



NEW WEST TECHNOLOGIES LTD.
More Intelligent

Expert in industrial automation products and solutions



CT3000VS Series
Variable frequency drive

CT3000VS

Variable frequency drive

Product summary

The new member of the NWT inverter family, the VS smart inverter series, has a compact design, is exquisite and practical, has up to four control modes, and has an overload capacity of up to 200%. It can be widely used in the speed control of various asynchronous motors. The product relies on a 32-bit MCU and adopts the internationally leading vector control algorithm to achieve high-performance and high-precision motor drive control. While improving the reliability and environmental adaptability of the product, it strengthens the customer's ease of use and industry-specific design, with more optimized functions, more flexible applications, and more stable performance.

Application

Material handling, packaging, textile, lifting, material processing, wood processing, metal processing, fan, etc



Thermal Power Generation



Petrochemical



Coal Mine



Metallurgy



Cement Manufacturing



Textile



Packaging



Material handling



Wood processing



Fan and Water pump

Product summary

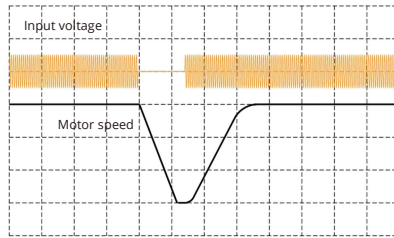
- Four control modes: constant torque V/f, quadratic load V/f, vector control without PG sensor, energy saving mode
- Compact design, exquisite and practical
- Overload capacity: 150% rated output current for 60s, 200% rated output current for 2s
- Built-in Modbus communication interface
- The panel can be externally connected, easy to use
- PCB coating to resist harsh application environments
- The side of the plastic shell product has a removable protective plate, which supports side-by-side installation
- High-performance vector control using flux and speed estimation technology
- Wide voltage range design ensures product adaptability to grid fluctuations
- Advanced independent air duct design, adaptable to various complex and harsh on-site environments



Product functions

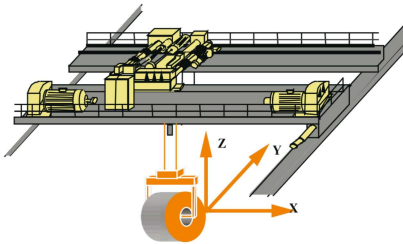
Instantaneous blackout protection

- In case of instantaneous power failure or sudden decrease of input voltage, inertia energy of load side is fed back to DC bus by reducing motor speed to make up temporary energy gap, maintain DC voltage higher than undervoltage action value, and avoid shutdown due to undervoltage.



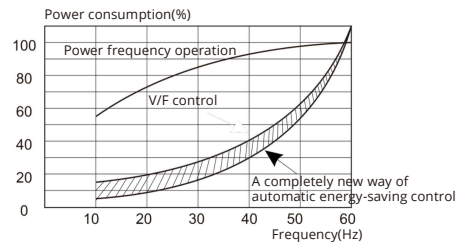
Reliable braking

- Magnetic excitation before starting, and then through frequency, current and other ways to open the brake to prevent the load slip:
- Before the stop, trigger lock brake in advance to ensure the stability of stop. Applications: Crane, Capstan.



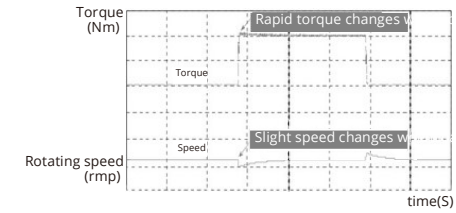
Energy Saving

- Optional energy-saving mode monitors the actual load size in real time, automatically adjusts and optimizes the voltage and current applied to the motor, so that the motor runs at the best efficiency point, achieving significant energy-saving effects.



Quick Response

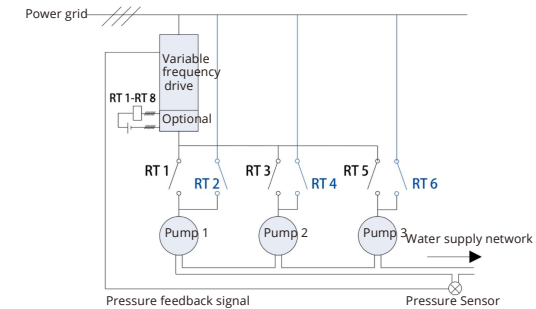
- By improving the response speed and controlling the speed change during load disturbance, the motor speed can be kept constant to the greatest extent possible. Compared with traditional inverters, the response time is shortened by more than half.



