



NVF7 Drive

1. Overview

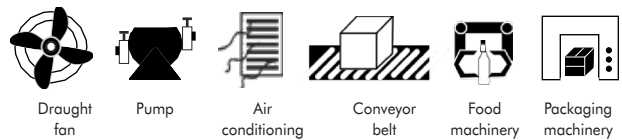
NVF7 series drive adopts open-loop and closed-loop magnetic flux vector control technology, with fast load response, large low-frequency torque, strong overload capacity, etc., to achieve accurate control of the equipment, the series of inverters have stable output, torque limit, speed tracking, simple PLC, process PID and other application functions, can meet the electrical drive needs of wire drawing, textile, machine tools, papermaking, packaging, food, plastic and fan pumps and a variety of automated production equipment.

2. Applications

There are two main types of applicable loads:

- Constant torque type and heavy load.
- Variable torque type and light load.

Applicable equipment of the product



3. Technical features

Rated working voltage (V): three-phase 380~480V: 380V(-15%)~480V(+10%)

Power range: 0.4KW~280KW

Output frequency range (Hz): 0Hz-500Hz

Control method: PG vector control(FVC), non PG vector control(SVC), V/F control

Frequency resolution:

Digital setting: 0.01Hz; Analog setting: Maximum frequency x 0.5%

Overload capacity:

T type: 150% rated current for 1 minute, 180% rated current for 2 seconds;

P type: 120% rated current for 1 minute, 150% rated current for 2 seconds

Multi speed control: 16 speed control

4. Working conditions

Ambient temperature: (-10~+40) ° C. When using between 40 ° C and 50 ° C, it's necessary to consider derating. The capacity decreases by 1% for every 1 ° C increase in temperature;

Relative humidity: (5-90)% R H;

Storage temperature: -25 ° C ~+55 ° C,

If the altitude is above 1000 meters, please reduce the rating by 1% for every 100m increase, but it cannot exceed 3000m;

Indoor use, places that are not exposed to direct sunlight, dust, corrosive gases, lammable gases, oil mist, water vapor, dripping water, or salt,

5. Type designation

NVF7-	7.5T	/	11P	-	S4	-	B	1
Series Name	Motor power (KW) T: constant torque/heavy load type		Motor power (KW) P: variable torque/light load type		S: three phases D: single phase 2: 230V 4:380~480V		Brake unit: B: built in Blank: no	Operation panel: 1: LCD Blank: LED

6. Model selection

Table 2.2.1 Model and Specification of Three phase 380V Drive

Model (standard built in LED)	power supply capacity kVA	Input current A	Heavy load rated current A	Light load rated current A	Motor power kW (Heavy load/light load)	ordering code
NVF7-0.4T/0.75P-S4-B	2	1.8	1.5	2.5	0.4T/0.75P	505309
NVF7-0.75T/1.1P-S4-B	2.8	2.4	2.5	3.1	0.75T/1.1P	505310
NVF7-1.1T/1.5P-S4-B	4.1	3.7	3.1	3.7	1.1T/1.5P	505311
NVF7-1.5T/2.2P-S4-B	3.0	4.6	3.7	5.0	1.5T/2.2P	505312
NVF7-2.2T/3.0P-S4-B	3.0	6.3	5.0	7.2	2.2T/3.0P	505313
NVF7-3.0T/4.0P-S4-B	5.0	9.0	7.2	9.5	3.0T/4.0P	505314
NVF7-4.0T/5.5P-S4-B	5.9	10.5	9.5	12.2	4.0T/5.5P	505315
NVF7-5.5T/7.5P-S4-B	8.6	14.6	12.2	16.2	5.5T/7.5P	505316
NVF7-7.5T/11P-S4-B	13	19	16.2	24.6	7.5T/11P	505317
NVF7-11T/15P-S4-B	18	26	24.6	31.4	11T/15P	505318
NVF7-15T/18.5P-S4-B	25	34	31.4	37	15T/18.5P	505319
NVF7-18.5T/22P-S4-B	29	38.5	37	45	18.5T/22P	505320
NVF7-22T/30P-S4-B	34	46.5	45	60	22T/30P	505321
NVF7-30T/37P-S4 NVF7-30T/37P-S4-B	46	62	60	75	30T/37P	505322、505323
NVF7-37T/45P-S4 NVF7-37T/45P-S4-B	57	76	75	90	37T/45P	505324、505325
NVF7-45T/55P-S4 NVF7-45T/55P-S4-B	69	92	90	110	45T/55P	505324、505325
NVF7-55T/75P-S4 NVF7-55T/75P-S4-B	85	113	110	150	55T/75P	505326、505327
NVF7-75T/90P-S4 NVF7-75T/90P-S4-B	114	157	150	176	75T/90P	505330、505331
NVF7-90T/110P-S4 NVF7-90T/110P-S4-B	133	180	176	210	90T/110P	505332、505333
NVF7-110T/132P-S4 NVF7-110T/132P-S4-B	160	214	210	253	110T/132P	505334、505335
NVF7-132T/160P-S4	195	256	253	300	132T/160P	505336
NVF7-160T/185P-S4	236	307	300	340	160T/185P	505337
NVF7-185T/200P-S4	267	345	340	380	185T/200P	505338
NVF7-200T/220P-S4	305	430	380	420	200T/220P	505339
NVF7-220T/250P-S4	350	477	420	470	220T/250P	505340
NVF7-250T/280P-S4	420	526	470	520	250T/280P	505341
NVF7-280T/315P-S4	450	605	520	600	280T/315P	505342

