

GT210 High Performance General Use Frequency Inverter





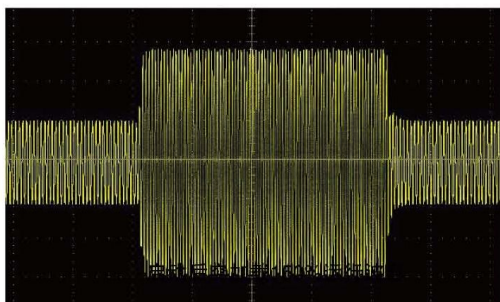
Product Introduction:

GT210 is a general use frequency inverter which adopt magnetic flux vector algorithm to control, equipping with Self-identification of motor parameters ,Optimal acceleration and deceleration control ,Auto current limiting and many others advanced control technology. Further more, GT210 have the function to meet different industries' technological requirements,such as Swing Frequency Control,Drop Control,Multi-speed Control ,Sample PLC Control,Speed Tracking,Fixed Length Control,PI Control,Auto Energy-saving Running,Flexible Frequency Given Mode and realizing a variety of combinations for a given frequency , RS485 Communication and a series of others practical features. It can fulfill the requirements of performance and features of different industrial equipment.

Excellent Control Characteristics

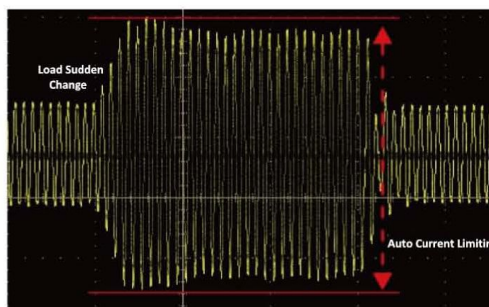
● High Starting Torque

Adopt Real-time control technology of Flux current and torque current,0.5HZ can provide 150% torque output ability.



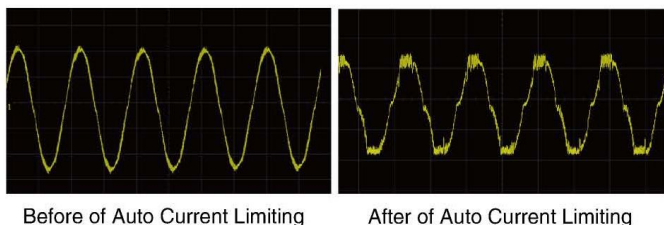
● load Mutation Without Trip Control.

When the load occurs the instant mutation ,through auto current limiting technology,it can keep enough ability of torque output ,and ensure equipment not trip and continue running.



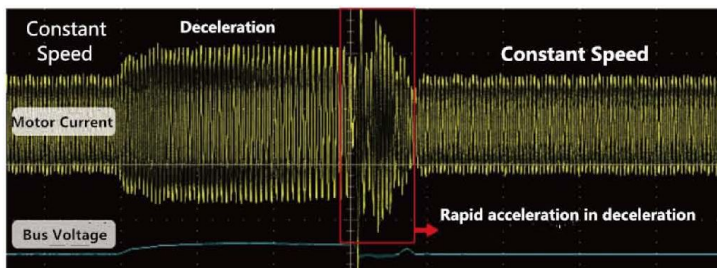
● Auto Current Limiting

The motor current can be controlled within current protection point without affecting torque output. It can protect equipment safety and avoiding current alert for the reason of sudden load and interference.



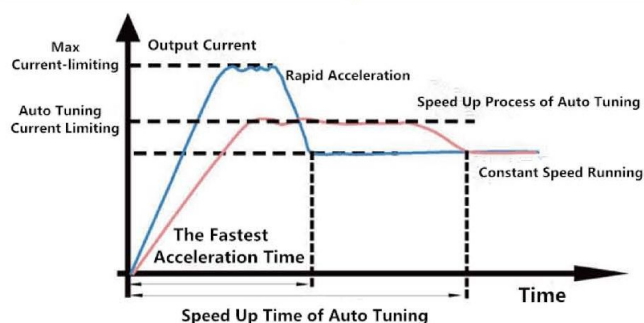
● Fast Start-stop with not trip

Through high-efficiency current close-loop control,realize fast starting with maximum current. And By dynamically controlling internal DC bus voltage, realize high efficiency fast stop braking and ensure not trip and continue running.



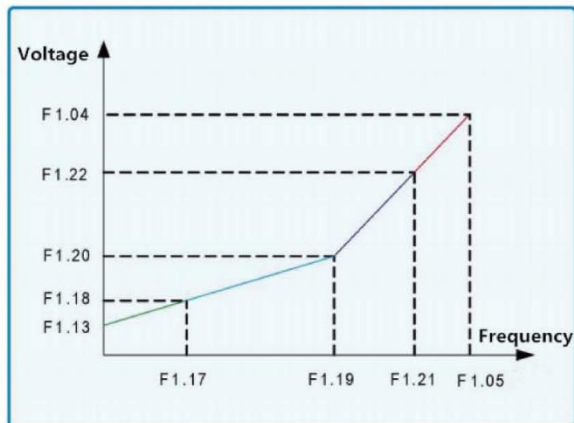
● Smooth acceleration and deceleration control

Using self-learning technology of acceleration and deceleration speed,adapt to various loads and select the acceleration time



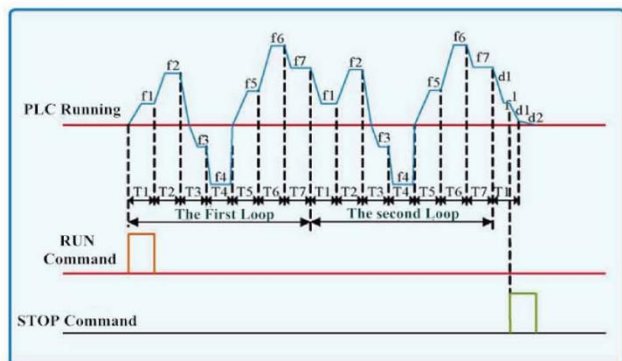
Rich and Comprehensive Application Function

