



## NVF300M Series Inverter

### 1. General

NVF300M Series Mini inverter is a kind of high-performance vector control inverter, which is independently developed by our company. It adopts advanced control strategy to achieve a high-precision magnetic flux vector torque control, and it is characterized by high control precision, wide speed range, large starting torque, high reliability, strong overload capacity and flexible and convenient operation. Rich and practical speed control, torque control, process close loop control, simple PLC, swing frequency control, multi-section speed control and other functions can meet the needs of a variety of complex high precision drive.

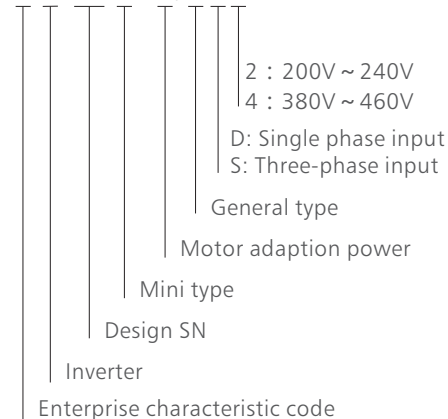
NVF300M Series Mini inverter is divided into single-phase and three-phase general inverters, which has strong load adaptability, stable and reliable operation, automatic energy-saving operation and other functions. It can be widely applied in medical care, food, water treatment, papermaking, textile, machine tool, conveyor belt, carpentry, traffic and transportation, communication, machinery and equipment and other electric drive and automation control fields.

Products are designed and tested in accordance with the international standard; user environment test is strictly simulated.

Accordant standards: GB/T 12668.2-2002, IEC 61800-2.

### 2. Type designation

N VF 300 M - □ / T □ □



### 3. Operating conditions

#### 3.1 Temperature

Operating ambient temperature ranges from -10℃ to 40℃ .  
When the temperature is above 40℃ , the inverter will be used through derating at 1% of the rated power for every increase of 1℃ .

#### 3.2 Humidity

5%~95%RH, without condensed water.

#### 3.3 Altitude

Inverter which is installed below the altitude of 1000 meters can output the rated power. When the altitude exceeds 1000 meters, the inverter needs to be used through derating and is used through derating at 10% of the rated power for every increase of 1000 meters.

#### 3.4 Shock and vibration

Do not allow the inverter to fall to the ground or suffer from sudden impact. Do not install the inverter in places where there may be often vibration.

#### 3.5 Electromagnetic radiation

Install the inverter in places far away from the source of electromagnetic radiation.

#### 3.6 Water and moisture protection

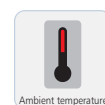
Do not install the inverter in places where there may be water spray or dew.

#### 3.7 Air pollution

Do not install the inverter in an air polluted place, such as dust, corrosive gas and other environment etc.

#### 3.8 Storage environment

Do not install the inverter in environment with direct sunlight, oil, steam and vibration.



## 4. Technical data

### 4.1 Inverter specifications

Input voltage level	Single phase 200V ~ 240V		
Inverter power (kW)	0.4/TD2	0.75/TD2	1.5/TD2
Applicable motor power (kW)	0.4	0.75	1.5
Rated output current (A)	2.5	4.0	7.5

Input voltage level	Three-phase 200V ~ 240V		
Inverter power (kW)	0.4/TS2	0.75/TS2	1.5/TS2
Applicable motor power (kW)	0.4	0.75	1.5
Rated output current (A)	2.5	4.0	7.5

Input voltage level	Three-phase 200V ~ 240V		
Inverter power (kW)	0.4/TS4	0.75/TS4	1.5/TS4
Applicable motor power (kW)	0.4	0.75	1.5
Rated output current (A)	1.2	2.1	3.8

### 4.2. Standard technical features

Input and output characteristics	Input voltage range: 200V~240V(-15%~+10%)/380V~460V(-15%~+10%)
	Input frequency range:(47~63)Hz
	Output voltage range:0~Input voltage
	Output frequency range:(0~300)Hz

Peripheral interface	Programmable digital input: 5-way input (including 1-way high-speed pulse input)
	Programmable analog input: AI1:(0~10)V or (0/4~20)mA input; AI2:(0~10)V or (0/4~20)mA input;
	High speed pulse output: 1-way output
	Relay output: 1-way output
	Analog output: 1-way output, optional (0~10)V or (0/4~20)mA

