

HDMK-4T7P5-A

Woodcutting Integrated Controller

Starting Instructions

Thank you for using HDMK-4T7P5-A woodcutting integrated controller developed by Shenzhen Hpmont Technology Co., Ltd.

Version and Revision Records

Time: 2020/07

Version: V1.0

Revised Chapter	Revised Contents
	• V1.0 publish

Quick Start

1.	Check the appearance , confirm that the product packaging is not damaged, and confirm that the product appearance is not damaged.
2.	Check the nameplate , confirm that it is consistent with the order model, for the nameplate, see section 2.1.
3.	Confirm the installation location , see 3 Mechanical Installation for installation method.
4.	For installation , see 4 Electrical Installation for details.
5.	Flip down the cover , see 4 Electrical Installation for details.
6.	Wiring , see 4 Electrical Installation for details.
7.	Close the cover , see 4 Electrical Installation for details.
8.	Power on , see section 5.1 for details.
9.	Start , see section 5.1 for details.
10.	Stop , see section 5.1 for details.
11.	Troubleshooting , see 6 Troubleshooting for details.

1 Safety Information



Danger

Danger: Information marked as dangerous is essential to avoid safety accidents.

- Electrical installation must be performed by professionally qualified electrical engineering personnel, and maintenance must be carried out by professionally trained and authorized professionals.
- The product should be installed on metal and other flame retardant objects, away from flammable and explosive objects.
- Only after the product has been powered off reliably for 10 minutes, confirm that the internal charging indicator has gone out, and the voltage between the power terminals +, - is lower than 36V before operation.
- After the external power emergency stop terminal is connected, be sure to confirm that its action is effectively and reliably connected.
- The product has a leakage current greater than 3mA to the ground. The specific value is determined by the use conditions. To ensure safety, the product and the motor must use two independent grounding wires to ensure reliable grounding. It is recommended that the user install a Type B leakage protection device (ELCB/RCD).
- Before starting the motor and mechanical equipment, please make sure that the motor and mechanical equipment work within the allowable range of use.
- When the product is live, do not touch the product terminals with the human body. The power terminals of the product should not be connected to the product casing, and there should be no short circuit between the power terminals.
- When the operating environment exceeds 40°C, derating is required. For every 1°C increase, the drive needs to be derated by 2%. The maximum working environment temperature is 50°C.
- When the altitude exceeds 1000 meters, derating is required.



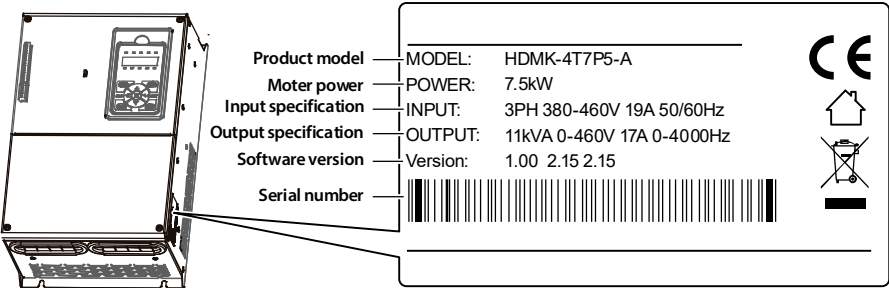
Warning

Warning: The information marked as warning is necessary to avoid damage to other equipment besides the product.

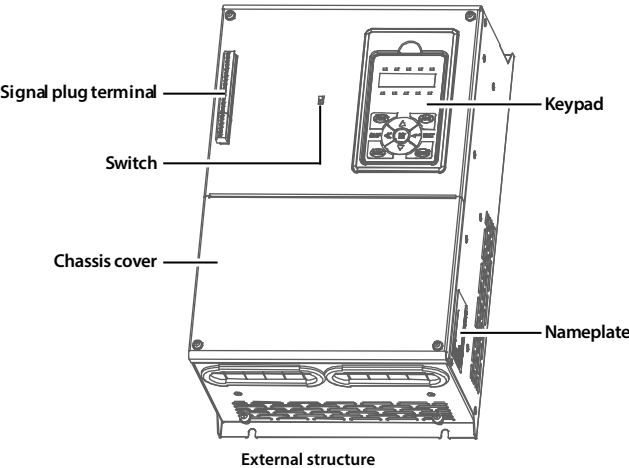
- During installation, do not drop wires, screws, or drilling residues into the integrated controller.
- The integrated controller has passed the withstand voltage test before leaving the factory. It is no longer possible to carry out the withstand voltage test on the integrated controller.
- For products that have been stored for more than 2 years, the power supply should be slowly boosted by a voltage regulator when powered on.
- Please tighten the terminal reliably.
- Forbidden to connect the input power cable to the output U/V/W terminal.
- Forbidden to connect the phase-shifting capacitor to the output circuit.
- Switch the motor or switch between the variable and power frequency only when the integrated controller stops output.

