

# G100 Series General Open-loop Vector Inverter

Scope of applicable power: 4 kW–800 kW



 24-Hour Service Hotline  
**400- 1360- 168**

**HuaYuan Electric: A Platform  
that Connects Power**



Official Website



Official WeChat  
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## HuaYuan Electric

HuaYuan Electric Co., Ltd. is a Beijing HuaYuan Group holding subsidiary. The company specializes in R&D, production, and sales of industrial automation control products. It is also dedicated to becoming a competitive provider of products and solutions in the world's industrial automation field!

HuaYuan Electric has adhered to HuaYuan Group's corporate spirit of "tenacity, unity, exploration, and struggle" since its establishment as HuaYuan Group's new force in the high-tech field. Shouldering the holy mission of enhancing national industry automation progress, HuaYuan Electric has been committed to the design and development of independent IPRs and worked tirelessly in the domestic market. It has also established its famous brand in this industry and made plans for the international market, with the goal of becoming a reliable partner capable of constantly creating value for customers and users.

All of our products, including variable-frequency drives, servo drives, UPS, etc., have been extensively used in sectors such as machine tools, packaging, textiles, ceramics, mining, food, chemical, transfer, data centers, etc.

Since its establishment, HuaYuan Electric has obtained numerous patents, including approximately 20 invention patents, over 50 design patents, and more than 50 utility model patents. All of the aforementioned accomplishments have fully demonstrated the company's capability for innovation and provided strong technical support for its product promotion.



## Product Overview

HuaYuan Electric's G100 series general open-loop vector inverter represents a new generation of general products. The product has a straight-lined shape and a stylish design that exudes a sense of science and technology. With an applicable power of 4kW–800kW, it supports VF control and open-loop vector control and is primarily applicable to domestic markets, supporting equipment such as centrifuges, extruders, industrial washing machines, wire drawing machines, the renovation of production lines for textile, injection molding, chemical fiber, cement, ceramics, etc., as well as large projects of fans and pumps in industries such as petrochemical, oil refining, thermal power, water supply, heat supply, etc.

Designed with the "people-oriented" principle in mind, our product could meet and even exceed customers' expectations, enhancing their market competitiveness.

The G100 series is designed with an integral panel and a fixed-operation keyboard in order to enhance the protective effect. It can also be connected to an external keyboard, which may be the new generation of silicone key keyboards with a more comfortable operation experience, bringing customers an unparalleled humanized design experience.

The product is also equipped with a variety of expansion functions, which support the use of different function expansion cards based on customers' needs.

In reality, the independent air duct design improves the product's overall reliability.



