GD18 Series
Product Portfolio

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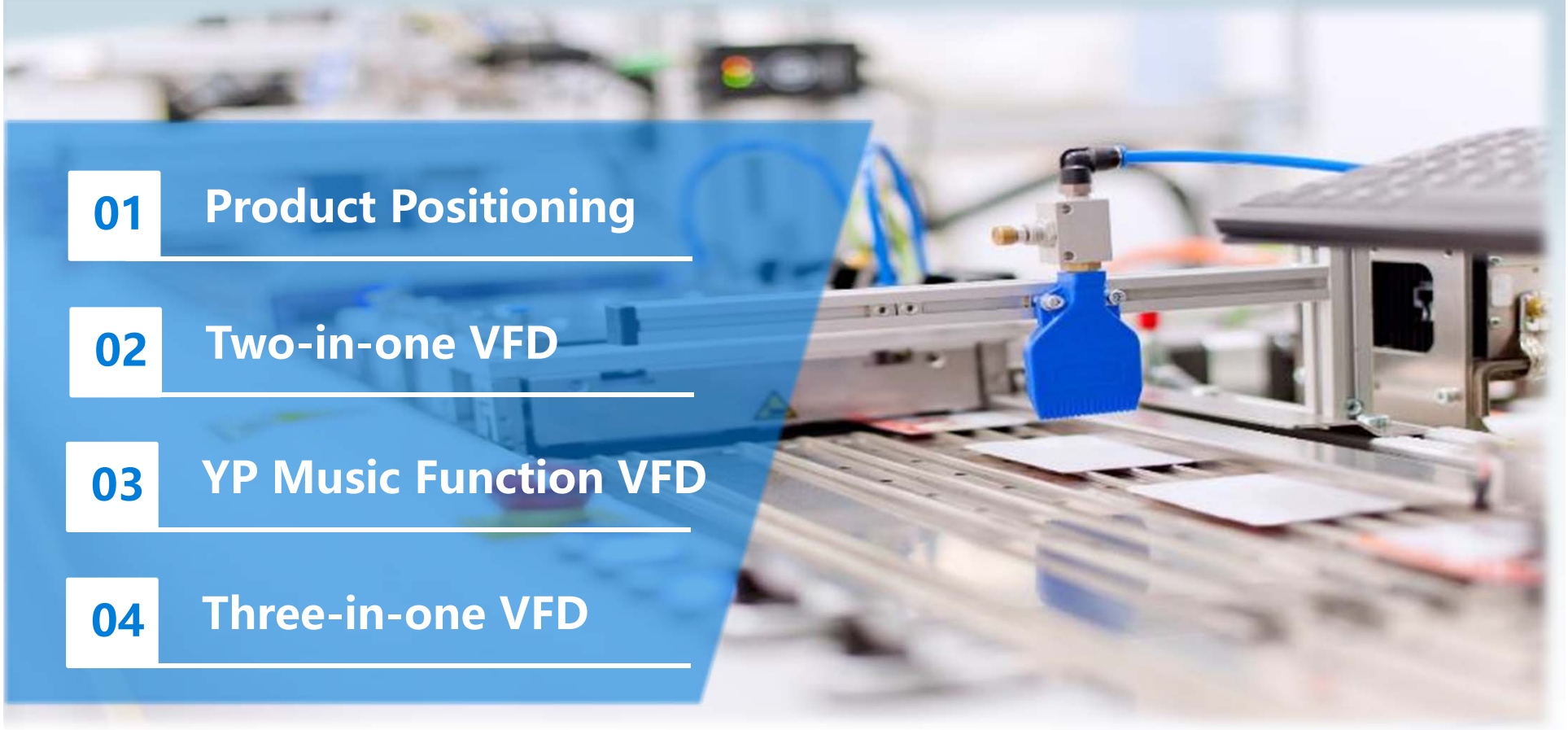


Part 1 Product Positioning

Product Overview

- According to penetrative market research, certain refined markets see the large-scale use of variable-frequency drives (VFDs) with competitive prices in simple applications. To increase the market share, INVT develops economical and differential products:

- Two-in-one VFD:

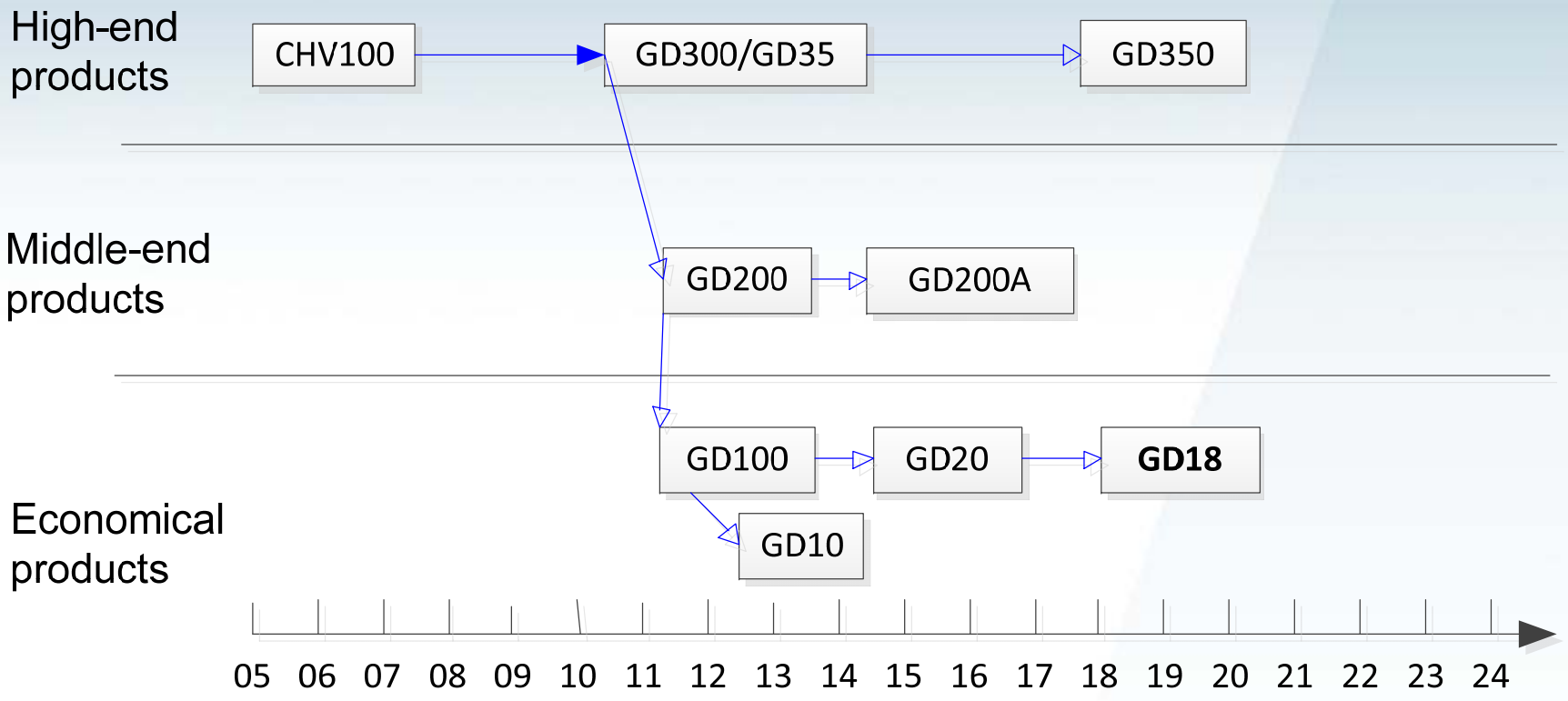
  Three-phase 380V; 0.75–7.5kW (Others are under development)

  The VFDs(≤2.2kW) are mainly applied to the stonework machinery, while the VFD(≥4kW) are mainly applied to the music fountain market. Other potential markets need to be explored.

- Three-in-one VFD:

  Single-phase 220V (developing three-phase 380V VFDs is under planning); 3kW (0.75+0.75+1.5) are special for edge bonders in the wood market.

Product Positioning



Part 2 Two-in-one VFD

Product Introduction

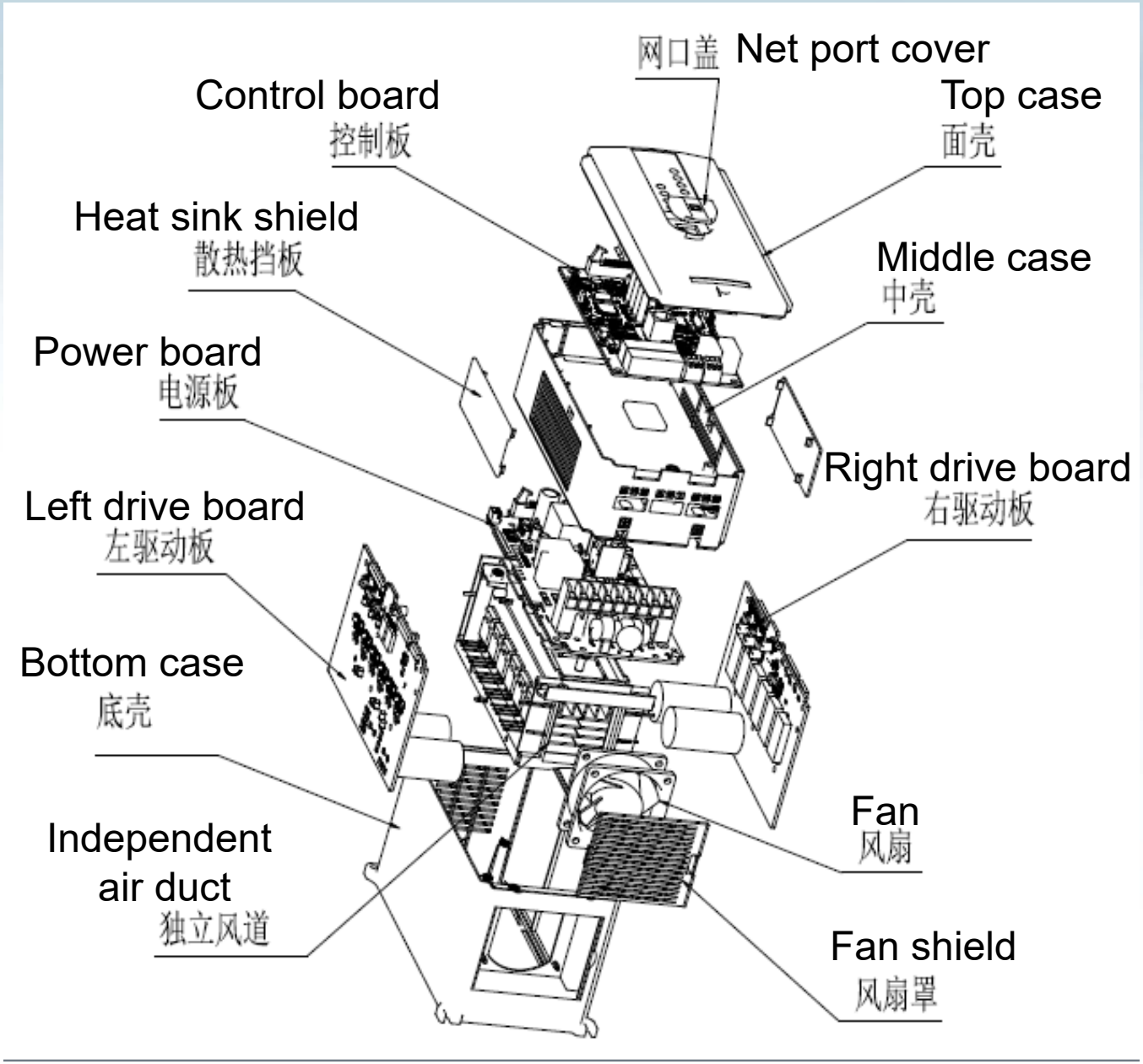
- Goodrive18 series two-in-one VFDs achieve outstanding drive performance and provide excellent control functions by using the sensorless vector control (SVC) technology. The products support various hardware configuration, provide powerful software functions, and enchance structural design, improving the usability and reliability.
- Applicable to single-VFD scenarios or scenarios that require two or more VFDs with the same power; able to meet the requirements of stonework machines and music fountains.