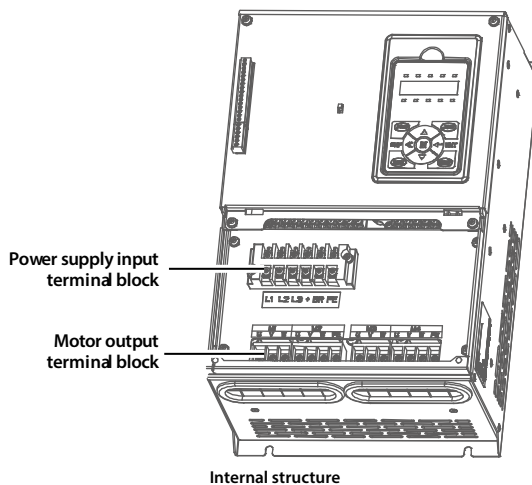
2 Product Information

2.1 Nameplate



2.2 Layout





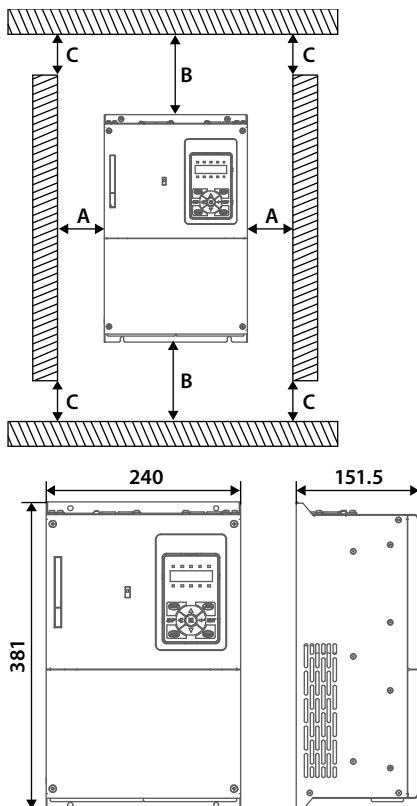
3 Mechanical Installation

Use wall-mounted installation, the steps are shown below.

1. Planning installation space.

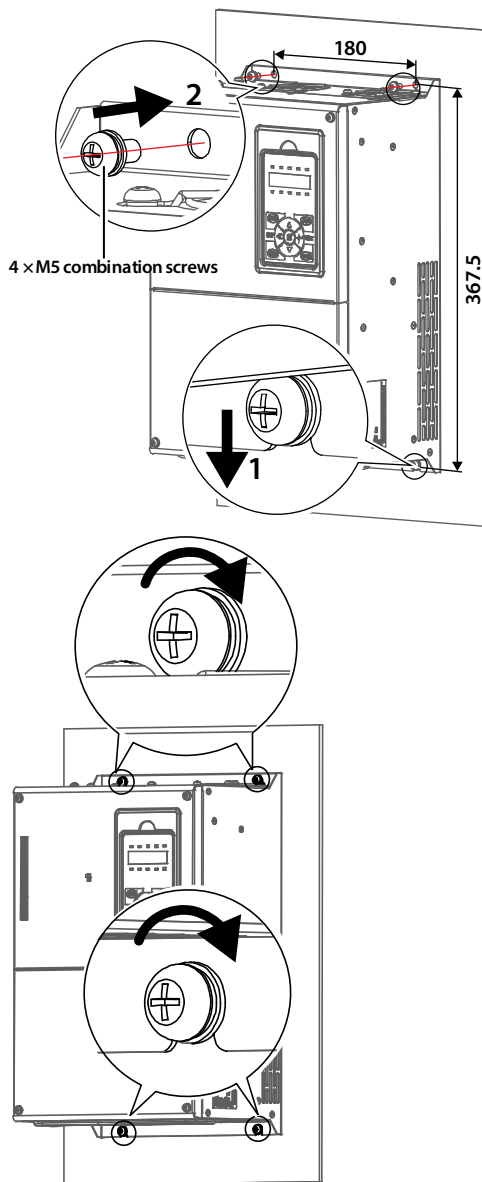
The whole space of integrated controller is shown in the table below.

