Chinese Website: www.hcfa.cn
English Website: www.hcfaglobal.com

Control Drive Sensor Transmission Digitalization

E605

Simple-Type Variable Frequency Drive (VFD)



Innovation Integrity Service

Empowering Industry,
Shaping Smart Manufacturing

Zhejiang Hechuan Technology Co., Ltd.

Longyou Headquarters: No.5 Qinshan Road, Longyou County Industrial Park, Quzhou City, Zhejiang Province, China
Hangzhou R&D Center : No. 299 Lixin Road, Qingshanhu Science and Technology City, Lin'an District, Hangzhou City, Zhejiang Province, China

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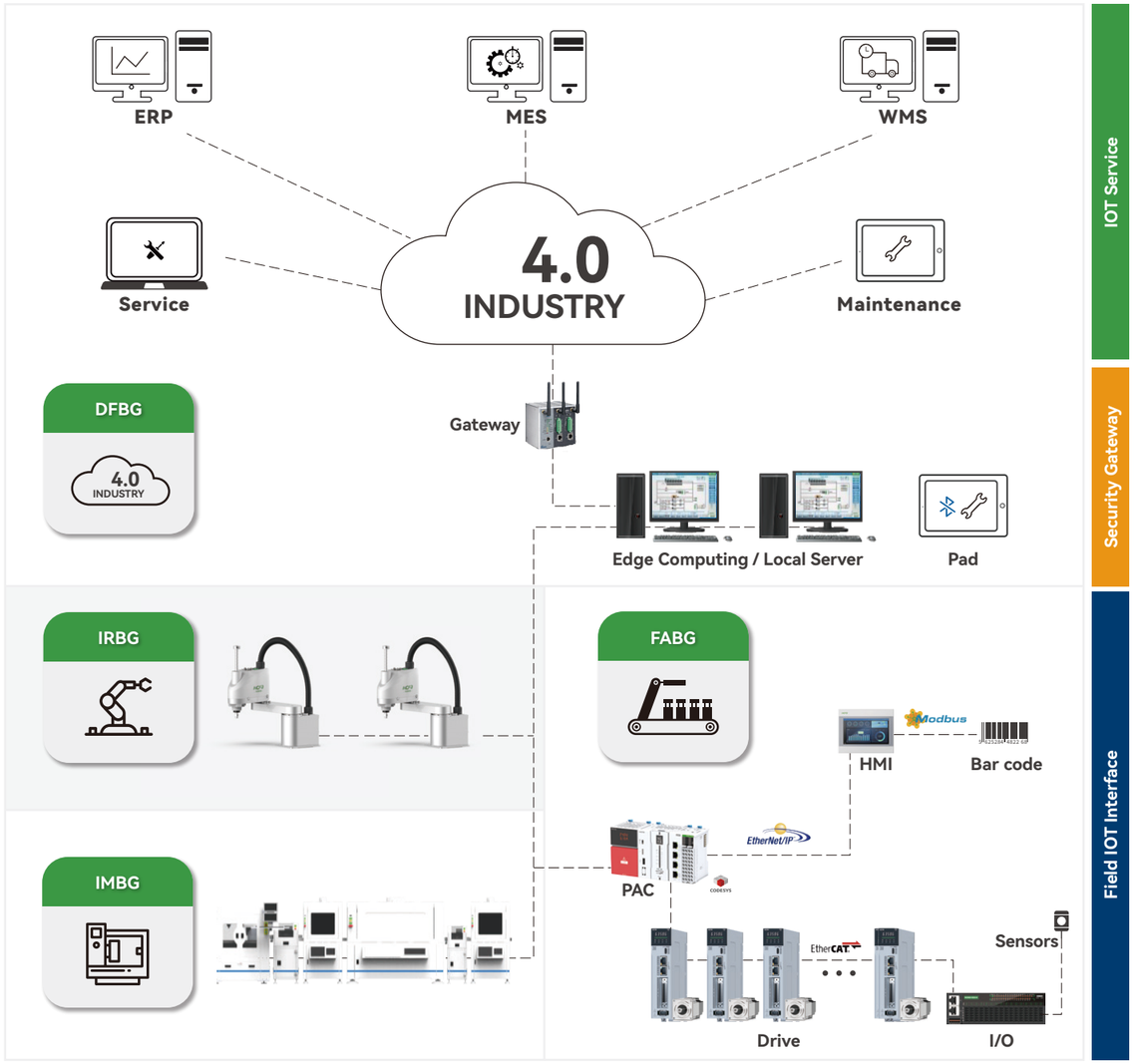
Catalog No.: Sept, 2026, Issue No. 1

Due to the delayed update of the paper version, please refer to the official website for the latest product information.