● Flexible Multi-stage V/F Curve

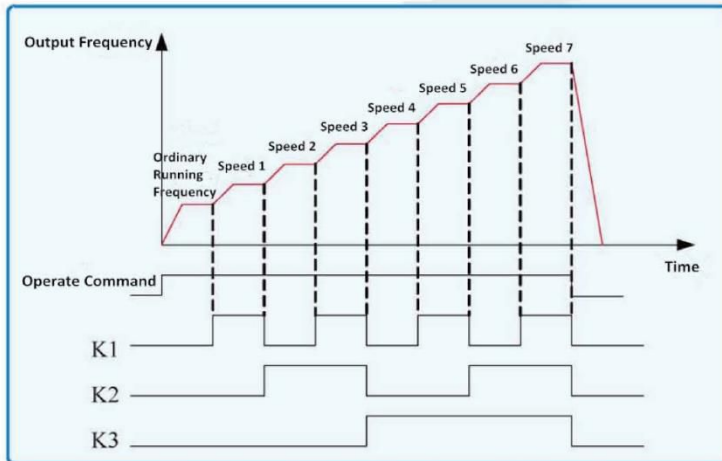


V/F Custom Curve

● **Sample PLC application:** It is up to 7 stage in one cycle, The operating frequency of each stage, time and direction can be set. The time unit also can be set (the max value 5500 minutes). Through the terminal, can do the operation of Pause, Reset and Invalid. Besides, It can switch with other ways.



● Multi-stage Control: GT210 can realize 8 stages speed control.



● **Standard RS485 Communication :** Standard equipped with RS485 port, support MODBUS Communication protocol, so that can network communication with the host computer, such as HMI, PLC, and so on.

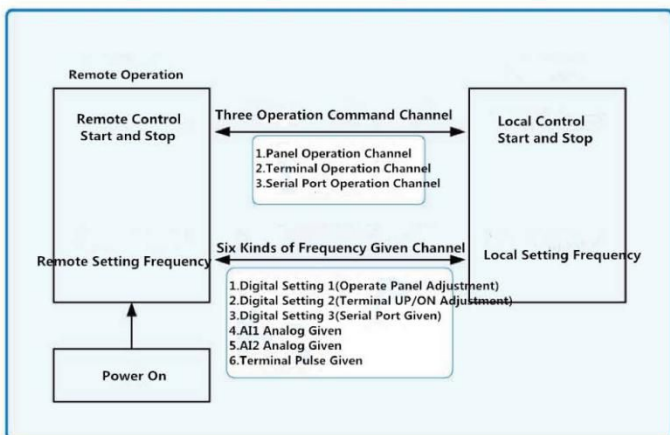


● The Selection of Frequency Source And Command Source

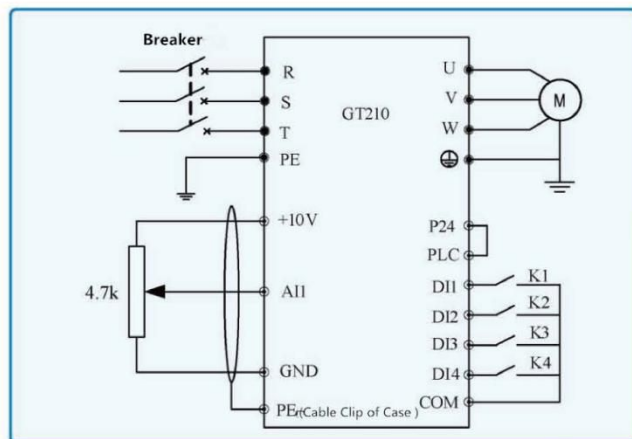
Frequency source and command source can be selected by the multi-function terminal, so that every control can be switched flexibly.

● Frequency Binding and Switching

Binding running command and frequency given channel can realize a bound combination of 3 kinds of running command channel and 6 kinds of frequency given channel, which is good for SALVOS.



The Requirements of Two Places Control

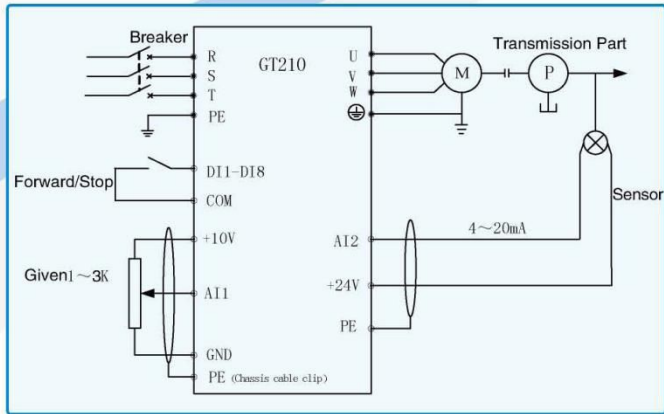


Hardware Wiring Diagram for Two Places Control

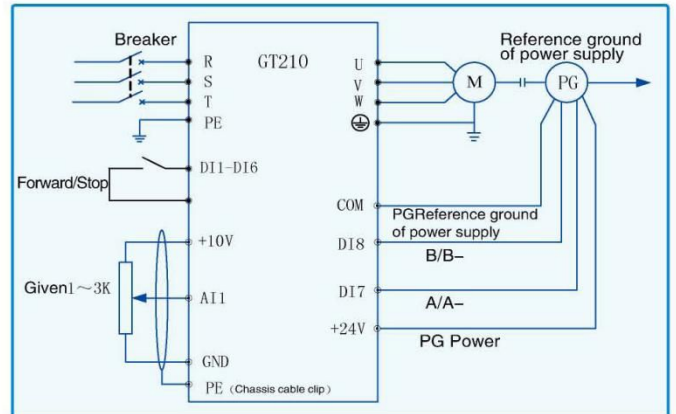
- **PI control:** Built-in PI, could be divided into 2 types, simulation closed-loop and pulse closed-loop according to the different amount of feedback.

