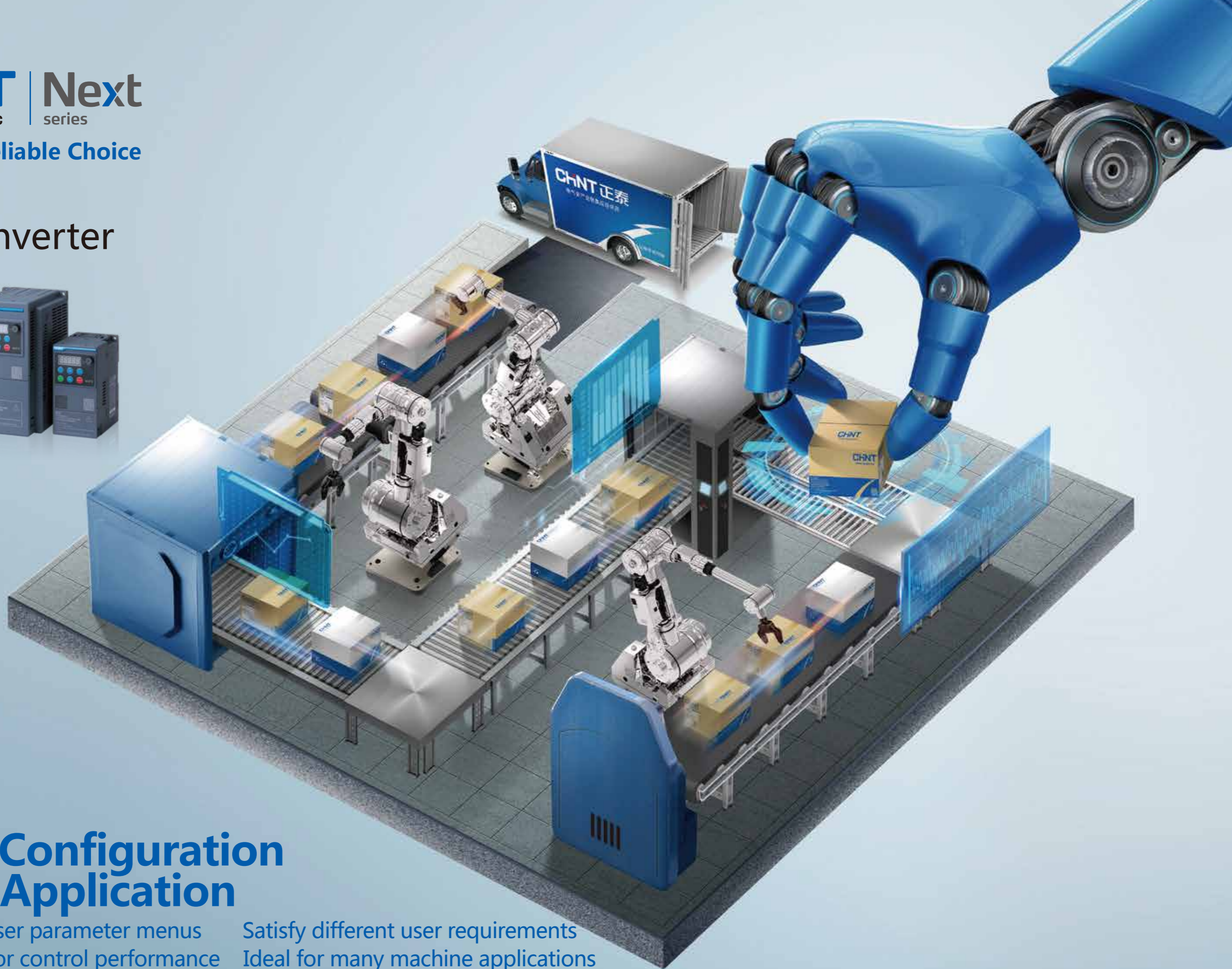


CHINT | Next
CHINT ELECTRIC | series

The Next Reliable Choice

NVF5 Inverter



Smart Configuration Easy Application

Three levels user parameter menus
Excellent motor control performance

Satisfy different user requirements
Ideal for many machine applications



Three levels user parameter menus satisfy different user requirements

Simple menu, Custom menu, Engineering menu, convenient for different customer to use.



