

ENGINEERING  
TOMORROW



# Holip Frequency Converter

HLP-A100 Series General Vector Frequency Converter



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## Our **Aspiration** :

We are engineering tomorrow.  
We passionately push boundaries  
on results and reputation.

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## Company **Profile**

Founded in 2001, Zhejiang Holip Electronic Technology Co. Ltd. ("Holip") was acquired by Danfoss in 2005 and became the member of the Danfoss Group ever since.

Established in 1933, Danfoss is a large multinational industrial manufacturing company in Denmark. As a global leader in refrigeration & air conditioning, heating & water processing and power electronics, Danfoss also sets industry standards for its reliability, excellence and innovation, and keeps striving for the best in customer satisfaction and solution in the climate & energy industry.

Holip has been devoted to frequency converters' research, design, manufacturing, marketing and service for more than a decade, meanwhile it set up Provincial Inverter R&D Center at a very early stage in China. Nowadays, Holip is one of the largest frequency converter manufacturers in China.

Our products, known as HLP series frequency converter, have been widely used in various industries such as air compressors, chemical fibers, textiles, printing and dyeing, plastics, lighting, steel, paper, chemicals, machines and cranes, etc. Holip has always been dedicated itself to providing high quality products, professional sales and efficient and reliable service. Every single converter must go through strict quality tests, such as high temperature tests and full load tests before delivery. Holip frequency converter has been listed in "National Key New Product", "National Torch Plan Projects", and honored with "Famous Brand Products of Zhejiang Province".

To fully implement business strategy of Danfoss China--2nd Home Market, Holip, as part of Danfoss China, also has made key action plans such as optimizing product performance and fastening the development of new products, improving the competences of salesforce, optimizing the structure of product cost and so on. Nowadays, Holip has become the manufacture and logistics center of Danfoss Drives Segment in the Asian-Pacific region; and the Danfoss factory in Haiyan, known as Haiyan Campus, has become the globally important factory area of Danfoss, with annual yield of 1.8 million units.



## — Product Brief

HLP-A100 series is Holip new generation of general vector drive, with high reliability, high environmental adaptability, excellent user friendliness and excellent control performance features. It can be widely applied to many industries such as plastics, textiles, machine tools, food packaging, chemicals, printing, building materials, stone, wire drawing, glass, ball mills, environmental, overloading fan machinery, etc.

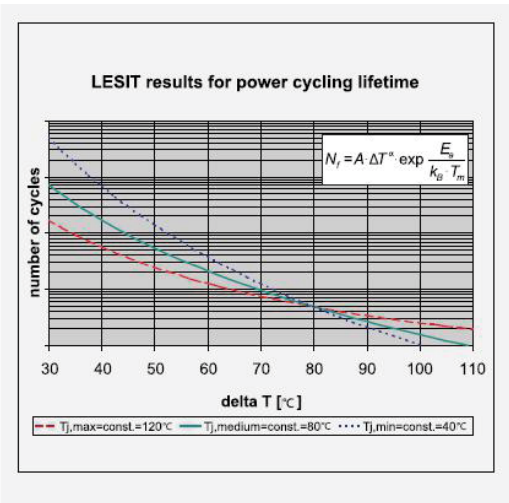




— **High Reliability**

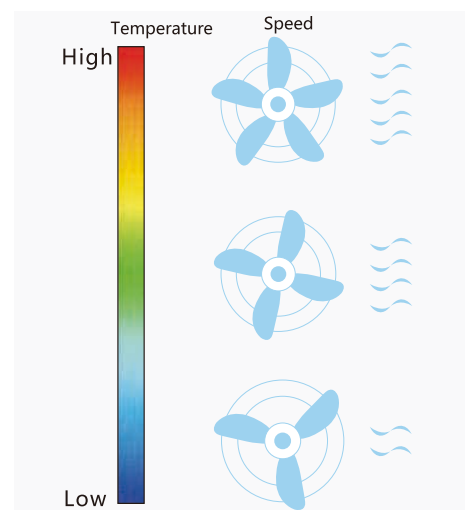
**Long life design**

In order to ensure the long life of drive, we take the precise life calculation and test of the major components such as modules, capacitors, fans, relays, etc., and use the long life components.



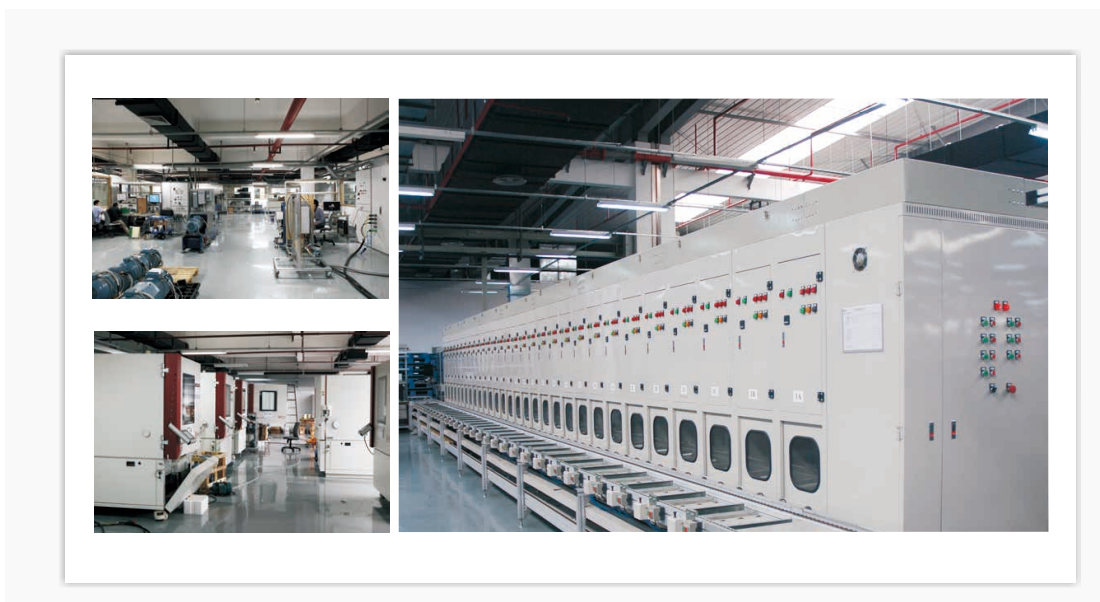
**Fan speed controllable**

Fan speed is controlled by the temperature of the drive, which greatly extends the working life of the fans, and reduces noise and power consumption.