380VAC 0.75~7.5kW

Product Introduction

- The control and drive boards are entirely new developed.
- The structures of the bottom case, top case, and heat sink are redesigned, reducing structural components as many as possible. The independent air duct design is improved, meeting the cooling requirements of the side panels and entire device.
- The software is developed on the GD20 platform, using the double DSP architecture, achieving independent, asynchronous control and running for double IGBTs, and supporting simultaneous full-load and overload outputs for two IGBT channels.
- The user-oriented function terminals (of digital input, analog input, and analog output) can be provided for different virtual IGBT units through software configuration.
- Compatible with GD20 keypad, excluding the knob-controlled analog function, but using indicators to show the VFD status.
- To reduce the cost and size, the braking and rotational-speed tracking functions that are available in general VFDs are disabled, and the positive and negative bus terminals and PB terminals are removed.

Product Introduction



Optimized Structure

Size reduced, space saved

Compared with traditional VFDs, GD18 series two-in-one VFDs can reduce the size up to 50%, saving the installation space.

Optimized Structure

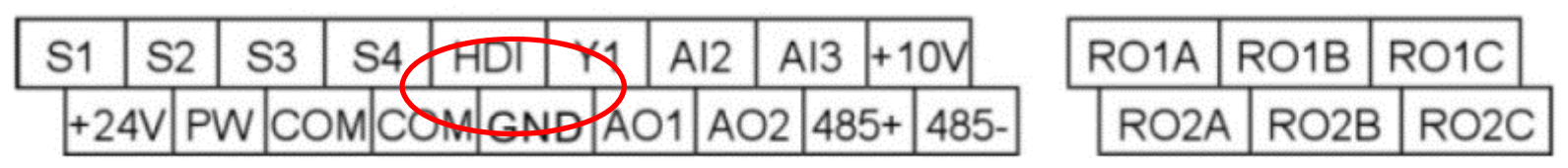
Book-shaped structural design

- The book-shaped structural design supports parallel installation, saves space, reduces cost, and makes the appearance neat and tidy.