Model (standard built in LCD)	power supply capacity kVA	Input current A	Heavy load rated current A	Light load rated current A	Motor power kW (Heavy load/light load)	ordering code
NVF7-0.4T/0.75P-S4-B1	2	1.8	1.5	2.5	0.4T/0.75P	505343
NVF7-0.75T/1.1P-S4-B1	2.8	2.4	2.5	3.1	0.75T/1.1P	505344
NVF7-1.1T/1.5P-S4-B1	4.1	3.7	3.1	3.7	1.1T/1.5P	505345
NVF7-1.5T/2.2P-S4-B1	3.0	4.6	3.7	5.0	1.5T/2.2P	505346
NVF7-2.2T/3.0P-S4-B1	3.0	6.3	5.0	7.2	2.2T/3.0P	505347
NVF7-3.0T/4.0P-S4-B1	5.0	9.0	7.2	9.5	3.0T/4.0P	505348
NVF7-4.0T/5.5P-S4-B1	5.9	10.5	9.5	12.2	4.0T/5.5P	505349
NVF7-5.5T/7.5P-S4-B1	8.6	14.6	12.2	16.2	5.5T/7.5P	505350
NVF7-7.5T/11P-S4-B1	13	19	16.2	24.6	7.5T/11P	505351
NVF7-11T/15P-S4-B1	18	26	24.6	31.4	11T/15P	505352
NVF7-15T/18.5P-S4-B1	25	34	31.4	37	15T/18.5P	505353
NVF7-18.5T/22P-S4-B1	29	38.5	37	45	18.5T/22P	505354
NVF7-22T/30P-S4-B1	34	46.5	45	60	22T/30P	505355
NVF7-30T/37P-S4-1 NVF7-30T/37P-S4-B1	46	62	60	75	30T/37P	505356、 505357
NVF7-37T/45P-S4-1 NVF7-37T/45P-S4-B1	57	76	75	90	37T/45P	505358、 505359
NVF7-45T/55P-S4-1 NVF7-45T/55P-S4-B1	69	92	90	110	45T/55P	505360、 505361
NVF7-55T/75P-S4-1 NVF7-55T/75P-S4-B1	85	113	110	150	55T/75P	505362、 505363
NVF7-75T/90P-S4-1 NVF7-75T/90P-S4-B1	114	157	150	176	75T/90P	505364、 505365
NVF7-90T/110P-S4-1 NVF7-90T/110P-S4-B1	133	180	176	210	90T/110P	505366、 505367
NVF7-110T/132P-S4-1 NVF7-110T/132P-S4-B1	160	214	210	253	110T/132P	505334、 505335
NVF7-132T/160P-S4-1	195	256	253	300	132T/160P	505370
NVF7-160T/185P-S4-1	236	307	300	340	160T/185P	505371
NVF7-185T/200P-S4-1	267	345	340	380	185T/200P	505372
NVF7-200T/220P-S4-1	305	430	380	420	200T/220P	505373
NVF7-220T/250P-S4-1	350	477	420	470	220T/250P	505374
NVF7-250T/280P-S4-1	420	526	470	520	250T/280P	505375
NVF7-280T/315P-S4-1	450	605	520	600	280T/315P	505376

