



Your expert  
of motor control



## AC Drives Variable Frequency Drives

**NIETZ**

Nietz Electric Co.,Ltd

Tel: +86 21 33634649

Skype: aliaosa5

E-mail: info@nietz.cn

<http://www.nietz.cn>

WhatsApp: +86 13764513349

QQ: 744758892

Add: No.988, Fulian Rd., minhang Industry, Shanghai, China

Sales & Service address



**NIETZ**

# CONTENTS

NL1000 Series - Mini simple & low cost inverter	02
NZ2000 Series - Compact Vector Control Inverter	03
NZV Series - High Performance Vector Control Inverter	05
NZ8000 Series - Closed Loop Vector Control Inverter	06
NZ3000 Series - Special inverter for air compressor	08
NZS Series - IP65 inverter, mounted directly on the motor or on the wall	10
AMD Series - Spindel Servo Drives	12
NY Series - Spindel Servo Motors	13
NZC Series - Special inverter for multi-pump water supply	14
NZD Series - Special inverter for Hoist and crane	15
NFD Series - Inverter for solar (PV) pump	16
SSA Series - Soft starter	17



NIETZ ELECTRIC CO.,LTD. is a High-tech manufacturer and supplier of industrial automation products, established in 2005. The environment of opening-up market has enabled NIETZ to grow step by step. NIETZ Automation focuses on technological research, production and sales of high-end intelligent equipment and its core components.

Currently core products of NIETZ are variable frequency inverter, AC servo system, motion control system and complete equipment. The products of NIETZ are technological advanced and it has quite wide product range and has been used widely in various applications such as textile machine, air compressor, hoist, packing machine, printing machine, electronic machine and other industries.

NIETZ is a leader in the industry which has gained good reputation and deep influence. As an extension of VFD, AC servo systems and control solutions, the products have been exported to over 20 countries and regions such as Europe, South America, Southeast Asia, Middle East and so on.

NIETZ always aims to be the professional drive solution provider and your mutual-benefit partner.



## NL1000 series AC VFD



### NL1000 series Micro & Economic

- Micro size, low cost
- Terminals uncovered, easy for wiring
- DIN-rail mounting and wall mounting for installation
- Supports MODBUS via RS485
- Maintenance-free
- V/F control; Built-in PID control, frequency range 0.1~400 Hz

#### Power range

220V / 0.4 ~ 2.2 kW  
380V / 0.75 ~ 160kW

### Technical specification

	Item	specification
Control Specifications	Output Frequency Range /Accuracy	0.10Hz~400.00Hz /0.1Hz
	Frequency Setting Resolution	Digital input: 0.1Hz, analog input: 0.1% of max. output frequency
	V/F Control	Setting V/F curve to satisfy various load requirements.
	Torque Control	Auto increase: auto raise torque by loading condition; Manual increase; enable to set 0.0~20.0% of raising torque.
	Multifunctional Input Terminal	Four multi-function input terminals, realizing functions including fifteen section speed control, program running, four-section acceleration/deceleration speed switch, UP/DOWN function and emergency stop and other functions.
	Multifunctional Output Terminal	1 multi-function output terminals for displaying of running, zerospeed, counter, external abnormality, program operation and other information and warnings.
	Acceleration/ deceleration Time Setting	0~999.9s acceleration/deceleration time can be set individually.
Other functions	PID Control	Built-in PID control
	RS485	Standard RS485 communication function (MODBUS)
	Frequency Setting	Analog input: 0 to 10V, 4 to 20mA can be selected; Digital input: Input using the setting dial of the operation panel or RS485 or UP/DOWN. Note: AVI terminals can be used to select an analog voltage input (0-10V) and an analog current input (4-20mA) through the switch J2.
	Multi-speed	Four multifunction input terminals, 15 section speed can be set.
	Automatic voltage regulation	Automatic voltage regulation function can be selected.
	Counter	Built-in 2 group of counters
	Overload	150%, 60 S (Constant torque)
Warning/Protection/Function	Over Voltage / Under Voltage	Over Voltage Protection can be set. /Under Voltage protection can be set.
	Other Protections	Output shortcircuit, over current, an parameter lock and so on.

## NZ2000 series AC VFD

### NZ2000 series Compact Vector Control

- Senseless flux vector control (VC), V/F (Voltage/Frequency) control
- Overload capacity is 150% (100%) of the rated current, 3s for 180% of the rated current
- There are ten auxiliary frequency sources.It can implement fine tuning of auxiliary frequency and frequency synthesis
- Support PM motor (NZ2000 T series)

#### Power range

220V / 0.25 ~ 5.5 kW  
380V / 0.75 ~ 250 kW



### Technical specification

	Item	specification
Standard functions	Control mode	V/F(Voltage/Frequency) control Senseless flux vector control (VC)
	Maximum frequency	Vector control: 0-300 Hz; V/F control: 0-3200Hz
	Carrier frequency	1.0-16.0 kHz; The carrier frequency is automatically adjusted based on the load features.
	Input frequency resolution	Digital setting: 0.01 Hz Analog setting: 0.025% of maximum frequency
	Startup torque	G type: 0.5 Hz/150% (VC) P type: 0.5 Hz/100% (VC)
	Speed range / stability accuracy	1:100 (VC) / ± 0.2% (VC)
	Torque control accuracy	± 20%
	Overload capacity	G type: 60s for 150% of the rated current, 3s for 180% of the rated current.
	Torque boost	Auto boost Customized boost 0.1%-30.0%
	V/F curve	Line V/F curve Multi-point V/F curve N-power V/F curve (1.2-power, 1.4-power, 1.6-power, 1.8-power, square)