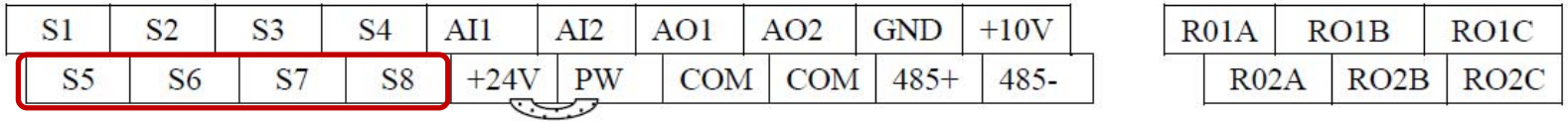
Terminal Comparison

Control board terminal comparison

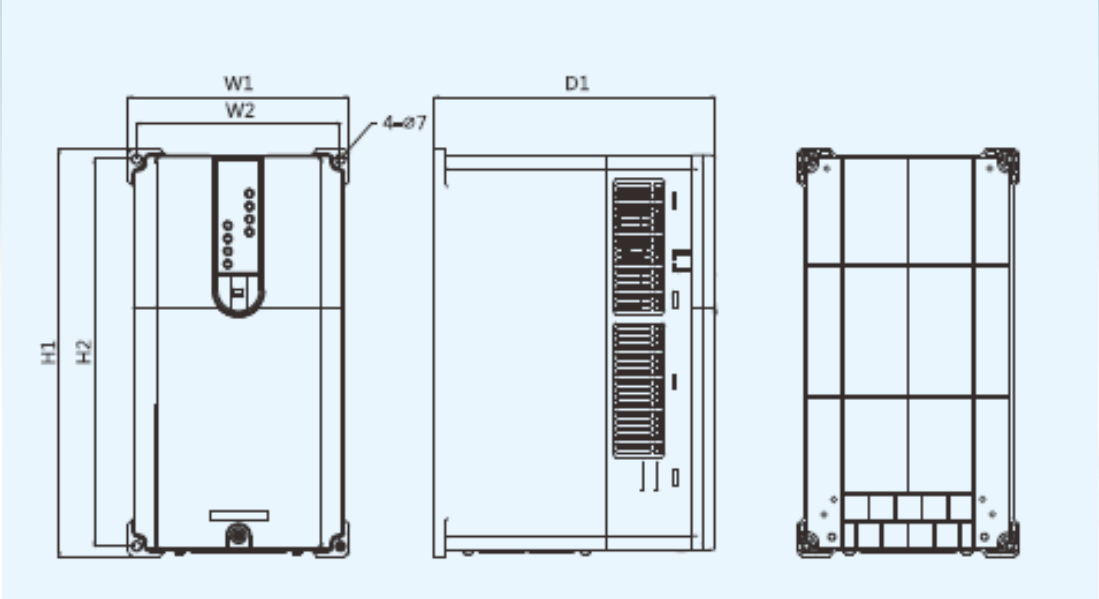
- GD20



- GD18



Product Structure



VFD model	W1	W2	H1	H2	D1	Installation hole diameter
0.75kW~1.5kW	107.5	97	195.3	184	164.5	4.5
2.2 kW~4kW	138	127	224	211	190	6
5.5kW~7.5kW	155	143	285	271	196.2	7

Product Models

GD18 – 1R5 – 4 – 2

① ② ③ ④

Filed	No	Description	Example
Product category	①	Short for product series	GD18：short for Goodrive18 multiple-in-one series
Rated power	②	Power range + load type	1R5：1.5KW
Voltage class	③	Voltage class	4： input three-phase 380V
Structural mode	④	Voltage class	2：Two in one

Product Rated Value

Model	Rated power	Input current	Output current	Structural mode
	(kW)	AC(A)	AC(A)	
GD18-0R7-4-2	0.75	7	2.5	R1
GD18-1R5-4-2	1.5	10	4.2	R1
GD18-2R2-4-2	2.2	12	5.5	R2
GD18-004-4-2	4	25	9.5	R2
GD18-5R5-4-2	5.5	32	14	R3
GD18-7R5-4-2	7.5	40	18.5	R3

Technical Parameters

Performance index	
Control method	Space voltage vector pulse width modulation (SVPWM) (VF); SVC
Motor type	Asynchronous motor (AM)
Speed ratio	For AMs, 1: 200 (in SVC)
Speed control accuarcy	±0.2% (in SVC)
Speed fluctuation	± 0.3% (in SVC)
Torque response	<20ms (in SVC)
Torque control accuracy	10% （in SVC）
Starting torque	For AMs, 0.5Hz/150% (in SVC)
Overload capacity	60s at 150% of the rated current; 10s at 180% of the rated current; 1s at 200% of the rated current (carrier frequency in working conditions: 4K)
Restart in rotational-speed tracking	N/A
Braking unit	N/A

Technical Parameters

External interface	
Analog input	AI1 voltage/current range: 0~10V/0~20mA AI2: -10V~10V voltage range AI1/AI2 min. resolution: 10mV/20mV
Analog output	1. Output range for AO1/AO2: 0–10V voltage/0–20mA current 2. Voltage or current output is set by using the jumper 3. Full scale error: ±1%, 25°C
Digital input	Eight common inputs, max. frequency of 1kHZ, internal impedance of 3.3kΩ, voltage range of 12V–30V
Digital output	None
Relay output	Two channels of programmable relay output, with NO and NC contacts RO1A (NO), RO1B (NC), RO1C (common terminal) RO2A (NO), RO2B (NC), RO2C (common terminal) Contact capacity: 3A/AC250V, 1A/DC30V
Communication	One RS485 interface (non-isolation)

Application Scenarios

Goodrive18 two-in-one econominal VFDs are applicable to single-VFD scenarios or scenarios that require two or more VFDs with the same power.

Stonework machine

Music fountain

Part 3

GD18-YP

Product Introduction

- Goodrive18-YP music fountain VFDs are highlighted with excellent drive performance and control functions, using the SVC technology. The products support various hardware configuration, provide powerful software functions, and enchance structural design, improving the usability and reliability. In this way, the VFDs can perfectly meet music fountain application requirements.