Empowering Industry, Shaping Smart Manufacturing



We not only provide essential components for industrial automation, but also engage in industrial robots, industrial machinery, and digital factories. We can offer businesses comprehensive solutions integrating **automation, intelligent equipment, and digitalization.**





Delivering Core Components & Solutions as the Essential Partner

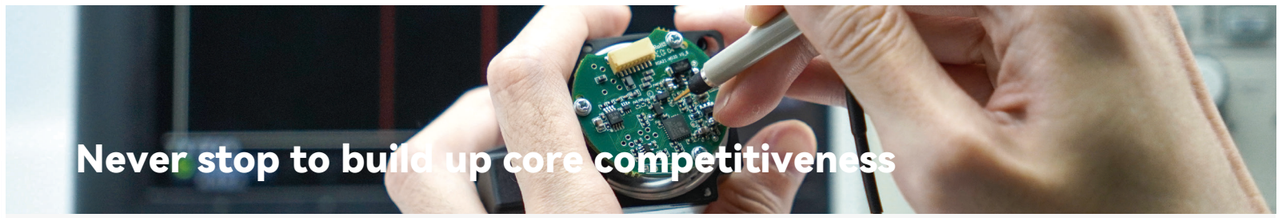
Zhejiang Hechuan Technology Co., Ltd. (HCFA Technology), founded in 2011, is a company dedicated to developing, manufacturing, sales, and application-integration of industrial automation products. It is committed to supplying core components and system-integration solutions for smart factories.

Its product range encompasses controllers, servo systems, vision systems, encoders, variable-frequency drives (VFDs), human-machine interfaces (HMIs), electric rollers, and precision transmission components, covering the entire spectrum of the industrial automation field.

In November 2023, HCFA Technology and Bosch Rexroth inked a strategic cooperation agreement. Bosch Rexroth made a strategic investment in HCFA Technology and planned to collaborate on establishing a subsidiary. Grounded in shared innovative concepts and forward-thinking, the two parties will pool their respective strengths, create resource complementarity, and engage in in-depth cooperation, aiming to become ecological partners throughout the industrial automation value chain and drive the further advancement of China's industrial automation industry.

Stock Code: 688320





Never stop to build up core competitiveness

R&D Center
6
Number of Establishments

R&D Investment
10%+
Proportion of Revenue

R&D Personnel
300+
Elite Talent Pool

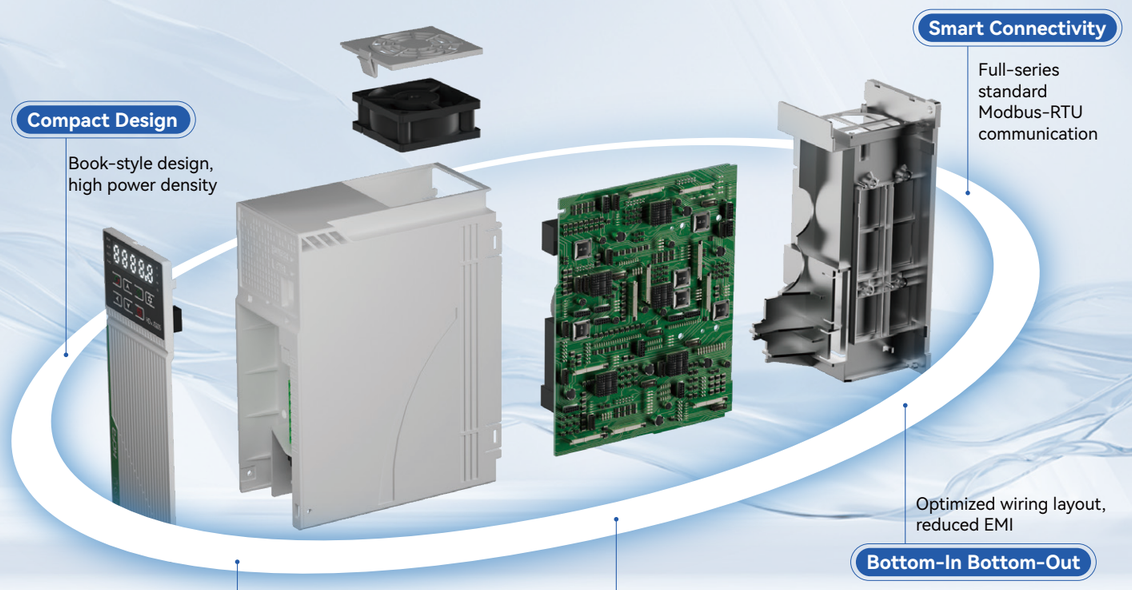
- Six R&D centers across Longyou, Hangzhou, Shenzhen, Dalian, Suzhou, and Germany
- Independently designed ASIC & SOC chips for domestic fabrication and localization substitution
- Industry-leading AMR magnetic technology and high-precision encoders

5 MAJOR PRODUCT ADVANTAGES

Compact Design | Easy to Use | Safe and Reliable | Bottom-In & Out | Smart Connectivity

Compact, Flexible, Economical and Reliable

Designed for Small-Scale Automation Equipment



Compact Design

Book-style design, high power density, supports side-by-side installation

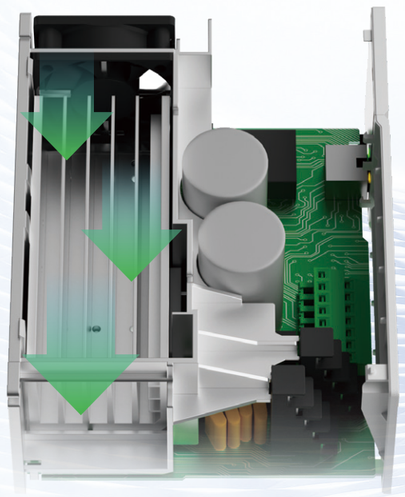
Book-style exterior with smooth lines and refined styling, blending perfectly into modern industrial environments



Compact is the industrial force of a new era

Built for?