For given channel, in addition to the usual given channels, we add multi closed-loop option; Feedback channel selection is richer, can choose analog input feedback, combination algorithm feedback, pulse feedback; The built-in PG card, receive individual or bidirectional pulse closed-loop feedback.

Can choose either positive effects or reaction characteristics to satisfy different applications.

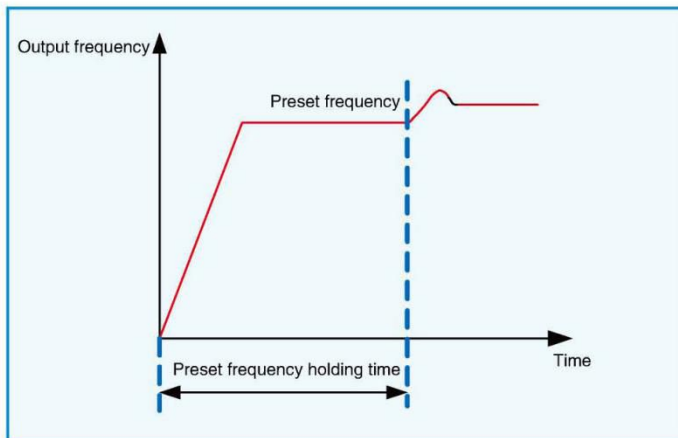


Inside PI simulation feedback control system diagram

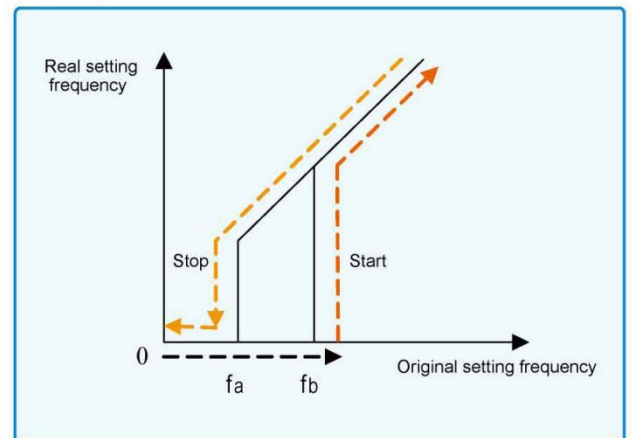


PG speed closed-loop control system wiring diagram

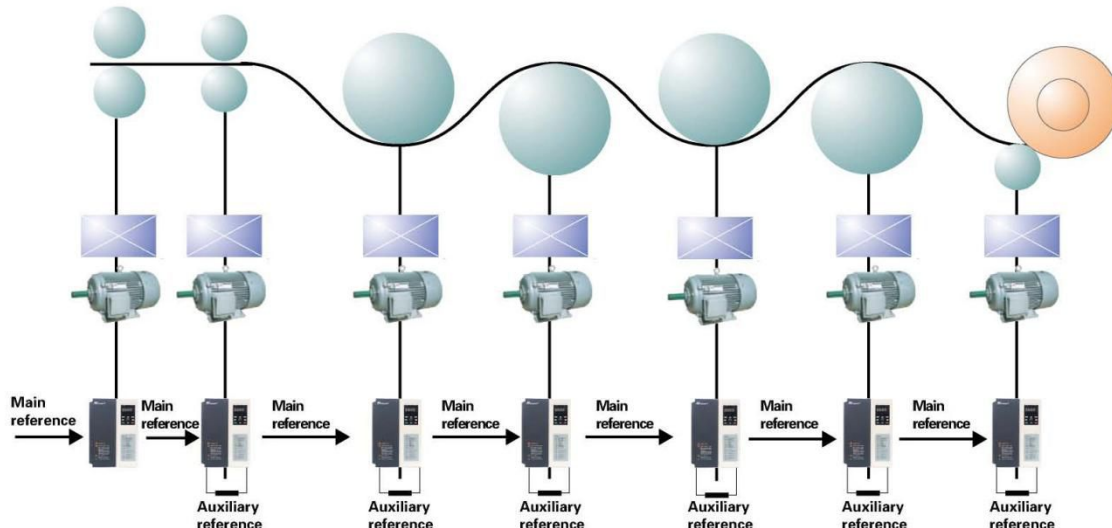
- **Preset for closed-loop:** PI closed-loop control, to ensure the boot process smoothly and rapidly enter into a state of balance adjustment, the initial state is not from zero state, but from close to the equilibrium state.



- **Zero frequency difference and sleep function:** This feature can be used to complete the sleep function, to achieve energy-saving operation, and through the width of the return difference to avoid frequency inverter start frequently at the threshold.