**Strict design and test production system**

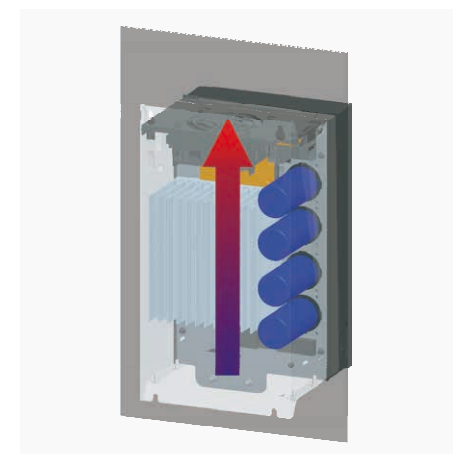
Strictly follow the Danfoss design, test and production system, ensuring the best quality.



— **High Environmental Adaptability**

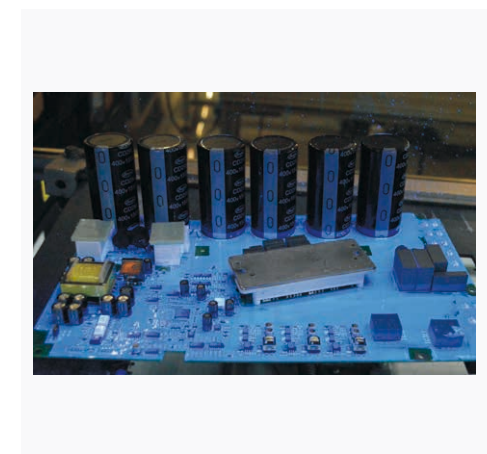
**Independent wind way design**

Independent wind way design for all models. The electronic area of  $\leq 22kW$  models are completely sealed and unventilated, effectively avoiding contamination entering into the electronic area, and promoting protection effect of the drive with better adaption to complex and difficult live environment.



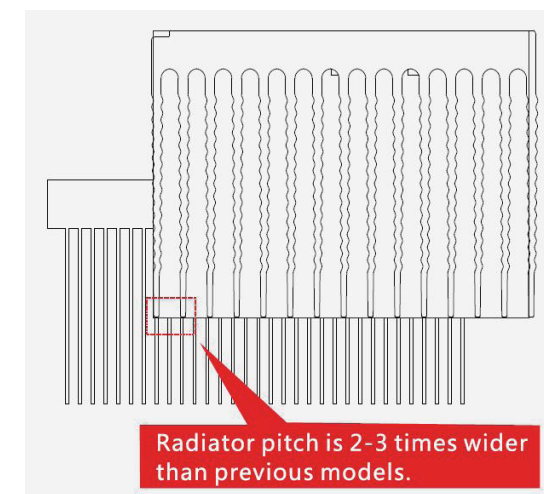
**PCBA 100% coating coverage**

PCBA 100% cover class 3C3 coating. It can better resist chlorine, hydrogen, sulphide, ammonia and other chemical gases environment.



**Wide tooth pitch radiator**

Wide tooth pitch radiator can effectively prevent dust accumulation and blockage.



**Easy cleaning and replacement fan**

Easy cleaning and replacement fan can better clean pollutants attached to the fan and heatsink.





— **High Environmental Adaptability**

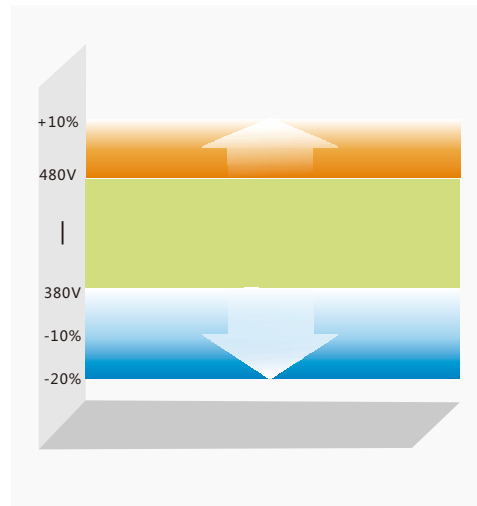
**Provide IP5X options**

≤ 22kW models provide IP50 option boxes. These can further improve the drive's adaptive capacity to environment.



**Wide voltage range**

The drive can work under the input voltage from 380V(-20%) to 480V(+10%). Unique low-voltage mode is particularly suitable for low voltage power grid.



**High adaptability EMC characteristics**

Optimize EMC characteristic for ungrounded and using unscreened cables.



**RFI switch**

With RFI switch, users can select different mode for leakage current and the EMC requirements.