Multi-pump control function (non-standard program)

- Using the built-in PID controller, multiple water pumps can be automatically switched on and off according to different pressures: the pumps can be rotated regularly to try to average the running time of each water pump: a dormant small pump can be set to ensure stable pressure at extremely low water consumption.

Note: Please specify this function when ordering



Speed Stabilization and Speed Regulation

- Steady speed accuracy: $\pm 2\%$ (V/F)
 $\pm 0.2\%$ (SVC)
- Speed range: 1:40 (V/F)
1:200 (SVC)

Product structure

Strong and Weak Electrical Isolation Design

Adopt strong & weak electrical isolation Design, to avoid magnetic field interference and increase service life.

Heat Dissipation Structure

Independent cooling duct optimization design, from the original right angle optimization to rounded corner, reduce the thermal disk accumulation, greatly increase the efficiency of heat dissipation.

EMC Design

With the surge current absorption circuit, can inhibit the surge current when the power input

Ac input reactor, AC output reactor or DC reactor can be selected to greatly reduce harmonic current

EMC filter is optional to reduce interference to external equipment and meet C2 international standards

Long Life Design

The key components are all made from the industry's first-class manufacturers, with long design life

The components can be comprehensively monitored.

When the life of any component is about to expire, the frequency converter will automatically remind it

Thermal design and thermal reliability

Independent air duct: including IGBT, rectifier bridge, electrolytic capacitor

Above 25Hz, it adopts low loss design. Peak and trough of wave 1/6 cycle non-chopper to enhance local heat dissipation design

Parts strictly adopt international standards, type test main test content

Details	Absolute allowable temperature
Transformer, IC, rectifier bridge	125 °C
Electrolytic Capacitors	95 °C
Contactor	130 °C
PCB	120 °C
Charging resistor	180 °C
IGBT heat sink	85 °C

VFD Temperature test: 40 °C

Exfactory aging test: high temperature 60 °C

Three Anti-paint Automatic Spraying Process

Three anti-paint automatic spraying equipment, according to the layout characteristics of the circuit board programming spraying path, to ensure that the coating is comprehensive, uniform, good consistency. Thickened coatings can be ordered for use under particularly harsh conditions

Wide Voltage Input Range

Wide voltage input range in line with international standards, allowing appropriate voltage fluctuations

Rated voltage 3-phase 380-480V, 50Hz/60Hz

Allowable voltage fluctuation range: 323V-506V, 50Hz/60Hz



■ Product configuration

Basic application functions	
Low frequency torque boost	The voltage boost and torque boost can increase the low-frequency torque of V/F control and speed sensorless vector control by about 0.1%~30.0% respectively.
V/F Curve	Linear type, multi-point type
Acceleration and deceleration curve	Linear or S-shaped acceleration and deceleration; three sets of acceleration and deceleration time; acceleration and deceleration time range: 0~3200s
Automatic Voltage Regulation (AVR)	When the grid voltage changes, it can automatically keep the output voltage constant
Built-in PID	Closed-loop control system that can easily realize process control
DC braking	DC braking range: 0.0Hz~maximum frequency; braking time: 0.0s~20.0s Braking action current value: 0%~100%
Jog control	The motor can be started and stopped immediately; the inching frequency setting range is: 0.0~20.0Hz Inching stop mode: deceleration/free/DC braking
Frequency Hopping	You can set 3 frequency hopping points and the corresponding frequency hopping range to prevent the inverter from running within the frequency band.
Multi-speed	Up to 15 operating frequencies can be set via 4 logic input ports
Input Sum	The algebraic operation result of 2 analog inputs is used as the frequency setting, making the frequency setting more flexible
2 sets of motor parameter switching	Two sets of motor parameters can be set and switched freely to match the currently driven motor
Inverter protection	Input/output phase loss protection, underload detection, over-torque protection, undervoltage protection, overvoltage protection, overcurrent protection, overheating protection, phase short circuit protection
Motor protection	Motor thermal protection, motor current limiting, motor overload, motor short circuit

Electrical characteristics	
Input voltage	Three-phase AC, 380~480V, 50/60Hz or single-phase AC, 200~240V, 50/60Hz
Output voltage	0~100% input voltage, 0.5Hz ~ 400Hz
Control Mode	Constant torque V/F, quadratic load V/F, sensorless vector control, energy-saving mode
On-off level	1.5kHz ~ 12kHz The automatic switching frequency adjustment function can be set: when the temperature rises, the switching frequency is automatically reduced After the temperature returns to normal, the switching frequency returns to the initial value
Overcurrent capability	150% rated output current for 60s, 200% rated output current for 2s

