



HV320

High Performance Vector Control Inverter

Contents

Basic Specification

Feature

Industry-specific

Model and specifications

Modular Design

Multiple Communication Protocol

AC Induction Motor and PM Motor Control

**High Performance Closed Loop/
Open Loop Vector Control**



Basic specifications

Voltage	Power
Single phase AC220V	0.4kw~4.0kw
Three phase AC220V	0.4kw~220kw
Three phase AC380V~480V	0.75kw~800kw

Based on listening and understanding of customers' requirement, HV320 supports full range of input voltage , complete functions for different countries and applications.



High performance vector control inverter

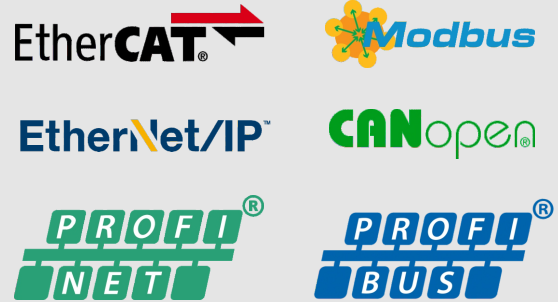
Product advantages

Modular design



Modular design makes the installation and stock easier and more flexible. Customer could change PG/Communication cards/Control boards easily.

Multiple communication extension cards



Built-in Modbus RTU, with various communication extension cards.

Built-in 2*STO



Built-in 2 channels STO, To ensure high safety features in applications.

LED/LCD keypad options



Standard 2-line LED keypad; LCD keypad option which could show more information, copy and paste parameters between different VFD.

Control of multi-types of motors



Open/Closed loop control of Synchronous/Asynchronous motor.

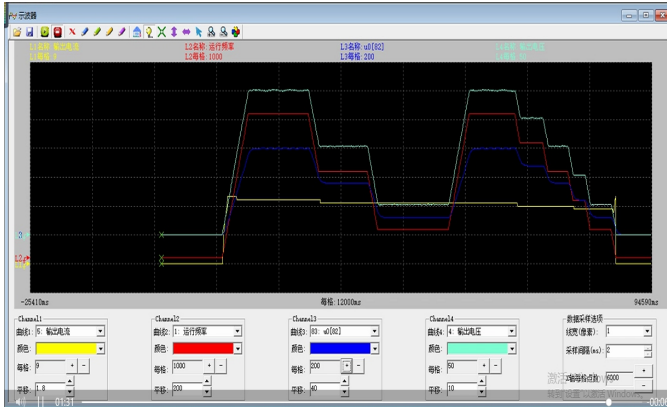
Supports of multiple encoders

HV320-PG-DIF-V2	Supports differential (compatible with 5V power supply) and open collector (compatible with 5V/24V power supply)
HV320-PG-RB-V2	Support resolver

Supports multiple encoder interfaces such as open collector, differential, resolver, etc. Convenient for closed-loop vector control.

Product advantages

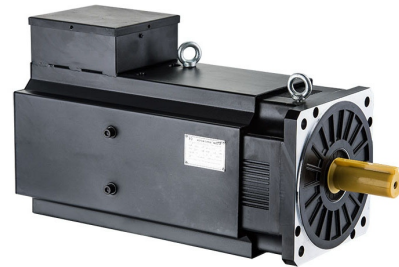
Commissioning software on PC



Monitor operating status via PC, optimize, modify, back up and copy data parameters.

Special Mode

Synchronous motors model-HV320S



Support open&closed loop vector mode Optimized control algorithm with high synchronization control accuracy.

Constant pressure water supply



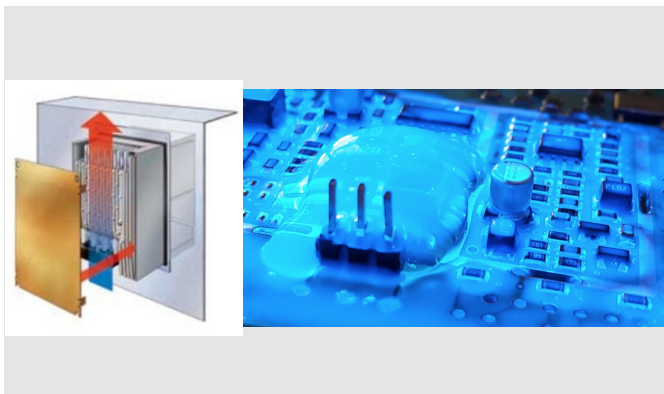
HV320 perfectly supports the constant pressure water supply function.