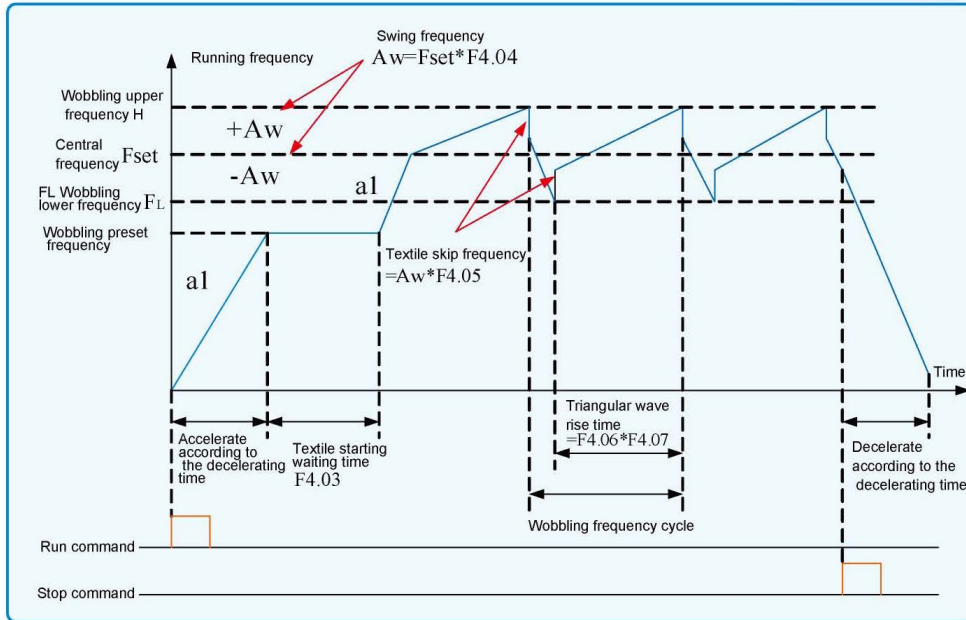


- **Frequency master and auxiliary:** In addition to the normal operation condition, under PLC,PI close-loop,multistage speed condition, can assist the auxiliary given overlay. Frequency master and auxiliary support many choices to be applicable for frequency initial set and fine-adjustment situation, and realize Synchronous control of multiple fixed points.



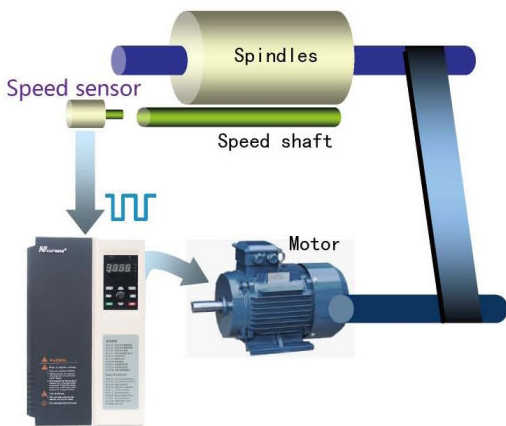
- **Pulse frequency input and output:** D02 could output high speed pulse, D17 and D18 could input high speed pulse, could realize cascade control of multiple frequency inverter.

- **Swing frequency operation:** In textile, chemical fiber and other industries, in the transverse motion and winding process, there is need for swing frequency function.

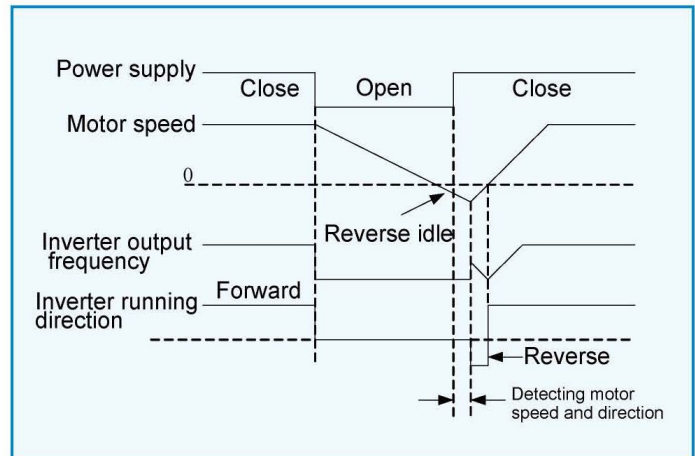


- **Acceleration and deceleration time unit can choose seconds or minutes:** The longest can be set to 60 hours, suitable for the need to increase the time of acceleration or deceleration time occasion.

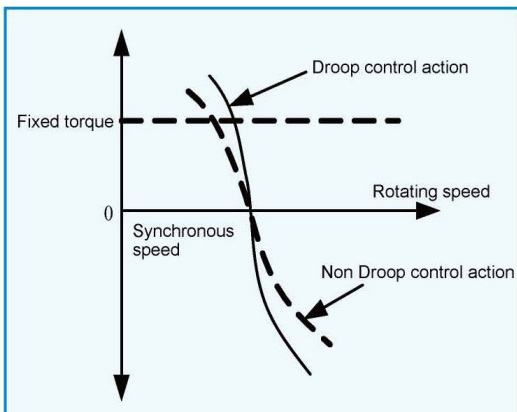
- **Fixed length control:** Textile, wire and cable, and many other industries need fixed length control, namely through the D17 or D18 (set to No. 44) input speed pulse to real-time length cumulative, when reaching the set length (by FC.14 set), the output length arrival signal, realize the long stop function (detail please refer to function FC.14-FC.19)



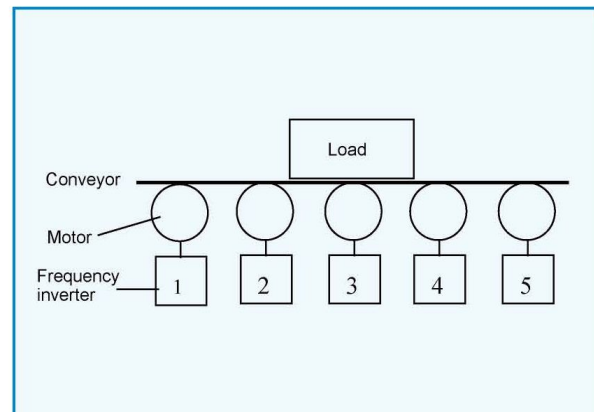
- **Speed tracking:** When the frequency inverter starts to run, the speed and direction of the motor are detected firstly, then according to the current speed and direction of the motor, inverter could have a smooth start even the motor is still in the rotation.