— **High Environmental Adaptability**

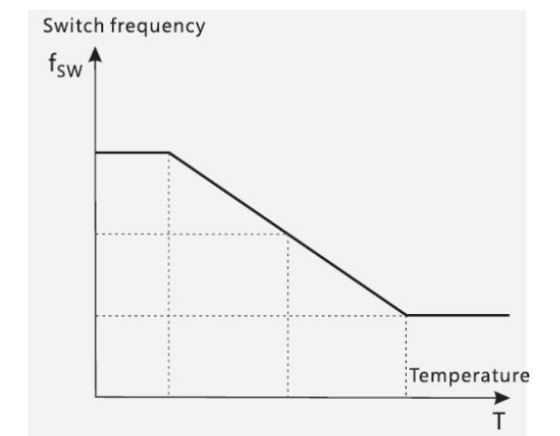
**≥ 37kW models built-in DC choke**

Built-in DC choke can effectively suppress harmonic current disturbance on the power grid, reduce customer grid capacity requirements, and improve the reliability of the rectifier.



**Intelligent heating management system**

When the drive's temperature is high, it can intelligently adjust the PWM wave and switch frequency to control system heat, meanwhile increase the fan speed.



— **Excellent User Friendliness**

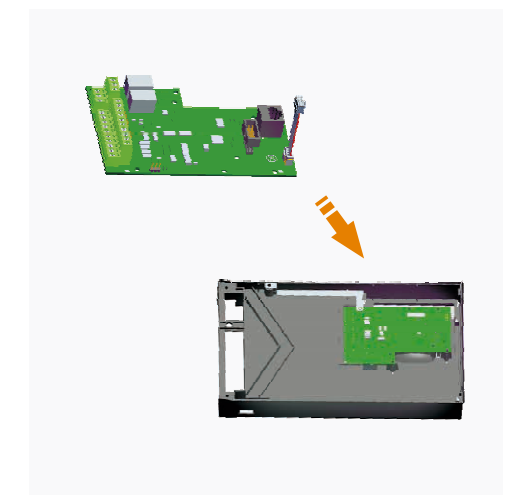
**Easy operation**

Incremental potentiometer design and one-key restore user parameters.



**IO board customization**

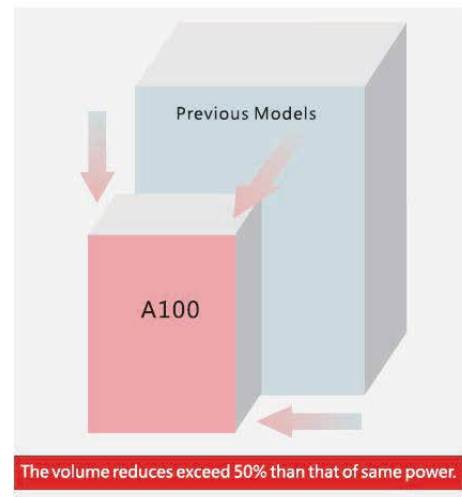
IO board customization support user-defined dedicated function.



— **Excellent User Friendliness**

**Smaller size**

Due to adopt advanced thermal simulation and modular design, the volume greatly reduced, saving installation space for customers.



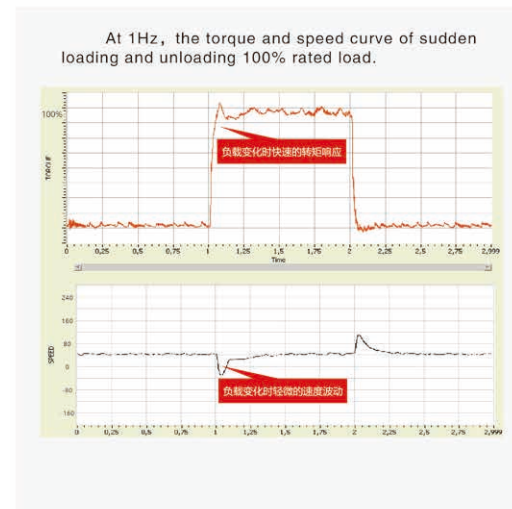
**Multiple installation mode**

≤ 75kW models: Support wall installation and embedded installation;  
 ≥ 90kW models: Support wall installation and cabinet installation;



— **Excellent Control Performance**

Vector control algorithm ensures excellent control performance.



— **Technical Specifications**

Item		Specification
Power supply	Supply voltage	Single/Three phase 200~240V -20%~+10%; Three phase 380~480V -20%~+10%;
	Frequency	48~62Hz;
	Max. imbalance	3%;
Motor output	Output voltage	three phase 0~100% of supply voltage;
	Output frequency	0~400Hz;
Main control functions	Control mode	V/F, VVC+;
	Motor type	IM, PM (IPM, SPM);
	Start torque	0.5Hz 150%;
	Overload capacity	150% 60s, 200% 1s;
	PWM switch frequency	2~16kHz;
	Speed setting resolution	Digital: 0.001Hz; Analogy: 0.5‰ of the max. operating frequency ;
	Speed open-loop control accuracy	30~4000 rpm: tolerance ± 8 rpm;
	Control command source	LCP, digital terminal, local bus;
	Frequency setting source	LCP, analog, pulse, local bus;
	Ramp control	Selectable 4-speed steps ramp up and down times 0.05~3600.00s;
Basic Functions	Speed Open-loop Control; Process Closed-loop Control; Torque Open-loop Control; AMA Function; Motor Magnetisation; Slip Compensation; Torque compensation; Automatic Voltage Regulation; V/F Control, DC Brake; AC brake; Speed Limit; Current Limit; Flying Start; Reset Function; Counter; Timer;	
Application Functions	Wobble Function; Jogging; Multi-speed Control via Digital input; SLC(including Order Control and Parallel Control); Mechanical Braking; UP/DOWN ; Catch up /Slow down; Relative Scaling Reference etc.	
Protection Functions	Missing Motor Phase Protection; Low-voltage Protection; Over-voltage Protection; Over-current Protection; Output Phase Loss Protection; Output Short Circuit Protection; Output Grounding Fault Protection; Motor Thermal Protection; Live Zero Timeout Function; AMA Fails; CPU Fault; EEPROM Faults; Button freeze; Duplicate Fails; LCP Invalid; LCP Incompatible; Parameter Read-only; Reference Out of Range; Invalid While Running etc.	
IO board control terminals	Input	6 digital inputs (1 supports pulse input, pulse range: 1Hz~100kHz); 2 analog input, both can receive voltage or current signals.
	Output	2 digital output (1 supports pulse output, pulse range: 1Hz~100kHz); 2 relay output; 2 analog input (1 can be selected as current output or voltage output via jumper switch).
	Power supply	1 +10V, max current output 10mA; 1 +24V, max current output 200mA;
	Communication	RS+, RS-, max baud rate 115200bit/s;