Table 2.2.2 Model and Specification of Three phase 230V Drive

Model (standard built in LED)	power supply capacity kVA	Input current A	Heavy load rated current A	Light load rated current A	Motor power kW (Heavy load/ light load)	ordering code
NVF7-0.4T/0.75P-S2-B	1.1	2.4	2.3	4.0	0.4T/0.75P	512455
NVF7-0.75T/1.1P-S2-B	2.1	4.6	4.0	5.1	0.75T/1.1P	512456
NVF7-1.1T/1.5P-S2-B	2.9	6.3	5.1	7.0	1.1T/1.5P	512457
NVF7-1.5T/2.2P-S2-B	4.2	9	7.0	9.6	1.5T/2.2P	512458
NVF7-2.2T/3.0P-S2-B	5.3	11.4	9.6	12.2	2.2T/3.0P	512459
NVF7-3.0T/4.0P-S2-B	10.2	22	12.2	16.2	3.0T/4.0P	512460
NVF7-4.0T/5.5P-S2-B	14.8	32	16.2	24.6	4.0T/5.5P	512461
NVF7-5.5T/7.5P-S2-B	19.1	39	24.6	31.4	5.5T/7.5P	512462
NVF7-7.5T/9.5P-S2-B	13	44	31.4	37	7.5T/11P	512463
NVF7-9.5T/11P-S2-B	20	51	37	45	9.5T/11P	512464
NVF7-11T/15P-S2-B	27	59	45	60	11T/15P	512465
NVF7-15T/18.5P-S2 NVF7-15T/18.5P-S2-B	32	89	60	75	15T/18.5P	512466、 512467
NVF7-18.5T/22P-S2 NVF7-18.5T/22P-S2-B	41	106	75	90	18.5T/22P	512468、 512469
NVF7-22T/30P-S2 NVF7-22T/30P-S2-B	51	139	90	110	22T/30P	512470、 512471
NVF7-30T/37P-S2 NVF7-30T/37P-S2-B	65	144	110	152	30T/37P	512472、 512473
NVF7-37T/45P-S2 NVF7-37T/45P-S2-B	75	164	152	176	37T/45P	512474、 512475
NVF7-45T/55P-S2 NVF7-45T/55P-S2-B	90	202	176	210	45T/55P	512476、 512477



Table 2.2.3 Single-phase 230V Drive Model Specification Table

Model (standard built in LED)	power supply capacity kVA	Input current A	Heavy load rated current A	Light load rated current A	Motor power kW (Heavy load/ light load)	ordering code
NVF7-0.4T-D2-B	1.1	5.0	2.3	-	0.4T	512501
NVF7-0.75T-D2-B	2.1	9.5	4.0	-	0.75T	512502
NVF7-1.5T-D2-B	2.9	15.5	7.0	-	1.5T	512503
NVF7-2.2T-D2-B	5.3	20	9.6	-	2.2T	512504
NVF7-3.0T-D2-B	6.5	26	12.2	-	3.0T	512505
NVF7-4.0T-D2-B	7.5	32	16.2	-	4.0T	512506