## NZ2000 series AC VFD

Standard functions	V/F separation	Two types: complete separation; half separation
	Ramp mode	Straight-line ramp; S-curve ramp Four groups of acceleration/deceleration time with the range of 0.0–6500.0s
	DC braking	DC braking frequency: 0.00 Hz to maximum frequency Braking time: 0.0–100.0s; Braking action current value: 0.0%–100.0%
	JOG control	JOG frequency range: 0.00–50.00 Hz JOG acceleration/deceleration time: 0.0–6500.0s
	Onboard multiple preset speeds	It implements up to 16 speeds via the simple PLC function or combination of terminal states
	Onboard PID	It realizes process-controlled closed loop control system easily.
	Auto voltage regulation (AVR)	It can keep constant output voltage automatically when the mains voltage changes.
	Overvoltage/Overcurrent stall control	The current and voltage are limited automatically during the running process so as to avoid frequent tripping due to overvoltage/over current.
	Torque limit and control	It can limit the torque automatically and prevent frequent over current tripping during the running process.
	Power dip ride through	The load feedback energy compensates the voltage reduction so that the AC drive can continue to run for a short time.
	Rapid current limit	It helps to avoid frequent over current faults of the AC drive.
	High performance	Control of asynchronous motor is implemented through the high-performance current vector control technology.
	Timing control	Time range: 0.0–6500.0 minutes
	Communication methods	RS485 (MODBUS-RTU)
Input and output	Protection mode	Motor short-circuit detection at power-on, input/output phase loss protection, over current protection, overvoltage protection, under voltage protection, overheat protection and overload protection.
	Input terminal	6 digital input terminals, one of which supports up to 100 kHz high-speed pulse input. 2 analog input terminals, one of which only supports 0–10 V voltage input and the other supports 0–10 V voltage input or 4–20 mA current input.
	Frequency source	Digital setting, analog voltage setting, analog current setting, pulse setting and serial communication port setting.
	Auxiliary frequency source	There are ten auxiliary frequency sources. It can implement fine tuning of auxiliary frequency and frequency synthesis.
	Running command source	Operation panel/Control terminals/Serial communication port. You can perform switchover between these sources in various ways.
Keyboard	Output terminal	1 digital output terminal; 1 relay output terminal 1 analog output terminal :that supports 0–20 mA current output or 0–10 V voltage output
	LED display	It displays the parameters.
	Key locking and function selection	It can lock the keys partially or completely and define the function range of some keys so as to prevent mis-function.

## NZV series AC VFD

### NZV series High Performance Vector Control

- Control Method: V/F control; space vector control (SVC)
- Frequency setting mode: Digital set; Analog Set; Pulse frequency setting; Serial communication settings;
- Multi-speed and simple PLC setting; PID setting etc., can achieve the set combinations and mode switching
- Multi-speed and simple PLC setting; PID setting etc., can achieve the set combinations and mode switching

#### Power range

380V / 0.75 ~ 1000 kW



### Technical specification

Item		specification
Input	Rated voltage, Frequency	1/3 AC 220V 47-63 Hz.; 3 AC 380V; 47-63Hz;
	Voltage Range	380V ±15%; 220V ±15%
Output	Output Voltage Range	1~rated input voltage
	Output Frequency Range	0~600.0 Hz
Control method		V/F control, Senseless Vector control
Technic al data	Overload Capacity	150% rated current in 60 s.; 180% rated current in 10 s
	Start Torque	0.5 Hz/150% with vector senseless control
	Aljustment Ratio	1:100 with vector senerless control
	Speed Control Accuracy	0.5~15 KHz
Termianl	Programmable Digital input	4 terminals
	Programmable Analog input	FIV:0~10V, FIC:0~10V or 0~20mA
	Coupling Output	1 Set
	Relay Output	1 Set, 2-nd relay output is optional
	Analog Output	1 Set-option of 4~20mA/0~10V
Function	Frequency Setting	Digital, Analog, Series communication, Multi-speed, PID, etc.
	PID Function	Built in
	Multi-speed Function	8 speeds
	Adjustable Frequency	Stable frequency
	Off Power	Keep running in power off instantly
	Jog Key Function	Multi-function setting by Users
	Voltage Adjustment	Auto maintain output voltage stable in changing of power
Failure Protection	25 types of failure protection:over current, over voltage,low voltage, over heat, short phase, over load, so on.	

## NZ8000 series AC VFD



### NZ8000 Series - Close Loop Vector Control

- Control Method: V/F control; space vector control (SVC), closed loop vector control
- Modbus; Profibus; Can; Wifi / GRRS; Tension control
- Multi-speed and simple PLC setting; PID setting etc, can achieve the set combinations and mode switching

#### Power range

220V: 0.75 ~ 3.7 kW  
380V: 0.75 ~ 630 kW

### Technical specification

Item	specification	
Based functions	Control mode	V/F control; Senseless flux vector control (SFVC); Closed-loop vector control (CLVC)
	Maximum frequency	Vector control: 0–320 Hz; V/F control: 0–3200Hz
	Carrier frequency	1.0–16.0 kHz; The carrier frequency is automatically adjusted based on the load features.
	Input frequency resolution	Digital setting: 0.01 Hz / Analog setting: 0.025% of maximum frequency
	Startup torque	G type: 0.5 Hz/150% (SFVC); 0 Hz/180% (CLVC); P type: 0.5 Hz/100%
	Speed range	1:100 (SFVC) / 1:1000 (CLVC)
	Speed stability accuracy	± 0.5% (SFVC) / ± 0.02% (CLVC)
	Torque control accuracy	± 5% (CLVC)
	Overload capacity	G type: 60s for 150% of the rated current, 3s for 180% of the rated current. P type: 60s for 120% of the rated current, 3s for 150% of the rated current.
	Torque boost	Auto boost / Customized boost 0.1%–30.0%
	V/F curve	Straight - line V/F curve; Multi-point V/F curve N-power V/F curve (1.2-power, 1.4-power, 1.6-power, 1.8-power, square)
	V/F separation	two types: complete separation; half separation
	Ramp mode	Straight-line ramp; S-curve ramp; Four groups of acceleration/deceleration time with the range of 0.0–6500.0s
	DC braking	DC braking frequency: 0.00 Hz to maximum frequency Braking time: 0.0–100.0s; Braking action current value: 0.0%–100.0%