Full power rating and compact volume

Volume reduced by 20% comparing to same power rate drive of competitors.



Excellent motor control performance

Sensorless Vector Control technology, responding load changing rapidly, good torque capacity in low frequency, strong overload capability.



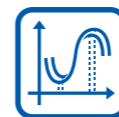
Multipurpose protect cover plate, innovative water-drop proof design for exhaust hole

Top optional protective cover, against dust and object; Professional exhaust hole design, prevent water-drop from entering the machine at 15°.



Higher reliability

PCB coating design fit for dust environment; aging-resistant and temperature testing progress make it more reliable.



Global AC input voltage classes

Operating voltage range: single-phase 230V (±15%), 50/60Hz; three-phase 380V (-15%) ~ 440V (+15%), 50/60Hz.

Table of Contents

Product Overview	P-01
Designation	P-02
Main Parameters and Technical Performance	P-03
Product Appearance and Control Panel	P-04
Product Installation Size and Weight	P-06
Standard Product Wiring Diagram	P-07
Terminal Function Description	P-08
Annex	P-09

Product Overview



Overview

Application range

- NVF5 series universal inverter adopts a vector control technique without speed sensors, featuring small size, light weight, easy operation, and excellent performance. It's widely used for various small and medium machineries, such as those for air conditioning, cooling, building water supply, logistics, and ceramics.

Main parameters

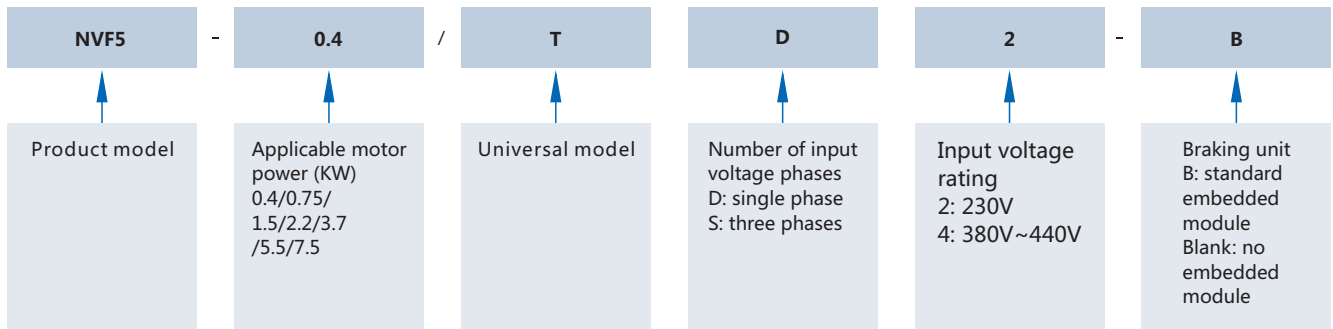
- Rated operating voltage (V): single-phase 230V ($\pm 15\%$), three-phase 380V (-15%) ~ 440V ($+15\%$)
- Input frequency range (Hz): 47~63Hz
- Output frequency range (Hz): 0Hz~400Hz
- Control method: Vector control without PG, V/F control, torque control
- Start torque: 150% of rated torque at 0.5Hz
- Overload capacity: 150% of rated current for up to 1minute, and 180% of rated current for up to 2 seconds
- Speed range: Open-loop vector control 1:100; V/F 1:50
- Speed control accuracy: open-loop vector control $\pm 0.5\%$ of peak speed

Operating conditions and installation conditions

Type	Operating conditions and installation conditions
Temperature	Operating temperature: $-10^{\circ}\text{C} \sim +45^{\circ}\text{C}$, 1% derating for every degree between $45 \sim 50^{\circ}\text{C}$
Humidity	Air relative humidity $\leq 95\%$, non-condensing
Elevation	Rated power output of the inverter at an elevation below 1000m. Beyond this elevation, 10% derating is applied for each additional 1000m.
Shock and vibration	The inverter should not fall or be suddenly impacted. Do not install it in a site subject to frequency vibrations.
Protection against water and water vapor	Do not install it in a site that may be exposed to water spray or dew.
Electromagnetic radiation	Please keep it away from electromagnetic radiation sources.
Atmospheric pollution	Do not install it in a site with atmospheric pollution such as dust powder or corrosive gas.
Storage environment	Do not install it in a site with direct sunlight, oil mist, steam, or vibration.