- Space-constrained smart production lines
- Distributed equipment requiring frequent maintenance
- OEMs with critical space requirements



Compact yet powerful, independent air duct design delivers superior heat dissipation

- Isolate electronics from the air duct to enhance protection for key components such as modules and capacitors
- Adopt plug-in heat sinks with axial fans to withstand high-temperature environments
- Configure multi-port cooling channels with top-mounted fans for tool-free removal and easier maintenance

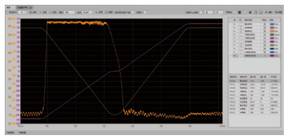
Easy to Use

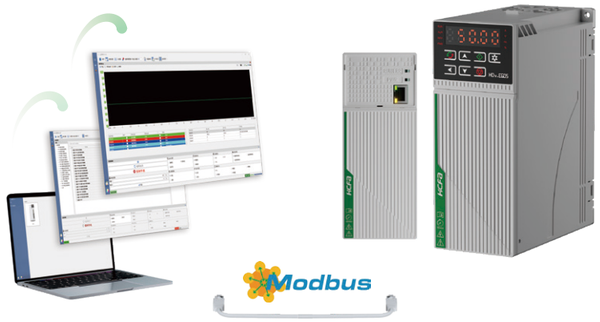
For new users:

Preset mode → wire → start. Ready to run in three steps.

For experienced engineers:

Advanced parameters enable customized control, eliminating technical barriers.



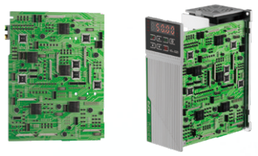


Safe and Reliable

Hardware-level overcurrent / overvoltage / short-circuit protection with high-speed response for instant output cut-off.

Independent cooling air duct plus high-temperature warning for overheating damage prevention.

Reinforced PCB protective coating for adaptation to harsh industrial environments.



Bottom-In Bottom-Out

- **Space-saving, compact layout**

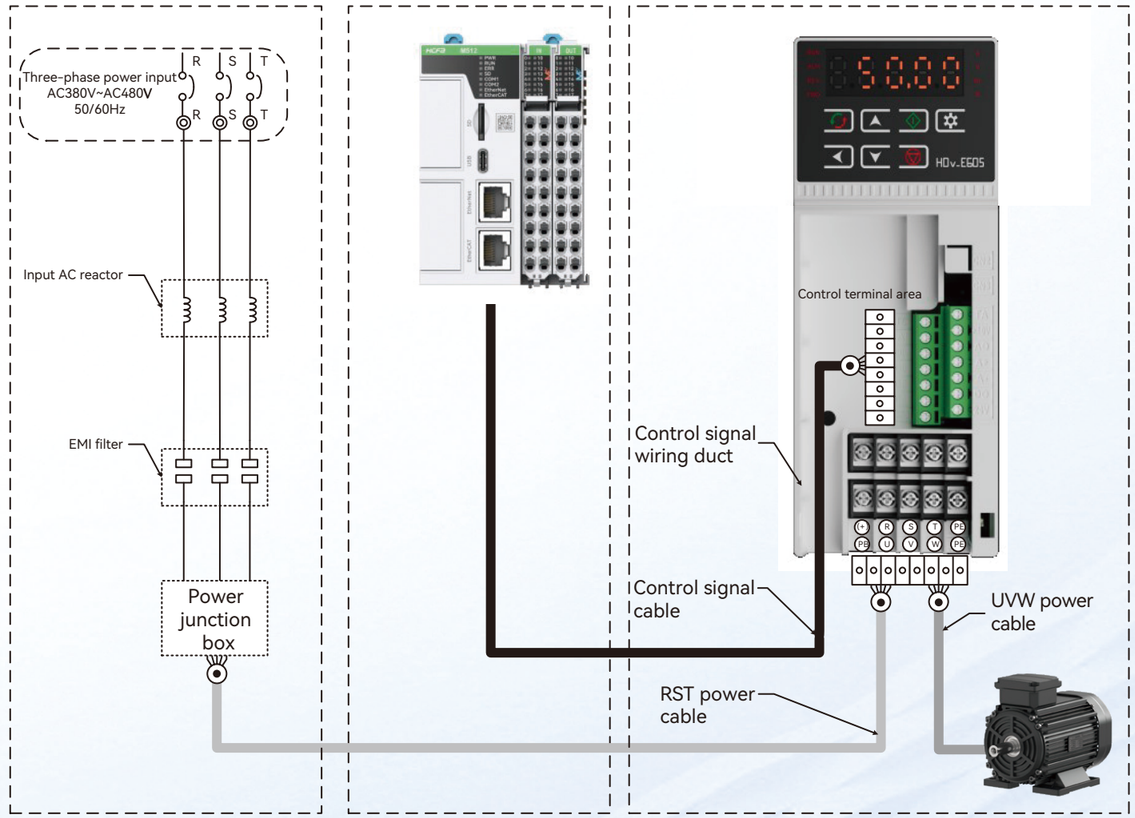
  Power and motor cables enter and exit through the bottom to minimize lateral space usage. Ideal for compact cabinets and dense installations, simplifying overall equipment layout.