# Humanized Design

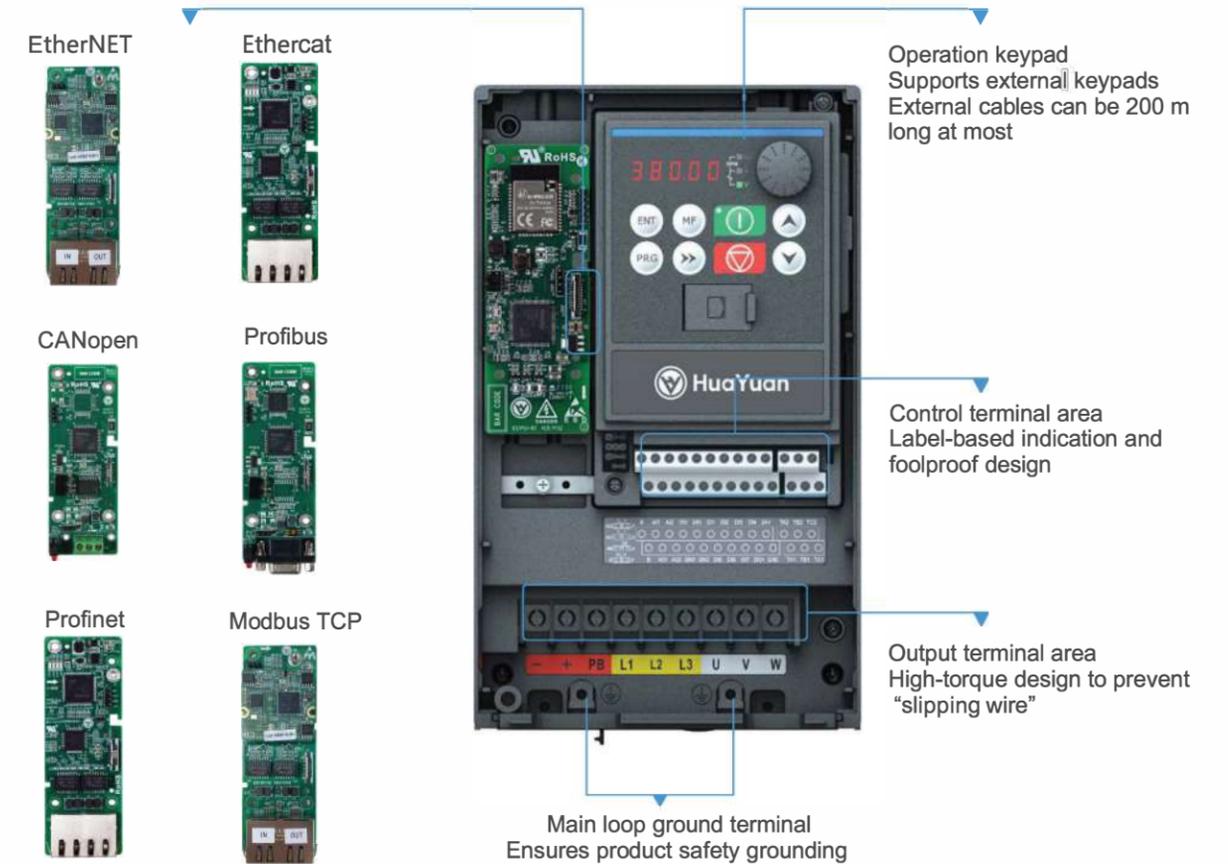
## Product Details

On the basis of inheriting the typical style of G1 series products, the G100 series general open-loop vector inverter is designed with appearance aesthetics and ergonomics in consideration in order to improve its practicability, usability, and experience feelings, satisfying and even exceeding customers' expectations.



## Modular Design

Diverse expansion interfaces, which supports a variety of I/O expansion cards, function expansion cards, and communication expansion cards, are needed in order to enhance product functionality and meet customers' different scenarios



## Rich Product Features

### Perfect braking function

- Magnetic flux braking, parking DC braking, and dynamic braking are available.
- With regard to minor energy feedback loads, the magnetic flux braking function can also guarantee the equipment's rapid start or stop without connecting braking resistance in order to enhance production efficiency and save costs.



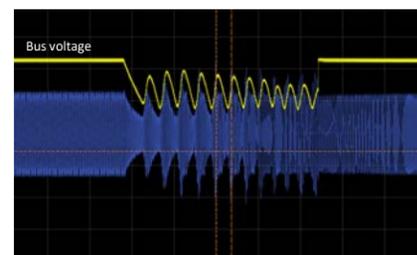
Effective flux braking



Ineffective flux brake

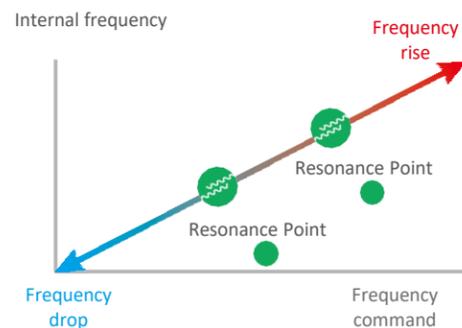
### Non-stop function after a sudden halt

In the event of a sudden power outage, the inverter can continue to run normally for a certain period of time. This function makes the product particularly applicable in scenarios where continuous operation is of the utmost importance.



### Frequency hopping function

Once load mechanical resonance occurs, the 2 settable frequency hopping points can effectively avoid inverter resonance points during acceleration and deceleration processes in order to guarantee stable operation of load machinery.



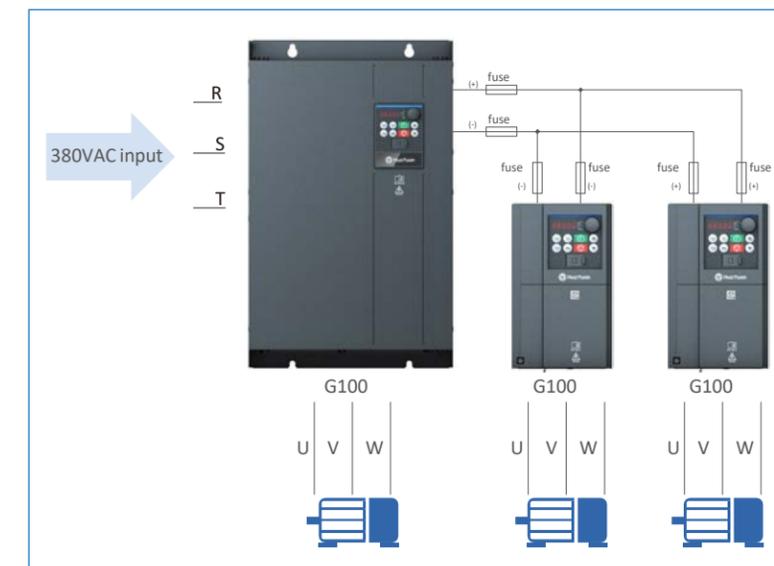
### Load drop protection function

The output current of the inverter could remain at a low level for an extended period of time if the load suddenly decreases, giving the inverter time to report a load shedding fault and warn that the load has been separated.