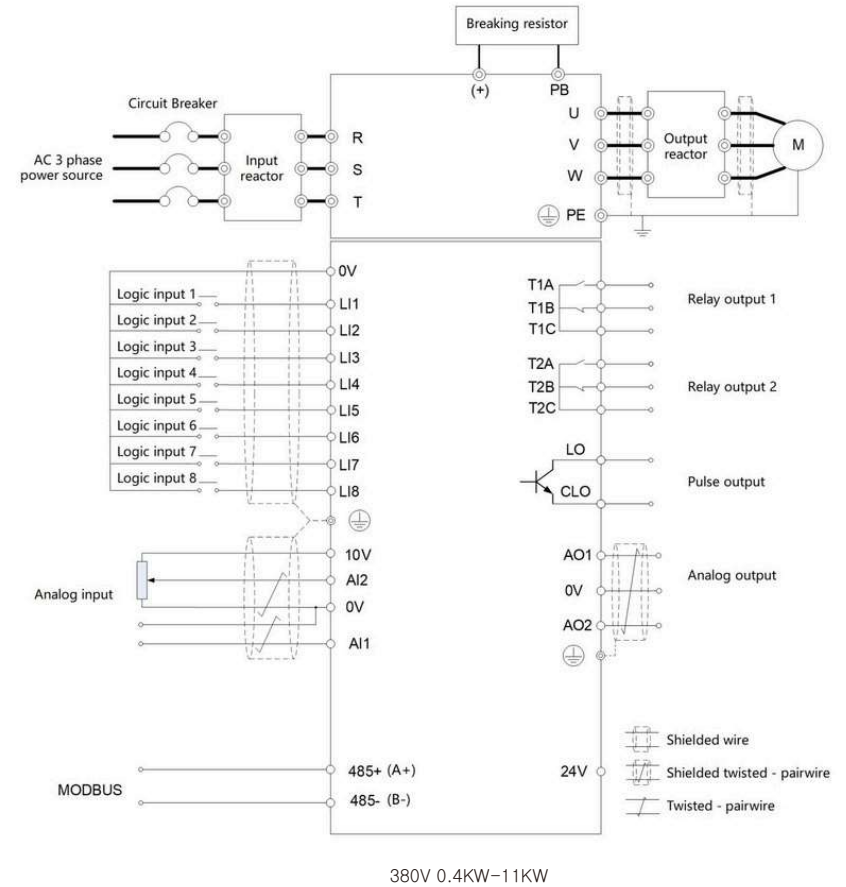
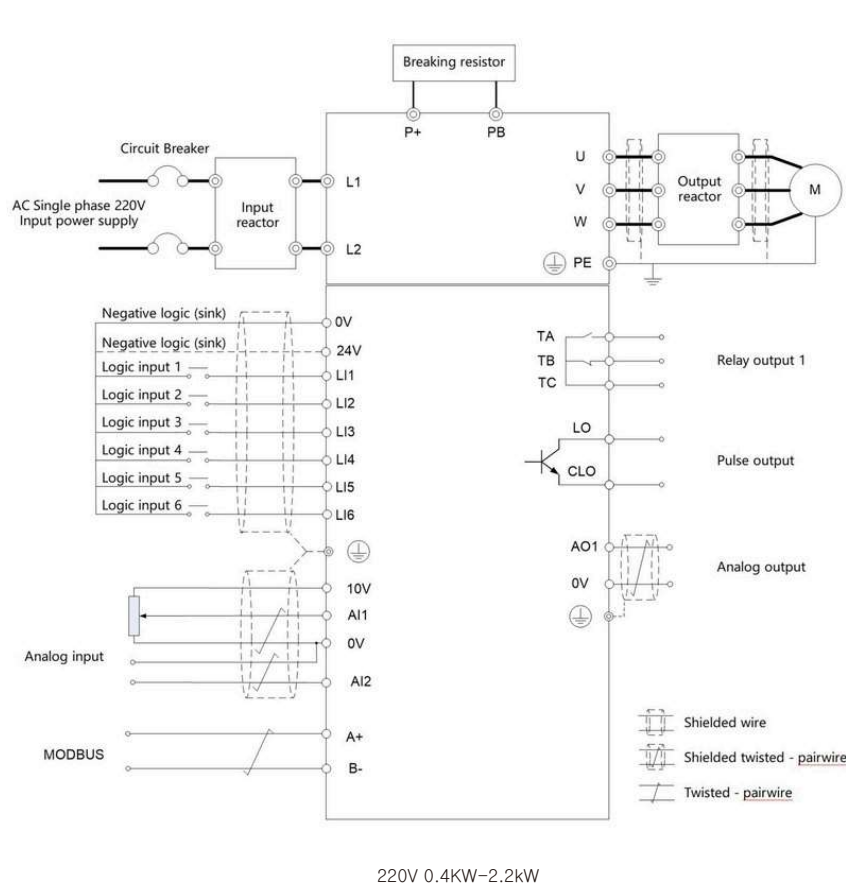
Control signal		
Frequency setting signal	Integrated operating panel	Membrane switch (button), speed knob (potentiometer)
	External Signal	UP/DOWN setting, analog input, multi-speed, external panel, serial communication
Start-stop control signal	Integrated operating panel	RUN, STOP buttons
	External Signal	Logic input terminal, external panel, serial communication

