

# Goodrive100-PV

## Solar Pumping Inverter

*Your Trusted Industry Automation Solution Provider*



Service line:86-755-86312859 E-mail:overseas@invt.com.cn

**SHENZHEN INVT ELECTRIC CO., LTD.**

No.4 Building, Gaofa Scientific Industrial Park, Longjing, Nanshan District, Shenzhen, China

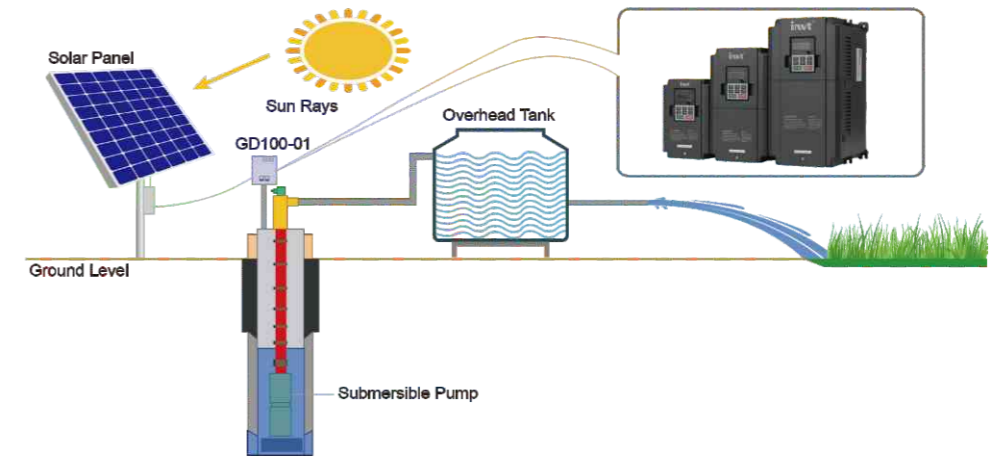
- |                               |  |                                       |                            |                                   |
|-------------------------------|--|---------------------------------------|----------------------------|-----------------------------------|
| <b>Industrial Automation:</b> | • Frequency Inverter                         | • Servo & Motion Control              | • Motor & Electric Spindle | • PLC                             |
|                               | • HMI  | • Intelligent Elevator Control System | • Traction Drive           |                                   |
| <b>Electric Power:</b>        | • SVG  | • Solar Inverter                      | • UPS                      | • Online Energy Management System |
|                               | • New Energy Vehicle Electric Control System |                                       |                            |                                   |

INVT Copyright.  
Information may be subject to change without notice during product improving.

Y6/1-05 V1.0



- Product introduction .....3
- Product features.....3
- Product applications.....4
- Type designation key.....5
- Product specifications.....6
- Installation dimensions.....8
- Options.....12
- AC/DC switching solution for Inverter.....14
- Recommended solar array configuration.....17



PV pump application system







## Product Applications

Mainly used in agriculture and forestry irrigation, desert control, grassland animal husbandry, and domestic water supply.

Domestic water



Municipal water



Agriculture irrigation



pasture animal husbandry



Forestry irrigation



desert control



## Product introduction

GD100-PV series are inverters that INVT newly launches specially for solar pumping applications. Compared with existing solar pumping inverters, GD100-PV series improve the usability and performance and extend applicable voltage levels and power segments. In addition, GD100-PV series provide users with options including the boost module, GPRS module, and mobile App, and provide protection level IP54 for application in hostile environments.

## Product features

- Cover voltage levels 220V AC and 380V AC; Support single-phase 220V and three-phase 220V/380V pumps, the power from 0.4kW to 37kW.
- Easy to use: The inverters automatically start or sleep only after being connected to solar battery panels without any parameter setting.
- Highly reliable for using multiple protective measures, including PV over-voltage protection, PV polarity reverse warning, and auto derating against over-temperature, which extend product life.
- Use advanced MPPT algorithms, ensuring that the solar power tracking efficiency reaches 99%.
- Models of 2.2kW or lower can be configured with the boost module, meeting low-voltage work requirements. This reduces the use of solar battery panels and therefore the cost.
- GD100-PV series can implement auto switch between solar input and grid input by configuring the boost module or auto switching cabinet (meeting lightning protection requirements), implementing 24-hour unattended work.
- Support the configuration of the GPRS module, which implements remote parameter viewing and control by using the mobile APP.
- Support the cabinet solution for level IP54.

## Type designation key

GD100 - 5R5G - 4 5 - PV  
 ①                      ②                      ③ ④                      ⑤

Field identification	Sign	Detailed description of the sign	Detailed content
Product abbreviation	①	Product abbreviation	Goodrive100 is short for Goodrive100.
Rated power	②	Power range + Load type	5R5G—5.5kW G—Constant torque load
Voltage degree	③	Voltage degree	4: AC 3PH 380V (-15%)~440(+10%) 2: AC 3PH 220V (-15%)~240(+10%) S2: AC 1PH 220V (-15%)~240(+10%) SS2: AC 1PH input/output 220V (-15%)~240(+10%)
Protection level	④	Protection level	Protection level 5—IP54 The protection level of a standard inverter is IP20, but this field is not displayed.
Industrial code	⑤	Industrial code	PV stands for PV pump.