## NZ8000 series AC VFD

	JOG control	JOG frequency range: 0.00–50.00 Hz; JOG acceleration/deceleration time: 0.0–6500.0s
	Onboard multiple preset speeds	It implements up to 16 speeds via the simple PLC function or combination of X terminal states
	Onboard PID	It realizes process-controlled closed loop control system easily.
	Auto voltage regulation (AVR)	It can keep constant output voltage automatically when the mains voltage changes.
	Overvoltage/ Overcurrent stall control	The current and voltage are limited automatically during the running process so as to avoid frequent tripping due to overvoltage/over current.
	Torque limit and control	It can limit the torque automatically and prevent frequent over current tripping during the running process. Torque control can be implemented in the CLVC mode.
	Individualized functions	Support for multiple PG card
Power dip ride through		The load feedback energy compensates the voltage reduction so that the AC drive can continue to run for a short time.
Rapid current limit		It helps to avoid frequent over current faults of the AC drive.
High performance		Control of asynchronous motor and synchronous motor are implemented through the high-performance current vector control technology.
Timing control		Time range: 0.0–6500.0 minutes
Communication methods		MODBUS-RTU, PROFIBUS-DP( optional) , CANlink( optional, CAN ( optional)
Protection mode		Motor short-circuit detection at power-on, input/output phase loss protection, over current protection, overvoltage protection, under voltage protection, overheat protection and overload protection.
Input and output	Input terminal	8 digital input terminals, one of which supports up to 100 kHz high-speed pulse input. 2 analog input terminals, one of which only supports 0–10 V voltage input and the other supports 0–10 V voltage input or 4–20 mA current input.
	Frequency source	Digital setting, analog voltage setting, analog current setting, pulse setting and serial communication port setting.
	Auxiliary frequency source	There are ten auxiliary frequency sources. It can implement fine tuning of auxiliary frequency and frequency synthesis.
	Running command source	Operation panel / Control terminals/Serial communication port. You can perform switchover between these sources in various ways.
	Output terminal	1 high-speed pulse output terminal (open-collector) that supports 0–100 kHz square wave signal output. 1 digital output terminal; 2 relay output terminal ;that supports 0–20 mA current output or 0–10 V voltage output
operation on the panel	LED display	It displays the parameters.
	Key locking and function selection	It can lock the keys partially or completely and define the function range of some keys so as to prevent mis-function.
	Optional parts	Rotating transformer PG card, differential input PG card, UVW differential input PG card, resolver PG card and OC input PG card

## NZ3000 series AC VFD

### NZ3000 Series – Special for air compressor



- The inverter uses metal structure, support both floor & wall mounting
- It can embed the appliance of air compressor directly and do not need the electric control cabinet
- Intergrated the inverter, HMI, compressor controller, PTC/PT100 input, phase detector, fan control, fuse and transformer
- The integrative NZ3000 inverter can supports both synchronous and asynchronous motor



### Features and advantage

- Small size, ease of installation
- Stable operation, decreasing the times of repair
- Avoiding the loss on unnecessary power
- Controlling system of colorful touching screen
- A wider range of working frequency and low noise
- Control of the high-efficient permanent-magnet motor, save the energy



▲ NZ3000 series 22kw application in China

## NZ3000 series AC VFD

### Technical specification

	Item	specification
Basic control functions	Control mode	Open loop and vector control V / F control
	Maximum frequency	Open loop and vector control:0~500Hz V / F control: 0~3200Hz
	Carrier frequency	0.5kHz~16kHz, the carrier frequency is automatically adjusted based on the load features
	Input frequency resolution	Digital setting: 0.01Hz Analog setting: maximum frequency is x 0.025%
	Start-up torque	0.5 Hz/150%
	Speed range	1:100
	Speed stability accuracy	± 0.2% (SFVC)
	Torque control accuracy	±10%
	Overload capacity	60s for 150% of the rated current, 3s for 180% of the rated current.
	Torque boost	Fixed boost; Customized boost 0.1%~30.0%
	V/F curve	Straight-line V/F curve Multi-point V/F curve N-power V/F curve (1.2-power, 1.4-power, 1.6-power, 1.8-power, square)
	V/F separation	Two types: complete separation, half separation
	Ramp mode	Straight-line ramp; S-curve ramp Four groups of acceleration/deceleration time with the range of 0.0~6500.0s
	Communication methods	RS485
	JOG control	JOG frequency range: 0.00~50.00 Hz JOG acceleration/deceleration time: 0.0~6500.0s
	Built-in PID	It realizes process-controlled closed loop control system easily.
	Auto voltage regulation (AVR)	It can keep constant output voltage automatically when the main voltage changes.
Frequency source	Digital setting	
Input and output interfaces	Analog Input	2 pressure sensor: 4 ~ 20mA input; 2 temperature sensor: PT100
	Digital input	5 digital input; 1 PTC circuit protection (compatible with normal digital inputs)
	Digital Output	2 normally open relay output (built 220VAC voltage)
	LED diode display	Standard 3 LED display
Protection	Motor overheating protection (PTC), the power-to-ground short-circuit protection, inverter's protection in over-current, overload, over voltage, under voltage, over temperature, output phase, communication fault, fault current detection, EEPROM write failure and so on..	
Fan Drive	15-55kW master drive: 1.5kW 75-160kW master drive: 2.2kW	

## NZS series AC VFD



### NZS Series IP65 inverter

- Mounted directly on the motor or to the wall
- The NZS allows for use in outdoor applications and indoor environments where atmospheric moisture is present or low pressure water jets are used.