Protective function	
Inverter protection	Input phase loss protection, output phase loss protection, underload detection, over-torque protection, undervoltage protection, overvoltage protection, overcurrent protection, overheating protection, phase short circuit protection
Motor protection	Motor thermal protection, motor current limiting, motor overload, motor short circuit

Control circuit characteristics			
Internal power supply available	10V 24V	10VDC ±5%, maximum current 10mA, for reference potentiometer 24VDC ±5%, maximum current 100mA, for logic input port	
Analog Input	AI1	Voltage analog input: 0~5VDC, or 0~10VDC, impedance 30k Current analog input: 0/4~20mADC, impedance 250Ω Resolution: 10-bit A/D conversion Factory default setting: 0~5VDC voltage input	
	AI2	Voltage analog input: 0~10VDC, or PTC probe input Resolution: 10-bit A/D conversion	
Logic Input	LI1-LI8	0~24VDC power supply Positive logic (source), negative logic (sink) are optional, the factory default is negative logic 69 functions are available, including forward, reverse, running, fault reset, multi-speed, etc. 220V 0.4kw~2.2kw and 380V 0.4kw~0.75kw products only have 6 circuits: LI1~LI6	
	AI1, AI2 Enforce valid input	In inverters below 11kW (inclusive), AI1 and AI2 can be set as logic inputs. f309 and f310 are mandatory valid inputs, and their configuration functions are always valid during power-on.	
Analog Output	AO1, AO2	Voltage analog output: 0~10VDC, minimum load impedance is 470Ω Current analog output: 0/4~20mA, maximum load impedance is 700Ω Resolution: 8 bits Output frequency, output current, speed setting, serial output data Multiple functions available 220V 0.4kw~2.2kw and 380V 0.4kw~0.75kw products only have 1 analog output, namely AO1	
Logic Output	LO, CLO	Open collector, maximum current 100mA, maximum voltage 30VDC Logic output or pulse output is optional, the factory default setting is logic output Output frequency, output current, speed setting and other output functions are optional	
Relay output	T1A, T1B, T1C T2A, T2B, T2C	T1A is normally open, T1B is normally closed, T1C is a common point T2A is normally open, T2B is normally closed, T2C is a common point Contact rating: 5A @ 250VAC, 5A @ 30VDC Fault, alarm, set frequency arrival and other functions are optional T1A defaults to failure, T2A defaults to operation 220V 0.4kw~2.2kw and 380V 0.4kw~0.75kw products only have 1 relay output, namely T1A~T1B~T1C	
Serial Communication		MODBUS-RTU, 2-wire RS-485, terminal interface	

Environmental characteristics			
Protection level	IP20	environment humidity	95% no condensation or water accumulation
Working temperature/storage temperature	-10~40℃ /-20~60℃	Altitude	Below 1000m
cooling method	Forced air cooling	Installation location	Indoor

■ Wiring diagram



Note:

- 0.4kW-1.5kW excluding logic input terminals LI7 and LI8
- 0.4kW-1.5kW only contains 1 relay output (TA-TB-TC) and 1 analog output LO1

