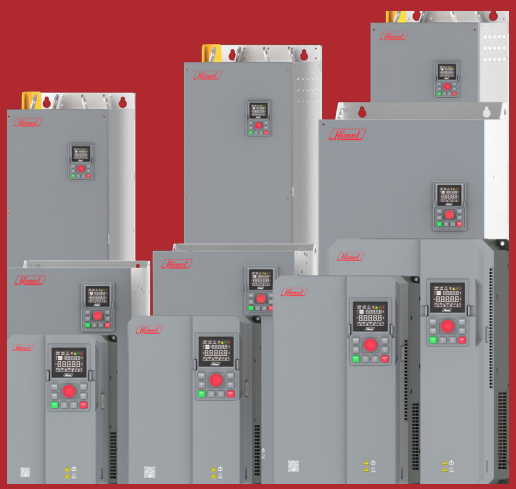
Himel Variable Speed Drives

- X series XH VSD



- X series XP VSD

About Himel

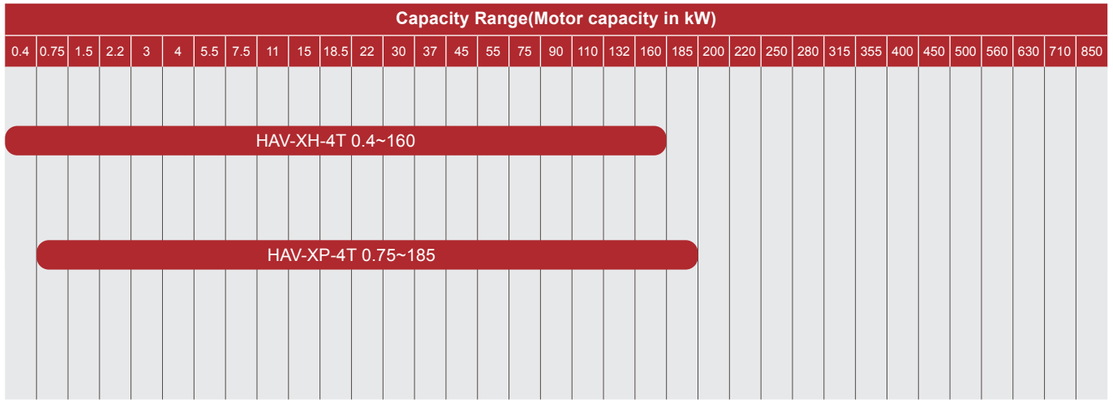
Himel is a multinational manufacturer and provider of electrical products successfully combining global expertise with local knowledge.

Founded by a Spanish entrepreneur in 1958, the company pioneered in exporting quality electrical enclosures, establishing Himel brand globally. Today, our global footprint and technology enable us to provide the best combination of affordable and reliable offers for Low Voltage Power distribution, Industry Automation and Home Electric to our long-term customers and partners in over 50 countries where we are present.

Himel. Reliable made affordable

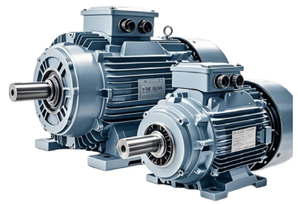
X Platform Drive Infinity

X series VSD



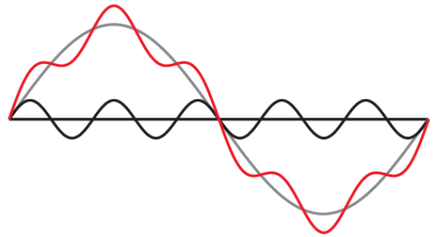
X series XH VSD

X series XP VSD

	Feature	Benefit
High performance		
	◆ Support both Synchronous motor and asynchronous (SVC/FVC) ◆ Steady speed accuracy: ±0.5% (SVC); ±0.02% (FVC); ±1% (V/F) ◆ Support speed control, Torque control, even position control with Encode ◆ Overload capacity: G Type:150% for 1 min, 180% for 3s; P Type:120% for 1 min, 150% for 3s ◆ With components lifecycle monitoring function, easy to maintenance	◆ Improves productivity of machine ◆ Less interruptions of the production line ◆ Meets over 95% of Industry application widely covering the industrial field to meet diverse needs
Easy to use		
	◆ Standard configure with 2 lines LED Keypad, support external LCD keypad and LED keypad ◆ Support multiple tools to set and copy parameters ◆ Continue firewire update with innovation and application ◆ Special DHI-LINK communication protocol	◆ Can read more status through display ◆ Easy to operate and maintain ◆ Can remotely upgrade firmware ◆ Can set the parameters of all VSDs synchronously
Safe and reliable		
	◆ Full coating PCB and dust shield cover ◆ Wide voltage input from 380V to 480V (-15%/+10%) ◆ Brand-new cooling channel design ◆ Brand-new EMC and built-in DC reactor	◆ Wider voltage range, increases robustness of the drive in difficult environment ◆ Longer life in high humid and high dust occasions ◆ Easy to maintain ◆ THDI can reach under 35%
Flexible configuration		
	◆ Standard AI2 can configure to connect with PT100, PT1000, KTY84 temperature signals ◆ Support more then 10 types of encoder cards and I/O cards ◆ Support most of popular communication protocol such as Profinet, Profibus, Modbus TCP, BACnet MS/TP, etc.	◆ Make it possible to connect to temperature sensor to protect motor ◆ Not only having standard configuration, but also having multitude of options ◆ Can choose multiple protocol cards to meet your needs
X Series PC Tools		
	◆ Online monitor, offline configuration ◆ Parameter reading, writing, searching, comparison, upload and download ◆ Quick Setup Wizard and diagnosis ◆ Continuous oscilloscope, triggered oscilloscope ◆ Black box and Waveform data analysis ◆ Firmware upgrade function	◆ Reduce downtime risks and maintenance costs. ◆ Support fault prediction, monitoring, intelligent analysis which ensures efficient and stable connectivity. ◆ Easy to use and maintain

XH SPECIAL FEATURES & BENEFITS

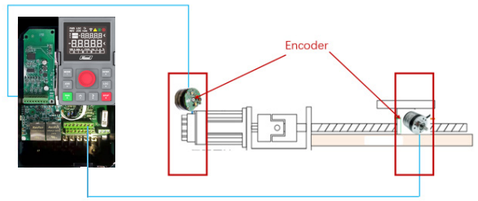
Harmonic Suppression



- The built-in reactor(≥30kW) suppresses harmonics, thereby reducing interference and equipment failure. Lower harmonic content also saves costs and simplifies installation, as it allows for smaller fuses and longer motor cables.
- Fewer harmonics mean longer component lifespan, resulting in reduced maintenance needs and downtime.

H

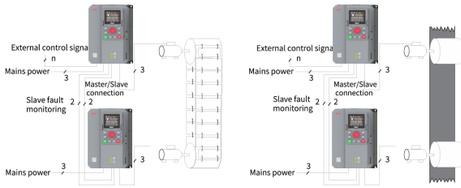
Complete Closed-Loop Control



- High Accuracy: Eliminate mechanical transmissionerrors, improve positioning accuracy to meet high-precision requirements.
- High Efficiency: Achieve fast and stable positioning,optimize operation curves, and enhance equipmenteffectiveness.
- Lower Cost: Predictive maintenance extends equipment lifespan and reduces total cost of ownership.

H

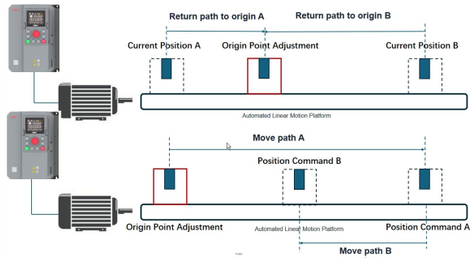
Master-slave Control (XH)



- The master-slave control function is designed for multi-drive applications, in which the system is driven by multiple AC drives and motor shafts are coupled by gears, chains, or conveyor belts.
- Master-Slave control enables even distribution of loads among the drive units.
- Target applications: Metallurgy, Coal mining, Food processing.

