

# 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 enhance 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**

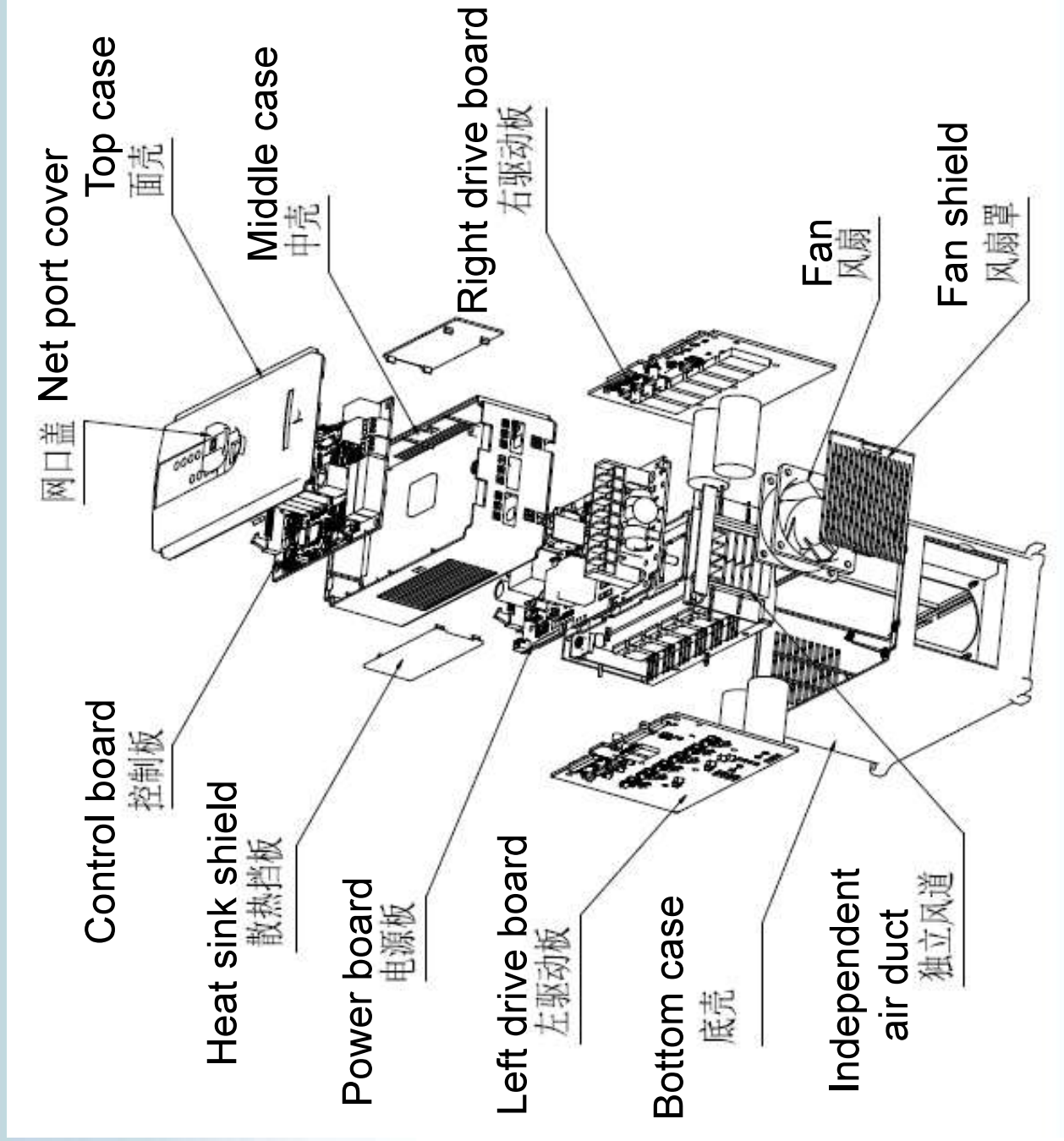


## Product Introduction

- 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





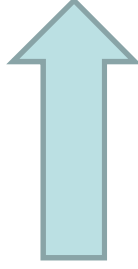
## Optimized Structure

invt



### 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

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### 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

