Drive
- User manual
- Options(if ordered)



Every drive has been tested and checked prior to shipping. If any damage or problems are discovered, please contact us.

3.3 Mounting tools

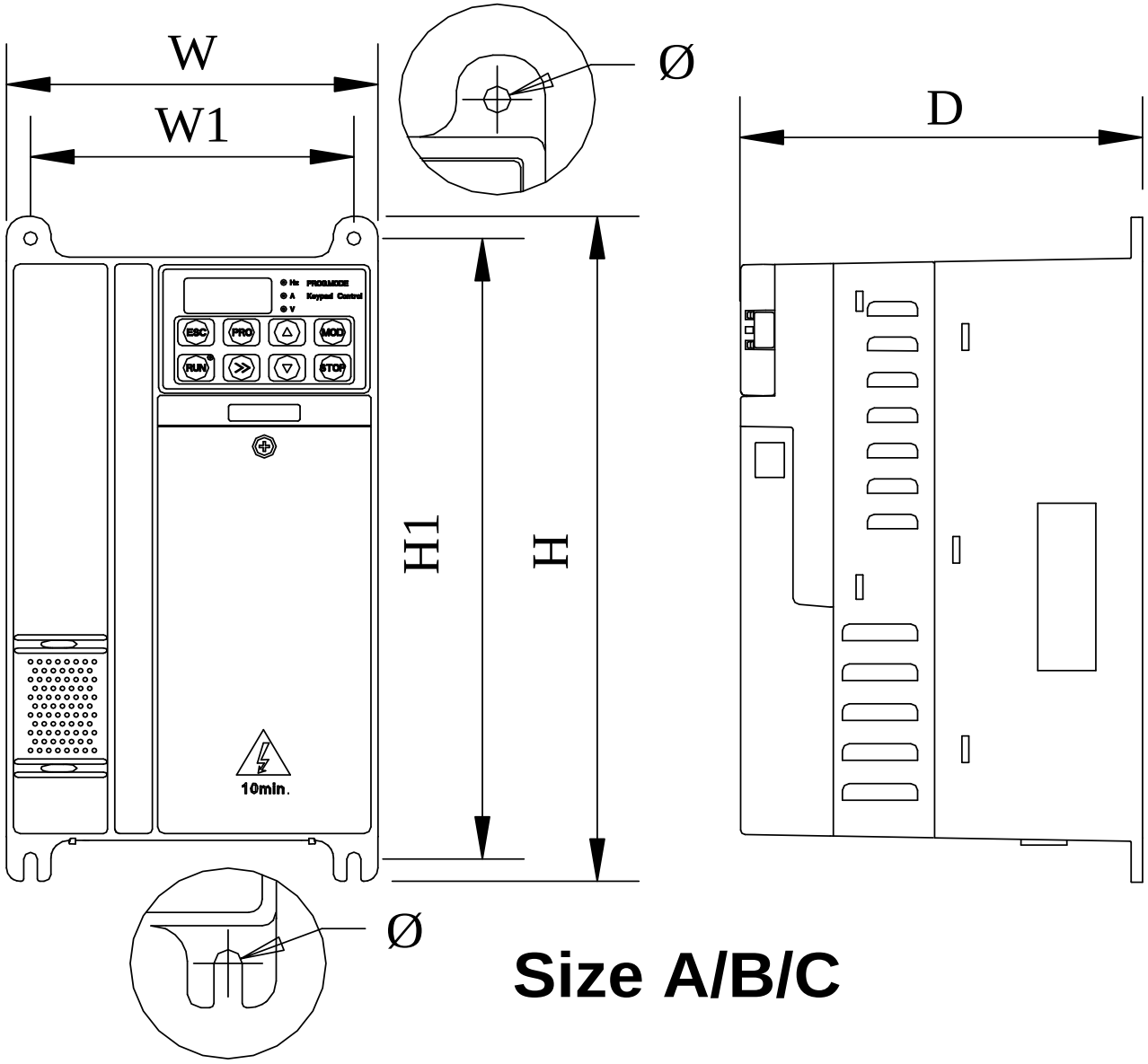
Tape measure, screwdriver, drill, spanner

3.4 Ambient conditions

	Operation **Installed for stationary use**	**Storage** **In the package**	**Transportation** **In the package**
Air temperature	−10°C — +40°C temperature changing rate <1℃ /min	-40-70℃, temperature changing rate <1℃ /min	-40-70℃, temperature changing rate <1℃ /min
Relative humidity	≤ 90% absolute humidity <29g/m^3	≤90% absolute humidity <35g/m^3	≤90%
Wet conditions	No consideration and corrosive gases allowed	No consideration and corrosive gases allowed	No consideration and corrosive gases allowed
Installation site altitude	0-1000m. (1000m — 3000m, derating is 1% for every 100m)	/	/

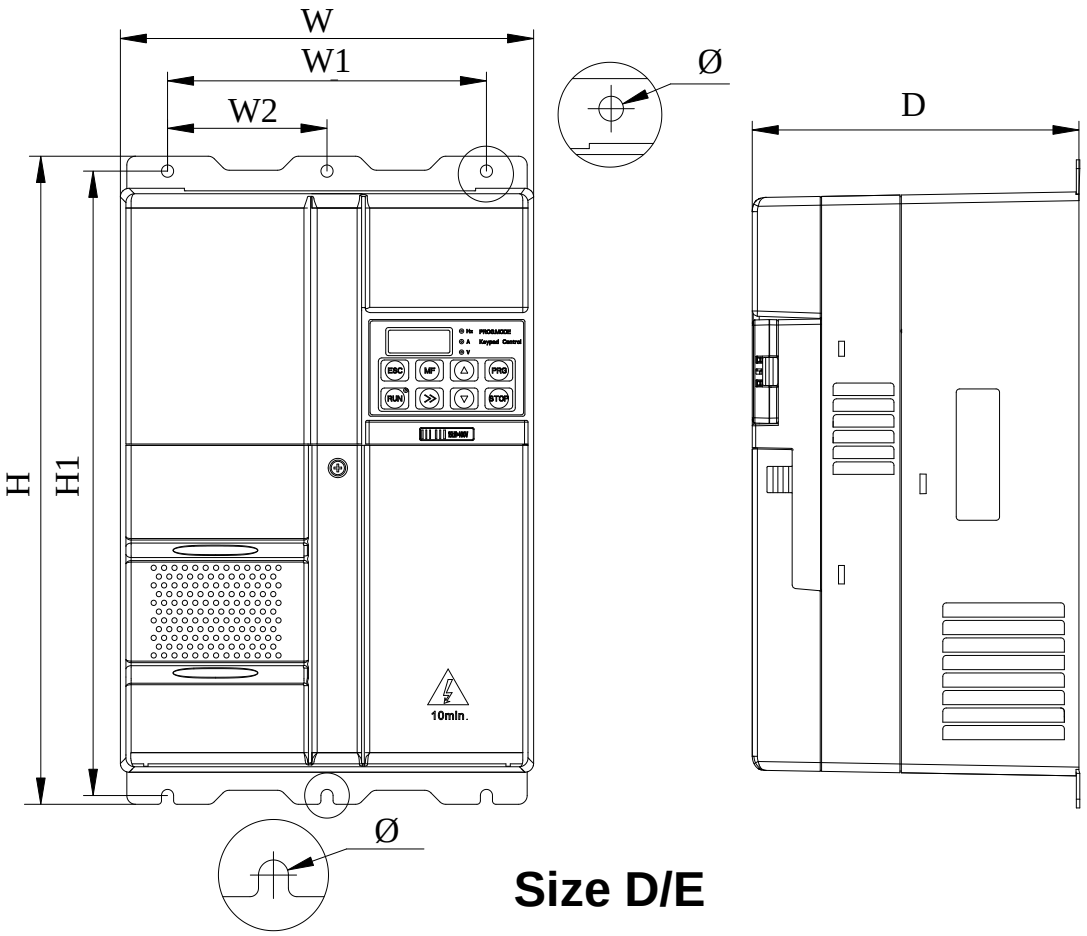
3.5 Mounting Diagrams

Size A/B/C Mounting Diagram



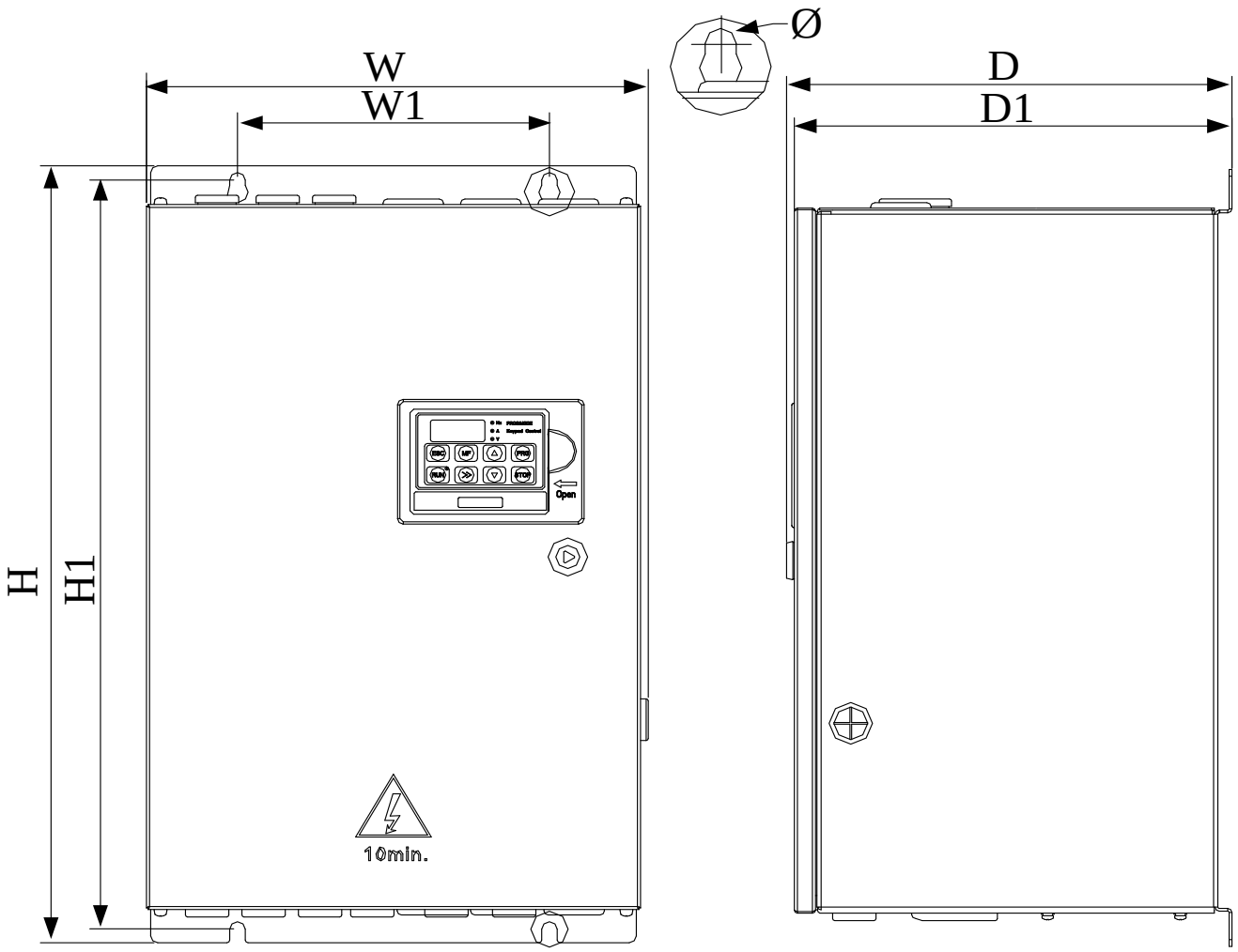
Size A/B/C

Size D/E Mounting Diagram



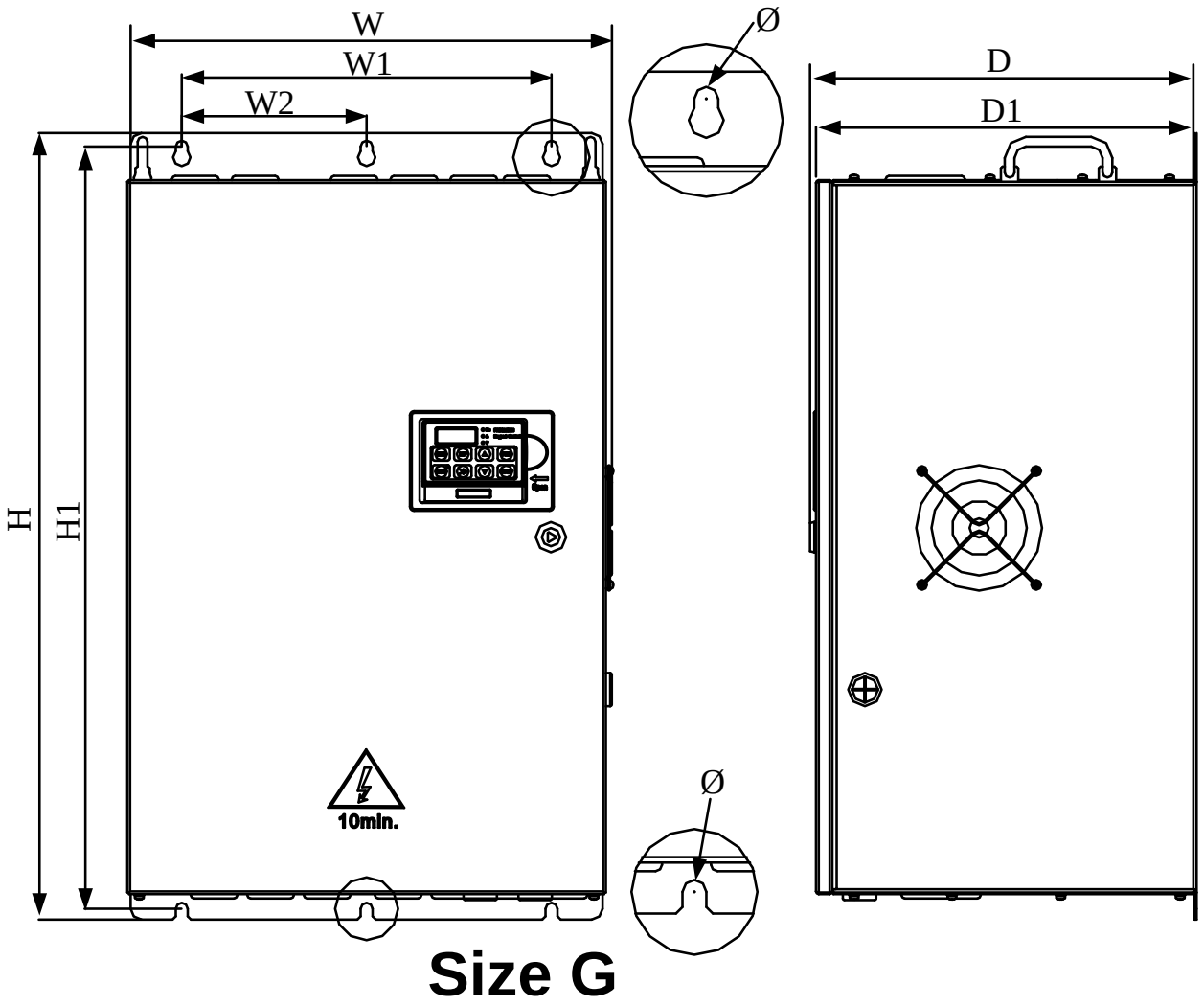
Size D/E

Size E1/F/F1 Mounting Diagram



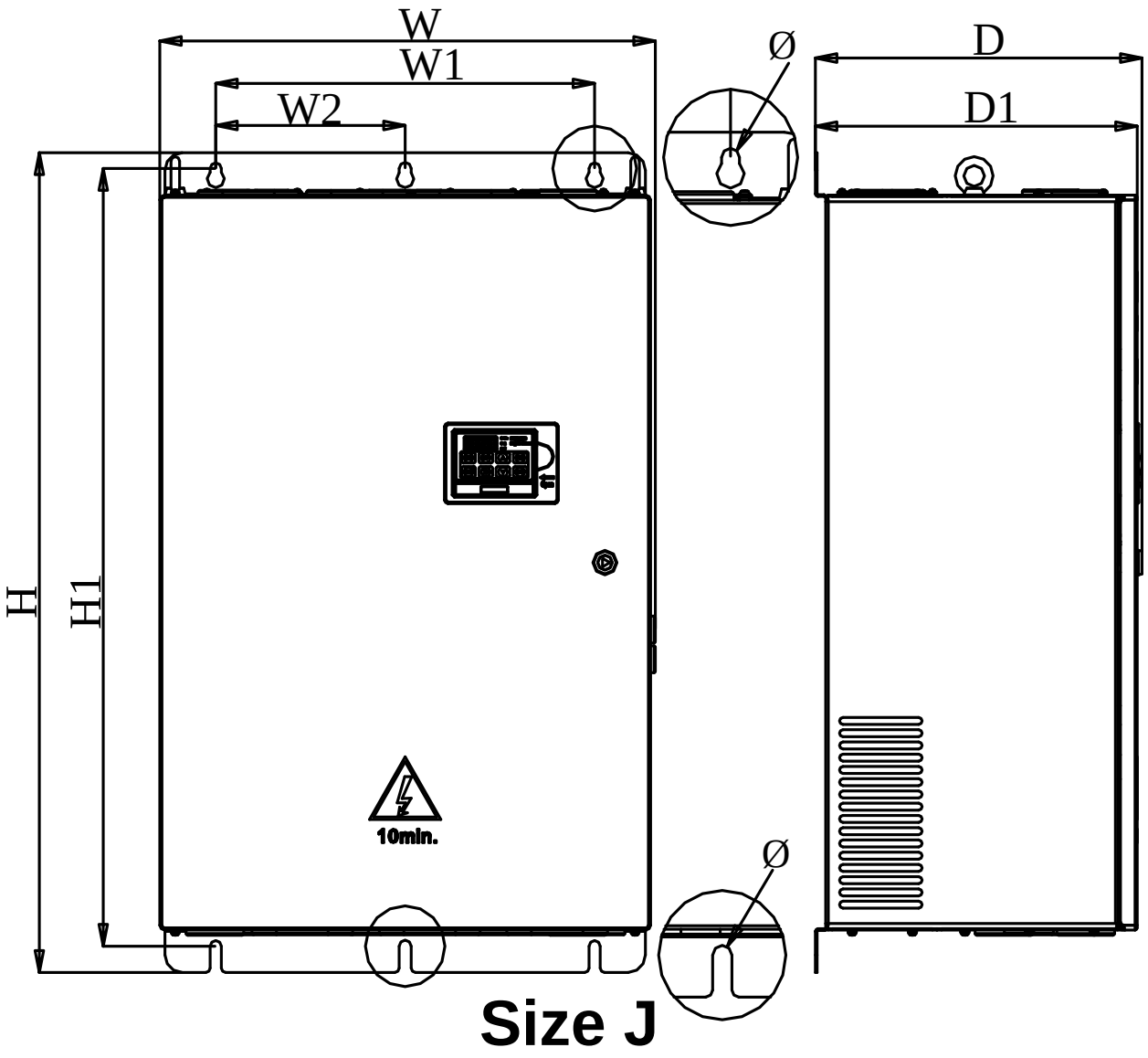
Size E1/F/F1

Size G Mounting Diagram



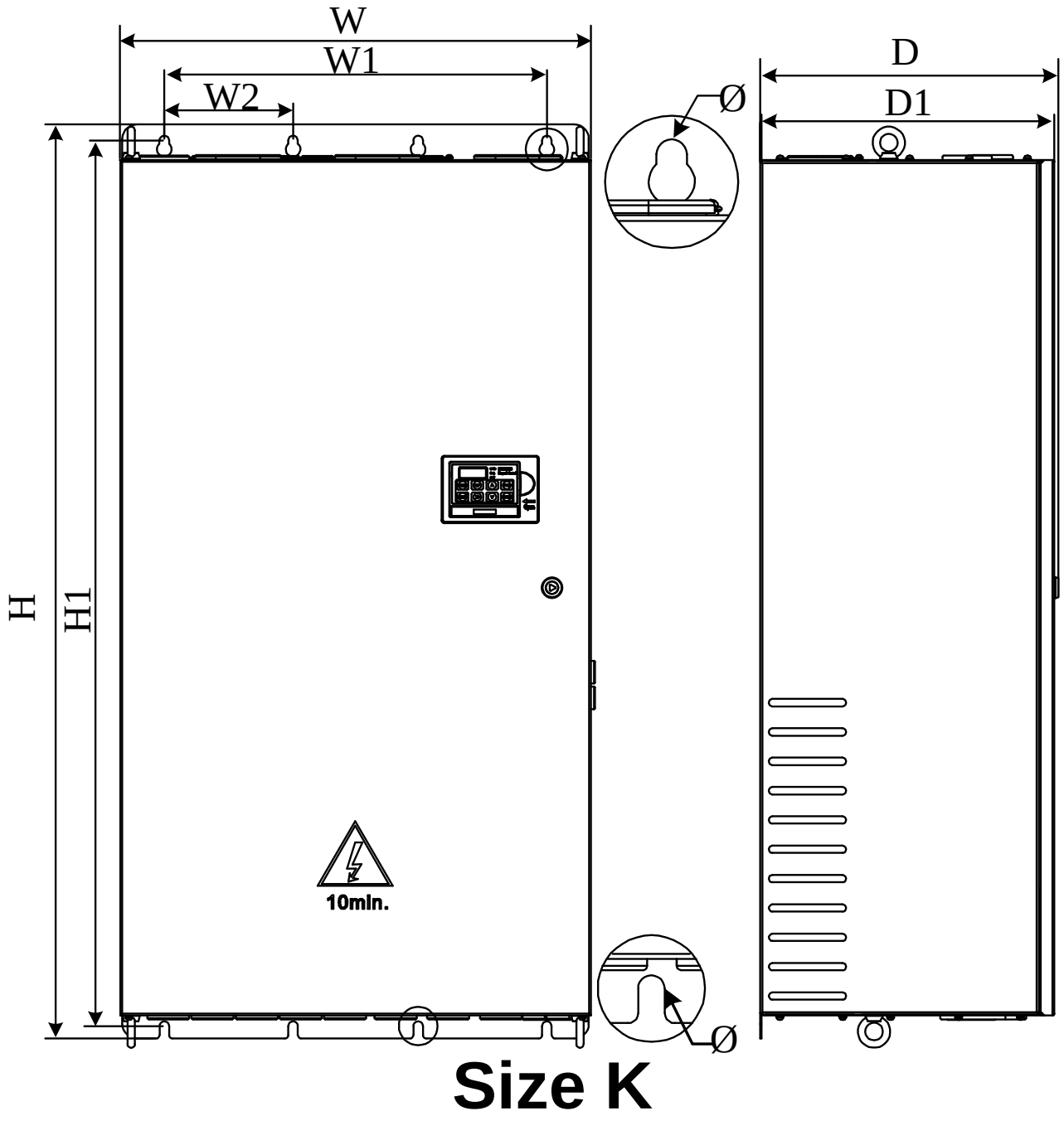
Size G

Size J Mounting Diagram



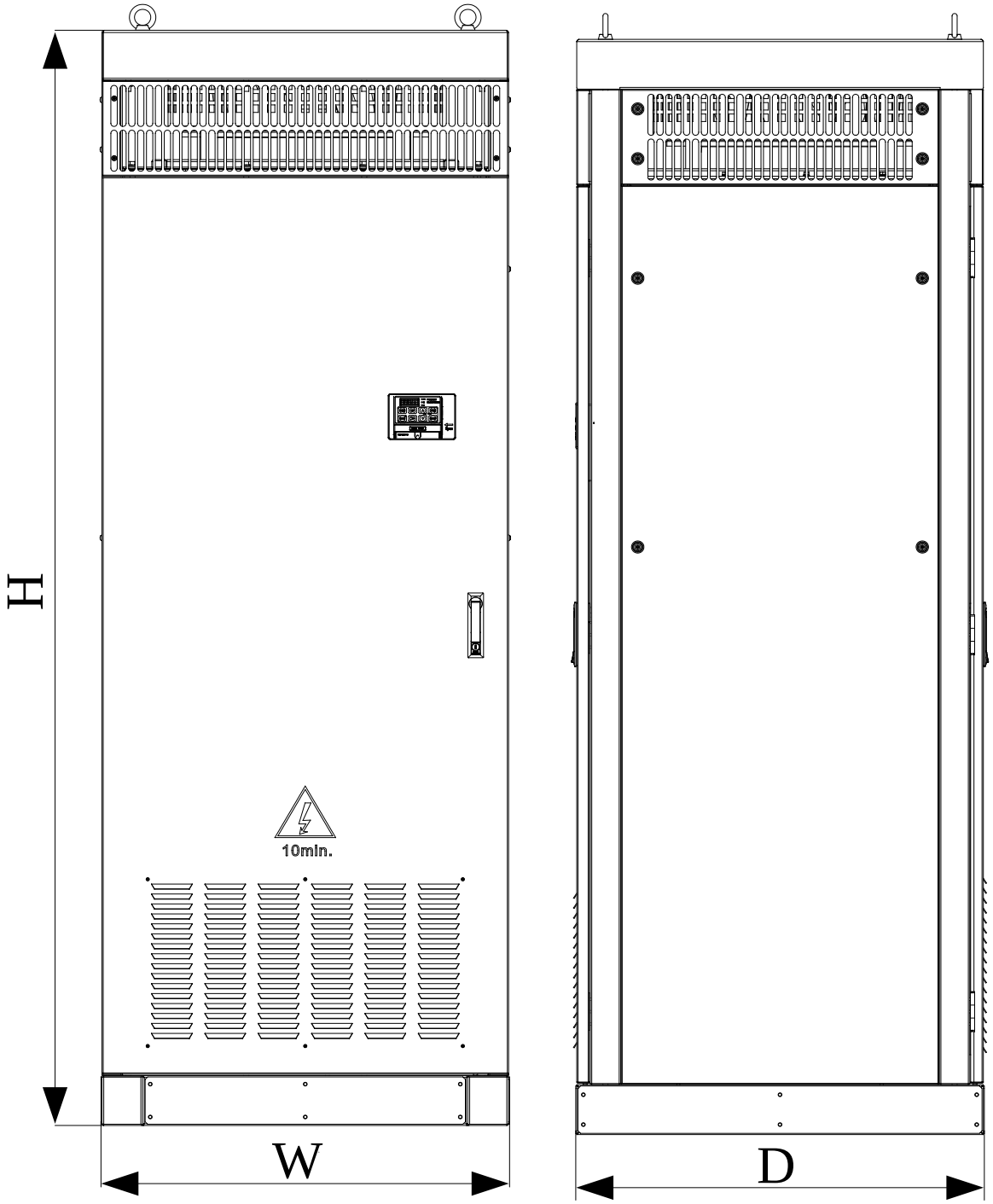
Size J

Size K Mounting Diagram



Size K

Size L Mounting Diagram



Size L

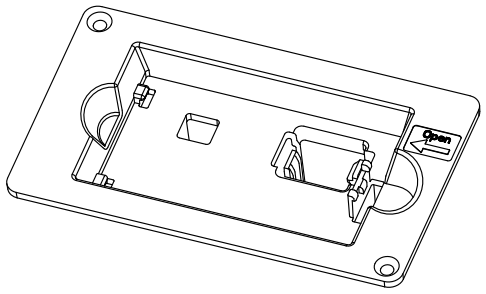
3.6 Model Dimensions and Mounting Hole Recommendations

Size	Model Name	W mm (in.)	W1 mm (in.)	W2 mm (in.)	H mm (in.)	H1 mm (in.)	D mm (in.)	D1 mm (in.)	Mounting Hole Ø mm (in.)	Weight kg (lbs.)
A	HV300-A02D00004GB HV300-A02D00007GB HV300-A02D00015GB HV300-A04T00007GB HV300-A04T00015GB HV300-A04T00022EB	97.4 (3.83)	80 (3.15)	–	202.4 (7.97)	190 (7.48)	148.8 (5.86)	–	5 (0.20)	1.4 (3.1)
B	HV300-A02D00022GB HV300-A04T00022GB HV300-A04T00040GB HV300-A04T00055EB HV300-A04T00055PB	142 (5.59)	123.5 (4.86)	–	220.4 (8.68)	208 (8.19)	155.5 (6.12)	–	5 (0.20)	2.2 (4.9)
C	HV300-A02D00040GB HV300-A04T00055GB HV300-A04T00075GB HV300-A04T00110PB	163.1 (6.42)	142 (5.59)	–	300 (11.81)	280 (11.02)	176.8 (6.96)	–	6 (0.24)	4.5 (9.9)
D	HV300-A04T00110B HV300-A04T00150B	238.5 (9.39)	184 (7.24)	92 (3.62)	370 (14.57)	356.5 (14.04)	189 (7.44)	–	7 (0.28)	8.8 (19.4)
E	HV300-A04T00185B HV300-A04T00220B	238.5 (9.39)	184 (7.24)	92 (3.62)	435.5 (17.15)	422 (16.61)	200.3 (7.89)	–	7 (0.28)	12.1 (26.7)
E1	HV300-A04T00300EB HV300-A04T00370EB	320 (12.60)	210 (8.27)	–	510 (20.08)	490 (19.29)	226 (8.90)	222.5 (8.76)	8 (0.31)	20 (44.1)
F	HV300-A04T00300B HV300-A04T00370B HV300-A04T00450B HV300-A04T00550B HV300-A04T00750B HV300-A06T00300B HV300-A06T00370B HV300-A06T00450B HV300-A06T00550B HV300-A06T00750B	355.5 (14.00)	221 (8.70)	–	573 (22.56)	552.5 (21.75)	315.5 (12.42)	310 (12.20)	10 (0.39)	40 (88.3)
F1	HV300-A04T00450E	355.5 (14.00)	221 (8.70)	–	573 (22.56)	552.5 (21.75)	296.9 (11.69)	280.7 (11.05)	10 (0.39)	33 (72.8)
G	HV300-A04T00900B HV300-A04T01100B HV300-A04T01320B HV300-A06T00900B HV300-A06T01100B HV300-A06T01320B	445.6 (17.54)	340 (13.39)	170 (6.69)	725 (28.54)	701.5 (27.62)	355 (13.98)	349.5 (13.76)	10 (0.39)	63 (139)
J	HV300-A04T01600B HV300-A04T01850B HV300-A04T02000B HV300-A06T01600B HV300-A06T01850B HV300-A06T02000B	575.5 (22.66)	440 (17.32)	220 (8.66)	937 (36.89)	889 (35.00)	379.3 (14.93)	373.8 (14.72)	13 (0.51)	104 (229.5)
K	HV300-A04T02500B HV300-A04T02800B HV300-A06T02500B	640 (25.20)	520 (20.47)	175 (6.89)	1246.5 (49.07)	1207.5 (47.54)	405.5 (15.96)	400 (15.75)	13 (0.51)	150 (331.0)

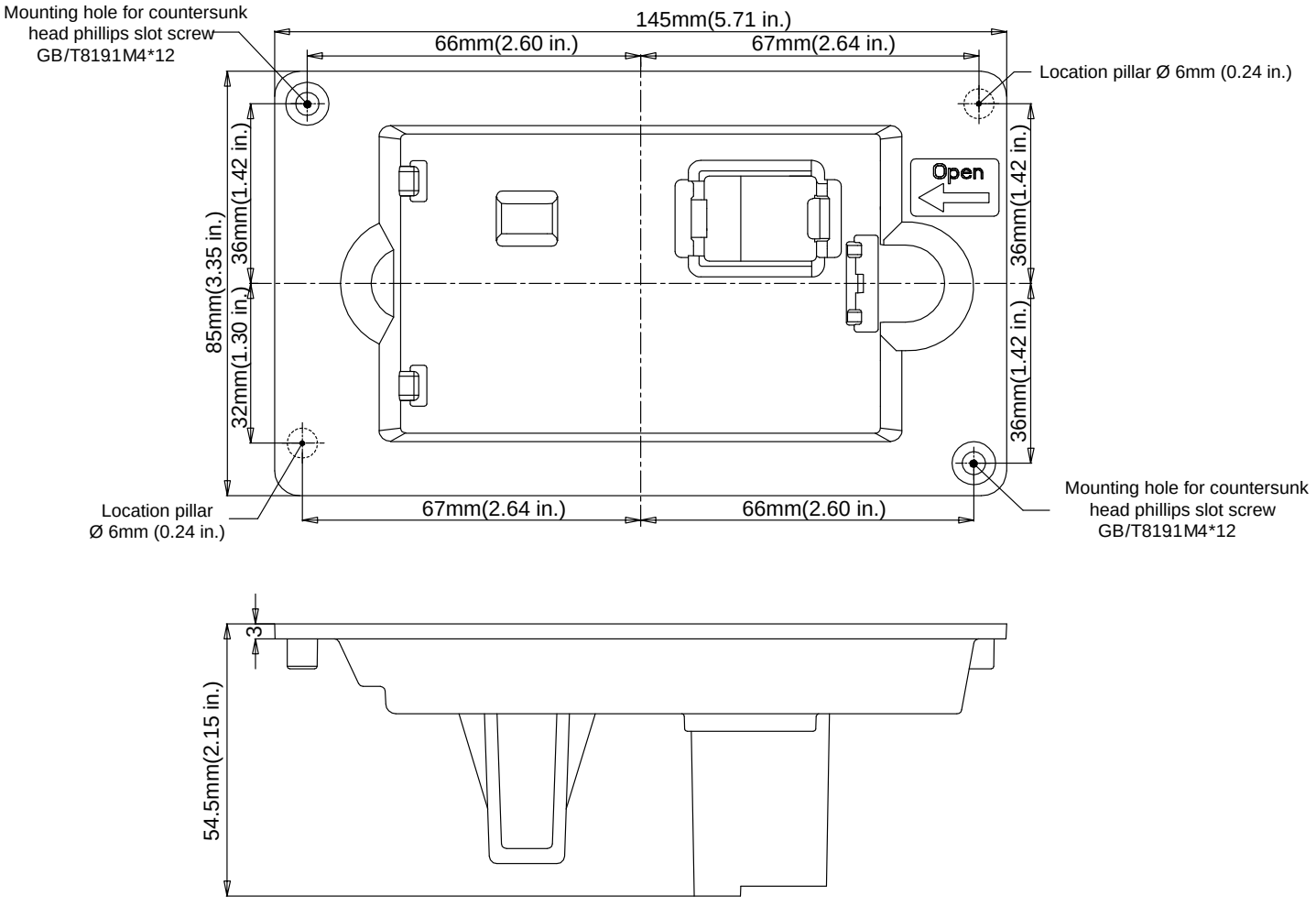
Size	Model Name	W mm (in.)	W1 mm (in.)	W2 mm (in.)	H mm (in.)	H1 mm (in.)	D mm (in.)	D1 mm (in.)	Mounting Hole Ø mm (in.)	Weight kg (lbs.)
	HV300-A06T02800B									
L	HV300-A04T03150B	804 (31.65)	–	–	2200 (86.61)	–	804 (31.65)	–	–	350 (772.3)
	HV300-A04T03550B									
	HV300-A04T04000B									
	HV300-A04T04500B									
	HV300-A06T03150B									
	HV300-A06T03550B									
	HV300-A06T04000B									
	HV300-A06T04500B									