- **Simplified wiring, reduced interference**

  Power and control cables arranged in separate layers (e.g., low voltage left, high voltage right) reduce EMI risk and enhance system stability. Suitable for space-constrained cabinets, multi-VFD side-by-side installation, and industrial environments with high EMC requirements.

- **Easy maintenance, high safety**

  Concentrated wiring area at the lower section for easy inspection and cable replacement, and for elimination of cable drooping risk from top entry that could cause obstruction or contact hazards.



Structural Features



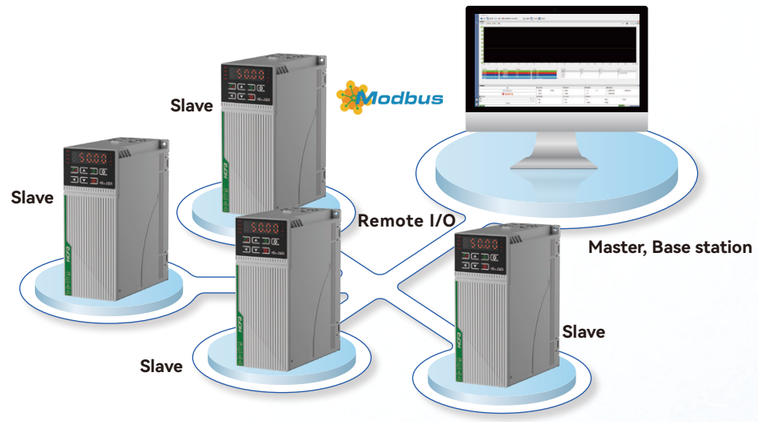
Smart Connectivity

One device connected for full system control!

Modbus-RTU protocol as standard across the entire series for complete network coverage of small-scale automation equipment

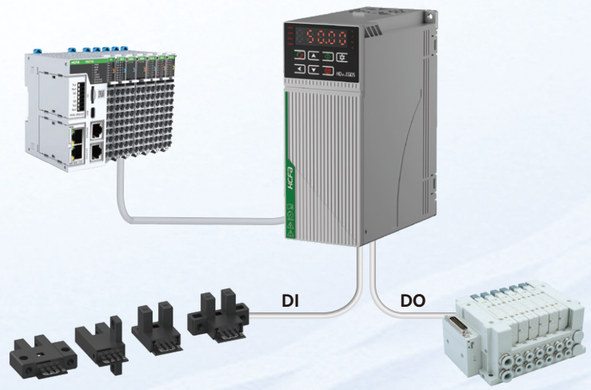
Easy networking

- Modbus-RTU communication for easy system networking, remote monitoring and control of each VFD.