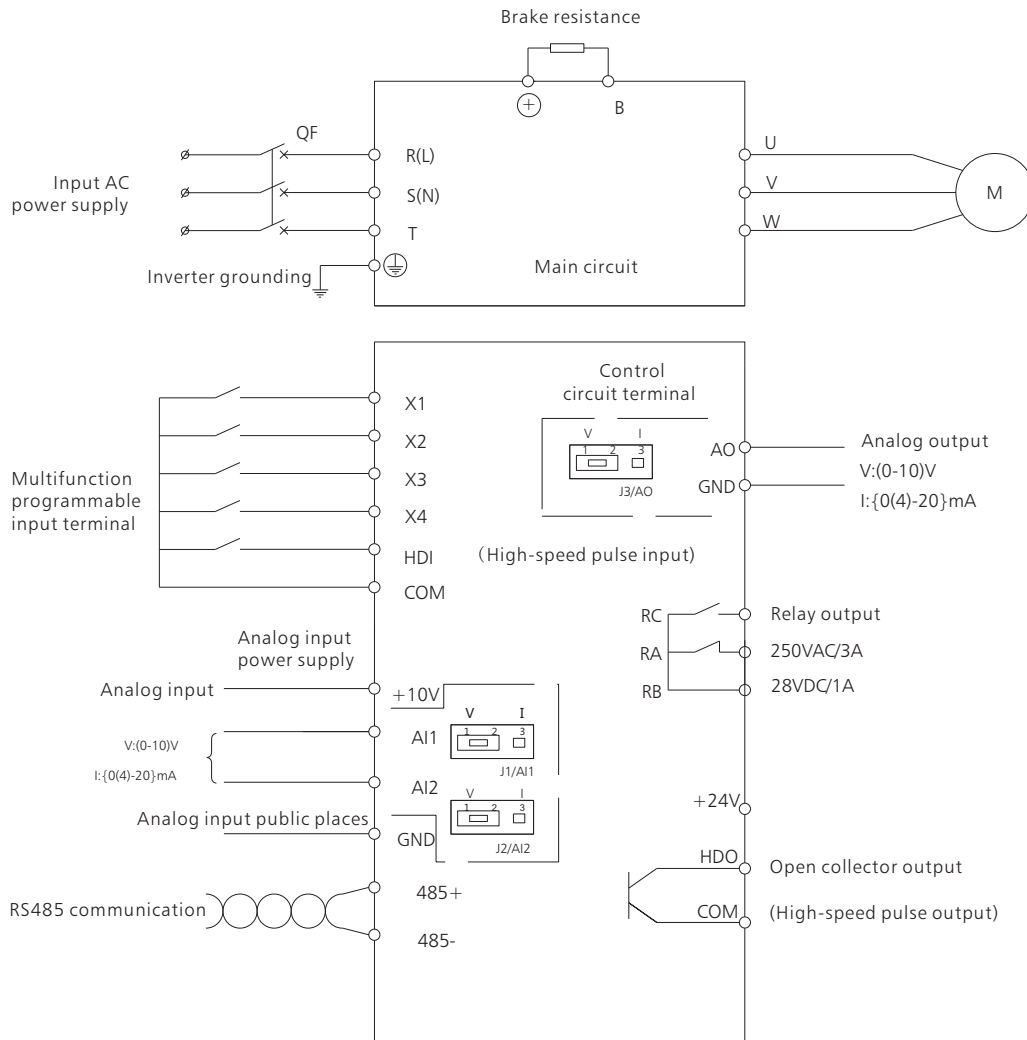
Operation function features	Torque boost: Automatic torque boost; manual torque boost 0.1%~30.0%
	Dynamic braking: Built-in brake unit, external braking resistance
	DC braking: optional start and stop; operating frequency: (0~60)Hz; brake current: (0~100)% rated current; action time (0.0~30.0)s
	Jog control: Jog frequency range:(0~50.0)Hz; jog acceleration and deceleration time (0.1~6000.0)s
	Multi-speed operation: To achieve multi-speed operation through installing the simple PLC internally or controlling the multi-function terminal control
	Automatic voltage regulation (AVR): Can automatically keep the output voltage constant when the grid voltage changes
	Automatic current limiting: Automatically limit the current during operation to prevent frequent over-current fault tripping
	Built-in PID controller: Can easily constitute a close-loop control system
	Protection function: Provide as many as 20 kinds of fault protection functions: overcurrent, overvoltage, undervoltage, overheating, open phase, overload, PID disconnection and other protection functions.