- **Droop control:** Multi motor with the same load, load evenly distributed, application in the chemical fiber industry extension control, glass metallurgy industry roller control.

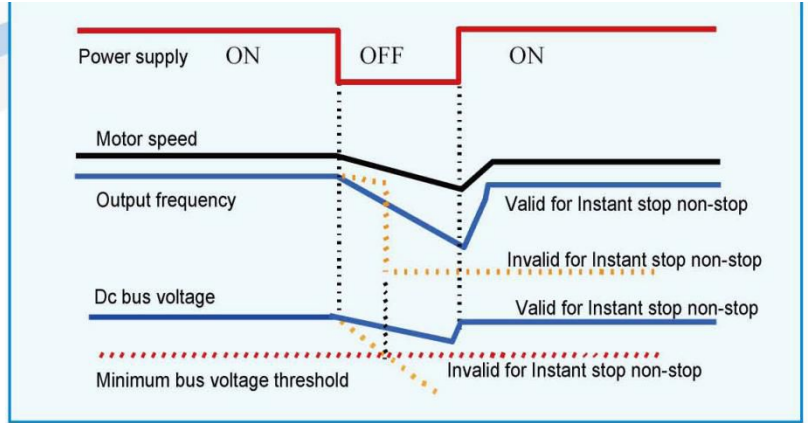


Droop control motor characteristic



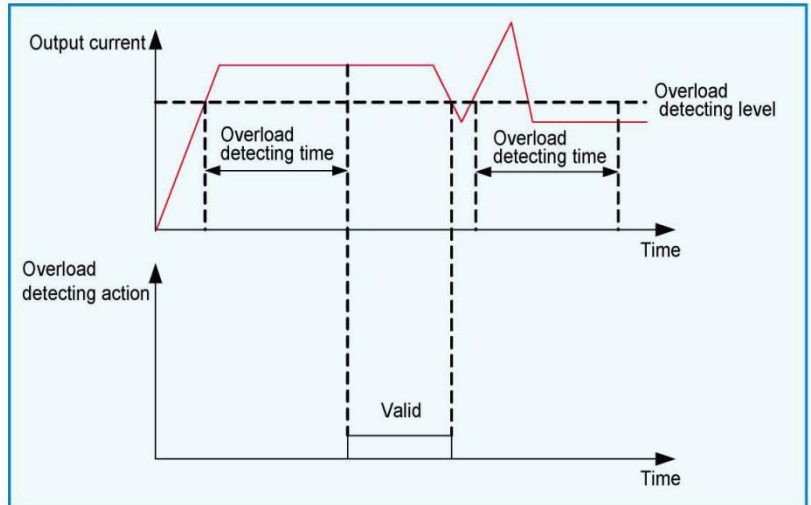
Droop control diagram

- **Instant stop non-stop** : When power-supply off instantly, can keep running continuously, to adapt to the high demand continuous production , but often lightning, large power grid Impact in chemical fiber, chemical and other production equipment.

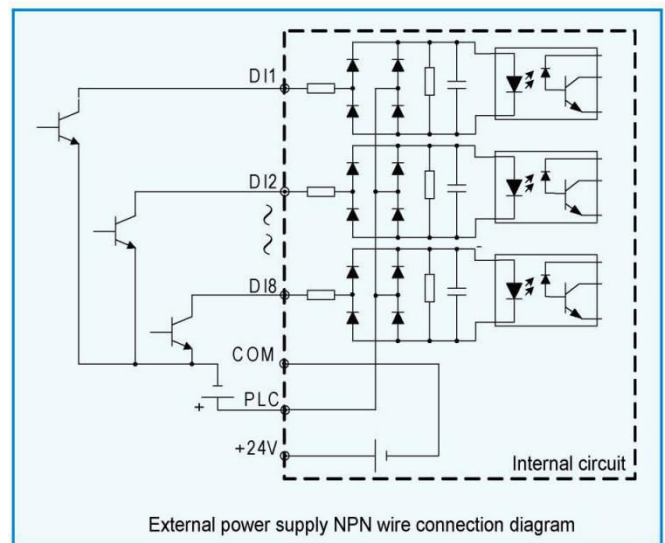
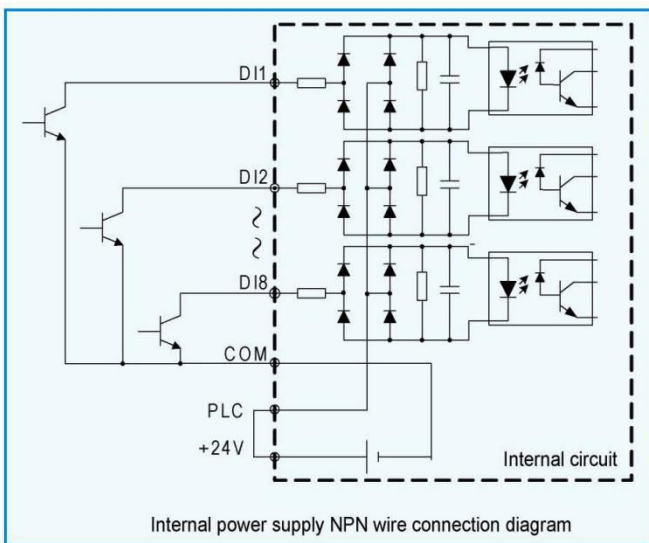


- **Automatic energy-saving operation**: Under the premise of keeping the output torque constant, to achieve the best energy saving effect, and is suitable for variable torque load or other light load occasions.
- **Motor volume control**: Can be adjusted to the sound of the motor.