S1	S2	S3	S4	HDI	Y1	AI2	AI3	+10V	RO1A	RO1B	RO1C
+24V	PW	COM	COM	GND	AO1	AO2	485+	485-	RO2A	RO2B	RO2C

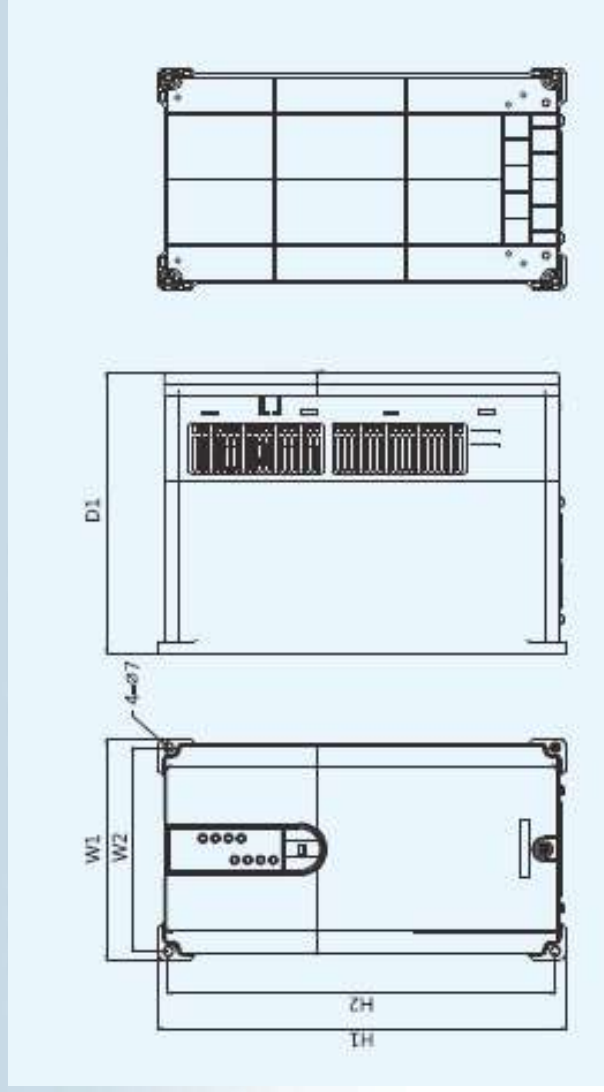
### ■ GD18

S1	S2	S3	S4	AI1	AI2	AO1	AO2	GND	+10V	RO1A	RO1B	RO1C
S5	S6	S7	S8	+24V	PW	COM	COM	485+	485-	RO2A	RO2B	RO2C



## Product Structure

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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

<b>Control method</b>	Space voltage vector pulse width modulation (SVPWM) ( VF); SVC
<b>Motor type</b>	Asynchronous motor (AM)
<b>Speed ratio</b>	For AMs, 1: 200 (in SVC)
<b>Speed control accuracy</b>	±0.2% (in SVC)
<b>Speed fluctuation</b>	± 0.3% (in SVC)
<b>Torque response</b>	<20ms (in SVC)
<b>Torque control accuracy</b>	10% (in SVC)
<b>Starting torque</b>	For AMs, 0.5Hz/150% (in SVC)
<b>Overload capacity</b>	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)
<b>Restart in rotational-speed tracking</b>	N/A
<b>Braking unit</b>	N/A



# Technical Parameters



## External interface

AI1 voltage/current range: 0~10V/0~20mA  
AI2: -10V~10V voltage range  
AI1/AI2 min. resolution: 10mV/20mV

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:  $\pm 1\%$ , 25°C

Eight common inputs, max. frequency of 1kHz, internal impedance of 3.3k $\Omega$ , 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