H

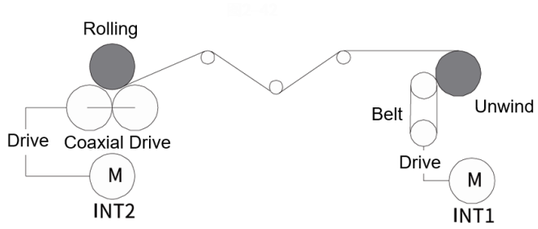
Position Control



- Return to the origin point Function: Determine the origin point of the motor motion coordinate system. Through this function, the origin point for each processing operation can be ensured to be at the same location.
- Multi-segment Positioning Function: The positioning function that controls the motor to run from one fixed position to another specified position, allowing for a maximum of 15 set positions.
- Target applications: Linear or rotary motion platforms in automated equipment.

H

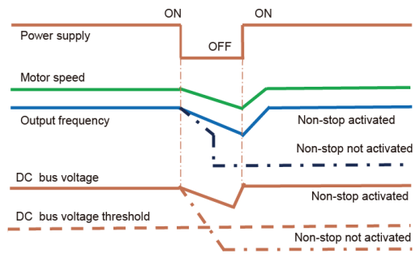
Tension Control



- Open-loop Torque Control
- Closed-loop Speed Control
- Closed-loop Torque Control
- Target Applications: Textile and Dyeing, Printing

H

Deceleration Energy Back-up



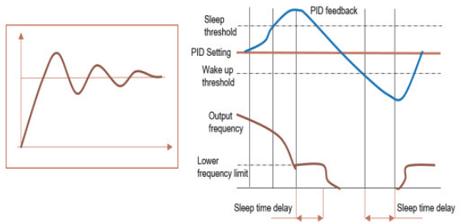
- When an instant power loss occurs, the VSD guarantees the continuous operation of the production line, which meets the continuous operation process requirement in conditions like lightning, large power grid impact and unstable power supply environments.
- Target applications: Chemical fiber, Textile.

H

H :XH series P :XP series

XP SPECIAL FEATURES & BENEFITS

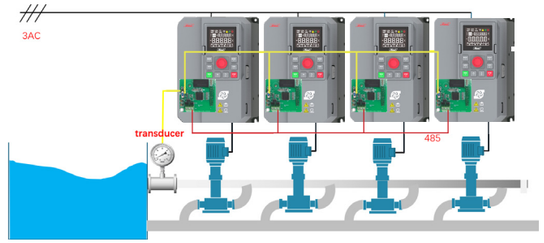
PID with sleep mode



- To wake up, it is necessary to meet the condition (set pressure feedback pressure) > wake-up pressure deviation, and maintain the wake-up delay time continuously before it can wake up.
- To enter sleep mode, it is necessary to meet the conditions (set pressure - feedback pressure) < sleep pressure deviation, operation frequency ≤ sleep frequency, and maintain the sleep delay time continuously before it can enter sleep mode.
- Target applications:HVAC, Water/Wastewater, Fan and Pump Application.

P

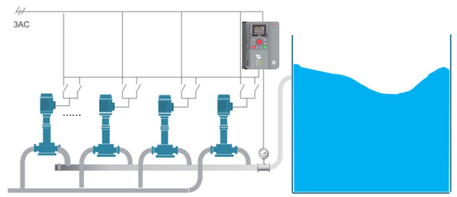
Master-slave Control (XP)



- Control up to 8 pumps by 8 drivers.
  - Muti-pump master-slave control.
  - Auto change mode.
  - Bypass mode.
- When a new pump is required based on PID feedback, previous pumps and drivers increase to maximum frequency.
- When the pressure exceeds the set value and the pump needs to be reduced, pumps reduce frequency one by one.
- Target applications:HVAC, Water/Wastewater, Fan and Pump Application.

P

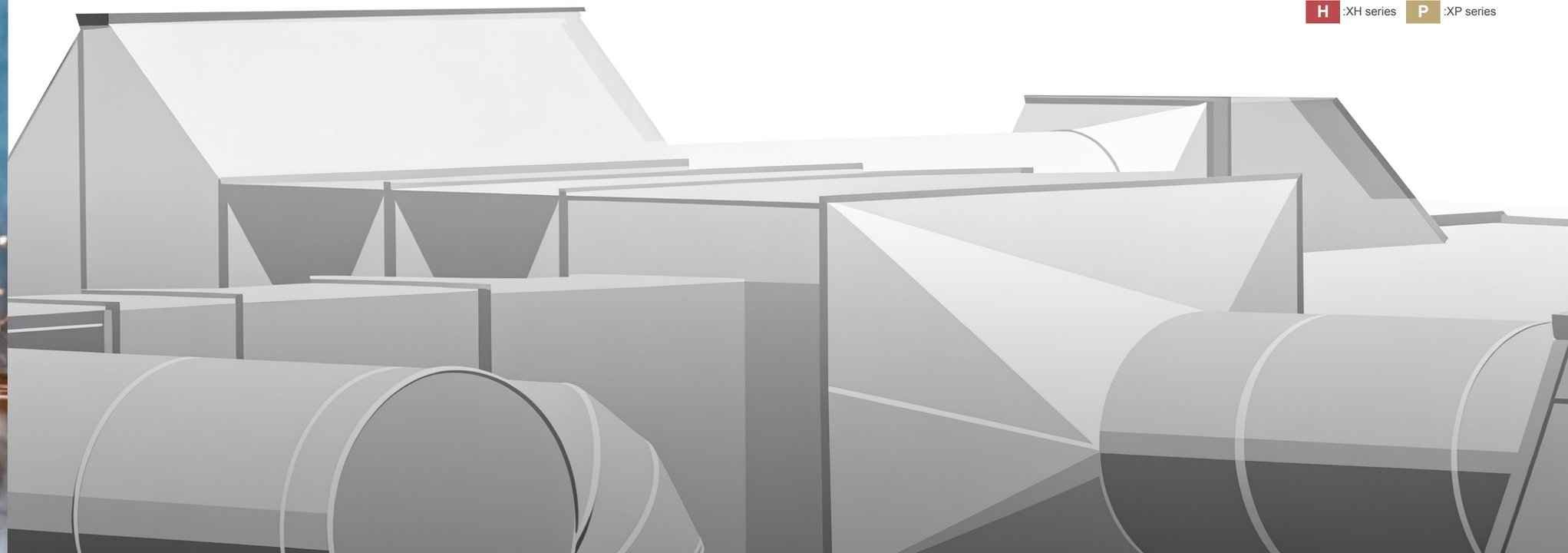
Multi-pump Control Function



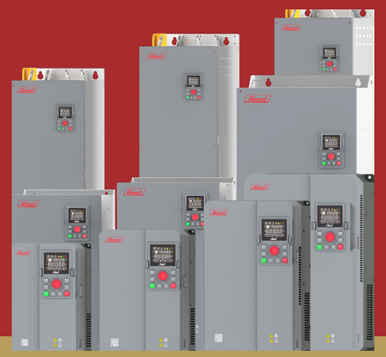
- Control up to 4 pumps by 1 driver.
  - FILO and FIFO control.
  - Auto change mode.
  - Bypass mode.
- When a new pump is required based on PID feedback, the next pump will start and run in the DOL.
- During stop mode, motors will be stopped in the same order they were started or in the opposite order they were started. (FIFO or FILO).
- Target applications:HVAC, Water/Wastewater, Fan and Pump Application.

P

H :XH series P :XP series



XH TARGET APPLICATIONS



Woodworking machinery

Wood and veneer cutting machines, planers, peeling machine,

carving machines.

- Integrated brake choppers: No need to purchase an external brake chopper.
- Quick I/O connection, quick and easy installation and maintenance.
- Multiple display options: External LCD display keypad.
- Integrated multi-stage speed control (16 steps) and simple PLC function without any additional PLC.
- High start torque, high frequency output (599Hz), accurate speed control for highly dynamic applications to improve the productivity .