Designation

Product naming rules



NVF5 series inverter selection table

Power voltage	Catalog Number	Power capacity (kVA)	Rated input current (A)	Rated output current (A)	Maximum applicable motor (KW)	Braking unit
Single phase AC 230V	NVF5-0.4/TD2	1.0	5.4	2.5	0.4	Optional embedded unit
	NVF5-0.4/TD2-B					
	NVF5-0.75/TD2	1.9	10.3	5	0.75	
	NVF5-0.75/TD2-B					
	NVF5-1.5/TD2	2.9	15.5	7.5	1.5	
	NVF5-1.5/TD2-B					
NVF5-2.2/TD2	4.2	20	10	2.2		
NVF5-2.2/TD2-B						
Three phase AC 380V~440V	NVF5-0.4/TS4-B	0.8	2.3	1.5	0.4	Standard embedded unit
	NVF5-0.75/TS4-B	1.5	3.4	2.7	0.75	
	NVF5-1.5/TS4-B	3.0	5.1	4.2	1.5	
	NVF5-2.2/TS4-B	4.0	6.6	5.8	2.2	
	NVF5-3.7/TS4-B	5.9	12.1	10.5	3.7	
	NVF5-5.5/TS4-B	8.6	13.1	13	5.5	
	NVF5-7.5/TS4-B	11.0	22.2	17	7.5	

Main Parameters and Technical Performance

Technical specification

Item	Specification	
Input	Voltage range	Single-phase 230V (±15%) Three-phase 380V (-15%)~440V (+15%)
	Frequency range	(47~63) Hz
Output	Voltage	0~rated input voltage
	Frequency	(0~400) Hz
	Overload capacity	150% of rated current for up to 1 minute, and 180% of rated current for up to 2 seconds
Main control function	Control mode	SVC control, V/F control, torque control
	Start torque	SVC control: 150% of rated torque at 0.5Hz V/F control: 100% of rated torque at 1Hz
	Carrier frequency	1kHz~15kHz
	Speed range	SVC: 1:100; V/F: 1:50;
	Speed control accuracy:	Vector without PG: ±5% of peak speed
	Frequency resolution	Digital setting: 0.01Hz; analog setting: maximum frequency×0.5%
	V/F curve	Linear V/F curve; (2, 1.7, 1.2, multi-point) power reduced torque curve
	Acceleration /deceleration curve	4 types of linear acceleration / deceleration curve; S-curve acceleration / deceleration
	Distinct features	Over-current stall protection, over-current stall protection, torque limit, speed tracking, simple PLC, process PID, preset speed control, automatic slip compensation, automatic torque boost, pre-flux function, instant power cut function
	Peripheral interface	Digital input
Digital output		1 multifunctional digital programmable output (speed up to 100kHz)
Analog input		2 analog signal input, (0~20)mA, (4~20)mA current signal input or (0~10)V, (-10~ +10)V voltage signal input can be selected
Analog output		1 analog signal output, (0~20)mA, (4~20)mA current signal output or (0~10)V, (-10~ +10)V voltage signal output can be selected
Relay output		A pair of NO contacts and a pair of NC contacts, contact capacity: 3A/250V
Communication interface		Standard RS485 communication. Can be extended with communication protocols such as ETHERNET, PROFIBUS-DP, or CANOPEN. External operation panel can be connected;
Braking function		Embedded braking unit is optional for single-phase models, and standard for three-phase models.
Operation panel	Display of over 20 parameters including frequency setting, output frequency, output voltage, and output current.	
Protection function	Protections against over-current, over-voltage, under-voltage, overheat, overload, input phase loss, output phase loss, load loss, and motor ground short circuit.	
Structure	Protection degree	Standard IP 20, IP 22 with optional top protective cover
	Cooling method	Fan cooling
Material	Full series of molded case structure	
Installation method	DIN rail type and wall type installation for models ≤2.2kW (only wall installation is available for single-phase 2.2kW models); wall type installation for models > 2.2kW	