## Product Specifications

### Product function parameters

Model	-SS2	-S2	-2	-4
Max. DC input voltage (V)	440	440	440	800
Start-up voltage (V)	200	200	200	300
Lowest working voltage (V)	150	150	150	250
Recommended DC input voltage range (V)	200~400	200~400	200~400	300~750
Recommended MPP voltage (V)	330	330	330	550
Rated output voltage (V)	220 (1PH)	220 (3PH)	220 (3PH)	380 (3PH)
Output frequency range (Hz)	0~400			
MPPT	99%			
Installation manner	Wall mounting/Rail mounting/Flange mounting			
Environment temperature	-10°C~+50°C If the ambient temperature of the inverter is above 40°C, derate 2% for every additional 1°C.			
Altitude	Below 1000m If the sea level is above 1000m, derate 1% for every additional 100m.			
Cooling manner	Forced cooling			
Protection level	IP20; IP54 (Cabinet)			

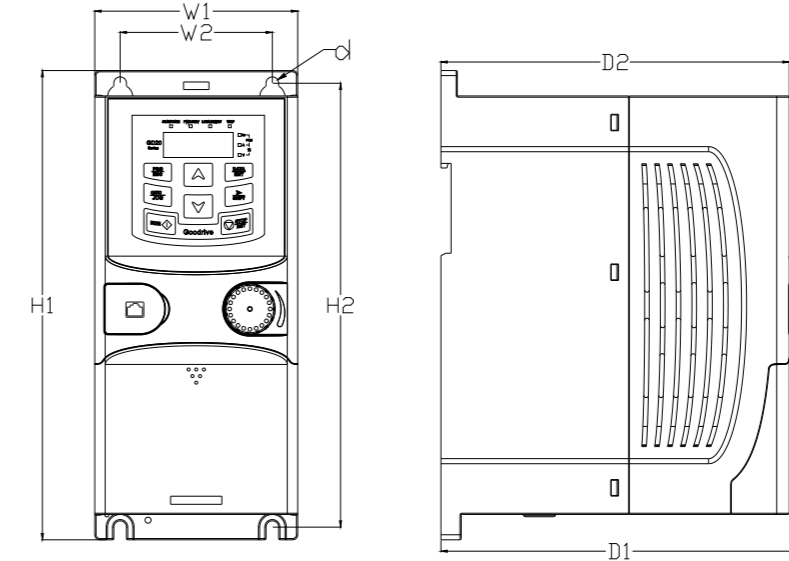


Product rated specification parameters

Series	Model	Rated output power (kW)	Rated input current (A)	Rated output current (A)
-Ss2 series Single-phase, 220V input/output (0.4-2.2 kW)	GD100-0R4G-SS2-PV	0.4	6.5	4.2
	GD100-0R7G-SS2-PV	0.75	9.3	7.2
	GD100-1R5G-SS2-PV	1.5	15.7	10.2
	GD100-2R2G-SS2-PV	2.2	24	14
-S2 series Single-phase, 220V input (0.4-2.2 kW)	GD100-0R4G-S2-PV	0.4	6.5	2.5
	GD100-0R7G-S2-PV	0.75	9.3	4.2
	GD100-1R5G-S2-PV	1.5	15.7	7.5
	GD100-2R2G-S2-PV	2.2	24	10
-2 series Three-phase, 220V (4-7.5kW)	GD100-004G-2-PV	4	17	16
	GD100-5R5G-2-PV	5.5	25	20
	GD100-7R5G-2-PV	7.5	33	30
-4 series Three-phase, 380V (0.75-37kW)	GD100-0R7G-4-PV	0.75	3.4	2.5
	GD100-1R5G-4-PV	1.5	5.0	4.2
	GD100-2R2G-4-PV	2.2	5.8	5.5
	GD100-004G-4-PV	4.0	13.5	9.5
	GD100-5R5G-4-PV	5.5	19.5	14
	GD100-7R5G-4-PV	7.5	25	18.5
	GD100-011G-4-PV	11	32	25
	GD100-015G-4-PV	15	40	32
	GD100-018G-4-PV	18.5	47	38
	GD100-022G-4-PV	22	56	45
GD100-030G-4-PV	30	70	60	
GD100-037G-4-PV	37	80	75	

## Installation dimensions

0.4-2.2kW models support wall mounting and rail mounting:

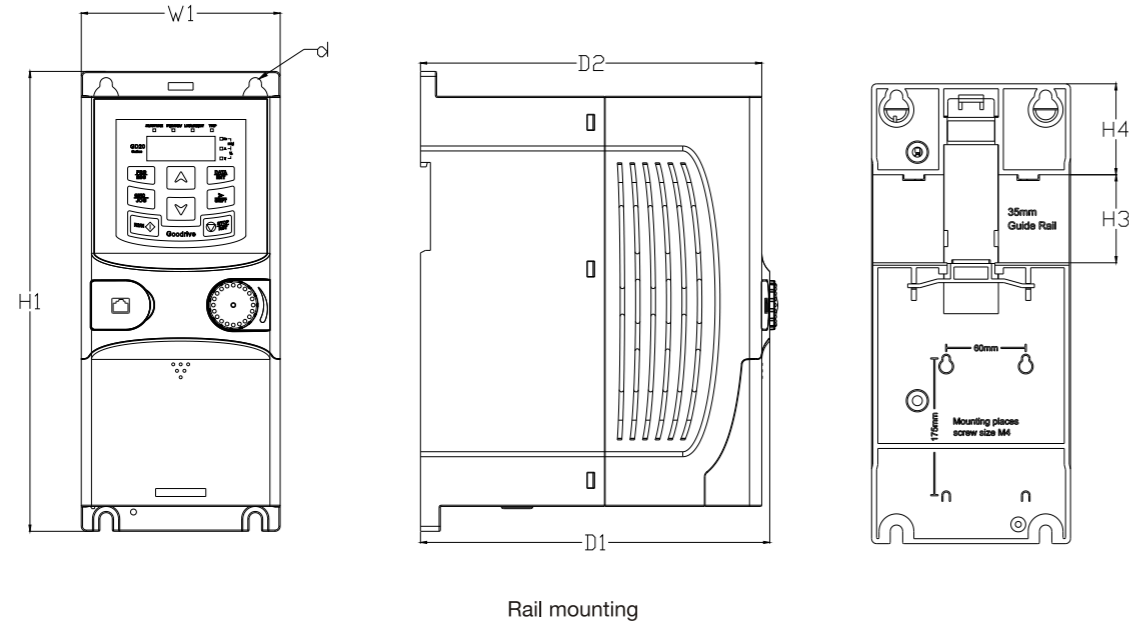


Wall mounting

Dimensions in wall mounting (unit: mm)

Model	W1	W2	H1	H2	D1	D2	Installation hole (d)
GD100-0R4G-S2-PV	80.0	60.0	160.0	150.0	123.5	120.3	5
GD100-0R7G-S2-PV	80.0	60.0	160.0	150.0	123.5	120.3	5
GD100-0R4G-SS2-PV	80.0	60.0	160.0	150.0	123.5	120.3	5
GD100-1R5G-S2-PV	80.0	60.0	185.0	175.0	140.5	137.3	5
GD100-2R2G-S2-PV	80.0	60.0	185.0	175.0	140.5	137.3	5
GD100-0R7G-SS2-PV	80.0	60.0	185.0	175.0	140.5	137.3	5
GD100-1R5G-SS2-PV	80.0	60.0	185.0	175.0	140.5	137.3	5
GD100-2R2G-SS2-PV	80.0	60.0	185.0	175.0	140.5	137.3	5
GD100-0R7G-4-PV	80.0	60.0	185.0	175.0	140.5	137.3	5
GD100-1R5G-4-PV	80.0	60.0	185.0	175.0	140.5	137.3	5
GD100-2R2G-4-PV	80.0	60.0	185.0	175.0	140.5	137.3	5

0.4-2.2kW models support wall mounting and rail mounting:

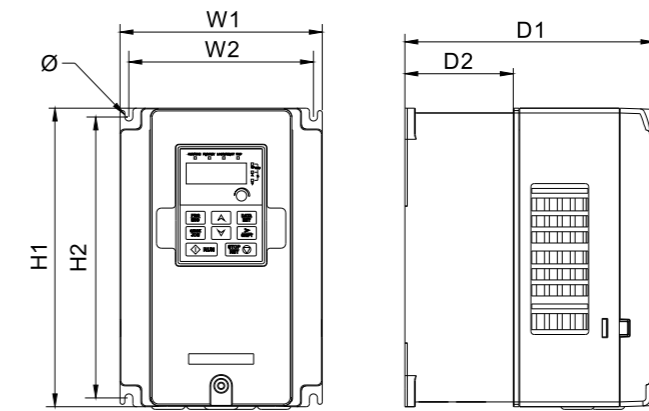


Rail mounting

Dimensions in Rail mounting (unit: mm)