Remote I/O

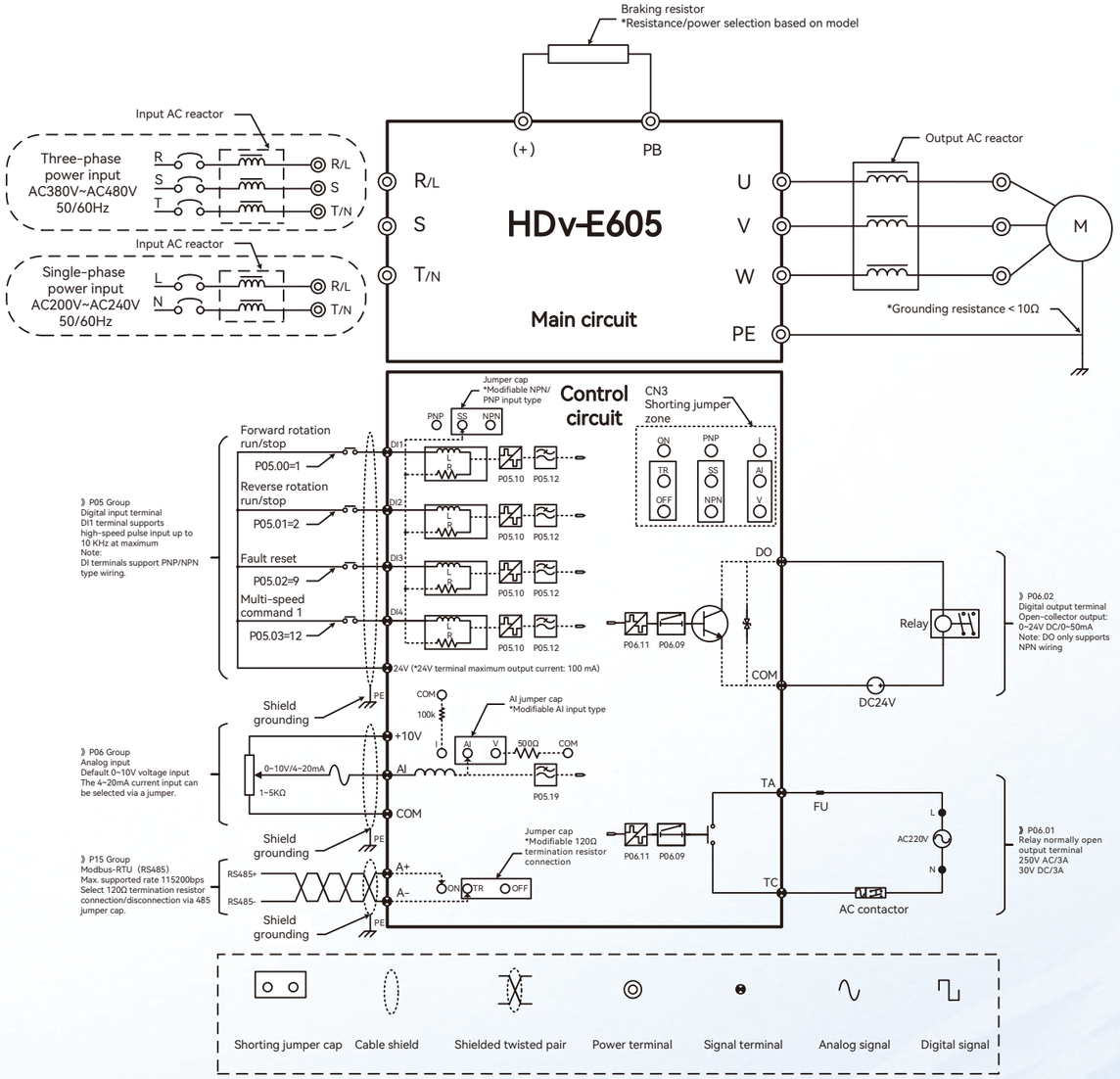
- Direct on-site I/O signal transmission to the VFD for upload to the PLC via communication protocols.



APPLICATION SCENARIOS

Application scenario	Equipment type	User benefit
Fan / Pump energy-saving retrofit	Axial fan Submersible pump Centrifugal pump	Energy savings (5%-15%): Automatic speed adjustment based on load demand eliminates energy waste from fixed-frequency operation. Extended equipment life: Soft start reduces mechanical shock and minimizes motor/bearing wear. Reduced maintenance costs: Fewer electrical component failures caused by frequent start/stop cycles.
Conveyor / Line speed control	Belt conveyor Chain plate conveyor Roller conveyor	Precise speed control: Matches speed requirements of different stages (supports 16-speed levels). Reduced material loss: Controllable acceleration during start/stop prevents product tipping/collision.
Food packaging machinery	Sub-packaging line Filling machine Packaging machine	Quick multi-specification changeover: Multi-speed function enables rapid packaging size switching. Enhanced PCB protection: Resists moisture and food debris for reduced downtime.
Small processing equipment	Woodworking engraving machine Metal cutting machine	Improved machining accuracy: Sensorless vector control ensures stable torque at low speeds. Energy savings (5%-15%): Automatic frequency reduction at no-load eliminates idle consumption. Simplified operation: Multiple speed control methods replace mechanical gearboxes for easier maintenance.
Agricultural irrigation / breeding	Submersible pump Spray pump Exhaust fan	On-demand water supply / ventilation: Automatic flow adjustment based on temperature and humidity sensor signals. Corrosion-resistant design: Adapts to high-humidity and fertilizer mist environments.

WIRING DIAGRAM



Single-phase AC200V~AC240V

VFD power [kW]			0.4	0.75	1.5	2.2	4
Matched motor [kW]			0.4	0.75	1.5	2.2	3.7
Rated output current [Arms]			2.8	4.0	7.0	10.0	16
Rated input current [Arms]			5.9	8.4	14.7	21.1	23.4
Braking resistor	Braking resistor specifications [recommended]	Resistance Ω	300	170	80	55	40
		Capacity [W]	90	160	340	400	500
	Minimum braking resistance Ω		48	48	32	16	16
Rated output voltage [V]			0~input voltage				
Maximum output frequency			0.00~599.00Hz				
Carrier frequency			VF: 1.50KHz~16.00KHz SVC: 1.50KHz~10.00KHz				
Overload capacity			110% rated current: 60 min; 150% rated current: 60 s; 180% rated current: 3 s				
Input power voltage [V]			Single-phase: 200V AC ~ 240V AC (-15%~ +10%); 50/60Hz ±5% (47Hz ~ 63Hz)				