Solar pump model-HV320P



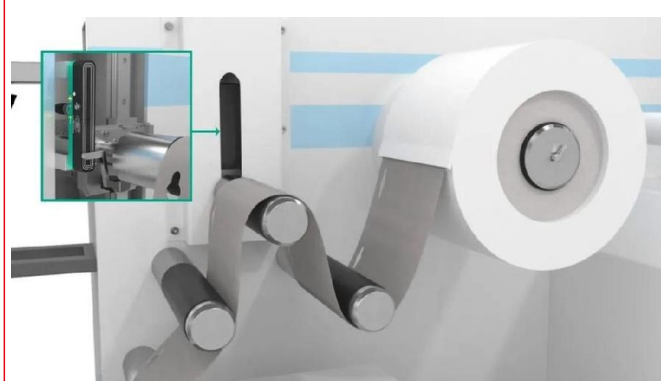
HV320P has a powerful solar pump function.

Long-life design



The independent air duct design and UV glue protective coating ensure that the product can run stably for a long time in harsh environments

HV320-WU



Winding&Unwinding model-HV320WU
HV320WU is designed for winding and unwinding applications

High performance vector control inverter

Model Definition

HV320 - 7R5 G 3					
①		②		③ ④	
① HV 320 Series Inverter		② Code Motor		③ Code Inverter Type	
		R75	0.75kW	G	General Purpose
		7R5	7.5kW		
		011	11kW		
		018	18.5kW		
		110	110kW		
		400	400kW		
				④ Code Inverter Type	
				1	Single phase 220V
				2	Three phase 220V
				3	Three phase 380V-440V
				4	Three phase 460V-480V

Note:
 HV320S is Dedicated to PMSM motor.
 HV320P is Dedicated to solar pump.
 HV320WU is Dedicated to winding&unwinding.

HV320 series inverter specifications

Model	Input current (A)	Output current (A)	Adaptive motor (KW)	(HP)	Power supply capacity (KVA)
G1 input voltage range: Single-phase AC220V±15%, 50 / 60 Hz					
HV320-R40G1	5.4	2.3	0.4	0.5	1.4
HV320-R75G1	8.2	4	0.75	1	2.2
HV320-1R5G1	14	7	1.5	2	3.7
HV320-2R2G1	23	9.6	2.2	3	6
HV320-004G1	32	17	4	5	10
G2 input voltage range: Three-phase AC220V±15%, 50 / 60 Hz					
HV320-R40G2	2.4	2.1	0.4	0.5	1.1
HV320-R75G2	4.6	3.8	0.75	1	2.1
HV320-1R5G2	9	7.2	1.5	2	4.2
HV320-2R2G2	11.4	9	2.2	3	5.3
HV320-004G2	16.7	17	4	5	7.7
HV320-5R5G2	32	25	5.5	7.5	14.8
HV320-7R5G2	41	32	7.5	10	18.9
HV320-011G2	59	45	11	15	27
HV320-015G2	69	60	15	20	31.6
HV320-018G2	90	75	18	25	41
HV320-022G2	112	91	22	30	51
HV320-030G2	141	112	30	40	64
HV320-037G2	192	150	37	50	87
HV320-045G2	225	176	45	60	102
HV320-055G2	256	210	55	75	117
HV320-075G2	307	304	75	100	184
HV320-093G2	385	380	93	125	202
HV320-110G2	430	426	110	150	226
HV320-132G2	468	465	132	175	246
HV320-160G2	590	585	160	220	310
HV320-200G2	714	725	200	270	413
HV320-220G2	810	820	220	300	464