#### Power range

220V: 0.75 ~ 2.2 kW  
380V: 0.75 ~ 45 kW

### Technical specification

Item	specification	
Input	Rated voltage, Frequency	3 AC 380V / 220V; 50-60 Hz
	Voltage Range	380V: 330V~440V; 220V: 170-240V
Output	Voltage Range	380 V: 0~380 V; 220V: 0-220V
	Frequency Range	0.10~400.0 Hz
Control method	V/F control, Space vector control	
Indication	Operating status/Alarm definition/interactive guidance; eg, frequency setting, the output frequency / current, DC bus voltage, the temperature and so on.	
Control Specification	Output Frequency range/Accuracy	0.10~400.00 Hz / 0.01 Hz.
	Frequency Setting Resolution	Digital input: 0.01 Hz. Analog input: 0.1% of maximum output frequency
	V/F Control	Setting V/F curve to satisfy various load requirements
	Torque Control	Auto increase:auto rise torque by loading condition; Manual increase:enable to set 0.0~20% of raising torque
	Multifunctional Input Terminal	8 multi-function input terminals, realizing functions including 15section speed control, program running, 4-section acceleration/deceleration speed switch, UP/DOWN function and emergency stop and other functions
	Multifunctional Output Terminal	3 multi-function output terminals for displaying of running, zerospeed, counter, external abnormality, program operation and other information and warnings 8 multifunctiona output terminals, 1 inverter can control 4 circular variable frequency pumps
Acceleration/deceleration Time Setting	0~6000 s acceleration/deceleration time can be set individually	

## NZS series AC VFD

Other functions	PID Control	Built-in PID control
	MODBUS	Standard RS485 communication function
	Frequency Setting	Analog input 0~10V, 0~20mA, can be selected; Digital input: input using the setting dial of the operation panel or RS 485 or UP/DOWN
	Multi-speed	Eight multifunction input terminals, 15 section speed can be set
	Automatic voltage regulation	Automatic voltage regulation function can be selected
	Counter	Built-in 2 group of counters
	Overload	120%, 60second (variable torque)
	Over Voltage	Over voltage protection can be set
	Under Voltage	Under voltage protection can be set
Environment	Other Protections	Overheat, output shortcircuit, over current, and parameter lock and so on.
	Ambient Temperature	-10°C~40°C (non-freezing)
	Ambient Humidity	Max. 95% (non-condensing)
	Altitude	Lower than 1000m.
Structure	Vibration	Max. 0.5 g
	Cooling Mode	Below 3.7 kW no have fan; Above 5.5 kW Forced air cooling
	Protective Structure	IP 65

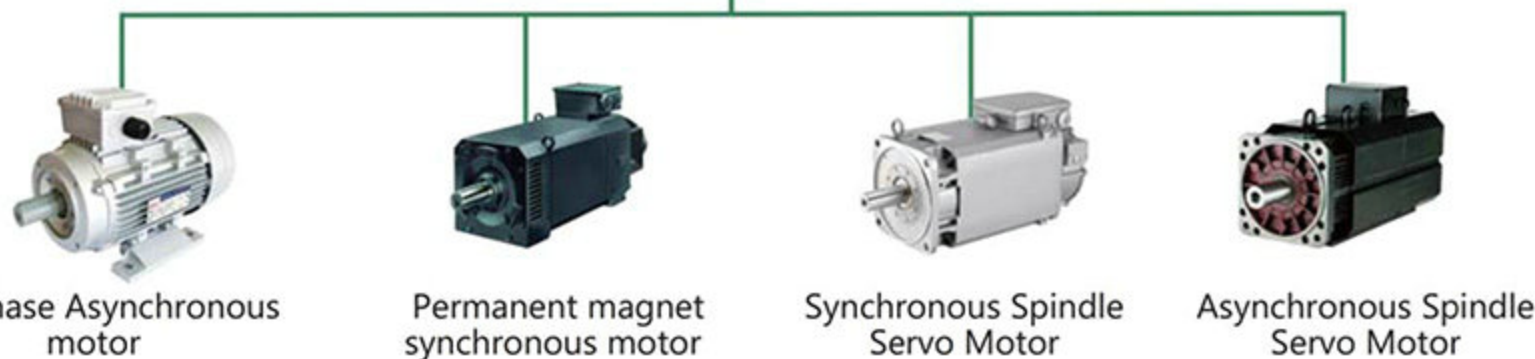
### Applications

The main applications: water pump supply, compressor, fountain, machine tools, powder, ventilating equipment, drives used outdoors, so on.



## AMD Series Spindle Servo Drive

AMD series spindle frequency inverter (VFD) is designed for numerical control machine of new type and high precision and it has new functions like positioning control, pulse synchronous control and so on. It supports Feedback vector control towards the spindle motor with encoder. This drive has high responding ability towards speed as well as smooth speed. It can achieve various functions like warrant stop of spindle; rigid tapping; indexing positioning and so on by cooperating with different numerical control system.



Multi encoder support: it can support differential encoder; ABZ encoder UVW encoder; Resolver and so on.