Location	Distance
A	$\geq 50\text{mm}$
B	$\geq 100\text{mm}$
C	$\geq 50\text{mm}$



2. Mark installation location on the wall and then drilling (4- $\Phi 6.5$).

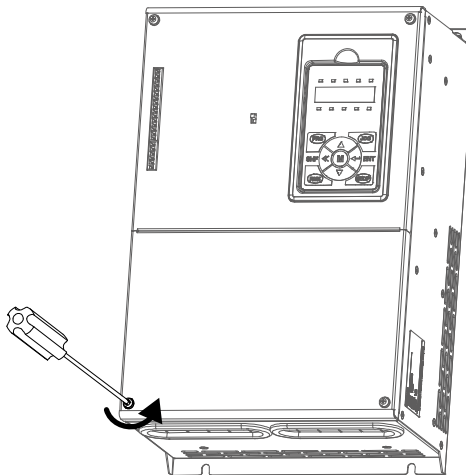
- Fix the lower 2 $\times$ M5 combination screws on the wall.
- Hang the controller on the screw.
- Fix the upper 2 $\times$ M5 combination screws on the wall.
- Tighten 4 screws.



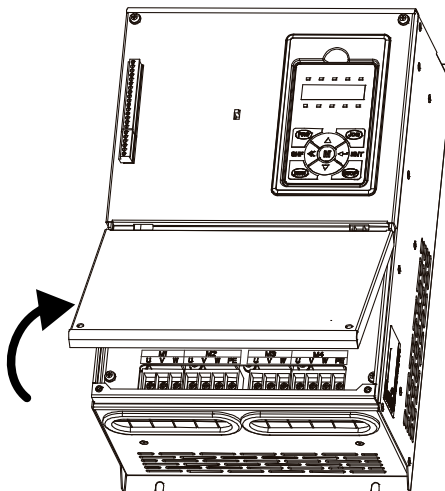
4 Electrical Installation

See the wiring steps below.

1. Remove the cover screws.



2. Open the cover.



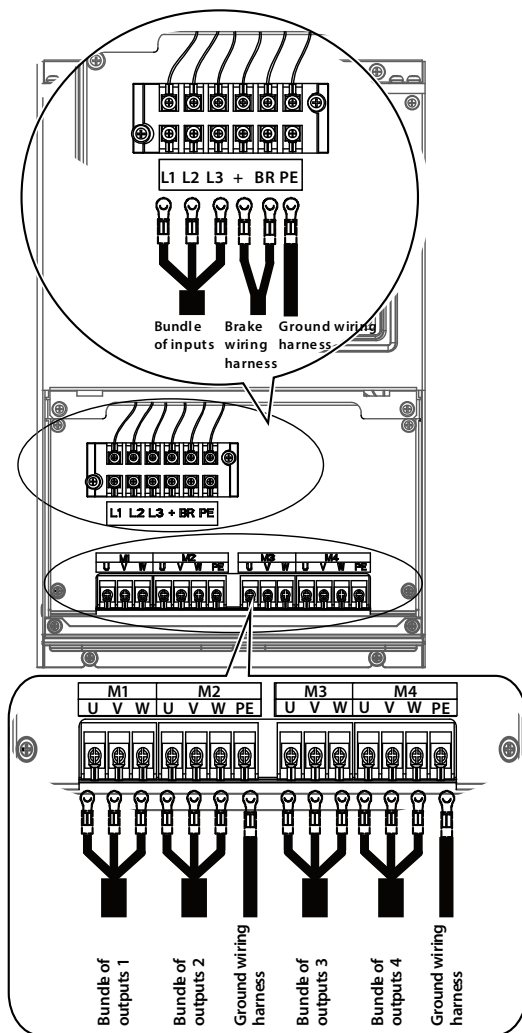
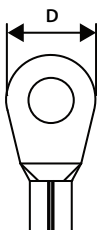
3. Connect power terminals.