GD18-YP single VFD

GD18-YP two-in-one VFD

Product Illustration

GD18-YP single VFD

Status indicators

Extendable keypad

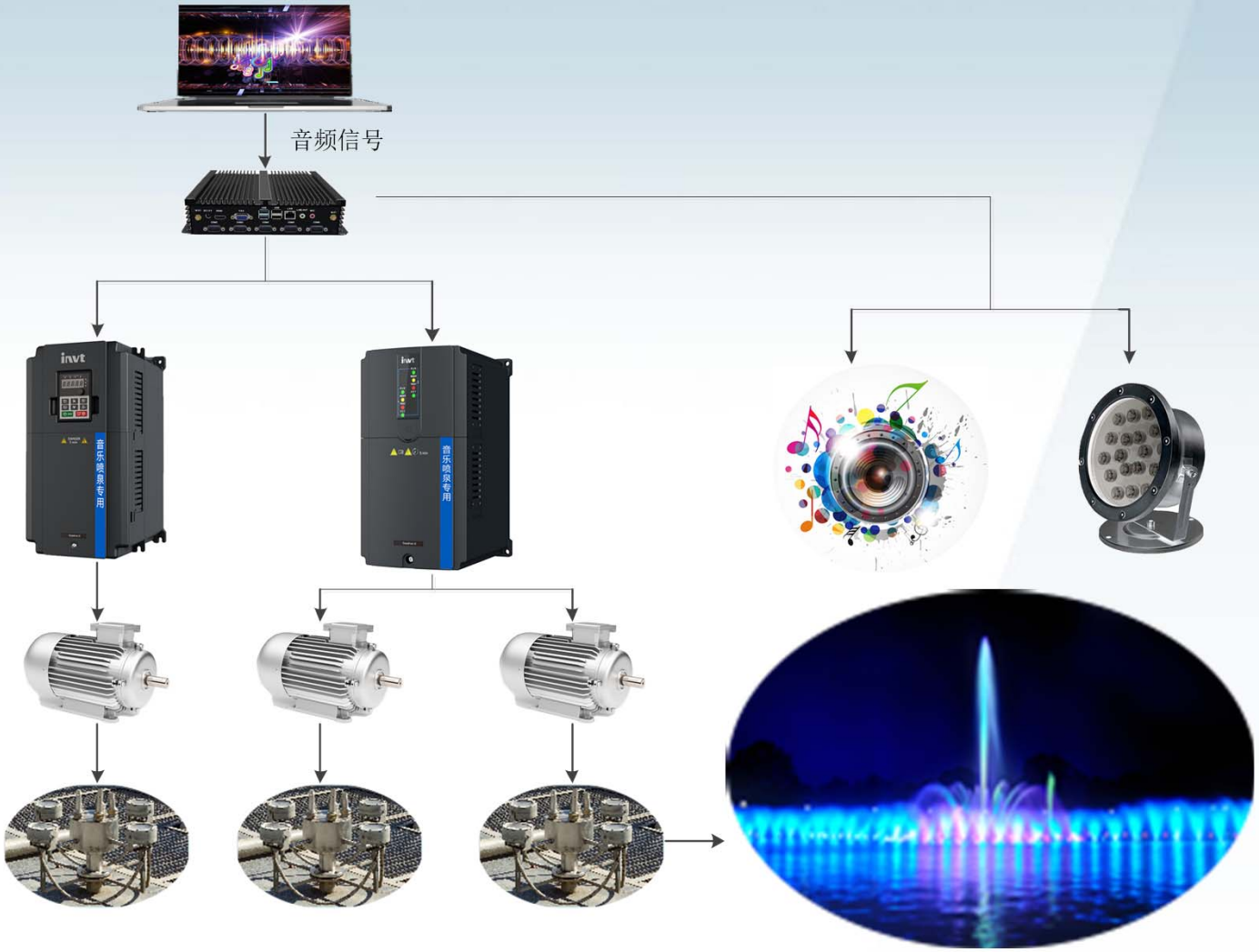
Sectionalized cases, making wiring easy

"For music fountain" in screen printing

External cable interface

GD18-YP two-in-one VFD

Music Fountain Control System



Product Advantages

Excellent control performance

Excellent control performance and high speed accuracy achieved for using the SVC technology.

Optimized structural design

Product size reduced, installation space saved.

Easy to use, with small noise

Noise caused by simultaneous running of multiple VFDs is lowered by using low-noise fan design, thus improving user experience.Fans are independently dismountable, facilitaing maintenance.

Real-time response

The mechanism of setting the acceleration or deceleration (ACC/DEC) time to as short as 0.1s works with the functions of protecting against such as overvoltage and overcurrent can avoid action distortion due to the lagging between waterform, light, and music.