Item	Specification
Display	8 segments, 5 numeric displays Display frequency, warnings, status and so on;
	Indicator Light FWD, REV, HZ, A, RPM display various status of the drive;
	Data read-outs Frequency setting, output frequency, feedback value, output current, DC link voltage, output voltage, output power, input terminals state, output terminals state, analogue input, analogue output, 1-10 fault records and accumulated working time etc.;
Environment	Enclosure IP20;
	Ambient temperature -10°C ~50°C, derating use when over 40°C;
	Humidity 5%-85% (95% without condensation);
	Vibration test ≤ 75kW: 1.14g; ≥ 90kW: 0.7g;
	Max. altitude above sea level 1000m, derating use when more than 1000 meters;
	Motor cable length Shield cable: 50 meters, unshield cable: 100 meters;
others	DC choke ≥ 380V 37kW/220V 18.5kW Built-in
	Braking unit ≤ 380V 22kW/220V 11kW Built-in

— Significance of the product type code:

Model: HLP-A100 | 07D5 | 43 | P20 | X | B | X | 1 | C | X | 0 | A | XX | VXXX  
 1-8 | 9-12 | 13-14 | 15-17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26-27 | 28-31

Item	sign	Description
1-8	HLP-A100	Indicate Product Series
9-12	07D5	Indicate 7.5kW
13-14	21	Indicate 1-Phase AC 220V
	23	Indicate 3-Phase AC 220V
	43	Indicate 3-Phase AC 380V
15-17	P20	IP rating is 20
18	X	Without AC choke
	A	With AC choke
19	X	Without Brake unit
	B	With Brake unit
20	X	Without DC choke
	D	With DC choke
21	1	Control panel with LED display and potentiometer
22	C	With coating on PCB
23	X	Reserved
24	0	Domestic sale
	1	Overseas sale
25	A	IO board Type
26-27	XX	Reserved
28-31	VXXX	Indicate software version number, such as V235 means the version number is 2.35.