Three-phase AC380~AC480V

VFD power [kW]			0.75	1.5	2.2	4	5.5	7.5
Matched motor [kW]			0.75	1.5	2.2	3.7	5.5	7.5
Rated output current [Arms]			2.3	3.7	5.5	9.5	13	17
Rated input current [Arms]			2.8	4.5	6.7	11.6	15.8	21.9
Braking resistor	Braking resistor specifications [recommended]	Resistance Ω	800	380	260	150	100	75
		Capacity [W]	140	300	440	750	1100	1500
	Minimum braking resistance Ω		64	64	64	38	38	30
Rated output voltage [V]			0~input voltage					
Maximum output frequency			0.00~599.00Hz					
Carrier frequency			VF: 1.50KHz~16.00KHz SVC: 1.50KHz~10.00KHz					
Overload capacity			110% rated current: 60 min; 150% rated current: 60 s; 180% rated current: 3 s					
Input power voltage [V]			Three-phase: 380V AC ~ 480V AC (-15%~ +10%); 50/60Hz ±5% (47Hz ~ 63Hz)					

Basic parameters

Output frequency	V/F control: 0.00Hz~599.00Hz SVC control: 0.00Hz~599.00Hz
Carrier frequency	V/F control: 1.50KHz~16.00KHz SVC control: 1.50KHz~10.00KHz
Input frequency resolution	Digital setting: 0.01Hz Analog setting: maximum frequency × 0.025%
Input voltage	Single-phase: 200V AC ~ 240V AC (-15%~ +10%); 50/60Hz ±5% (47Hz ~ 63Hz) Three-phase: 380V AC ~ 480V AC (-15%~ +10%); 50/60Hz ±5% (47Hz ~ 63Hz)
Motor type and control mode	IM motor: V/F control, SVC control PM motor: SVC control
Speed regulation range	V/F control: 1:50 SVC control: 1:100
Speed accuracy	V/F control: ±1.0% SVC control: ±0.5%
Overload capacity	110% rated current for 1 hour; 150% rated current for 1 minute; 180% rated current for 3 seconds
Torque boost	Manual torque boost 0.1%~30.0%
V/F curve	Linear V/F; multi-point V/F (three points); V/F separation; quadratic V/F
DC braking	DC braking frequency: 0.00Hz~maximum frequency Braking time: 0.00s~30.00s Braking action current: 0.00%~100.00% (based on motor rated current)
Jog control	Jog frequency range: 0.00Hz~maximum frequency Jog acceleration/deceleration time: 0.0s~600.0s
Simple PLC, multi-speed operation	Up to 16-speed operation via built-in PLC or control terminals
Built-in PID	Built-in PID algorithm for closed-loop process control systems

Customized functions

DC braking	DC braking frequency: 0.00Hz~maximum frequency Braking time: 0.00s~30.00s Braking action current: 0.00%~100.00% (based on motor rated current)
Jog control	Jog frequency range: 0.00Hz~maximum frequency Jog acceleration/deceleration time: 0.0s~600.0s
Simple PLC, multi-speed operation	Up to 16-speed operation via built-in PLC or control terminals
Built-in PID	Built-in PID algorithm for closed-loop process control systems
Acceleration/deceleration curve	Linear, S-curve mode 1, S-curve mode 2 (supports speed smoothing and acceleration smoothing with arc processing; continuous and non-continuous smoothing options; start and end arcs configurable separately)
Run command channel	Three run command channels: panel, control terminals, and communication. Switchable via function codes.
Frequency command channel	Eight frequency command channels: digital, analog voltage, analog current, pulse, multi-speed, PLC, PID, and communication.
Custom fault function	Customizes digital faults as required.
Energy consumption statistics	Load rate, cumulative power consumption, and cumulative power-on time statistics for host computer readout.
Swing frequency function	Multiple triangular wave frequency control functions.
Fixed length / time control	Fixed length and fixed run time control.
Automatic voltage regulation (AVR)	Automatic constant output voltage regulation during grid voltage fluctuations to ensure stable operation.
Overvoltage / overcurrent stall control	Automatic current and voltage limitation during operation to prevent frequent overvoltage / overcurrent tripping.
Fast current limiting function	Minimizes overcurrent faults for normal VFD operation.
Momentary power loss ride-through	Maintains VFD operation during momentary power outages via load feedback energy compensation for voltage drop.

Protection functions

Phase loss protection	Input and output phase loss protection.
Instantaneous overcurrent protection	Shuts down when output current exceeds overcurrent protection threshold.
Overvoltage protection	Shuts down when main circuit DC voltage exceeds 820V (for three-phase 380V models). Shuts down when main circuit DC voltage exceeds 410V (for single-phase 220V models).
Undervoltage protection	Shuts down when main circuit DC voltage falls below 350V (for three-phase 380V models). Shuts down when main circuit DC voltage falls below 190V (for single-phase 220V models).
Overheating protection	Triggered when VFD / inverter bridge overheats.
Overload protection	Shuts down at 110% rated current for 1 hour. Shuts down at 150% rated current for 1 minute. Shuts down at 180% rated current for 3 seconds.
Short-circuit protection	Output phase-to-phase and output-to-ground short-circuit protection.