Model	W1	H1	H3	H4	D1	D2	Installation hole (d)
GD100-0R4G-S2-PV	80.0	160.0	35.4	36.6	123.5	120.3	5
GD100-0R7G-S2-PV	80.0	160.0	35.4	36.6	123.5	120.3	5
GD100-0R4G-SS2-PV	80.0	160.0	35.4	36.6	123.5	120.3	5
GD100-1R5G-S2-PV	80.0	185.0	35.4	36.6	140.5	137.3	5
GD100-2R2G-S2-PV	80.0	185.0	35.4	36.6	140.5	137.3	5
GD100-0R7G-SS2-PV	80.0	185.0	35.4	36.6	140.5	137.3	5
GD100-1R5G-SS2-PV	80.0	185.0	35.4	36.6	140.5	137.3	5
GD100-2R2G-SS2-PV	80.0	185.0	35.4	36.6	140.5	137.3	5
GD100-0R7G-4-PV	80.0	185.0	35.4	36.6	140.5	137.3	5
GD100-1R5G-4-PV	80.0	185.0	35.4	36.6	140.5	137.3	5
GD100-2R2G-4-PV	80.0	185.0	35.4	36.6	140.5	137.3	5

4-37kW models support wall mounting and flange mounting:



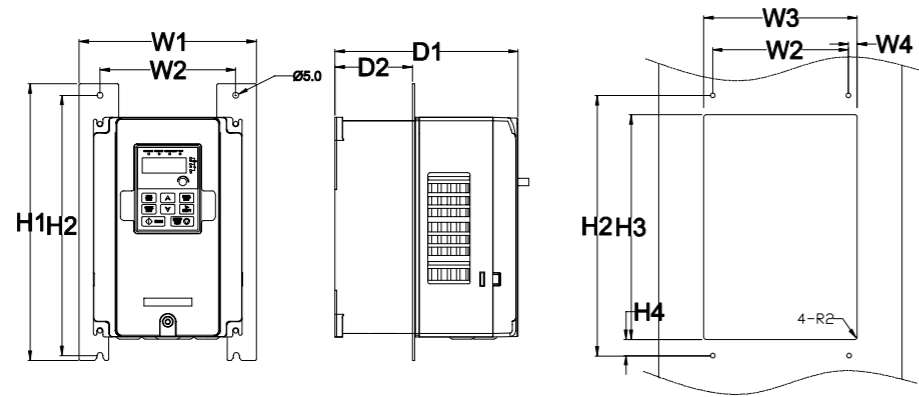
Wall mounting

Dimensions in wall mounting (unit: mm)

Model	W1	H1	H3	H4	D1	D2	Installation hole (d)
GD100-004G-4-PV	146.0	131.0	256.0	243.5	167.0	84.5	6
GD100-5R5G-4-PV	146.0	131.0	256.0	243.5	167.0	84.5	6
GD100-7R5G-4-PV	170.0	151.0	320.0	303.5	196.3	113.0	6
GD100-011G-4-PV	170.0	151.0	320.0	303.5	196.3	113.0	6
GD100-015G-4-PV	170.0	151.0	320.0	303.5	196.3	113.0	6
GD100-004G-2-PV	170.0	151.0	320.0	303.5	196.3	113.0	6
GD100-5R5G-2-PV	170.0	151.0	320.0	303.5	196.3	113.0	6
GD100-7R5G-2-PV	170.0	151.0	320.0	303.5	196.3	113.0	6
GD100-018G-4-PV	200.0	185.0	340.6	328.6	184.3	104.5	6
GD100-022G-4-PV	200.0	185.0	340.6	328.6	184.3	104.5	6
GD100-030G-4-PV	250.0	230.0	400.0	380.0	202.0	123.5	6
GD100-037G-4-PV	250.0	230.0	400.0	380.0	202.0	123.5	6



4-37kW models support wall mounting and flange mounting:



Flange installation

Dimensions in flange installation (unit: mm)

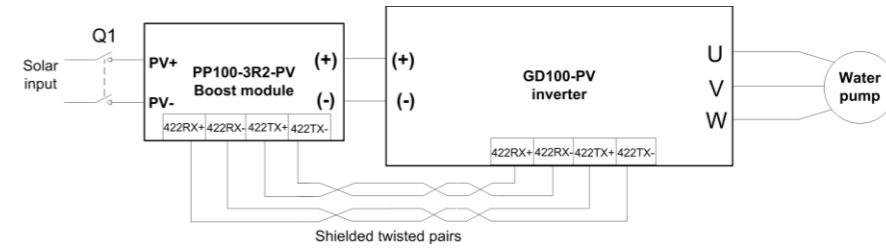
Model	W1	W2	W3	W4	H1	H2	H3	H4	D1	D2	Installation hole (d)	Nut specs
GD100-004G-4-PV	170.2	131	150	9.5	292	276	260	6	167	84.5	6	M5
GD100-5R5G-4-PV	170.2	131	150	9.5	292	276	260	6	167	84.5	6	M5
GD100-7R5G-4-PV	191.2	151	174	11.5	370	351	324	12	196.3	113	6	M5
GD100-011G-4-PV	191.2	151	174	11.5	370	351	324	12	196.3	113	6	M5
GD100-015G-4-PV	191.2	151	174	11.5	370	351	324	12	196.3	113	6	M5
GD100-004G-2-PV	191.2	151	174	11.5	370	351	324	12	196.3	113	6	M5
GD100-5R5G-2-PV	191.2	151	174	11.5	370	351	324	12	196.3	113	6	M5
GD100-7R5G-2-PV	191.2	151	174	11.5	370	351	324	12	196.3	113	6	M5
GD100-018G-4-PV	266	250	224	13	371	250	350.6	20.3	184.6	104	6	M5
GD100-022G-4-PV	266	250	224	13	371	250	350.6	20.3	184.6	104	6	M5
GD100-030G-4-PV	316	300	274	13	430	300	410	55	202	118.3	6	M5
GD100-037G-4-PV	316	300	274	13	430	300	410	55	202	118.3	6	M5