— Label Description

Model → **Model: HLP-A10007D543P20XBX1CX0AXXVXXX**

Input Range → INPUT: 3P x 380-480V 50/60Hz 24.8/21.4A

Output Range → OUTPUT: 3x0-Vin 0-400Hz 17.7/16.0A

Serial Number → **S/N: 133FxxxxxxxxxA248**      O/N: 000030271936 ← Order Name

Company Name → **ZheJiang Holip Electronic Technology Co.,Ltd**

⚠️ **WARNING:**  
STORED CHARGE DO NOT TOUCH UNTIL 4 MIN. AFTER DISCONNECTION      MADE IN CHINA ← Safety Precautions

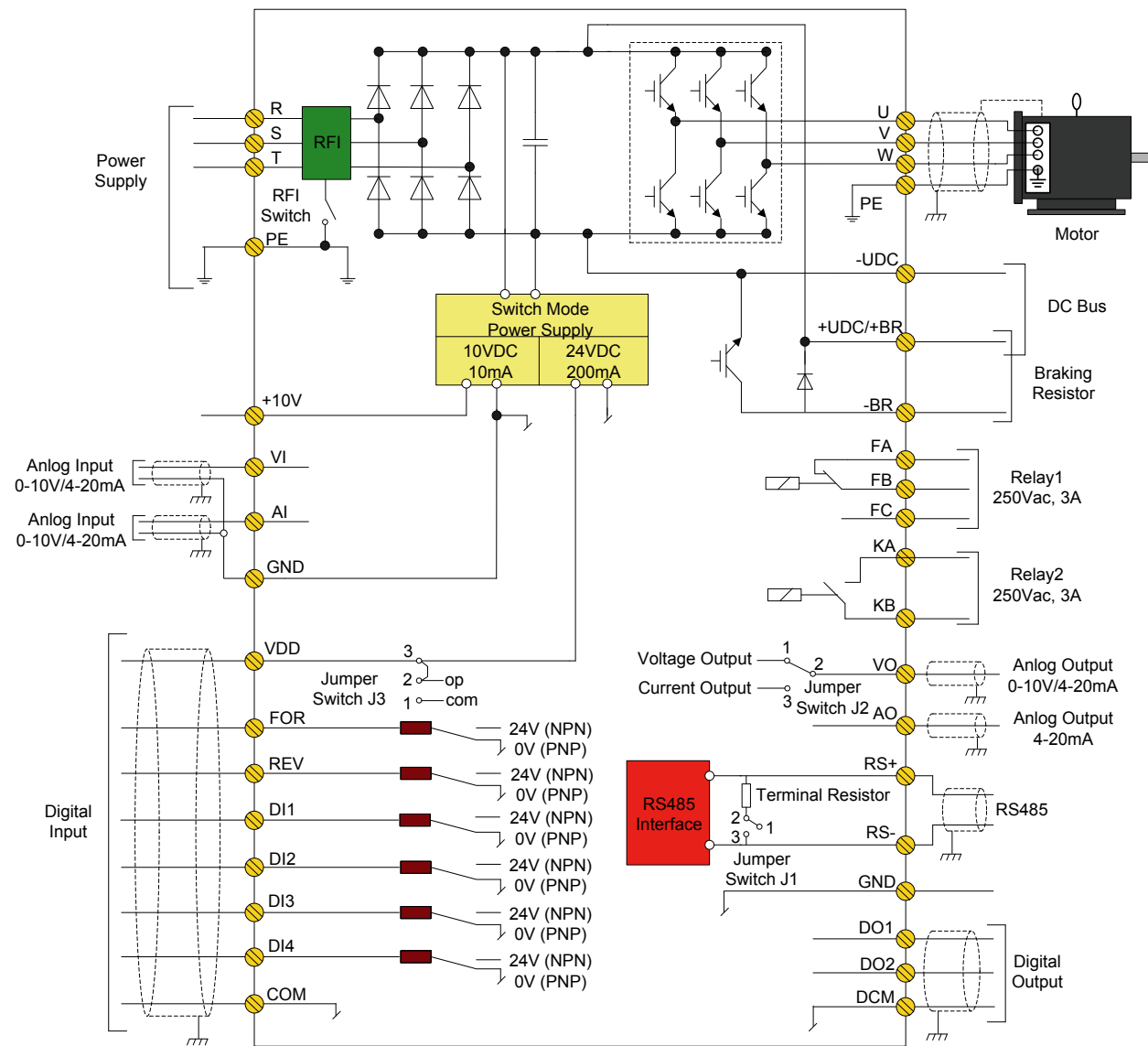
— Particular Specifications

Model	Input voltage	Input current (A)	Output current (A)	Rated power (kW)	Power dissipation (W)	Air flow rate (m3/h)	Net weight (kg)
HLP-A1000D3721	1 × 200–240V	7.0	2.5	0.37	17.7	51	1.3
HLP-A1000D7521	1 × 200–240V	13.9	5.0	0.75	33.3	51	1.3
HLP-A10001D521	1 × 200–240V	20.6	7.5	1.5	53.8	51	1.3
HLP-A10002D221	1 × 200–240V	30.4	11	2.2	75.0	51	1.3
HLP-A10003D721	1 × 200–240V	49.7	17	3.7	115.7	51	2.0
HLP-A10005D521	1 × 200–240V	62.4	25	5.5	160	124	5.6
HLP-A10007D521	1 × 200–240V	84	32	7.5	225	230	7.8
HLP-A1000D3723	3 × 200–240V	4.0	2.5	0.37	16.8	51	1.3
HLP-A1000D7523	3 × 200–240V	8.0	5	0.75	31.5	51	1.3
HLP-A10001D523	3 × 200–240V	12.0	7.5	1.5	51.0	51	1.3
HLP-A10002D223	3 × 200–240V	17.7	11	2.2	73.7	51	1.3
HLP-A10003D723	3 × 200–240V	27.2	17	3.7	110.9	51	2.0
HLP-A10005D523	3 × 200–240V	35.1	25	5.5	155	124	5.6
HLP-A10007D523	3 × 200–240V	43.4	32	7.5	210	124	5.6
HLP-A100001123	3 × 200–240V	61	45	11	323	272	7.8
HLP-A100001523	3 × 200–240V	73	61	15	447	300	18.5
HLP-A10018D523	3 × 200–240V	88	75	18.5	795	376	19
HLP-A100002223	3 × 200–240V	106	91	22	975	408	26
HLP-A100003023	3 × 200–240V	130	112	30	1246	476	26
HLP-A100003723	3 × 200–240V	171	150	37	1635	595	37
HLP-A1000D7543	3 × 380–440V	3.7	2.3	0.75	38.5	51	1.3
	3 × 440–480V	3.2	2.1				
HLP-A10001D543	3 × 380–440V	6.4	4	1.5	49.0	51	1.3
	3 × 440–480V	5.5	3.6				
HLP-A10002D243	3 × 380–440V	8.9	5.6	2.2	65.2	51	1.3
	3 × 440–480V	7.7	5.1				
HLP-A10004D043	3 × 380–440V	15.8	9.9	4.0	122.9	51	2.0
	3 × 440–480V	13.6	9				
HLP-A10005D543	3 × 380–440V	21.3	13.3	5.5	139.4	51	2.0
	3 × 440–480V	18.4	12.1				
HLP-A10007D543	3 × 380–440V	28.3	17.7	7.5	211.6	68	2.5
	3 × 440–480V	24.4	16.1				
HLP-A100001143	3 × 380–440V	35.9	25	11	262.4	124	5.8
	3 × 440–480V	31.4	22.7				
HLP-A100001543	3 × 380–440V	43.4	32	15	339.3	170	5.8
	3 × 440–480V	38.8	29.1				