Metal processing machinery

Lathe, grinder, drill, planer, boring, cold forging, and engraving machine

- Compact design .
- High start torque, high frequency output (599Hz), and accurate speed control for highly dynamic applications to improve the productivity.
- Integrated brake chopper.
- Over excitation braking can help to reduce braking times by up to 50% without any external braking resistor.
- Sagging function.
- .Main + auxiliary frequency set.

Food and packaging

Conveyor, blow molding, blender, cutter, and labeling machines.

- Compact design.
- Counter function using DI4/DI5.
- External LCD display keypad support for convenient and safe monitoring and operation.
- Integrated multi-stage speed control (16 steps) and simple PLC function without any additional PLC.
- Fixed-length control for cutting process.
- Fixed-point stop control.

Textile and Dyeing

Scroll extruder, pelletizer, and bagging machine.

- Compact design.
- High start torque, high frequency output (599Hz), accurate speed control for highly dynamic applications to improve the productivity .
- Precise control to ensure the material thickness evenly, in order to save cost and ensure the quality of products.
- Torque limit and slip compensation, especially used for constant output torque. Minimize the torque fluctuations and improve the extrusion process quality.

Rubber and plastic machinery

Heat setting stenter, twister, air-flow spinning, spinning machine, thin-film machine, chemical fiber industry, and needling machine.

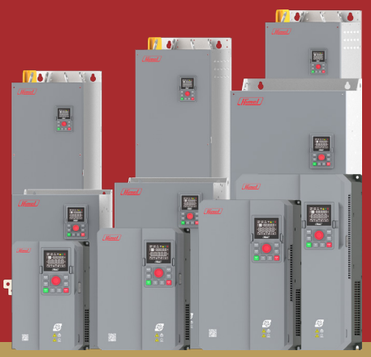
- Separate cooling channel: Detachable cooling fan design makes it easy to clean cotton.
- Wall-through mounting option(≤185kW).
- Enhanced PCB coating .
- Wide input voltage range, able to work for a long time under low voltage environments.
- Non-stop function to guarantee the continuous operation of production line.
- Main + auxiliary frequency set Food and packaging.

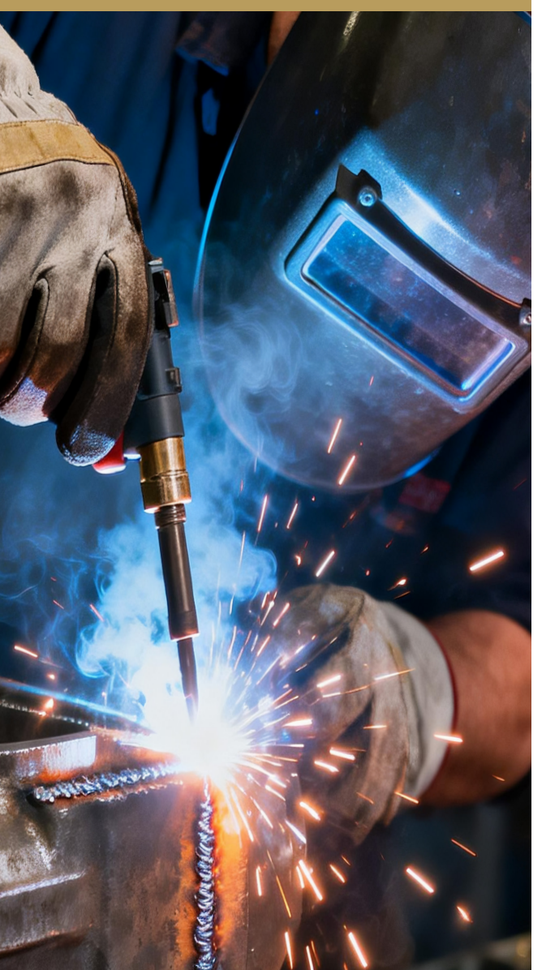
Large Project-Based Industry

Metallurgy, coal mining, petroleum, chemical industry, port lifting, etc.

- Supports multiple bus controls, suitable for large-scale centralized control engineering projects.
- Support both Synchronous motor and asynchronous motor with SVC and FVC.
- Integrated multi-stage speed control (16 steps) and simple PLC function without any additional PLC.
- Supports mainstream industrial communication protocols such as Modbus RTU/TCP, Profibus, Profinet, and EtherCAT, enabling seamless connection with PLCs, DCS, and host computers.

XP TARGET APPLICATIONS



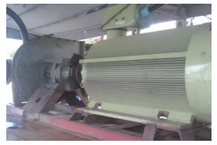


HVAC

Irrigation

Sewage

Fountain



Sand pump

Circulating pump

Rod pump

Drying

Ventilation

Dust removal

Hot surface treatment

Air supply fan for boiler

Industrial fan

Centrifugal chillers

Reciprocating chillers

Scroll chillers

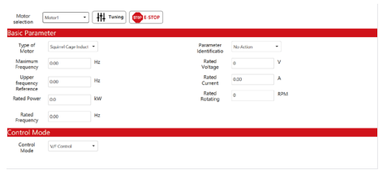
X Studio

Intelligent Debugging and Monitoring Expert

One-stop parameter management and fault diagnosis solution

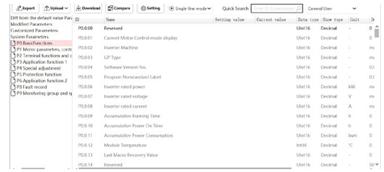
Primary Function

Online Monitoring and Offline Configuration



- **Online Monitor:** Real-time display of key parameters such as inverter operation status, current, voltage, and frequency.
- **Offline Configuration:** Pre-set parameters without connecting devices.
- **Multi-device Synchronization:** Supports simultaneous monitoring of multiple inverters for more efficient unified management.

Parameter Management Expert



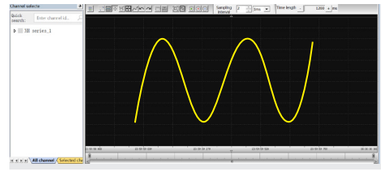
- **All-in-one Parameter Operations:** Read, write, search, compare, upload, and download in one place.
- **Template Management:** Save common parameters as templates for future use Directly call templates during debugging to reduce repetitive tasks.
- **History Log:** Automatically save parameter modification history. Easy to trace and restore previous settings.

Expert Function

Intelligent Diagnosis

- **Fault Code Library:** Click on the fault code to view causes and solutions, quickly locate issues.
- **Diagnostic Report:** Automatically generates fault analysis reports to guide maintenance personnel operations.

Professional Oscilloscope



- **Continuous Oscilloscope:** Real-time tracking of frequency converter operation status with graphical display of running trends.
- **Triggered Oscilloscope:** User-defined trigger conditions for precise capture of abnormal waveforms.
- **Multi-channel Monitoring:** Simultaneous monitoring of multiple frequency converters for more intuitive comparative analysis.