HV320 series inverter specifications

Model	Input current (A)	Output current (A)	Adaptive motor (KW) (HP)		Power supply capacity (KVA)
G3 input voltage range: Three-phase AC 380~440 (-15%~+10%), 50 / 60 Hz					
HV320-R75G3	3.4	2.1	0.75	1	1.5
HV320-1R5G3	5	3.8	1.5	2	3
HV320-2R2G3	5.8	5.1	2.2	3	4
HV320-004G3	10.5	9	4	5	5.9
HV320-5R5G3	14.6	13	5.5	7.5	8.9
HV320-7R5G3	20.5	17	7.5	10	11
HV320-011G3	26	25	11	15	14
HV320-015G3	35	32	15	20	19
HV320-018G3	38.5	37	18.5	25	21
HV320-022G3	46.5	45	22	30	24
HV320-030G3	62	60	30	40	33
HV320-037G3	76	75	37	50	40
HV320-045G3	92	91	45	60	48
HV320-055G3	113	112	55	75	59
HV320-075G3	157	150	75	100	82
HV320-093G3	180	176	93	125	95
HV320-110G3	214	210	110	150	112
HV320-132G3	256	253	132	175	134
HV320-160G3	307	304	160	220	161
HV320-185G3	350	340	185	245	184
HV320-200G3	385	377	200	270	202
HV320-220G3	430	426	220	300	226
HV320-250G3	468	465	250	340	246
HV320-280G3	525	520	280	380	276
HV320-315G3	590	585	315	430	310
HV320-355G3	665	650	355	480	345
HV320-400G3	714	725	400	530	413
HV320-450G3	830	800	450	600	464
HV320-500G3	900	860	500	670	500
HV320-560G3	960	950	560	750	526
HV320-630G3	1140	1140	630	840	600
HV320-710G3	1315	1300	710	950	692
HV320-800G3	1525	1500	830	1070	802

High performance vector control inverter

HV320 series inverter specifications

Model	Input current (A)	Output current (A)	Adaptive motor (KW) (HP)		Power supply capacity (KVA)
G4 input voltage range: Three-phase AC 460~480 (-15%~+10%), 50 / 60 Hz					
HV320-R75G4	3.4	2.1	0.75	1	1.5
HV320-1R5G4	5	3.8	1.5	2	3
HV320-2R2G4	5.8	5.1	2.2	3	4
HV320-004G4	10.5	9	4	5	5.9
HV320-5R5G4	14.6	13	5.5	7.5	8.9
HV320-7R5G4	20.5	17	7.5	10	11
HV320-011G4	26	25	11	15	14
HV320-015G4	35	32	15	20	19
HV320-018G4	38.5	37	18.5	25	21
HV320-022G4	46.5	45	22	30	24
HV320-030G4	62	60	30	40	33
HV320-037G4	76	75	37	50	40
HV320-045G4	92	91	45	60	48
HV320-055G4	113	112	55	75	59
HV320-075G4	157	150	75	100	82
HV320-093G4	180	176	93	125	95
HV320-110G4	214	210	110	150	112
HV320-132G4	256	253	132	175	134
HV320-160G4	307	304	160	220	161
HV320-185G4	350	340	185	245	184
HV320-200G4	385	377	200	270	202
HV320-220G4	430	426	220	300	226
HV320-250G4	468	465	250	340	246
HV320-280G4	525	520	280	380	276
HV320-315G4	590	585	315	430	310
HV320-355G4	665	650	355	480	345
HV320-400G4	714	725	400	530	413
HV320-450G4	830	800	450	600	464
HV320-500G4	900	860	500	670	500
HV320-560G4	960	950	560	750	526
HV320-630G4	1140	1140	630	840	600
HV320-710G4	1315	1300	710	950	692
HV320-800G4	1525	1500	800	1070	802