Note: If you use flange installation, you must configure flange installation boards. If you need inverters of greater power, contact INVT.

## Options

### Boost module

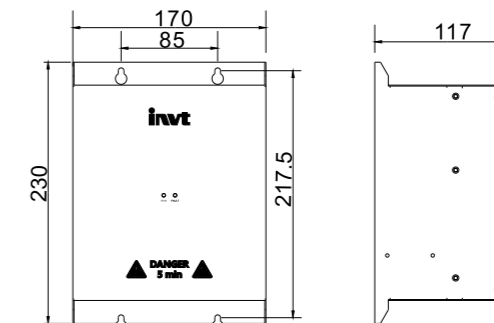
0.4-2.2kW models can be configured with the boost module, which can improve the utilization of the solar component.



Connection between the boost module and inverter

Boost module specifications

Model	PP100-3R2-PV
Input	
Max. input power (W)	3200
Max. DC voltage (V)	600
Start-up voltage (V)	80
Min. working voltage (V)	70
Max. input current (A)	12
Output	
Output voltage (V)	350/570 (automatically determined by the inverter)



Installation dimension

### GPRS module and monitoring APP

GD100-PV series support the installation of the GPRS module to implement remote monitoring. The inverter operation state can be monitored on the APP in the mobile phone or web page in real time.

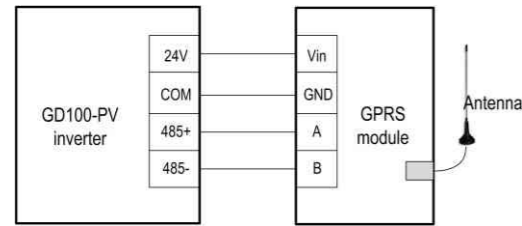
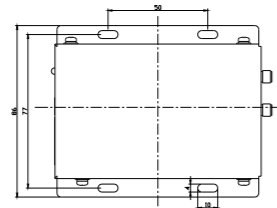
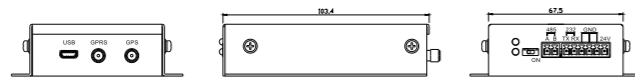
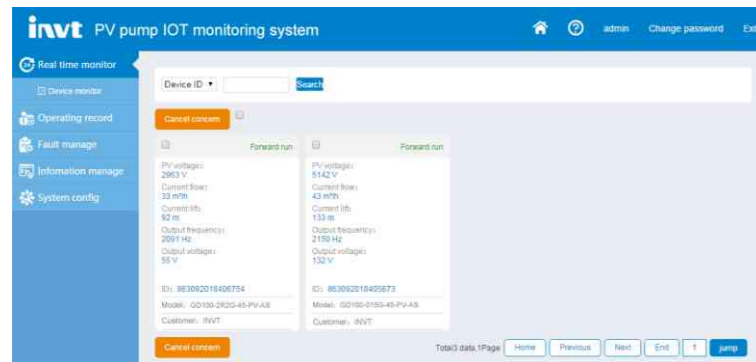


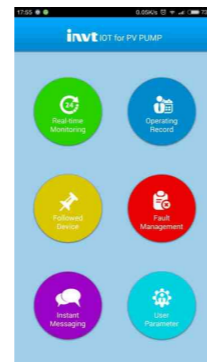
Diagram of connecting the GPRS module to the inverter



GPRS module installation dimensions



Computer monitoring interface

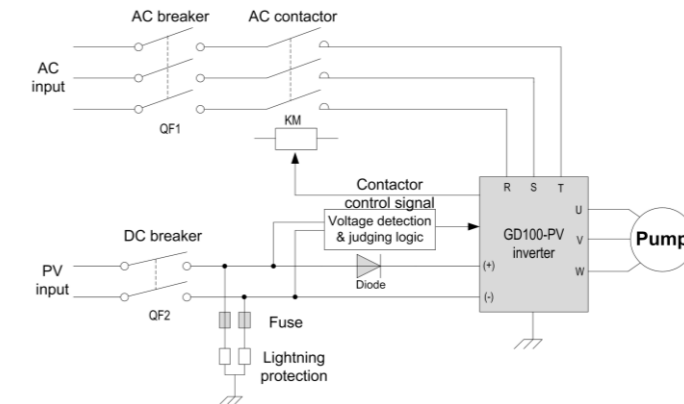


Mobile APP interface

## AC/DC switching solution for Inverter

### Solution introduction

Generally, inverters do not allow simultaneous connection of AC and DC. If such simultaneous connection of AC and DC is required, external configuration must be made to switch the control circuit. The figure below shows the solution for reference.