3.7 Keypad Dock

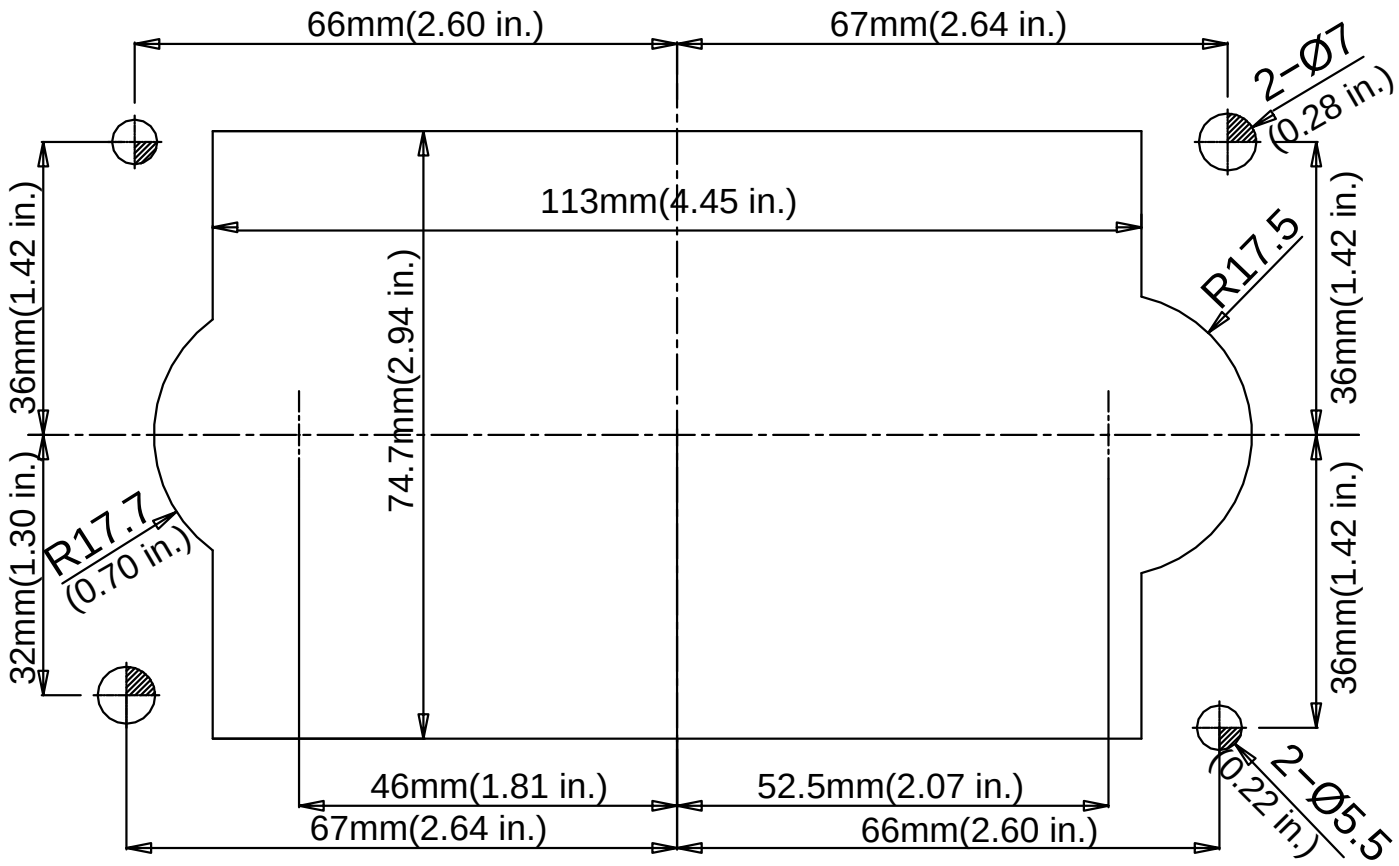
3.7.1 Layout of Keypad Dock



3.7.2 Diagram of Dock Dimensions and Mounting

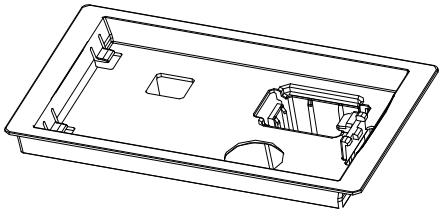


3.7.3 Pallet Mounting Dimensions

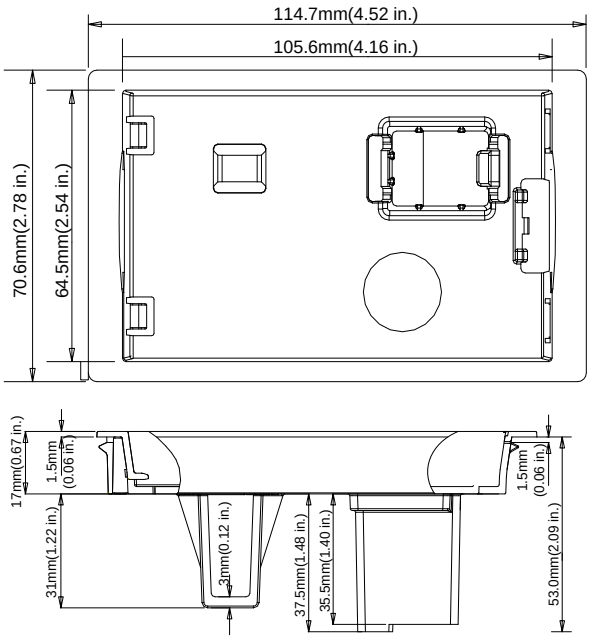


3.8 Simple Keypad Dock

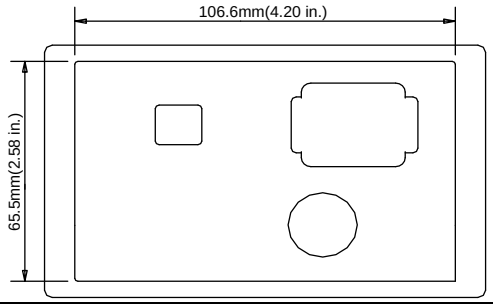
（a）Outlook of Simple keypad dock



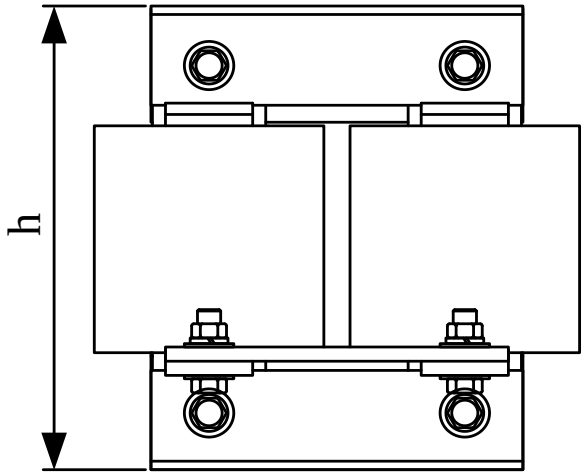
（b）Dimensions of simple keypad dock

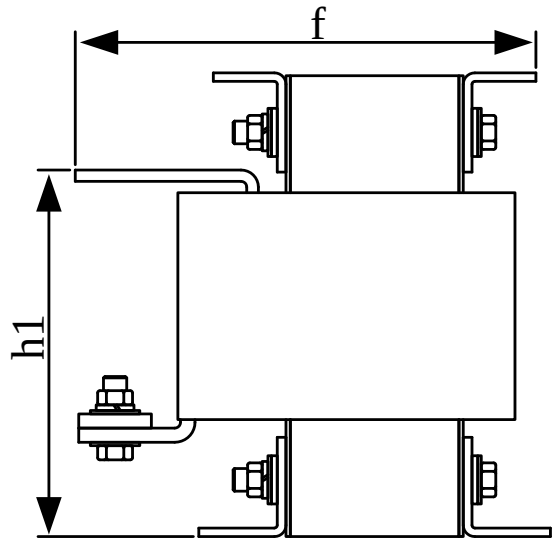


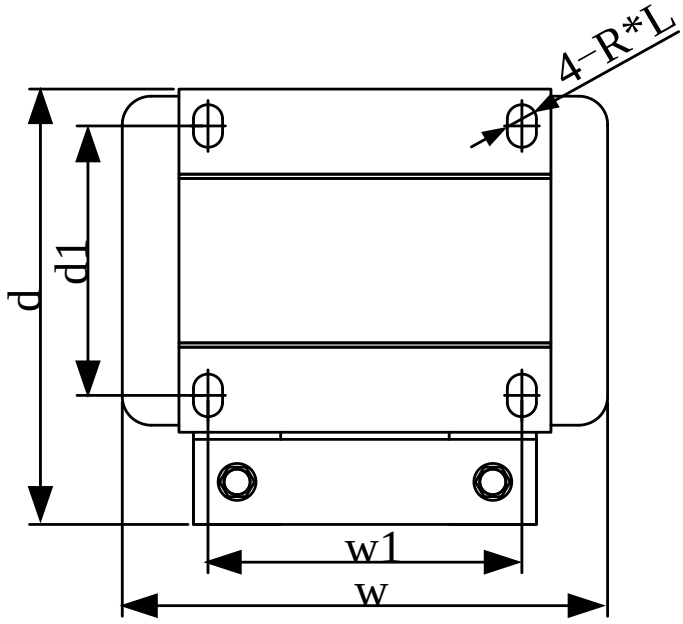
（c）Simple keypad dock mounting dimensions

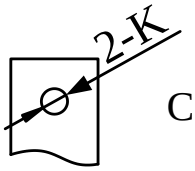


3.8.1 External DC Reactor Dimensions









Copper bar:30*4.0mm

3.9 380V DC reactor dimensions

Model Name	w (in.)	w1 (in.)	d (in.)	d1 (in.)	h (in.)	h1 (in.)	f (in.)	mounting hole r*l mm (in.)	Copper bar mounting hole k mm (in.)	reactor weight kg (lbs.)
HV300-A04T00550B	167 (6.57)	130 (5.12)	153.5 (6.04)	95 (3.74)	163.5 (6.44)	131 (5.16)	158.5 (6.24)	10×15 (0.39×0.59)	Ø9 (0.35)	10.3 (22.7)
HV300-A04T00750B										
HV300-A04T00900B	190 (7.48)	160 (6.30)	153 (6.02)	117 (4.61)	245 (9.65)	192 (7.56)	180 (7.09)	10×15 (0.39×0.59)	Ø12 (0.47)	20 (44.1)
HV300-A04T01100B										
HV300-A04T01320B										
HV300-A04T01600B	190 (7.48)	160 (6.30)	148 (5.83)	115 (4.53)	245 (9.65)	192 (7.56)	250 (9.84)	10×20 (0.39×0.79)	Ø13 (0.51)	25 (55.2)
HV300-A04T01850B										
HV300-A04T02000B										
HV300-A04T02500B	275 (10.83)	210 (8.27)	240 (9.45)	205 (8.07)	235 (9.25)	–	240 (9.45)	11×18 (0.43×0.71)	Ø14 (0.55)	38 (83.4)
HV300-A04T02800B										

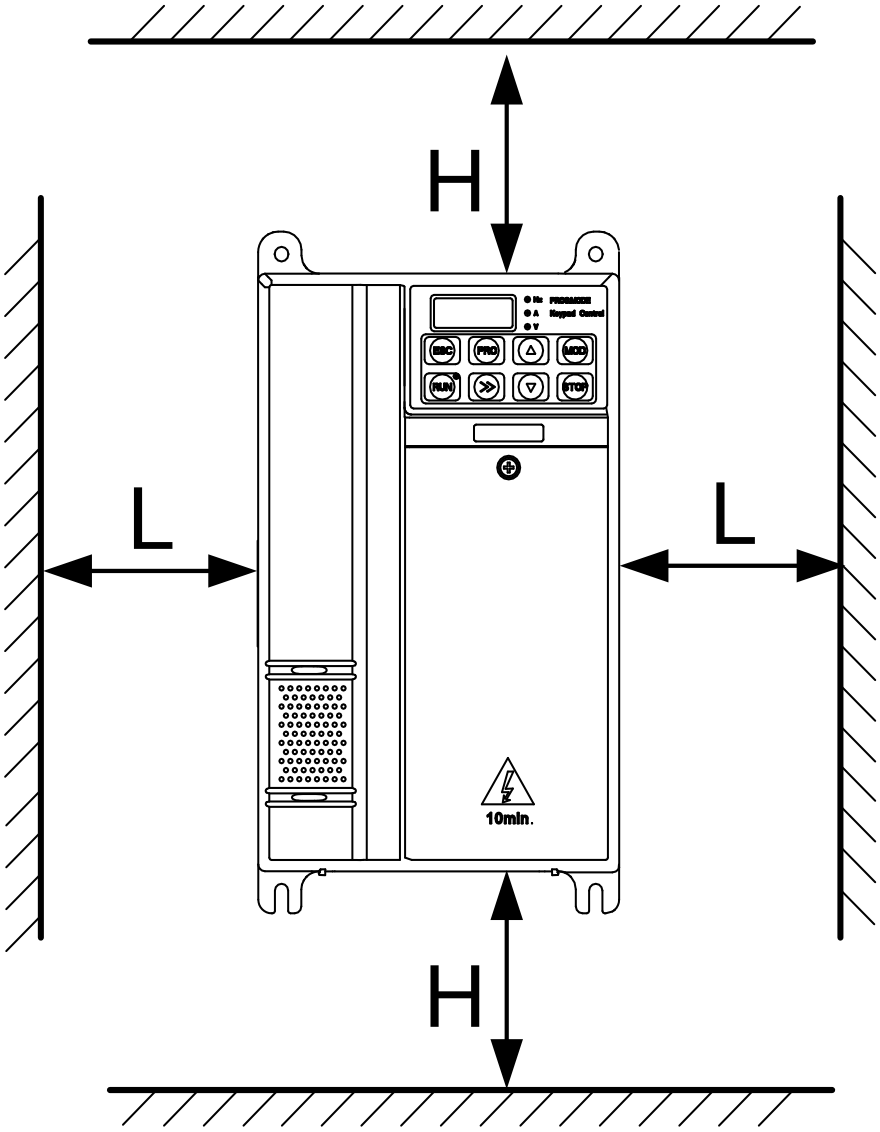
3.10 690V DC Reactor Dimensions

Model name	w (in.)	w1 (in.)	d (in.)	d1 (in.)	h (in.)	h1 (in.)	f (in.)	Mounting hole R*L mm (in.)	Copper bar mounting hole K mm (in.)	Reactor weight kg (lbs.)
HV300-A06T00550B HV300-A06T00750B	128 (5.04)	130 (5.12)	116 (4.57)	90 (3.54)	180 (7.09)	140 (5.51)	175 (6.89)	10×15 (0.39×0.59)	Ø9 (0.35)	10 (22.0)
HV300-A06T00900B HV300-A06T01100B HV300-A06T01320B	190 (7.48)	160 (6.30)	153 (6.02)	117 (4.61)	245 (9.65)	192 (7.56)	180 (7.09)	10×15 (0.39×0.59)	Ø12 (0.47)	20 (44.1)
HV300-A06T01600B HV300-A06T01850B HV300-A06T02000B	190 (7.48)	160 (6.30)	148 (5.83)	115 (4.53)	245 (9.65)	192 (7.56)	250 (9.84)	10×20 (0.39×0.79)	Ø13 (0.51)	25 (55.2)
HV300-A06T02500B HV300-A06T02800B	235 (9.25)	180 (7.09)	230 (9.06)	175 (6.89)	205 (8.07)	–	230 (9.06)	11×18 (0.43×0.71)	Ø14 (0.55)	27.5 (60.7)

3.11 Mechanical Installation

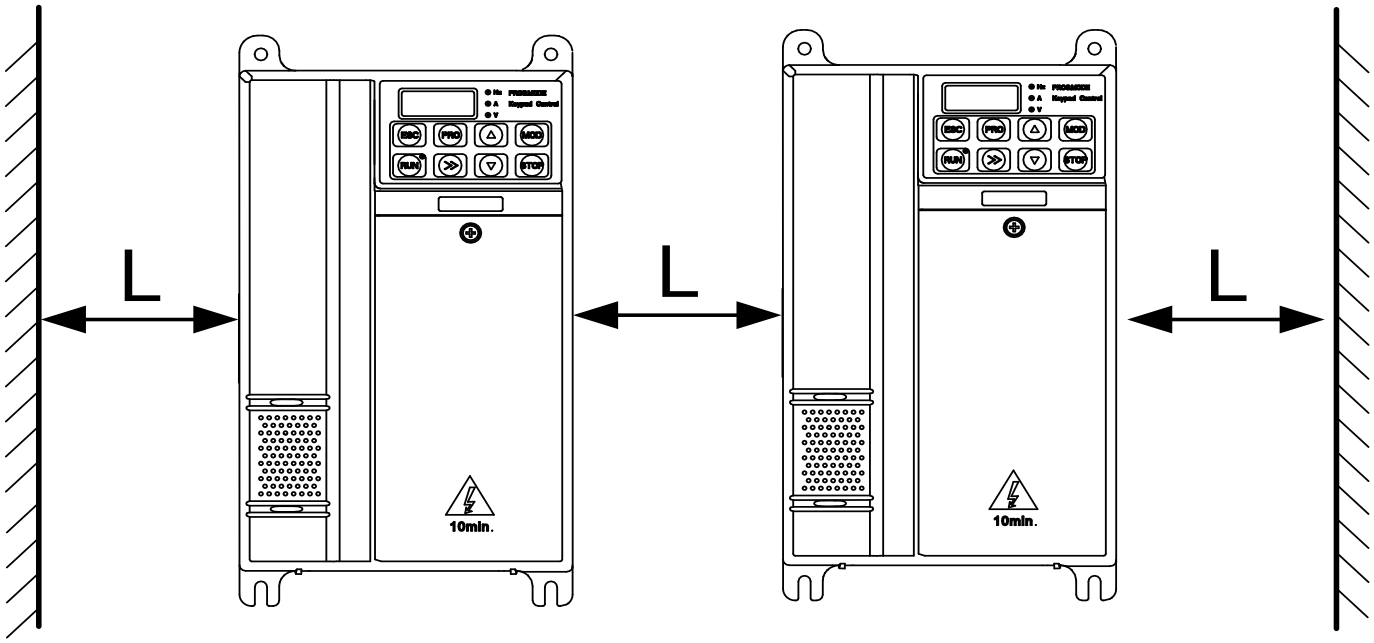
3.11.1 Single drive installation

It is recommended that there be at least 2-inches (50mm) of clearance in each direction.



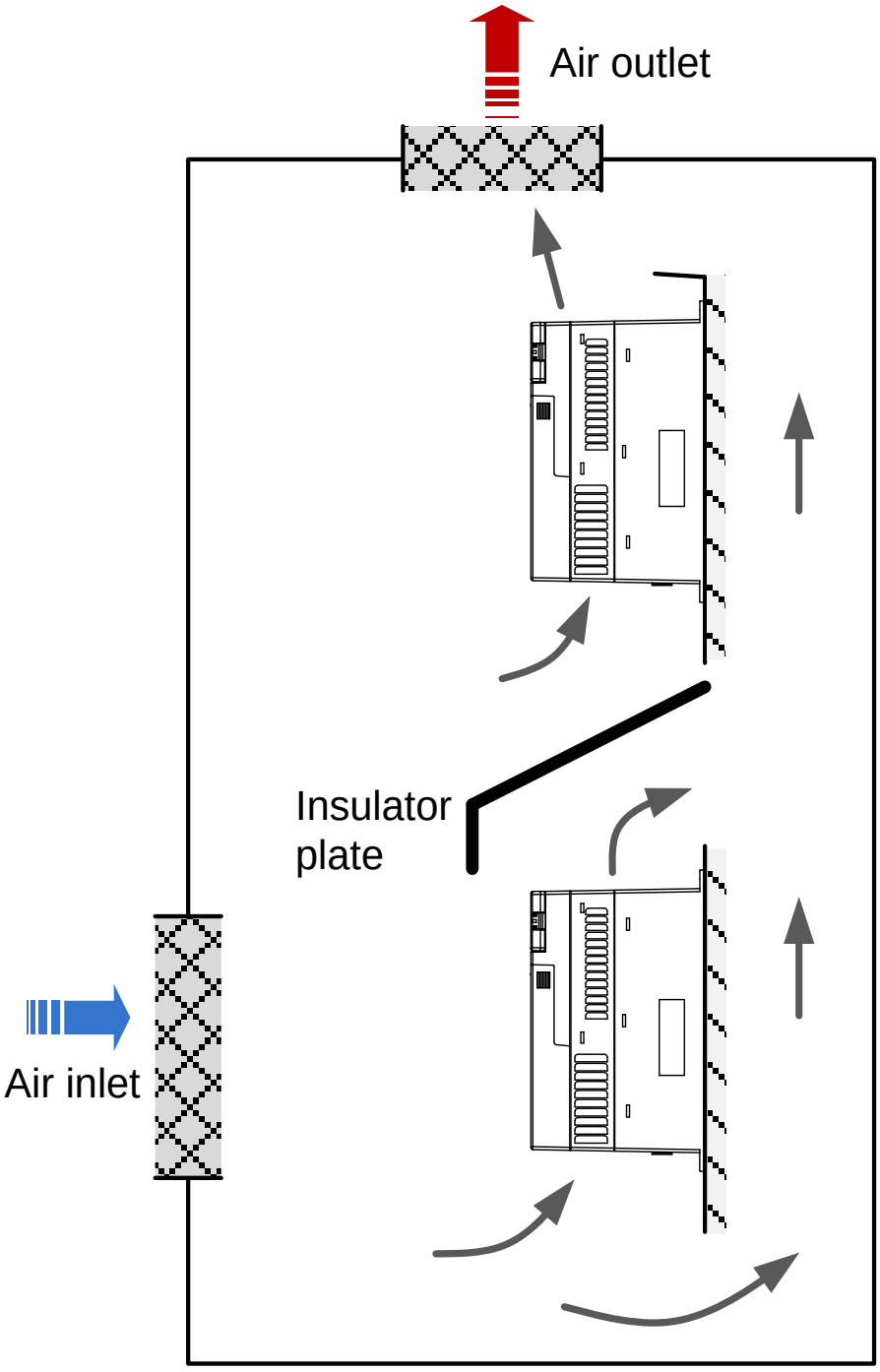
3.11.2 Multiple Drive Horizontal Installation

For multiple drive installation, it is recommended that there be 2-inches (50mm) clearance between the drives, as well as the sides of each drive.



3.11.3 Multiple Drive Vertical Installation

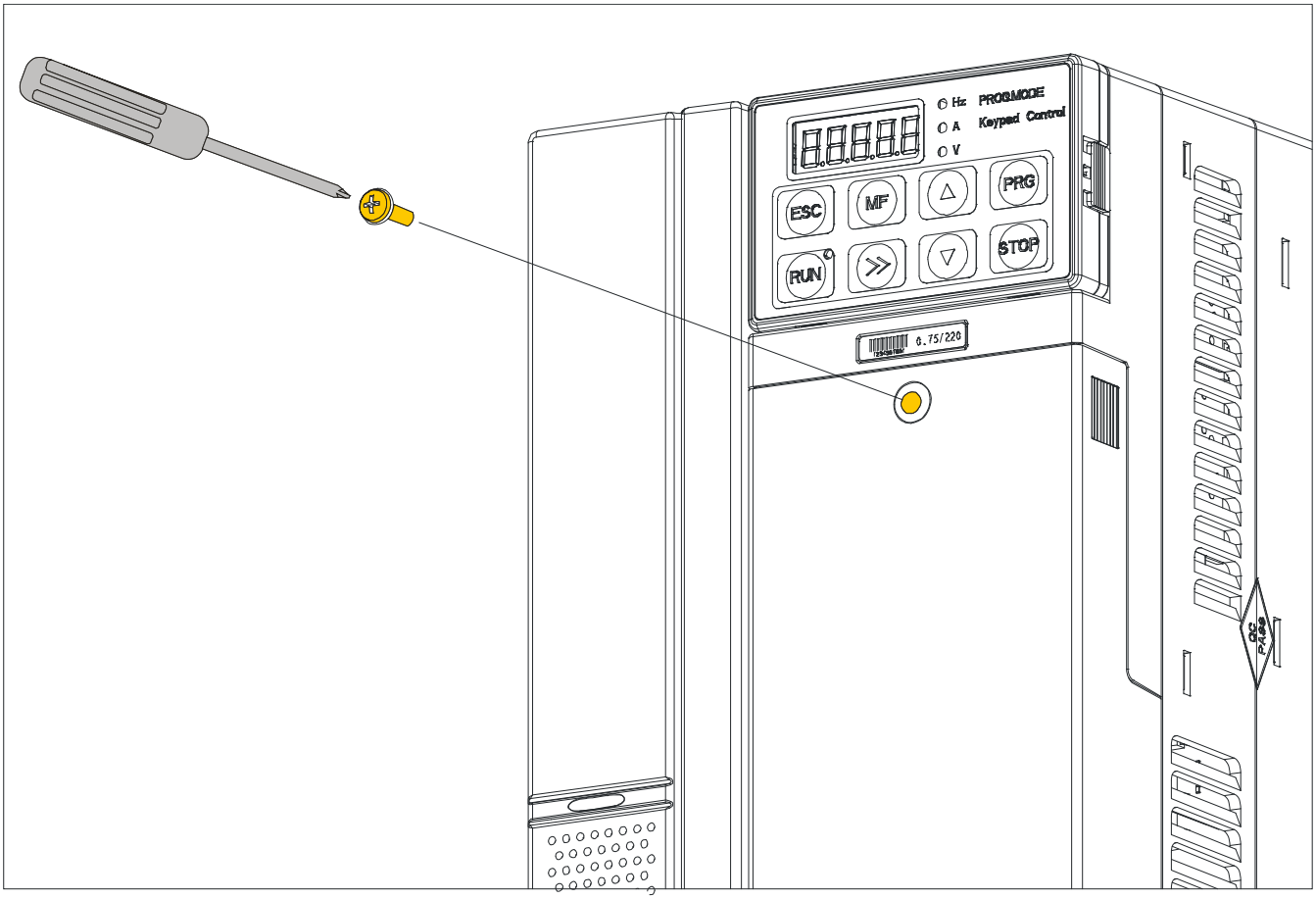
In vertical installations where drives are mounted above each other, there should be suitable air flow to keep the drives cool. Air flow should be drawn in and expelled as illustrated in the following diagram.



3.11.4 Terminal Cover Removal and Replacement

Removal: Untighten the screw, loosen the clip and then take off the cover.

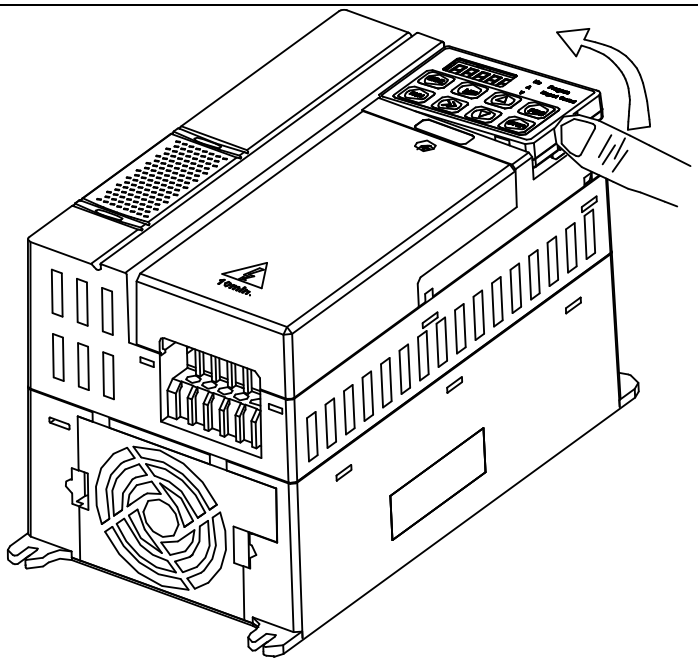
Replacement: Insert the clips into the slots on the middle cover, push the cover on, and then tighten the screw M4×10 (Torque 1N•m).



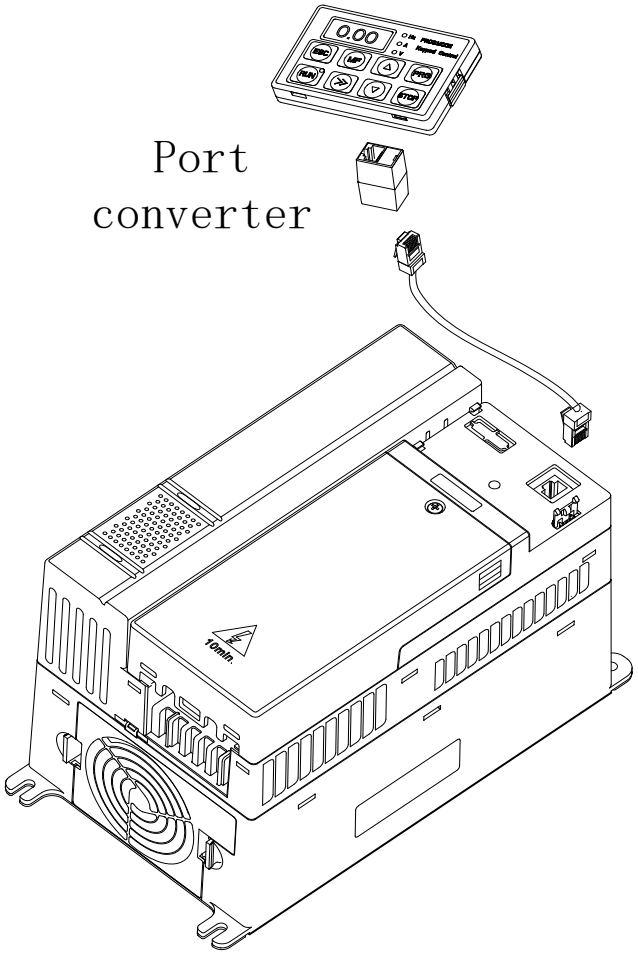
3.11.5 Keypad Removal and Replacement

Removal: push the spring clip, and then pull up the keypad.

Replacement: insert the left two clips first (using the correct angle) into the slots on the control pad, and then push down the keypad.



The keypad is removable, and can be mounted remotely using a standard Ethernet cable and port converter between the keypad and the drive.



3.12 Electrical Installation

3.12.1 Power Terminal

Size A, B, and C Models:

L1	L2	L3/N	U	V	W
PE	+DC	+DC1	BR	−DC	PE

Size A and B

Size A/B

L1	L2	L3	U	V	W
PE	+DC		BR	−DC	PE

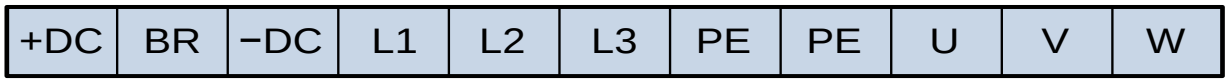
Size C

Terminals	Function
L1, L2, L3/N	AC power supply. For single phase supply, use L1, L3/N
+DC, +DC1	For DC choke, linked by terminal
BR	Brake resistor, another end is +DC1
−DC	Negative DC bus
U, V, W	Output terminals (Motor terminals)
PE	Protective Earth terminal

NOTE:

- Size C has DC choke inside, +DC1 is not used.
- For size C, the brake resistor is connected to BR and +DC.

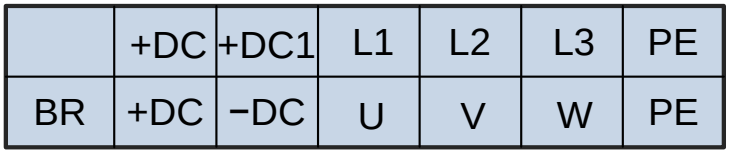
Size D and E Models:



Terminals	Function
L1, L2, L3	AC power supply
+DC, −DC	Plus and minus DC bus
BR	Brake resistor, another end is +DC
U, V, W	Output terminals (Motor terminals)
PE	Protective Earth terminal

Size E1 Models

NOTE: In “HV300-A0xT”, the first “×” means 4 or 6 and the second “×” means 0 or 1.：



Terminals	Function
L1, L2, L3	AC power supply
+DC, +DC1	For DC choke, linked by busbar factory set
BR	Brake resistor, another end is +DC
−DC	Negative DC bus
U, V, W	Output terminals (Motor terminals)
PE	Protective earth terminal

Size F and F1 Models:

HV300-A0xT00300、HV300-A0xT00370、HV300-A0xT00450、HV300-A04T00450E.