Technical characteristics	Control mode: Without PG vector control, V/F control
	Overload capacity: 150% of rated current 60s
	Starting torque: Without PG vector control, 0.5Hz/150%( rated torque)
	Speed ratio: 1:100(without PG control); 1:50 (V/F control)
	Speed control precision: $\pm 0.5\%$ of maximum speed
	Carrier frequency:(0.5~15)kHz

Structure	Protection grade: IP20
	Brake unit: Three-phase general inverter comes standard with the built-in brake unit, and the single phase general inverter is equipped with the optional brake unit.
	Cooling mode: Cooling by high-speed DC fans

### 5. Wiring diagram

#### 5.1 Standard wiring diagram



Correspond to control terminals arrangement

RA	RB	HDI	X1	X2	X3	X4	AI1	AI2
RC	HDO	+24V	COM	485+	485-	GND	+10V	AO

J1 J2 J3 jumper selection:

J1 and J2 positions (AI1 and AI2 analog input interfaces):

When 1 is connected to 2: 0V~10V analog voltage input; when 2 is connected to 3, 0/4mA~20mA analog current input

J3 position(AO analog output interface):

When 1 is connected to 2: 0V~10V analog voltage output; when 2 is connected to 3, 0/4mA~20mA analog current output

## 5.2 Notes to main circuit terminal

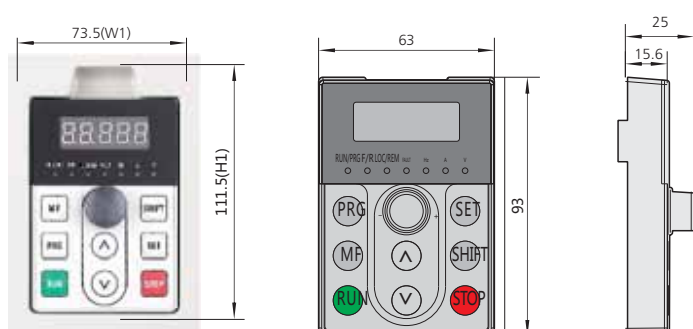
Terminal mark	Terminal name and description
R, S, T	AC power input terminal, connecting the three-phase fundamental frequency power supply (200V~240V)/(380V~460V)
L, N	AC power input terminal, connecting the single-phase fundamental frequency power supply (200V~240V)
⊕, B	Connecting the brake resistor terminal
U, V, W	AC output terminal, connecting the motor
⊖	Ground terminal, for inverter grounding

## 5.3. Control circuit terminal description

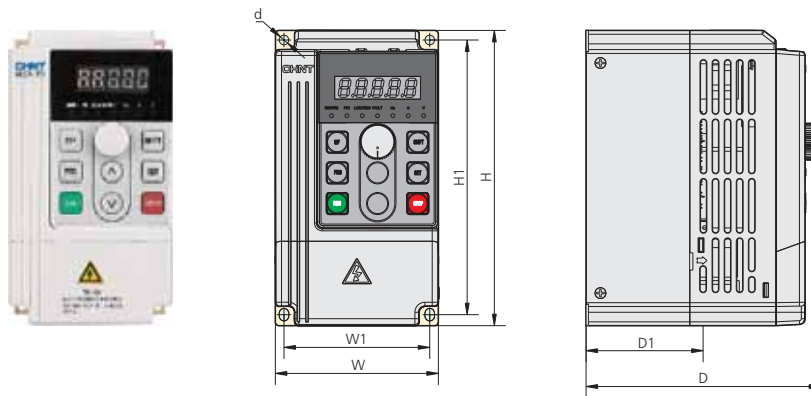
Category	Terminal screen	Name	Terminal function description	Specifications
Power supply	+10V	+10V Power supply	Provide +10V reference power supply externally	Maximum allowable output current 5mA
	GND	+10V Power ground	Analog signal and +10V power supply reference ground	Internal isolation of GND and COM
Analog input	AI1	Analog single end input AI1	Accepting analog voltage or current single end input; voltage / current input are selected by the control board jumper J1 (reference ground: GND)	Input voltage range: -10V~10V (input impedance: 45 k Ω); resolution: 1/4000
	AI2	Analog single end input AI2	Accepting analog voltage or current single end input; voltage / current input are selected by the control board jumper J2 (reference ground: GND)	Input current range: 0mA~20 mA; resolution: 1/2000 (jumper is needed)
Analog output	A0	Analog output 1	Providing analog voltage / current output; the output voltage and current are selected by the control board jumper J3; see Function code F6.11 description for the factory default output voltage (reference ground: GND)	Output voltage range:(0~10)V Current output range:(0/4~20)mA
Communication	458+	RS485 communication interface	Positive terminal of 485 differential signal	Standard RS485 communication interface
	485-		Negative terminal of 485 differential signal	Please use the twisted pair or shielded wire
Multi-function input terminal	X1	Multi-function input terminal 1	Programmable is defined as a multi-function switch input terminal; introduction to functions of F5.00~F5.04 and F5.07 input terminals in switch input terminals (group F5)	Photoelectric coupling isolation input impedance: R=3.3 k Ω; X1~X4 maximum input frequency: 200Hz; X7 maximum input frequency: 100kHz Input voltage range: 20~30V
	X2	Multi-function input terminal 2		
	X3	Multi-function input terminal 3		
	X4	Multi-function input terminal 4		
	HDI	Multi-function or pulse input terminal HDI		
Multi-function output terminal	HDO	Open collector pulse output terminal	Programmable is defined as a multi-function pulse signal output terminal; introduction to functions of F6.00 and F6.02 output terminals in switch input terminals (group F6) (Public terminal: COM)	Output frequency range: Determined by F6.18, maximum 100kHz
Power supply	+24V	+24V Power supply	Providing +24V power supply externally to use with X1-X4, HDI, HDO and other terminals	Maximum output current: 200mA
	COM	+24V Public power end		Internal isolation of COM and GND
Relay output terminal 1	RA	Relay output	Programmable is defined as a multi-function relay output terminal; introduction to functions of F6.03 output terminal in switch output terminals (group F6)	RA-RB: Normally closed, RB-RC: Normally open Contact capacity: NO/NC: 5A/3A 250V~ See F6 for Methods of use. Overvoltage level of the input voltage of the relay output terminal is overvoltage level II.
	RB			
	RC			