Specificaition

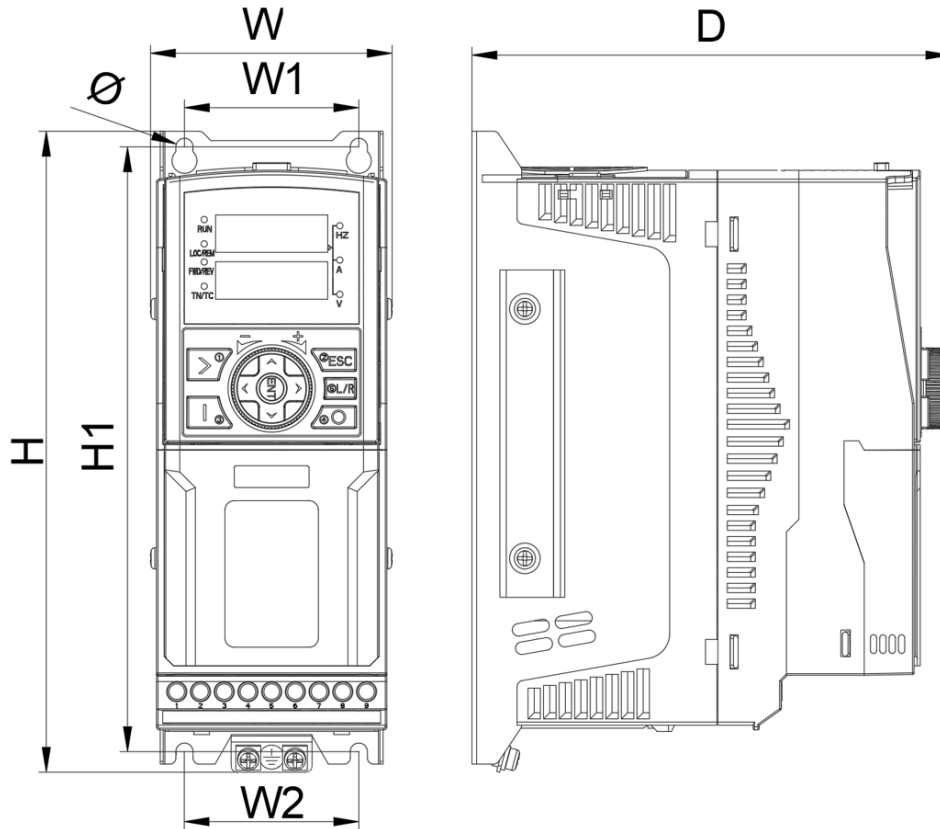
Items	Description
	Highest frequency Vector control: 0 ~ 600 Hz; V/F control: 0 ~ 600 Hz (Optional Max.1500Hz)
	Carrier frequency 0.5kHz~16kHz The carrier frequency can be automatically adjusted according to the load characteristics
	Input frequency resolution Digital setting: 0.01 Hz; Analog setting: highest frequency * 0.025 %
	Control mode 1: Open loop vector control (SVC) 2: Closed loop vector control (FVC); 3: V/F control
	Start torque 0.5Hz/150% (SVC) ; 0Hz/180% (FVC)
	Speed control range 1 : 100 (SVC) 1 : 1000 (FVC)
	Speed stabilization accuracy ±0.5% (SVC) ± 0.02% (FVC)
	Torque control accuracy ±5%
	Overload capacity 150 % rated current 60s; 180 % rated current 3s
	Torque increase Automatic torque increase; The manual torque is increased by 0.1 % - 30.0 %
	V/F curve Linear; Multipoint type; N - power V/F curve (power 1.2, power 1.4, power 1.6, power 1.8, power 2)
	V/F separation Two methods: full separation and half separation
Basic function	Acceleration and deceleration curve Straight line or S curve acceleration and deceleration mode. Four kinds of acceleration and deceleration times, The acceleration and deceleration time range is 0.0 to 6500.0 S.
	DC brake DC braking frequency: 0.00 Hz ~ maximum frequency Braking time: 0.0s ~ 36.0s Brake action current value: 0.0 % - 100.0 %
	JOG Inching frequency range: 0.00 Hz ~ 50.00 Hz. Inching acceleration and deceleration time 0.0s ~ 6500.0 s
	Simple PLC, multi-stage speed operation Up to 16 - speed operation via built-in PLC or control terminal
	Built - in PID Closed-loop control system capable of conveniently realize process control
	Automatic voltage regulation (AVR) When the grid voltage changes, the output voltage can be automatically kept constant
	Over voltage and over-loss rate control Automatically limit the current and voltage during operation to prevent frequent over current and over voltage trips.
	Fast current limiting function Minimize over-current faults and protect the normal operation of the frequency inverter
	Torque limitation and control The " excavator" feature automatically limits the torque during operation to prevent frequent over current trips; Open loop vector mode can realize torque control