Product Specifications

Target Application		General Purpose Applications	Fan and Pump Applications
Range Name		HAVXH	HAVXP
Design			
Capacity Range	Three phase 400V Class	380V~480VAC	
		0.4~160kW	0.75~185kW
Frequency	Input frequency	50/60Hz	
	Output frequency	0~599Hz	
Overload capacity	Normal Duty	120% for 1min, 150%for 3s	120% for 1min, 150%for 3s
	Heavy Duty	150% for 1min, 180% for 3s	-
Control method	V/F Control	√	√
	Closed-Loop Vector Control (FVC)	√	-
	Open-Loop Vector Control (SVC)	√	√
Start torque		0.25Hz/150% (SVC) 0Hz/180% (FVC)	0.25Hz/150% (SVC)
Inbuilt PID		√	√
Keypad		Pluggable	
Display		Double row LED	
Multispeed control		Up to 16 stages in one cycle	
I/O	DI1-DI4	" NPN/PNP ； Input impedance: 1.88KΩ ； Input voltage range: 9-30V"	
	HDI1-HDI2	"Input impedance: 2.35KΩ； Maximum input frequency: 100kHz； Operating voltage range:15V~30V"	
	HDO-COM	"Output voltage range: 0V~24V； Output current range: 0mA~50mA； Pulse output max: 100kHz"	
	AI1	"V: 0-10V； I: 0-20mA； Resolution: 1/1000"	
	AI2	"V: 0-10V； I: 0-20mA； Temperature Input； Resolution: 1/1000"	
	AO1-AO2	"V:0-10V； I: 0-20mA"	
	RO1(T1a, T1b, T1c)	30VDC 3A / 250VAC 3A ,COSφ=0.5	
	RO2(T2a, T2b, T2c)		
Inbuilt communication (Max. speed)		RS485, Modbus RTU (115.2kbps)	
Options	Extension I/O	DI/DO/AI/AO/RO/PT100/PT1000/KTY84-130	
	Extension Encoder Card	Communication encoders, ABZ encoders (differential, open-collector, push-pull), Resolver encoders	
	Extension Communication card	Modbus(Modbus-RTU、Modbus-TCP), Profibus-DP, CAN, CANopen, Profinet, EtherCAT	
	Extension Keypad	Support LCD， LED external keypad	
Installation Way		Wall-mounted, Embedded	
Dust Shields		√	
EMC Filter		Accessories	
Braking unit		Built-in(≤15kW), Optional(≥18.5kW)	Built-in(≤18.5kW)
Environment	Operation temperature	-10-40 ℃ no capacity reduction, 40 ℃ -50℃ capacity reduction	
	Humidity	≤95%RH	
	Altitude	≤1000m, no capacity reduction	
	IP level	IP20, Type1	
Standards		"EN IEC 61800-5-1:2023, EN IEC 61800-3:2023, EN IEC 61000-3-11:2019, EN 61000-3-12:2011+A1:2024 , EN IEC 61800-3:2023, EN IEC 61000-3-11:2019, EN 61000-3-12:2011+A1:2024, EN IEC 61800-5-1:2023"	
Certificates		CE ROHS	CE ROHS

Product Specifications

Target Application		General Purpose Applications	Fan and Pump Applications
Range Name		HAVXH	HAVXP
Design			
Asy V/F Control	Overvoltage/Overcurrent suppression	√	
	Non-stop function	√	
	Oscillation suppression	√	
	Torque rise	Integrated auto-torque rising function Manual- setting: 0.1%~30.0%	
	Slip compensation	000.0%~200.0%	
	Multiple V/F curve selections	Linear V/F, Multi-point polyline, Square V/F, Square V/F curve 2, Square V/F curve 3	
	V/F separation	1.Voltage and frequency decrease at same time 2.Reduce the voltage first, then reduce the frequency	
	DC braking	Start frequency: 0.00~60.00Hz; braking time: 0.0~100.0s; braking current: 0.0~100%	
	Droop control	√	
	Parameter auto-tuning	√	
	Speed tracking	√	
Asy FVC	Support Function	Overvoltage suppression, torque control, instantaneous stop without stopping, automatic parameter learning, etc	-
	Support Encoder	Communication encoders, ABZ encoders (differential, open-collector, push-pull), Resolver encoders	-
	Starting torque	0Hz/180% (FVC)	-
	Torque step response	within 2ms	-
	Stable speed accuracy	0.02%	-
	Speed fluctuation	0.05%	-
	Torque control accuracy	±2%	-
	Field weakening ratio	5 times	-
Asy SVC	Support Function	Fixed length Control， Sagging Function， Position Control， Overvoltage suppression， DC Braking， Torque Control， None-stop Function， Parameter self-learning， Speed tracking	Sleep awake Function， Pump cleaning Function， Special Protection， Frost and Condensation Protection， Multi-pump Function， Master-slave Function， Overvoltage suppression， DC Braking， Torque Control， None-stop Function， Parameter self-learning， Speed tracking
	Speed regulation range	1:250 (SVC)	
	Starting torque	0.25Hz / 150% (SVC)	
	Torque step response	within 2ms	
	Torque control accuracy	±3% for torque control above 5Hz	
	Stable speed accuracy	0.05%	
	Field weakening ratio	5 times	
Syn FVC	Support Function	Overvoltage suppression, torque control, instantaneous stop without stopping, automatic parameter learning, etc	-
	Support Encoder	Communication encoders, ABZ encoders (differential, open-collector, push-pull), Resolver encoders	-
	Starting torque	0Hz/180% (FVC)	-
	Torque step response	within 2ms	-
	Stable speed accuracy	0.02% with no defects in the motor and encoder	-
	Speed fluctuation	0.05% with no defects in the motor and encoder	-
	Torque control accuracy	±2%	-
Syn SVC	Support Function	Fixed length Control， Sagging Function， Position Control， Overvoltage suppression， DC Braking， Torque Control， None-stop Function， Parameter self-learning， Speed tracking	Sleep awake Function， Pump cleaning Function， Special Protection， Frost and Condensation Protection， Multi-pump Function， Master-slave Function， Overvoltage suppression， DC Braking， Torque Control， None-stop Function， Parameter self-learning， Speed tracking
	Speed regulation range	1:100 (SVC)	
	Starting torque	0.5Hz / 150% (SVC)	
	Torque step response	within 2ms	

Product Specifications

Target Application		General Purpose Applications	Fan and Pump Applications
Range Name		HAVXH	HAVXP
Design			
Syn SVC	Torque control accuracy	±3% for torque control above 5Hz	
	Stable speed accuracy	0.05%	
Basic Function	Frequency resolution	"Digital setting :Max frequency X ±0.01%； Analog setting: Max frequency X ±0.1%"	
	Output limitation	Torque limitation, power limitation, current limitation, peak torque limitation, speed limitation, frequency hopping	
	PID function	Freely configurable input and feedback sources, two-stage PID parameter switching, feedback loss detection, freely configurable output limits, flexible initialization configuration	
Protection	Prevent mis operation	√	√
	Protection function	Over-voltage, over-current, over-load, motor over-heating (PT100, PT1000, KTY84-130), load loss protection, automatic fault reset, automatic restart	
	Cooling	Air- cooling	
Warranty		24 months	

X series XH VSD

X series XP VSD

References & Mechanical Data

Range	Input Voltage	Commercial Reference	Heavy Duty G-type		Normal Duty P-Type		Braking Unit
			Motor Power (kW)	Continuous Output Current (A)	Motor Power (kW)	Continuous Output Current (A)	Braking Unit Model
XH	380V~480VAC Three Phase	HAVXH4T0004GB	0.4	1.6	0.75	1.6	Built-in
		HAVXH4T0007GB	0.75	3	1.1	3	Built-in
		HAVXH4T0011GB	1.1	3.5	1.5	3.5	Built-in
		HAVXH4T0015GB	1.5	4.5	2.2	4.5	Built-in
		HAVXH4T0022GB	2.2	6	3	6	Built-in
		HAVXH4T0030GB	3	7.5	4	7.5	Built-in
		HAVXH4T0040GB	4	9.5	5.5	9.5	Built-in
		HAVXH4T0055GB	5.5	13	7.5	13	Built-in
		HAVXH4T0075GB	7.5	17	11	17	Built-in
		HAVXH4T0110GB	11	25	15	25	Built-in
		HAVXH4T0150GB	15	32	18.5	32	Built-in
		HAVXH4T0185GL	18.5	37	22	37	-
		HAVXH4T0185GBL	18.5	37	22	37	"Built-in, maximum allowable current 50A Externally configured XH-BR-50"
		HAVXH4T0220GL	22	45	30	45	-
		HAVXH4T0220GBL	22	45	30	45	"Built-in, maximum allowable current 50A Externally configured XH-BR-50"
		HAVXH4T0300GL	30	60	37	60	-
		HAVXH4T0300GBL	30	60	37	60	"Built-in, maximum allowable current 75A Externally configured XH-BR-50"
		HAVXH4T0370GL	37	75	45	75	-
		HAVXH4T0370GBL	37	75	45	75	XH-BR-100
		HAVXH4T0450GPL	45	90	55	90	-
		HAVXH4T0450GBL	45	90	55	90	XH-BR-100
		HAVXH4T0550GL	55	110	65	110	-
		HAVXH4T0550GBL	55	110	65	110	XH-BR-100
		HAVXH4T0650GL	65	130	75	130	-
		HAVXH4T0650GBL	65	130	75	130	XH-BR-200
		HAVXH4T0750GL	75	152	90	152	-
		HAVXH4T0750GBL	75	152	90	152	XH-BR-200
		HAVXH4T0900GL	90	176	110	176	-
		HAVXH4T0900GBL	90	176	110	176	XH-BR-200
		HAVXH4T1100GL	110	210	132	210	-
		HAVXH4T1100GBL	110	210	132	210	XH-BR-200
		HAVXH4T1320GL	132	253	160	253	-
		HAVXH4T1600GL	160	300	185	300	-