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



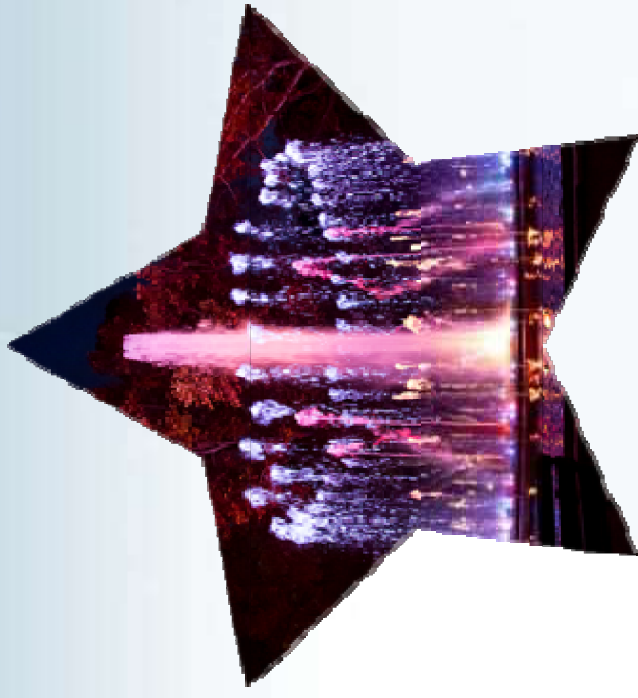
Stonework machine



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 enhance 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