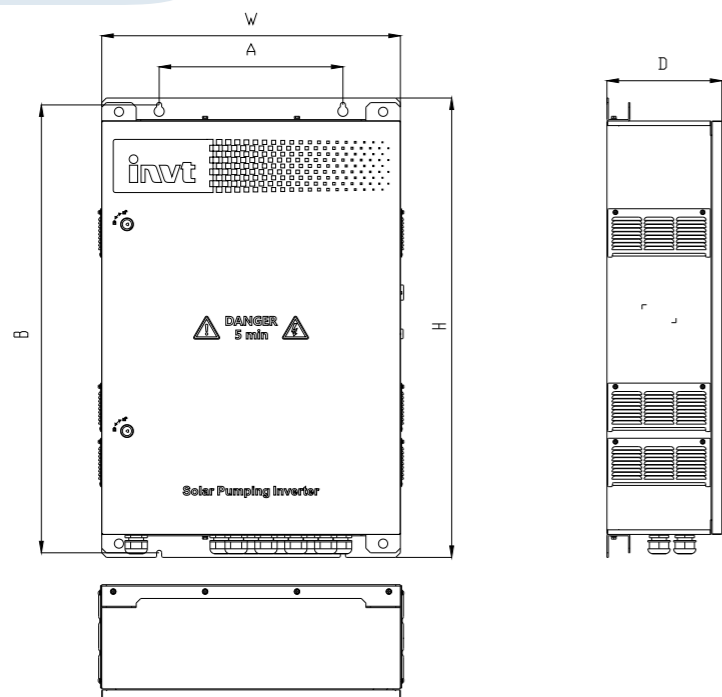
### Model selection reference for low-voltage apparatus

Model	AC breaker (A)	DC breaker (A)	AC contactor (A)	Surge protection	Fuse	Diode		
GD100-0R4G-S25-PV-AS	16	16A/500V	10	Type II 1000VDC	30A	Not required since they are equipped with the boost module		
GD100-0R7G-S25-PV-AS	16		16					
GD100-0R4G-SS25-PV-AS	16		16					
GD100-1R5G-S25-PV-AS	25		25					
GD100-0R7G-SS25-PV-AS	25		25					
GD100-2R2G-S25-PV-AS	40		32					
GD100-1R5G-SS25-PV-AS	40	16A/1000V	32			Type II 1000VDC	30A	Not required since they are equipped with the boost module
GD100-2R2G-SS25-PV-AS	40		32					
GD100-0R7G-45-PV-AS	10		10					
GD100-1R5G-45-PV-AS	10		10					
GD100-2R2G-45-PV-AS	16		10					
GD100-004G-45-PV-AS	25		16					
GD100-5R5G-45-PV-AS	25	63A/1000V	16	Type II 1000VDC	30A			55A/ 1600V
GD100-004G-25-PV-AS	25		16					
GD100-7R5G-45-PV-AS	40		25					
GD100-5R5G-25-PV-AS	40		25					
GD100-011G-45-PV-AS	63		32					
GD100-7R5G-25-PV-AS	63		32					
GD100-015G-45-PV-AS	63	80A/1000V	50			Type II 1000VDC	30A	55A/ 1600V
GD100-018G-45-PV-AS	100		63					
GD100-022G-45-PV-AS	100		80					
GD100-030G-45-PV-AS	125		95					
GD100-018G-45-PV-AS	100		63					
GD100-022G-45-PV-AS	100		80					
GD100-030G-45-PV-AS	125	125A/1000V	95	Type II 1000VDC	30A			110A/ 1600V
GD100-037G-45-PV-AS	160		120					



### Inverter for IP54

For the application of auto AC/DC switching, INVT provides inverter for IP54 protection-level, which can be divided into two types: the inverter with or without the auto AC/DC switch function.



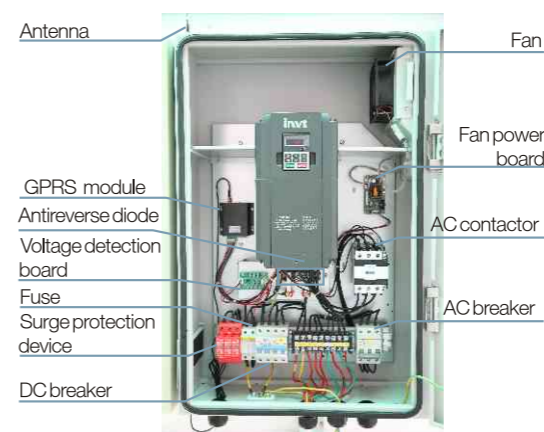
IP54 inverter dimensional drawing

IP54 inverter dimensions (unit: mm)