### Common DC bus

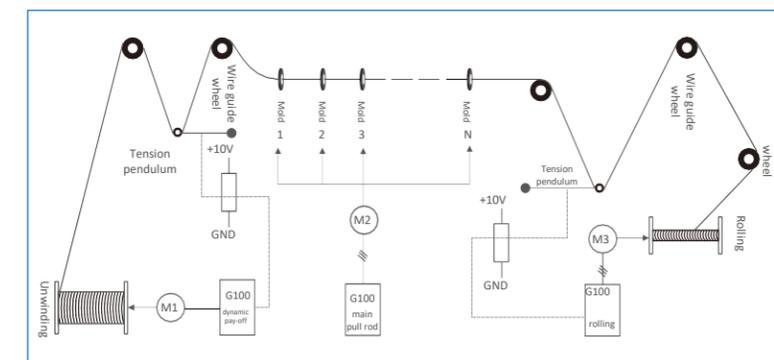
- DC power supply mode is supported throughout the whole series.
- Multiple inverters that share a DC bus can reduce their energy consumption and braking power. Ensure that the sharing above is conducted under the guidance of the manufacturer.



### Industry expansion

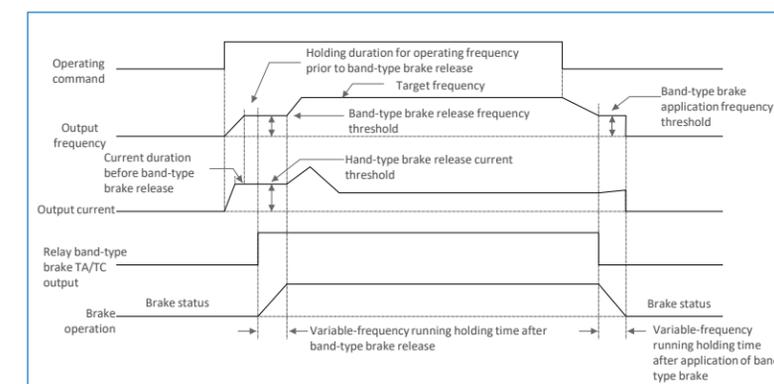
Schematic of a wire drawing machine with variable-frequency control, active paying-off, and constant tension take-up

- A special parameter set for wire drawing machines satisfies the application requirements of the cable industry, such as power take-up and pay-off, double variable-frequency water tank wire drawing machines, straight wire drawing machines, etc.



A logic timing diagram of a band-type brake

- The logic parameter set of the brake meets the lifting industry's application requirements.



## Superior Environmental Adaptability



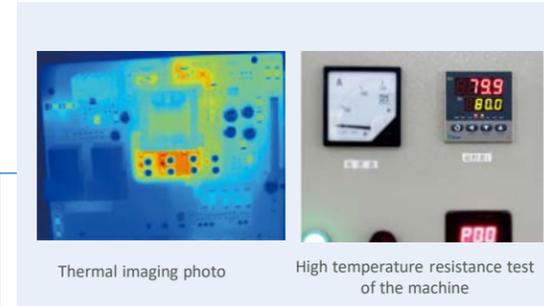
### Independent duct design

- Fully independent air duct design that could prevent pollutants from entering the area of electronic components, enhance protection effects, and make the product applicable to various environments.
- The side and top surfaces of the upper cavity are designed without ventilation holes that could effectively prevent pollutants from entering under the premise of guaranteeing temperature rise in order to effectively isolate the upper and lower parts.



### Automatic spraying process of three-proof paint

- The product is coated with a high-quality three-proof paint in order to effectively prevent dust, corrosion, and moisture, as well as improve the circuit board's resistance to acid, alkali, and corrosion.
- The three-proof paint is automatically sprayed, which effectively ensures uniform spraying thickness of the circuit board and the consistency of products in the same batch.
- Multi-coating is supported for industries with special requirements in order to enhance the circuit board's environmental resistance.



### Temperature rise test standard of the whole machine

- The product has undergone rigorous board-level thermal verification test during the development stage in order to ensure thermal reliability within the range of designed power.
- The product has undergone full load and overload thermal verification tests during the machine verification stage. Moreover, it also strictly adheres to thermal stress reduction standards.
- The entire machine can operate continuously in a high-temperature environment.



### Safety protection

- The standard product could satisfy IP20 protection requirements.
- NEMA1 protection is optional.
- Support the grounding of the cable shielding layer with a metal bracket (optional).
- The shielding layer can be grounded safely through the metal bracket.



### Integral panel design

- The product is fitted with an integral cover that contains an integrated fixed operation keyboard to effectively prevent dust, foreign matter, etc. from entering, and to better ensure the product's adaptability to different scenarios.