High performance vector control inverter

Specification

Items		Description
Individualized performance	Virtual IO	Five sets of virtual DIDO, which can realize simple logic control
	Motor overheat protection	Optional motor overheat expansion card accepts motor temperature sensor input (PT100/PT1000)
	Various types of encoder feedback	Support differential, open collector type encoder, support resolver
	STO function	Two STO (Safe Torque Off) terminals makes the system safer and more reliable
	Outstanding performance	Using high performance current vector control technology to realize asynchronous and synchronous motor control
	No shutdown in case of momentary power outage	When the instantaneous power failure occurs, the load feedback energy compensates for the voltage drop and the frequency inverter will continue to operate for a short period of time
	Fast current limiting	Avoiding frequent over current faults of the frequency inverter
	Timing control	Timing control function: set the time range from 0.0 min to 6500.0 min
	Multi-motor switching	Four sets of motor parameters can realize switching of four motors
	Communication	Built-in RS-485. Optional: PROFIBUS-DP PROFINET; EtherCAT; Modbus TCP; EtherNET/IP; CANlink
Running	Command source	Operation panel setting, control terminal setting, serial communication port setting. Can be switched in various ways
	Frequency source	10 frequency sources: Digital setting, analog voltage setting, analog current setting, pulse setting, serial port setting. Can be switched in a variety of ways
	Auxiliary frequency source	10 auxiliary frequency sources. Flexible auxiliary frequency fine-tuning and frequency synthesis
	Input terminal	Standard: 6 digital input terminals (DI1~DI6), HDI5 supports high-speed pulse input up to 100kHz. 2 analog input terminals (AI1~AI2, AI1 only supports 0~10V ;AI2 supports 0~10V/4~20mA Safety function (STO) interface (STO1, STO2)
	Output terminals	Standard: 1 digital output terminal (DO1) 2 relay output terminals (TA1-TB1-TC1, TB2-TC2) 1 analog output terminal (AO1), supports 0~10V/0~20mA
Environment	Place of use	Dust - free, metal dust, corrosive gases, flammable gases, oil fog, salt fog, water vapor, dripping direct sunlight - free indoor
	Altitude	Below 1,000 meters
	Ambient temperature	-10°C~40°C,(When the ambient temperature is 40°C~50°C, please use at a reduced rating)
	Humidity	Less than 90 % RH without condensation
	Vibration	Less than 5.9m/s ² (0.6g)
	Storage temperature	-20°C~+60°C
	Protection grade	IP20