Product Advantages

Enhanced current detection and control algorithm

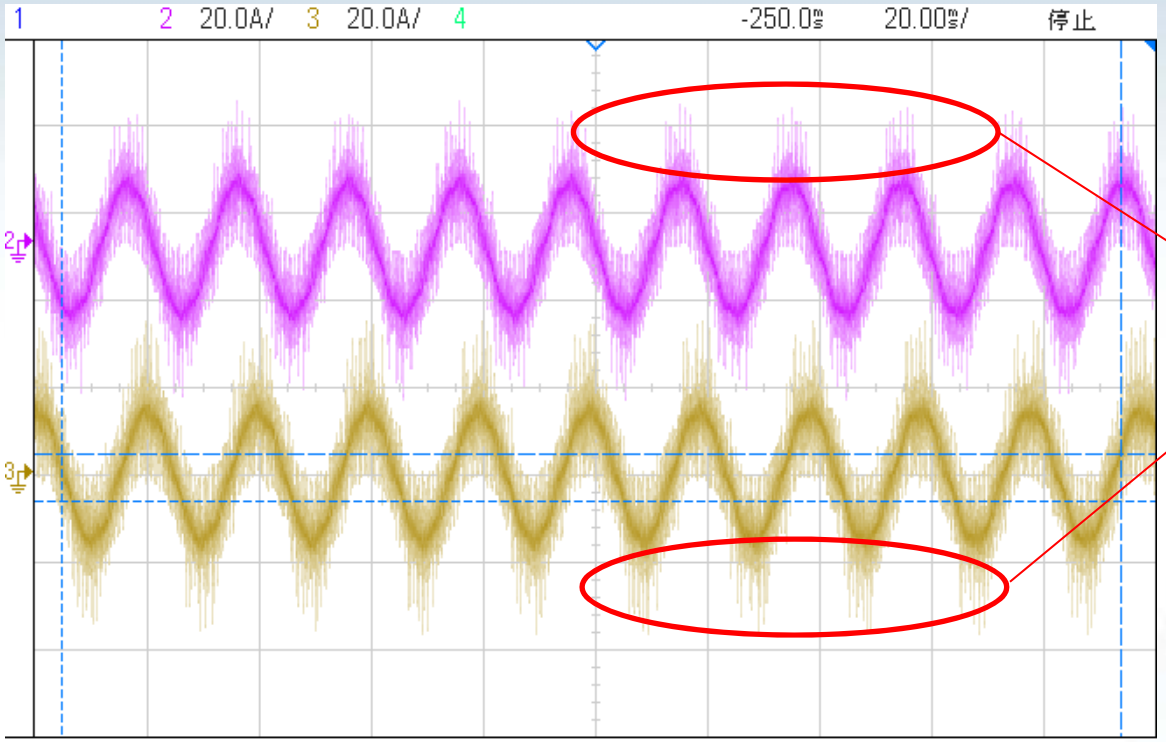
According to the music fountain application characteristics, current detection and control algorithm are enhanced, which screens out the false alarm caused by current spikes for the use of an overlong motor cable (of 600 meters). Then the VFDs can run stably.

Reliable protection

The reliable short-to-ground protection function greatly reduces the chance of VFD damages caused by motor and pump insulation performance deterioration and improves system stability.

Outstanding Performance

Excellent control performance



Able to screen out the false alarm caused by current spikes for the use of an overlong motor cable

GD18-YP Single VFD

GD18 – 5R5 – 4 – YP
① ② ③ ④

Filed	ID	Description	Example
Product category	①	Short for product series	GD18：short for Goodrive18 multiple-in-one series
Rated power	②	Power range + Load type	5R5：5.5KW
Voltage class	③	Voltage class	4：input three-phase 380V
Industrial code	④	Industrial code	YP：music fountain

GD18-YP Single VFD

Model	Rated power	Input current	Output current	Structural mode
	(kW)	AC(A)	AC(A)	
GD18-004-4-YP	4	13.5	9.5	R1
GD18-5R5-4-YP	5.5	19.5	14	
GD18-7R5-4-YP	7.5	25	18.5	R2
GD18-011-4-YP	11	32	25	
GD18-015-4-YP	15	40	32	
GD18-018-4-YP	18.5	47	38	R3
GD18-022-4-YP	22	51	45	
GD18-030-4-YP	30	70	60	R4

GD18-YP Two-in-one VFD

GD18 – 2R2 – 4 – 2 – YP

① ② ③ ④ ⑤

Filed	ID	Description	Example
Product category	①	Short for product series	GD18：short for Goodrive18 multiple-in-one series
Rated power	②	Power range+Load type	5R5：5.5kW
Voltage class	③	Voltage class	4：input three-phase 380V
Structural mode	④	Number of VFDs in combination	2：two in one
Industrial code	⑤	Industrial code	YP：music fountain

GD18-YP Two-in-one VFD

Model	Rated power	Input current	Output current	Structural mode
	(kW)	AC(A)	AC(A)	
GD18-0R7-4-2-YP	0.75	7	2.5	R1
GD18-1R5-4-2-YP	1.5	10	4.2	R1
GD18-2R2-4-2-YP	2.2	12	5.5	R2
GD18-004-4-2-YP	4	25	9.5	R2
GD18-5R5-4-2-YP	5.5	32	14	R3
GD18-7R5-4-2-YP	7.5	40	18.5	R3