Model	Input voltage	Input current (A)	Output current (A)	Rated power (kW)	Power dissipation (W)	Air flow rate (m3/h)	Net weight (kg)
HLP-A10018D543	3 × 380–440V	51.5	38	18.5	418.0	230	8
	3 × 440–480V	46.1	34.5				
HLP-A100002243	3 × 380–440V	61.0	45	22	468.2	272	8
	3 × 440–480V	54.5	40.9				
HLP-A100003043	3 × 380–440V	73	61	30	676.3	303	19
	3 × 440–480V	64	52				
HLP-A100003743	3 × 380–440V	72	75	37	795.0	374	22
	3 × 440–480V	65	68				
HLP-A100004543	3 × 380–440V	86	91	45	974.8	408	26
	3 × 440–480V	80	82				
HLP-A100005543	3 × 380–440V	110	112	55	1246	476	26
	3 × 440–480V	108	110				
HLP-A100007543	3 × 380–440V	148	150	75	1635	595	37
	3 × 440–480V	135	140				
HLP-A100009043	3 × 380–440V	175	180	90	2204	646	60
	3 × 440–480V	154	160				
HLP-A100011043	3 × 380–440V	206	215	110	2600	714	60
	3 × 440–480V	183	190				
HLP-A100013243	3 × 380–440V	251	260	132	3178	850	60
	3 × 440–480V	231	240				
HLP-A100016043	3 × 380–440V	304	315	160	3689	1029	99
	3 × 440–480V	291	302				
HLP-A100018543	3 × 380–440V	350	365	185	4268	1190	99
	3 × 440–480V	320	335				
HLP-A100020043	3 × 380–440V	381	395	200	4627	1292	99
	3 × 440–480V	348	361				
HLP-A100022043	3 × 380–440V	420	435	220	4935	1411	99
	3 × 440–480V	383	398				
HLP-A100025043	3 × 380–440V	472	480	250	5323	1564	250
	3 × 440–480V	436	443				
HLP-A100028043	3 × 380–440V	525	540	280	6543	1700	250
	3 × 440–480V	475	490				
HLP-A100031543	3 × 380–440V	590	605	315	7251	1870	250
	3 × 440–480V	531	540				
HLP-A100035543	3 × 380–440V	647	660	355	7497	2125	250
	3 × 440–480V	580	590				
HLP-A100041543	3 × 380–440V	718	745	415	8284	2380	250
	3 × 440–480V	653	678				

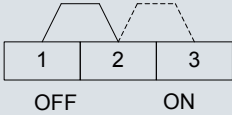
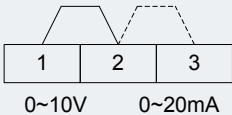
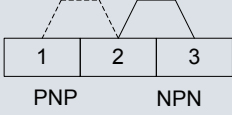


— Circuit Wiring

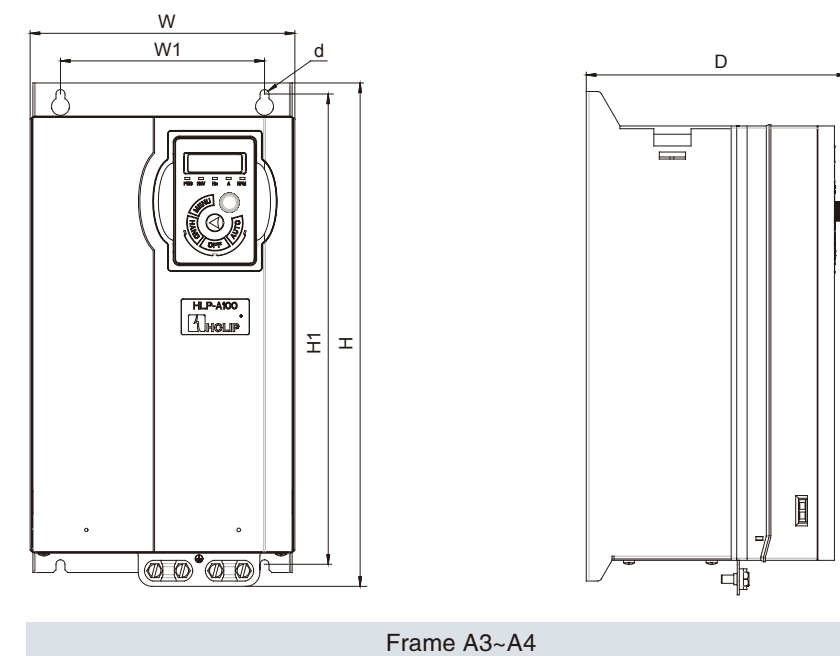
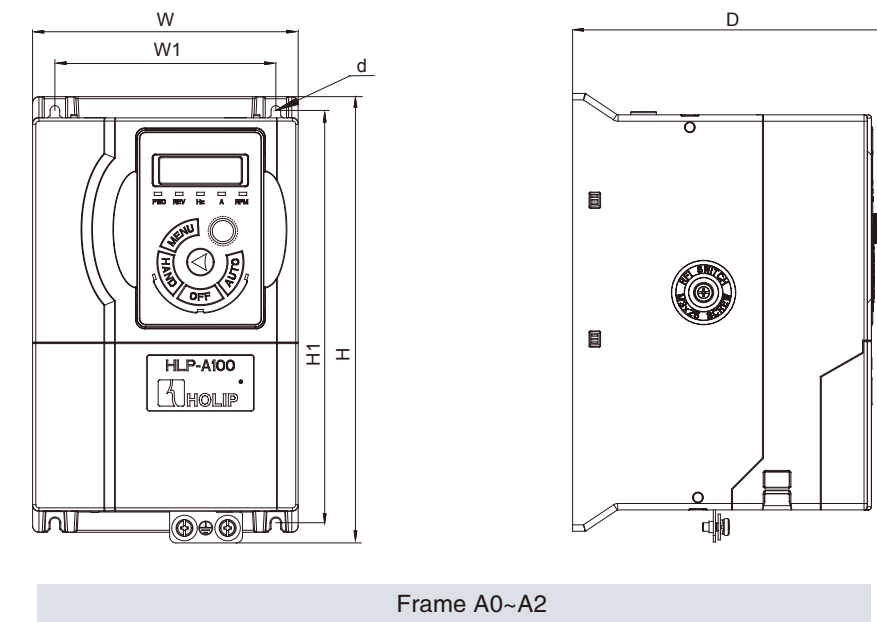