Product Appearance and Control Panel

Name and functions of different parts



Product Appearance and Control Panel

Control panel

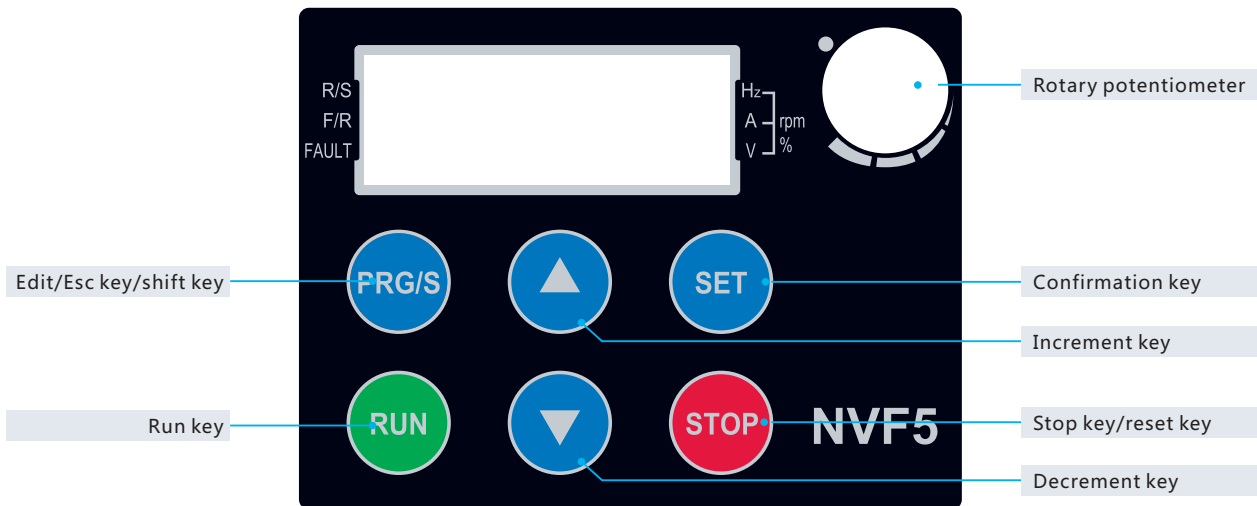


Table 4.1 Functional definition of keys

Key	Functional description
	Press and hold the PRG/S key until the flashing status changes to switch the function. PRG function: Enter or exit a parameter group in parameter configuration state. Shift function: Change the position during menu editing. Cyclic left shift: Change displayed parameter in main screen.
	Run key
	Stop key in normal status and reset key in fault status.
	Increment key (can be used to change group number, index number, and parameter value). After energization of the inverter, ▲ key can be used to directly increase the frequency setting. The frequency change rate while the key is held is dependent on F0.12.
	Decrement key (can be used to change group number, index number, and parameter value). After energization of the inverter, ▼ key can be used to directly change the frequency setting. The frequency change rate while the key is held is dependent on F0.12.