- **Multiple protection and overload warning** (Overcurrent, overvoltage, overload, phase failure, overheating, communication fault, fault current detection, not pull contactor etc.)



- **Flexible switching input terminal**: Control terminal can not only use the internal power source, you can also use the external power supply, external input voltage between DC9-30V; D17/D18 can receive high-speed pulse, single-phase maximum frequency 100kHz, two-phase maximum frequency 50 kHz; both can match NPN type controller, also be matched with a PNP type controller (NPN type wiring see below, PNP type wiring see manual)

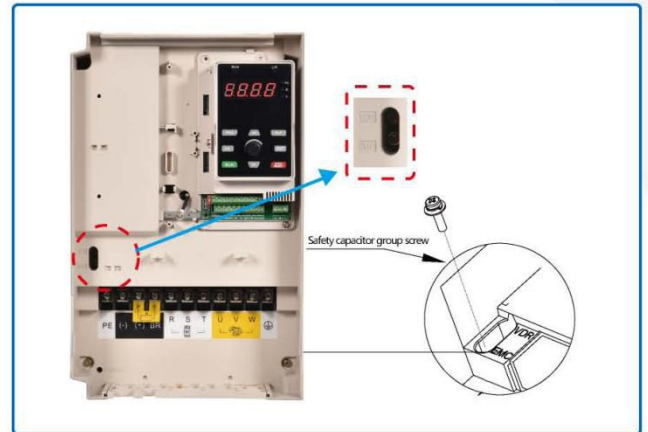


- **Analog output terminal**: 0-10V/4-20mA/0-20mA optional, output physical quantity optional, convenient for connecting external instrument.
- **Operating time automatically accumulated**: Set the time to issue instructions to facilitate the maintenance of equipment maintenance.
- **User password settings**: The user's parameters can be kept secret to prevent unauthorized personnel modify parameters.
- **Built in braking unit**: Below 22kw no external braking unit needed, reduce the cost of the customer system.

Environmental applicability and usability

- **Working voltage range:** Rated voltage 380V~440V; When the voltage of input power is long-term low, through the automatic voltage regulation technology (AVR), to ensure the load capacity in wide operating voltage range.
- **Special anti surge design:** To the grid surge (such as the induction of lightning), power grid noise, static immunity, to achieve the harsh industrial standards
- **DC reactor position:** 18.5kw or above models can be selected DC reactor to meet the requirements of low harmonics of the power grid.
- **Carrier frequency selection:** According to the environmental humidity, automatically adjusting the carrier frequency.

- **Power system compatibility:** Frequency inverter is suitable to the neutral ground grid system, while connected to the ungrounded IT grid system or high-Z ground grid system (more than 30 Ω), or in angle earth of TN system, please remove the safety regulations capacitor group EMC screw disconnect internal EMC filter.



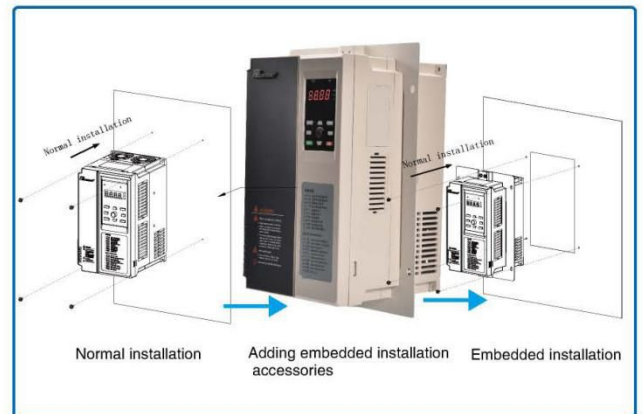
- **Dustproof design:** Comprehensive anti-corrosion paint spraying protection, independent air duct design, dust accessories optional to increase overall defensive capabilities, to meet the long-term reliable operation in high humidity or excessive dust occasions.



- **Easily replaceable fan:** Don't need to disassemble to realize quick replacement of fan, adapt to the special environment of fan replacement, adapt to special occasions which need regular cleaning air duct debris.



- **Through wall installation:** The increase of accessories can be realized through wall installation to meet the needs of special applications



- **Keyboard out:** To achieve a reliable external guide without the keyboard bracket.