			PE	L1	L2	L3
BR	+DC	-DC	PE	U	V	W

Terminals	Function
L1, L2, L3	AC power supply
+DC, −DC	Plus and minus DC bus
BR	Brake resistor, another end is +DC
U, V, W	Output terminals (Motor terminals)
PE	Protective earth terminal

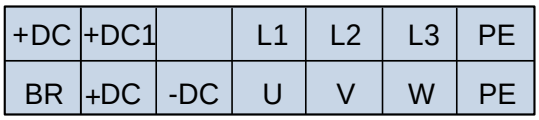
Size F Models:

HV300-A0xT00550、HV300-A0xT00750.

PE	+DC	+DC1		L1	L2	L3
BR	+DC	-DC	PE	U	V	W

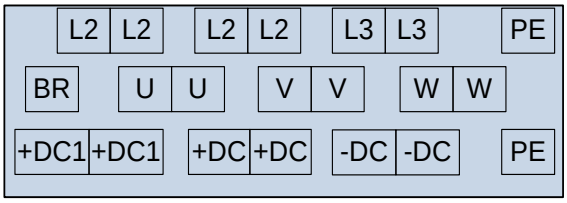
Terminals	Function
L1, L2, L3	AC power supply
+DC, +DC1	For DC choke
BR	Brake resistor, another end is +DC1
−DC	Minus DC bus
U, V, W	Output terminals (Motor terminals)
PE	Protective earth terminal

Size G Models



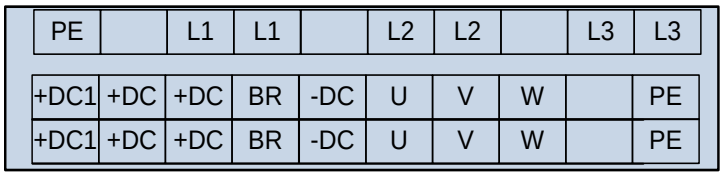
Terminals	Function
L1, L2, L3	AC power supply
+DC, +DC1	For DC choke
BR	Brake resistor, another end is +DC
−DC	Minus DC bus
U, V, W	Output terminals (Motor terminals)
PE	Protective earth terminal

Size J Models



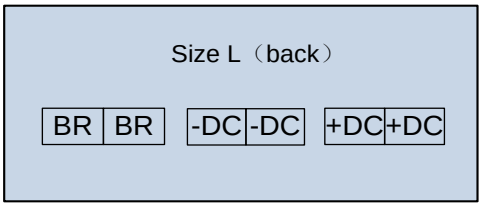
Terminals	Function
L1, L2, L3	AC power supply
+DC, +DC1	For DC choke
BR	Brake resistor, another end is +DC
−DC	Minus DC bus
U, V, W	Output terminals (Motor terminals)
PE	Protective earth terminal

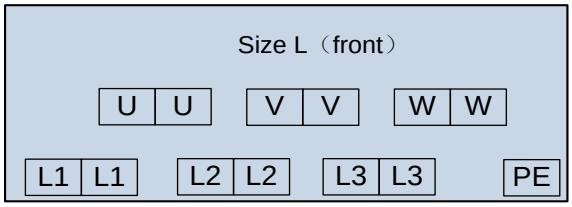
Size K Models



Terminals	Function
L1, L2, L3	AC power supply
+DC, +DC1	DC choke terminals
BR	Brake resistor, another end is +DC
−DC	Minus DC bus
U, V, W	Output terminals (Motor terminals)
PE	Protective earth terminal

Size L Models





Terminals	Function
L1, L2, L3	AC power supply
+DC	Plus DC bus
BR	Brake resistor, another end is +DC
−DC	Minus DC bus
U, V, W	Output terminals (Motor terminals)
PE	Protective earth terminal

3.12.2 Power Connection

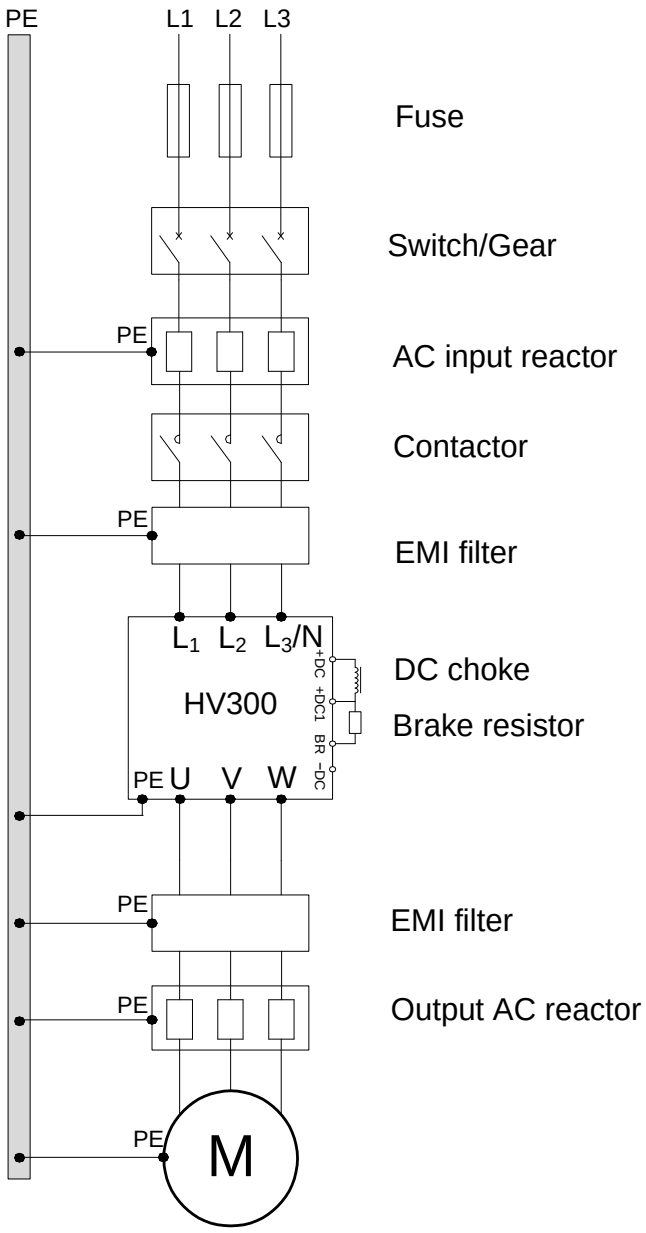


Figure 3-1 Typical power connection

NOTE:

- Refer to the following table for the correct fuse and switch selection.
- It is not advised to use a power contactor to control the RUN/STOP of the drive.
- In default carrier frequency, the maximum motor cable length is 330 feet (100 meters). When the motor cable is longer than 330 feet (100m), it is recommended to use output reactors.
- For safety, the drive and motor must be properly grounded, and the earth contacting resistance must be less than 10Ω, the grounding conductor must meet the requirements in the following table.

3.12.3 Recommended Fuse, Power Cable and Control Cable Specifications

Model	Fuse				Power				Control cable mm2 (AWG)
	IEC gG A		<30A, CC class >30A, T class A		Input current A	Supply cable mm^2 (AWG)		Motor cable mm^2 (AWG)	
	1PH	3PH	1PH	3PH	1/3PH	1PH	3PH	1PH	
HV300-A02D00004GB	10	8	10	8	7.1/ 4	1.5 (16)	1.0 (17)	1.0(17)	≥0.5(20)
HV300-A02D00007GB	16	10	15	10	12.8/ 7.1	2.5 (13)	1.0 (17)	1.0(17)	≥0.5(20)
HV300-A02D00015GB	25	16	25	15	20.5/ 11.3	2.5 (13)	1.5 (16)	1.0(17)	≥0.5(20)
HV300-A02D00022GB	32	20	32	20	24/ 14.5	4.0 (11)	2.5 (13)	1.5(16)	≥0.5(20)
HV300-A02D00040GB	20		20		16.5	2.5(13)		2.5(13)	≥0.5(20)
HV300-A04T00007GB	8		8		3.6	1.0(17)		1.0(17)	≥0.5(20)
HV300-A04T00015GB	10		10		5.7	1.0(17)		1.0(17)	≥0.5(20)
HV300-A04T00022EB	16		15		8.3	1.5(16)		1.0(17)	≥0.5(20)
HV300-A04T00022GB	16		15		8.3	1.5(16)		1.0(17)	≥0.5(20)
HV300-A04T00040GB	20		20		13.2	2.5(13)		1.5(16)	≥0.5(20)
HV300-A04T00055EB	32		20		14.3	2.5(13)		2.5(13)	≥0.5(20)
HV300-A04T00055PB	32		20		14.3	2.5(13)		2.5(13)	≥0.5(20)
HV300-A04T00055GB	20		20		12.4	2.5(13)		2.5(13)	≥0.5(20)
HV300-A04T00075GB	25		25		16.1	2.5(13)		2.5(13)	≥0.5(20)
HV300-A04T00110PB	40		40		21	4.0(11)		4.0(11)	≥0.5(20)
HV300-A04T00110B	40		40		31	4.0(11)		4.0(11)	≥0.5(20)
HV300-A04T00150B	50		45		36	6.0(9)		6.0(9)	≥0.5(20)
HV300-A04T00185B	63		60		44	10(7)		10(7)	≥0.5(20)
HV300-A04T00220B	80		80		58	16(5)		16(6)	≥0.5(20)
HV300-A04T00300EB	110		110		72	25(3)		25(4)	≥0.5(20)
HV300-A04T00370EB	125		125		93	25(3)		25(4)	≥0.5(20)
HV300-A04T00300B	110		110		72	25(3)		25(4)	≥0.5(20)
HV300-A04T00370B	125		125		93	25(3)		25(4)	≥0.5(20)
HV300-A04T00450B	200		175		121	35(2)		35(2)	≥0.5(20)
HV300-A04T00450EB	200		175		121	35(2)		35(2)	≥0.5(20)
HV300-A04T00550B	250		225		151	70(2/0)		70(2/0)	≥0.5(20)
HV300-A04T00750B	250		225		175	95(4/0)		95(4/0)	≥0.5(20)
HV300-A04T00900B	250		250		204	120(250MCM)		120(250MCM)	≥0.5(20)
HV300-A04T01100B	315		300		248	150(300MCM)		150(300MCM)	≥0.5(20)
HV300-A04T01320B	350		400		301	185(350MCM)		185(350MCM)	≥0.5(20)
HV300-A04T01600B	450		500		340	120(250MCM)×2		120(250MCM)×2	≥0.5(20)
HV300-A04T01850B	500		500		375	120(250MCM)×2		120(250MCM)×2	≥0.5(20)
HV300-A04T02000B	500		500		415	120(250MCM)×2		120(250MCM)×2	≥0.5(20)
HV300-A04T02500B	670		–		505	150(300MCM)×2		150(300MCM)×2	≥0.5(20)
HV300-A04T02800B	700		–		592	150(300MCM)×2		150(300MCM)×2	≥0.5(20)
HV300-A04T03150B	700		–		653	150(300MCM)×3		150(300MCM)×3	≥0.5(20)
HV300-A04T03550B	1000		–		728	150(300MCM)×4		150(300MCM)×4	≥0.5(20)
HV300-A04T04000B	1000		–		810	150(300MCM)×4		150(300MCM)×4	≥0.5(20)
HV300-A04T04500B	1000		–		915	150(300MCM)×4		150(300MCM)×4	≥0.5(20)

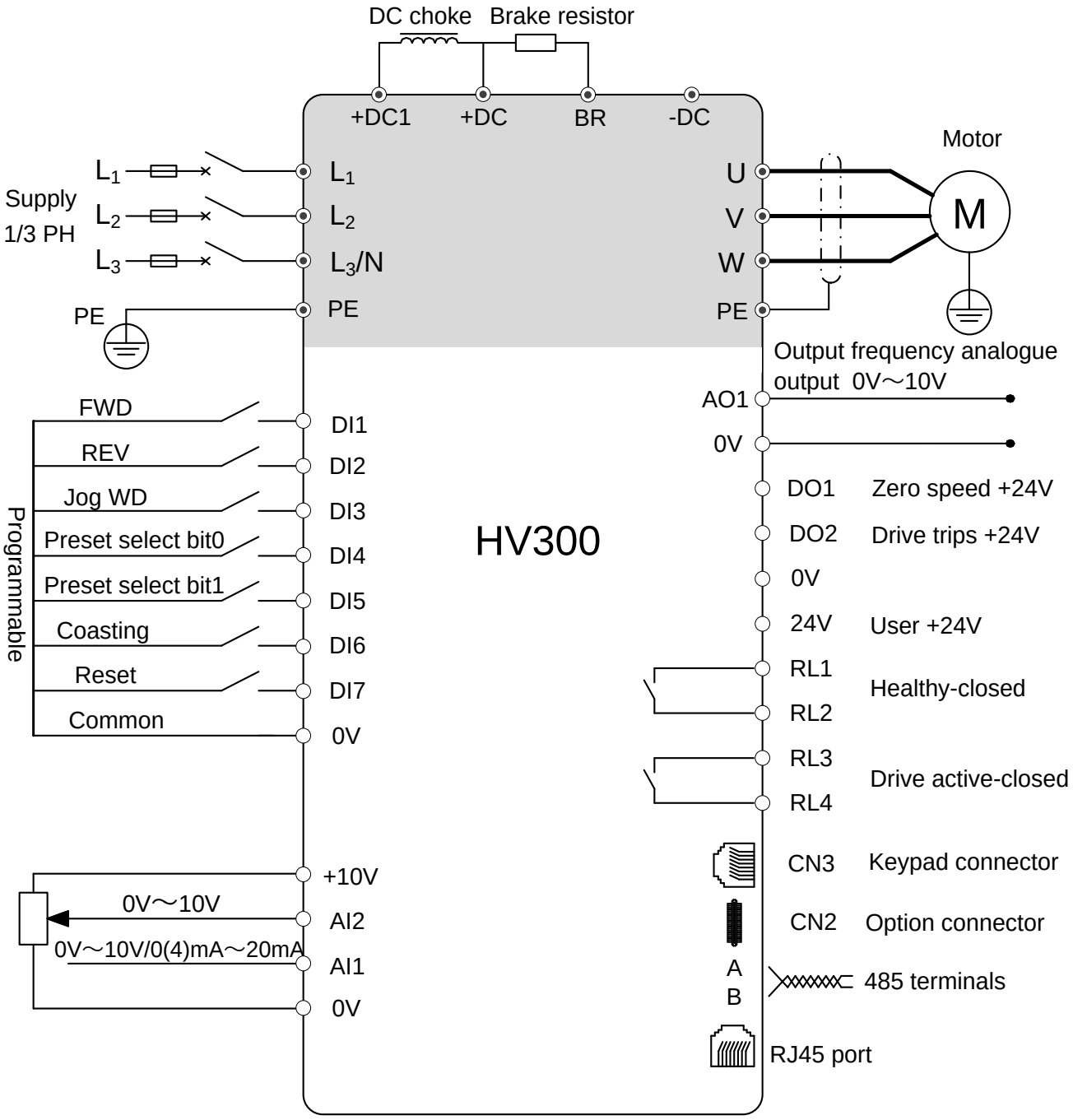
HV300-A06T00300B	63	60	42	10(7)	10(7)	≥0.5(20)
HV300-A06T00370B	80	60	52	16(5)	16(5)	≥0.5(20)
HV300-A06T00450B	100	90	61	16(5)	16(5)	≥0.5(20)
HV300-A06T00550B	125	100	83	25(3)	25(3)	≥0.5(20)
HV300-A06T00750B	125	125	97	35(2)	35(2)	≥0.5(20)
HV300-A06T00900B	200	175	127	50(1/0)	50(1/0)	≥0.5(20)
HV300-A06T01100B	250	225	145	70(2/0)	70(2/0)	≥0.5(20)
HV300-A06T01320B	250	225	145	70(2/0)	70(2/0)	≥0.5(20)
HV300-A06T01600B	250	225	170	50(1/0)×2	50(1/0)×2	≥0.5(20)
HV300-A06T01850B	250	250	192	50(1/0)×2	50(1/0)×2	≥0.5(20)
HV300-A06T02000B	315	300	224	70(2/0)×2	70(2/0)×2	≥0.5(20)
HV300-A06T02500B	350	400	285	90(3/0)×2	90(3/0)×2	≥0.5(20)
HV300-A06T02800B	350	400	318	120(250MCM)×2	120(250MCM)×2	≥0.5(20)
HV300-A06T03150B	500	500	375	120(250MCM)×2	120(250MCM)×2	≥0.5(20)
HV300-A06T03550B	500	500	413	120(250MCM)×2	120(250MCM)×2	≥0.5(20)
HV300-A06T04000B	630	600	468	120(250MCM)×2	120(250MCM)×2	≥0.5(20)
HV300-A06T04500B	670	–	529	150(300MCM)×2	150(300MCM)×2	≥0.5(20)

3.12.4 Earth Conductor Cross Sectional Area

Power cable cross sectional area-S	Earth conductor cross sectional area-Sp
S≤16	S
16 < S ≤ 35	16
35 < S	S/2

NOTE: The data in the table is based on the assumption that both the conductors are of the same metal material. Otherwise, the area value should be modified by the conductor factor between the different metals.

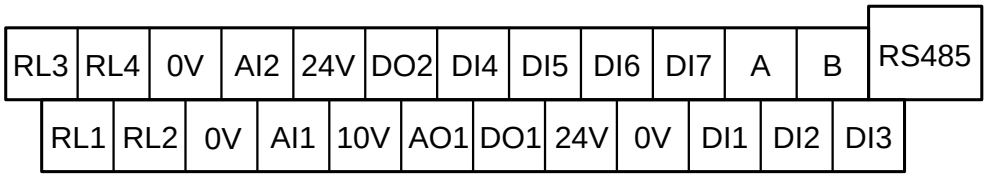
3.12.5 Typical Cabling



NOTE:

- All the programmable control terminal functions are factory default set.
- It is recommended that the control wiring be unshielded twisted pair, shielded cable, or shielded twisted pair.
- 5.5kW(7.5hp) — 280kW(370hp) models (including 220V/4kW(5hp), except size E1 models), internal DC Choke is fitted. 315kW(500hp) — 450kW(600hp) models with AC reactor fitted.

3.12.6 Control Terminal and Cabling



Type	Terminal Name	Function	Technical Specifications
Serial comms.	RS485	RJ45 port	Two lines, Modbus RTU protocol
	A	485 plus signal	Same function with RJ45 port, mainly for multi network
	B	485 minus signal	
Digital input	DI1 — DI5	Programmable digital input terminals	The common can be 0V or 24V by setting the P09.21 (default is 0V) Input resistance: 10 kΩ High, low logic threshold: 10V±1V Sample time: 1ms
	DI6	Normal digital input Length counting Number counting	Same as DI1 — DI5 Length counting by input pulse Sample time: 5ms Number counting by input pulse Sample time: 5ms Note: pulse frequency range is 0Hz — 60Hz.
	DI7	Normal digital input High frequency pulse input Motor thermister input	Same as DI1-DI5, but Input resistance is 5kΩ High frequency pulse input Frequency range: 1kHz — 50kHz Only when P09.21=1 input can be thermister Trip resistance: 3kΩ Reset resistance: 1.8kΩ Sample time: 5ms
Digital output	DO1	Programmable digital output terminal1	Output: 24V/0V Max. output current: 50mA Updating rate: 20ms
	DO2	Programmable digital output terminal1	same with DO1 High frequency pulse output (0.1kHz to 50kHz) PWM output (10kHz)
Analog input and output	AI1	Programmable analog input1	0V — 10V Input resistance: 100kΩ 0 (4) mA — 20mA Load resistance:188Ω Min. Potentiometer resistance: 0.5kΩ Resolution: 0.1% Accuracy: 2% Sampling period: 5ms
	AI2	Programmable analog input1	0V — 10V Input resistance: 30kΩ Min. Potentiometer resistance: 0.5kΩ Resolution: 0.1% Accuracy: 2% Sampling period: 5ms
	AO1	Programmable analog output	0V — 10V Max. output current: 5mA Resolution: 0.4% Accuracy: ±5% Updating rate: 5ms
Rail supply and Relay	10V	Analog reference rail	Accuracy: 2% Max. output current: 20mA
	24V	User supply (2)	Accuracy: ±15% Maximum output current: 100mA
	0V	Common (3)	Common reference point for control signal
Rail supply and Relay	RL1, RL2	Programmable relay1 output contactors	Type: normal open Updating rate: 5ms Contactor rating: 250VAC/2A(cosϕ=1) 250VAC/1A(cosϕ=0.4) 30VDC/1A Defaults: Relay1: closed when powered and healthy. Relay2: closed when drive is active.
	RL3, RL4	Programmable relay2 output contactors	

3.12.7 Digital Input Terminal Basic Functions

There are 7 programmable digital input terminals.

P09.01=0 (default), only basic function for digital input

P09.01=1, advanced functions are available for digital input.

This manual only introduces the basic functions of the digital input.

The basic functions are listed in the following table:

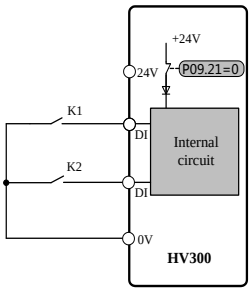
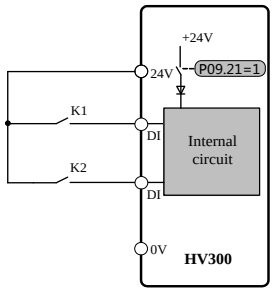
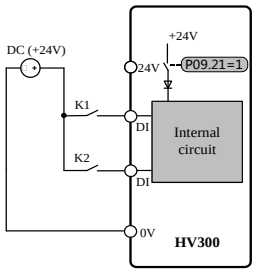
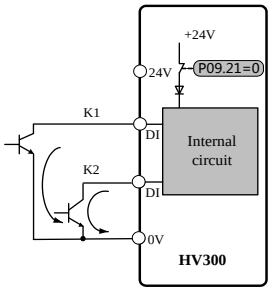
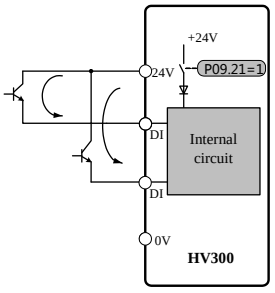
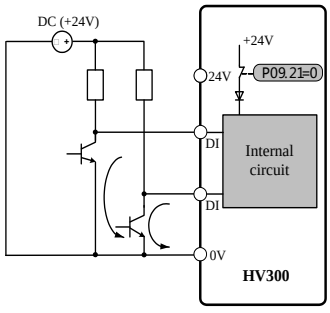
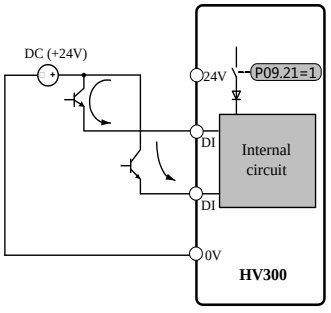
Terminal	Parameter	Range	Default
DI1	P09.02	0: Preset select bit 0 1: Preset select bit 1 2: Run 3: Run forward 4: Run reverse 5: 3-wire enable 6: FWD/REV 7: Jog forward 8: E Pot (UP) 9: E Pot (DOWN) 10: Enable 11: Reset 12: Switch to terminal control 13: Reset of length counting 14: Reset of number counting 15: External trip 99: Advanced function	3
DI2	P09.03		4
DI3	P09.04		7
DI4	P09.05		0
DI5	P09.06		1
DI6	P09.07		10
DI7	P09.08		11

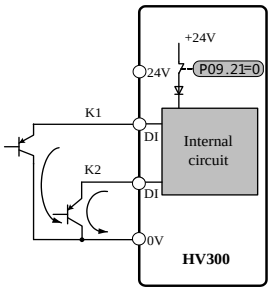
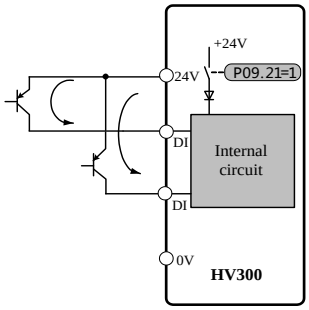
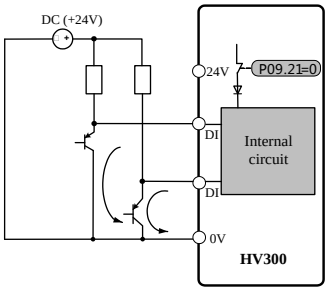
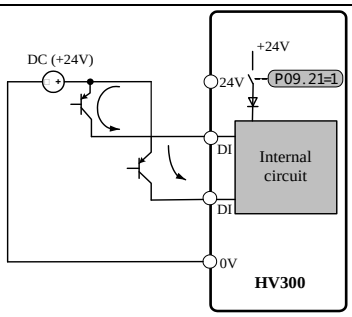
3.12.8 Digital Input Common

The common of DI could be programmed as 0V or 24V, the default is 0V. The parameter P09.21 controls this selection. When

P09.21=0, common is 0V; when P09.21=1, common is 24V.

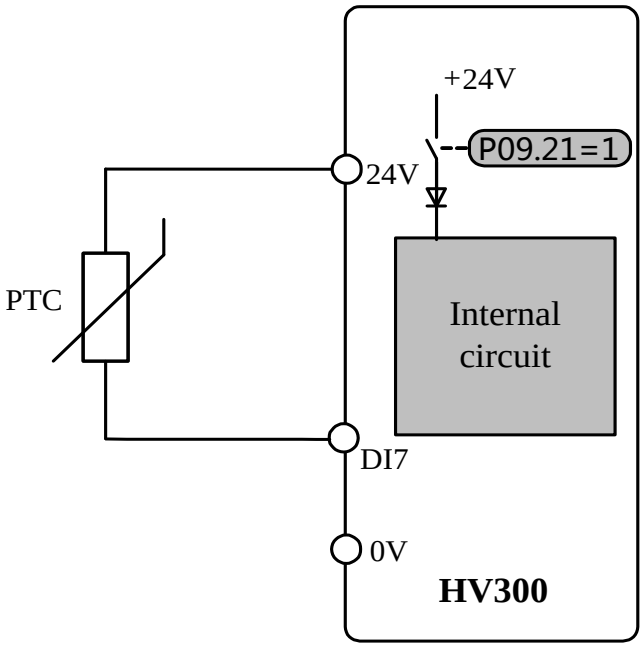
The following table shows the different types of connections available with the Digital Input.

Connection \ P09.21		P09.21=0 (Source)	P09.21=1 (Sink)
Switch type	Using Internal 24V Supply		
	By External Supply		
OC (NPN)	By inner 24V		
	By Outer supply		

OC (PNP)	By inner 24V		
	By Outer supply		

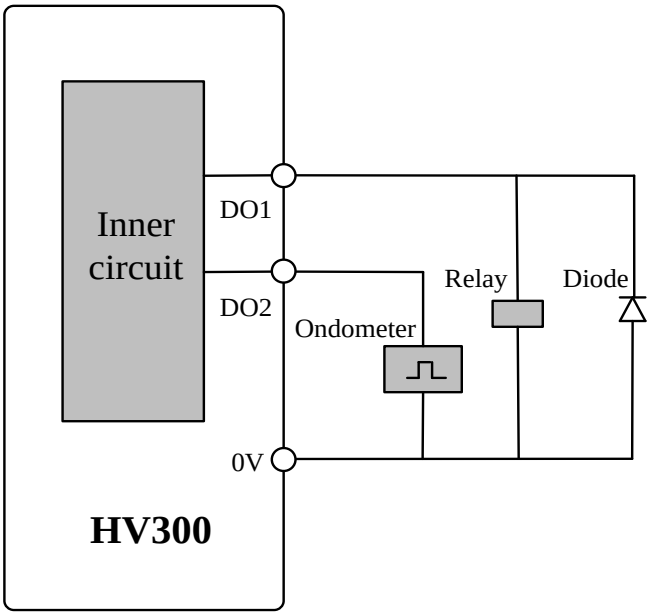
NOTE: When an external power supply is used, the range is: 11V — 30V.

When DI7 is set as motor thermistor input, the connection is showed as figure



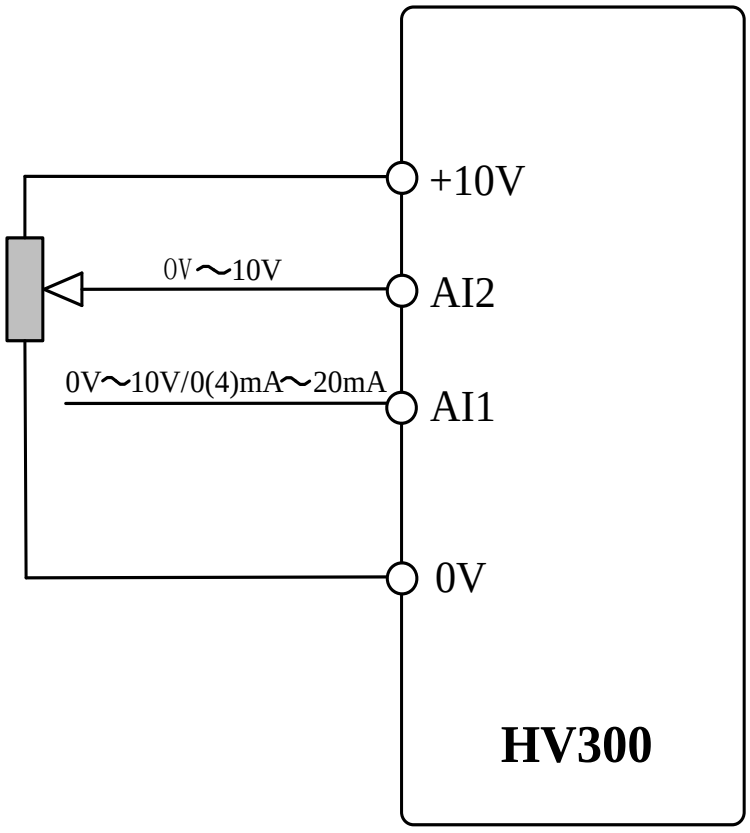
3.12.9 Digital Output

There are 2 digital output terminals, all OC type (24V output). DO2 can be set as a high frequency pulse output. When use the DO to drive the rail winding, please take care the polarity of the rail winding of the relay, and used the snubber circuit by the winding.



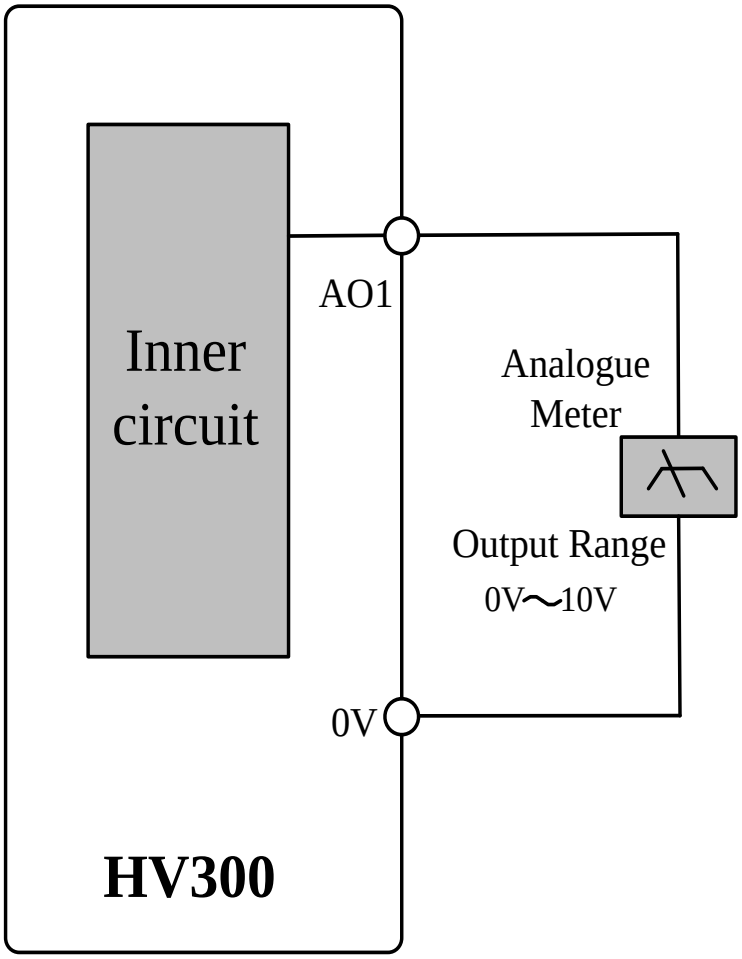
3.12.10 Analog Input

HV300 drive has two Analog input channels.



3.12.11 Analog Output

Output is voltage (0V — 10V),
maximum output current is 5mA.



3.12.12 Brake resistor

The actual resistance on the site application is decided by the motor power, system inertia, deceleration rate, etc. For information on how to design the brake resistance, please refer to the HV300 Technical Data Manual.