Cable data of power supply input terminal (L1, L2, L3, +, BR, PE) are shown as table below.

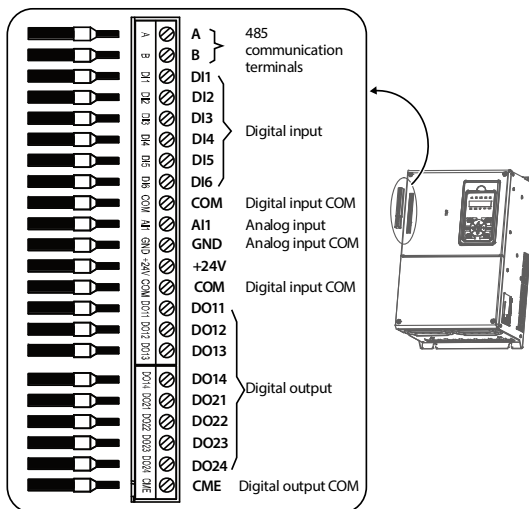
Cable Specification	4mm ²
Max. Outer Diameter D	9.5mm
Screw Torque	10lbf.in

Cable data of motor output terminal (U, V, W, PE) are shown as table below.

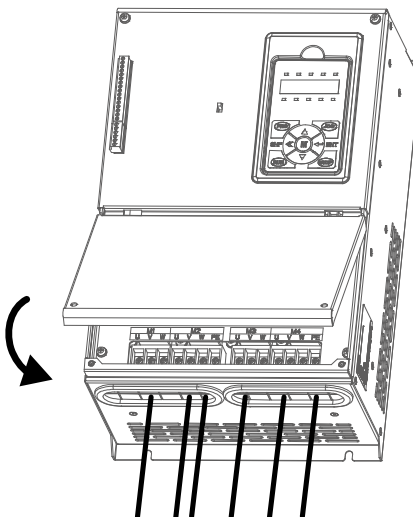
Cable Specification	2mm ²
Max. Outer Diameter D	8mm
Screw Torque	8lbf.in



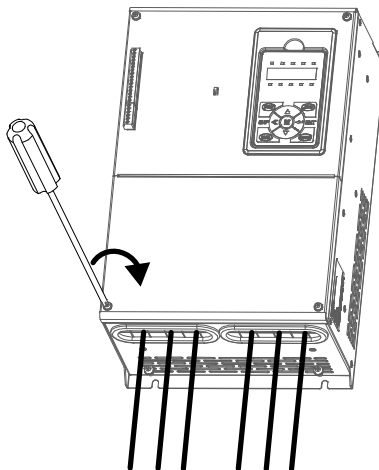
4. Connect control terminals and communication terminals.



5. Close the cover.



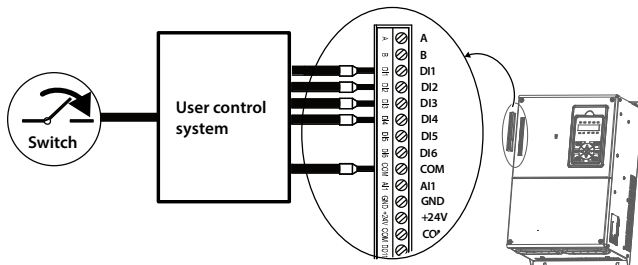
6. Tighten the screws.



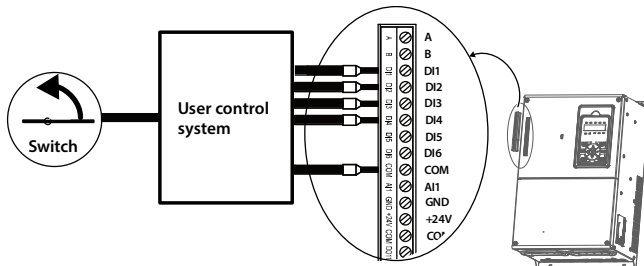
5 Operation

5.1 Starting Steps (Terminal Control)

1. Close the switch and then start the integrated controller.



2. Disconnect the switch and then stop the integrated controller.



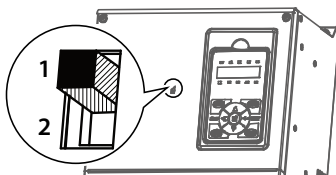
5.2 Function Introduction

5.2.1 HMI Keypad Settings

There are two sets of inverter parameters in the integrated controller, which can be switched by the switch.