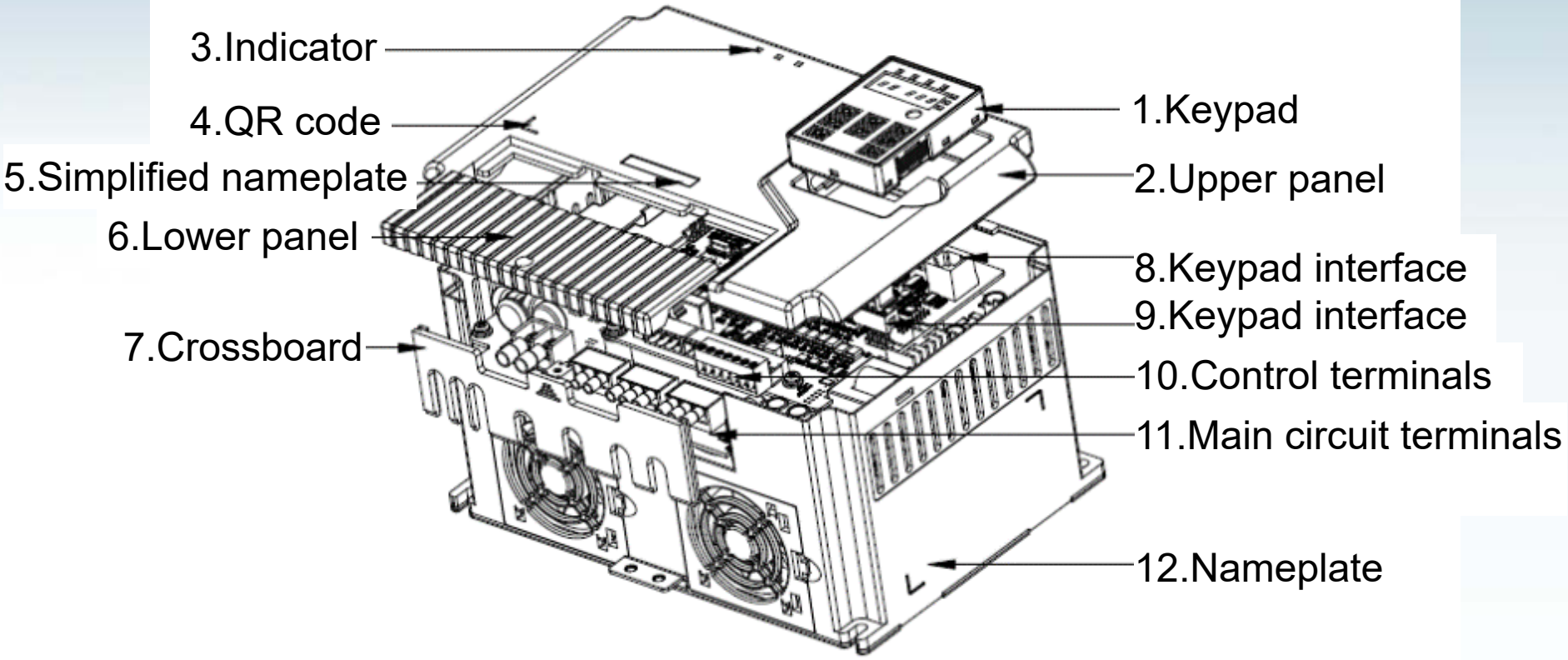
Part 4 Three-in-one

Product Introduction

- GD18-003G-S2-3-EB is a three-in-one VFD for edge bonding machines and often used in the gluing, aligning, and refining processes. With excellent control performance, customized software, and simplified commissioning procedure, the product provides K-type thermocouple detection and temperature control and allows the three IGBTs to share the same bus. Therefore, the bus is more stable and control perform ance is better.

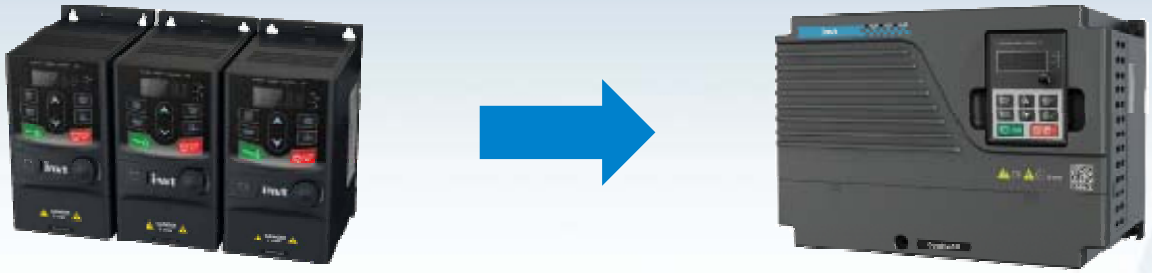
To scan to obtain the e-manual

Product Introduction



Easy to Use

- Three independent VFDs are integrated into one, facilitating installation and commissioning.



- According to customer requirements and onsite commissioning status, parameters are fixed to the factory-installed software, which facilitates bulk application.

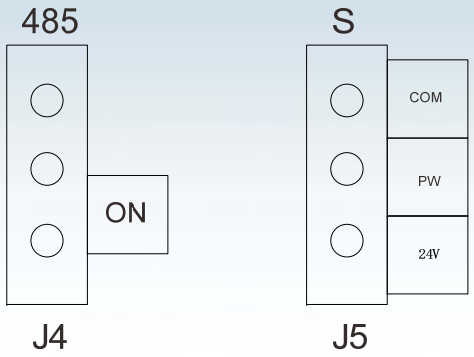
- The extendable keypad or touchscreen can be used to view fault codes or handling methods during parameter debugging or fault handling, making device status detection easy.

- K-type thermocouple detection improves device appearance and reduces the cost.