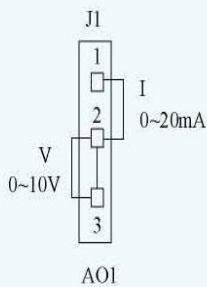
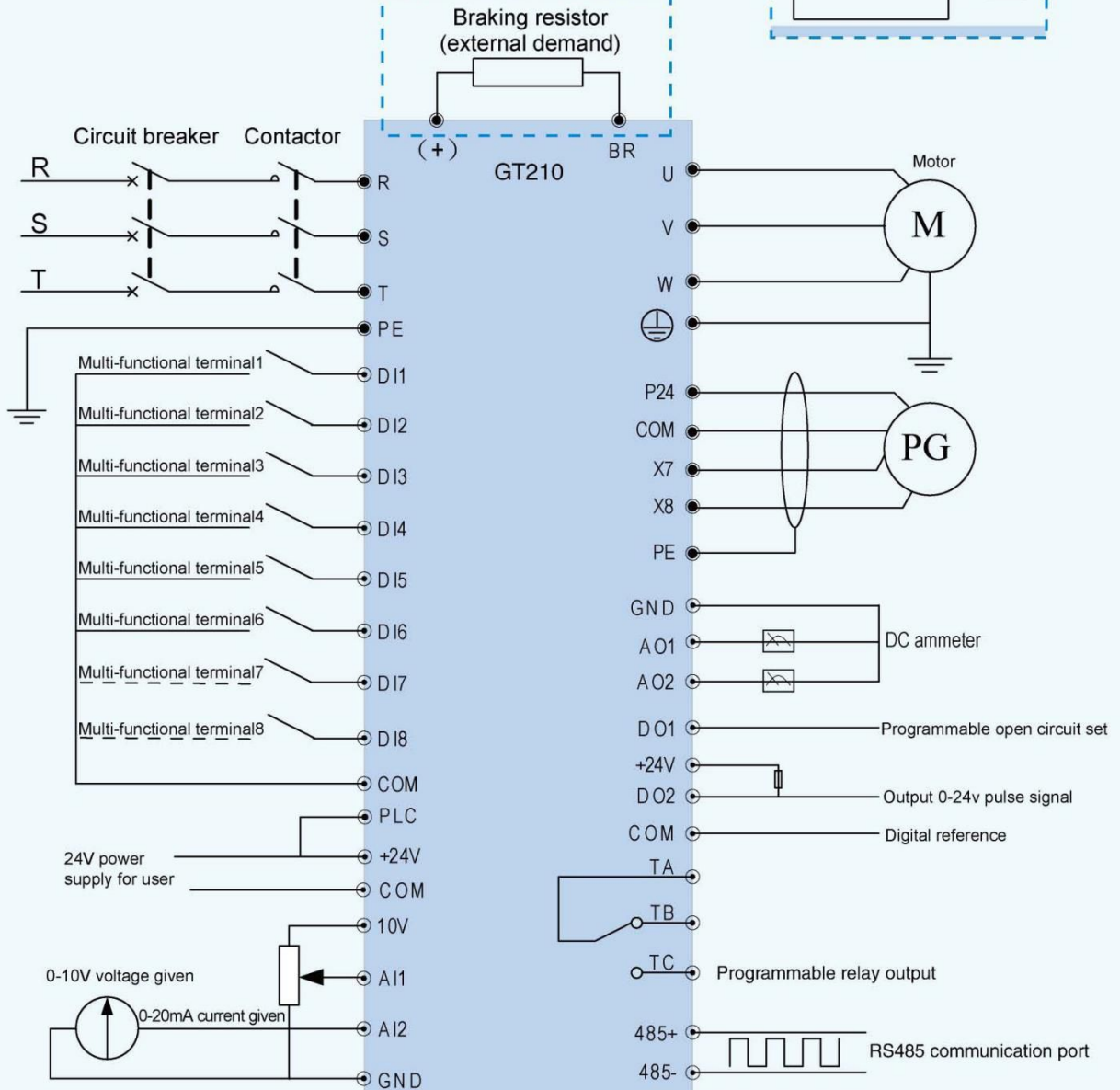
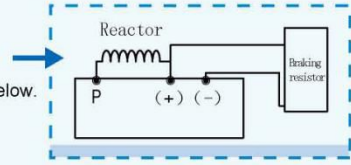


GT210 external wiring diagram

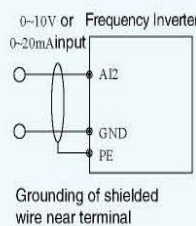
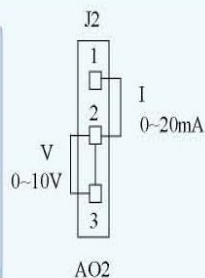
- Main circuit terminal
- Control circuit terminal

Remarks:

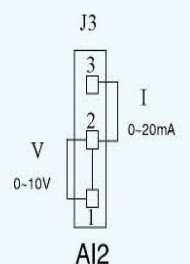
18.5kw or above could be built in DC reactor
 30kw or above, the reversed brake unit interface should be modified as picture in the right.
 22kw or below, the built-in brake circuit should be wiring as below.



Analog output terminal signal optional:
 J1 jumping to "I" position means current signal; jumping to "V" position means voltage signal; Factory default is "V";
 J2 jumping to "I" position means current signal; jumping to "V" position means voltage signal; Factory default is "V";
 J3 jumping to "I" position means current signal; jumping to "V" position means voltage signal; Factory default is "V";



Analog output terminal signal optional: J1 jumping to "I" position means current signal; jumping to "V" position means voltage signal; Factory default is "V";