References & Mechanical Data

Range	Input Voltage	Commercial Reference	Braking Unit		Dimensions(mm)			Mounting imensions(mm)		Mounting Hole Diameter (mm)	CAD Diagram
			Braking Resistor Resistance Value	Braking resistor power	H	W	D	A	B	Ø	
XH	380V~480VAC Three Phase	HAVXH4T0004GB	600	160	205	130	160	119	194	5	(a)
		HAVXH4T0007GB	600	160	205	130	160	119	194	5	
		HAVXH4T0011GB	600	160	205	130	160	119	194	5	
		HAVXH4T0015GB	400	250	205	130	160	119	194	5	
		HAVXH4T0022GB	250	400	205	130	160	119	194	5	
		HAVXH4T0030GB	150	600	205	130	160	119	194	5	
		HAVXH4T0040GB	150	600	205	130	170	119	194	5	(b)
		HAVXH4T0055GB	100	1000	205	130	170	119	194	5	
		HAVXH4T0075GB	75	1200	254	155	181.5	144	244	5.5	(c)
		HAVXH4T0110GB	50	2000	254	155	181.5	144	244	5.5	
		HAVXH4T0150GB	40	2500	285	192	181.5	182	275	5.5	(d)
		HAVXH4T0185GL	-	-	350	210	210	198	338	5.5	(e)
		HAVXH4T0185GBL	30	4000	350	210	210	198	338	5.5	
		HAVXH4T0220GL	-	-	350	210	210	198	338	5.5	
		HAVXH4T0220GBL	30	4000	350	210	210	198	338	5.5	
		HAVXH4T0300GL	-	-	410	260	248	240	395	7	(f)
		HAVXH4T0300GBL	20	6000	410	260	248	240	395	7	
		HAVXH4T0370GL	-	-	410	260	248	240	395	7	
		HAVXH4T0370GBL	16	9000	410	260	248	240	395	7	
		HAVXH4T0450GL	-	-	540	300	277	240	520	9	(g)
		HAVXH4T0450GBL	13.6	9000	540	300	277	240	520	9	
		HAVXH4T0550GL	-	-	540	300	277	240	520	9	
		HAVXH4T0550GBL	20/2	12000	540	300	277	240	520	9	
		HAVXH4T0650GL	-	-	580	340	314.5	270	560	10	(h)
		HAVXH4T0650GBL	13.6/2	18000	580	340	314.5	270	560	10	
		HAVXH4T0750GL	-	-	580	340	314.5	270	560	10	
		HAVXH4T0750GBL	13.6/2	18000	580	340	314.5	270	560	10	
		HAVXH4T0900GL	-	-	580	340	314.5	270	560	10	
		HAVXH4T0900GBL	20/3	18000	580	340	314.5	270	560	10	
		HAVXH4T1100GL	-	-	580	340	314.5	270	560	10	
		HAVXH4T1100GBL	20/3	18000	580	340	314.5	270	560	10	
		HAVXH4T1320GL	-	-	915	400	323.5	300	890	10	(i)
		HAVXH4T1600GL	-	-	915	400	323.5	300	890	10	

References & Mechanical Data

Range	Input Voltage	Commercial Reference	Heavy Duty G-type		Normal Duty P-Type		Braking Unit
			Motor Power (kW)	Continuous Output Current (A)	Motor Power (kW)	Continuous Output Current (A)	Braking Unit Model
XP	380V~480VAC Three Phase	HAVXP4T0007P	-	-	0.75	1.6	-
		HAVXP4T0011P	-	-	1.1	3	-
		HAVXP4T0015P	-	-	1.5	3.5	-
		HAVXP4T0022P	-	-	2.2	4.5	-
		HAVXP4T0030P	-	-	3	6	-
		HAVXP4T0040P	-	-	4	7.5	-
		HAVXP4T0055P	-	-	5.5	9.5	-
		HAVXP4T0075P	-	-	7.5	13	-
		HAVXP4T0110P	-	-	11	17	-
		HAVXP4T0150P	-	-	15	25	-
		HAVXP4T0185P	-	-	18.5	32	-
		HAVXP4T0220PL	-	-	22	37	-
		HAVXP4T0300PL	-	-	30	45	-
		HAVXP4T0370PL	-	-	37	60	-
		HAVXP4T0450PL	-	-	45	75	-
		HAVXP4T0550PL	-	-	55	90	-
		HAVXP4T0650PL	-	-	65	110	-
		HAVXP4T0750PL	-	-	75	130	-
		HAVXP4T0900PL	-	-	90	152	-
		HAVXP4T1100PL	-	-	110	176	-
		HAVXP4T1320PL	-	-	132	210	-
		HAVXP4T1600PL	-	-	160	253	-
		HAVXP4T1850PL	-	-	185	300	-

References & Mechanical Data

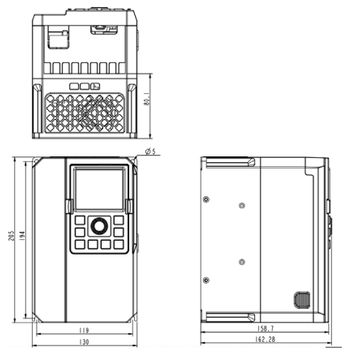
Range	Input Voltage	Commercial Reference	Braking Unit		Dimensions(mm)			Mounting Dimensions(mm)		Mounting Hole Diameter (mm)	CAD Diagram
			Braking Resistor Resistance Value	Braking resistor power	H	W	D	A	B	Ø	
XP	380V~480VAC Three Phase	HAVXP4T0007P	-	-	205	130	160	119	194	5	(a)
		HAVXP4T0011P	-	-	205	130	160	119	194	5	
		HAVXP4T0015P	-	-	205	130	160	119	194	5	
		HAVXP4T0022P	-	-	205	130	160	119	194	5	
		HAVXP4T0030P	-	-	205	130	160	119	194	5	
		HAVXP4T0040P	-	-	205	130	160	119	194	5	
		HAVXP4T0055P	-	-	205	130	170	119	194	5	(b)
		HAVXP4T0075P	-	-	205	130	170	119	194	5	
		HAVXP4T0110P	-	-	254	155	181.5	144	244	5.5	(c)
		HAVXP4T0150P	-	-	254	155	181.5	144	244	5.5	
		HAVXP4T0185P	-	-	285	192	181.5	182	275	5.5	(d)
		HAVXP4T0220PL	-	-	350	210	210	198	338	5.5	(e)
		HAVXP4T0300PL	-	-	350	210	210	198	338	5.5	
		HAVXP4T0370PL	-	-	410	260	248	240	395	7	(f)
		HAVXP4T0450PL	-	-	410	260	248	240	395	7	
		HAVXP4T0550PL	-	-	540	300	277	240	520	9	(g)
		HAVXP4T0650PL	-	-	540	300	277	240	520	9	
		HAVXP4T0750PL	-	-	580	340	314.5	270	560	10	(h)
		HAVXP4T0900PL	-	-	580	340	314.5	270	560	10	
		HAVXP4T1100PL	-	-	580	340	314.5	270	560	10	
		HAVXP4T1320PL	-	-	580	340	314.5	270	560	10	
		HAVXP4T1600PL	-	-	915	400	323.5	300	890	10	(i)
		HAVXP4T1850PL	-	-	915	400	323.5	300	890	10	