220V supply voltage brake resistor specification

Spec. / Model	Min. resistance (Ω)	Max. brake current (A)	Peak power (kW)	Recommended resistance (Ω)	Brake resistor
HV300-A02D00004GB	41	10	4.15	82	Internal fitted
HV300-A02D00007GB	41	10	4.15	82	
HV300-A02D00015GB	41	10	4.15	82	
HV300-A02D00022GB	20	21	8.48	40	
HV300-A02D00040GB	12	35	14.3	24	

380V supply voltage brake resistor specification

Spec. / Model	Min. resistance (Ω)	Max. brake current (A)	Peak power (kW)	Recommended resistance (Ω)	Brake resistor
HV300-A04T00007GB	120	7	5.67	240	
HV300-A04T00015GB	120	7	5.67	240	
HV300-A04T00022EB	65	13	10.4	130	
HV300-A04T00022GB	65	13	10.4	130	
HV300-A04T00040GB	50	17	13.5	100	
HV300-A04T00055EB	24	35	28.7	48	
HV300-A04T00055PB	50	17	13.5	100	
HV300-A04T00055GB	24	35	28.7	48	Internal fitted
HV300-A04T00075GB	24	35	28.7	48	
HV300-A04T00110PB	24	35	28.7	48	
HV300-A04T00110B	24	35	28	48	
HV300-A04T00150B	17	50	40	34	
HV300-A04T00185B	17	50	40	34	
HV300-A04T00220B	17	50	40	34	
HV300-A04T00300B	11	75.5	55.3	22	
HV300-A04T00300EB	11	75.5	55.3	22	
HV300-A04T00370EB	11	75.5	55.3	22	
HV300-A04T00370B	11	75.5	55.3	22	
HV300-A04T00450B	9	92	67.6	18	
HV300-A04T00450EB	9	92	67.6	18	
HV300-A04T00550B	7	120	86.9	14	
HV300-A04T00750B	7	120	86.9	14	
HV300-A04T00900B	4.2	200	164	8.4	
HV300-A04T01100B	2.8	300	246	5.6	
HV300-A04T01320B	2.8	300	246	5.6	Optional
HV300-A04T01600B	1.8	450	357	3.6	
HV300-A04T01850B	1.8	450	357	3.6	
HV300-A04T02000B	1.8	450	357	3.6	
HV300-A04T02500B	1.4	600	493	2.8	
HV300-A04T02800B	1.4	600	493	2.8	
HV300-A04T03150B	0.9	900	765	1.8	
HV300-A04T03550B	0.9	900	765	1.8	
HV300-A04T04000B	0.7	1200	984	1.4	
HV300-A04T04500B	0.7	1200	984	1.4	

690V supply voltage brake resistor specification

Spec. / Model	Min. resistance (Ω)	Max. brake current (A)	Peak power (kW)	Recommended resistance (Ω)	Brake resistor
HV300-A06T00300B	13	92	95	26	
HV300-A06T00370B	13	92	95	26	
HV300-A06T00450B	13	92	95	26	
HV300-A06T00550B	10	119	125.5	20	
HV300-A06T00750B	10	119	125.5	20	
HV300-A06T00900B	8	150	177	16	
HV300-A06T01100B	8	150	177	16	
HV300-A06T01320B	5.3	225	267	10.6	
HV300-A06T01600B	5.3	225	267	10.6	Optional
HV300-A06T01850B	5.3	225	267	10.6	
HV300-A06T02000B	4	300	353	8	
HV300-A06T02500B	4	300	353	8	
HV300-A06T02800B	2.7	450	535	5.4	
HV300-A06T03150B	2.7	450	255	5.4	
HV300-A06T03550B	2	600	344	4	
HV300-A06T04000B	2	600	344	4	
HV300-A06T04500B	1.3	900	530	2.6	

3.12.13 EMC Guide

EMC management suggestion:

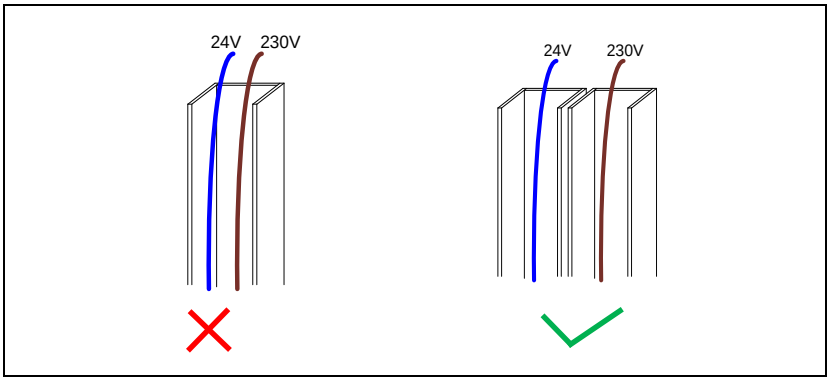
- Noise immunity

Use a 360 degree ground clamp to avoid leaving any portion of the conductor unshielded.

The control cable and power cable should be routed through independent metal conduit and the earth conductor in the motor cable must be connected directly to the earth terminal of the drive and the motor. It is recommend that shielded motor cable be used.

- Cable clearance

Don’t place control cable in a zone extending 12 inches (300mm) around the drive and power cables.



3.12.14 EMC Filter

1. Optional RFI filter
   - Place the RFI filter close to the drive as possible
   - The shorter the cable between the filter and drive, the better
   - The enclosure of the filter must be connected with the drive earth terminal
2. Internal EMC filter
   - The drive leakage current is different with the internal EMC filter fitted or not.

Ground leakage current data

Model	Supply voltage	With internal EMC filter (mA)	Without internal EMC filter (mA)
Size A	200V	10	0.1
	400V	9	0.1
Size B	200V	11	0.1
	400V	7	0.1
Size C	200V	8	0.0
	400V	18	0.3
Size D	400V	17	0.1
Size E	400V	18	0.1
Size E1	400V	8	0.1
Size F	400V	20	2.4
	690V	29	6.7
Size F1	400V	20	2.4
	690V	29	6.7
Size G	400V	22	2.6
	690V	30	6.9
Size J	400V	24	0.4
	690V	12	0.8
Size K	400V	63	3.1
	690V	77	7.2
Size L	400V	9.2	1.0
	690V	15.9	1.7

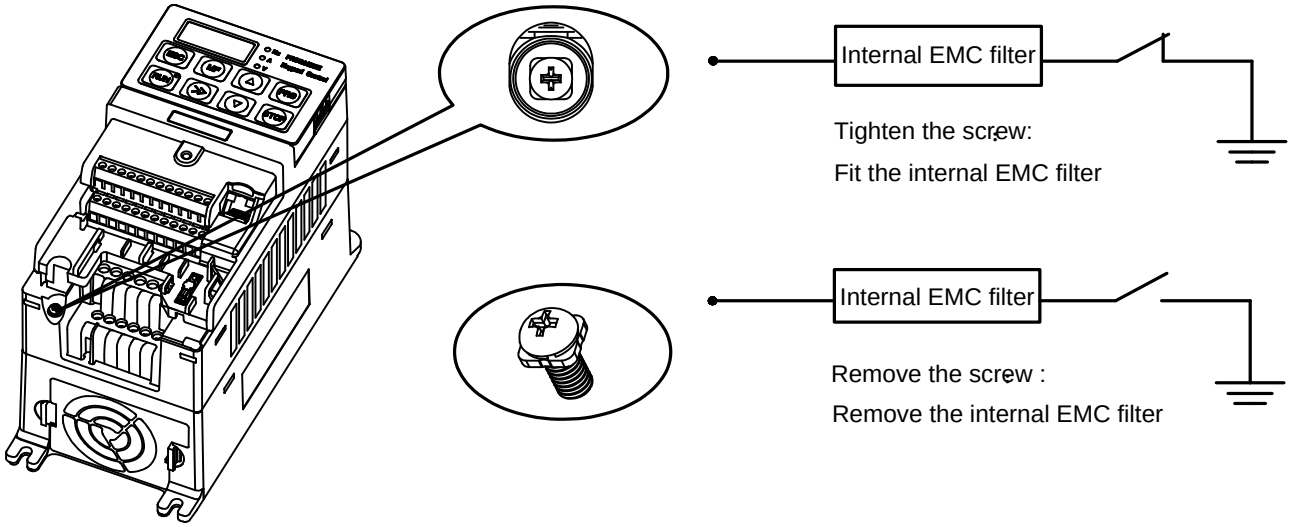
NOTE:

- The test condition of the above table is no motor load.
- When a ground leakage protecting contactor is used for front power supply, the internal EMC filter should be removed.

3. Remove the internal EMC filter

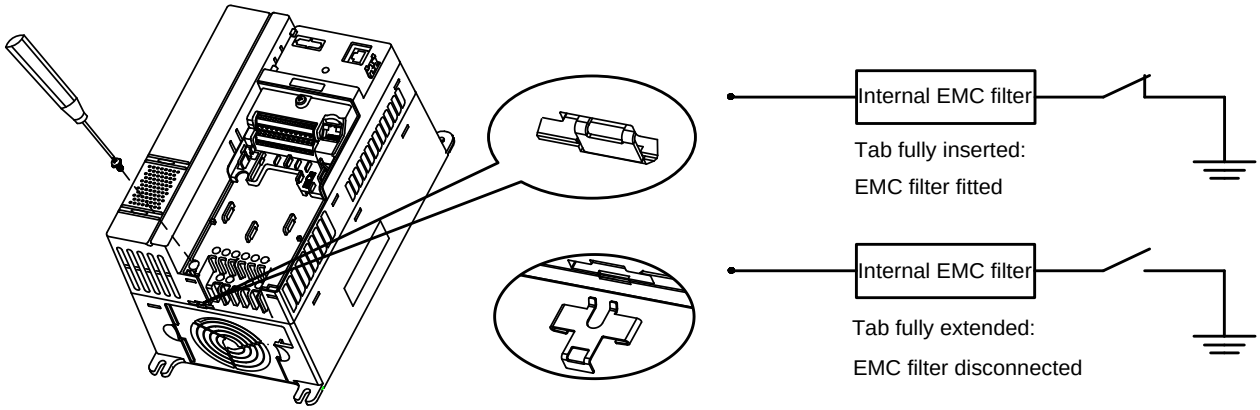
There is a metal link between the ground and EMC filter as shown in the below figures.

SizeA



SizeB NOTE: After removing the link of EMC filter, please keep the link in case to fit the EMC filter again.

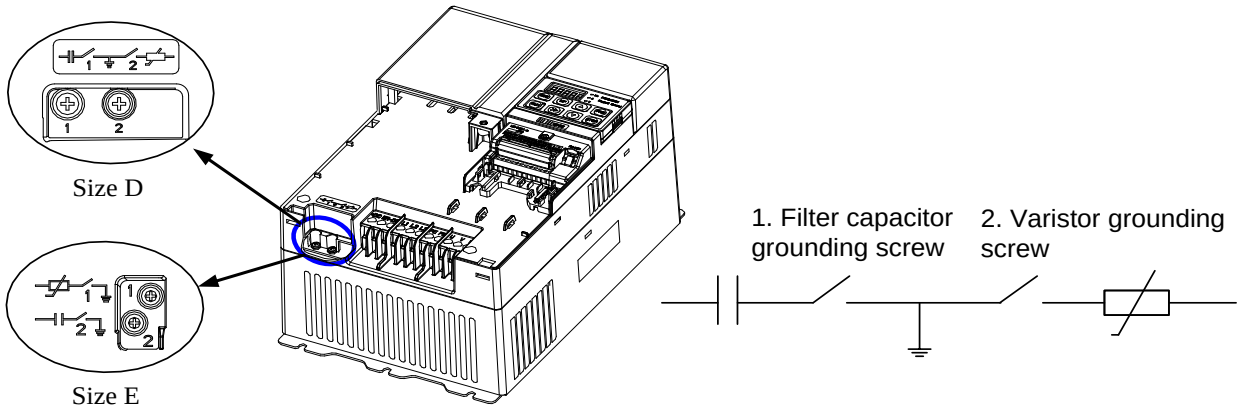
SizeC



SizeD Tighten the filter capacitor grounding screw, fit the internal EMC filter.

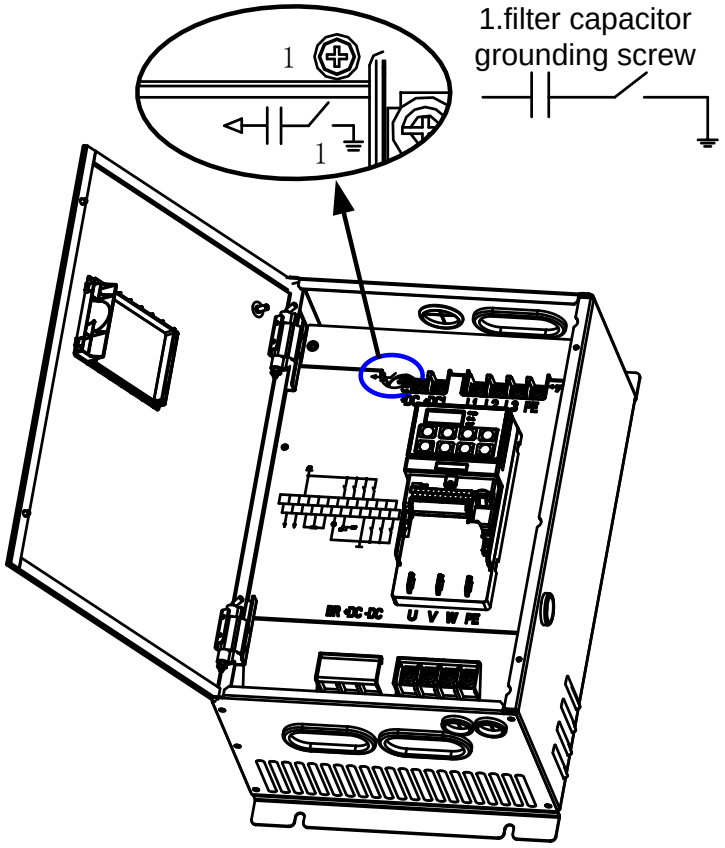
SizeE Untighten the filter capacitor grounding screw, disconnect the internalc EMC filter.

NOTE: When disconnect varistor, please twist out the screw and remove.



SizeE1 Tighten the filter capacitor grounding screw, fit the internal EMC filter.

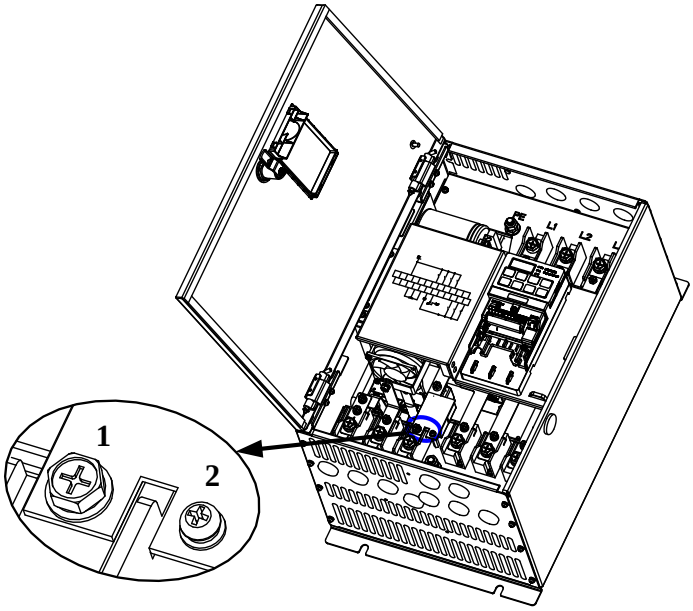
Untighten the filter capacitor grounding screw, disconnect the internalc EMC filter.



Size F Untighten screws 1 and 2 and

Size F1 remove the EMC filter board, and then remove the EMC filter.

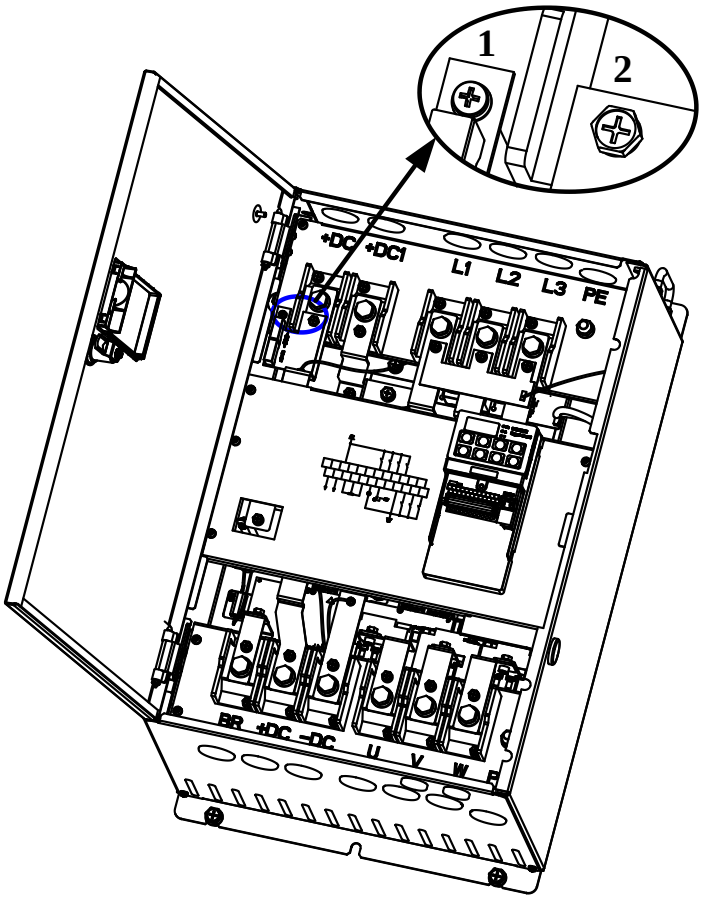
NOTE: In order to ensure reliable grounding, retighten screws 1 and 2 after removing the EMC filter.



Size G

Untighten screws 1 and 2 and remove the EMC filter board, and then remove the EMC filter.

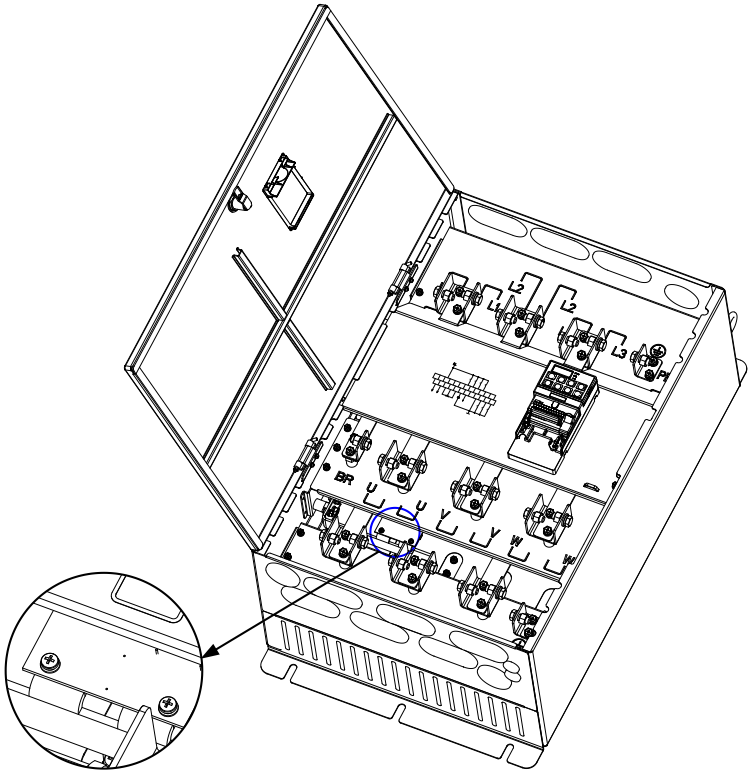
NOTE: In order to ensure reliable grounding, retighten screws 1 and 2 after removing the EMC filter.



Size J

Untighten screws and remove the EMC filter board, and then remove the EMC filter.

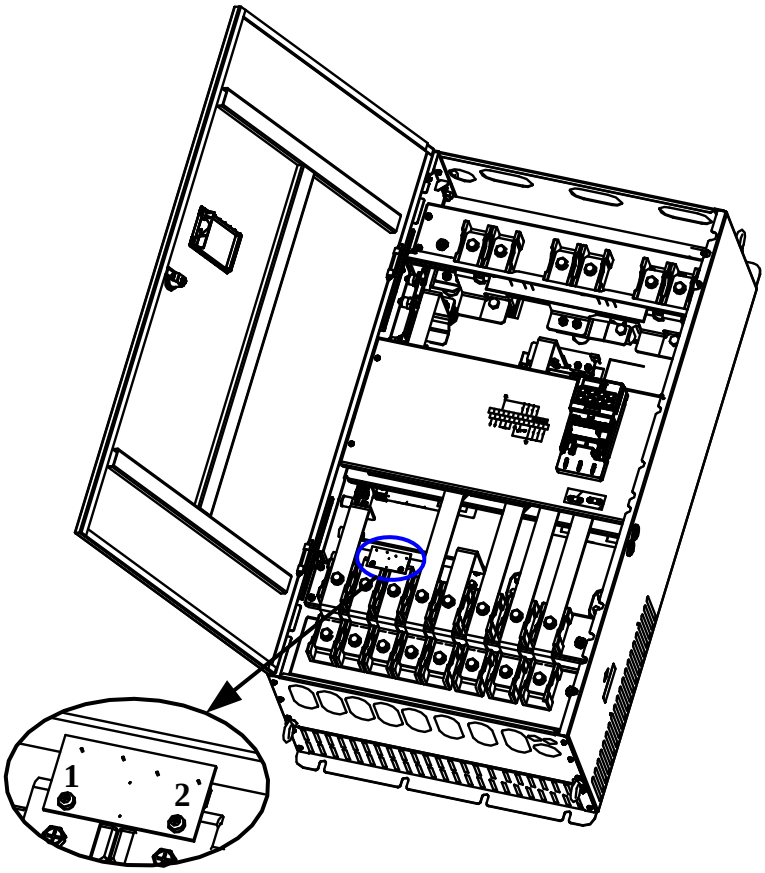
NOTE: In order to ensure reliable grounding, retighten screws 1 and 2 after removing the EMC filter.



Size K

Untighten screws 1 and 2 and remove the EMC filter board, and then remove the EMC filter.

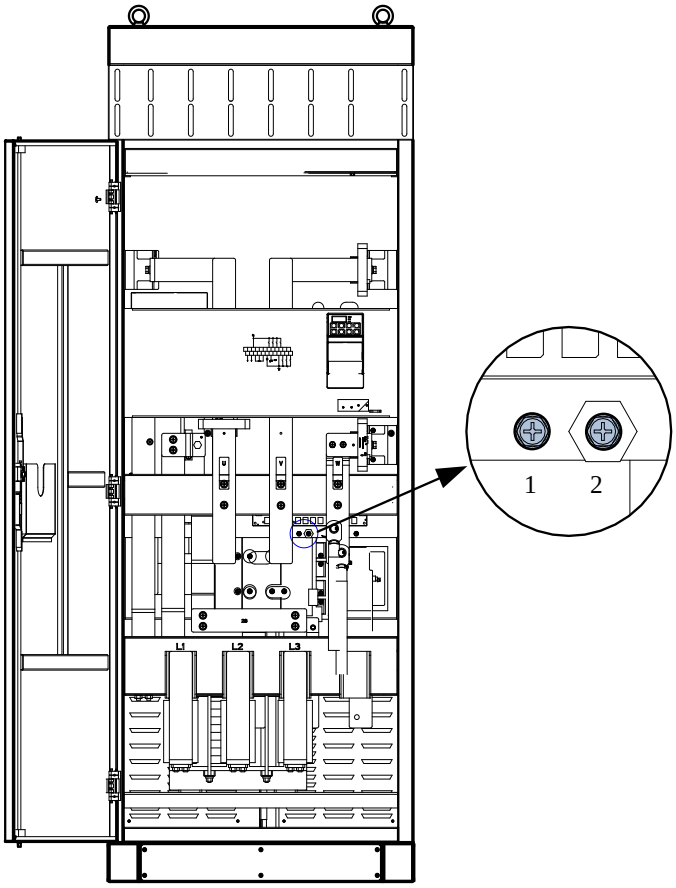
NOTE: In order to ensure reliable grounding, retighten screws 1 and 2 after removing the EMC filter.



Size L

In order to remove the EMC filter, remove screw 1 and disconnect the wiring.

The loose wire can be connected to screw 2 in order to prevent the EMC filter wiring from contacting other parts of the drive.



4 Operation and Display

4.1 Keypad

The HV300 drive keypad includes a 5-digit LED, 8 different buttons, 3 indicator lights, and a RUN light, as shown below:

Figure 4-1 LED keypad

4.1.2 LED Lights

The LED display can show the drive status, parameters and values, as well as trip codes and warning information.

The RUN light is on the upper right corner of the RUN switch 

and is illuminated when the drive is active.

Unit	Function	Color	Unit
Hz	On: output frequency Flash: Reference frequency	Green	Hz
A	On: Output current	Green	A
V	On: Output voltage (RMS) Flash: DC bus voltage	Green	V

4.1.3 Switch function

Switch function

Switches	Function Description
	In different level display, press the switch will return the last level. long press on the switch, will display the value of normal display parameter decided by P05.01. When the keypad is locked, 5 seconds pressing on the switch will unlock.
	Programmable switch, it can be function of Jog, Fwd./Rev., Coasting stop by setting P05.07.
	Enter next level of the keypad display.
	When it is keypad control mode (P00.03 or P10.07=0), press the switch will make the drive run.
	Stop, the switch will stop the drive unless the keypad is locked totally. Reset the drive if the keypad is not locked totally.
	Are used to select parameters and edit their values. In keypad mode, they are used to increase and decrease the speed of the motor.
	Under Run/Stop mode, press the switch the LED display will be output frequency, reference frequency, output current, output voltage, DC bus voltage in turn Under the edit of parameter value mode, press the switch will change the byte of the value.
	In different level display, press the switch will return the last level. long press on the switch, will display the value of normal display parameter decided by P05.01. When the keypad is locked, 5 seconds pressing on the switch will unlock.

NOTE: If there is a conflict on the content of parameter, pressing “PRG” switch can not enter the next parameter.

4.1.4 Keypad Operation

The keypad can control drive operation, or monitor the status of the drive, as described below:

1. LED Display

- If P05.02 is set to 0

Normal display is the value of the parameter which is selected by the P05.01. default is output frequency (value of P05.11).

HV300 has a quick display group, switchover value is: output frequency, reference frequency, output current, output voltage, DC bus voltage. Operation procedure is as the following figure.

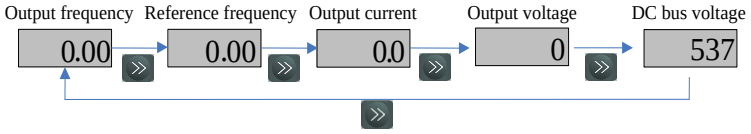


Figure 4-2 Display switchover flow

- If P05.02 is set to 1

On standby mode, normal display is reference frequency. Operation procedure is as the following figure.

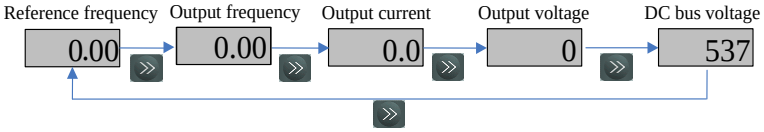


Figure 4-3 Display switchover flow

In running mode, normal display is output frequency. Operation procedure is as the following figure.

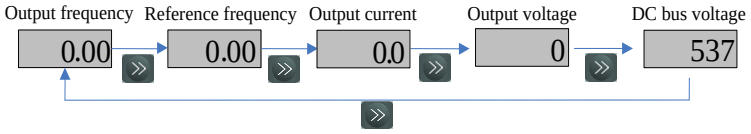


Figure 4-4 Display switchover flow

NOTE:

- Normal display can be the value of any parameter selected by P05.01. For example, if set P05.01=5.08, then the normal LED display will be motor speed.
- During the switchover process, press the switch of ESC, the LED display will return to the normal display content.

2. The view of the parameter and the edit of parameter value

For HV300 family, there are three levels about parameter view and edit.

Level 1: menu group

Level 2: parameter

Level 3: parameter content.

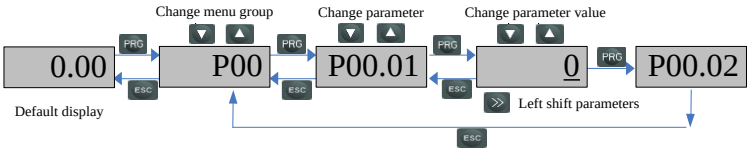


Figure 4-5 parameter view and edit flow

NOTE:

In level 3, user can turn the display to level 2 by pressing switch PRG or switch ESC, the difference among them is:

Press PRG will save the change of the value and return level 2 (next parameter), press PRG again, will display the value of next parameter.

Press ESC will not save the change and return the level 2 (current parameter), ESC again will return the level 1 display.

Only after press PRG, the change can be activable.

If there's no bite of parameter value is flashing, this means that the value of the parameter can't be changed, which could be due to:

- It is an actual parameter, and can't be changed
- The drive is running, and the parameter can't be changed while running

If more than one parameters are set to the same value (function), the following will occur:

- In Keypad setup, the change will not be saved after pressing PRG, and the display won't allow you to enter the next parameter
- PCTools set up, the drive will trip at F021.

List of parameters with conflict setup

Analog input	Digit input	PID output source	Logic output source	Threshold and selector output source
P08.03, P08.08	P09.02 — P09.08	P15.15	P16.07, P16.14, P16.19	P17.05, P17.10, P17.17, P17.24, P17.31

For example:

The default function of digit input terminal are:

P09.02=3 DI1 function is Run forward.

P09.03=4 DI2 function is Run reverse.

If change the setup of DI2, like set P09.03=3 (DI2 function is forward running also), press PRG, the value of P09.03 is still "4", and the Display can not enter the next parameter P09.04.

3. Example of editing parameter

The example is to change the value of P04.01 from 5.00Hz to 40.50Hz, as the following figure. The number with underline is flashing.

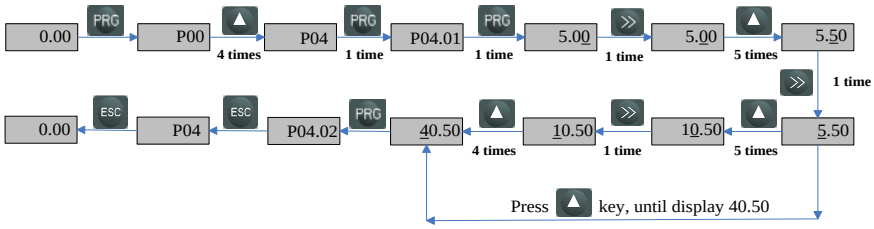


Figure 4-6 Editing parameter flow

4. Lock and unlock the keypad

To avoid wrong keypad option, HV300 has the function of keypad lock through the setup of P05.06, if the value of P05.06 is:

0: all the keys are activable

1: all the keys are locked

2: except RUN and STOP keys, other keys are locked.

Keypad unlocked operation: press ESC over 5 seconds and the value of P05.06 will become to be “0”, the keypad is unlocked.

5. User code

To protect the secrets of customer parameter setup, HV300 designs the function of user code. Once the user code is set, if can not enter the correct PIN in the P00.01, the keypad can only display normal display and parameter P10.06, and its value is "0".

(1) Set the user code

Default value of P00.01 is "0", and user code function is disabled. If set P10.06 a non "0" value (1 — 9999) and press PRG once and press ESC twice, it will enable the user code function. The example of setting the user code to 4 showed as below figure:

Figure 4-7 Setting code procedure

(2)—Verify the user code (PIN)

When the user code is enabling, only after entering the correct PIN into P10.06 and press PRG, customer can

view and edit all the parameters. After verifying user code successfully, if there's no any action on any switch on the keypad in two minites, the value of P10.06 will be changed to "0" automatically, the user code function is enable again, and the keypad will show the normal display (selected by P05.01).

If the PIN is "8", and the user code function as on Enable stage, following figure 3-8 shows how to pass the PIN verifying.

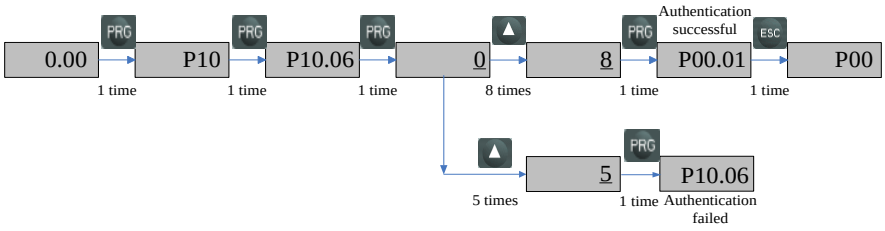


Figure 4-8 PIN verifying procedure

(3)— Remove the user code

There are two methods to remove the user code:

① Software remove

After verifying the PIN successfully, change the content of P10.06 to "0", then press PRG, disable the user code function.

② Hardware remove

During the drive power off process, press the switches of PRG + STOP + ▼ at the same time, then loosen the switches after power up.change the content of P10.06 to "0", disable the user code function.

6. Autotune

When do the motor auto-tune, make sure to set up the correct data of motor from the motor nameplate.

Refer to the motor nameplate. enter in right value into following parameters:

P00.13 (P13.06) motor rated voltage

P00.14 (P13.07) motor rated current

P00.15 (P13.08) motor rated frequency

P00.16 (P13.10) motor rated speed (RPM)

P00.19 (P13.05) motor power factor

Then operate as below:

Set P00.17 (P13.02) =1, press PRG, press ESC to return the normal display, press RUN, the drive will do the autotune, and keypad display is as the following figure:

Figure 4-9 Autotune display

After finishing the autotune, the drive will stop and P00.17 will be "0".