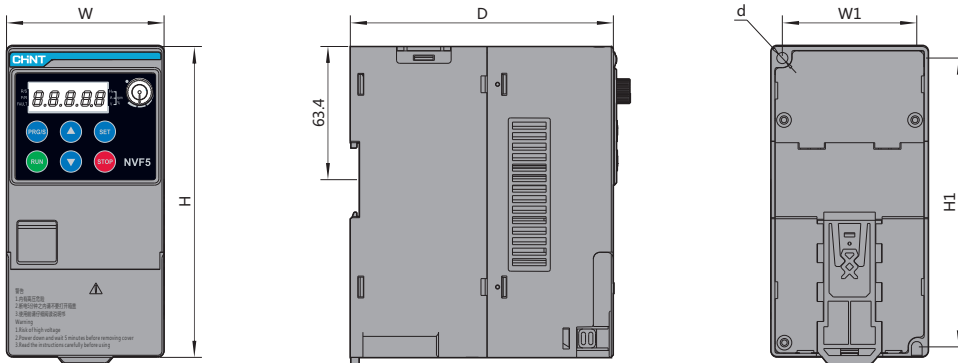
Key	Functional description
	Menu mode selection (F7.11) 1. Simple menu mode (U-1); 2. Custom menu mode (U-2); 3. Engineering menu mode (U-3).
	The system is at main interface Lock key
	In Level 1 menu in custom menu mode Add custom parameters
	The system is at main interface Unlock key
	In Level 1 menu in custom menu mode Delete custom parameters

Product installation size and weight

Product installation size and weight

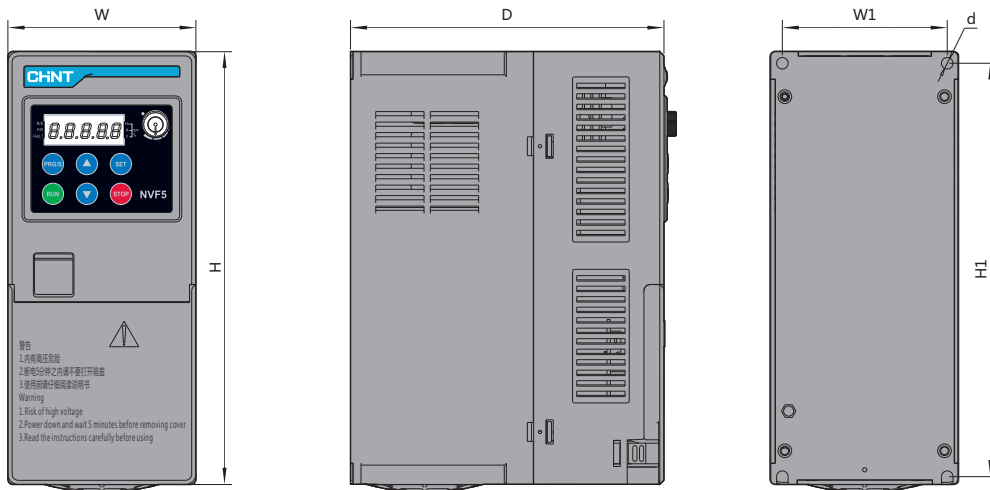
NVF5-0.4/TD2 ~ NVF5-2.2/TD2 and
NVF5-0.4/TS4-B ~ NVF5-2.2/TS4-B