Human-machine interface

Communication / bus	Modbus-RTU protocol as standard across the entire series
Analog input	1-channel analog input; AI supports 0V~10V / 4mA~20mA analog signal input (selectable via jumper)
Digital input	4-channel DI, 15V~30V operating voltage, NPN/PNP input wiring. DI4 supports high-speed pulse input (≤10kHz).
Digital output	1-channel DO, output frequency ≤100Hz, output voltage range: 0V~24V, output current range: 0mA~50mA
Keypad display	Standard 5 LED displays, 7 keys.
Optional accessories	LED operation panel
Powerful backend software	Supports VFD parameter operation and virtual oscilloscope function. Graphical monitoring of VFD internal status via virtual oscilloscope.

Environment

Operating location	Indoor, no direct sunlight, free from dust, oil mist, corrosive gases, flammable gases, water vapor, dripping water or salt, pollution degree 2.
Altitude	Rated ≤1000m, maximum 2000m. Derate 1% per 100m above 1000m.
Ambient temperature	-10℃~40℃ (derating required for 40℃~50℃, derate 2% per 1℃ increase).
Ambient humidity	<95%RH, no condensation.
Vibration	<5.9m/s² (0.6g)
Protection rating	IP20
Overvoltage category	OVC III
Pollution degree	PD2
Cooling method	Forced air cooling

Certification

E605 series	CE certified

NAMING RULES

HDv - E605 - 4T 0.7 B - 000

① ② ③ ④ ⑤ ⑥

① Product	
HDv	HCFA VFD

② Product series	
E605	E605 series VFDs

③ Voltage class	
2S	Single-phase 200V~240V
4T	Three-phase 380V~480V

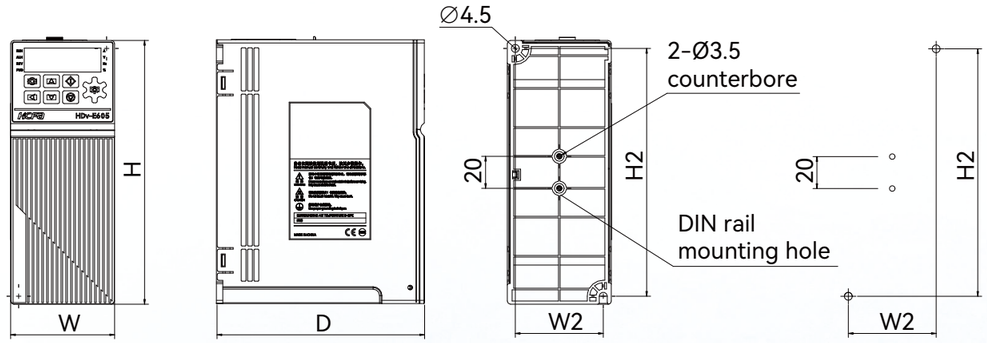
④ Power rating	
0.4	400W
0.7	750W
1.5	1.5kW
2.2	2.2kW
4	4kW
5.5	5.5kW
7.5	7.5kW

⑤ Braking unit	
None	No braking unit
B	Built-in braking unit

⑥ Model code	
000	Standard model

E605 AC 220V 0.4/0.75/1.5kW; AC 380V 0.75/1.5/2.2kW

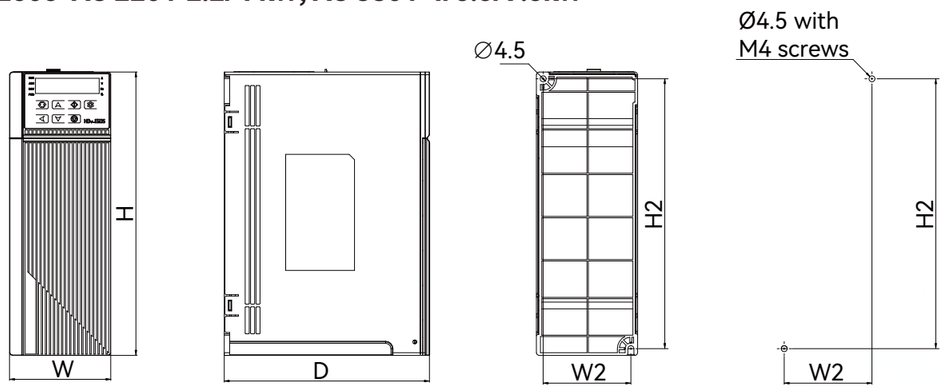
Unit: mm



VFD model	External dimension			Mounting dimension			Weight (g)	Mounting hole diameter	Mounting method
E605	W	H	D	W2	H2	D			
HDv-E605-4T0.7-000	65	165	130	55	155	130	850	ϕ4.5	Wall mounting
HDv-E605-4T1.5-000									
HDv-E605-4T2.2-000									
HDv-E605-4T0.7B-000									
HDv-E605-4T1.5B-000									
HDv-E605-4T2.2B-000									
HDv-E605-2S0.4B-000									
HDv-E605-2S0.7B-000									
HDv-E605-2S1.5B-000									