GD18-YP two-in-one VFD 20

Status indicators

Extendable keypad

Sectionalized cases, making wiring easy

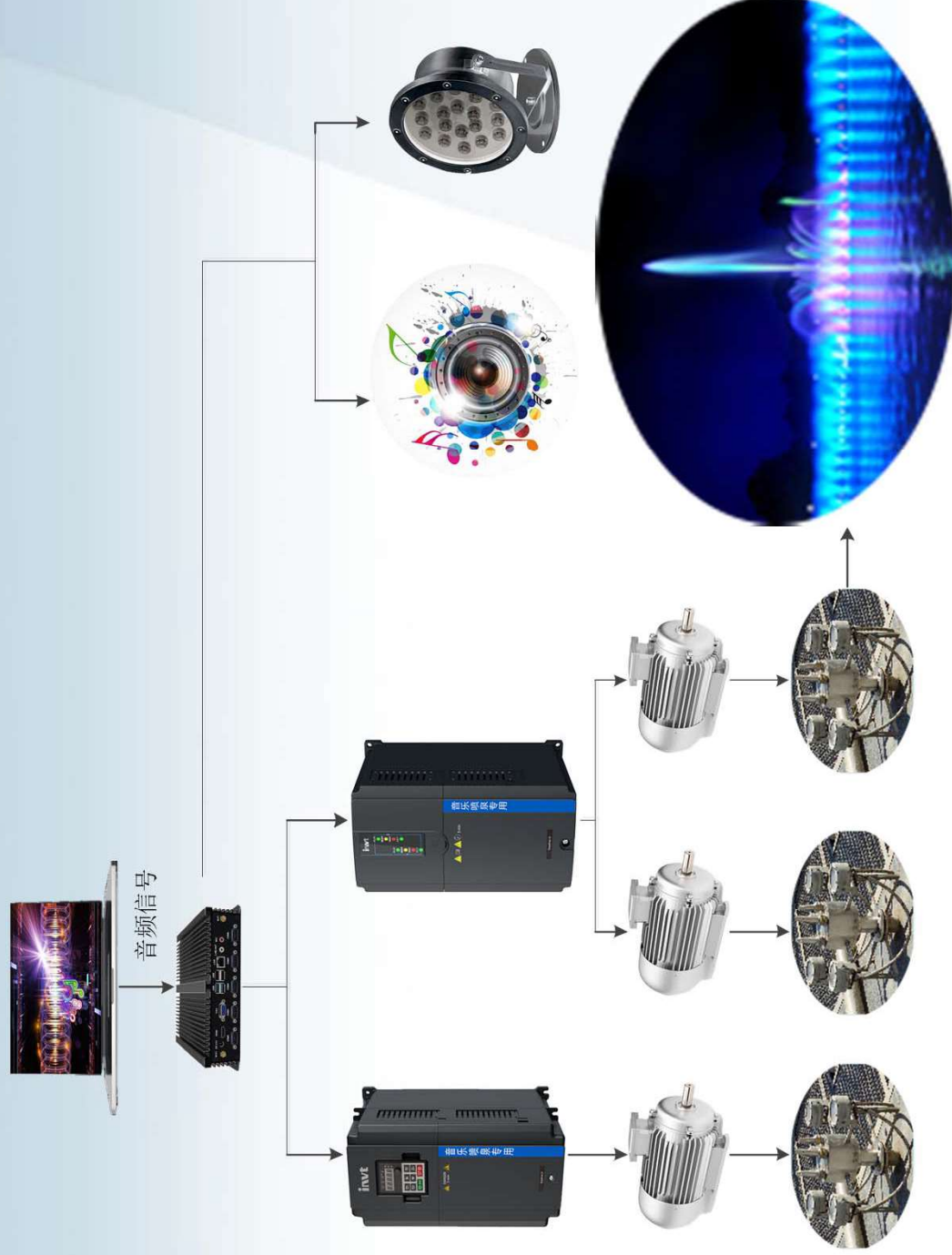
"For music fountain" in screen printing

External cable interface





# Music Fountain Control System





## Product Advantages

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### 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, facilitating 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 waveform, light, and music.



## Product Advantages

invt



### 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

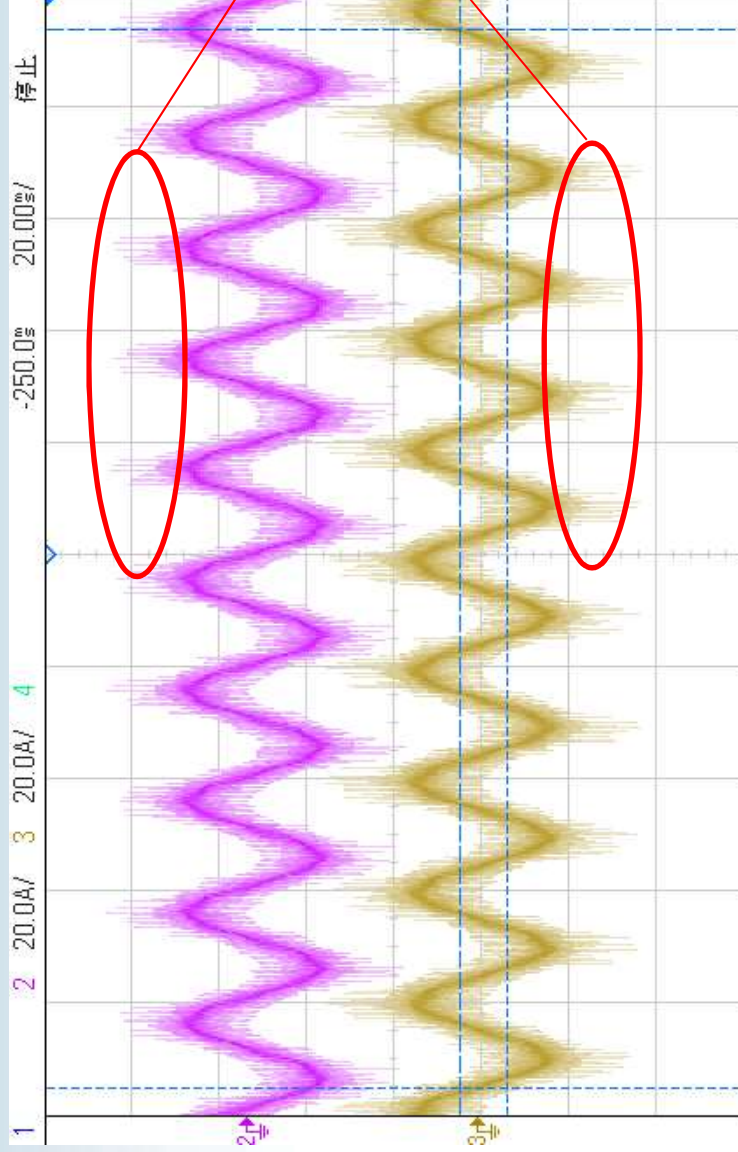
The reliable short-to-ground protection function greatly reduces the chance of VFD damages caused by motor and pump insulation performance deterioration and improves system stability.



# 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 (kW)	Input current AC(A)	Output current		Structural mode
			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	R3	
GD18-018-4-YP	18.5	47	38		
GD18-022-4-YP	22	51	45	R4	
GD18-030-4-YP	30	70	60		



## 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