## 6. Overall and mounting dimensions (mm)

Outside drawing for display box



NVF300M-0.4/TD2~1.5/TD2, 0.4/TS2 ~ 1.5/TS2, 0.4/TS4 ~ 1.5/TS4



Model	Installation size							Weight kg
	W	H	D	W1	H1	D1	d	
Display box				73.5	111.5			
NVF300M-0.4/TD2								
NVF300M-0.75/TD2								
NVF300M-1.5/TD2								
NVF300M-0.4/TS2								
NVF300M-0.75/TS2	85	154	123	76	143	61	5	0.9
NVF300M-1.5/TS2								
NVF300M-0.4/TS4								
NVF300M-0.75/TS4								
NVF300M-1.5/TS4								

## 7. Ordering information

7.1 Select the model and specifications desired in accordance with the description of model and meaning when ordering:

For example:

Single phase 200V~240V series: NVF300M-0.75/TD2

Three-phase 200V~240V series: NVF300M-0.75/TS2

Three-phase 380V~460V series: NVF300M-0.75/TS4

7.2. Selection guide

7.2.1 To ensure the reliable operation of inverter, its power must be equal to or greater than the motor power.

7.2.2 General inverter is suitable for fan, water pump, rolling mill, mixer, ball mill, centrifuge and other loads.

## 8. Peripheral equipment options

Inverter NVF300M-□□□□	Brake attachment options			AC input reactor			AC output reactor		
	Configuration of brake unit (10% of the braking ratio)	Resistance (Ω)	Power (W)	Config- uration	Rated current(A)	Inductance (mH)	Config- uration	Rated current (A)	Inductance (mH)
0.4/TD2	Brake unit built-in selection	220	80	External selection	2.4	4.6	External selection	2.4	4.5
0.75/TD2		220	80		4.5	2.4		4.5	2.3
1.5/TD2		100	260		7	1.6		7	1.5
0.4/TS2		220	80		2.4	4.6		2.4	4.5
0.75/TS2		220	80		4.5	2.4		4.5	2.3
1.5/TS2		100	260		7	1.6		7	1.5
0.4/TS4	Brake unit built-in selection	750	80	External selection	2.5	2.83	External selection	3	2.1
0.75/TS4		750	80		3.7	2.239		3	2.1
1.5/TS4		400	260		3.7	2.239		6.3	1.5

Display extension  
line and display box  
pallet physical map

Display  
extension  
line



Display  
box pallet



Note: if it is necessary to pull the inverter panel for control, it shall be specially noted when ordering and length of the display extension line indicated.