— Terminals' specification

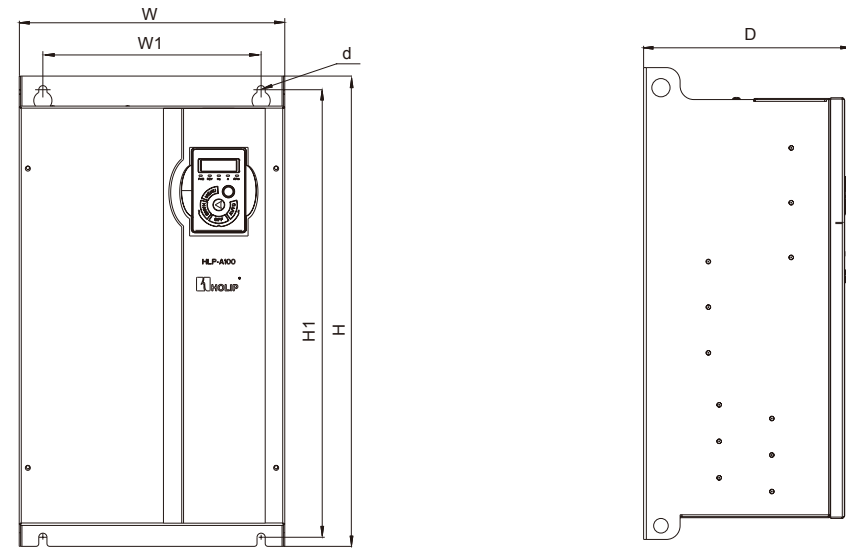
Symbol	Description	Specification
KA-KB FA-FB-FC	Relay output	1. Resistive Load: 250VAC 3A/30VDC 3A; 2. Inductive Load: 250VAC 0.2A/24VDC 0.1A (cos φ =0.4);
RS+, RS-	RS485 communication	Max baud rate: 115200bit/s;
VI, AI	Analog input	Both VI and AI can be configured to 0–20mA or 0–10V by paramters: 1. Input Impedance: about 10kΩ; 2. Input Impedence: ≤ 200Ω;
FOR, REV, DI1 DI2, DI3, DI4	Digital input	1. Logic: >DC 19V Logic: 0; <DC 14V Logic: 1; 2. Voltage: DC 0–24V; 3. Input resistance: 5kΩ; 4. Input voltage Rang: Max ± 30V; 5. Digital input can be selected to NPN or PNP mode by Jump switch J3, the default is: NPN mode;
DI4	Pulse input	1. Pulse input: 0.00–100.00kHz; 2. Voltage range: 24V ± 20%; 3. Input duty ratio: 40%–60%;
VDD	24V power supply	Max load 200mA, with over load and short circuit protection functions.
DO1, DO2	Digital output	1. Open collector output; 2. Output current range: DO1: 0–30mA; DO1: 0–50mA; 3. Max voltage 30V;
DO1	Pulse output	DO1 can also be configured as pulse output channels: 1. Pulse output range: 0.00–100.00kHz; 2. Voltage range: 0–24V; 3. Duty ratio: 40%–60%; 4. Resistive load >1kΩ, Capacitive Load < 10nf;

Symbol	Description	Specification
VO、AO	Analog output	VO can be selected to the current output or voltage output via J2, default is: voltage output; AO only has current output mode; 1. Output Mode: 0~20mA or 0~10V; 2. Voltage Output: load larger than 500Ω; 3. Current Output: load larger than 500Ω;
+10V	10V power supply	Max load 10mA, with over load and short circuit protection functions.
GND	Analog and communication ground	Isolated from internal COM.
COM	Digital ground	Isolated from internal GND.
DCM	Digital output common terminal	Connect COM as Digital output reference ground.
J1	RS485 termination resistor jumper switch	 <p>OFF ON</p> <p>Jumper switch 1-2 connected: OFF, termination resistor not connected, default state; Jumper switch 2-3 connected: ON, termination resistor connected;</p>
J2	VO jumper switch	 <p>0~10V 0~20mA</p> <p>Jumper switch 1-2 connected: 0~10V, default state; Jumper switch 2-3 connected: 0~20mA;</p>
J3	Digital input jumper switch	 <p>PNP NPN</p> <p>Jumper switch 1-2 connected: PNP mode; Jumper switch 2-3 connected: NPN mode, default state;</p>