### Sheet metal back plate design

- The entire product line is designed with a sheet metal back plate, which effectively enhances the product's resistance to vibration, oil pollution, etc.
- Different and more reliable grounding modes are available



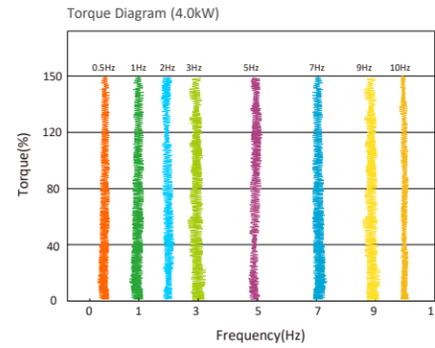
### Support installation in the middle part

- The middle mounting bracket is optional. The product's middle mounting mode is available in order to satisfy product mounting in a special environment.

# Outstanding Performance

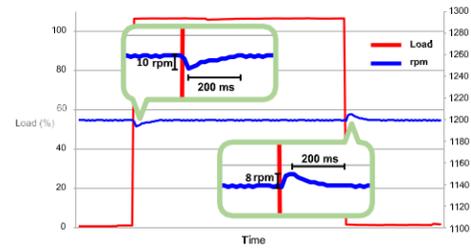
## High starting torque

- Open-loop vector control (SVC): 0.5 Hz can produce a 150% increase in starting torque.



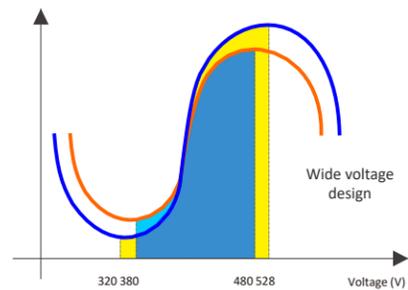
## Fast response to impact loads

- It enables fast speed recovery and reduces speed fluctuations in response to load transients in order to guarantee production stability and product quality.



## Strong adaptability to voltage fluctuations

- Voltage rating: 4T 380–480 V
- Frequency rating: 50/60 Hz
- Allowable voltage fluctuation range: 320V–528V
- Degree of unbalance: <3%
- Frequency range: 47–63 Hz



## Speed tracking

- The product supports both hardware and software speed tracking.
- Fast and accurate tracking to the current frequency, smooth, and impact-free start-up



315kW speed start oscillogram





## Industry Application

The product is primarily applicable to domestic markets supporting equipment such as centrifuges, extruders, industrial washing machines, wire drawing machines, the renovation of production lines for textile, injection molding, chemical fiber, cement, ceramics, etc., as well as large projects of fans and pumps in industries such as petrochemical, oil refining, thermal power, water supply, heat supply, etc.