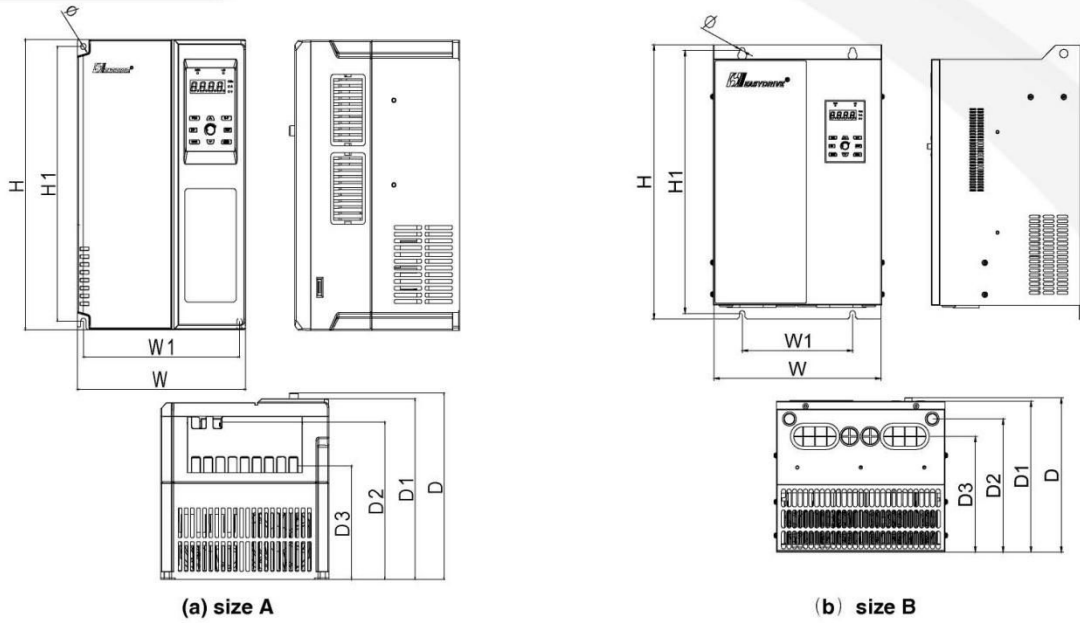


Product technical specifications

Item		Description
Input	Rated voltage/ Frequency	three-phase,380V-440Vac;50Hz/60Hz
	Allowed voltage range	Voltage:380v(-15%)~440v (+10%) ;Voltage unbalance rate: < 3%;Frequency:±5%
Output	Rated voltage (V)	0~input voltage
	Frequency	0Hz~550Hz
	Overload capacity	G type:150% rated current for 60s ;P type:120% rated current for 60s
Main control function	Control mode	Magnetic field vector PWM modulation
	Range of speed regulation	1:100
	starting torque	150% rated torque when 0.5Hz
	Speed control accuracy	≤±5% rated synchronous speed
	Frequency accuracy	Digital set :max. frequency×±0.01% Analog set: max.frequency×±0.2%
	Frequency resolution	Digital set :1Hz ;Analog set: max. frequency×0.1%
	Torque rise	Auto torque ascension,manual torque ascension 0.1%~30.0%
	V/F curve	Four ways:1 kind of user set V/F curve way、 3 kinds of drop torque characteristic curve way(2.0 times power, 1.7 times power, 1.2 times power
	Acceleration/deceleration curve	Three ways:line acceleration/deceleration、 S curve acceleration/deceleration、 Auto acceleration/deceleration four acceleration/deceleration time, with the unit of time (minute/second) optional ,max.time set 60 hours
	DC braking	DC braking start frequency:0.00Hz~60.00Hz;braking time:0.0~30.0s;braking current:G type 0.0~100.0%;P type 0.0~80.0%
	Jogging	Jog frequency range:0.00Hz~50.0Hz
	Multi-speed operating	It can be realized by interior-PLC or control terminal
	Built-in PID	Be convenient to make closed-loop control system
Auto energy-saving running	According to load condition, V/F curve can be optimized automatically to get the aim of energy-saving running.	
	Auto voltage adjustment	when rhe voltage of network changes,the output voltage can be automatically kept constant
	Auto current limiting	During the operation, the current is automatically limited to prevent frequent flow to falut trip
Customized function	Auto carrier adjustment	According to the load characteristics ,automatically adjust the carrier frequency
	Textile swing frequency	Textile swing frequency control,it can realize the function of fixed and variable swing frequency
	Fixed length control	Length reached stop function
	Sagging function	Applicable to multiple inverters drive one load

	Instant stop/non-stop control	when power-supply off instantly,it can realize keep running through control bus voltage
	Binding function	Running command channel and frequency given channel can be binded and change at same time
Running function	Running command channel	Operation panel,control terminal and communication port , can be switched through many ways
	Frequency given channel	Digital given, keypad potentiometer,analog voltage given,analog current given, pulse given,communication port given,can be switched through many ways
	Auxiliary frequency given channel	Realize flexible auxiliary frequency fine-tuning and frequency combination operation
	Pulse output terminal	0~50KHz pulse square wave signal output,can realize output setting frequency and output frequency ect.
	Analog output terminal	2 ways analog output,0~10v、 0~20mA to get output of physical quantity such as setting frequency and output frequency
Operating panel	LED display	It can display 20 kinds of parameters such as setting frequency,output frequency,output voltage,output current and so on
	Key Locked and function choose	Define the function scope of part of the keys,in case of mistake operation
	protection function	Phase-loss protection(optional),over current protection,over voltage protection,under voltage protection,over heat protection,over load protection
Environment	Service location	Indoor,not suffer from sun,dust,corrosive gas,oil fog,steam and so on
	Altitude	Less than 1000m (derating at higher than 1000m)
	Environment temperature	-10°C~+40°C
	Humidity	Less than 90%RH, no condensation
	Vibration	Less than 5.9m/s ² (0.6M)
	Storage temperature	-20°C~+60°C
Structure	Protection class	IP20 (In service state or keyboard state.)
	Cooling way	Air-blast cooling
Installation Way		Wall-hanging,Cabinet, Trough-wall installation

Outline size

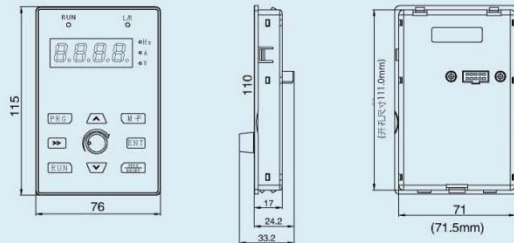


(a) size A

(b) size B

Size	W	W1	H	H1	D	D1	D2	D3	Mounting Hole Dia (Φ)	Reference picture
GT210-5.5-7.5KW	150	138	259	248	183	176	150	105	5.5	(a)
GT210-11-15KW	205	188	322	305	219	210	168	143	6.5	(a)
GT210-18.5-22KW	235	218	370	350	237	230	200	145	7	(a)
GT210-30-37KW	305	200	490	470	278	270	238	207	10	(b)
GT210-45-55KW	320	200	560	540	303	295	265	230	10	(b)
GT210-75-280KW	Consult factory before ordering									

Keypad installation dimensions



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