Reference Selection

Range Name	Series Name	Rated Voltage	Product Type &Power Rating	Product Type &Power Rating	Brakina Unit	DC Reactor
HAV	XH	4T	0185G	0220P	B	L
HA:Himel Automation	XH:XH series(All Purpose) XP:XP series(Fan and Pump)	4T.Three-phase 380-480VAC 50/60HZ	Adaption 0004:0.4kW 0007:0.75kW 0011:1.1kW 0015:1.5kW ..... G:Heavy Duty Type No:XP series for fan and pump application	Adaption 0007:0.75kW 0011:1.1kW 0015:1.5KW 0022:2.2kW ..... P:Normal Duty Type	B:With braking unit No:without braking unit	L:With DC reactor No:without DC reactor
V:VSD						

CAD Diagram

(a)



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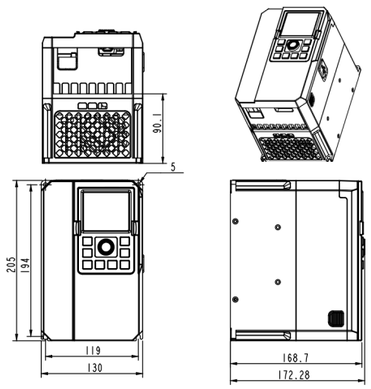

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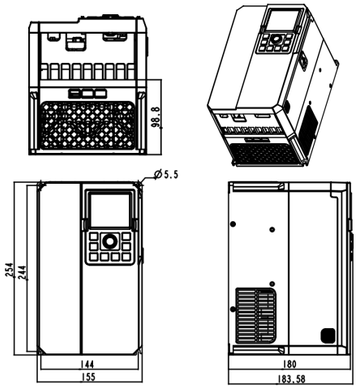

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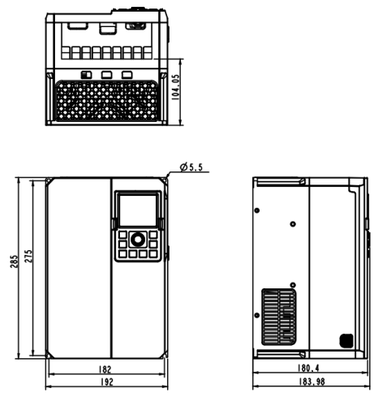

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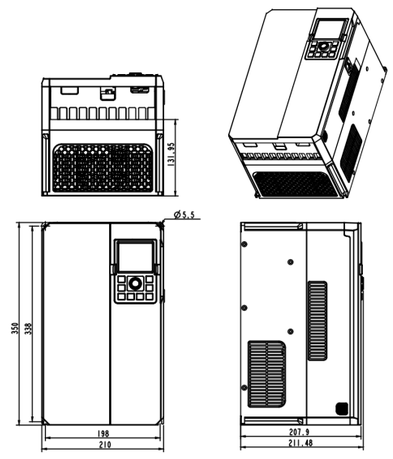

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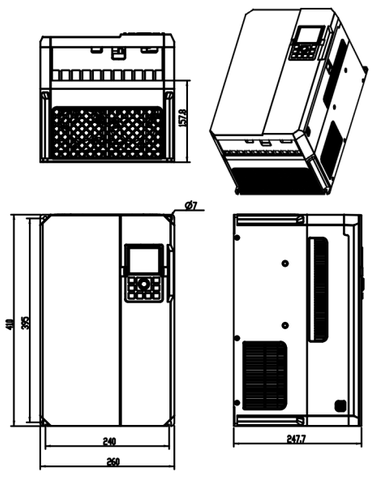

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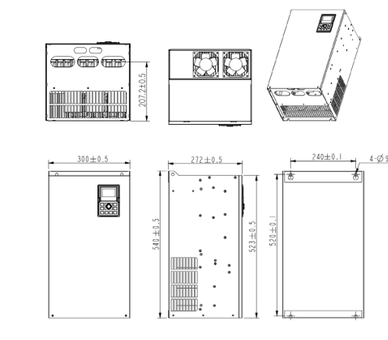

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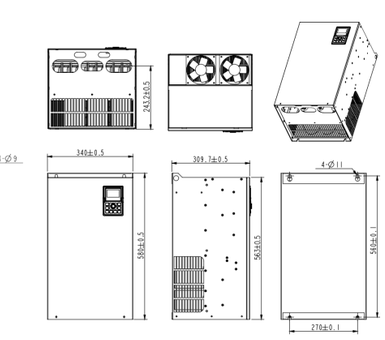

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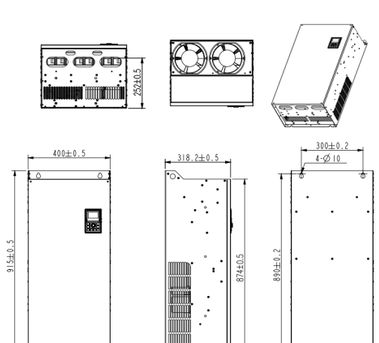


Accessories-External keypad

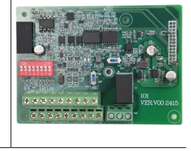
Type	Commercial Reference	Short Description	Specifications	Applicable Product	Pictures
External Keypad	HAVXLCD	External LCD keypad	Use USB cable to connect	All X series	
External Keypad	HAVXLED	External LED keypad	Use USB cable to connect	All X series	

Accessories-Encoder Expansion Card

Commercial Reference	Short Description	Specifications	Applicable Product	Pictures
HAVXHPG1	ABZ differential input	Encoder Interface Type: Supports differential Encoder Power Supply: 5V/200mA Maximum Input Frequency: 100KHz Input Differential Signal Amplitude: ≤7V Terminal Type: 3.5mm pitch single row right-angle header	XH series	
HAVXHPG1D	ABZ differential input, with divided output	Encoder Interface Type: Supports differential Encoder Power Supply: 5V/200mA Maximum Input Frequency: 100KHz Input Differential Signal Amplitude: ≤7V Frequency Division Coefficient: 0~32 Frequency-divided Output Interface Type: Supports differential Terminal Type: 3.5mm pitch single row right-angle header	XH series	
HAVXHPG2	ABZ/UVW differential input	Encoder Interface Type: Supports differential Encoder Power Supply: 5V/200mA Maximum Input Frequency: 100KHz Input Differential Signal Amplitude: ≤7V Terminal Type: DB15 Female Connector	XH series	
HAVXHPG3A	Open collector input (max. 100KHz)	Encoder Interface Type: Supports open-collector Encoder Power Supply: 24V/100mA Maximum Input Frequency: 100kHz Terminal Type: 3.5mm pitch single row right-angle header	XH series	
HAVXHPG3B	Open collector input (max. 200KHz)	Encoder Interface Type:Supports: open-collector Encoder Power Supply: 24V/100mA Maximum Input Frequency: 200KHz Terminal Type: 3.5mm pitch single row right-angle header	XH series	
HAVXHPG4	Resolver encoder	Resolver Interface: DB9 Female Connector Resolution: 12-bit Excitation Frequency: 10KHz Maximum allowable speed: 30000rpm Excitation voltage: 7.2Vrms Sin/cos voltage: 3.28Vp-p (Typical 3.15Vp-p) Transformation ratio: 0.5	XH series	