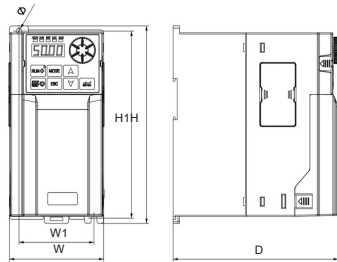
Model description

CT3000VS (E) - T3 - 7R5G / 11 P

① Product Series	② Motor Type	③ Supply Voltage	④ Adaptive motor power	⑤ Load Type
CT3000VS: Comfort Inverter	E: Permanent magnet synchronous motor	T3: Three-phase 380V S2: single-phase 220V	0R7 : 0.75kW 1R5 : 1.5kW 2R2 : 2.2kW 3 : 3kW 4 : 4kW ... 11 : 11kW	G: Overload P: Light load

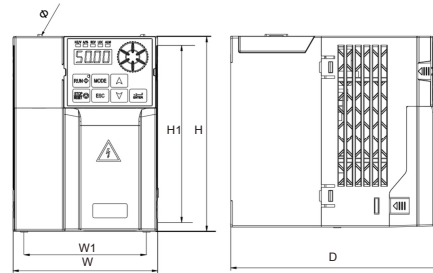
Appearance size

Overall Dimensions Drawing (a)



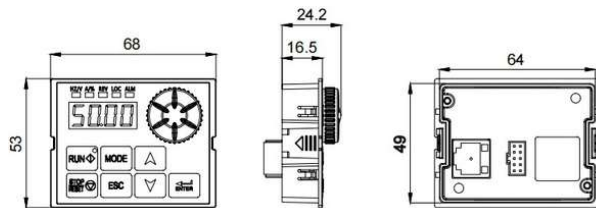
220V 0.4KW-2.2KW, 380V 0.4KW-1.5KW

Overall Dimensions Drawing (b)



380V 2.2KW-11KW

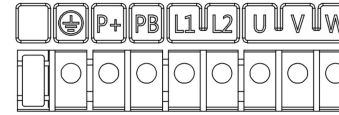
Control panel dimensions



The panel can be led outwards, and the cabinet door opening size is 65*50mm

Terminal structure diagram

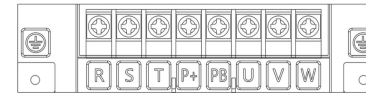
Main circuit power terminals



220V 0.4KW-2.2KW

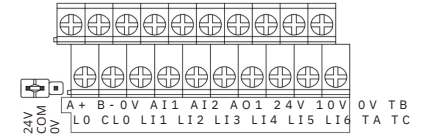


380V 0.4KW-1.5KW

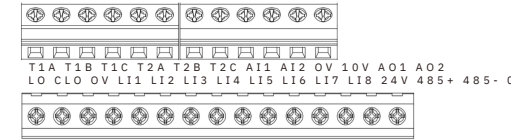


380V 2.2KW-11KW

Schematic diagram of control terminal structure



220V 0.4KW-2.2KW



380V 2.2KW-11KW

Model selection

Inverter Model (single-phaseS2)	Adaptive motor (kW)	Rated input current (A)	Rated output current (A)	Overall dimensions(mm)			Installation Dimensions(mm)		
				H	W	D	H1	W1	Aperture
CT3000VS-S2-0R4	0.4	6.3	2.5	170	81	142	161	64.5	Φ5
CT3000VS-S2-0R7	0.75	11.5	5						
CT3000VS-S2-1R5	1.5	15.7	7						
CT3000VS-S2-2R2	2.2	27	10						

Inverter Model (Three-phaseT3)	Adaptive motor (kW)	Rated input current (A)	Rated output current (A)	Overall dimensions (mm)			Installation Dimensions(mm)		
				H	W	D	H1	W1	Aperture
CT3000VS-T3-0R4G/0R7P	0.4	2.1	1.5	170	81	142	161	64.5	Φ5
CT3000VS-T3-0R7G/1R5P	0.75	3.6	2.6						
CT3000VS-T3-1R5G/2R2P	1.5	6.4	4.1						
CT3000VS-T3-2R2G/3P	2.2	8.7	5.5	145	107	160.4	135	95	Φ5
CT3000VS-T3-3G/4P	3	10.9	6.9						
CT3000VS-T3-4G/5R5P	4	14	9.5	200	138	144.6	188	124	Φ5
CT3000VS-T3-5R5G/7R5P	5.5	20.7	12.6						
CT3000VS-T3-7R5G/11P	7.5	26.5	18.5	232	153	169.8	220	139	Φ5
CT3000VS-T3-11G/15P	11	36.6	25						

Note: If the product is used for permanent magnet synchronous motor, please add code "E" to the order model.