4.2 Drive control

4.2.1 Drive status

HV300 drive status is defined as: Ready (Stop), Running, Editing, Auto-tune, Trip, and Alarming.

Stop	After powered up and reset process, if there is no RUN action, the drive will keep the stop status, RUN light is off.
Running	The drive is activate, RUN light is on.
Editing	Through keypad or PCTools, program the parameters.
Autotune	When set P00.17 (P13.02) to "1" or "2" , if run the drive, drive will do the motor auto-tune, keypad will display "U", RUN light is on, after autotune, the drive will be on the stop status.
Trip	Because of internal fault, external fault or wrong operation, the drive will trip and display relative fault code.
Alarm	When drive is under alarm status, keypad will display relative alarm code (Hxxx). The alarm code will keep flashing for 3 seconds and then turn over to the normal display (selected by P05.01). The normal display will flash for 3 seconds then back to flash alarm code, will keep this cycle until the alarm is removed or trip. The parameter P12.13 can be set to decide if display the alarm information or not.

4.2.2 Control modes

Through P00.03 (P10.07), there are 3 control modes:

0: Keypad

1: Terminal

2: Serial comms

4.2.3 Reference source

HV300 has 9 kinds of reference source, by setting P00.04 (P01.01), source channels are as following:

0: Keypad

1: E-Pot

2: Preset

3: AI1

4: AI2

5: Serial communication

6: DI7 Pulse

7: Field bus option

8: User program

4.2.4 Reference source

Under speed mode, HV300 has 4 running modes, the priority level from high to low is as:
Jog >PLC >Textile >Common running, showed in figure:

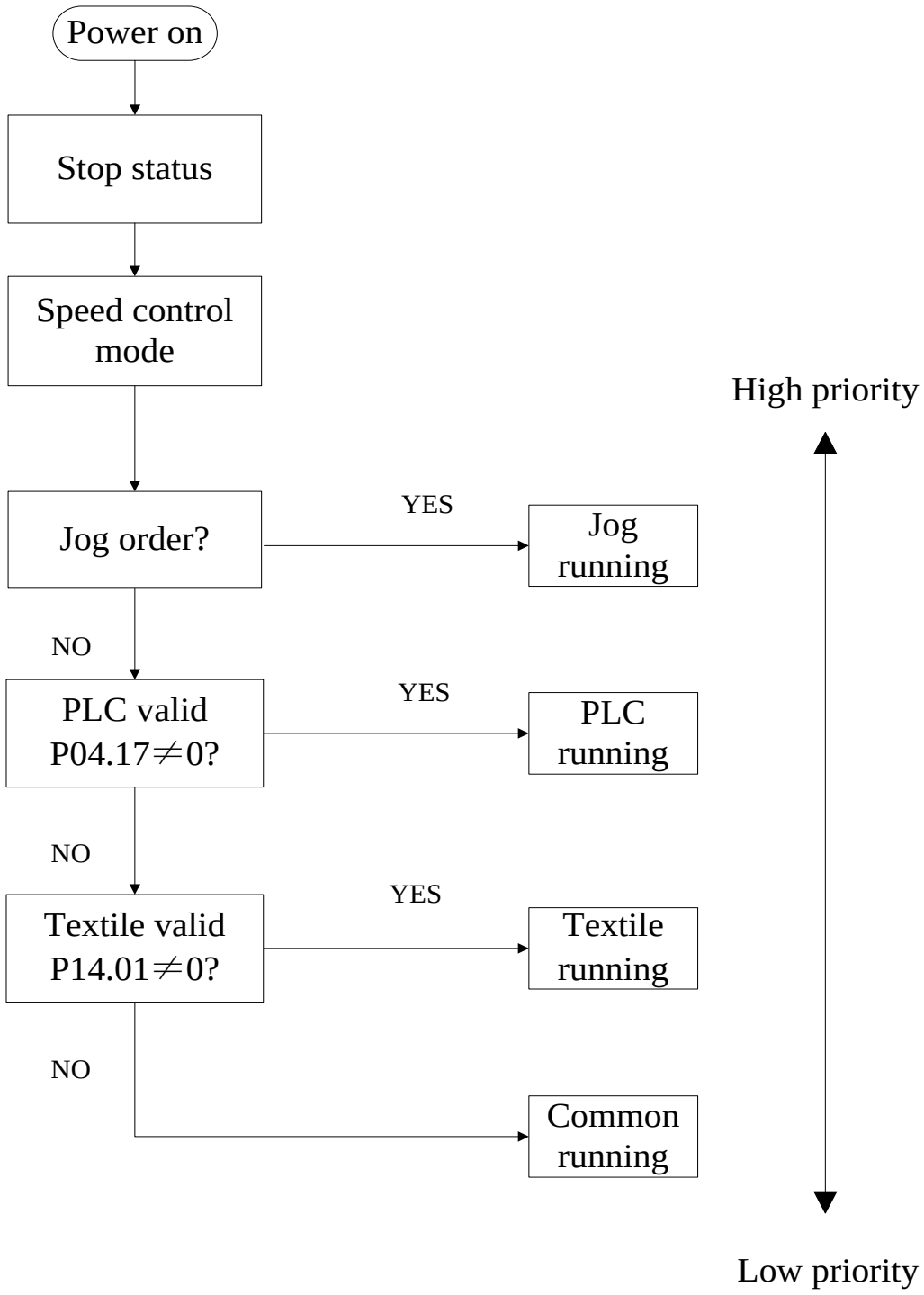


Figure 4-10 HV300 Running mode Priority

4.3 Quick commissioning

4.3.1 Keypad control

Use the parameter menu0 to explain the drive setup as below.

Keypad control setup

Parameter Setup	Description
P00.13=motor nameplate data	Set the motor rated voltage
P00.14=motor nameplate data	Set the motor rated current
P00.15=motor nameplate data	Set the motor rated frequency
P00.16=motor nameplate data	Set the motor rated speed
P00.19=motor nameplate data	Set the Power factor of the motor

Other parameters are default setup.

- Jog

Press 

and hold, the drive will run at 5.00Hz (default value of P01.04) at the accelerating rate (P02.22), release the switch, the drive will stop at the ramp mode set by P03.10.

NOTE: Jog again have to wait the interval period set by P02.24.

- Common run

Press 

, drive is running, Run light is on. Press 
, output frequency is up, Press 
, output frequency is down. Press 

, the drive will stop at the ramp mode set by P03.10, when the inverter output is disable, Run light is off.

4.3.2 Terminal control

Terminal control setup

Parameter Setup	Description
P00.03=1	Terminal Control
P00.04=3	Reference is from AI1
P00.13=motor nameplate data	Set the motor rated voltage
P00.14=motor nameplate data	Set the motor rated current
P00.15=motor nameplate data	Set the motor rated frequency
P00.16=motor nameplate data	Set the motor rated speed
P00.19=motor nameplate data	Set the Power factor of the motor

Other parameters are default setup.

Control terminal cabling as following figure.

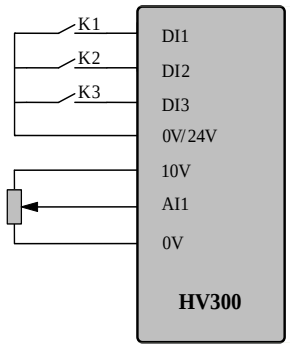


Figure 4-11 Two-wire (default) cabling

- Close switch K1, the drive is running forward and the run light is on. Open the switch K1, the drive will stop at the ramp mode set by P03.10. When the inverter is disabled, the run light is off.
- Close switch K2, the drive is running reverse and the run light is on. Open the switch K2, the drive will stop at the ramp mode set by P03.10. When the inverter is disabled, the run light is off.

  NOTE: Adjusting the potentiometer can change the output frequency.
- Close K1 and K2 at the same time, the drive will stop ruuning.
- Close switch K3, the drive will run at 5.00Hz (default value of P01.04) at the acceleration rate (P02.22). Open the switch K3, the drive will stop at the ramp mode set by P03.10.

  NOTE: Jog again have to wait the interval period set by P02.24.

Parameter P09.22 is used to define the 3-wire control.

P09.22=0, 3-wire is disabled (2-wire control)

P09.22=1, 3-wire control mode 1

P09.22=2, 3-wire control mode 2

- When (P09.22=1) 3-wire control mode 1 is selected, DI1, DI2, DI3 are automatically set as below:

P09.02=5 DI1 is 3-wire enable, Voltage control (SB1 is normal closed button, when it is open, drive will stop.)

P09.03=3 DI2 is Run Forward, Latching control

P09.04=4 DI2 is Run Reverse, Latching control

Wiring is as below figure:

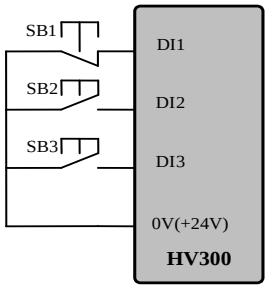


Figure 4-12 3-wire control connection

SB1: Stop button SB2: Run Forward button SB3: Run Reverse button

Press SB2, drive is running forward and the order is latched.

Press SB3, drive is running reverse and the order is latched.

Press SB1, drive stops.

- When (P09.22=2) 3-wire control mode 2 is selected, DI1, DI2, DI3 are automatically set as below:

P09.02=2 DI1 function is "RUN", Latching control

P09.03=5 DI2 function is 3-wire enable, Voltage control (SB1 is normal closed button, when it is open, drive will stop)

P09.04=6 DI3 function is FWD/REV, Voltage control,

Wiring is as figure.

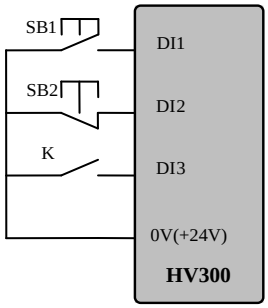


Figure 4-13 3-wire Control mode2 connection

SB1: Run button SB2: Stop button K: Direction switch

Press SB1, the drive is running, order is latched.

K is open, run forward. K is closed, run reverse.

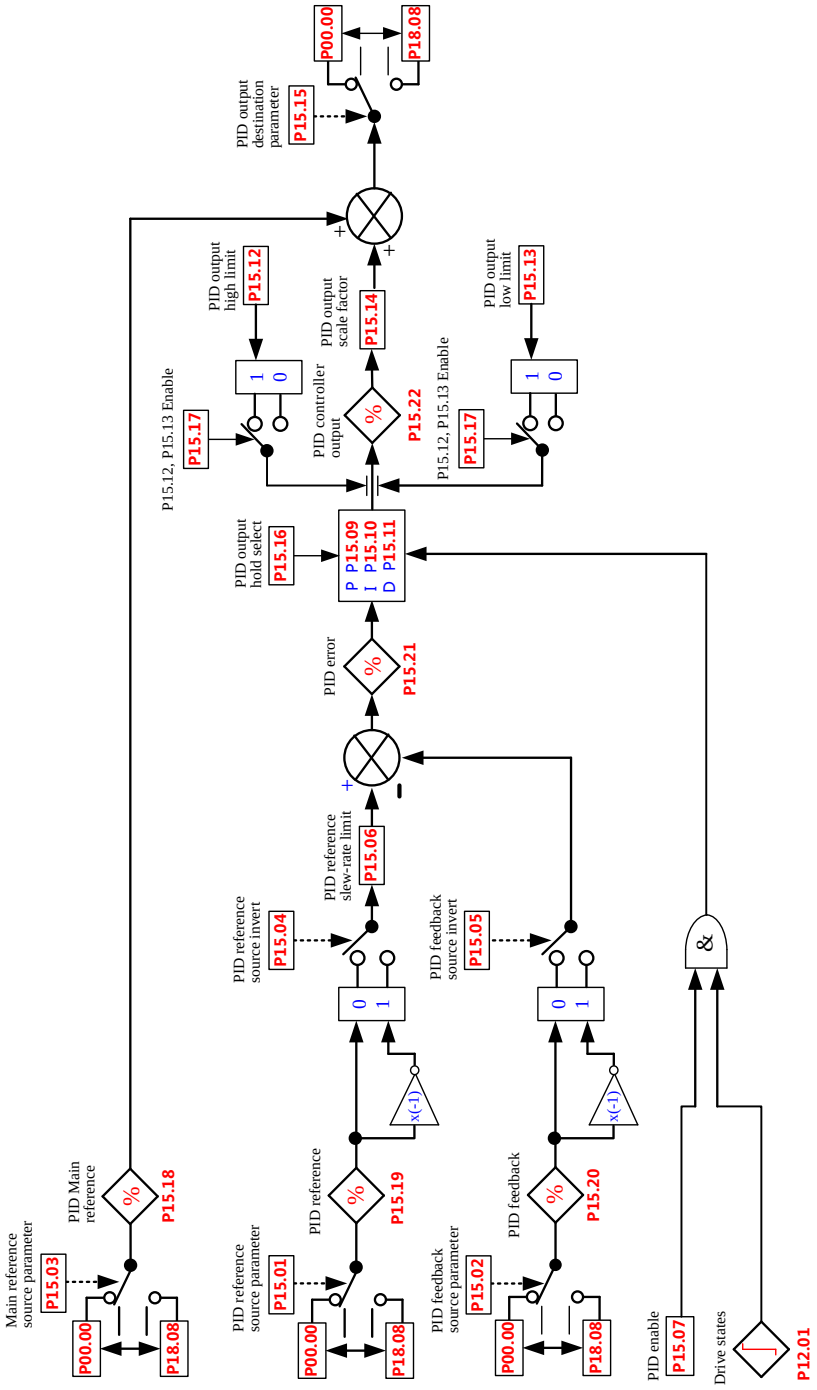
Press SB2, the drive stops.

NOTE: After pressing SB2, the drive stops. Release the SB2 button and the drive still stop. Have to trigger the

SB1 again, and then drive will run.

4.4 User PID controller

HV300 has a programmable PID controller. The block diagram is as below:



Typical application of PID controller is on the Stress Control, Press Control, Temperature Control, Flow Control, etc.

About parameters of PID controller please refer to the Appendix 2, menu15.

Using PID controller can do the process close-loop control. Following is a simple application example.

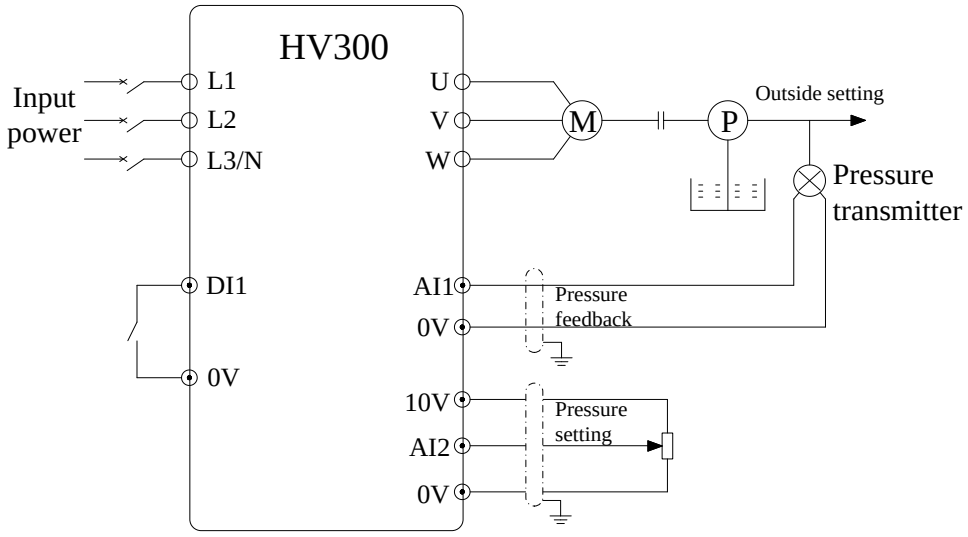


Figure 4-14 Constant water pressure control

Setup:

P09.02=3 DI1 function is run forward

P00.04 (P01.01) =8 Reference is user defined

P15.15=P01.27 PID is destinated to P01.27 (User defined reference source)

P15.01=P01.21 AI2 is PID reference source (Presser reference)

P15.02=P01.20 AI1is PID feedback resource (Presser feedback)

P15.07=1 PID enable

5 Parameters

5.1 General Description

HV300 drive's function is designed into two levels, basic function and advanced function.

For basic functions, the user can set up the function by selecting value of the parameter in the range of parameter basis value range, like 0, 1, 2, ect. In for advanced application, all programmable parameters can be setup in the range of advanced value range, normally is P01.01 to P18.08.

In order to use the HV300 drive easily for most general purpose application, we develop a shortcut parameter group (Menu P00). summarize most popular used parameters into MenuP00.In this HV300 User manual, we only introduce Menu P00 parameters, for total function and technical data explanation please read the HV300 Advanced User Manual which can be download from our website: http://www.hopewind.com.

5.2 Parameter Descriptions

The following parameter description includes:

Parameter ID: code of parameter.

Parameter name: simple explanation of the parameter.

Parameter range: the range of the parameter's content, in 【 】is the default value.

Change mode: to define if the parameter can be modified, and under what condition can change the parameter.

Run & Stop Write & Read can be done at running and stop.

Stop Only Write & Read can be done only at stop.

Actual Read only

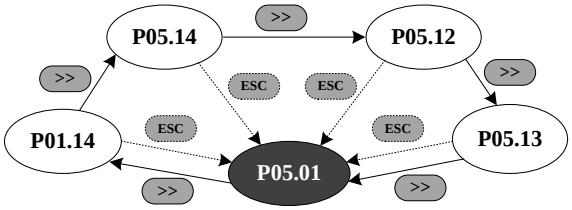
5.3 Menu P00

In P00 parameter group, each P00.XX parameter is related with the parameter from other menus. If the P00.XX parameter is changed, the related parameter is changed same too, and vice versa. The parameters in the brackets are the related parameter codes.

Parameter ID	Parameter Name	Range【Default】	Change Mode
P00.01 (P05.02)	Keypad cycle display mode	0 — 2【1】	Run & Stop

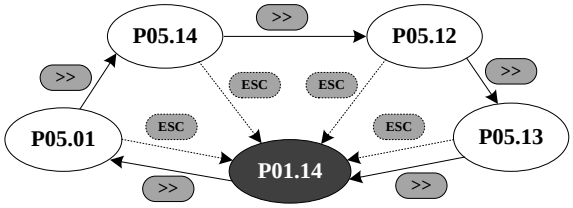
0: Fixed mode

Keypad cycle display order: on standby or running state, the order of keypad cycle display will not be changed.



1：Auto switch mode in running state

Keypad cycle display order: the order as shown in the figure below when the drive is on standby. when the drive is running, it will automatically switch to the circular order of fixed mode.



2：Reserved

Parameter ID	Parameter Name	Range【Default】	Change Mode
P00.02 (P05.03)	Parameter display selection	0 — 2【1】	Stop Only

0: Only menu P00

1: All menus

2: Only parameters which have different value with the defaults set

Parameter ID	Parameter Name	Range【Default】	Change Mode
P00.03 (P10.07)	Control Mode	0 — 2【0】	Stop Only

0: Keypad

1: Terminal

2: Serial comms.

Parameter ID	Parameter Name	Range【Default】	Change Mode
P00.04 (P01.01)	Reference source selector	0 — 8【0】	Run & Stop

0: Keypad

Through adjusting ▲ or ▼ switches to change the frequency reference, and the Power up value is decided by parameter P00.12 (P01.11).

1: E-Pot

Through the two terminals which are defined as UP, DOWN function to change the reference.

For example:

Define the DI4 and DI5 as UP and DOWN function, and the setup is as below:

P09.05=8 DI4 function is UP

P09.06=9 DI5 function is DOWN

2: Preset

Controlled by terminals, the reference is the value of P04.01 (preset 1) – P04.16 (preset 16).

Use the default setup as an example:

P09.05=0 DI4 is preset select bit 0

P09.06=1 DI5 is preset select bit 1

There are two operation modes:

- When the reference source is preset, the terminal status will be as shown below:

Preset and preset terminal status corresponding table 1

DI5 Status (bit 1)	DI4 Status (bit 0)	Speed
OFF	OFF	Preset 1 (P04.01)
OFF	ON	Preset 2 (P04.02)
ON	OFF	Preset 3 (P04.03)
ON	ON	Preset 4 (P04.04)

- When the reference source is not preset, terminal status as shown below:

Preset and preset terminal status corresponding table 2

DI5 Status (bit 1)	DI4 Status (bit 0)	Speed
OFF	OFF	Keep the frequency setting
OFF	ON	Preset 2 (P04.02)
ON	OFF	Preset 3 (P04.03)
ON	ON	Preset 4 (P04.04)

About 16 presets (P04.01 — P04.16) control, please refer to Menu P04.

3: AI1

There are two analog input terminals: AI1, AI2.

In this User manual, only AI1 is introduced.

According to parameter P08.03, AI1has three functions:

P08.03=0, AI1 is speed reference

P08.03=1, AI1 is the speed limit under Torque control mode

P08.03=2, AI1 is the Torque error

About AI1 signal mode, there are current mode and voltage mode, details please refer to the explanation of parameter P00.05 (P08.02).

4: AI2

AI2 function is decided by the parameter P08.08, it is same with AI1, and the default function is frequency reference.

AI2 has only voltage mode.

AI2 detail setup please refer to Menu P08

5: Serial comms.

Under this mode, user can change the value of P04.01 (Preset 1) for the reference. Details please refer to the appendix1.

6: DI7 Pulse input

When P09.24=2, DI7 function is reference channel (by input pulse)

For example:

The maximum frequency of input pulse (P09.27) is 20.0kHz, actual input pulse is 10.0kHz.

The percentage of DI7 pulse input (P09.38) is 50.0%. Then the reference is:

Reference = DI7 input percentage (P09.38) ×maximum reference (P00.07)

= 50.0%×50.00Hz

= 25.00Hz

7: Optional card (By option modules)

8: User program

By destination and source control, user can define the reference channel freely. For example through Menu P17, user can define the reference source. About actual application guide, please refer to the ***HV300 Advanced User Manual***.

Parameter ID	Parameter Name	Range【Default】	Change Mode
P00.05 (P08.02)	AI1 mode selector	0 — 6【6】	Stop Only

AI1 signal can be voltage or current mode.

0: 0mA — 20mA

1: 20mA — 0mA

2: 4mA — 20mA (current loosing with trip)

3: 20mA — 4mA (current loosing with trip)

4: 4 mA — 20mA (current loosing without trip)

5: 20mA — 4mA (current loosing without trip)

6: 0V — 10V

When the AI mode selection is “0 — 5”, if the input current is over 26mA, the drive will trip at F012, the drive will stop as the mode decided by P03.10, then turn off the IGBTs.

When this parameter is set to 2 or 3, if the input current is less than 3mA, then the drive will trip at F013, the drive will stop as the mode decided by P03.10, then turn off the IGBTs.

NOTE: If the selection is "2 — 5", once the current is less than 3mA, P08.16 (current loosing indicator) is 1.

Parameter ID	Parameter Name	Range【Default】	Change Mode
P00.06 (P04.01)	Preset 1	±Max. reference【5.00】	Run & Stop

Parameter ID	Parameter Name	Range【Default】	Change Mode
P00.07 (P01.02)	Max. reference	0.00Hz — 300.0Hz【50.00】	Stop Only
P00.08 (P01.03)	Min. reference	0.00Hz — max. reference【0.00】	Stop Only

If P03.01=0 (reverse is enabled), then the P00.08 is fixed at 0.00Hz.

Parameter ID	Parameter Name	Range【Default】	Change Mode
P00.09 (P02.04)	Acceleration rate 1	0.0s — 3600.0s【10.0】	Run & Stop
P00.10 (P02.05)	Deceleration rate 1	0.0s — 3600.0s【20.0】	Run & Stop

Acceleration rate is the time from 0Hz to maximum reference.

Deceleration rate is the time from maximum reference to 0Hz.

For example:

P00.07 (P01.02) = 100.00Hz, set up the maximum reference

P00.09 (P02.04) = 10.0s

After starting, the drive output frequency is from 0.00Hz ramp to 50.00Hz and the acceleration rate is: 10.0s × (50.00Hz/100.00Hz) = 5.0s

Parameter ID	Parameter Name	Range【Default】	Change Mode
P00.11 (P03.10)	Stop mode	0 — 3【0】	Stop Only

0: Ramp stop

1: Coasting

2: Ramp +DC injection

3: Coasting +DC injection

Parameter ID	Parameter Name	Range【Default】	Change Mode
P00.12 (P01.11)	Keypad power up reference	0 — 2【0】	Run & Stop

When the reference source is keypad, the reference when powered up is decided as below:

0: Starting reference is "0"

1: Starting reference is the output frequency before powered off

2: Starting reference is preset1 (P04.01)

Parameter ID	Parameter Name	Range【Default】	Change Mode
P00.13 (P13.06)	Motor1 rated voltage	200V: 0V — 240V【220V】 400V: 0V — 480V【380V】 690V: 0V — 690V【660V】	Stop Only
P00.14 (P13.07)	Motor1 rated current	G or P type: 0.1A — rated current×1.2 GP type: 0.1A — P type rated current【by model】	Stop Only
P00.15 (P13.08)	Motor1 rated frequency	1.00Hz — 300.0Hz【50.00】	Stop Only
P00.16 (P13.10)	Motor1 rated RPM	1rpm — 18000rpm【0】	Stop Only
P00.17 (P13.02)	Autotune selector	0 — 3【0】	Stop Only

0: No action

1: Static autotune1 (first run)

When P00.17=1, press PRG make sure the change and return the ready stage, once there is a run order, the drive will do the static auto-tune, after finished, P00.17=0, and the drive will be at ready status.

2: Static autotune2 (every run)

When P0.17=2, every run order received, the drive will do the autotune, after the static autotune, save the result into the EEPROM, and P0.17=2, and the drive is running.

3: Reserved

NOTE: If the auto-tune is working without load motor, the drive will trip at F016.

Parameter ID	Parameter Name	Range【Default】	Change Mode
P00.18 (P13.11)	Motor1 stator resistance	0.000 — 60.000Ω 【0】	Stop Only

After auto-tune finished, this parameter will be updated. If the resistance value is out of the range, trip F016 will happen.

Parameter ID	Parameter Name	Range【Default】	Change Mode
P00.19 (P13.05)	Motor1 power factor	0.00 — 1.00【0.85】	Stop Only

PF and motor rated current (P00.14) are used to calculate the motor torque current and magnetizing current.

Parameter ID	Parameter Name	Range【Default】	Change Mode
P00.20 (P13.01)	Motor voltage control mode	0 — 1【0】	Stop Only

0: V/F control

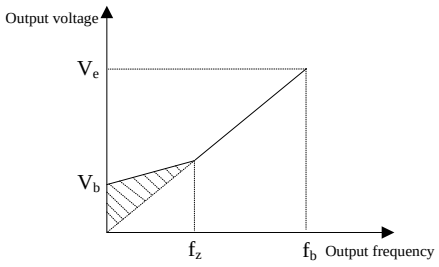
1: Open loop vector control

Parameter ID	Parameter Name	Range【Default】	Change Mode

P00.21 (P10.10)	Switch frequency	1kHz — 15kHz【by model】	Run & Stop

Switch frequency can affect the motor noise and drive power loss, higher switch frequency, lower motor noise but bigger IGBT power loss.

Parameter ID	Parameter Name	Range【Default】	Change Mode
P00.22 (P06.08)	Voltage boost level	0.0% — 30.0%【by model】	Run & Stop



Ve: motor rated voltage

Vb: Boost voltage=Ve×P00.22

fZ: boost close frequency (P06.09)

fb: rated frequency

Figure 5-1 Voltage boost

Parameter ID	Parameter Name	Range【Default】	Change Mode
P00.23 (P06.01)	V/F mode setup	0 — 3【0】	Stop Only

Different V/F characteristic is defined by P00.23 to meet the demanding from different load.

There are three kinds of fixed curve and one user programmed line

When P00.23 (P06.01) is 0, user can define the different fold lines by the setting of P06.02 — P06.07, add (V1, F1)、 (V2, F2)、 (V3, F3) three points to define the V/F lines mode.

- The default V/F is a straight line, as the line 0 in the following figure.
- When P00.23 (P06.01) is set to 1, it is a 2.0 law ramp, curve 1 in the following figure.
- When P00.23 (P06.01) is set to 2, it is a 1.7 law ramp, curve 2 in the following figure.
- When P00.23 (P06.01) is set to 3, it is a 1.2 law ramp, curve 3 in the following figure.

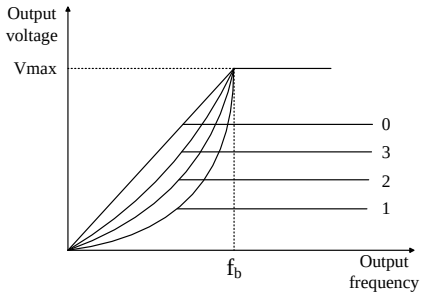


Figure 5-2 **Motor V/F curve**

Parameter ID	Parameter Name	Range【 Default】	Change Mode
P00.24 (P10.08)	Load default	0 — 1【0】	Stop Only

0: No action

1: Load default

When P00.24=1, and press PRG switch, parameters are loaded default setup and save into the EEPROM, P00.24=0.

NOTE:

- After loading default, except motor parameters, all other parameters are recovered to factory setup.
- After loading default, P00.01 is 0, means User Code is disable.
- Recommend to upload the parameter setup to the keypad's EEPROM before loading default.

6 Troubleshooting

6.1 Faults and Corrective Actions

When a drive trip (fault) happens, the keypad will display the corresponding trip code and drive output is disabled.

Trip codes range from code F001 to F043. If your drive displays a trip code, refer to the table below to find the description, possible reasons for the fault, and corrective actions.

If you need service support, please contact the local distributor or supply factory.

Trip Code	Trip Description	Possible Reasons	Corrective Actions
F001	Over current Turn off the IGBTs, can reset after 10s when trip removed	Output shortage	Check the motor cable and electric connection
		Acceleration or deceleration rate is too short	Use appropriate ramp time
		When the motor axis is not static, run the drive	By P03.05, set the start mode is spinning
		Internal fault	Contact service
F002	Over voltage Turn off the IGBTs, can reset after 1s when trip removed	Supply voltage is too high	Make sure the power supply is in the spec. arrange
		Load change suddenly	Avoid to change load suddenly
		Deceleration rate is too short	Increase the deceleration rate and add a suitable brake resistor
		Internal fault	Contact service
F003	Under voltage Turn off the IGBTs, can auto reset after trip removed	Supply voltage is low	Check the power supply
		During drive power off	Normal, and not log in the trip tracking
		Internal fault	Contact service
F004	Input phase loss Stop the drive according to the stop mode, can reset after 1s when trip removed	Power supply phase loss	Check the power supply and cabling
F005	Output phase loss Stop the drive according to the stop mode, can reset after 1s when trip removed	Output phase loss	Check the output voltage and motor cabling
		Internal fault	Contact service
F006	Brake unit shorted Turn off the IGBTs, can reset after 10s when trip removed	Brake resistor trouble	Check the brake resistance and the cabling
		Internal fault	Contact service
F007	Heatsink1 over heat, turn off the IGBTs, can reset after 1s when trip removed	Environmental temperature is high	Reduce the environmental temperature
		Air flow channel blocked	Clean the air flow channel
		Fan failed	Replace the fan
		Internal fault	Contact service
F008	Heatsink2 over heat(45KW and over), turn off the IGBTs, can reset after 1s when trip removed	Environment temperature is high	Reduce the environmental temperature
		Air flow channel blocked	Clean the air flow channel
		Fan failed	Replace the fan
		Internal fault	Contact service
F009	IGBT junction over heat turn off the IGBTs, can reset after 1s when trip removed	Switch frequency is higher	Reduce the switch frequency
		Frequently accelerating and decelerating under heavy load condition	Replaced by a larger drive. increase the ramp time. enable the auto adjust function on switch frequency
		Internal fault	Contact service
F010	Motor overload Stop the drive according to the stop mode, can reset after 1s when trip removed	V/F is not right	Setup V/F and boost correctly
		Supply voltage is lower	Check the power supply and cabling
		Motor axis is stocked or the load changing is too big	Check the load
		The factor for motor overload protecting (P12.12) is lower	Correct the factor (P12.12)
F011	Motor overheat Stop the drive according to the stop mode, can reset after 1s when trip removed	Load is too big	Check the load and current
		Motor heat dissipation channel is stocked	Check the motor
		Motor fan is not working	Change the motor fan

		Motor thermistor abnormal	Check the thermistor resistance and replace it
F012	AI1over current Stop the drive according to the stop mode , can reset after 1s when trip removed	AI1 input current is over 26mA	Check AI1 input
F013	AI1 input loosing Stop the drive according to the stop mode, can reset after 1s when trip removed	AI1 input current is smaller than 3mA	Check AI1 input
F014	User 24V overload Stop the drive according to the Stop mode, can reset after 1s when trip removed	Output current of 24V and DO1is over 100mA	Check if there is shortage on the output of DO and 24V
F015	Parameter cloning wrong can reset after 1s when trip removed	Keypad cloning is abnormal	Power up again
		Keypad EEPROM is empty, and download the parameter setup to the drive	Upload the parameter setup to the keypad, then do the download
		Inner fault	Contact service
F016	Auto-tune wrong can reset after 1s when trip removed	The drive size can't match the motor power size	Change the drive
		Set the wrong motor data	Reset up the motor data by motor nameplate
		Before the auto-tune finished, stop the drive	Wait until finished
F017	Output terminal short circuit when power up	output terminal short circuit	Check wiring and motor insulation
		Current detection fault	Contact service
F018	External fault Stop the drive according to the Stop mode, can reset after 1s when trip removed	An external fault input from one of the DI terminals	Check the external equipments
F019	Reserved	–	–
F020	EEPROM read and write failure	Wrong happens when read & write the control word	Press STOP switch to reset the drive and try again. contact service
		Internal fault	Contact service
F021	Destination fault can reset after 1s when trip removed	Wrong parameter destination	Check if there parameters are set to the same function, correct it, press STOP switch to reset. Load default, and reset the drive
F022	Option fault can reset after 1s when trip removed	Option wrong fitting	Fit the correct option module, try again
		Option failure	Contact service
F023 — F029	Reserved	–	–
F030	Soft start circuit fault Turn off IGBTs, can not reset	Soft start circuit failed	Contact service
F031	Main fan fault Turn off IGBTs, cannott reset	Fan blade rotating abnormal	Check the fan blades
		Wiring is wrong	Check fan wiring
F032	Control fan fault (30kW and above) Turn off IGBTs, can not reset	Fan blade rotating abnormal	Check the fan blades
		Wiring is wrong	Check fan wiring. Contact service
F033	Current sense fault Turn off IGBTs, can not reset	Internal fault	Contact service
F034	Power DSP fault Turn off IGBTs, can not reset	Software overflow	Power off and up
		Internal fault	Contact service

F035	MCU can not receive the data from DSP Turn off IGBTs, can not reset	Software abnormal	Contact service
		MCU or DSP failed	Contact service
F036	MCU receives wrong data from DSP Turn off IGBTs, can not reset	External disturbance	Proper cable layout
		Internal fault	Contact service
F037	Over current during power up Turn off IGBTs, can not reset	Earth fault or current sense circuit failure	Check the output cabling and motor. Contact service
F038	Wrong drive model Turn off IGBTs, can not reset	Internal fault	Contact service
F039	Inner thermister failed Turn off IGBTs, can not reset	IGBT damaged	Contact service
F040	Software abnormal Turn off IGBTs, can not reset	Software running wrong	Contact service
		MCU or DSP failed	Contact service

All above trips can be categorized into 4 types.