Machine tool



Textile



Carpentry



Packaging



Cable



Plastics



Fans and water pumps



Gas compression



Ceramics



Petroleum

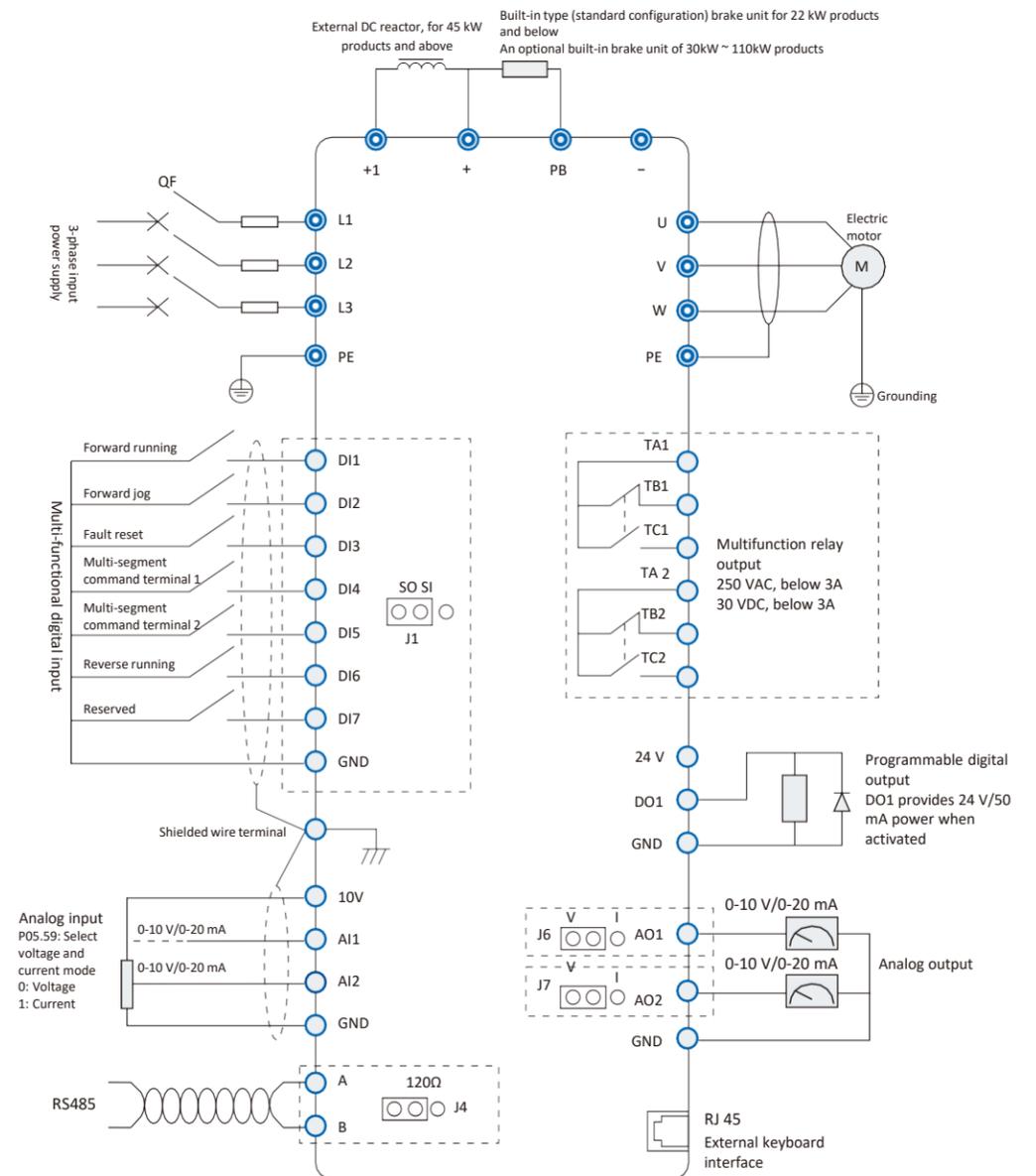


Chemical



Mining

## System Wiring Diagram



Note:  
 Jumper J6: AO1 input 0–10 V, 0–20 mA selection  
 Jumper J7: AO2 output 0–10 V, 0–20 mA selection  
 Jumper J1: DI input leakage and source selection  
 Jumper J4: RS485 termination resistor selection

# Technical Specification Breakdown

Items		Specifications		
Input	Rated voltage and frequency	4T: 380 - 480 V, 50/60 Hz		
	Allowable voltage fluctuation range	Fluctuation range: 320–528 V. Unbalance degree: <3%. Frequency range: 47–63 Hz		
Output	Output voltage	0 - INPUT		
	Output frequency	0 - 3200 Hz		
	Overload capacity	N: 150% - 60s; 180% - 3s; 200% - 0.5s		
Control Characteristics	Control mode	V/F control, open-loop vector control (SVC)		
	Starting torque	0.25 Hz 150% (SVC) ;		
	Speed range	1:100 (V/F) ; 1:200 (SVC) ;		
	Steady speed accuracy	≤±0.5% (SVC) ;		
	Velocity fluctuation	≤±0.5% (SVC)		
	Torque response	≤20 ms (SVC)		
	Frequency accuracy	Low-frequency operation mode	High-frequency operation mode	
		Digital setting: 0.01 Hz Analog setting: Maximum frequency × 0.2%	Digital setting: 0.01 Hz Analog setting: Maximum frequency × 0.2%	
	Frequency resolution	0.01 Hz	0.1 Hz	
	Modulation mode	SVPWM		
	Carrier frequency	0.5–16 kHz, model-dependent		
	Automatic carrier regulation	The inverter can automatically adjust the carrier frequency according to the internal temperature after this function is enabled,		
	Torque boost	Manual torque increases 0 by 0.1%–30.0% in V/F control mode.		
	Torque curve	0: User-defined V/F curve. 1: 2 power curves. 2: 1.7 power curve. 3: 1.2 power curve		
	Acceleration and deceleration times	0-6500.0 s, linear acceleration and deceleration, or S curve acceleration and deceleration mode; four groups of acceleration and deceleration time are optional.		
	Basic Functions	Jog function	Jog frequency range: 0.00–maximum frequency	
			Jog acceleration/deceleration time: 0–6500.0 s	
		Simple PLC and multi-speed	16-stage speed operation can be realized at most with the built-in PLC function and control terminal function.	
		Internal PID	Easy realization of closed-loop control	
Sleep arousal		Process PID with sleep and wake functions		
Torque limit		Torque can be limited during speed control to prevent frequent overcurrent alarms.		
DC braking		DC braking starting frequency: 0.00-maximum set frequency		
	DC braking time: 0.01–30.00 s (0.0: no action)			
	DC braking current: 0.0–100.0% of inverter rated current			