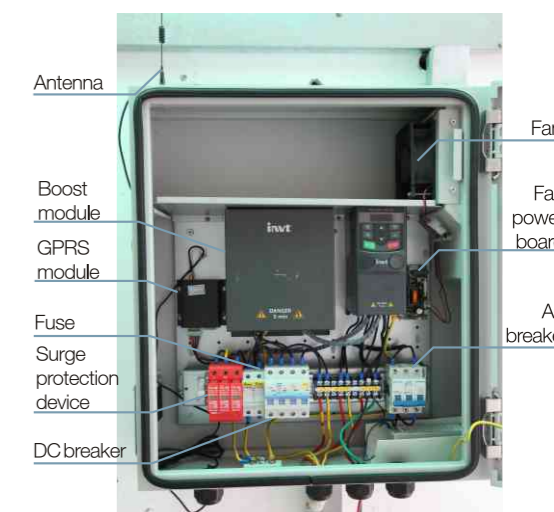
Power(kW)	Model	W	H	D	A	B
0.4	GD100-0R4G-S25-PV-AS	550	700	200	400	675
	GD100-0R4G-SS25-PV-AS					
0.75	GD100-0R7G-45-PV-AS					
	GD100-0R7G-S25-PV-AS					
1.5	GD100-0R7G-SS25-PV-AS					
	GD100-1R5G-45-PV-AS					
2.2	GD100-1R5G-S25-PV-AS					
	GD100-1R5G-SS25-PV-AS					
	GD100-2R2G-45-PV-AS					
4	GD100-2R2G-S25-PV-AS					
	GD100-2R2G-SS25-PV-AS					
	GD100-004G-45-PV-AS					
5.5	GD100-004G-25-PV-AS					
	GD100-5R5G-45-PV-AS					
7.5	GD100-5R5G-25-PV-AS					
	GD100-7R5G-45-PV-AS					
11	GD100-7R5G-25-PV-AS					
	GD100-011G-45-PV-AS					
15	GD100-015G-45-PV-AS					
18.5	GD100-018G-45-PV-AS					
22	GD100-022G-45-PV-AS					
30	GD100-030G-45-PV-AS					
37	GD100-037G-45-PV-AS					

Note:

1. The inverters without the auto AC/DC switch function do not have the suffix -AS.
2. The inverters with the rated power equal to or greater than 2.2kW are equipped with the boost module, supporting auto AC/DC switching.
3. The GPRS and APP are optional components.
4. For -S25 and -SS25 models with the boost module, the DC input voltage cannot be greater than 410V. For -45 models with the boost module, the DC input voltage cannot be greater than 600V.



Internal structure of GD100-015G-45-PV-AS



Internal structure of GD100-2R2G-S25-PV-AS with the boost module

### Parameter setting method

Connect the external PV voltage detection signal to the HDI terminal (auto switching by default). Ensure that the PV voltage detection threshold is 350V for the -4 models and it is 260V for the -2/-S2/-SS2 models. Then, set the parameter P15.32 to 0.