Fault category

Type	Trips	Description
Auto reset	F003	F003 (under voltage), can auto reset the drive base on the actual DC bus voltage
Can not reset	≥F030	Fault from inner failure (except external disturbance).
EEPROM read & write	F020	When the trip happens, can load default, and then reset the drive.
Odinary trip	F001, F006	can reset after 10s when trip removed
	Other trips	can reset after 1s when trip removed

NOTE:

- F003 can be auto-reset, the under voltage threshold level and hysteresis is different with different rated voltage level.
- When F003 happens, drive starts to save the parameters.
- Only when the drive is active, the trip F003 will be recorded in the fault tracking log.
- Menu P11 is for trip tracking.

6.2 Alarms and Actions

When drive is alarming, the drive will keep running, and the keypad will display relative alarm code (Hxxx), and the alarm code will keep flashing for 3 seconds then turn over to the normal display (selected by P05.01). The normal display will flash for 3 seconds then back to flash alarm code, will keep this cycle until the alarm is removed. The parameter P12.13 can be set to decide if to display the warning information or not.

Codes	Descriptions	Possibilities	Response
H001	Current limit is working	Output current is limited at: P7.03×P00.14 (P13.07 Motor1 rated current)	Checking the motor cable
			Properly increase the acceleration and deceleration rate
			Set P03.05 to be the correct start mode (spinning)
H002	Motor overload is in integrating	Output current is bigger than the value of P13.07 (P13.19), until overload trip	Use bigger motor and drive
H003	Heatsink is hot	Environment temperature is higher	Reduce the environment temperature
		Air flow channel stocked	Clean the flow channel
		Fan failed	Replace the fan
H004	IGBT junction temperature is high	Frequently accelerating and decelerating	Modify the parameter setup
			Use bigger drive
H005	Low DC bus operation (only for 400V models)	Power supply voltage is low	Checking the power supply
H006	Reserved	–	–
H007	Sleep mode	The drive is in sleep mode	After the drive quits sleep mode, the alarm is removed

6.3 Other issues

During the drive operation, maybe some other issues can happen but not caused by drive itself, so the drive will not display trip or alarm code. Customer can check the issues following the suggestion.

Issues	Reasons	Check And Treatments
Motor does not start	Power issue	Check input voltage, output voltage and unbalance level
		If the motor connection is correct?
		If the busbar link between +DC and +DC1 is fitted correctly?
	Control part	Run order input active?
		If both FWD and REV active same time?
		If the reference is 0?
		If the reference source is analog, is there correct analog input signal?
		If set P09.21correctly? (correct common point)
	Parameter setup issue	If the control channel is set correctly? (P00.03)
		If the reference source is selected correctly? (P00.04)
		If the enable (P03.19) is "1"? And under default setup, check the DI6 is connected to the common?
	Load issue	If the load is too big?
		If the mechanical part is stuck?
	Motor torque is not enough	Check if the setup about menu P06 and P07 correctly?
Motor makes abnormal noise	Drive output voltage unbalance	Check the motor connection
	Mechanical issue	Check the motor and related mechanical parts
	Wrong setup	Check the parameter setup
Motor running direction abnormal	Motor cabling issue	Check the output U, V, W if matches U, V, W of motor
	Control signal issue	Check if the correct direction order is enabled
Motor ramp motion is not stable	Acce. or dece. rate is too short	Try suitable values for P00.09 and P00.10
	Too big load	Adjust the load condition
After ramp operating, speed is not stable	Load issue	Check if the mechanical load keeps changing
	No auto-tune	Do the motor auto-tune
	Motor data setup issue	Check if set the motor data according to the motor nameplate
Cannot write the parameter	Change is limited	Only can change at stop
		The parameter property is "actual"
	Keypad is locked	Press ESC switch for 5s to disable the keypad lock
	Parameter is not displayed	Set the value of P00.02 to be 1 to display all the parameters
	Enable the user code	Disable the user code
	Conflicts on parameter setup	Load default and set the parameters correctly
No display on the keypad	Link issue	Check the link between the keypad and drive, if the keypad is fixed well?
	DC bus busbar link issue	Check the link between +DC and +DC1fitted well

7 Maintenance

7.1 Routine Maintenance

Since HV300 drives are exposed to high temperatures, variable humidity, dust, vibration, and other different environmental conditions, certain internal parts may wear faster than others. Failure to properly maintain the drive could risk drive failure or reduced lifetime, so it is necessary to follow routine periodic maintenance procedures.

7.1.1 Routine maintenance items:

- If there is abnormal noise from motor rotating?
- If there is abnormal vibration during the motor running?
- If the drive installation environmental conditions changed?
- If the drive fan is working well?
- If the drive temperature is higher than normal?

Daily clean:

- Try to keep the drive tidy.
- Clean the dust from drive surface. avoid the dust coming into the drive, especially metal dust.
- Effectively clean the oil stuff from the fan surface.

7.2 Periodic check

Based on actual application and environment conditions, customer needs to do the termly checking to remove the risk of drive failure or safety issue. Attention, must make sure when the drive is powered off, the switching the supply must be disconnected by an approved electrical isolation device before gaining access to the electrical connections. Checking details as below.

Termly checking

Checking Area	Items	Method	Judgment
Environment	Make sure temperature, humidity, vibration level	Visual and measurement instrument	Must meet the HV300 environment specification

Checking Area		Items	Method	Judgment
		If there are tools or other stuff around the drive	Visual	Remove them
Voltage		Voltage of power and control parts	Instruments	Meet the technical specification
Mechanical		Abnormal noise or vibration	Visual, hearing	Normal
		Screws or nuts loosing?	Retighten	Normal
		Deform, broken?	Visual, replace	Normal
		Colour changed by heating?	Visual and replace	Normal
		Attached dirty, dust?	Visual and clean	Normal
Power	General	Screws or nuts losing?	Retighten	Normal
		Attached dirty, dust on conductors	Clean	Normal
	Power terminal	Broken?	Visual and ask service	Normal
	Brake resistor	Smell or broken by heating?	Visual, nose	Normal
		Resistance normal?	Multimeter	The resistance should be in ±10% error
	Transformer, choke	Unusual vibration or smell?	Visual, hearing, nose	Normal
	Contactor, relay	Cracking noise	Hearing	Normal
		Contactors are ok?	Visual	Normal
	Fan	Screws loosing?	Retighten	Normal

Checking Area		Items	Method	Judgment
Cool system		Colour changed by heating?	Visual	Normal
		Abnormal noise or vibration	Visual, hearing, make the blades moving	Rotating smoothly
	Air flow channel	Heatsink, channel stocked?	Visual and clean	Normal

7.3 Parts replacement

Inside of a drive, different parts have different lifetimes according to normal technique rules, and the actual lifetime is related with operating and environmental conditions, in order to maintain the drive to be healthy, it is recommended to replace some electrical parts termly, the suggestion is as in following table.

Parts	Life cycle	Cause	Judgment Method
Fan	2 — 3 year	Bearing or blade was worn out	Blade of fan was crannied? Is there any abnormal vibration? Blade of fan rotates normally?
Capacitor	4 — 5 year	High environmental temperature. high ripple current caused by frequently Skipping of the load. electrolyte was aged.	Liquid come out? safety valve raised? Measure the Electrostatic capacity. Measure the insulation resistance.

7.4 Drive storage

When the customer plans to store the drive for a short time or long time, please follow the below instructions:

- It is better to keep the drive in the original factory package.
- After long time storage, the drive's capacitors must be dealt with.

NOTE: The calculation of storage time is not from the purchase date, but should be the factor's delivery date.

Action on drive after storage

Storage Time	Action	Ready Time
In half year	No action	N/A
Half year to two years	Before run the motor, the drive is applied normal voltage for an hour	1 hour
Over two years	Use a variac to apply the voltage on the drive gradually	2 hours

7.5 Disposal

Please pay attention when the failed drives are disposal:

- Electrolytic capacitor: when set fire on the drive electrolytic capacitors, explosion may happen.
- Plastic parts:when fire the plastic parts of the drive, poisonous air could be released..

Handle method: handle the disposal drive as industrial waste.

8 Appendix

8.1 Communication

8.1.1 Communications port and wiring

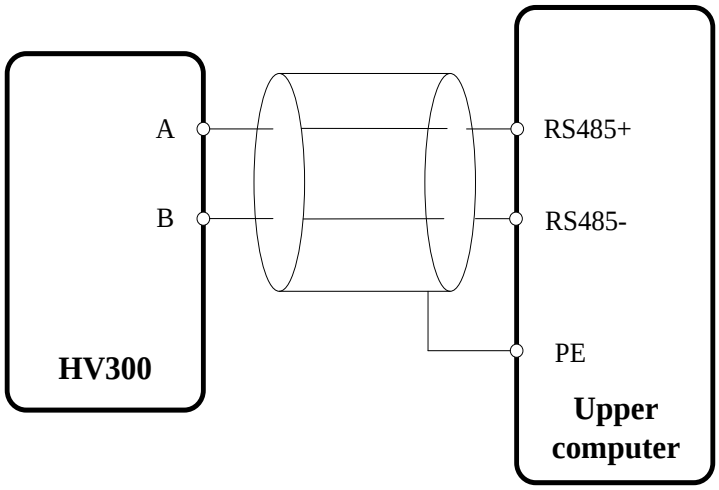
Hardware interface of HV300 drive communication:

RJ45 port

- Two terminals (A/RS484+, B/RS485−)

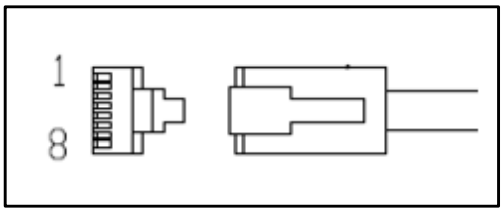
These two kinds of interface can play the same electric functions.

A serial communications link enables one or more drives to be used in a system controlled by a host controller such as a PLC or computer.



A-figure 1-1 Communications link

NOTE: The RJ45 port pin as shown in a-figure 1-2, also can use parallel line.

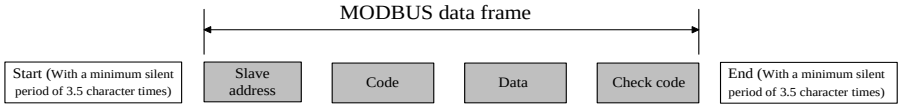


A-figure 1-2 RJ45 port pin configuration diagram

Pin Number	Function
1	NC
2	A (485+)
3	0V
4	24V
5	NC
6	Enable
7	B (485−)
8	B (485−)

8.1.2 Communication mode

HV300 uses Modbus RTU, it supports to read/write normal registers. The frame has the following basic format:



A-figure 1-3 Modbus RTU message format

Modbus RTU uses byte type of "big-endian" to state address and data (except the CRC, which is "little-endian"), sends high byte firstly, then low byte.

The frame is terminated with a minimum silent period of 3.5 character times at start and end. Use CRC-16 to check the message information.

8.1.3 Function codes

The function code determines the different requests.

A-table 1-1 Function code

Code (Hex)	Description
03H	Read multiple registers
06H	Write single register, not save when power off
10H	Write multiple registers, not save when power off
17H	Read and write multiple registers, not save when power off

8.1.4 Parameter mapping

The mapping rules between parameter number and register address as below:

Register address (hexadecimal): MNH

M= decimal convert to hexadecimal from "m"

N= decimal convert to hexadecimal from "n"

"m" and "n" calculation is as below, use a parameter Px.y as the example,

x.y*100=m*256+n+1

For example:

Modbus register address of parameter P04.01

4.01×100=401=1×256+144+1

Then

m=1, n=144

by the decimal to hexadecimal converting,

M= 01, N=90,

So, the Register address=0190H,

Note: register addresses for all HV300 parameters are in the Appendix3.

8.1.5 Function code example 1 (03H)

The example is to read the contents in P04.01 — P04.10 of HV300 drive, details as below table:

A-table 1-2 Code 03H example

Master Require							
Drive Node	Code	Start Register Address		Number Of Register Read		CRC Checking	
		MSB	LSB	MSB	LSB	LSB	MSB
01H	03H	01H	90H	00H	0AH	C4H	1CH

Slave (HV300 drive) Response									
Drive Node	Code	Number Of Register Read	Contents of P04.01 — P04.10					Check Sum Of CRC	
			P04.01		……	P04.10		LSB	MSB
			MSB	LSB		MSB	LSB		
01H	03H	14H	01H	F4H	……	07H	D0H	B9H	76H

8.1.6 Function code example 2 (06H)

The example is to write 8 into P03.27.

Master Require							
Drive Node	Code	Register Address		Register Data		Check Sum Of CRC	
		MSB	LSB	MSB	LSB	LSB	MSB
01H	06H	01H	46H	00H	08H	68H	25H
Slave (HV300 drive) Response							
Drive Node	Code	Register Address		Register Data		Check Sum Of CRC	
		MSB	LSB	MSB	LSB	LSB	MSB
01H	06H	01H	46H	00H	08H	68H	25H

8.1.7 Abnormal communication

If the communication is abnormal, HV300 drive will turn back to the response frame, the format is in the below table

A-table 1-4 Abnormal response format

Drive node	Code	Abnormal code	CRC checking sum	
1 bit	1 bit	1 bit	LSB	MSB

A-table 1-5 Abnormal code description

Code	Description
81H	Not support the parameter
82H	Register address is beyond limit, the registers being read is too many
83H	The content of register is over limit

8.1.8 CRC checking

CRC is 16 bit cycle redundance checking, normally the standard CRC-16 is called: x16+x15+x2+1. Send the 16 bit CRC message to LSB, in a frame do the calculation of all bits.

const unsigned char auchCRCHi[] = {

0x00, 0xC1, 0x81, 0x40, 0x01, 0xC0, 0x80, 0x41, 0x01, 0xC0,

0x80, 0x41, 0x00, 0xC1, 0x81, 0x40, 0x01, 0xC0, 0x80, 0x41,

0x00, 0xC1, 0x81, 0x40, 0x00, 0xC1, 0x81, 0x40, 0x01, 0xC0,

0x80, 0x41, 0x01, 0xC0, 0x80, 0x41, 0x00, 0xC1, 0x81, 0x40,

0x00, 0xC1, 0x81, 0x40, 0x01, 0xC0, 0x80, 0x41, 0x00, 0xC1,

0x81, 0x40, 0x01, 0xC0, 0x80, 0x41, 0x01, 0xC0, 0x80, 0x41,

0x00, 0xC1, 0x81, 0x40, 0x01, 0xC0, 0x80, 0x41, 0x00, 0xC1,

0x81, 0x40, 0x00, 0xC1, 0x81, 0x40, 0x01, 0xC0, 0x80, 0x41,

0x00, 0xC1, 0x81, 0x40, 0x01, 0xC0, 0x80, 0x41, 0x01, 0xC0,

0x80, 0x41, 0x00, 0xC1, 0x81, 0x40, 0x00, 0xC1, 0x81, 0x40,

0x01, 0xC0, 0x80, 0x41, 0x01, 0xC0, 0x80, 0x41, 0x00, 0xC1,

0x81, 0x40, 0x01, 0xC0, 0x80, 0x41, 0x00, 0xC1, 0x81, 0x40,

0x00, 0xC1, 0x81, 0x40, 0x01, 0xC0, 0x80, 0x41, 0x01, 0xC0,

```
0x80, 0x41, 0x00, 0xC1, 0x81, 0x40, 0x00, 0xC1, 0x81, 0x40,
0x01, 0xC0, 0x80, 0x41, 0x00, 0xC1, 0x81, 0x40, 0x01, 0xC0,
0x80, 0x41, 0x01, 0xC0, 0x80, 0x41, 0x00, 0xC1, 0x81, 0x40,
0x00, 0xC1, 0x81, 0x40, 0x01, 0xC0, 0x80, 0x41, 0x01, 0xC0,
0x80, 0x41, 0x00, 0xC1, 0x81, 0x40, 0x01, 0xC0, 0x80, 0x41,
0x00, 0xC1, 0x81, 0x40, 0x00, 0xC1, 0x81, 0x40, 0x01, 0xC0,
0x80, 0x41, 0x00, 0xC1, 0x81, 0x40, 0x01, 0xC0, 0x80, 0x41,
0x01, 0xC0, 0x80, 0x41, 0x00, 0xC1, 0x81, 0x40, 0x01, 0xC0,
0x80, 0x41, 0x00, 0xC1, 0x81, 0x40, 0x00, 0xC1, 0x81, 0x40,
0x01, 0xC0, 0x80, 0x41, 0x01, 0xC0, 0x80, 0x41, 0x00, 0xC1,
0x81, 0x40, 0x00, 0xC1, 0x81, 0x40, 0x01, 0xC0, 0x80, 0x41,
0x00, 0xC1, 0x81, 0x40, 0x01, 0xC0, 0x80, 0x41, 0x01, 0xC0,
0x80, 0x41, 0x00, 0xC1, 0x81, 0x40
} ;
//Low-Order Byte Table
const char auchCRCLo[] = {
0x00, 0xC0, 0xC1, 0x01, 0xC3, 0x03, 0x02, 0xC2, 0xC6, 0x06,
0x07, 0xC7, 0x05, 0xC5, 0xC4, 0x04, 0xCC, 0x0C, 0x0D, 0xCD,
0x0F, 0xCF, 0xCE, 0x0E, 0x0A, 0xCA, 0xCB, 0x0B, 0xC9, 0x09,
0x08, 0xC8, 0xD8, 0x18, 0x19, 0xD9, 0x1B, 0xDB, 0xDA, 0x1A,
0x1E, 0xDE, 0xDF, 0x1F, 0xDD, 0x1D, 0x1C, 0xDC, 0x14, 0xD4,
0xD5, 0x15, 0xD7, 0x17, 0x16, 0xD6, 0xD2, 0x12, 0x13, 0xD3,
0x11, 0xD1, 0xD0, 0x10, 0xF0, 0x30, 0x31, 0xF1, 0x33, 0xF3,
0xF2, 0x32, 0x36, 0xF6, 0xF7, 0x37, 0xF5, 0x35, 0x34, 0xF4,
0x3C, 0xFC, 0xFD, 0x3D, 0xFF, 0x3F, 0x3E, 0xFE, 0xFA, 0x3A,
0x3B, 0xFB, 0x39, 0xF9, 0xF8, 0x38, 0x28, 0xE8, 0xE9, 0x29,
0xEB, 0x2B, 0x2A, 0xEA, 0xEE, 0x2E, 0x2F, 0xEF, 0x2D, 0xED,
0xEC, 0x2C, 0xE4, 0x24, 0x25, 0xE5, 0x27, 0xE7, 0xE6, 0x26,
0x22, 0xE2, 0xE3, 0x23, 0xE1, 0x21, 0x20, 0xE0, 0xA0, 0x60,
0x61, 0xA1, 0x63, 0xA3, 0xA2, 0x62, 0x66, 0xA6, 0xA7, 0x67,
0xA5, 0x65, 0x64, 0xA4, 0x6C, 0xAC, 0xAD, 0x6D, 0xAF, 0x6F,
0x6E, 0xAE, 0xAA, 0x6A, 0x6B, 0xAB, 0x69, 0xA9, 0xA8, 0x68,
0x78, 0xB8, 0xB9, 0x79, 0xBB, 0x7B, 0x7A, 0xBA, 0xBE, 0x7E,
0x7F, 0xBF, 0x7D, 0xBD, 0xBC, 0x7C, 0xB4, 0x74, 0x75, 0xB5,
0x77, 0xB7, 0xB6, 0x76, 0x72, 0xB2, 0xB3, 0x73, 0xB1, 0x71,
0x70, 0xB0, 0x50, 0x90, 0x91, 0x51, 0x93, 0x53, 0x52, 0x92,
```

```
0x96, 0x56, 0x57, 0x97, 0x55, 0x95, 0x94, 0x54, 0x9C, 0x5C,
0x5D, 0x9D, 0x5F, 0x9F, 0x9E, 0x5E, 0x5A, 0x9A, 0x9B, 0x5B,
0x99, 0x59, 0x58, 0x98, 0x88, 0x48, 0x49, 0x89, 0x4B, 0x8B,
0x8A, 0x4A, 0x4E, 0x8E, 0x8F, 0x4F, 0x8D, 0x4D, 0x4C, 0x8C,
0x44, 0x84, 0x85, 0x45, 0x87, 0x47, 0x46, 0x86, 0x82, 0x42,
0x43, 0x83, 0x41, 0x81, 0x80, 0x40
} ;
/*    CRC Generation for Modbus messages    */
// The function returns the CRC as a unsigned short type
unsigned short CCRC_ModbusRTUCRC16 (unsigned char *puchMsg, short usDataLen )
{
    unsigned short ReturnValue;
    // high byte of CRC initialized
    unsigned char uchCRCHi = 0xFF;
    // low byte of CRC initialized
    unsigned char uchCRCLo = 0xFF;
    // will index into CRC lookup table
    unsigned char uIndex;
    // pass through message buffer
    while (usDataLen--)  {
        // calculate the CRC
        uIndex      = uchCRCHi ^ *puchMsg++;
        uchCRCHi = uchCRCLo ^ auchCRCHi[ uIndex ];
        uchCRCLo = auchCRCLo[ uIndex ];
    }
    ReturnValue   = uchCRCHi;
    ReturnValue      <<= 8;
    ReturnValue        |= uchCRCLo;
    return ReturnValue;
}
```

8.1.9 HV300 Communication Parameters

ID	Function	Range	Default	Change Mode	Modbus Address
P00.03 (P10.07)	Control mode	0: Keypad 1: Control terminal 2: Comms.	0	Stop Only	0002H (03EEH)
P00.04 (P01.01)	Reference channel	0: Keypad 1: E-pot 2: Preset 3: AI1 4: AI2 5: Comms. 6: DI7 pulse 7: Fieldbus option 8: User programmed	0	Run & Stop	0003H (0064H)
P03.27	Comms. control word	0 — 65535	0	Run & Stop	0146H
P03.28	Comms. control word enable	0 — 1	0	Run & Stop	0147H
P10.02	Address	0 — 247	1	Run & Stop	03E9H
P10.03	Baud rate	0: 2.4KBPS 1: 4.8KBPS 2: 9.6KBPS 3: 19.2KBPS 4: 38.4KBPS 5: 57.6KBPS	3	Run & Stop	03EAH
P10.04	Communication configuration	0: 1-8-1, RTU, no checking 1: 1-8-2, RTU, no checking 2: 1-8-1, RTU, odd checking 3: 1-8-1, RTU, even checking	1	Run & Stop	03EBH
P10.05	Response delay	0 — 250ms	2	Run & Stop	03ECH
P10.14	Drive status word	0 — 65535	Actual	Actual	03F5H

P03.27 and P03.28 provide a method of controlling the sequencer inputs and other functions directly from a single control word.

If P03.28 = 0, the control word has no effect,

if P03.28 = 1, the control word is enabled. Each bit of the control word corresponds to a sequencing bit or function as shown below.

8.1.10 Control Parameter (P03.27) description

Bit	Function
0	Drive enable
1	Run
2	3-wire enable
3	Run forward
4	Run reverse
5	FWD/REV
6	Jog forward
7	Jog reverse
8	Fault reset
9	Saving parameters
10	Clean the trip tack log
11	Enable comms. to write parameters
12	Reserved
13	Reserved
14	Reserved
15	Reserved

If P10.02 (drive address) = 0, the drive will not response the master.

8.1.11 Drive Status (P10.14) Description

Bit	Function	Bit	Function
0	Drive healthy	8	Drive control changed to by control terminal
1	Drive is active	9	Under voltage
2	100% load	10	Overload is calculating
3	Frequency is arrived	11	Alarm
4	Zero running	12	Length meets
5	Running reverse	13	Counting meets
6	Current limit is working	14	PLC running is over
7	Set time is meet	15	PLC is working

8.1.12 Scale Definition

- Frequency: 1:100

If the drive reference is 50.00Hz, then for hex is 1388H.

- Time rate: 1:10

If the acceleration rate is 10.0s, then for comms. hex is 0064H.

- Current rate: 1:10
- Voltage rate: 1:1

If the voltage is 380V, then for comms. hex is 017CH.

8.2 Parameter List

8.2.1 Menu P00: Shortcut Menu (Quick Commissioning)

ID	Function	Range	Step	Default	Change Mode	Modbus Register Address
P00.01	Keypad cycle display mode (P05.02)	0: Fixed mode 1: Auto switch mode in running state 2: Reserved	1	0	Run & Stop	0000H
P00.02	Parameter display control (P05.03)	0: Only P00 parameters 1: All menu parameters 2: Only parameters which are different with the default setup	1	1	Run & Stop	0001H
P00.03	Control mode (P10.07)	0: Keypad 1: Control terminal 2: Comms.	1	0	Stop Only	0002H
P00.04	Reference source selector (P01.01)	0: Keypad 1: E-pot 2: Preset 3: AI1 4: AI2 5: Serial comms. 6: DI7 pulse 7: Optional card 8: User programmed	1	0	Run & Stop	0003H
P00.05	AI1 mode selector (P08.02)	0: 0mA — 20mA 1: 20 mA — 0mA 2: 4mA — 20mA (current loosing with trip) 3: 20mA — 4mA (current loosing with trip) 4: 4mA — 20mA (current loosing without trip) 5: 20mA — 4mA (current loosing without trip) 6: 0V — 10V	1	6	Stop Only	0004H
P00.06	Preset1 (P04.01)	Min. frequency — 300.0Hz	0.01Hz	5.00Hz	Run & Stop	0005H
P00.07	Max. frequency (P01.02)	0.00Hz — 300.0Hz	0.01Hz	50.00Hz	Stop Only	0006H
P00.08	Min. frequency (P01.03)	0.00Hz — Max. frequency	0.01Hz	0.00Hz	Stop Only	0007H
P00.09	Accel. rate1 (P02.04)	0.0 — 3600.0	0.1	10.0	Run & Stop	0008H
P00.10	Decel. rate1 (P02.05)	0.0 — 3600.0	0.1	20.0	Run & Stop	0009H
P00.11	Stop mode (P03.10)	0: Ramp 1: Coast 2: Ramp+ DC injection 3: Ramp +coast	1	0	Stop Only	000AH
P00.12	Power up Keypad reference (P01.11)	0: 0.00Hz 1: The running frequency when last powered off 2: Preset 1	1	0	Run & Stop	000BH
P00.13	Motor1 rated voltage (P13.06)	0V — 240V 0V — 480V 0V — 690V	1V	200V: 220V 400V: 380V 690V: 660V	Stop Only	000CH

P00.14	Motor1 rated current (P13.07)	G or P type: 0.1A — rated current×1.2 GP type: 0.1A — P type rated current	0.1A	By model	Stop Only	000DH
P00.15	Motor1 rated frequency (P13.08)	1.00Hz — 300.0Hz	0.01Hz	50.00Hz	Stop Only	000EH
P00.16	Motor1 rated speed (P13.10)	1rpm — 18000rpm	1rpm	0rpm	Stop Only	000FH
P00.17	Auto-tune (P13.02)	0: No action 1: Static Auto-tune1 2: Static Auto-tune2 3: Reserved	1	0	Stop Only	0010H
P00.18	Motor1 stator resistance (P13.11)	0.000Ω — 60.000Ω	0.001Ω	0	Stop Only	0011H
P00.19	Motor1 Power factor (P13.05)	0.00 — 1.00	0.01	0.85	Stop Only	0012H
P00.20	Motor voltage control mode (P13.01)	0: V/F 1: Open loop vector control	1	0	Stop Only	0013H
P00.21	Switch frequency (P10.10)	1kHz — 15kHz	1kHz	By model	Run & Stop	0014H
P00.22	Voltage boost (P06.08)	0.0% — 30.0%	0.1%	By model	Run & Stop	0015H
P00.23	V/F mode (P06.01)	0: User define V/F 1: 2 law 2: 1.7 law 3: 1.2 law	1	0	Stop Only	0016H
P00.24	Load default (P10.08)	0: No action 1: Load default	1	0	Stop Only	0017H

8.2.2 Menu P01: Reference

ID	Function	Range	Step	Default	Change Mode	Modbus Register Address
P01.01	Reference source selector	0: Keypad 1: E-pot 2: Preset 3: AI1 4: AI2 5: Serial comms. 6: DI7 pulse 7: Optional card 8: User programmed	1	0	Run & Stop	0064H
P01.02	Maximum frequency	0.00Hz — 300.0Hz	0.01Hz	50.00Hz	Stop Only	0065H
P01.03	Minimum frequency	0.00Hz — Max. frequency	0.01Hz	0.00Hz	Stop Only	0066H
P01.04	Jog frequency	0.00Hz — P01.02	0.01Hz	5.00Hz	Run & Stop	0067H
P01.05	Skip frequency1	0.00Hz — Max. frequency	0.01Hz	0.00Hz	Stop Only	0068H
P01.06	Skip frequency2	0.00Hz — Max. frequency	0.01Hz	0.00Hz	Stop Only	0069H
P01.07	Band of skip frequency	0.00Hz — 30.00Hz	0.01Hz	0.00Hz	Stop Only	006AH
P01.08	Reserved	–	–	–	–	–
P01.09	Keypad reference display	-Max. frequency — + Max. frequency	0.01Hz	Actual	Actual	006CH
P01.10	E-Pot reference display	-Max. frequency — + Max. frequency	0.01Hz	Actual	Actual	006DH
P01.11	Power up keypad reference	0: 0.00Hz 1: Running reference when last power off 2: Preset 1	1	0	Run & Stop	006EH
P01.12	Threshold of zero speed	0.00Hz — Max. frequency	0.01Hz	0.50Hz	Run & Stop	006FH
P01.13	Band of frequency arrival	0.00Hz — Max. frequency	0.01Hz	2.50Hz	Run & Stop	0070H
P01.14	Setup reference display	-Max. frequency — 300.0Hz	0.01Hz	Actual	Actual	0071H
P01.15	Preset select bit 0 status	0: On 1: Off	1	Actual	Actual	0072H
P01.16	Preset select bit1 status	0: On 1: Off	1	Actual	Actual	0073H
P01.17	Preset select bit2 status	0: On 1: Off	1	Actual	Actual	0074H
P01.18	Preset select bit3 status	0: On 1: Off	1	Actual	Actual	0075H
P01.19	Preset select indicator	Preset1 — Preset16	1	Actual	Actual	0076H
P01.20	AI1 reference display	- Max. frequency — + Max. frequency	0.01Hz	Actual	Actual	0077H
P01.21	AI2 reference display	- Max. frequency — + Max. frequency	0.01Hz	Actual	Actual	0078H
P01.22	RUN/Stop indicator	0: Stop is active 1: Run is active	1	Actual	Actual	0079H
P01.23	Frequency arrival indicator	0: Not arrival 1: Arrival	1	Actual	Actual	007AH
P01.24	Zero speed indicator	0: None zero speed 1: At zero speed running	1	Actual	Actual	007BH
P01.25	Reference source is switched to AI1	0: Off 1: On	1	Actual	Actual	007CH
P01.26	Reference source is switched to AI2	0: Off 1: On	1	Actual	Actual	007DH
P01.27	User programmed reference display	- max. frequency — + max. frequency	0.01Hz	Actual	Actual	007EH

P01.28	Output frequency detection (FDT) threshold	0.00Hz — P01.02	0.01Hz	0.00Hz	Run & Stop	007FH
P01.29	Output frequency detection (FDT) width	0.00Hz — P01.28	0.01Hz	0.00Hz	Run & Stop	0080H
P01.30	Output frequency detection (FDT) indicator	0: Disabled 1: Enabled	1	0	Actual	0080H