Items		Specifications	
Basic Functions	Automatic voltage regulator (AVR)	This function can maintain the output voltage constant even when the input voltage deviates from the rated value. Therefore, AVR should operate normally, especially when the input voltage is higher than the rated value.	
	Automatic current limiting	The inverter output current is controlled. When the output current reaches the automatic current limiting level, the inverter output frequency is adjusted to make the current value no higher than the set automatic current limiting level that can prevent overcurrent faults of the inverter to the maximum and ensure its continuous operation.	
	Overpressure stall control	The DC cable voltage is restrained during the frequency converter operation in order to prevent overvoltage of the DC cable.	
	MODBUS communication	Standard MODBUS communication protocol that supports convenient and fast communication with peripheral devices.	
Special Characteristics	Binding function	Binding of the operation command channel and frequency input channel makes extra parameter setting unnecessary.	
	Input terminal drain/source selection	The drain and source of DI1-DDI7 terminals can be chosen through jumper terminals to meet the needs of different scenarios.	
	Multi-segment AI curves correction	AI curves can be set based on four points at maximum, making curve correction flexible and convenient.	
	Double motor parameters	Two sets of asynchronous motor parameters are set inside to control two different motors through switching.	
	Virtual I/O port	A 5-channel virtual DI/DO port is available to realize complex logic control applications conveniently.	
	User-defined parameter set	The user can choose the required parameter set and summarize it in P17 to take it as a customized parameter in order to facilitate daily viewing and modification.	
Operation & Running	Command source channel	Modes of set keyboard, external terminal, and communication can be freely switched	
	Frequency source channel	Optional modes of set number, analog, pulse, multi-stage, and communication.	
	Input terminal	7 digital input terminals, DI1–DI7, for leakage and source input selection DI7 can be used as a high-speed pulse input. 12 V and 24 V levels are supported. Maximum frequency: 50 kHz	
		2 analog input terminals: 0–10 V or 0–20 mA Through parameter setting, 2-channel analog terminals AI can be used as digital input terminals DI.	
	Output terminal	1 programmable switch output, output level 24 V when turned on	
		2 programmable relay outputs: 250 VAC/3 A, 30 VDC/3 A	
		2 analog output terminals: 0–10 V or 0–20 mA optional	

## Product Nameplate and Model Descriptions

### Descriptions of nameplate contents



### Descriptions of product models



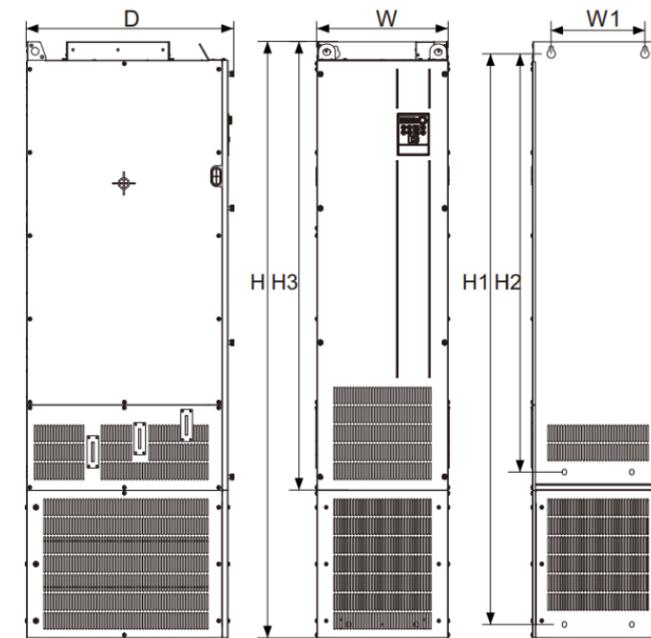
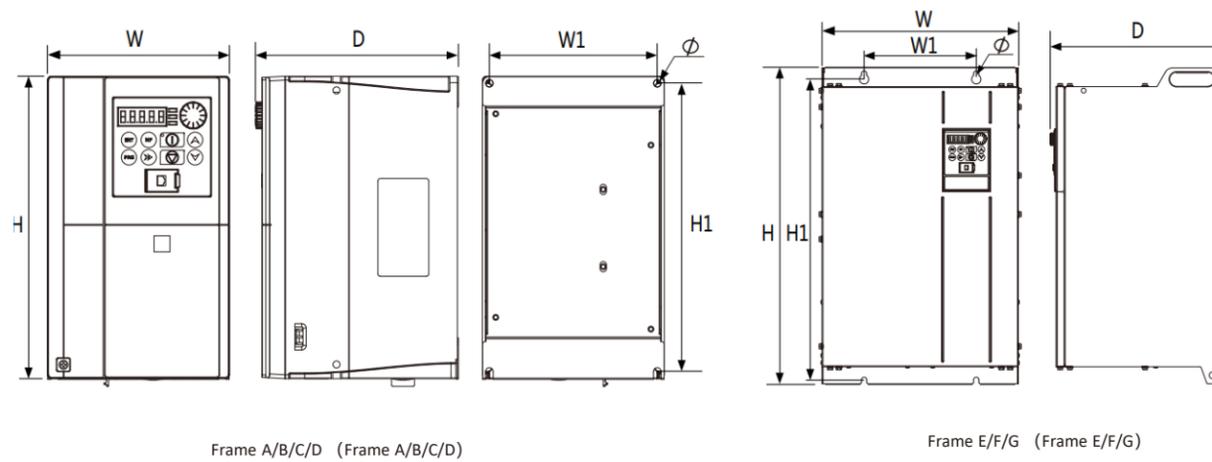
① Name of the product series	② Voltage class 2S: Single-phase 220 2T: Three-phase 220 V 4T: Three-phase 380V	③ Power class 0040: 4kW 0055: 5.5 kW ... 4000: 400 kW
④ Power digits 1: <10kW 2: 10~99kW 3: 100~999kW	⑤ Applicable motor type N: Universal	⑥ Structural frame A: Size A B: Size B ...
		⑦ Built-in brake unit (optional)