Product dimensions and installation dimensions

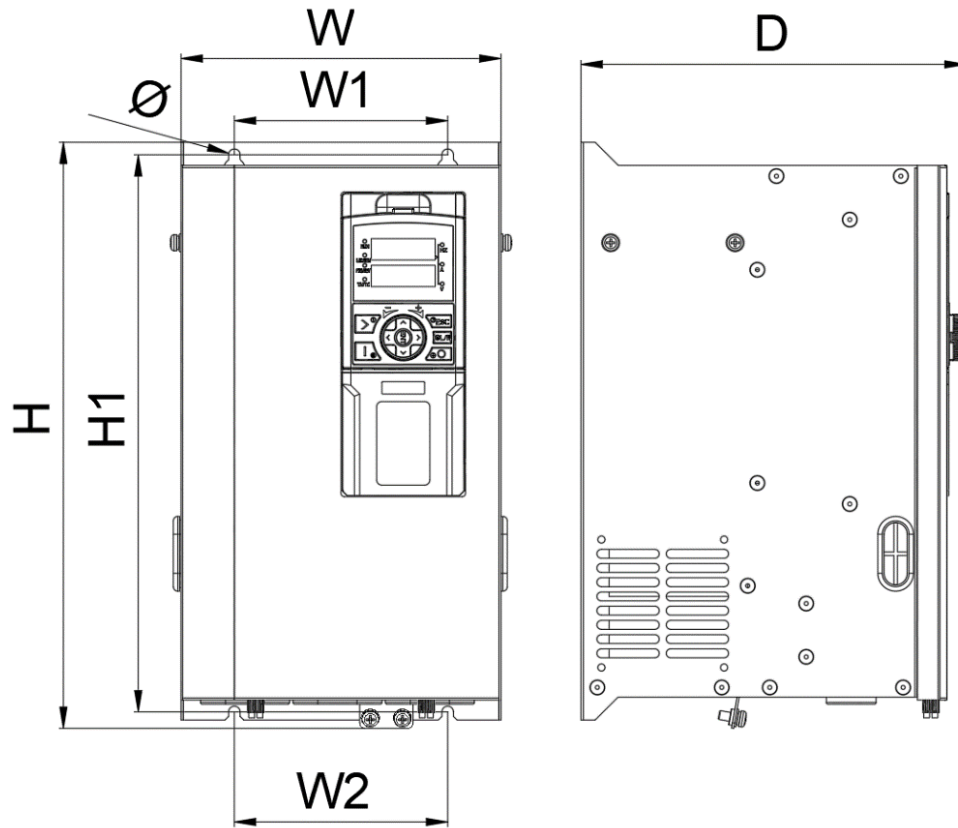


A1~A2

Case	Model	Installation Dimensions (mm)			External dimension (mm)			Hole (mm)
		W1	W2	H1	W	H	D	Φ
A1	HV320-R75G3/4	56	56	194	78	206	154	5.5
	HV320-1R5G3/4							
	HV320-2R2G3/4							
	HV320-004G3/4							
	HV320-R40G2							
	HV320-R75G2							
	HV320-1R5G2							
	HV320-2R2G2							
	HV320-R40G1							
	HV320-R75G1							
	HV320-1R5G1							
	HV320-2R2G1							
A2	HV320-5R5G3/4	68	68	219	93	235	154	5
	HV320-7R5G3/4							
	HV320-004G2							
	HV320-004G1							

High performance vector control inverter

Product dimensions and installation dimensions



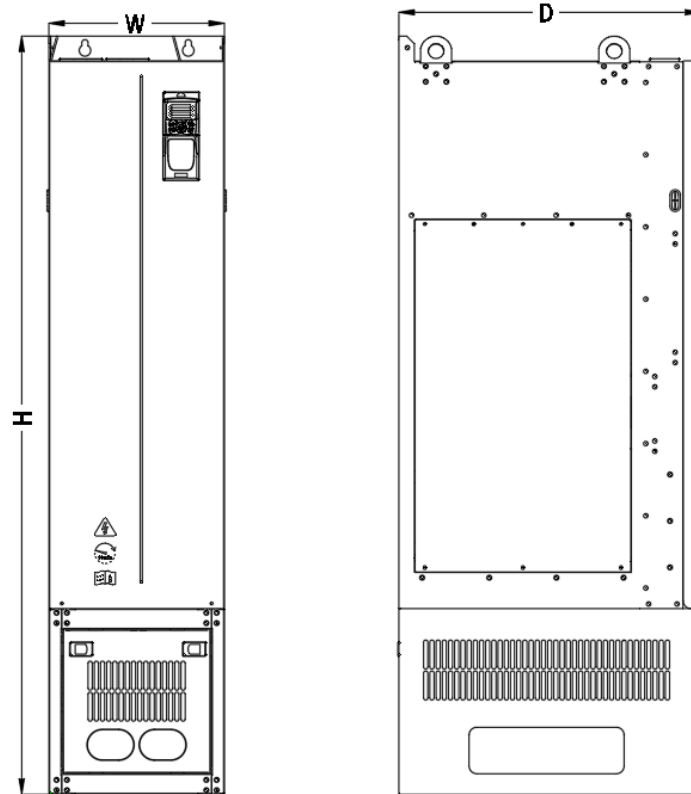
A3~A17

Case	Model	Installation Dimensions (mm)			External dimension (mm)			Hole (mm)
		W1	W2	H1	W	H	D	Φ
A3	HV320-011G3/4	100	100	265	142	283	195	7
	HV320-015G3/4							
	HV320-5R5G2							
	HV320-7R5G2							
A4	HV320-018G3/4	120	120	289	150	305	210	7
	HV320-022G3/4							
	HV320-011G2							
A5	HV320-030G3/4	120	120	314	180	330	217	6.5
	HV320-015G2							
A6	HV320-037G3/4	160	160	407	240	418	248	6.5
	HV320-018G2							
A7	HV320-045G3/4	220	220	484	307	500	255	10
	HV320-055G3/4							
	HV320-075G3/4							
	HV320-022G2							
	HV320-030G2							
	HV320-037G2							