8.2.3 Menu P02: Ramp

ID	Function	Range	Step	Default	Change Mode	Modbus Register Address
P02.01	Acceleration and deceleration mode	0: Line 1: S curve	1	0	Stop Only	00C8H
P02.02	Ramp hold	0: Off 1: On	1	0	Actual	00C9H
P02.03	Reserved	–	–	–	–	–
P02.04	Acceleration rate 1	0.0 — 3600.0	0.1	10.0	Run & Stop	00CBH
P02.05	Deceleration rate 1	0.0 — 3600.0	0.1	20.0	Run & Stop	00CCH
P02.06	Acceleration rate 2	0.0 — 3600.0	0.1	30.0	Run & Stop	00CDH
P02.07	Deceleration rate 2	0.0 — 3600.0	0.1	30.0	Run & Stop	00CEH
P02.08	Acceleration rate 3	0.0 — 3600.0	0.1	30.0	Run & Stop	00CFH
P02.09	Deceleration rate 3	0.0 — 3600.0	0.1	30.0	Run & Stop	00D0H
P02.10	Acceleration rate 4	0.0 — 3600.0	0.1	30.0	Run & Stop	00D1H
P02.11	Deceleration rate 4	0.0 — 3600.0	0.1	30.0	Run & Stop	00D2H
P02.12	S curve start time	1.0% — 40.0%	0.1%	20.0%	Run & Stop	00D3H
P02.13	S curve end time	1.0% — 40.0%	0.1%	20.0%	Run & Stop	00D4H
P02.14	Acceleration rate selector bit0 status	0: Off 1: On	1	Actual	Actual	00D5H
P02.15	Acceleration rate selector bit1 status	0: Off 1: On	1	Actual	Actual	00D6H
P02.16	Deceleration rate selector bit0 status	0: Off 1: On	1	Actual	Actual	00D7H
P02.17	Deceleration rate selector bit1 status	0: Off 1: On	1	Actual	Actual	00D8H
P02.18	Jog select indicator	0: Off 1: On	1	Actual	Actual	00D9H
P02.19	Acceleration rate select indicator	Acceleration rate1 to acceleration rate 4	1	Actual	Actual	00DAH
P02.20	Deceleration rate select indicator	Deceleration rate1 to deceleration rate 4	1	Actual	Actual	00DBH
P02.21	Acceleration rate & deceleration rate unit selector	0: Second 1: Minute	1	0	Stop Only	00DCH
P02.22	Jog acceleration rate	0.1s — 600.0s	0.1s	10.0s	Run & Stop	00DDH
P02.23	Jog deceleration rate	0.1s — 600.0s	0.1s	10.0s	Run & Stop	00DEH
P02.24	Jog interval time	0.1s — 600.0s	0.1s	0.1s	Run & Stop	00DFH
P02.25	E-Pot output negative permit	0: Only positive 1: Negative permit	1	0	Run & Stop	00E0H
P02.26	UP/DN Acceleration rate	0.0s — 250.0s	1.0s	10.0s	Run & Stop	00E1H
P02.27	E-pot output scaling	0.000 — 4.000	0.001	1.000	Run & Stop	00E2H
P02.28	Function selector of E-pot output	P00.00 — P18.08	0.01	P01.10	Stop Only	00E3H
P02.29	Reset of E-pot output	0: Off 1: On	1	0	Actual	00E4H
P02.30	UP	0: Off 1: On	1	0	Actual	00E5H
P02.31	DN	0: Off 1: On	1	0	Actual	00E6H
P02.32	E-Pot output display	−100.0% — +100.0%	0.1%	Actual	Stop Only	00E7H
P02.33	Power up E-Pot reference	0: 0 1: Running reference at last power off	1	0	Run & Stop	00E8H

		2: 0, only can be changed when drive is active 3: Running reference at last power off, only can be changed when drive is active 4: Preset 1, UP, DOWN and reset are active at all times 5: Preset 1, UP, DOWN are only active when the drive is running. Reset is active at all times.				
P02.34	Power off E-Pot output selector	0: Keep 1: Reset	1	0	Run & Stop	00E9H

8.2.4 Menu P03: Start and stop

ID	Function	Range	Step	Default	Change Mode	Modbus Register Address
P03.01	Reverse limit control	0: Reverse is permitted 1: Reverse is disabled	1	0	Stop Only	012CH
P03.02	Dead time for running direction change	0.0s — 3000.0s	0.1s	0.0s	Run & Stop	012DH
P03.03	Auto-start after power off	0: Off 1: On	1	0	Stop Only	012EH
P03.04	Wait time for auto-start	0.0s — 60.0s	0.1s	0.0s	Run & Stop	012FH
P03.05	Start mode	0: Start directly 1: First DC injection, then start 2: Catch spinning 3: Reserved 4: Reserved	1	0	Stop Only	0130H
P03.06	Start frequency	0.00Hz — P01.02	0.01Hz	0.00Hz	Run & Stop	0131H
P03.07	Hold time for start frequency	0.0s — 60.0s	0.1s	0.0s	Run & Stop	0132H
P03.08	Start DC injection current	0.0% — 300.0% (refer to the motor rated current)	0.1%	0.0%	Run & Stop	0133H
P03.09	Start DC injection time	0.0s — 60.0s	0.1s	0.0s	Run & Stop	0134H

ID	Function	Range	Step	Default	Change Mode	Modbus Register Address
P03.10	Stop mode	0: Ramp 1: Coast 2: Ramp+DC injection 3: Ramp+coast	1	0	Stop Only	0135H
P03.11	Stop frequency	0.00Hz — Max. frequency	0.01Hz	0.10Hz	Run & Stop	0136H
P03.12	Stop DC injecting frequency	0.0% — 100.0% (refer to the max. frequency)	0.1%	0.0%	Run & Stop	0137H
P03.13	Stop DC injecting current	0.0% — 300.0% (refer to the motor rated current)	0.1%	0.0%	Run & Stop	0138H
P03.14	Stop DC injecting time	0.0s — 60.0s	0.1s	0.0s	Run & Stop	0139H
P03.15	Dynamic brake control	0: Disabled 1: Enabled	1	1	Stop Only	013AH
P03.16	Dynamic brake rate	0.0% — 100.0%	0.1%	50.0%	Run & Stop	013BH
P03.17	Dynamic brake DC voltage points	200V: 350V — 390V 400V: 650V — 780V 690V: 1000V — 1125V	1V	200V: 390V 400V: 780V 690V: 1125V	Stop Only	013CH
P03.18	Reserved	–	–	–	–	–
P03.19	Enable	0: On 1: Off (disabled)	1	0	Actual	013EH

ID	Function	Range	Step	Default	Change Mode	Modbus Register Address
P03.20	Run bit	0: Off 1: On	1	0	Actual	013FH
P03.21	3-wire enable	0: Stop 1: Run	1	0	Actual	0140H
P03.22	FWD	0: Off 1: On	1	0	Actual	0141H
P03.23	REV	0: Off 1: On	1	0	Actual	0142H
P03.24	FWD/REV	0: Forward 1: Reverse	1	0	Actual	0143H
P03.25	Jog forward	0: Off 1: On	1	0	Actual	0144H
P03.26	Jog reverse	0: Off 1: On	1	0	Actual	0145H
P03.27	Comms control word	0 — 65535	1	0	Actual	0146H
P03.28	Control word enable	0: Disabled 1: Enabled	1	0	Run & Stop	0147H
P03.29	Reserved	–	–	–	–	–
P03.30	Reverse running indicator	0: Forward 1: Reverse	1	Actual	Actual	0149H

8.2.5 Menu P04: Preset and PLC

ID	Function	Range	Step	Default	Change Mode	Modbus Register Address
P04.01	Preset1	Min. frequency to Max. frequency	0.01Hz	5.00Hz	Run & Stop	0190H
P04.02	Preset 2		0.01Hz	10.00Hz	Run & Stop	0191H
P04.03	Preset 3		0.01Hz	20.00Hz	Run & Stop	0192H
P04.04	Preset 4		0.01Hz	30.00Hz	Run & Stop	0193H
P04.05	Preset 5		0.01Hz	40.00Hz	Run & Stop	0194H
P04.06	Preset 6		0.01Hz	45.00Hz	Run & Stop	0195H
P04.07	Preset 7		0.01Hz	50.00Hz	Run & Stop	0196H
P04.08	Preset 8		0.01Hz	5.00Hz	Run & Stop	0197H
P04.09	Preset 9		0.01Hz	10.00Hz	Run & Stop	0198H
P04.10	Preset 10		0.01Hz	20.00Hz	Run & Stop	0199H
P04.11	Preset 11		0.01Hz	30.00Hz	Run & Stop	019AH
P04.12	Preset 12		0.01Hz	40.00Hz	Run & Stop	019BH
P04.13	Preset 13		0.01Hz	45.00Hz	Run & Stop	019CH
P04.14	Preset 14		0.01Hz	50.00Hz	Run & Stop	019DH
P04.15	Preset 15		0.01Hz	50.00Hz	Run & Stop	019EH
P04.16	Preset 16		0.01Hz	50.00Hz	Run & Stop	019FH
P04.17	PLC mode	0: Disabled 1: Single cycle then stop 2: Single cycle and keep the last speed 3: Recycle	1	0	Stop Only	01A0H

ID	Function	Range	Step	Default	Change Mode	Modbus Register Address
P04.18	PLC power off saving mode	0: Power off without saving 1: Power off with saving	1	1	Stop Only	01A1H
P04.19	PLC restart mode	0: From first step speed 1: From the step speed which is the one at last stop (trip) 2: From the speed which is the one at last stop (trip)	1	0	Stop Only	01A2H
P04.20	PLC step1 running time	0.0 — 6553.5	0.1	0.0	Run & Stop	01A3H
P04.21	PLC step1 Accel./ Decel. rate selector	0: Accel./Decel. rate 1 1: Accel./Decel. rate 2 2: Accel./Decel. rate 3 3: Accel./Decel. rate 4	1	0	Run & Stop	01A4H
P04.22	PLC step2 running time	0.0 — 6553.5	0.1	0.0	Run & Stop	01A5H
P04.23	PLC step2 Accel./ Decel. rate selector	0: Accel./Decel. rate 1 1: Accel./Decel. rate 2 2: Accel./Decel. rate 3 3: Accel./Decel. rate 4	1	0	Run & Stop	01A6H
P04.24	PLC step3 running time	0.0 — 6553.5	0.1	0.0	Run & Stop	01A7H

ID	Function	Range	Step	Default	Change Mode	Modbus Register Address
P04.25	PLC step3 Accel./ Decel. rate selector	0: Accel./Decel. rate 1 1: Accel./Decel. rate 2 2: Accel./Decel. rate 3 3: Accel./Decel. rate 4	1	0	Run & Stop	01A8H
P04.26	PLC step4 running time	0.0 — 6553.5	0.1	0.0	Run & Stop	01A9H
P04.27	PLC step4 Accel./ Decel. rate selector	0: Accel./Decel. rate 1 1: Accel./Decel. rate 2 2: Accel./Decel. rate 3 3: Accel./Decel. rate 4	1	0	Run & Stop	01AAH
P04.28	PLC step5 running time	0.0 — 6553.5	0.1	0.0	Run & Stop	01ABH
P04.29	PLC step5 Accel./ Decel. rate selector	0: Accel./Decel. rate 1 1: Accel./Decel. rate 2 2: Accel./Decel. rate 3 3: Accel./Decel. rate 4	1	0	Run & Stop	01ACH
P04.30	PLC step6 running time	0.0 — 6553.5	0.1	0.0	Run & Stop	01ADH
P04.31	PLC step6 Accel./ Decel. Rate selector	0: Accel./Decel. rate 1 1: Accel./Decel. rate 2 2: Accel./Decel. rate 3 3: Accel./Decel. rate 4	1	0	Run & Stop	01AEH
P04.32	PLC step7 running time	0.0 — 6553.5	0.1	0.0	Run & Stop	01AFH

ID	Function	Range	Step	Default	Change Mode	Modbus Register Address
P04.33	PLC step7 Accel./ Decel. rate selector	0: Accel./Decel. rate 1 1: Accel./Decel. rate 2 2: Accel./Decel. rate 3 3: Accel./Decel. rate 4	1	0	Run & Stop	01B0H
P04.34	PLC step8 running time	0.0 — 6553.5	0.1	0.0	Run & Stop	01B1H
P04.35	PLC step8 Accel./ Decel. Rate selector	0: Accel./Decel. rate 1 1: Accel./Decel. rate 2 2: Accel./Decel. rate 3 3: Accel./Decel. rate 4	1	0	Run & Stop	01B2H
P04.36	PLC step9 running time	0.0 — 6553.5	0.1	0.0	Run & Stop	01B3H
P04.37	PLC Step9 Accel./ Decel. Rate selector	0: Accel./Decel. rate 1 1: Accel./Decel. rate 2 2: Accel./Decel. rate 3 3: Accel./Decel. rate 4	1	0	Run & Stop	01B4H
P04.38	PLC step10 running time	0.0 — 6553.5	0.1	0.0	Run & Stop	01B5H
P04.39	PLC step10 Accel./ Decel. Rate selector	0: Accel./Decel. rate 1 1: Accel./Decel. rate 2 2: Accel./Decel. rate 3 3: Accel./Decel. rate 4	1	0	Run & Stop	01B6H
P04.40	PLC step11 running time	0.0 — 6553.5	0.1	0.0	Run & Stop	01B7H

ID	Function	Range	Step	Default	Change Mode	Modbus Register Address
P04.41	PLC step11 Accel./ Decel. Rate selector	0: Accel./Decel. rate 1 1: Accel./Decel. rate 2 2: Accel./Decel. rate 3 3: Accel./Decel. rate 4	1	0	Run & Stop	01B8H
P04.42	PLC step12 running time	0.0 — 6553.5	0.1	0.0	Run & Stop	01B9H
P04.43	PLC step12 Accel./ Decel. rate selector	0: Accel./Decel. rate 1 1: Accel./Decel. rate 2 2: Accel./Decel. rate 3 3: Accel./Decel. rate 4	1	0	Run & Stop	01BAH
P04.44	PLC step13 running time	0.0 — 6553.5	0.1	0.0	Run & Stop	01BBH
P04.45	PLC step13 Accel./ Decel. rate selector	0: Accel./Decel. rate 1 1: Accel./Decel. rate 2 2: Accel./Decel. rate 3 3: Accel./Decel. rate 4	1	0	Run & Stop	01BCH
P04.46	PLC step14 running time	0.0 — 6553.5	0.1	0.0	Run & Stop	01BDH
P04.47	PLC step14 Accel./ Decel. rate selector	0: Accel./Decel. rate 1 1: Accel./Decel. rate 2 2: Accel./Decel. rate 3 3: Accel./Decel. rate 4	1	0	Run & Stop	01BEH
P04.48	PLC step15 running time	0.0 — 6553.5	0.1	0.0	Run & Stop	01BFH

ID	Function	Range	Step	Default	Change Mode	Modbus Register Address
P04.49	PLC step15 Accel./ Decel. rate selector	0: Accel./Decel. rate 1 1: Accel./Decel. rate 2 2: Accel./Decel. rate 3 3: Accel./Decel. rate 4	1	0	Run & Stop	01C0H
P04.50	PLC step16 running time	0.0 — 6553.5	0.1	0.0	Run & Stop	01C1H
P04.51	PLC step16 Accel./ Decel. Rate selector	0: Accel./Decel. rate 1 1: Accel./Decel. rate 2 2: Accel./Decel. rate 3 3: Accel./Decel. rate 4	1	0	Run & Stop	01C2H
P04.52	PLC operating time unit	0: Second 1: Hour	1	0	Run & Stop	01C3H
P04.53	PLC finished indicator	0: Not finished 1: Finished	1	Actual	Actual	01C4H
P04.54	PLC recycle mode indicator	0: No-recycle 1: Recycle	1	Actual	Actual	01C5H

8.2.6 Menu P05: Keypad and display

ID	Function	Range	Step	Default	Change Mode	Modbus Register Address
P05.01	Normal keypad display selector	P01.01 — P18.08	0.01	P05.11	Run & Stop	01F4H

ID	Function	Range	Step	Default	Change Mode	Modbus Register Address
P05.02	Keypad cycle display mode	0 — 2	1	0	Run & Stop	01F5H
P05.03	Parameter display range control	0: Only menu P00 1: All menus parameters 2: Only parameters which setup is different with default	1	1	Run & Stop	01F6H
P05.04	Parameter cloning	0: No action 1: Cloning up to keypad 2: Cloning down to the drive	1	0	Stop Only	01F7H
P05.05	LCD language	0: Chinese 1: English 2: Reserved	1	0	Run & Stop	01F8H
P05.06	Keypad lock control	0: Unlock 1: All keys are locked 2: Except RUN & STOP, all other keys are locked	1	0	Run & Stop	01F9H
P05.07	MF switch function select	0: Jog 1: FWD/REV 2: Coasting Stop 3: Reserved	1	0	Run & Stop	01FAH
P05.08	Motor speed	-18000rpm — +18000rpm	1rpm	Actual	Actual	01FBH
P05.09	Factor for load speed	0.1% — 1000%	0.1%	100.0%	Run & Stop	01FCH

ID	Function	Range	Step	Default	Change Mode	Modbus Register Address
P05.10	Mechanical load speed	-180000rpm — +180000rpm	1rpm	Actual	Actual	01FDH
P05.11	Running frequency	-max. frequency — +max. frequency	0.01Hz	Actual	Actual	01FEH
P05.12	Output voltage	0V — Drive rated voltage	1V	Actual	Actual	01FFH
P05.13	DC voltage	200V: 230V — 415V 400V: 250V — 830V 690V: 400V — 1190V	1V	Actual	Actual	0200H
P05.14	Output current	0.0A — 3×motor rated current	0.1A	Actual	Actual	0201H
P05.15	Torque current	0.0A — 3×motor rated current	0.1A	Actual	Actual	0202H
P05.16	Magnetizing current	−3×motor rated current — +3×motor rated current	0.1A	Actual	Actual	0203H
P05.17	Output power	0.0% — 300.0% (refer to motor rated power)	0.1%	Actual	Actual	0204H
P05.18	Operation time log: year. day	0.000 — 9.364 year.day	0.001 y.d	Actual	Actual	0205H
P05.19	Operation time log: hour. minute	0.00 — 23.59hour.minute	0.01 h.m	Actual	Actual	0206H
P05.20	Energy meter: MWh	0.0MWh — 999.9MWh	0.1 MWh	Actual	Actual	0207H
P05.21	Energy meter: kWh	0.00kWh — 99.99kWh	0.01 kWh	Actual	Actual	0208H

ID	Function	Range	Step	Default	Change Mode	Modbus Register Address
P05.22	Electric price/kWh	0.0 — 0.99(currency/kWh)	0.01	0.00	Run & Stop	0209H
P05.23	Energy meter reset	0: No action 1: Reset	1	0	Run & Stop	020AH
P05.24	Average running cost	0 — 100 (currency)	1	Actual	Actual	020BH
P05.25	Heatsink temperature	−25℃ — 127℃	1℃	Actual	Actual	020CH
P05.26	IGBT junction temperature	−25℃ — 200℃	1℃	Actual	Actual	020DH
P05.27	Drive is active	0: Drive is at ready or trip stage 1: Drive is running	1	Actual	Actual	020EH
P05.28	Rated load is on	0: Output current is less than motor rated current 1: Output current equals motor rated current	1	Actual	Actual	020FH
P05.29	Control MCU software version	0.00 — 99.99	0.01	Actual	Actual	0210H
P05.30	Power MCU software version	0.00 — 99.99	0.01	Actual	Actual	0211H
P05.31	LCD software version	0.00 — 99.99	0.01	Actual	Actual	0212H
P05.32	Brigde rectifier software version	0.00 — 99.99	0.01	Actual	Actual	0213H

8.2.7 Menu P06: V/F controls parameters

ID	Function	Range	Step	Default	Change Mode	Modbus Register Address
P06.01	V/F control mode	0: User programmed V/F ramp 1: 2 law ramp 2: 1.7 law ramp 3: 1.2 law ramp	1	0	Stop Only	0258H
P06.02	V/F frequency 3	(P06.04) — (P13.08)	0.01Hz	0.00Hz	Stop Only	0259H
P06.03	V/F voltage3	(P06.05) — 100.0% (refer to motor rated voltage)	0.1%	0.0%	Stop Only	025AH
P06.04	V/F frequency 2	(P06.06) — (P06.02)	0.01Hz	0.00Hz	Stop Only	025BH
P06.05	V/F voltage 2	(P06.07) — (P06.03)	0.1%	0.0%	Stop Only	025CH
P06.06	V/F frequency 1	0.00 — (P06.04)	0.01Hz	0.00Hz	Stop Only	025DH
P06.07	V/F voltage 1	0 — (P06.05)	0.1%	0.0%	Stop Only	025EH
P06.08	Voltage boost	0.0% — 30.0% (refer to motor rated voltage)	0.1%	By model	Run & Stop	025FH
P06.09	Boost finish frequency	0.0% — 50.0% (refer to motor rated voltage)	0.1%	50.0%	Run & Stop	0260H
P06.10	Stable factor	0: Off	1	0	Run & Stop	0261H
P06.11	Auto energy saving	0: Off	1	0	Stop Only	0262H
P06.12	AVR control	0: Off 1: On for all condition 2: On except ramp	1	1	Stop Only	0263H

8.2.8 Menu P07: Vector

ID	Function	Range	Step	Default	Change Mode	Modbus Register Address
P07.01	Speed/Torque mode change condition	0: Only stop 1: Run & Stop	1	0	Run & Stop	02BCH
P07.02	Speed/Torque control	0: Speed 1: Torque	1	0	Run & Stop	02BDH
P07.03	Current limit	0.0% — 300.0% (refer to motor rated current)	0.1%	By model	Run & Stop	02BEH
P07.04 — P07.11	Reserved	–	–	–	–	–
P07.12	Current controller Kp gain	0.001 — 10.000	0.001	0.020	Run & Stop	02C7H
P07.13	Current controller Ki gain	0.00s — 100.00s	0.01s	0.20s	Run & Stop	02C8H
P07.14	Current limit protection	0: Enable current limit protection 1: Disable current limit protection above fundamental frequency 2: Fast increase or decrease current limit protection disabled 3: Both disabled	1	0	Stop Only	02C9H

ID	Function	Range	Step	Default	Change Mode	Modbus Register Address
P07.15	Slip compensation error	0rpm — 1500rpm	1rpm	0rpm	Run & Stop	02CAH
P07.16	Active current limit	0.0% — 300.0%	0.1%	200.0%	Run & Stop	02CBH
P07.17	Regen. Current limit	0.0% — 300.0%	0.1%	150.0%	Run & Stop	02CCH
P07.18	Maximum speed under torque mode	0.00Hz — 1.2×P01.02	0.01Hz	50.00 Hz	Run & Stop	02CDH
P07.19	Torque mode reference source	0: Keypad 1: AI1 2: AI2 3: Pulse (DI7) 4: Serial comms. 5: User programmed 6: Optional module	1	1	Stop Only	02CEH
P07.20	Torque gain	0.0% — 300.0%	0.1%	100.0%	Run & Stop	02CFH
P07.21	Torque offset	0.0% — 100.0%	0.1%	0.0%	Run & Stop	02D0H
P07.22	Torque reference display	-300.0% — +300.0%	0.1%	Actual	Actual	02D1H
P07.23	Reserved	–	–	–	–	–
P07.24	Torque being limited indicator	0: Not limited 1: Being limited	1	Actual	Actual	02D3H

8.2.9 Menu P08: Analog input and output

ID	Function	Range	Step	Default	Change Mode	Modbus Register Address
P08.01	Analog input function level control	0: P08.03 and P08.08 are only basic function (0 — 3) 1: P08.03 and P08.08 are advanced application (P00.00 — P18.08)	1	0	Run & Stop	0320H
P08.02	AI1 mode	0: 0mA — 20mA 1: 20mA — 0mA 2: 4mA — 20mA (current loosing with trip) 3: 20mA — 4mA (current loosing with trip) 4: 4mA — 20mA (current loosing without trip) 5: 20mA — 4mA (current loosing without trip) 6: 0V — 10V	1	6	Stop Only	0321H
P08.03	AI1 function select	0: Analog input1 1: Speed limit (Torque control) 2: Torque offset 3: No function 99*: Advanced function	1	0	Stop Only	0322H
P08.04	AI11 offset	-100.0% — +100.0%	0.1%	0.0%	Run & Stop	0323H

ID	Function	Range	Step	Default	Change Mode	Modbus Register Address
P08.05	AI1 scaling	0.000 — 20.000	0.001	1.000	Run & Stop	0324H
P08.06	AI1 inverter	0: Off 1: On	1	0	Run & Stop	0325H
P08.07	AI1 filtering time	0.00s — 10.00s	0.01s	0.1s	Run & Stop	0326H
P08.08	AI2 function select	0: Analog input2 1: Speed limit (Torque control) 2: Torque offset 3: No function 99*: Advanced function	1	0	Stop Only	0327H
P08.09	AI2 offset	-100.0% — +100.0%	0.1%	0.0%	Run & Stop	0328H
P08.10	AI2 scaling	0.000 — 20.000	0.001	1.000	Run & Stop	0329H
P08.11	AI2 inverter	0: Off 1: On	1	0	Run & Stop	032AH
P08.12	AI2 filtering time	0.00s — 10.00s	0.01s	0.1s	Run & Stop	032BH
P08.13	Analog output function level control	0: P08.14 is only basic application (0 — 11) 1: P08.14 is advanced application (P00.00 — P18.08)	1	0	Run & Stop	032CH

ID	Function	Range	Step	Default	Change Mode	Modbus Register Address
P08.14	Analog output function select	0: Output frequency 1: Reference frequency 2: Active current 3: Output current 4: Motor speed 5: DC voltage 6: Output voltage 7: AI1 level 8: AI2 level 9: Length 10: Counting 11: No function 99*: Advanced function	1	0	Run & Stop	032DH

ID	Function	Range	Step	Default	Change Mode	Modbus Register Address
When AO1 select the following function and 100% output 0: Output frequency — Maximum running frequency 1: Reference frequency — Maximum running frequency 2: Active current — 3 times motor rated current 3: Output current — 3 times motor rated current 4: Motor speed — The motor speed (rpm) is calculated according to the maximum frequency 5: DC voltage — 220: 415V / 400: 830V / 690: 1125V 6: Output voltage — Motor rated voltage 7: AI1 level — 10V 8: AI2 level — 10V 9: Length — 60000 10: Counting — 60000						
P08.15	Analog output scaling	0.000 — 20.000	0.001	1.000	Run & Stop	032EH
P08.16	Current loosing indicator	0: No loosing 1: Loosing	1	Actual	Actual	032FH
P08.17	AI1 level	0.0%—100.0%	0.1%	Actual	Actual	0330H
P08.18	AI2 level	0.0% — 100.0%	0.1%	Actual	Actual	0331H
P08.19	Analog output level	0.0% — 100.0%	0.1%	Actual	Actual	0332H
P08.20	AI1 upper limit	0. 0% — 100.0%	0.1%	100.0%	Run & Stop	0333H
P08.21	AI1 lower limit	0.0% — P08.20	0.1%	0.0%	Run & Stop	0334H

ID	Function	Range	Step	Default	Change Mode	Modbus Register Address
P08.22	AI2 upper limit	0.0% — 100.0%	0.1%	100.0%	Run & Stop	0335H
P08.23	AI2 lower limit	0.0% — P08.22	0.1%	0.0%	Run & Stop	0336H

NOTE: For parameters P08.03, P08.08, P08.14, when the advanced function returns to basic function, if there is no corresponding options, will display “99”, and the advanced fuction will continue to take effect.

8.2.10 Menu P09: Digital input and output

ID	Function	Range	Step	Default	Change Mode	Modbus Register Address
P09.01	Digit input function level control	0: P09.02 to P09.08 are base application (0 — 16) 1: P09.02 — P09.08 are advanced application (P00.00 — P18.08)	1	0	Run & Stop	0384H
P09.02	DI1 function	0: Preset select bit 0 1: Preset select bit 1 2: Run 3: Run forward (FWD) 4: Run reverse (REV) 5: 3-wire enable 6: FWD/REV 7: Jog forward	1	DI1: 3	Stop Only	0385H
P09.03	DI2 function			DI2: 4		0386H
P09.04	DI3 function			DI3: 7		0387H
P09.05	DI4 function			DI4: 0		0388H
P09.06	DI5 function			DI5: 1		0389H

ID	Function	Range	Step	Default	Change Mode	Modbus Register Address
P09.07	DI6 function	8: UP 9: DOWN 10: Enable 11: Reset 12: Control channel is switched to terminal 13: Reset length counting 14: Reset number counting 15: External trip 16: No function 99*: Advanced function		DI6: 10		038AH
P09.08	DI7 function			DI7: 11		038BH
P09.09	Status relays function level control	0: P09.10 — P09.11 are basic application (0 — 12) 1: P09.10 — P09.11 advanced application (P00.00 — P18.08)	1	0	Run & Stop	038CH
P09.10	Relay1 function	0: Drive healthy 1: Drive is active 2: Length arrival 3: External trip	1	Relay1: 0	Run & Stop	038DH

ID	Function	Range	Step	Default	Change Mode	Modbus Register Address
P09.11	Relay2 function	4: Under voltage trip 5: PLC finished 6: Frequency is arrival 7: Torque limit is working 8: Time arrival 9: Overload is calculating 10: At zero speed 11: Brake logic is on 12: No function 99*: Advanced function		Relay2: 1		038EH
P09.12	DI1 inverter	0: Off 1: On	1	0	Run & Stop	038FH
P09.13	DI2 inverter	0: Off 1: On	1	0	Run & Stop	0390H
P09.14	DI3 inverter	0: Off 1: On	1	0	Run & Stop	0391H
P09.15	DI4 inverter	0: Off 1: On	1	0	Run & Stop	0392H
P09.16	DI5 inverter	0: Off 1: On	1	0	Run & Stop	0393H
P09.17	DI6 inverter	0: Off 1: On	1	0	Run & Stop	0394H
P09.18	DI7 inverter	0: Off 1: On	1	0	Run & Stop	0395H

ID	Function	Range	Step	Default	Change Mode	Modbus Register Address
P09.19	Relay1 inverter	0: Off 1: On	1	0	Run & Stop	0396H
P09.20	Relay2 inverter	0: Off 1: On	1	0	Run & Stop	0397H
P09.21	DI common select	0: 0V 1: 24V	1	0	Stop Only	0398H
P09.22	3-wire mode	0: Disabled 1: 3-wire 1 2: 3-wire 2	1	0	Stop Only	0399H
P09.23	DI6 mode	0: Normal digit 1: Length counting pulse 2: Number counting pulse	1	0	Run & Stop	039AH
P09.24	DI7 mode	0: Normal digit 1: Motor thermistor 2: High frequency pulse	1	0	Run & Stop	039BH
P09.25	Reserved	-	-	-	-	-
P09.26	Reserved					
P09.27	DI7 maximum frequency of input pulse	0.1kHz — 50.0kHz	0.1 kHz	10.0kHz	Run & Stop	039EH

ID	Function	Range	Step	Default	Change Mode	Modbus Register Address
P09.28	DI7 center of frequency of input pulse	0: No center 1: Center = P09.27/2, frequency less than center is negative 2: Center = P09.27/2, frequency less than center is positive	1	0	Run & Stop	039FH
P09.29	Digital output function level control	0: P09.30 — P09.31 is base application (0 — 8) 1: P09.30 — P09.31 is advanced application (P00.00 — P18.08)	1	0	Run & Stop	03A0H
P09.30	DO1 function	0: PLC is running recycle 1: Drive is active 2: Drive is alarming 3: 100% current 4: Drive healthy 5: Length counting arrival 6: Running at zero speed 7: Brake logic is on 8: No function 99*: Advanced function	1	DO1: 6	Run & Stop	03A1H
P09.31	DO2 function			DO2: 2		03A2H
P09.32	DO1 inverter	0: Off 1: On	1	0	Run & Stop	03A3H

ID	Function	Range	Step	Default	Change Mode	Modbus Register Address
P09.33	DO2 inverter	0: Off 1: On	1	0	Run & Stop	03A4H
P09.34	DO2 maximum frequency of output pulse	0.1kHz — 50.0kHz	0.1 kHz	10.0kHz	Run & Stop	03A5H
P09.35	DO2 output mode selection	0: Digital signal output 1: Pulse output 2: PWM output	1	0	Run & Stop	03A6H
P09.36	Reserved					
P09.37	Reserved					
P09.38	DI7 level of input frequency	-100.0% — +100.0%	0.1%	Actual	Actual	03A9H
P09.39	Reserved					
P09.40	DI1 status	0: Off 1: On	1	Actual	Actual	03ABH
P09.41	DI2 status	0: Off 1: On	1	Actual	Actual	03ACH
P09.42	DI3 status	0: Off 1: On	1	Actual	Actual	03ADH
P09.43	DI4 status	0: Off 1: On	1	Actual	Actual	03AEH
P09.44	DI5 status	0: Off 1: On	1	Actual	Actual	03AFH

ID	Function	Range	Step	Default	Change Mode	Modbus Register Address
P09.45	DI6 status	0: Off (P09.23≠0) 1: On	1	Actual	Actual	03B0H
P09.46	DI7 status	0: Off (P09.24≠0) 1: On	1	Actual	Actual	03B1H
P09.47	Relay1 status	0: Off 1: On	1	Actual	Actual	03B2H
P09.48	Relay2 status	0: Off 1: On	1	Actual	Actual	03B3H
P09.49	DO1 status	0: Output 0V 1: Output 24V	1	Actual	Actual	03B4H
P09.50	DO2 status	0: Output 0V(P09.35≠0) 1: Output 24V	1	Actual	Actual	03B5H

NOTE: For parameters P08.03, P08.08, P08.14, when the advanced function returns to basic function, if there is no corresponding options, will display “99”, and the advanced fuction will continue to take effect.