## Technical Parameters

Inverter Models	Structural Frame	Brake Unit	Rated Input Voltage (VAC)	Rated Output Current (A)	Rated Capacity (KVA)	Adapted Motor Power (kW)
G100-4T00401N-A	A	Built-in type (standard configuration)	380	10	5.9	4
G100-4T00551N-A	A	Built-in type (standard configuration)	380	13	8.6	5.5
G100-4T00751N-B	B	Built-in type (standard configuration)	380	17	11.2	7.5
G100-4T01102N-B	B	Built-in type (standard configuration)	380	25	16.5	11
G100-4T01502N-C	C	Built-in type (standard configuration)	380	32	21	15
G100-4T01852N-C	C	Built-in type (standard configuration)	380	38	25	18.5
G100-4T02202N-C	C	Built-in type (standard configuration)	380	45	30	22
G100-4T03002N-D	D	/	380	60	40	30
G100-4T03002N-D-B	D	Built-in type (optional)	380	60	40	30
G100-4T03702N-D	D	/	380	75	50	37
G100-4T03702N-D-B	D	Built-in type (optional)	380	75	50	37
G100-4T04502N-E	E	/	380	90	60	45
G100-4T04502N-E-B	E	Built-in type (optional)	380	90	60	45
G100-4T05502N-E	E	/	380	110	75	55
G100-4T05502N-E-B	E	Built-in type (optional)	380	110	75	55
G100-4T07502N-E	E	/	380	150	99	75
G100-4T07502N-E-B	E	Built-in type (optional)	380	150	99	75
G100-4T09002N-F	F	/	380	176	116	90
G100-4T09002N-F-B	F	Built-in type (optional)	380	176	116	90
G100-4T11003N-F	F	/	380	210	139	110
G100-4T11003N-F-B	F	Built-in type (optional)	380	210	139	110
G100-4T13203N-G	G	/	380	250	164	132
G100-4T16003N-G	G	/	380	300	197	160
G100-4T18503N-H	H	/	380	340	224	185
G100-4T20003N-H	H	/	380	380	250	200
G100-4T22003N-H	H	/	380	415	273	220
G100-4T25003N-H	H	/	380	470	309	250
G100-4T28003N-J	J	/	380	520	342	280
G100-4T31503N-J	J	/	380	600	395	315
G100-4T35003N-J	J	/	380	650	421	350
G100-4T40003N-J	J	/	380	720	454	400

# Product Installation Dimensions

(Unit: mm)



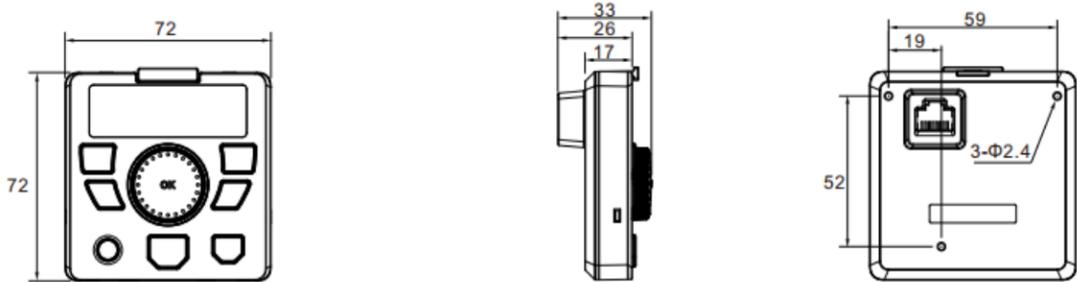
Frame	Inverter Models	Installation Dimensions (mm)		Overall Dimensions (mm)				Screw Size	Torque	
		W1	H1	W	H	D	Φ		(kgf·cm)	(Nd·m)
A	G100-4T00401N-A G100-4T00551N-A	132	224	143	235	160	5.5	M5	30±10%	3±10%
B	G100-4T00751N-B G100-4T01102N-B	150	250	167	265	170	5.5	M5	30±10%	3±10%
C	G100-4T01502N-C G100-4T01852N-C G100-4T02202N-C	183	285	200	300	186	6	M5	30±10%	3±10%
D	G100-4T03002N-D G100-4T03002N-D-B G100-4T03702N-D G100-4T03702N-D-B	218	375	235	390	196	7	M6	45±10%	4.5±10%
E	G100-4T04502N-E G100-4T04502N-E-B G100-4T05502N-E G100-4T05502N-E-B G100-4T07502N-E G100-4T07502N-E-B	200	525	350	544	311	9.5	M8	110±10%	11±10%
F	G100-4T09002N-F G100-4T09002N-F-B G100-4T11003N-F G100-4T11003N-F-B	200	625	350	644	311	9.5	M8	110±10%	11±10%
G	G100-4T13203N-G G100-4T16003N-G	300	865	450	884	351	9.5	M8	110±10%	11±10%