E605 AC 220V 2.2/4 kW; AC 380V 4/5.5/7.5kW

Unit: mm



VFD model	External dimension			Mounting dimension			Weight (g)	Mounting hole diameter	Mounting method
E605	W	H	D	W2	H2	D			
HDv-E605-2S2.2B-000	75	210	152	65	200	152	1500	ϕ4.5	Wall mounting
HDv-E605-2S4.0B-000									
HDv-E605-4T4.0B-000									
HDv-E605-4T5.5B-000									
HDv-E605-4T7.5B-000									

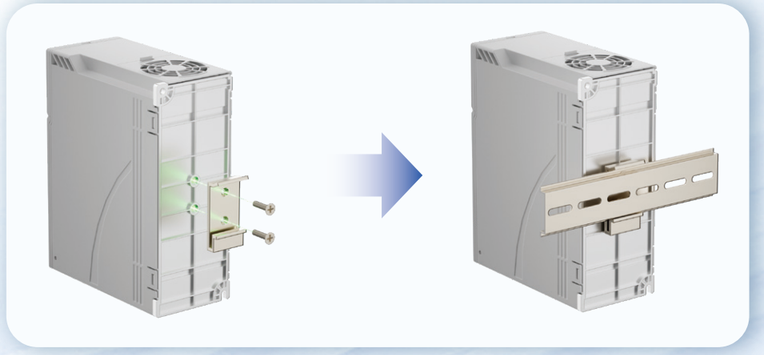
MOUNTING METHODS



Side-by-side mounting



Screw mounting

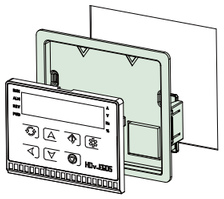


DIN rail mounting*

*: An additional accessory is required to support DIN rail mounting.

Model	Voltage class	Power (kW)	Rated input current (A)	Rated output current (A)	Braking unit	Human-machine interface
HDv-E605-2S0.4-000	Single-phase AC200V~AC240V	0.4	5.9	2.8	None	Modbus-RTU 4-channel DI terminals 1-channel DO terminal 1-channel analog input (voltage/current switchable) 1-channel relay terminal
HDv-E605-2S0.7-000	Single-phase AC200V~AC240V	0.75	8.4	4.0		
HDv-E605-2S1.5-000	Single-phase AC200V~AC240V	1.5	14.7	7.0		
HDv-E605-2S2.2-000	Single-phase AC200V~AC240V	2.2	21.1	10.0		
HDv-E605-2S4.0-000	Single-phase AC200V~AC240V	4	23.4	16		
HDv-E605-2S0.4B-000	Single-phase AC200V~AC240V	0.4	5.9	2.8	Built-in	
HDv-E605-2S0.7B-000	Single-phase AC200V~AC240V	0.75	8.4	4.0		
HDv-E605-2S1.5B-000	Single-phase AC200V~AC240V	1.5	14.7	7.0		
HDv-E605-2S2.2B-000	Single-phase AC200V~AC240V	2.2	21.1	10.0		
HDv-E605-2S4.0B-000	Single-phase AC200V~AC240V	4	23.4	16		
HDv-E605-4T0.7-000	Three-phase AC380V~AC480V	0.75	2.8	2.3	None	
HDv-E605-4T1.5-000	Three-phase AC380V~AC480V	1.5	4.5	3.7		
HDv-E605-4T2.2-000	Three-phase AC380V~AC480V	2.2	6.7	5.5		
HDv-E605-4T4.0-000	Three-phase AC380V~AC480V	3.7	11.6	9.5		
HDv-E605-4T5.5-000	Three-phase AC380V~AC480V	5.5	15.8	13		
HDv-E605-4T7.5-000	Three-phase AC380V~AC480V	7.5	21.9	17		
HDv-E605-4T0.7B-000	Three-phase AC380V~AC480V	0.75	2.8	2.3	Built-in	
HDv-E605-4T1.5B-000	Three-phase AC380V~AC480V	1.5	4.5	3.7		
HDv-E605-4T2.2B-000	Three-phase AC380V~AC480V	2.2	6.7	5.5		
HDv-E605-4T4.0B-000	Three-phase AC380V~AC480V	3.7	11.6	9.5		
HDv-E605-4T5.5B-000	Three-phase AC380V~AC480V	5.5	15.8	13		
HDv-E605-4T7.5B-000	Three-phase AC380V~AC480V	7.5	21.9	17		

Tray dimension drawing



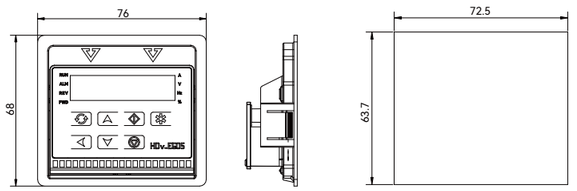
HDv-KC1-KM1-500

Detail information			
Material	Part No.	Description	Mounting method
External tray base	050301003022	Mounting base for external keyboard	Through-hole mounting

Tray dimension drawing

■ HDv-KC1-KM1-500





Recommended cutout dimensions