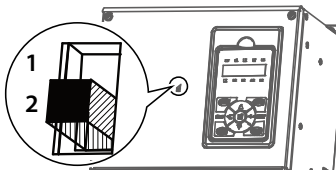
Switch to the position 1 (up):

- Set 1# inverter parameters.
- Look up for 1# inverter fault information.



Switch to the position 2 (down):

- Set 2# inverter parameters.
- Look up for 2# inverter fault information.



5.2.2 Function Parameter Instructions

Inverter Setting Parameters

Ref. Code	Function	Setting Range	Default
F00.03	Choose the motor	0 - F Bit0 - Bit3 corresponds to M1 - M4 0: Motor parameter F08 1: Motor parameter F13	0
F00.06	The Max. output frequency of inverter	50.0 - 400.0Hz	400.0Hz
F00.08	Upper limit of running frequency	0.0Hz - F00.06	400.0Hz
F00.10	Frequency setting channels	0: Keypad 1: Terminal (the initial frequency of 0 and 1 are F00.13) 2: SCI communication 3: Analogue	3
F00.11	Command setting channels	0: Keypad 1: Terminal 2: SCI communication	1
F01.02	Function parameter initialization (parameter download)	0: No operation 1: Restore to factory settings 2/3: The keypad storage parameter is copied as 1/2 to the control panel and the current function code setting value is updated 4: Clear fault information 5/6: The keypad storage parameter is copied as 1/2 to the control panel and the current function code setting value is updated (including motor parameters) 13: Woodcutting integrated controller macro parameter	0
F02.01	Start delay time	0.00 - 10.00s	0.10s
F03.01	Acc. time 1	0.1 - 6500.0s	3.0s
F03.02	Dec. time 1	0.1 - 6500.0s	3.0s
F08.00	Motor 1 rated power	0.2 - 1000.0kW	Depend on HDMK
F08.03	Motor 1 rated frequency	1 - 400Hz	300Hz
F08.04	Motor 1 low rated rotation	1 - 9999	8000
F08.05	Motor 1 high rated rotation	1 - 24	1
F13.01	Motor 2 rated power	0.2 - 1000.0kW	Depend on HDMK
F13.04	Motor 2 rated frequency	0Hz - upper limit frequency	400Hz
F13.05	Motor 2 low rated rotation	0 - 9999	4000
F13.06	Motor 2 high rated rotation	0 - 24	2
F15.18	DO1 function	0: Unused 1: Inverter is ready 3: Inverter operation forward 4: Inverter operation reverse	0

Ref. Code	Function	Setting Range	Default
F15.19	DO2 function	5: Inverter DC braking 6: Inverter zero-frequency status 7: Inverter zero-frequency operation 9: Frequency level detection signal (FDT1)	6
F15.20	DO3 function	11: Frequency within FAR range (FAR) 12: Frequency upper limit 13: Frequency lower limit 20: Communication control	11
F15.21	DO4 function	21: Set fully met running time 29: Stop in under-voltage condition 30: Overload output 31: Inverter fault 32: Stop for external fault	31
F16.27	AI correspond to the Max. frequency	0: Set the Max. frequency corresponding to F00.06 1: Set the Max. frequency corresponding to F08.03	1
F17.02	Address	0 - 247	2 (switch to the position 1) 3 (switch to the position 2)