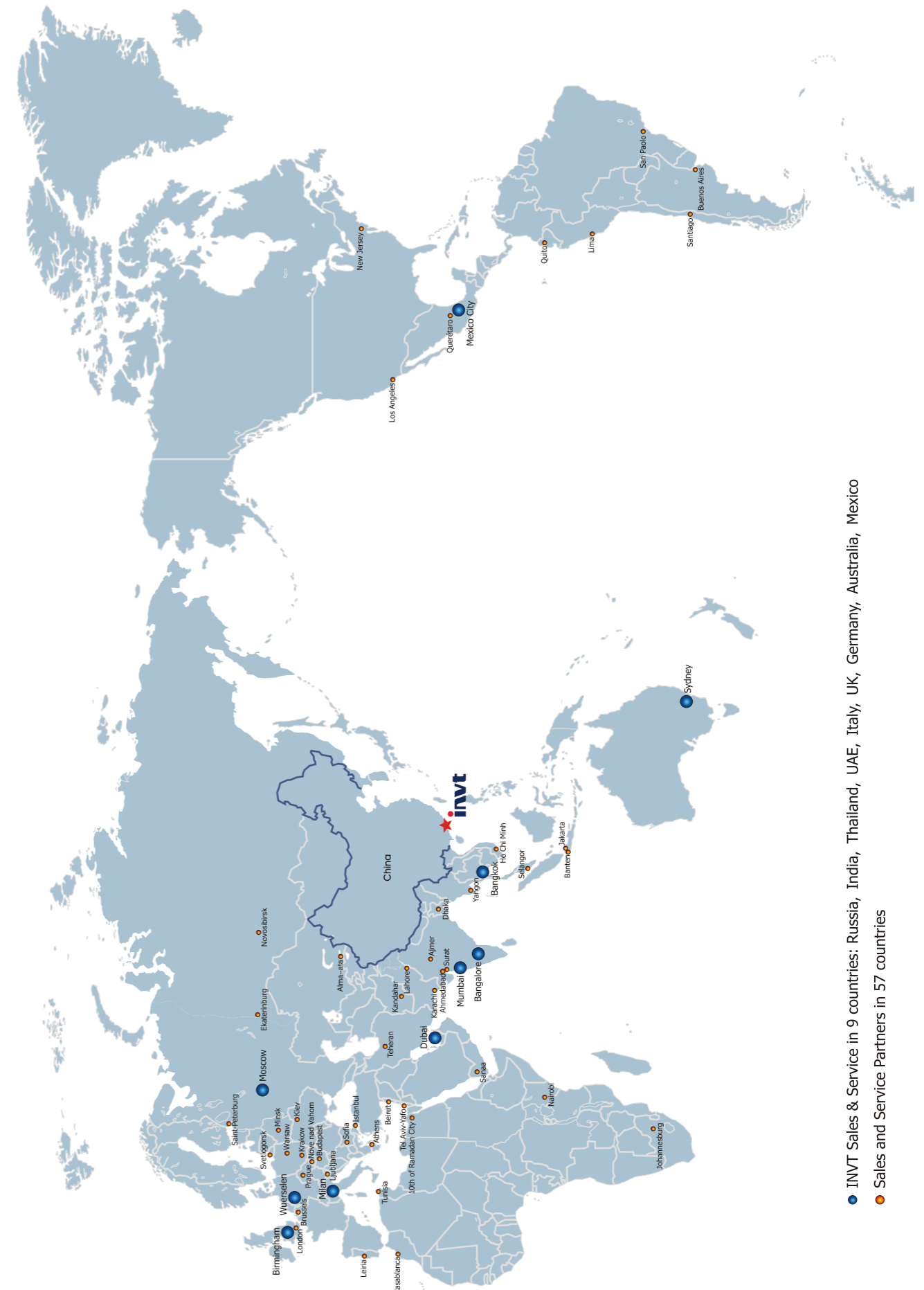
# Recommended solar array configuration

## Recommended configuration in standard conditions

Solar pumping inverter model	Open-circuit voltage level of solar battery component			
	37±1V		45±1V	
	Component power±5Wp	Battery panels*Modules	Component power±5Wp	Battery panels*Modules
GD100-0R4G-SS21-PV	250	11*1	300	9*1
GD100-0R7G-SS21-PV	250	11*1	300	9*1
GD100-1R5G-SS21-PV	250	11*1	300	9*1
GD100-2R2G-SS21-PV	250	11*1	300	9*1
GD100-0R4G-S21-PV	250	11*1	300	9*1
GD100-0R7G-S21-PV	250	11*1	300	9*1
GD100-1R5G-S21-PV	250	11*1	300	9*1
GD100-2R2G-S21-PV	250	11*1	300	9*1
GD100-004G-21-PV	250	11*2	300	9*2
GD100-5R5G-21-PV	250	11*3	300	9*3
GD100-7R5G-21-PV	250	11*4	300	9*4
GD100-0R7G-41-PV	250	18*1	300	15*1
GD100-1R5G-41-PV	250	18*1	300	15*1
GD100-2R2G-41-PV	250	18*1	300	15*1
GD100-004G-41-PV	250	20*1	300	16*1
GD100-5R5G-41-PV	250	18*2	300	15*2
GD100-7R5G-41-PV	250	18*2	300	15*2
GD100-011G-41-PV	250	18*3	300	15*3
GD100-015G-41-PV	250	18*4	300	15*4
GD100-018G-41-PV	250	18*5	300	15*5
GD100-022G-41-PV	250	18*6	300	15*6
GD100-030G-41-PV	250	18*8	300	15*8
GD100-037G-41-PV	250	18*9	300	15*9

## Recommended configuration for inverters with the boost module

PP100-3R2-PV Solar pumping inverter	Max. DC input current (A)	Open-circuit voltage level of solar battery component			
		37±1V		45±1V	
		Component power±5Wp	Battery panels*Modules	Component power±5Wp	Battery panels*Modules
GD100-0R4G-SS21-PV	12	250	4*1	300	3*1
GD100-0R7G-SS21-PV	12	250	5*1	300	4*1
GD100-1R5G-SS21-PV	12	250	8*1	300	7*1
GD100-0R4G-S21-PV	12	250	4*1	300	3*1
GD100-0R7G-S21-PV	12	250	5*1	300	4*1
GD100-1R5G-S21-PV	12	250	8*1	300	7*1
GD100-0R7G-41-PV	12	250	5*1	300	4*1
GD100-1R5G-41-PV	12	250	8*1	300	7*1
GD100-2R2G-41-PV	12	250	13*1	300	11*1



● INVT Sales & Service in 9 countries: Russia, India, Thailand, UAE, Italy, UK, Germany, Australia, Mexico  
 ● Sales and Service Partners in 57 countries