Frame	Inverter Models	Installation Dimensions (mm)			Overall Dimensions (mm)				Screw Size	Torque	
		W1	H1	H2	W	H	H3	D		(kgf·cm)	(Nd·m)
H	G100-4T18503N-H G100-4T20003N-H G100-4T22003N-H G100-4T25003N-H	250	1508	1118	350	1575	1185	545	M510	220±10%	22±10%
J	G100-4T28003N-J G100-4T31503N-J G100-4T35003N-J G100-4T40003N-J	250	1690	1290	350	1763	1363	545	M12	390±10%	39±10%

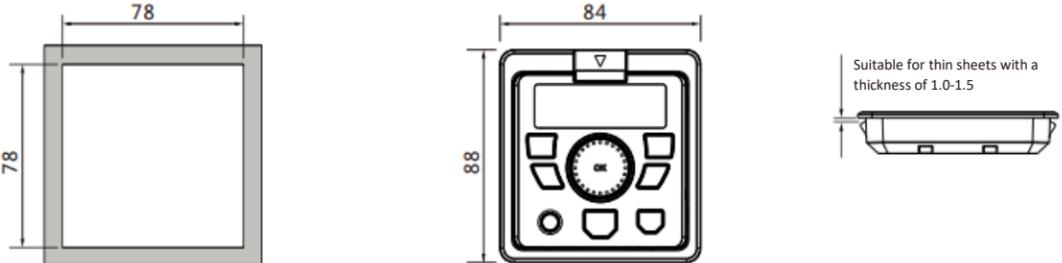
# Optional Keyboard Installation Size

(Unit: mm)

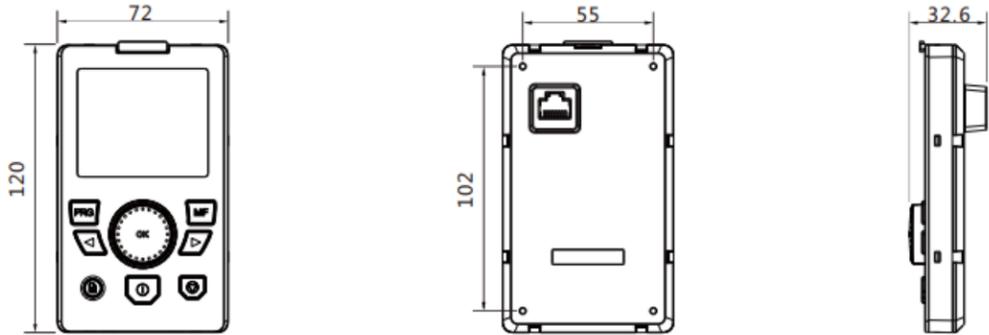
Single-display keyboard model: VDP-SE21



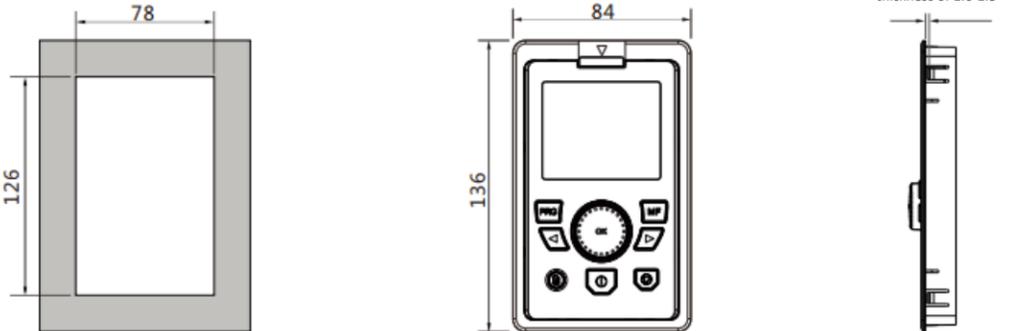
Schematic diagram of installation size of keyboard bottom bracket



Double display keyboard model: VDP-BT22



Schematic diagram of keyboard bracket (VDFPH-4) installation size



## Sales Service Network



Tenacity

Unity

Exploration

Struggle

Huayuan Sprit

**Vision:** To be the world's leading supplier of industrial automation products and integrated solutions.

**Mission:** Using application enhancement as the core and improving the industrialization progress of national industry

**Spirit:** Tenacity, Unity, Exploration, and Struggle

**Core values:** Be faithful, responsible, and innovative based on customer demands.