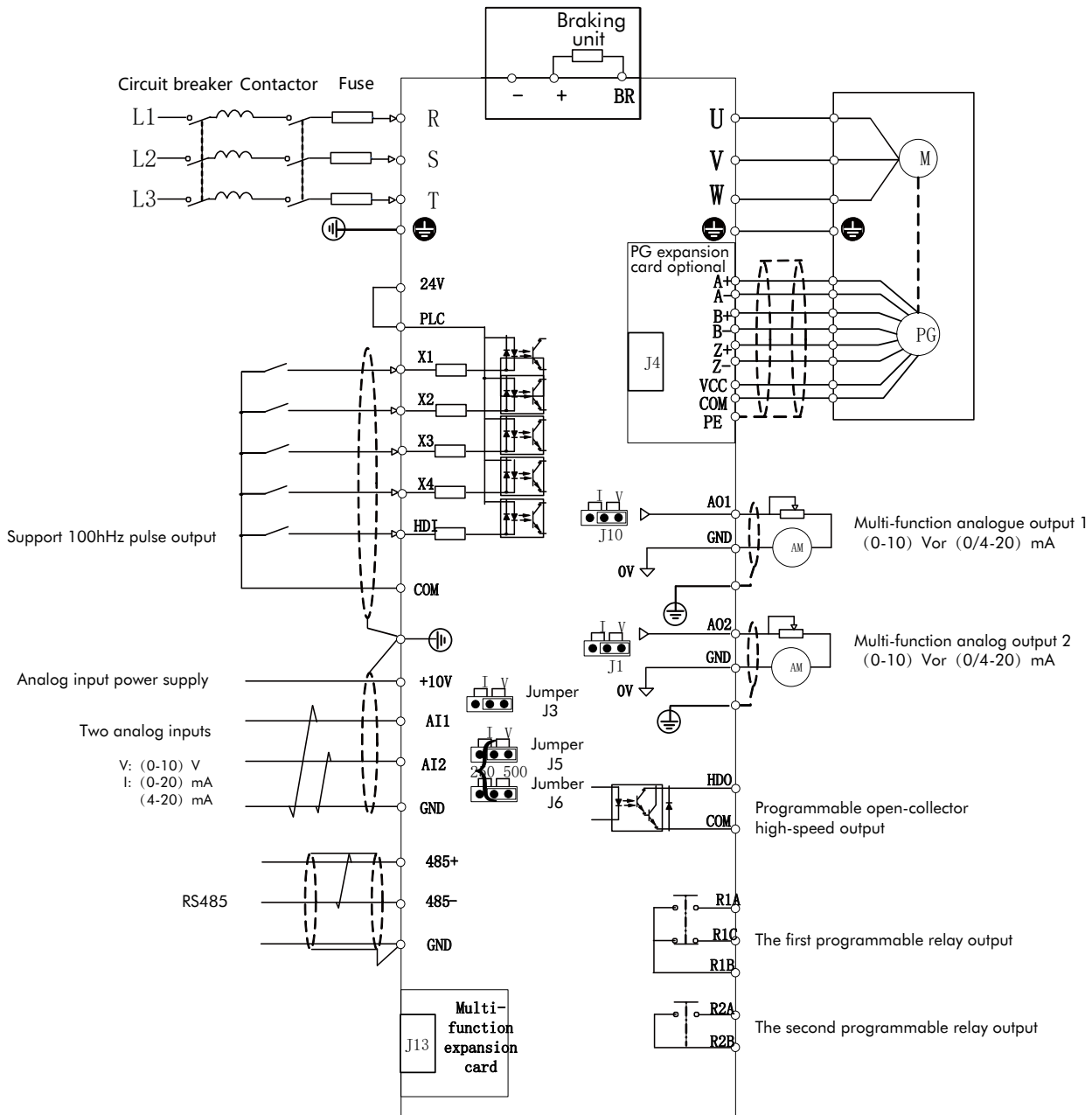
Model	Standard built	ordering code
NVF7- LED VA7KEY01	Operator panel LED	513138
NVF7- LCD VA7KEY02	Operator panel LCD	513139
NVF7-VA7KEY03	Mounting bracket	513140
NVF7-VA7CB02	Extension cable 2 meters	513141
NVF7-VA7CB04	Extension cable 4 meters	513142