Product Comparison

Comparison between GD18 three-in-one and GD20	
1	The total size of one GD18 three-in-one VFD is less than three GD20 VFDs. The space for assembly is small.
2	The three VFDs in the GD18 three-in-one VFD share AC input and only need to connect the L, N, and PE cables, while each GD20 VFD needs to connect each cable.
3	GD18 three-in-one has the internal communication function without occupying RS485 communication. Thus, the product has a higher communication speed and can achieve fault-caused linkage stop (through function code setting). GD20 needs to use RS485 communication to control stop.
4	GD18 three-in-one needs to access only one group of RS485 communication, using a total of 2 wires. Each GD20 VFD needs to access one group of RS485 communication, using a total of six wires for three GD20 VFDs.
5	The number of control terminals for wiring of one GD18 three-in-one VFD is less than that of three GD20 VFDs. The terminals are swappable. Wiring and maintenance for GD18 three-in-one are more easy.
6	The keypad for GD18 three-in-one is swappable, facilitating installation and commissioning, while the keypad for GD20 is not swappable.
7	GD18 three-in-one is special, with parameters fixed, reducing commissioning difficulty. GD20 is general, with parameters to be set.
8	GD18 three-in-one provides K-type thermocouple temperature detection, without using a temperature controller (about RMB 80), reducing the cost. GD20 does not have this function.

Control Board Terminals

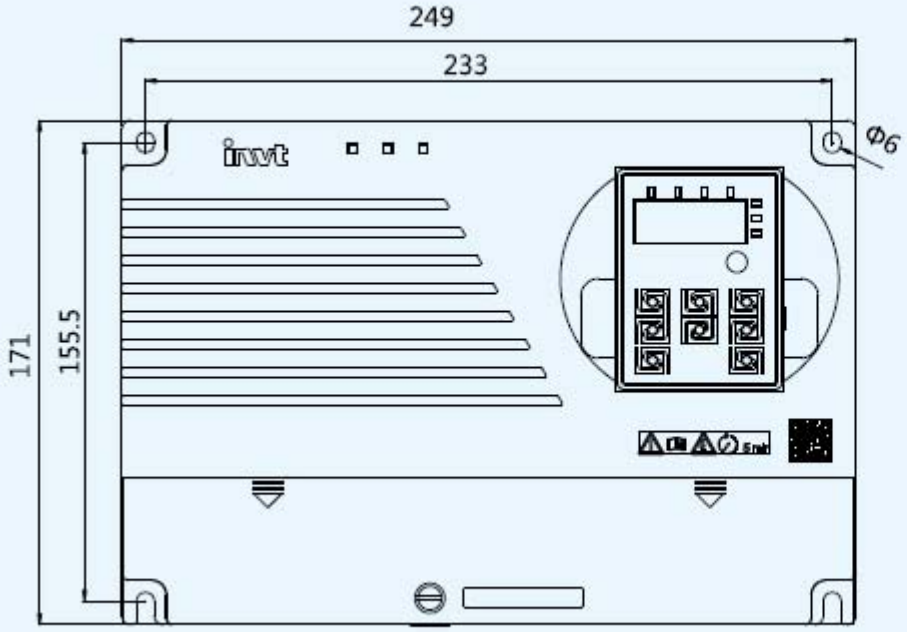


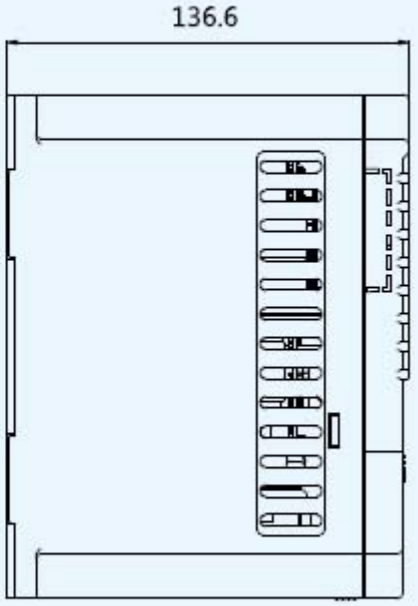
RO1A	RO1C	RO2C	RO2C

T+	T-	S1	S2	S3	24V	COM	485+	485-	PE

Temperature sampling input terminals are connected to K-type thermocouple sensors.

Product Structure





Product Models

GD18 – 003G – S2 – 3 – EB

① ② ③ ④ ⑤

Filed	ID	Description	Example
Product category	①	Short for product series	GD18：short for Goodrive18 multiple-in-one series
Rated power	②	Power range+Load type	003G：rated output power 3kW
Rated power			G：constant torque load
Voltage class	③	Voltage class	S2：single-phase 220V(-15%)–240V(+10%)
Multiple-in-one	④	3: three-in-one VFD	2: two in one
Usage	⑤	EB：Edge Bonder	Edge bonder

Product Rated Value

Product models	Voltage class	Output power		Input current	Output current	
	(V)	(kW)		(A)	(A)	
GD18-003G-S2-3-EB	Single-phase 220	Inverter 1	0.75	30	Inverter 1	4.2
		Inverter 2	0.75		Inverter 2	4.2
		Inverter 3	1.5		Inverter 3	7.5

Technical Parameters

Performance index	
Control method	SVPWM
Max. output frequency	400Hz
Speed ratio	1：100
Overload capacity	60s for 150% of the rated current; 10s for 180% of the rated current
Temperature detection accuracy	Overtemperature point ± 3°C
Terminal analog input resolution	No analog input
Terminal digital input resolution	No longer than 2ms

Technical Parameters

External interface	
Analog input	No analog input
Analog output	No analog output
Digital input	Three channels of common input, with the max. frequency of 1kHz
Digital output	No digital output
Relay output	Two channels of relay output with NO contacts RO1A、RO1C RO2A、RO2C
Communication	RS485