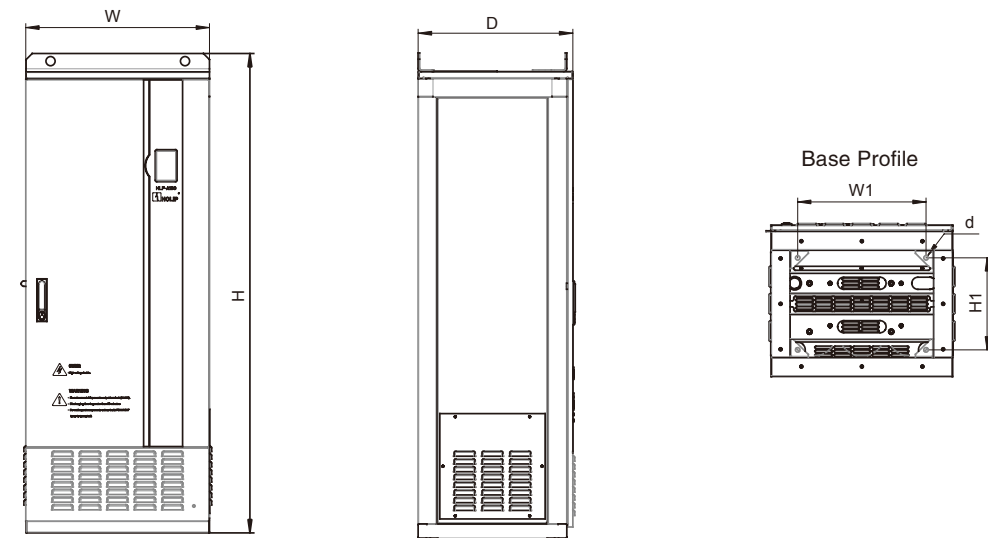
External and Installation Dimensions



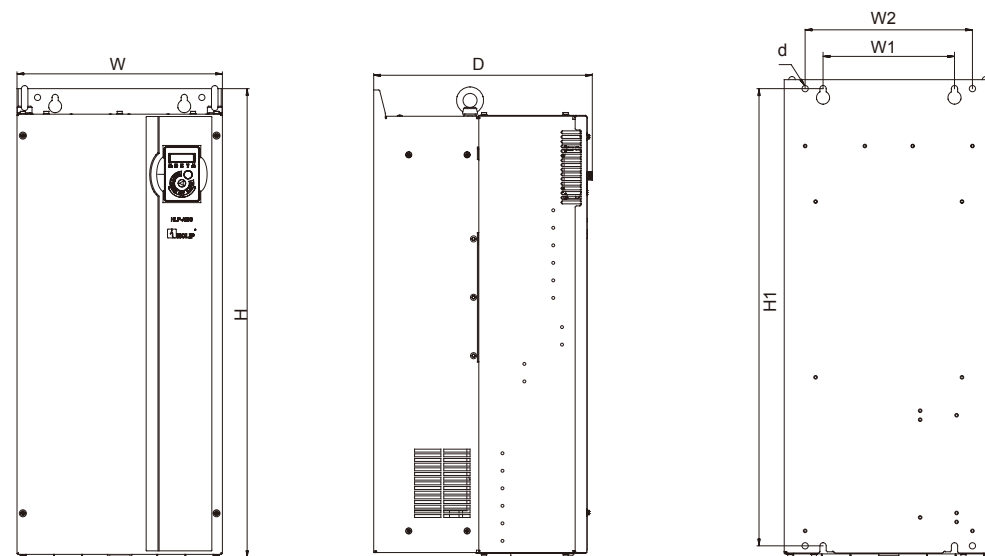




Frame A5-1~A6




Frame A9







Frame A7~A8

Frame	Voltage & Power			Dimensions (mm)						
	1 × 200–240V	3 × 200–240V	3 × 380–480V	W	H	D	W1	H1	W2	d
A0	0.37–1.5kW	0.37–1.5kW	0.75–2.2kW	125	210	152	104	194	–	4.5
A1	2.2–3.7kW	2.2–3.7kW	4.0–5.5kW	145	250	167	124	230	–	4.5
A2	–	–	7.5kW	155	263	177	133	243	–	4.5
A3	5.5kW	5.5–7.5kW	11–15kW	192	365	189	150	340	–	6.5
A4	7.5kW	11kW	18.5–22kW	216	420	194	150	395	–	6.5
A5-1	–	15–18.5kW	30–37kW	292	517	229	240	492	–	9
A5-2	–	22–30kW	45–55kW	292	562	249	240	537	–	9
A6	–	37kW	75kW	292	665	277	240	640	–	9
A7	–	–	90–132kW	350	799	375	220	765	280	10.5
A8	–	–	160–220kW	486	900	390	345	863	410	10.5
A9	–	–	250–415kW	600	1568	509	424	304	–	15

— Accessories

	<p>Model: LCP-01 Function: Local Control Panel (LCP) is used to modify parameters, monitor status and control the drive. The standard length of extension cable is 3 meters when mounting LCP-01 on control cabinet. Standard configuration.</p>
	<p>Model: LCP-02 Function: Local Control Panel (LCP) is used to modify parameters, monitor status and control the drive. The standard length of extension cable is 15 meters when mounting LCP-02 on control cabinet. Product No: 133B4264</p>
	<p>Model: LCP-03 Function: Local Control Panel (LCP) is used to modify parameters, monitor status and control the drive. The standard length of extension cable is 15 meters when mounting LCP-03 on control cabinet. LCP-03 has the same installation dimensions with HLP-A control panel (OP-AB01). Product No: 133B5808</p>
	<p>Model: Cradle-01 Function: For the LCP-01 or LCP-02 is mounted on the control cabinet Product No: 133B4264</p>
	<p>Model: Network Cable Function: Connect LCP to the drive when mounting LCP on control cabinet. Remark: Do not offer, self procurement</p>

	<p>Model: CopyCard-01 Function: Copy Card can copy parameters from one drive to another. Product No: 133B5806</p>
	<p>Model: Base-01~03 Function: Used for cabinet installation Product No: 133B5809, Base-01, for Frame A7 133B5810, Base-02, for Frame A8 133B6320, Base-03, for Frame A9</p>
	<p>Model: Sieve-01~07 Function: Used for preventing dust sucked into the drive wind way. Product No: 133B9655, Sieve-01, for Frame A0 133B9656, Sieve-02, for Frame A1 133B9657, Sieve-03, for Frame A2 133B9658, Sieve-04, for Frame A3 133B9659, Sieve-05, for Frame A4 133B9660, Sieve-06, for Frame A5-1/A5-2 133B9661, Sieve-07, for Frame A6</p>
	<p>Model: IP50 Box-01~05 Function: Install this option box allows the drive to achieve IP50 enclosure. Product No: 133B5835, IP50 Box-01, for Frame A0 133B5836, IP50 Box-02, for Frame A1 133B5837, IP50 Box-03, for Frame A2 133B5838, IP50 Box-04, for Frame A3 133B5839, IP50 Box-05, for Frame A4</p>
	<p>Model: Flange-01~08 Function: Used for flange installation Product No: 133B9802, Flange-01, for Frame A0 133B9803, Flange-02, for Frame A1 133B9804, Flange-03, for Frame A2 133B9805, Flange-04, for Frame A3 133B9807, Flange-05, for Frame A4 133B6175, Flange-06, for Frame A5-1 133B6176, Flange-07, for Frame A5-2 133B6177, Flange-08, for Frame A6</p>





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