Commercial Reference	Short Description	Specifications	Applicable Product	Pictures
HAVXHPG4D	Resolver encoder, with divided output	Resolver Interface: DB9 Female Connector Resolution: 12-bit Excitation Frequency: 10KHz Maximum allowable speed: 30000rpm Excitation voltage: 7.2Vrms Sin/cos voltage: 3.28Vp-p (Typical 3.15Vp-p) Transformation ratio: 0.5 Frequency division coefficient: 2、3、4 Frequency division line count: 4096、2048、1024 Frequency-divided output interface type: 5V differential Frequency division output terminal: Plug-in terminal	XH series	
HAVXHPG5	RS485 absolute encoder card	Encoder Interface: DB9 Female Connector (Plug-in) Encoder Interface Type: RS485（Modbus RTU） Encoder Power Supply: 5V/100mA	XH series	
HAVXHPG5D	RS485 absolute encoder card, with divided output	Encoder Interface: DB9 Female Connector(Plug-in) Encoder Interface Type: RS485 (Modbus RTU) Encoder Power Supply: 5V/200mA Frequency Division Coefficient: 0~32 Frequency Division Interface: 5V differential Frequency Division Output Terminal: Plug-in terminal	XH series	
HAVXHPG6C	Compatible with differential/open collector/ push-pull inputs, withopen collector divided output	Encoder Interface Type Supports: differential, collector, and push-pull inputs Encoder Power Supply: 5V/200mA、15V/100mA Maximum Input Frequency: 100KHz Frequency Division Coefficient: 0~32 Frequency-Divided Output Interface Type: Supports collector Terminal Type: 3.5mm pitch single row right-angle header	XH series	
HAVXHPG6D	Compatible with differential/open collector/ push-pull inputs, with differential divided output	Encoder Interface Type: Supports differential, collector, and push-pull inputs Encoder Power Supply: 5V/200mA、15V/100mA Maximum Input Frequency: 100KHz Frequency division coefficient: 0~32 Frequency-divided output interface type: Supports differential Terminal Type: 3.5mm pitch single row right-angle header	XH series	

Accessories-IO Extension Card

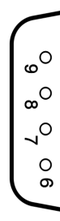
Commercial Reference	Short Description	Product application scenarios	Applicable Product	Pictures
HAVXIO1	4DI+1AI+1DO and 1 relay output+CAN+RS485 (15KW and above models applicable)	Applicable to medium-sized systems that need to handle various signal types and connect devices with different communication protocols. Target applications: Industrial Automation Production Line, Smart Water Supply and Pumping System.	X series(15KW and above models applicable)	
HAVXIO2	3 channels DI	Applicable to small-sized systems that need to handle various signals. Target applications: Safety Control of Small Mechanical Equipment, Small Pumping Stations.	All X series	

Commercial Reference	Short Description	Product application scenarios	Applicable Product	Pictures
HAVXIO3	3 channels DI + 1 channel Relay+RS485	Applicable to medium and small-sized systems need to handle basic digital logic control and simple network communication. Target applications: Packaging Industry, Textile Industry, Food and Beverage Industry.	All X series	
HAVXIO4	3 channels DI + 1 channel DO + 1 channel Relay Output	Applicable to small and medium-sized systems that need to handle critical input signals and hierarchical output control. Target applications: Packaging and Material Handling Equipment, Smart Water Supply and Pumping System.	All X series	
HAVXIO5A	4 channels DI + 2 channels DO + RS485	Applicable to small and medium-sized systems that need to handle critical input signals, hierarchical output control, and having networking requirements. Target applications: Packaging and Material Handling Equipment, Distributed Energy Monitoring System, EBA system.	All X series	
HAVXIO5B	4 channels DI + 2 channels DO	Applicable to miniature systems that need to handle critical input signals and hierarchical output control. Target applications: Packaging and Material Handling Equipment, Smart Water Supply and Pumping System.	All X series	
HAVXIO6	1 channel AI (supports differential voltage input and temperature detection resistance input)	Applicable to small and medium-sized systems with high-precision monitoring and control requirements for single critical process parameters (such as tension, temperature). Target applications: Textile Industry, Packaging Industry, Chemical Industry, HVAC	All X series	
HAVXIO7	1 channel AI (supports-10V DC~10V DC input)	Applicable to systems need high-precision directional control and high system integration. Target applications: CNC Machine Tools and Precision Manufacturing, HVAC	All X series	

Accessories-Communication Card

Commercial Reference	Short Description	Specifications			Applicable Product	Pictures
		Diagram Label	Hardware Name	Function Description		
HAVX485	RS485 Communication Card（MODBUS-RTU）	JP1	Pin Header Connector	Connection to Variable Frequency Drive	All X series	
		CN1 485+	485 Communication Signal Positive	485 Communication Input Terminal, Isolated Input		
		CN1 485-	485 Communication Signal Negative	485 Communication Input Terminal, Isolated Input		
		CN1 CGND	485 Communication Signal Reference Ground	485 Communication Signal Reference Ground, Power Isolation		
		PE	EMC Grounding	Connect to EMC Grounding in Variable Frequency Drive		

Commercial Reference	Short Description	Specifications			Applicable Product	Pictures
		Diagram Label	Hardware Name	Function Description		
HAVXCANOPEN	CANOPEN Communication Card	JP1	Pin Header Connector	Connection to Variable Frequency Drive	All X series	
		CN1 CANH	CAN Communication Signal Positive	CAN communication input terminal, isolated input		
		CN1 CANL	CAN Communication Signal Negative	CAN communication input terminal, isolated input		
		CN1 CGND	CAN Communication Signal Reference Ground	CAN communication signal reference ground, power supply isolated		
		PE	EMC Grounding	Connect to EMC Grounding in Variable Frequency Drive		

Commercial Reference	Short Description	Specifications			Applicable Product	Pictures
		Diagram Label	Hardware Name	Function Description		
HAVXDP	PROFIBUS-DP Communication Card	JP4	Pin Header Connector	Connection to Variable Frequency Drive	All X series	
		DB1	DB9 Female Socket	 1: Not used		
				2: Not used		
				3: RxD/TxD-P, Data Line B		
				4: CNTR-P， RTS		
				5: DGND, Grounding for data signals and VP		
				6: VP, +5V Power Supply, for terminal resistor only, not for powering external devices		
				7: Not used		
				8: RxD/TxD-N, Data Line A		
				9: Not used		
				Enclosure: Grounding		
		PE	EMC Grounding	Connect to EMC Grounding in Variable Frequency Drive		

Commercial Reference	Short Description	Specifications			Applicable Product	Pictures
		Diagram Label	Hardware Name	Function Description		
HAVXPN	PROFINET Communication Card	JP1	Pin Header Connector	Connection to Variable Frequency Drive	All X series	
		RJ1	Network Port 1	HAVXPN PROFINET Communication Network Interface		
		RJ2	Network Port 2	HAVXPN PROFINET Communication Network Interface		
		PE	EMC Grounding	Connect to EMC Grounding in Variable Frequency Drive		

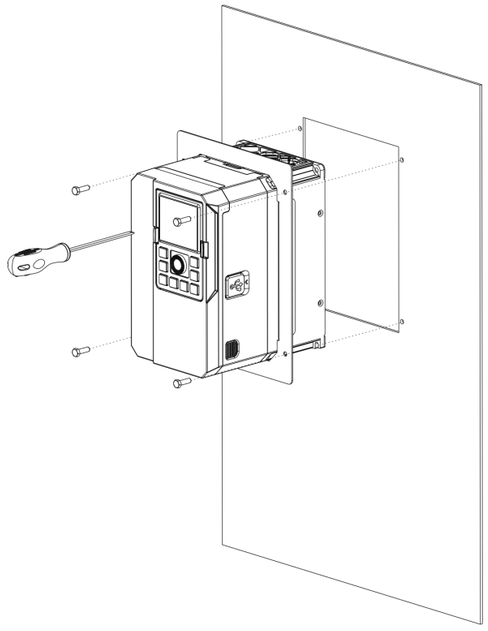
Commercial Reference	Short Description	Specifications			Applicable Product	Pictures
		Diagram Label	Hardware Name	Function Description		
HAVXECAT	EtherCAT Communication Card	JP1	Pin Header Connector	Connection to Variable Frequency Drive	All X series	
		RJ1	Network Port 1	HAVXECAT EtherCAT communication network interface, OUT port		
		RJ2	Network Port 2	HAVXECAT EtherCAT communication network interface, IN port		
		PE	EMC Grounding	Connect to EMC Grounding in Variable Frequency Drive		