7. Main technical parameters and performance

Output	Voltage	0 ~ rated input voltage
	Frequency	(0-500) Hz
	overload capacity	Type T: 150% rated current for 1 minute, 180% rated current for 2 seconds Type P: 120% rated current for 1 minute, 150% rated current for 1 second
Main Controls Performance	control mode	PG free vector control (SVC); PG vector control (FVC); V/F control;
	modulation mode	Space vector PWM modulation
	Starting torque	SVC: 150% rated torque at 0.25Hz FVC: 180% rated torque at 0Hz 150% rated torque at V/F: 0.5Hz
	frequency resolution	Digital setting: 0.01Hz; Analog setting: maximum frequency x 0.5%
	Torque boost	Automatic Torque Boost, Manual Torque Boost
	V/F curve	Straight V/F curve, VF full separation mode, VF semi separation mode, multi-point V/F curve mode
	acceleration and deceleration curves	Linear acceleration and deceleration (4 types)
	Automatic current limiting	Automatic limitation of current during operation to prevent frequent overcurrent fault tripping
Customization features	Tap	Jog frequency range: (0.10~50.00) Hz Jog acceleration/deceleration time (0.1-6000.0) s
	Multi-stage speed operation	Multi-speed operation via control terminals
Peripheral Interface Characteristics	Run the command channel	Operator panel setting, control terminal setting and communication control setting can be switched in various ways
	digital inputs	5 channels of multi-function digital programmable input, including 1 channel of HDI high-speed pulse input
	Digital Output	1 multi-function digital programmable output, which can be set as high-speed pulse output or open collector output
	Analog Input	2 analog signal inputs Optional (0~20) mA, (4~20) mA current signal input or (0-10) V voltage signal input
	Analog Output	2 analog signal outputs Selectable (0~20) mA, (4~20) mA current output or (0~10) V voltage output respectively, which can realize the output of physical quantities such as set frequency and output frequency
	Relay Output	2-channel relay output, including 1-channel normally open and normally closed conversion output, 1-channel normally open output. Contact capacity: NO 5A, NC 3A, 250V (AC)
	RS485 communication interface	1 channel, supporting Modbus protocol
LED operation panel	LED display	It can display more than 20 kinds of parameters such as setting frequency, output frequency, output voltage, output current and so on
	Key lock	To realize full or partial locking of the keys
	function selection	Define the scope of action of some keys to prevent misuse
LCD operation panel (optional)	LCD display	2.4 inch, resolution 320*240
	Language	Chinese, English display (default English)
	Indicator light	1 status indicator
protection functions	With over-current protection, over-voltage protection, under-voltage protection, over-heating protection, overload protection, phase loss protection and other protection functions	
Structure	protection class	IP20
	Cooling method	axial DC fan cooling
mounting method	Wall-mounted, flange-mounted lamps	
Efficiency	37kW and below ≥ 93%; 45 kW and above ≥ 95%	

8. Wiring diagram

NVF7



9. Notes of main circuit terminals

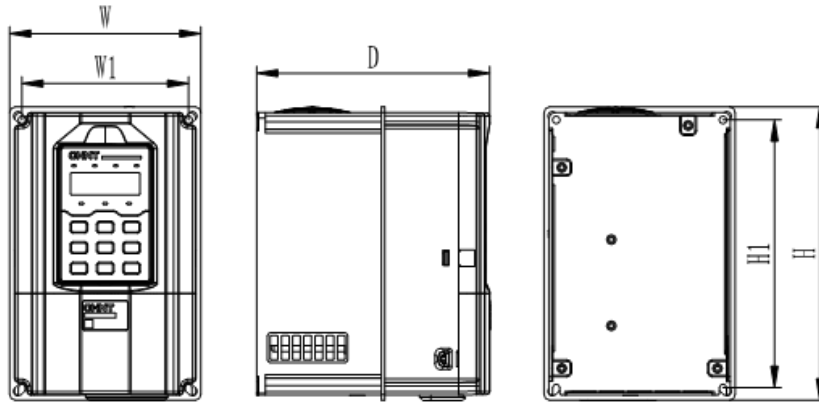
terminal symbol	terminal name	Functional Description	Wiring Precautions
R, S, T	Main circuit power input	Three-phase AC voltage input, connected to the grid	
U, V, W	Inverter output	Three-phase AC voltage output, generally connected to the motor	1. must be wired according to the terminal function, otherwise there is a risk of damage to the inverter, or even lead to fire.
⊕	Ground terminal	The safety grounding terminal must be reliably grounded, and the cross-sectional area of the grounding wire must not be smaller than the cross-sectional area of the input power line of the frequency converter	2. The wiring length of the braking unit shall not exceed 10m, and shall use twisted pair or close double wire parallel wiring;
⊕, ⊖	positive and negative power terminals	positive and negative power terminals of the DC bus of the inverter	3. When external braking resistor is connected, do not connect the braking resistor directly to the DC bus, otherwise there is a danger of damaging the inverter, or even lead to fire.
ⓑ	Brake resistor connection terminals	Brake resistor connection terminals	