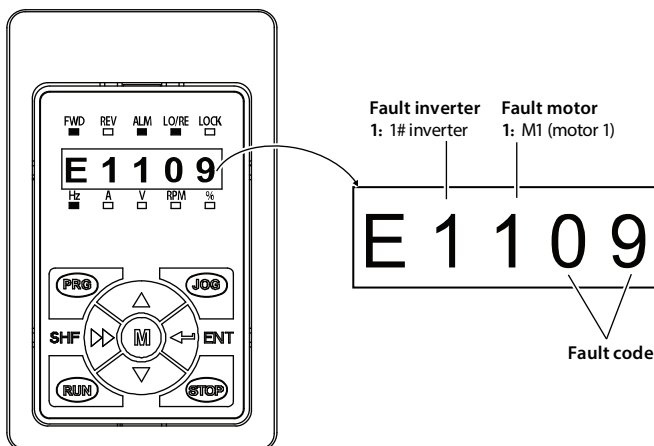
Motor Parameters Combination Table

Set F00.03	M1 (Motor 1)	M2 (Motor 2)	M3 (Motor 3)	M4 (Motor 4)
0	Group F08	Group F08	Group F08	Group F08
1	Group F13	Group F08	Group F08	Group F08
2	Group F08	Group F13	Group F08	Group F08
3	Group F13	Group F13	Group F08	Group F08
4	Group F08	Group F08	Group F13	Group F08
5	Group F13	Group F08	Group F13	Group F08
6	Group F08	Group F13	Group F13	Group F08
7	Group F13	Group F13	Group F13	Group F08
8	Group F08	Group F08	Group F08	Group F13
9	Group F13	Group F08	Group F08	Group F13
A	Group F08	Group F13	Group F08	Group F13
B	Group F13	Group F13	Group F08	Group F13
C	Group F08	Group F08	Group F13	Group F13
D	Group F13	Group F08	Group F13	Group F13
E	Group F08	Group F13	Group F13	Group F13
F	Group F13	Group F13	Group F13	Group F13

6 Troubleshooting

6.1 Fault Phenomenon

When the integrated controller fails, the keypad displays the fault code and the fault indicator “**ALM**” turns on.



6.2 Troubleshooting

Fault		Countermeasures
Lu	DC bus under-voltage	• It is normal status of powering on and powering off • Check input power voltage • Check wiring and wire HDMK properly
Exx01	Inverter output Acc. overcurrent	• Connect inverter and motor properly • Set correct F08.00 - F08.04/F13.01 - F13.05 (motor parameters) • Set proper F03.01 - F03.08 (Acc. time and Dec. time)
Exx02	Inverter output Dec. overcurrent	
Exx03	Inverter output constant speed overcurrent	
Exx04	DC bus voltage Acc. overvoltage	• Check power input • Set proper F03.02/F03.04/F03.06/F03.08 (Dec. time) • Check wiring and wire HDMK properly • Choose the suitable braking components
Exx05	DC bus voltage Dec. overvoltage	
Exx06	DC bus voltage constant speed overvoltage	
Exx07	Overpressure stall	• Check the input power or energy braking components • Reasonably set F19.19 (overpressure stall point)
Exx08	Power module fault	• Check the connection and connect the wire properly • Check the connection and mechanism • Contact the supplier for repairing
Exx09	Heatsink overheat	• Improve the ventilation around HDMK • Replace the cooling fan • Seek technical support

Fault		Countermeasures
Exx12	Motor auto-tuning fault	• Check the motor connection • Set correct F08.00 - F08.04/F13.01 - F13.05 (motor parameters) • Seek technical support
Exx14	Current detection fault	• Contact the supplier for repairing
Exx16	Output voltage phase loss	• Check the connection between HDMK and motor • Check the quality of motor
Exx17	Inverter overload	• Adjust F03.01/F03.03/F03.05/F03.07 (Acc. time) • Set proper F08.00 - F08.04/F13.01 - F13.05 (motor parameters) • Adjust F09.00 - F09.06 (V/f curve) or F09.07/F09.08 (torque rising) • Check mains supply voltage
Exx19	Motor overload	• Decrease load; Repair, replace motor • Increase F03.01 - F03.08 (Acc. time and Dec. time) • Set proper F08.00 - F08.04/F13.01 - F13.05 (motor parameters)
Exx21	Read/write fault of control board EEPROM	• Contact the supplier for repairing
Exx24	External equipment fault	• Check external equipment
Exx28	SCI communication timeout	• Check the connection • Set proper F17.00/F17.01 (communication format and the baud rate)
Exx29	SCI communication error	
Exx99	Under voltage when operation	• Check input power supply voltage • Check wiring and its standard

6.3 Reset Fault

After the fault is eliminated, reset it by pressing the “STOP” key on the keypad.