Appearance and installation size drawings



NVF5-3.7/TS4-B ~ NVF5-7.5/TS4-B

Appearance and installation size drawings

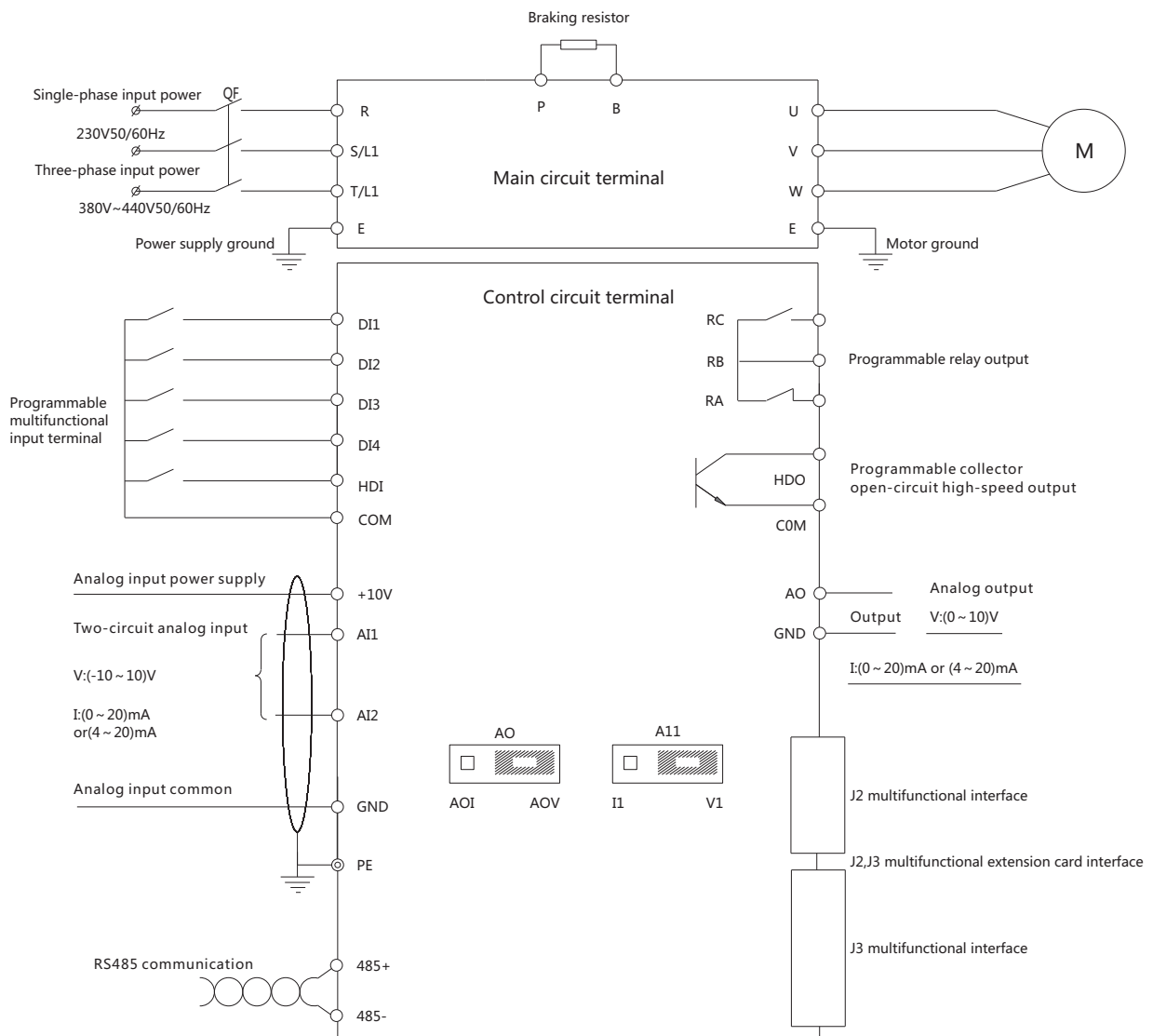


Installation size and product weight (unit: mm)

Product specification	W	H	D	W1	H1	Installation hole d	Weight kg							
NVF5-0.4/TD2	75	148	125.2	64	137.5	Φ5.3	1.2							
NVF5-0.4/TD2-B														
NVF5-0.75/TD2														
NVF5-0.75/TD2-B														
NVF5-1.5/TD2														
NVF5-1.5/TD2-B	75	148	146.7	64	137.5	Φ5.3	1.25							
NVF5-2.2/TD2														
NVF5-2.2/TD2-B														
NVF5-0.4/TS4-B														
NVF5-0.75/TS4-B														
NVF5-1.5/TS4-B	75	148	125.2	64	137.5	Φ5.3	1.03							
NVF5-2.2/TS4-B														
NVF5-3.7/TS4-B								89.5	206	149.2	78.5	196.8	Φ5.5	1.79
NVF5-5.5/TS4-B														
NVF5-7.5/TS4-B														

Standard Product Wiring Diagram

Standard Product Wiring Diagram



AO dip switch: Left position: (0~20) mA or (4~20) mA analog current output; Right position: (0~10) V analog voltage output.
 A11 dip switch: Left position: (0~20) mA or (4~20) mA analog current input; Right position: (0~10) V analog voltage input.
 A12: The current output needs to be customized.