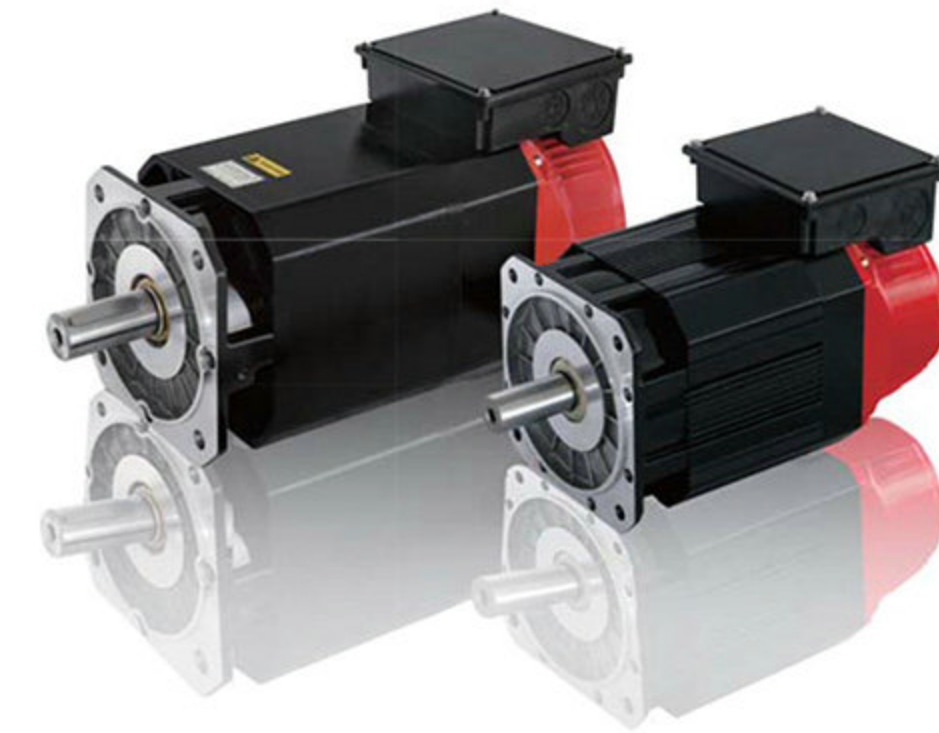
Power dip ride-through, load feedback energy compensates for any voltage reduction, allowing the drive to continue to operate for a short time during power dips.

Overvoltage and overcurrent stall control: the system limits the output current and voltage automatically during operation to prevent frequent or excessive trips.

Torque limit and control: the system limits the torque automatically to prevent frequent overcurrent tripping during operation. Torque control is applied in vector control.

Onboard multiple preset position: the system implements up to 16 position by using simple PLC function or by using digital input signals.

## NY Series Spindle Servo Motor



Asynchronous Spindle servo motors series NY is a new electromagnetic design, specially products for the machine tools industry.

Equipped with high-precision encoders, higher positioning & speed accuracy

New design, the use of closed cooling channel, lower temperature rise

High efficiency, low energy consumption, large power range

Constant power range wider, greater low-speed torque, Max.Speed up to 12000 rpm

Use new manufacturing process of intellectual, more stable performance

### Specification

Range of Power,kW: 2.2 ~ 132

Rated speed, prm: 750~3000

Max. Speed, prm: 4000~1200

Type of Mounting: B3 / B5 / B35

Insulation Class: F

Vibration Class: R

Work Environment, degree: -15 ~ 45

Moisture: Relative humidity below 80%

Protection Class: IP55

Noise: Less 70dB(A)





## AT20 General-Purpose VFD

Simple PLC, multi-speed control, built-in PID, torque control, multi-point V/F curve, inverter not stop work when face instant power failure, etc.

With standard built-in 485 communication interface and various input terminals and various output terminals;  
Above 7.5KW (including) has external keyboard interface to better suit the applications;

### Excellent Control Performance

Below 2.2KW (including) can support either V/F control or vector control;  
Above 3.7KW (including) is vector control and can add PG card when customer tell they need.



### Wide Range of Applications:

Vector control platform products, Powerful and excellent performance, Can be widely used in small and medium power applications, such as food machinery, plastic machinery, ceramic equipment, petroleum machinery, cable equipment, air compressors, CNC, woodworking machinery, textile machinery, printing and packaging equipment, chemical equipment, environmental protection equipment, Conveying equipment, etc.

### Optimized Structural Design:

Size is reduced, saving the installation space for users;  
Below 2.2KW (including) support side-by-side rail mounting.



### Various Installation Methods:

Below 5.5KW (including) support rail mounting and wall mounting;  
7.5KW (including) - 160KW (including) support wall-mounting;  
Above 185KW (including) support floor mounting and wall mounting.

### Easy to Use and Maintain:

The fan can be disassembled and assembled independently for easy maintenance;  
Optional normal LED external keyboard and LCD keyboard (above 7.5KW (including)) to meet different application needs.

## TECHNICAL FEATURES OF AT20 SERIES

Item	AT20	
Basic function	Control Mode	V/F control Sensorless flux vector control (SVC)(Above 3.7K) Close-loop vector control (FVC)(Above 3.7KW)
	Maximum frequency	0~600Hz
	Carrier frequency	0.5kHz~8kHz The carrier frequency is automatically adjusted based on the load features.
	Input frequency resolution	Digital setting:0.01Hz Analog setting: Maximum frequency x 0.025%
	Start torque	G Type:0.5Hz/150%(SVC); P Type:0.5Hz/100%
	Speed range	1:100 (SVC)
	Speed stability accuracy	±0.5% (SVC)
	Overload capacity	G Type:60s for 150% of the rated current,3s for 180% of the rated current. P Type:60s for 120% of the rated current, 3s for 150% of the rated current.
	Torque boost	Auto-boost; Customized boost: 0.1%~30.0%
	V/F Curve	Straight-line V/F curve Multi-point V/F curve N-power V/F curve (1.2-power, 1.4-power, 1.6-power, 1.8-power, square)
	V/F separation	2 types: complete separation; half separation
	Ramp Mode	Straight-line ramp. Four groups of acceleration/deceleration time with the range of 0.00'6500.0s
	DC braking	DC braking frequency:0.00Hz~Maximum frequency Braking time:0.0s~36.0s Braking action current value:0.0%~100.0%
	JOG control	JOG frequency range:0.00Hz~50.00Hz. JOG acceleration/deceleration time: 0.0s~6500.0s.
	Simple PLC、 Multiple preset speeds	It implements up to 16 speeds via the simple PLC function or combination of terminal states
	Onboard PID	It realizes process-controlled closed loop control system easily
	Auto voltage regulation (AVR)	It can keep constant output voltage automatically when the mains voltage changes
	Individualized functions	Overvoltage/overcurrent stall control
Rapid current limit		It helps to avoid frequent over current faults of the AC drive.
Torque limit and control		It can limit the torque automatically and prevent frequent over current tripping during the running process. Torque control can be implemented in the FVC mode.
High performance		Control of asynchronous motor are implemented through the high-performance current vector control technology
Rapid dip ride through		The load feedback energy compensates the voltage reduction so that the AC drive can continue to run for a short time
Running	Rapid current limit	It helps to avoid frequent over current faults of the AC drive.
	Timing control	Timing range: 0.0Min~6500.0Min
	Communication methods	RS485
Command source	Operation panel/Control terminals/Serial communication port	