volume	Model	Installation Dimensions (mm)			External dimension (mm)			Hole (mm)
		W1	W2	H1	W	H	D	Φ
A8	HV320-075G3/4	220	220	612	307	650	270	10
	HV320-090G3/4							
	HV320-045G2							
A9	HV320-110G3/4	220	220	639	317	680	320	10
	HV320-055G2							
A10	HV320-132G3/4	300	300	681	425	720	326	12
	HV320-160G3/4							
	HV320-075G2							
A11	HV320-185G3/4	200	130	885	335	946	537	12
	HV320-200G3/4							
	HV320-220G3/4							
	HV320-090G2							
	HV320-110G2							
A12	HV320-250G3/4	200	130	925	340	986	585	13
	HV320-132G2							
A13	HV320-280G3/4	200	130	1085	340	1140	585	13
	HV320-315G3/4							
	HV320-160G2							
A14	HV320-355G3/4	246.5+246.5	246.5+246.5	1025	700	1058	412	13
A15	HV320-400G3/4	300+300	300+300	1235	800	1264	483	16
	HV320-450G3/4							
	HV320-200G2							
	HV320-220G2							
A16	HV320-500G3/4	350+350	350+350	1365	900	1400	510	16
	HV320-560G3/4							
	HV320-630G3/4							
A17	HV320-710G3/4	/	/	/	1200	1800	500	/
	HV320-800G3/4							