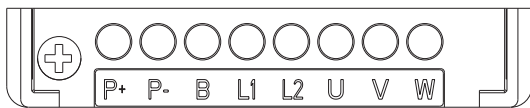
Terminal Function Description

Control circuit terminal description

Type	Terminal imprint	Name	Terminal function description	Specification
Power supply	+10V	+10V power supply	Drive supplied +10V power supply	Maximum output current is 5mA
	GND	+10V power ground	Analog signals and +10V power reference ground	Electrically isolated from COM、CME
Analog input	AI1	Analog single-end input Ai1	Receive single-end input of analog voltage or current. The voltage/current input is selected with the dip switch on the control panel (reference ground: GND)	Input voltage range: (-10~+10) V (Input resistance: 45kΩ) Resolution: 1/4000 Input current range: (0~20) mA or (4~20) mA Resolution: 1/2000
	AI2	Analog single-end input Ai2	Receive single-end input of analog voltage or current. Voltage input as default, can be customized depending on customer needs (reference ground: GND)	
Analog output	AO	Analog output	Provide analog voltage/current output. The output voltage and current are selected with the dip switch on the control panel. The factory default setting is voltage output. See description about functional code F6.11 (reference ground: GND)	Voltage output range: (0~10) V Current output range: (0~20) mA or (4~20) mA
Communication	485+	RS485 communication interface	Positive end of 485 differential signal	Positive end of 485 differential signal Standard RS485 communication interface Please use twisted pair cables or shielded cables
	485-		Negative end of 485 differential signal	
Multifunctional input terminal	DI1	Multifunctional input terminal 1	Can be programmed as switch input terminals with multiple functions. The switch input terminals (F5 group) provide functional description about F5.01~F5.07 input terminals.	Optical coupling isolated input impedance: R = 3.3kΩ; X1~X6 highest input frequency: 200Hz; The highest input frequency is 100kHz when HDI is used as the high-speed impulse input; The input voltage is (+20~+24)V if external power is used (common end: COM)
	DI2	Multifunctional input terminal 2		
	DI3	Multifunctional input terminal 3		
	DI4	Multifunctional input terminal 4		
	HDI	Multifunctional input terminal HDI (pulse input)		
Multifunctional	HDO	Open-circuit collector pulse	Can be programmed as switch output terminals with multiple functions. The switch output terminals (F6 group) provide functional description about F6.02 output terminals (common end: COM)	Output frequency range: depending on F6.18, 100kHz at most
Power supply	+24V	+24V power supply	External +24V power supply	Maximum output current: 100 mA
	COM	+24V power common end	Reference ground of +24V power supply	COM and GND internal isolation
Relay output terminal	RA	Relay output	Can be programmed as relay output terminals with multiple functions. The switch output terminals (F6 group) provide functional description about F6.03 output terminals.	RA-RB: NC RB-RC: NO Contact capacity: NO 5A /NC 3A 250V(AC) See F6 for use method. The over-voltage level of input voltage at the relay output terminal is II.
	RB			
	RC			

Main circuit terminal wiring description

Single-phase 230V series
(NVF5-0.4/TD2~2.2/TD2)



Three-phase 380V series
(NVF5-0.4/TS4-B~7.5/TS4-B)



Main circuit terminal functional description

Terminal symbol	Terminal name and description
R, S, T	AC power supply input terminal, connected to three-phase power frequency supply 380V~440V
L1, L2	AC power supply input terminal, connected to single-phase power frequency supply 230V
P, B	Connected to braking resistor terminal (three-phase power frequency supply 380V~440V)
P+, B	Connected to braking resistor terminal (single-phase power frequency supply 230V)
P-	Single-phase 230V series model DC bus negative voltage reference terminal
U, V, W	AC output terminal, connected to motor
⊥	Ground terminal, for grounding of inverter

Annex 1. Peripherals