## Pump Control - series WP9



Description of WP9 series

Main characteristics

### Pump Station Control

The main characteristic of the WP9 multiple pump Frequency Inverter is the control of two or more pumps in parallel using only one frequency inverter. The inverter selects which pumps will operate in order to keep/control the process value of the pumping system. An alternation between their activation is also performed, making it possible an equal use of the pumps.



- \* Full protection for pumping systems and maximized usability through special functions
- \* The ▲▼ key directly adjusts the target pressure.
- \* Power off, then when the power is restored, it will automatically restart the running function.
- \* Extended relay output can achieve one inverter control four constant pressure water supply pump.
- \* 24VDC power supply to power the current transmitter.
- \* The inverter has the intelligent judgment function of dormancy.
- \* English keyboard displays target value and feedback value.
- \* It can be extended to 4 pumps for water supply, including stabilized pressure pump and variable frequency pump.
- \* It supports the online selection function of feedback pressure gauge and current transmitter.
- \* 1 pump and 1 frequency conversion linkage control completes constant pressure water supply function.
- \* The keyboard can start the constant pressure water supply control function, can have the stop function and the fault reset function.



### Security alarm function

- High water pressure alarm function, low water pressure alarm function
- Protection function of water shortage
- Antifreeze function;
- Detect sensor disconnection;
- Automatic reset function of water shortage fault
- Multi-pump control, fault pump is manually cut off

## CV20 series inverter special for crane



### Feature of CV20

CV20 series inverter special for hoisting is tailor-made for various severe application conditions in the hoisting industry, and it can easily solve technical and performance problems. CV20 adopts vector frequency conversion control technology, while maintaining excellent performance and function, from the perspective of lifting application, it is superior in terms of ease of use, maintainability, environmental protection, installation space and design standards to similar products. With high-performance current vector technology, it can easily drive asynchronous induction motors to meet the working requirements in various environments. The specific functions are as follows:

### Main characteristics

- \* Professional brake timing control
- \* Stroke limit control function
- \* Light load speed increase adaptive
- \* Intelligent anti-sway function
- \* Synchronous control function
- \* Parameter macro function
- \* Rope length detection function
- \* Rapid deceleration function
- \* Load holding function
- \* Overload detection function
- \* Maintenance reminder
- \* Over torque detection function
- \* Self-tuning motor parameters
- \* Smart cloud application
- \* Brake failure detection

## NFD series AC VFD

### NFD series for PV pump

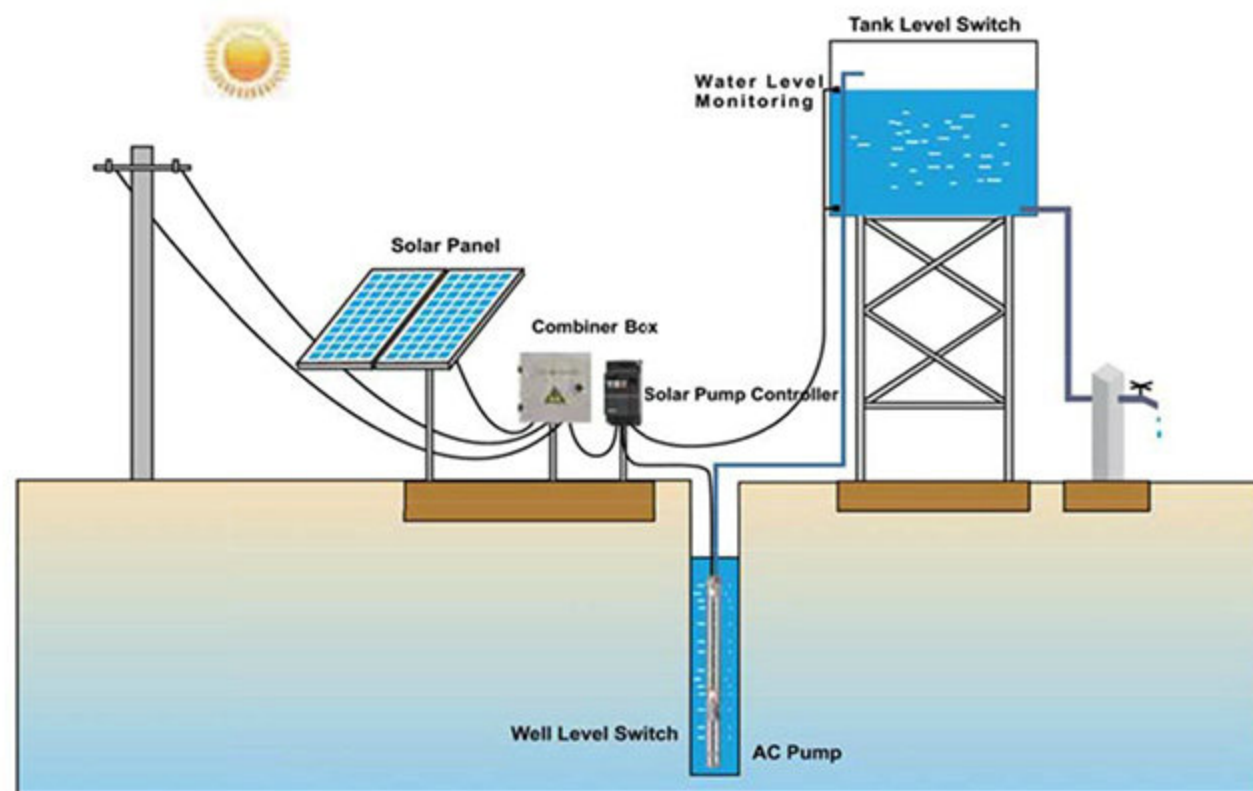
- Compatible with popular solar arrays
- Compatible with any IEC three-phase asynchronous motors
- 10-year market proven experience of leading motor and pump drive technology
- Built-in overvoltage, overload, overheat and dry-run motor protection
- Automatic regulation of pump flow
- Self-adaptive maximum power point tracking technology with up to 99% efficiency; Self-adaptation to the drive used in the installation