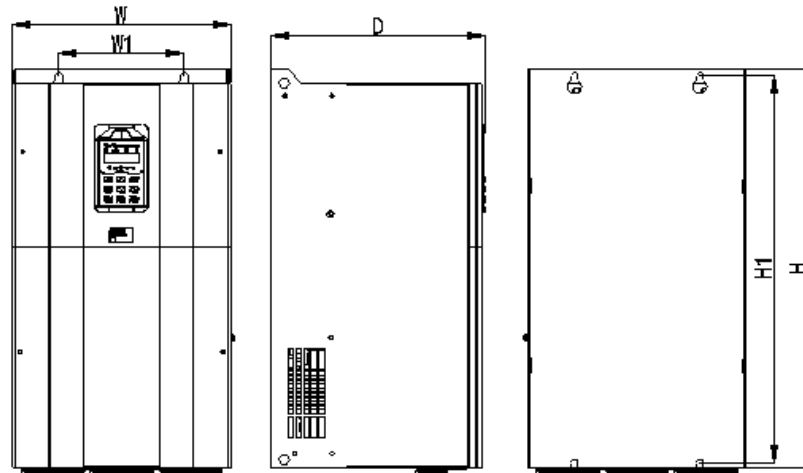
10. Control terminals description

Category	Terminals	Name	terminal function description	
Power supply	+10V	+10V power supply	External+10V power supply, maximum output current: 10mA It is generally used as the working power supply of the external potentiometer, and the resistance range of the potentiometer is 1k Ω~5k Ω	
	GND	+10V power supply ground		
	+24V	+24V power supply	Provide+24V power supply to the outside, which is generally used as the working power supply of digital input and output terminals and the power supply of external sensors Maximum output current: 200mA	
	COM	+24V power supply common terminal		
	PLC	External power input terminals		
analog inputs	AI1	Analog single ended input AI1	Voltage input range: 0Vdc~10Vdc, Current input range: 0mA~20mA or 4mA~20mA Decided by jumper J3 jumper selection Input impedance: 22k Ω for voltage input and 500 Ω for current input.	
	AI2	Analog single ended input AI2	Voltage input range: 0Vdc~10Vdc, Current input range: 0mA~20mA or 4mA~20mA Decided by jumper J5 jumper selection Input impedance: 22k Ω for voltage input, 500 Ω or 250 Ω for current input via J6 jumper	
analog output	AO1	Analog Output	The voltage or current output is determined by the selection of J10 and J1 jumpers on the control board Output voltage range: 0V~10V Output current range: 0mA~20mA or 4mA~20mA	
	AO2	Analog Output		
Communications	485+	RS485 communication interface 288	485 differential signal positive	Standard RS485 communication interface Please use twisted pair or shielded cable
	485-		485 differential signal negative	
digital input terminals	X1	Multi-function input terminal 1	Optical coupling isolation, compatible with bipolar inputs Input impedance: 1.39k Ω Voltage range for effective level input: 18V~30V Programmable multi-function switch input terminal, see function codes F5-00~F5-03	
	X2	Multi-function input terminal 2		
	X3	Multi-function input terminal 3		
	X4	Multi-function input terminal 4		
	HDI	High speed input terminal HDI	In addition to the characteristics of X1~X4, it can also be used as a high-speed pulse input channel Maximum input frequency: 100kHz Input impedance: 1.03k Ω	
digital output terminals	HDO	High-speed pulse output terminal	Constrained by parameter F6-00HDO terminal output mode selection When it is output as high-speed pulse, the highest frequency is 100kHz (set by F6-09) When it is used as collector open circuit output, it can program multiple function pulse signal output terminals, see function code F6-01	
Relay output terminal 1	R1B-R1A	normally open terminal contacts	For programmable multi-function relay output terminal, see function code F6-02 Contact driving capacity: 5A 250V (AC) 30Vdc,1A	
	R1B-R1C	Normally closed terminal contacts		
Relay output terminal 2	R2B-R2A	normally open terminal contacts	For programmable multi-function relay output terminal, see function code F6-04 Contact driving capacity: 5A 250V (AC) 30Vdc,1A	