High performance vector control inverter

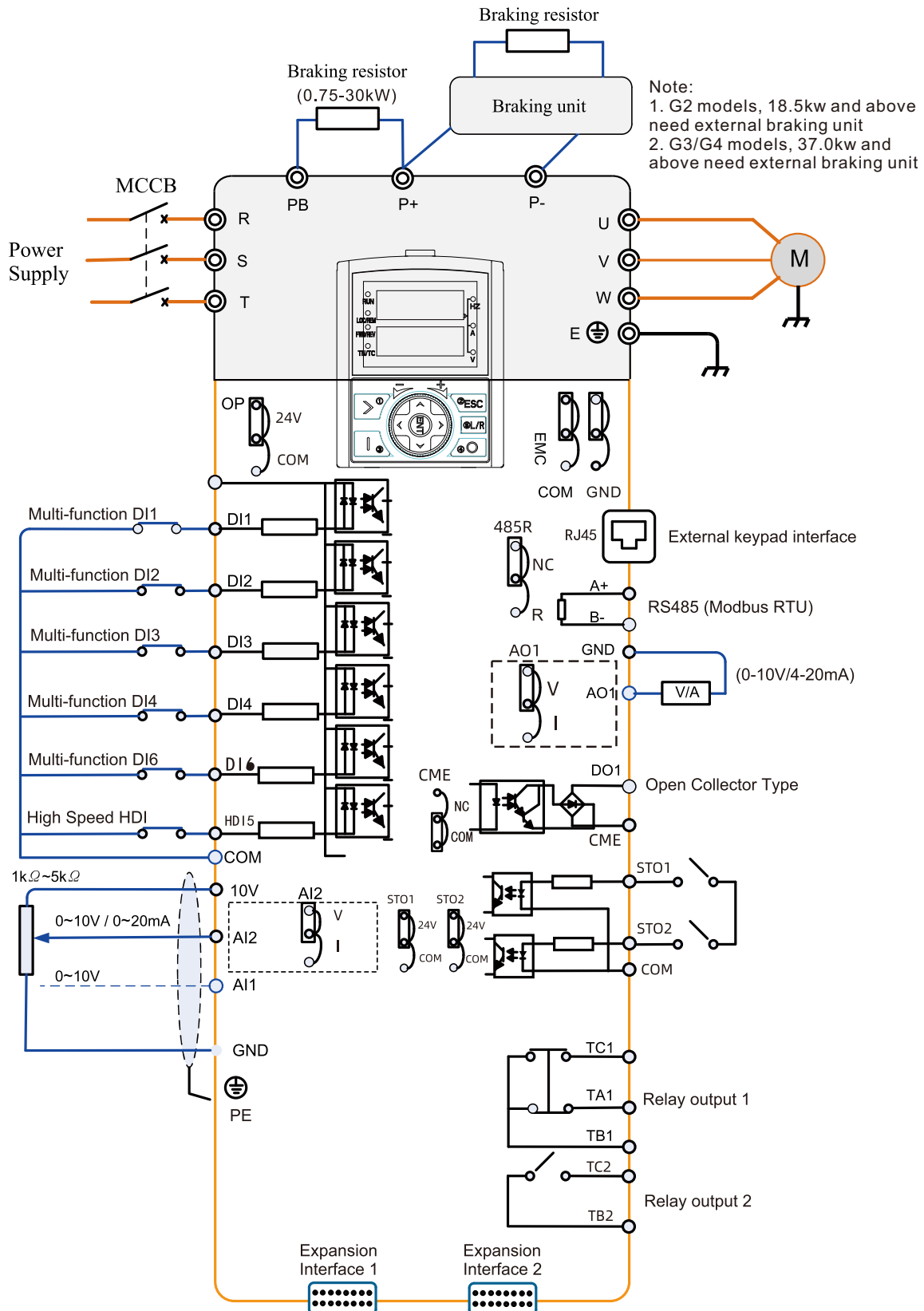
Dimensions with base



A9~A17

Case	External dimension (mm)		
	W	H	D
A9	317	1040	320
A10	425	1065	326
A11	335	1310	537
A12	340	1350	585
A13	340	1470	585
A14	700	1380	412
A15	800	1636	483
A16	900	1756	510
A17	1200	1800	510

Standard wiring diagram of frequency inverter



Note:
 1. G2 models, 18.5kw and above need external braking unit
 2. G3/G4 models, 37.0kw and above need external braking unit

High performance vector control inverter

Expansion accessories

Picture	Model	Description	
	PG card		
	HV320-PG-DIF-V2	Supports differential (compatible with 5V power supply) and open collector (compatible with 5V/24V power supply).	
	HV320-PG-RB-V2	Support resolver	
	Communication card		
	HV320-ECAT-V2	EtherCAT communication card	
	HV320-PNET-V2	Profinet communication card	
	HV320-DP-V2	Profibus-DP communication card	
	HV320-EIP-V2	Ethernet/IP communication card	
	HV320-CAN-V2	CANlink communication card	
	HV320-MTCP-V2	Modbus TCP communication card	
	HV320-RS485I-V2	RS485 communication card with isolation	
		I/O card	
		HV320-IO1-V2	1 AO output (AO2); 2 DI inputs (DI7, DI8); 1 High-speed pulse output, 1 Relay output
		HV320-IO2-V2	2 DI inputs (DI7,DI8);2 Relay output
	Keypad		
	HV320-LCD Keypad-V2	LCD display, support copy function	
	HV320-LED Keypad-V2	LED display, monitoring drive status parameters	



HNC
Electric

HNC ELECTRIC LIMITED is a company dedicated to the development and production of intelligent industrial automation solutions based on national strategic needs.

Supported by its outstanding electrical and electronic technology and strong control technology, it provides control, display, drive and system solutions and other related products and services to customers worldwide.

With 29 years of hard work, we have developed and produced professional CNC systems, industrial robots, servo drives, servo motors, reducers, inverters, PLCs, HMIs, etc.

In more than 80 countries and regions around the world, we have established a comprehensive agent system and after-sales service system. In the future, we will, as always, provide more professional services for global industrial automation.

HNC
Electric



Thanks for choosing HNC product
Any technique support, please feel to contact our support team

URL:www.hncelectric.com
Email:support@hncelectric.com