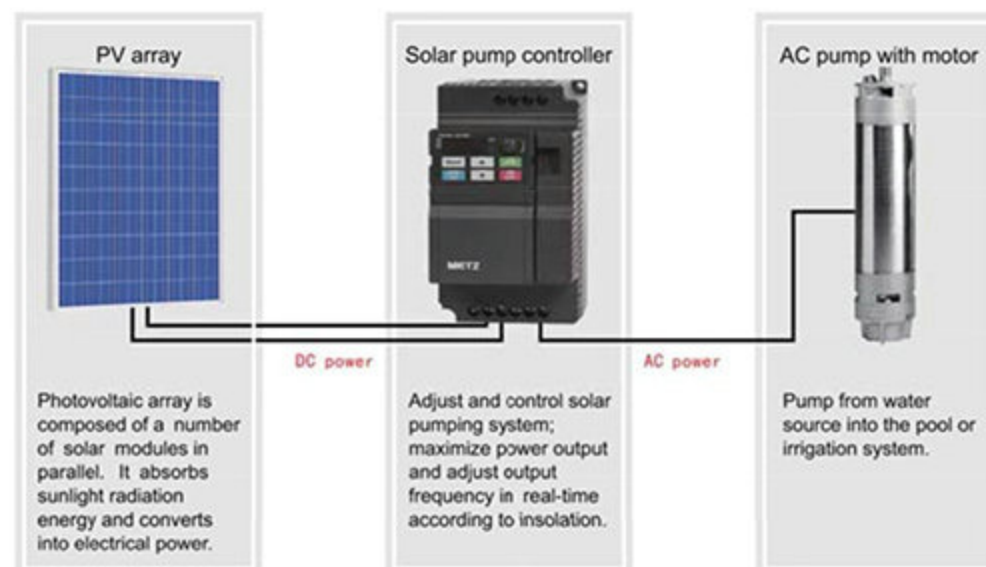
#### Power range

220V / 1 phase: 0.4 ~ 1.5kW  
380V/ 3 phase: 0.75~22kW

## AC Solar Pumping System



The series NFD AC solar pumping system mainly consists of PV array, mounting system, combiner box, NFD solar pump controller, submersible/surface AC pump, line reactor, liquid level switch and water tank.



## Soft Starter



### Soft Starter series SSA

Series SSA intelligent Digital soft starter is small size, integral bypass contactor, including with RS485 communications, metering, monitoring and diagnostics.

Comprehensive protection functions, high performance and reliability.

### Features and advantages

- Intelligent, digital, compact design and High reliability.
- Automatic discerns phase sequence and protection function.
- Communications RS485, built in bypass contactor.
- Output signal: Analog.
- Reduce AC motor starting current, reduce electricity distribution capacity to lower investment
- Comprehensive protection functions: over current, over load, over heat and Default Phase of input and output.
- Extend service life of mechanical equipment, reduce equipment maintenance and enhance economic benefit of Electrical chain hoist.



Motor power, kW	AC 380V	
	Rating current, A	SSA series
7.5	18	SSA-008-3
15	30	SSA-015-3
22	45	SSA-022-3
30	60	SSA-030-3
37	75	SSA-037-3
45	90	SSA-045-3
55	110	SSA-055-3
75	150	SSA-075-3
90	180	SSA-090-3
110	220	SSA-110-3
132	260	SSA-132-3
160	320	SSA-160-3
187	375	SSA-187-3
200	400	SSA-200-3
250	480	SSA-250-3
280	550	SSA-280-3
320	620	SSA-320-3
400	780	SSA-400-3
450	850	SSA-450-3
500	1000	SSA-500-3

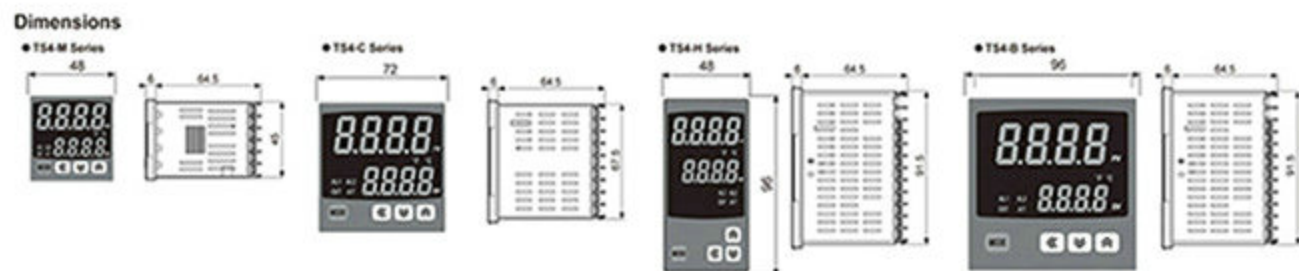
# Multi Input & Output Temperature Controller



The TS4 Series Temperature Controllers - one of the most cost effective temperature controlling solution with PID functions; Dual display 4 Digit, 100ms high speed sampling has both SSR output and relay output are supported to realize effective and economical controlling; 2 alarm output; Voltage models : 100-240 VAC