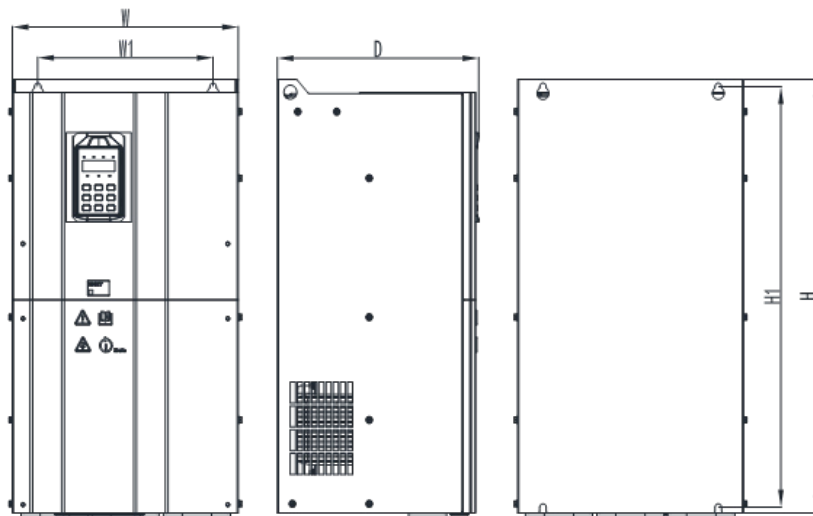
11. Mounting dimensions (mm) & weight (kg)



T2~T5



T6~T7



T8~T11



Terminal No.	W	H	D	W1	H1	Weight (Kg)
NVF7-0.4T/0.75P	136.9	207.5	166.8	119.4	189.4	2.5
NVF7-0.75T/1.1P						
NVF7-1.1T/1.5P						
NVF7-1.5T/2.2P						
NVF7-2.2T/3.0P						
NVF7-3.0T/4.0P						
NVF7-4.0T/5.5P						
NVF7-5.5T/7.5P	152	262	186.4	129	239	3.7
NVF7-7.5T/11P						
NVF7-11T/15P	187	288	185.9	169	269	5.5
NVF7-15T/18.5P						
NVF7-18.5T/22P	218.4	358.5	223.6	189.2	335.5	11
NVF7-22T/30P						
NVF7-30T/37P	270	466	268.1	233	443	21
NVF7-37T/45P						
NVF7-45T/55P	313	580	309.6	180	562	38
NVF7-55T/75P						
NVF7-75T/90P	348	620	310.3	270	604	49
NVF7-90T/110P						
NVF7-110T/132/P	400	915	331.7	320	891	84
NVF7-132T/160P						
NVF7-160T/185P	400	915	361.7	320	891	90
NVF7-185T/200P						
NVF7-200T/220P	550	1100	418.5	400	1070	118
NVF7-220T/250P						
NVF7-250T/280P	550	1100	418.5	400	1070	118
NVF7-280T/315P						