8.2.11 Menu P10: Comms. and general function

ID	Function	Range	Step	Default	Change Mode	Modbus Register Address
P10.01	Protocol	0: Modbus RTU 1: Reserved	1	0	Run & Stop	03E8H
P10.02	Address	0 — 247	1	1	Run & Stop	03E9H

ID	Function	Range	Step	Default	Change Mode	Modbus Register Address
P10.03	Baud rate	0: 2.4KBPS 1: 4.8KBPS 2: 9.6KBPS 3: 19.2KBPS 4: 38.4KBPS 5: 57.6KBPS	1	3	Run & Stop	03EAH
P10.04	Comms. configuration	0: 1-8-1, RTU, without checking 1: 1-8-2, RTU, without checking 2: 1-8-1, RTU, with odd bit checking 3: 1-8-1, RTU, with even bit checking	1	1	Run & Stop	03EBH
P10.05	Response delay time	0ms — 250ms	1ms	2ms	Run & Stop	03ECH
P10.06	User Code	0 — 9999	1	0	Run & Stop	03EDH
P10.07	Control mode	0: Keypad 1: Control terminal 2: Serial communication	1	0	Stop Only	03EEH
P10.08	Load default	0: Off 1: Load default	1	0	Stop Only	03EFH

ID	Function	Range	Step	Default	Change Mode	Modbus Register Address
P10.09	Fan control	0: Under control 1: Forced running	1	0	Run & Stop	03F0H
P10.10	Switch frequency	1kHz — 15kHz	1kHz	By model	Run & Stop	03F1H
P10.11	Switch frequency auto adjust	0: Off 1: On	1	1	Run & Stop	03F2H
P10.12	Low DC bus operation (only for 400V models)	0: Off 1: On	1	0	Stop Only	03F3H
P10.13	Model code	0 — 255	1	By model	Actual	03F4H
P10.14	Drive status	0 — 65535	1	Actual	Actual	03F5H
P10.15	Set operation time	0 — P10.25	1	0	Run & Stop	03F6H
P10.16	Set time is meet	0: No 1: Meet	1	Actual	Actual	03F7H
P10.17	Control channel is switched to terminal	0: No action 1: Control channel is terminal	1	Actual	Actual	03F8H
P10.18	Keypad disconnected with drive	0: Carry on running 1: Stop Note: Keypad control mode.	1	1	Stop Only	03F9H
P10.19	Load default after remove User Code by hardware	0: No 1: Load default	1	0	Run & Stop	03FAH

ID	Function	Range	Step	Default	Change Mode	Modbus Register Address
P10.20	Forced DC brake	0: Off 1: On	1	Actual	Actual	03FBH
P10.21	PID output keep	0: Off 1: On	1	Actual	Actual	03FCH
P10.22	Power off stop mode	0: Coasting stop 1: Ramp stop	1	0	Stop Only	03FDH
P10.23	Cumulative running time reset	0: Off 1: On	1	0	Run & Stop	03FEH
P10.24	Set the unit of running time	0: Hour 1: Second	1	0	Stop Only	03FFH
P10.25	Set running time upper limit	0 — 60000	1	1000	Stop Only	0400H

8.2.12 Menu P11: Fault Tracking

ID	Function	Range	Step	Default	Change Mode	Modbus Register Address
P11.01	Trip 1	0 — 99	1	0	Actual	044CH
P11.02	Trip 2					044DH
P11.03	Trip 3					044EH
P11.04	Trip 4					044FH
P11.05	Trip 5					0450H
P11.06	Trip 6					0451H
P11.07	Trip 7					0452H
P11.08	Trip 8					0453H
P11.09	Trip 9					0454H
P11.10	Last trip					0455H
P11.11	Last trip frequency	−P01.02 — +P01.02	0.01Hz	Actual	Actual	0456H

ID	Function	Range	Step	Default	Change Mode	Modbus Register Address
P11.12	Last trip current	0.0A — 3×motor rated current	0.1A	Actual	Actual	0457H
P11.13	Last trip DC bus voltage	200V：0 — 415V 400V：0 — 830V 690V：0 — 1150V	1V	Actual	Actual	0458H
P11.14	Last trip digital input terminals status	0 — 255	1	Actual	Actual	0459H
P11.15	Last trip digital output terminals status	0 — 255	1	Actual	Actual	045AH
P11.16	Present failure logging	0 — 99	1	0	Actual	045BH

8.2.13 Menu P12: Protection

ID	Function	Range	Step	Default	Change Mode	Modbus Register Address
P12.01	Drive healthy	0: Off 1: On	1	Actual	Actual	04B0H
P12.02	Ramp hold by high voltage threshold	0: Off 1: On	1	1	Stop Only	04B1H

ID	Function	Range	Step	Default	Change Mode	Modbus Register Address
P12.03	high voltage threshold	220V: 350V — 370V 400V: 750V — 780V 690V: 1000V — 1125V	1	220V: 370V 400V: 780V 690V: 1125V	Stop Only	04B2H
P12.04	Pre-overload alarm	0: Off 1: On	1	1	Stop Only	04B3H
P12.05	Pre-overload threshold	80.0% — 150.0%	0.1%	130.0%	Run & Stop	04B4H
P12.06	Pre-overload delay time	0.0s — 60.0s	0.1s	5.0s	Run & Stop	04B5H
P12.07	Auto reset	1 — 100	1	0	Stop Only	04B6H
P12.08	Auto reset delay	2.0s — 20.0s	0.1s	5.0	Stop Only	04B7H
P12.09	Input phase loss delay	0.0s — 3000.0s	0.1s	0.1s	Stop Only	04B8H
P12.10	Output phase loss	0: Off 1: On	1	0	Stop Only	04B9H
P12.11	Motor overload protection mode	0: Normal motor 1: Variable frequency motor	1	1	Stop Only	04BAH

ID	Function	Range	Step	Default	Change Mode	Modbus Register Address
P12.12	Overload factor	0 — (drive rated current/motor rated current)×100%	1	100%	Run & Stop	04BBH
P12.13	Alarm display control	0: Not display 1: Display	1	1	Run & Stop	04BCH
P12.14	External fault	0: Off 1: On	1	0	Run & Stop	04BDH
P12.15	Reset trip	0: Off 1: On	1	0	Stop Only	04BEH
P12.16	Under voltage indicator	0: Off 1: On	1	Actual	Actual	04BFH
P12.17	Overload accumulator indicator	0: Off 1: On	1	Actual	Actual	04C0H
P12.18	Alarm indicator	0: Off 1: On	1	Actual	Actual	04C1H
P12.19	Power off undervoltage fault disable	0: Enabled 1: Disabled	1	0	Run & Stop	04C2H

8.2.14 Menu P13: Motor

ID	Function	Range	Step	Default	Change Mode	Modbus Register Address
P13.01	Motor voltage control mode	0: V/F 1: Open loop vector	1	0	Stop Only	0514H
P13.02	Auto-tune	0: Disabled 1: Auto-tune 1 (run a time) 2: Auto-tune 2 (run once a time) 3: Reserved	1	0	Stop Only	0515H
P13.03	Motor 1/ motor 2 select	0: Motor 1 1: Motor 2	1	0	Stop Only	0516H
P13.04	Reserved	-	-	-	-	-
P13.05	Motor 1 power factor	0.00 — 1.00	0.01	0.85	Stop Only	0518H
P13.06	Motor 1 rated voltage	200V: 0V — 240V 400V: 0V — 480V 690V: 0V — 690V	1V	200V: 220V 400V: 380V 690V: 660V	Stop Only	0519H

ID	Function	Range	Step	Default	Change Mode	Modbus Register Address
P13.07	Motor 1 rated current	G or P type: 0.1A — rated current×1.2 GP type: 0.1A — P type rated current	0.1A	By model	Stop Only	051AH
P13.08	Motor 1 rated frequency	1.00Hz — 300.0Hz	0.01Hz	50.00Hz	Stop Only	051BH
P13.09	Number of motor 1 pairs of pole	0: Auto 1: 2 pole 2: 4 pole 3: 6 pole 4: 8 pole	1	2	Stop Only	051CH
P13.10	Motor 1 rated speed	1rpm — 18000rpm	1rpm	0rpm	Stop Only	051DH
P13.11	Motor 1 stator resistance	0.000Ω — 60.000Ω	0.001Ω	0	Stop Only	051EH
P13.12	Reserved					
P13.13	Motor 1 transient inductance	0.00% — 50.00%	0.01%	by model	Stop Only	0520H
P13.14 — P13.16	Reserved	–	–	–	–	–
P13.17	Motor 2 power factor	0.00 — 1.00	0.01	0.85	Stop Only	0524H

ID	Function	Range	Step	Default	Change Mode	Modbus Register Address
P13.18	Motor 2 rated voltage	200V: 0V — 240V 400V: 0V — 480V 690V: 0V — 690V	1V	200V: 220V 400V: 380V 690V: 660V	Stop Only	0525H
P13.19	Motor 2 rated current	G or P type: 0.1A — rated current×1.2 GP type: 0.1A — P type rated current	0.1A	by model	Stop Only	0526H
P13.20	Motor 2 rated frequency	1.00Hz — 300.0Hz	0.01Hz	50.00Hz	Stop Only	0527H
P13.21	Number of motor 2 pairs of pole	0: Auto 1: 2 pole 2: 4 pole 3: 6 pole 4: 8 pole	1	2	Stop Only	0528H
P13.22	Motor 2 rated speed	1rpm — 18000rpm	1rpm	0rpm	Stop Only	0529H
P13.23	Motor 2 stator resistance	0.000Ω — 60.000Ω	0.001Ω	0	Stop Only	052AH
P13.24	Reserved	_	_	_	_	_
P13.25	Reserved	_	_	_	_	_

ID	Function	Range	Step	Default	Change Mode	Modbus Register Address
P13.26	Motor2 transient inductance	0.00% — 50.00%	0.01%	by model	Stop Only	052DH

8.2.15 Menu P14: Textile function

ID	Function	Range	Step	Default	Change Mode	Modbus Register Address
P14.01	Textile function enable	0: Off 1: On	1	0	Stop Only	0578H
P14.02	Centre of textile frequency	0.00Hz — Max. frequency	0.01Hz	0.00Hz	Run & Stop	0579H
P14.03	Preset textile frequency	0.00Hz — Max. frequency	0.01Hz	0.00Hz	Run & Stop	057AH
P14.04	Run time of Preset textile frequency	0.0s — 3600.0s	0.1s	0.0s	Run & Stop	057BH
P14.05	Textile frequency	0.0% — 50.0% (map to P14.02)	0.1%	0.0%	Run & Stop	057CH
P14.06	Jump frequency	0.0% — 50.0% (map to P14.05)	0.1%	0.0%	Run & Stop	057DH
P14.07	Textile period	0.1 s — 1000.0s	0.1s	10.0s	Run & Stop	057EH

ID	Function	Range	Step	Default	Change Mode	Modbus Register Address
P14.08	Triangle rise time	0.0% — 100.0% (map to P14.07)	0.1%	50.0%	Run & Stop	057FH
P14.09	Pause textile	0: Off 1: On	1	0	Run & Stop	0580H
P14.10	Reference of length	0 — P14.20	1	1000	Run & Stop	0581H
P14.11	Actual length	0 — 30000	1	Actual	Actual	0582H
P14.12	Pulse number per unit length	0.1 — P14.21	0.1	100.0	Run & Stop	0583H
P14.13	Actual length meets the reference	0: P14.11＜P14.10 1: P14.11≥P14.10	1	Actual	Actual	0584H
P14.14	Reference of number counting	1 — P14.22	1	1000	Run & Stop	0585H
P14.15	Set number	1 — P14.14	1	1000	Run & Stop	0586H
P14.16	Actual number meets reference number	0: Lees than P14.14 1: Equals P14.14	1	Actual	Actual	0587H
P14.17	Actual number meets set number	0: Lees than P14.15 1: Equals P14.15	1	Actual	Actual	0588H

ID	Function	Range	Step	Default	Change Mode	Modbus Register Address
P14.18	Reset length counting	0: Off 1: On	1	0	Run & Stop	0589H
P14.19	Reset number counting	0: Off 1: On	1	0	Run & Stop	058AH
P14.20	Reference length upper limit	0 — 30000	1	1000	Stop Only	058BH
P14.21	Pulse number per unit length upper limit	0.1 — 3000.0	0.1	100.0	Stop Only	058CH
P14.22	Reference number counting upper limit	1 — 30000	1	1000	Stop Only	058DH

8.2.16 Menu P15: PID Controller

ID	Function	Range	Step	Default	Change Mode	Modbus Register Address
P15.01	PID reference source	P00.00 — P18.08	0.01	P00.00*	Run & Stop	05DCH
P15.02	PID feedback source	P00.00 — P18.08	0.01	P00.00*	Run & Stop	05DDH
P15.03	Main Reference to be modified	P00.00 — P18.08	0.01	P00.00*	Run & Stop	05DEH
P15.04	PID reference inverter	0: Off 1: On	1	0	Run & Stop	05DFH
P15.05	PID feedback inverter	0: Off 1: On	1	0	Run & Stop	05E0H

ID	Function	Range	Step	Default	Change Mode	Modbus Register Address
P15.06	PID reference slew rate	0.0s — 3200.0s	0.1s	0.0	Run & Stop	05E1H
P15.07	PID enable	0: Off 1: On	1	0	Run & Stop	05E2H
P15.08	Reserved	–	–	–	–	–
P15.09	PID proportional gain	0.000 — 4.000	0.001	1.000	Run & Stop	05E4H
P15.10	PID integral gain	0.000 — 4.000	0.001	0.500	Run & Stop	05E5H
P15.11	PID derivative gain	0.000 — 4.000	0.001	0.000	Run & Stop	05E6H
P15.12	PID upper limit	0.0 % — 100.0%	0.1	100.0%	Run & Stop	05E7H
P15.13	PID lower limit	-100.0% — +100.0%	0.1	0%	Run & Stop	05E8H
P15.14	PID output scaling	0.000 — 4.000	0.001	1.000	Run & Stop	05E9H
P15.15	PID output function	P00.00 — P18.08	0.01	P00.00*	Run & Stop	05EAH
P15.16	PID hold	0: Off 1: On	1	0	Run & Stop	05EBH

ID	Function	Range	Step	Default	Change Mode	Modbus Register Address
P15.17	P15.12, P15.13 range	0: (P15.13)≤ (P15.22)≤ (P15.12) 1: -(P15.12)≤ (P15.22)≤ (P15.12)	1	0	Run & Stop	05ECH
P15.18	Main reference level	-100.0% — +100.0%	0.1%	Actual	Actual	05EDH
P15.19	PID reference level	−100.0% — +100.0%	0.1%	Actual	Actual	05EEH
P15.20	PID feedback level	-100.0% — +100.0%	0.1%	Actual	Actual	05EFH
P15.21	PID error level	-100.0% — +100.0%	0.1%	Actual	Actual	05F0H
P15.22	PID output level	-100.0% — +100.0%	0.1%	Actual	Actual	05F1H
P15.23	Sleep mode enable	0: Off 1: On	1	0	Stop Only	05F2H
P15.24	Sleep channel selector	P00.00 — P18.08	0.01	P05.11	Stop Only	05F3H

ID	Function	Range	Step	Default	Change Mode	Modbus Register Address
P15.25	Sleep threshold	0.00Hz — P01.02 (P15.24＝P05.11) 0.0% — 100.0% (P15.24＝other)	0.01Hz 0.1%	0.00Hz 0.0%	Stop Only	05F4H
P15.26	Sleep delay time	0.0s — 3000.0s	0.1s	30.0s	Stop Only	05F5H
P15.27	Wakeup mode	0: Off 1: On	1	1	Stop Only	05F6H
P15.28	Wekeup channel selector	P00.00 — P18.08	0.01	P15.20	Stop Only	05F7H
P15.29	Wakeup threshold	0.0% — 100.0%	0.1%	0.0%	Stop Only	05F8H
P15.30	Wakeup delay time	0.0s — 3000.0s	0.1s	0.0s	Stop Only	05F9H
P15.31	Reserved	–	–	–	–	–
P15.32	Reserved	–	–	–	–	–
P15.33	Reserved	–	–	–	–	–
P15.34	Sleep status indicator	0: Not sleep mode 1: Sleep mode	1	Actual	Actual	05FDH

NOTE: (Pxx.xx) means the value of Pxx.xx.

NOTE: There is no actual parameter P00.00. The source default P00.00 means to disable the PID.

8.2.17 Menu P16: Programmable logic and binary sum

ID	Function	Range	Step	Default	Change Mode	Modbus Register Address
P16.01	block1 source1	P00.00 — P18.08	0.01	P00.00*	Stop Only	0640H
P16.02	block1 source1 inverter	0: Off 1: On	1	0	Run & Stop	0641H
P16.03	block1 source2	P00.00 — P18.08	0.01	P00.00*	Stop Only	0642H
P16.04	block1 source2 inverter	0: Off 1: On	1	0	Run & Stop	0643H
P16.05	block1 output inverter	0: Off 1: On	1	0	Run & Stop	0644H
P16.06	block1 output delay	±3000.0s	0.1s	0.0s	Run & Stop	0645H
P16.07	block1 output function	P00.00 — P18.08	0.01	P00.00*	Stop Only	0646H
P16.08	Block2 source1	P00.00 — P18.08	0.01	P00.00*	Stop Only	0647H
P16.09	Block2 source1 inverter	0: Off 1: On	1	0	Run & Stop	0648H
P16.10	Block2 source2	P00.00 — P18.08	0.01	P00.00*	Stop Only	0649H
P16.11	Block2 source2 inverter	0: Off 1: On	1	0	Run & Stop	064AH

ID	Function	Range	Step	Default	Change Mode	Modbus Register Address
P16.12	Block2 output inverter	0: Off 1: On	1	0	Run & Stop	064BH
P16.13	Block2 output delay	±3000.0s	0.1s	0.0	Run & Stop	064CH
P16.14	Block2 output function	P00.00 — P18.08	0.01	P00.00*	Stop Only	064DH
P16.15	Sum one's input	0: Off 1: On	1	0	Run & Stop	064EH
P16.16	Sum two's input	0: Off 1: On	1	0	Run & Stop	064FH
P16.17	Sum four's input	0: Off 1: On	1	0	Run & Stop	0650H
P16.18	Binary sum offset	0 — 248	1	0	Run & Stop	0651H
P16.19	Sum output function	P00.00 — P18.08	0.01	P00.00*	Stop Only	0652H
P16.20	Block1 output indicator	0: Off 1: On	1	Actual	Actual	0653H
P16.21	Block2 output indicator	0: Off 1: On	1	Actual	Actual	0654H
P16.22	Sum output level	0 — 255	1	Actual	Actual	0655H

NOTE: There is no actual parameter P00.00. The source default P00.00 means to disable the PID.

8.2.18 Menu P17: Threshold and variable selector

ID	Function	Range	Step	Default	Change Mode	Modbus Register Address
P17.01	Threshold block1 source	P00.00 — P18.08	0.01	P00.00*	Stop Only	06A4H
P17.02	Threshold block1 threshold	0.0% — 100.0%	0.1%	0.0	Run & Stop	06A5H
P17.03	Threshold block1 hysteresis	0.0% — 25.0%	0.1%	0.0	Run & Stop	06A6H
P17.04	Threshold block1 output inverter	0: Off 1: On	1	0	Run & Stop	06A7H
P17.05	Threshold block1 output function	P00.00 — P18.08	0.01	P00.00*	Stop Only	06A8H
P17.06	Threshold block2 source	P00.00 — P18.08	0.01	P00.00*	Stop Only	06A9H
P17.07	Threshold block2 threshold	0.0% — 100.0%	0.1%	0.0	Run & Stop	06AAH
P17.08	Threshold block2 hysteresis	0.0% — 25.0%	0.1%	0.0	Run & Stop	06ABH
P17.09	Threshold block2 output inverter	0: Off 1: On	1	0	Run & Stop	06ACH
P17.10	Threshold block2 output function	P00.00 — P18.08	0.01	P00.00*	Stop Only	06ADH
P17.11	Variable selector1 source1	P00.00 — P18.08	0.01	P00.00*	Stop Only	06AEH

ID	Function	Range	Step	Default	Change Mode	Modbus Register Address
P17.12	Variable selector1 source2	P00.00 — P18.08	0.01	P00.00*	Stop Only	06AFH
P17.13	Variable selector1 source1 scaling	-4.000 — +4.000	0.001	1.000	Run & Stop	06B0H
P17.14	Variable selector1 source2 scaling	-4.000 — +4.000	0.001	1.000	Run & Stop	06B1H
P17.15	Variable selector1 mode	0 — 9	1	0	Run & Stop	06B2H

P17.15	Action	Result		
0	Select input1	output=input1		
1	Select input 2	output=input2		
2	Add	output=input1+ input2		
3	Subtract	output=input1−input2		
4	Multiply	output= (input1×input2)/100		
5	Divide	output= (input1×100)/ input2		
6	Time constant	output=input1/[(P17.16) ×s+1]		
7	Linear ramp	output=Input1 ramp up from 0% — 100% in time of (P17.16)		
8	Modulus	output=|input1|		
9	Raise to power	P17.16=0.02	output=(input1)2 /100	
		P17.16=0.03	output=(input1)3 /1002	
		P17.16 has any other value	output=input1	

Note: (P17.16) means the value of P17.16.

P17.16	Variable selector1 control factor	0.00 — 99.99	0.01	0.00	Run & Stop	06B3H

ID	Function	Range	Step	Default	Change Mode	Modbus Register Address
P17.17	Variable Selector1 output function	P00.00 — P18.08	0.01	P00.00*	Stop Only	06B4H
P17.18	Variable selector2 source1	P00.00 — P18.08	0.01	P00.00*	Stop Only	06B5H
P17.19	Variable selector2 source2	P00.00 — P18.08	0.01	P00.00*	Stop Only	06B6H
P17.20	Variable selector2 source1 scaling	-4.000 — +4.000	0.001	1.000	Run & Stop	06B7H
P17.21	Variable selector2 source2 scaling	-4.000 — +4.000	0.001	1.000	Run & Stop	06B8H
P17.22	Variable selector2 mode	0 — 9	1	0	Run & Stop	06B9H

ID	Function	Range	Step	Default	Change Mode	Modbus Register Address
P17.22	Action	Result				
0	Select input1	output=input1				
1	Select input 2	output=input2				
2	Add	output=input1+ input2				
3	Subtract	output=input1−input2				
4	Multiply	output= (input1×input2)/100				
5	Divide	output= (input1×100)/ input2				
6	Time constant	output=input1/[(P17.23) × s+1]				
7	Linear ramp	output=Input1 ramp up from 0% — 100% in time of (P17.23)				
8	Modulus	output=|input1|				
		P17.23=0.02 output=(input1)2 /100				
		P17.23=0.03 output=(input1)3 /1002				
9	Raise to power	P17.23 has any other value	output=input1			
Note: (P17.23) means the value of P17.23.						
P17.23	Variable selector2 control factor	0.00 — 99.99	0.01	0.00	Run & Stop	06BAH
P17.24	Variable Selector2 output function	P00.00 — P18.08	0.01	P00.00*	Stop Only	06BBH
P17.25	Variable selector3 source1	P00.00 — P18.08	0.01	P00.00*	Stop Only	06BCH
P17.26	Variable selector3 source2	P00.00 — P18.08	0.01	P00.00*	Stop Only	06BDH

ID	Function	Range	Step	Default	Change Mode	Modbus Register Address
P17.27	Variable selector3 source1 scaling	-4.000 — +4.000	0.001	1.000	Run & Stop	06BEH
P17.28	Variable selector3 source2 scaling	-4.000 — +4.000	0.001	1.000	Run & Stop	06BFH
P17.29	Variable selector3 mode	0 — 9	1	0	Run & Stop	06C0H

P17.29	Action	Result	
0	Select input1	output=input1	
1	Select input 2	output=input2	
2	Add	output=input1+ input2	
3	Subtract	output=input1−input2	
4	Multiply	output= (input1×input2)/100	
5	Divide	output= (input1×100)/ input2	
6	Time constant	output=input1/[(P17.30) × s+1]	
7	Linear ramp	output=Input1 ramp up from 0% — 100% in time of (P17.30)	
8	Modulus	output=|input1|	
		P17.30=0.02	output=(input1)2 /100
9	Raise to power	P17.30=0.03	output=(input1)3 /1002
		P17.30 has any other value	output=input1

Note: (P17.30) means the value of P17.30.

P17.30	Variable selector3 control factor	0.00 — 99.99	0.01	0.00	Run & Stop	06C1H
P17.31	Variable selector3 output function	P00.00 — P18.08	0.01	P00.00*	Stop Only	06C2H

ID	Function	Range	Step	Default	Change Mode	Modbus Register Address
P17.32	Threshold block1 output indicator	0, 1	1	Actual	Actual	06C3H
P17.33	Threshold block2 output indicator	0, 1	1	Actual	Actual	06C4H
P17.34	Variable selector1 output level	-100.0% — +100.0%	0.1%	Actual	Actual	06C5H
P17.35	Variable selector2 output level	-100.0% — +100.0%	0.1%	Actual	Actual	06C6H
P17.36	Variable selector3 output level	-100.0% — +100.0%	0.1%	Actual	Actual	06C7H
P17.37	User-defined bit variable 1	0 — 1	1	0	Run & Stop	06C8H
P17.38	User-defined bit variable 2	0 — 1	1	0	Run & Stop	06C9H
P17.39	User-defined bit variable 3	0 — 1	1	0	Run & Stop	06CAH
P17.40	User-defined bit variable 4	0 — 1	1	0	Run & Stop	06CBH
P17.41	User-defined bit variable 5	0 — 1	1	0	Run & Stop	06CCH
P17.42	User-defined word variable 1	-300.0% — 300.0%	0.1%	0.0%	Run & Stop	06CDH
P17.43	User-defined word variable 2	-300.0% — 300.0%	0.1%	0.0%	Run & Stop	06CEH

ID	Function	Range	Step	Default	Change Mode	Modbus Register Address
P17.44	User-defined word variable 3	-300.0% — 300.0%	0.1%	0.0%	Run & Stop	06CFH
P17.45	User-defined word variable 4	-300.0% — 300.0%	0.1%	0.0%	Run & Stop	06D0H
P17.46	User-defined word variable 5	-300.0% — 300.0%	0.1%	0.0%	Run & Stop	06D1H

*NOTE: There is no actual parameter P00.00. The source default P00.00 means to disable the PID.

8.2.19 Menu P18: Brake logic control

ID	Function	Range	Step	Default	Change Mode	Modbus Register Address
P18.01	Brake controller enable	0: Off 1: On	1	0	Stop Only	0708H
P18.02	Brake release current threshold	0% — 200%	1%	50%	Run & Stop	0709H
P18.03	Brake apply current threshold	0% — 200%	1%	10%	Run & Stop	070AH
P18.04	Brake release frequency threshold	0.00Hz — 20.00Hz	0.01Hz	1.00Hz	Run & Stop	070BH
P18.05	Brake apply frequency threshold	0.00Hz — 20.00Hz	0.01Hz	2.00Hz	Run & Stop	070CH

ID	Function	Range	Step	Default	Change Mode	Modbus Register Address
P18.06	Pre-brake release delay	0.0s — 25.0s	0.1s	1.0s	Run & Stop	070DH
P18.07	Post-brake release delay	0.0s — 25.0s	0.1s	1.0s	Run & Stop	070EH
P18.08	Brake logic indicator	0: Apply 1: Release	1	Actual	Actual	070FH

8.3 Options

Options	Model name	Function
LCD keypad	HV-LCD	Used for operating drives; can display in English and Chinese.
Remote keypad	HV-RM-Keypad	Used for remote operation; the farthest operation distance is 330 feet (100 meters).
Keypad dock	HV-PadFit	Used to dock the keypad. The connection between the drive and the keypad should not be more than 30 feet (10 meters).
Simple keypad dock	HV-PadFit1	
Communication adapter	HV-232	Used for bi-directional communication between the HV300 drive and a service computer with an RS-232 port.
Communication adapter	HV-USB	Used for bi-directional communication between the HV300 drive and a service computer with a USB port.
Profibus module	HV-Profibus-V0	The HV-Profibus-V0 is a fieldbus Solutions Module that can be installed to the expansion slot in HV300 drives to provide PROFIBUS-DP slave connectivity.
PC testing software	HVSOFT(PCTools)	Interactive software (PC tools) between the computer and the drive which includes monitoring and maintenance tools.
Input and output terminal expansion card	HV-IO-Logic	To expand the input and output terminals.

8.4 Declaration of Conformity

Declaration of Conformity (size A, B, C, D, E, E1, F, F1, G, J, K, L)

Shenzhen Hopewind Electric Co., Ltd

Building 5, Guanlong No.2 Industry Park, Xili Town, Nanshan District, Shenzhen , China

HV300-A02D00004GB	HV300-A02D00007GB	HV300-A02D00015GB	HV300-A02D00022GB
HV300-A02D00040GB	HV300-A04T00007GB	HV300-A04T00015GB	HV300-A04T00022EB
HV300-A04T00022GB	HV300-A04T00040GB	HV300-A04T00055EB	HV300-A04T00055PB
HV300-A04T00055GB	HV300-A04T00075GB	HV300-A04T00110PB	HV300-A04T00110B
HV300-A04T00150B	HV300-A04T00185B	HV300-A04T00220B	
HV300-A04T00300EB	HV300-A04T00300E	HV300-A06T00300B	HV300-A06T00300
HV300-A04T00370EB	HV300-A04T00370E	HV300-A06T00370B	HV300-A06T00370
HV300-A04T00300B	HV300-A04T00300	HV300-A06T00450B	HV300-A06T00450
HV300-A04T00370B	HV300-A04T00370	HV300-A06T00550B	HV300-A06T00550
HV300-A04T00450B	HV300-A04T00450	HV300-A06T00750B	HV300-A06T00750
HV300-A04T00450EB	HV300-A04T00450EB	HV300-A06T00900B	HV300-A06T00900
HV300-A04T00550B	HV300-A04T00550	HV300-A06T01100B	HV300-A06T01100
HV300-A04T00750B	HV300-A04T00750	HV300-A06T01320B	HV300-A06T01320
HV300-A04T00900B	HV300-A04T00900	HV300-A06T01600B	HV300-A06T01600
HV300-A04T01100B	HV300-A04T01100	HV300-A06T01850B	HV300-A06T01850
HV300-A04T01320B	HV300-A04T01320	HV300-A06T02000B	HV300-A06T02000
HV300-A04T01600B	HV300-A04T01600	HV300-A06T02500B	HV300-A06T02500
HV300-A04T01850B	HV300-A04T01850	HV300-A06T02800B	HV300-A06T02800
HV300-A04T02000B	HV300-A04T02000	HV300-A06T03150B	HV300-A06T03150
HV300-A04T02500B	HV300-A04T02500	HV300-A06T03550B	HV300-A06T03550
HV300-A04T02800B	HV300-A04T02800	HV300-A06T04000B	HV300-A06T04000
HV300-A04T03150B	HV300-A04T03150	HV300-A06T04500B	HV300-A06T04500
HV300-A04T03550B	HV300-A04T03550		
HV300-A04T04000B	HV300-A04T04000		
HV300-A04T04500B	HV300-A04T04500		

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

EN 61800-5-1: 2007	Adjustable speed electrical power drive systems — Part 5-1: Safety requirements — Electrical, thermal and energy
EN 61800-3: 2004	Adjustable speed electrical power drive systems — Part 3: EMC requirements and specific test methods
EN 50581:2012	Technical documentation for the assessment of electrical and electronic products with respect to the restriction of hazardous substances

8.5 Low Voltage Directive

These products comply with the Low Voltage Directive 2006/95/EC, the Electromagnetic Compatibility (EMC) Directive 2004/108/EC, the RoHS2.0 Directive 2011/65/EU and the CE Marking Directive 93/68/EEC.

8.6 Safety Compliance

These electronic drive products are intended to be used with appropriate motors, controllers, electrical protection components and other equipment to form complete end products or systems.

Compliance with safety and EMC regulations depends upon the proper installation and configuration of the drives, including using the specified input filters. The drives must be installed only by professional assemblers who are familiar with requirements for safety and EMC. The assembler is responsible for ensuring that the end product or system complies with all the relevant laws in the country where it is to be used.

Refer to the User Guide. An EMC Data Sheet is also available giving detailed EMC information.

8.7 Drive Repair Card

<table>
<tr><td rowspan="4">User information</td><td colspan="2">User corporation:</td></tr>
<tr><td colspan="2">Address:</td></tr>
<tr><td>Zip Code:</td><td>Contractor:</td></tr>
<tr><td>Telephone:</td><td>Fax no.:</td></tr>
<tr><td rowspan="3">Product information</td><td colspan="2">Drive Family:</td></tr>
<tr><td>Power size (kW):</td><td>Serial Number:</td></tr>
<tr><td>Contract no.:</td><td>Purchase date:</td></tr>
<tr><td rowspan="3">Repair record</td><td>Service engineer:</td><td>Telephone:</td></tr>
<tr><td>Fixed date:</td><td></td></tr>
<tr><td colspan="2">Fault information:</td></tr>
<tr><td colspan="3">Questions or comments:

User signature: year month date</td></tr>
<tr><td colspan="3">Return visit record:

Service signature: year month date</td></tr>
</table>

Service Agreement

The Hopewind guarantee provides for free service on the HV300 for 18 months from the Hopewind factory delivery date. The factory delivery date is part of the serial number on the drive rating label.

Free service is not provided for downtime or failures not caused by Hopewind drive quality issues, or:

- From inappropriate, negligent or incorrect installation or adjustment of the optional operating parameters of the equipment or from mismatching the drive with the motor.
- Unauthorized modification of the drives.
- Using the HV300 out of the product specification application.
- Failures or damage caused by fire, flooding, earthquake, or un-foreseen natural disasters.

The serial number must be provided in order to clearly identify the unit; ensure that you keep your product serial numbers in a safe place.

Shenzhen Hopewind Electric Co., Ltd

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