- Built-in PID auto tuning function
- Select the output action : reverse action/direct action
- Alarm (ALH, ALL, LBA)
- Upper/Lower limit setting limitation function
- Setting data lock function
- Input compensation function
- Decimal point display function
- Support thermocouple and RTD multi-model sensor input

Series		Sepecificatio			
		TS4-M	TS4-C	TS4-H	TS4-B
Power supply	AC Power	100-240VAC~50/60Hz			
	AC/DC Power	24VAC~50/60Hz, 24-48VDC			
Allowable voltage range		90 to 110% of rated voltage			
Power consumption	AC Power	Max. 5VA(100-240VAC 50/60Hz)			
	AC/DC Power	Max. 5V(24VAC 50/60Hz), Max. 3W(24-48VDC)			
Display method		7 segment (PV: red, SV: green), other display part(green, red) LED method			
Character size	PV(W×H)	7.0×15.0mm	9.5×20.0mm	7.0×14.6mm	11.0×22.0mm
	SV(W×H)	5.0×9.5mm	7.5×15.0mm	6.0×12.0mm	7.0×14.0mm
Input type	RTD	DIN Pt100Ω, Cu50Ω (Allowable line resistance max 5Ω per a wire)			
	TC	K(CA), J(IC), L(IC), T(CC), R(PR), S(PR)			
Display accuracy	RTD	At room temperature(23°C ± 5°C): (PV ± 0.5% or ±1°C, select the higher one) ± 1 digit Out of room temperature range: (PV ± 0.5% or ±2°C, select the higher one) ± 1 digit For TMS-□-P, add ±1°C by accuracy standard.			
	TC				
Control output	Relay	250VAC~3A 1a			
	SSR	12VDC ± 2V 20mA Max			
Alarm output		AL 1, AL2 Relay: 250VAC~ 1A 1a			
Control method		ON/OFF control, P, PI, PD, PID control			
Hysteresis		1 to 100°C/1° (0.1 to 50.0°C/1°)			
Proportional band(P)		0.1 to 999.9°C/1°			
Integral time(I)		0 to 9999 sec.			
Derivative time(D)		0 to 9999 sec.			
Control period(T)		0.5 to 120.0 sec.			
Manual reset		0.0 to 100.0%			
Sampling period		100ms			
Dielectric strength	AC power	2000VAC 50/60Hz 1 min. (between input terminal and power terminal)			
	AC/DC Power	1000VAC 50/60Hz 1min. (between input terminal and power terminal)			
Vibration		0.75mm amplitude at frequency of 5 to 55Hz in each X, Y, Z direction for 2 hours			
Relay life cycle	Mechanical	OUT: Over 5,000,000 times, AL1/2: Over 5,000,000 times			
	Electrical	OUT: Over 200,000 times(250VAC 3A resistive load) AL 1/2: Over 300,000 times(250VAC 1A resistive load)			



# Options & Accessories

## AC input / output Reactor

- Rated voltage: 220-1140 VAC; 50/60 Hz
- Rated operating current: 3A to 1600A
- Dielectric strength: Iron Core-Winding 3000VAC/50Hz/5mA/10s
- Insulation resistance: 1000VDC, insulation resistance value ≥ 100MΩ
- Max. current: 1.5 × rated current for 60S



## Input / Output Filter EMC

- Voltage: 220VAC-1400VAC
- Dielectric Strength: Core-winding 3000VAC/50Hz/5mA/10S, no flashover breakdown
- Insulation resistance: Core-winding 1000VDC, insulation resistance value ≥ 100MΩ
- The noise of reactor is less than 65dB (tested at the point with 1 meter of horizontal distance away from the reactor).



## Braking Unit DBU

- Safety: The tripping function of the equipment against IGBT short circuit and breakdown can effectively avoid the hidden danger of fire caused by the breakdown of IGBT and the overload operation of the resistor in a long time.
- Wide Compatibility: The special design of this braking unit allows for the usage of common resistance rather than the non-inductive resistance.
- The noise of reactor is less than 65dB (tested at the point with 1 meter of horizontal distance away from the reactor).



## Resistor

- Ceramic & Aluminum Shell
- Voltage range is <1.2kV; Power range is 50W-2500W
- Resistance range: 1R-10KR
- Electric strength: AC3KV 50Hz/5s; Element Material: OCr25Al5



## Power Supply

- Enclosed Switching Power Supply
- DIN Rail Power Supply
- Modular-Configurable Power Supply
- Water-proof Power Supply
- LED, Multi-Group, PV Power Supply



## Potentiometer Tocos

The lower design will allow more flexibility in installation of industrial equipment and automobiles and make a contribution to small sized equipment.

Wide products lines:

- RV102, RV103, RV12, RV16, RV20, RV202, RV20N, RV24, RV30, RV6, RV2, RV4



## Transmission

- AC, DC Motors & Gearboxes
- Coupling & External Motors Fan
- Rack & Pinion Gear



## Timer relay, counters relay

Digital Timers, Analog Timers, Star-Delta Timer, Staircase delay timer from NIETZ, we have a wide range of Digital and Analog Timers to meet your requirements, used for lighting, air conditioning and other pump control applications.



## Pressure Transmitters

- Our portfolio covers a wide spectrum of pressure sensors: For refrigeration, air compressor applications, for the food industry, medical gases and the semiconductor industry.

- The pressure sensors offer accuracies from 0.05 %, measuring ranges from 0.05 bar up to 15,000 bar



## Signal Tower Lights

- Sleek & Stackable Design, Uniform & bright illumination; Continuous, Flashing and Rotary Integrated LED Light Modules available
- Flexibility to upgrade from Single LED Unit to multiple LED Units
- IP65 protection | Wide voltage range from 24V AC/DC to 240V AC