Commercial Reference	Short Description	Specifications			Applicable Product	Pictures
		Diagram Label	Hardware Name	Function Description		
HAVXTCP	MODBUS TCP Communication Card	JP1	Pin Header Connector	Connection to Variable Frequency Drive	All X series	
		RJ1	Network Port 1	HAVXTCP's TCP communication network interface; non-directional		
		RJ2	Network Port 2	HAVXTCP's TCP communication network interface; non-directional		
		PE	EMC Grounding	Connect to EMC Grounding in Variable Frequency Drive		

Accessories-Embedded Mounting Bracket

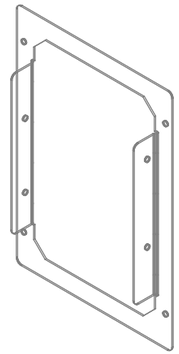
Type	Commercial Reference	Short Description	Applicable Product	Pictures
Embedded mounting bracket	HAVMB01S1	CAD(size a)	All X series	(a)
	HAVMB01S2	CAD(size b)	All X series	(b)
	HAVMB01S3	CAD(size c)	All X series	(c)
	HAVMB01S4	CAD(size d)	All X series	(d)
	HAVMB01S5	CAD(size e)	All X series	(e)
	HAVMB01S6	CAD(size f)	All X series	(f)
	HAVMB01S7	CAD(size j)	All X series	(g)
	HAVMB01S8	CAD(size h)	All X series	(h)
	HAVMB01S9	CAD(size i)	All X series	(i)

Installation Method



Embedded mounting bracket

(a)



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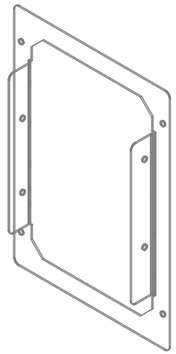

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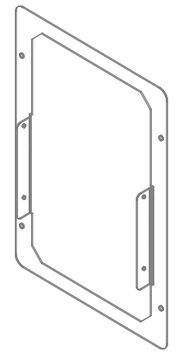

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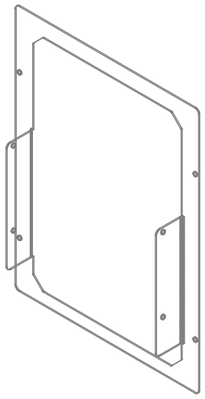
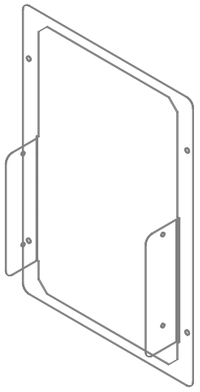


(e)



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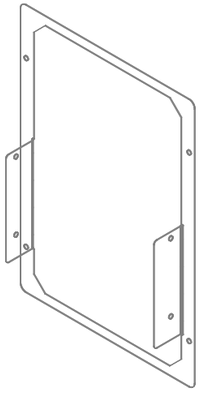

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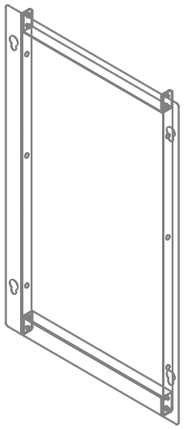

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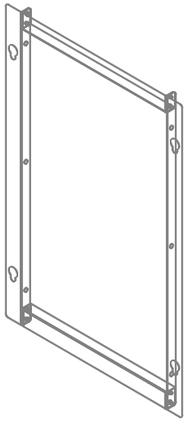

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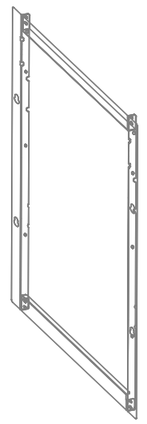
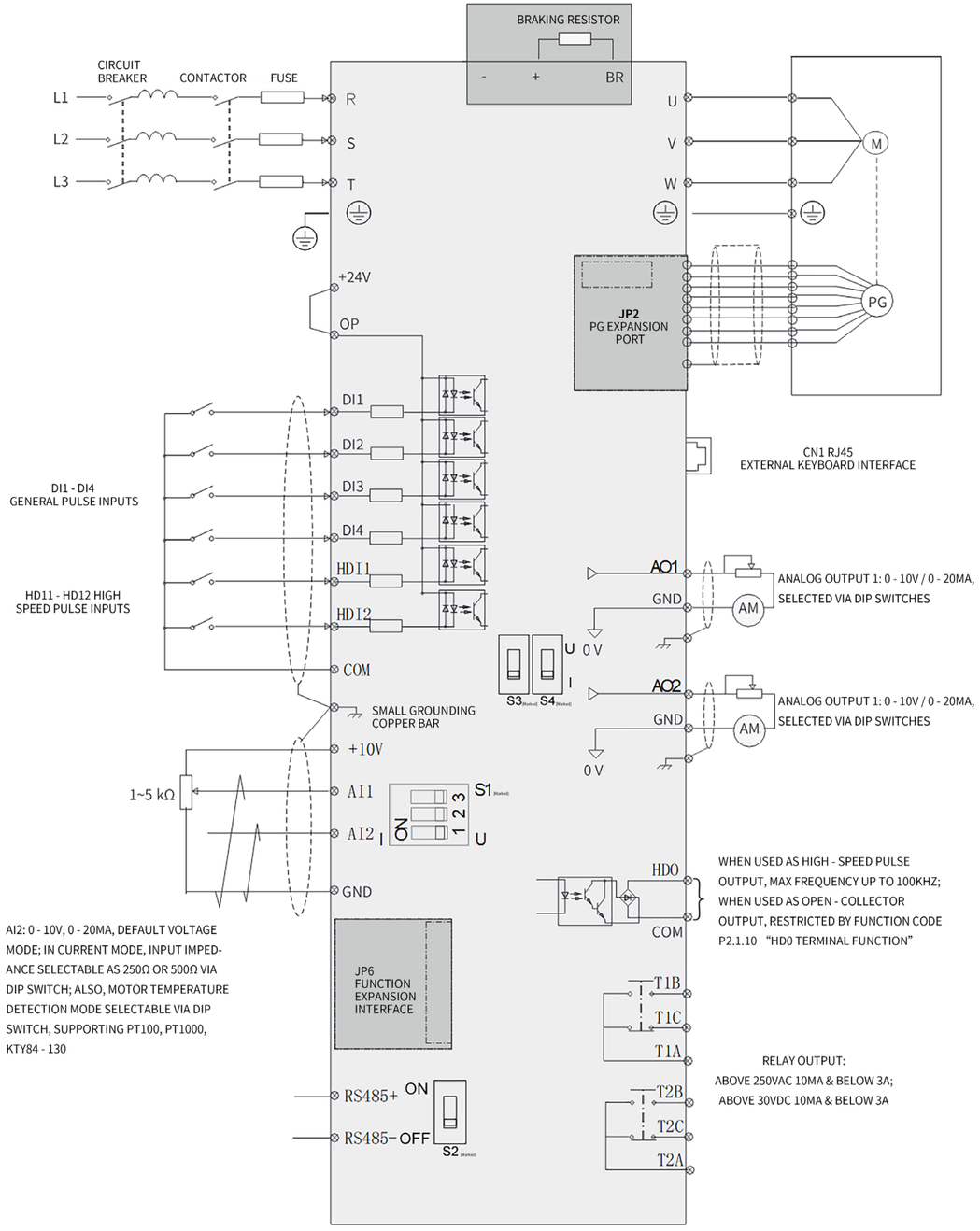


Wiring Diagram



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