

Goodrive100-PV

Solar Pumping Inverter

Your Trusted Industry Automation Solution Provider



SHENZHEN INVT ELECTRIC CO., LTD.

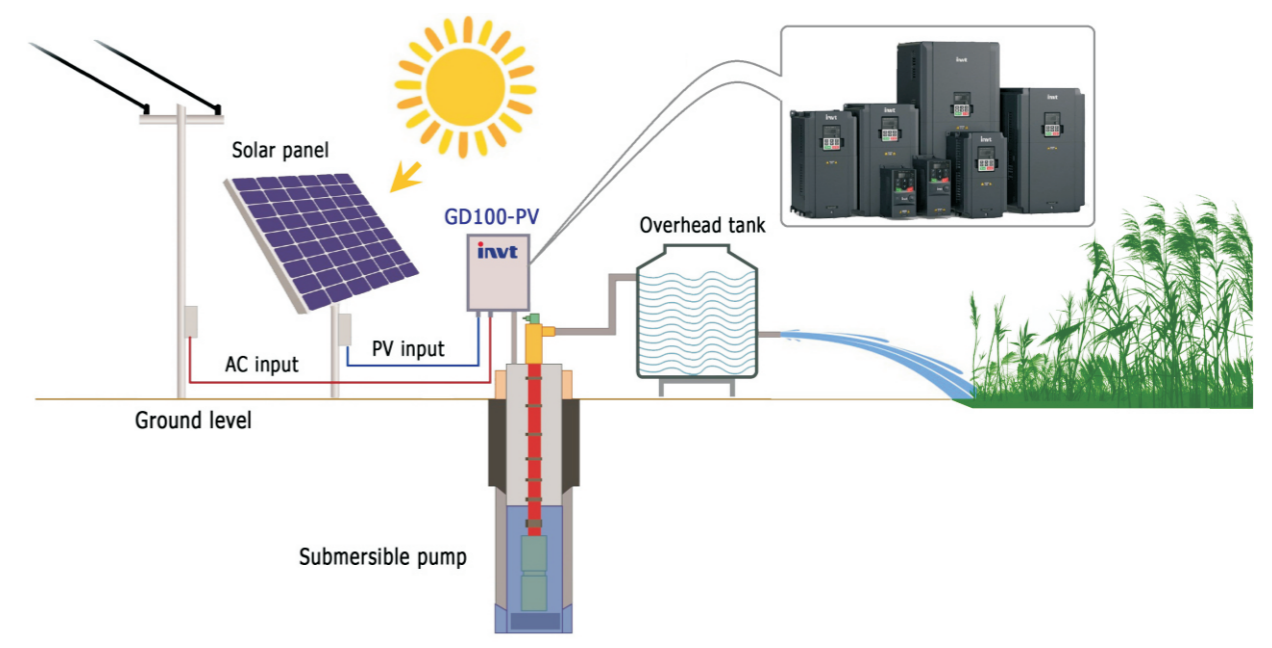
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|------------------------|--|---------------------------------------|----------------------------|-----------------------------------|
| Industrial Automation: | • Frequency Inverter | • Servo & Motion Control | • Motor & Electric Spindle | • PLC |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

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Y6/1-06 V1.0



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PV pump application system

Product Introduction



- Broadest voltage and power range**
 Support for driving single-phase 220V and three-phase 220V/380V pumps, the power from 0.4kW to 110kW.
- Easy to use**
 Automatically start or sleep only after being connected to solar panel without any parameter setting.
- Multiple protective measures**
 Including PV over-voltage protection, PV polarity reverse warning, auto derating against over-temperature etc, which can extend product's life.
- Advanced MPPT algorithms**
 Ensure the solar power tracking efficiency reaches 99%.
- Work in low voltage**
 Models of 2.2kW or less can be configured with the boost module, which can make the pump work in low voltage and reduce the cost by decreasing the number of solar panel.
- Auto switch between solar and grid input**
 Implement auto switch between solar input and grid input, achieved 24-hour unattended work.
- Remote monitor**
 Support the GPRS module, which can remote monitor the inverter by using the APP.
- Product for high protection level**
 Support cabinet product for IP54 protection level.

Product Applications



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	GD100 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%)~440V (+10%) 2: AC 3PH 220V (-15%)~240V (+10%) S2: AC 1PH 220V (-15%)~240V (+10%) SS2: AC 1PH input/output 220V (-15%)~240V (+10%)
Protection level	④	Protection level	5—IP54 Standard inverter is IP20, not displayed.
Industrial code	⑤	Industrial code	PV stands for PV pump.

Product Specifications

Product function parameters

Model	-SS2	-S2	-2	-4
AC input voltage (V)	220(-15%) ~240(+10%) (1PH)		220(-15%) ~240 (+10%) (3PH)	380(-15%) ~440 (+10%) (3PH)
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 above 40°C, derate 2% for every additional 1°C.			
Altitude	Below 1000m If above 1000m, derate 1% for every additional 100m.			
Cooling manner	Fan cooling			
Protection level	IP20; IP54 (Cabinet)			

Options

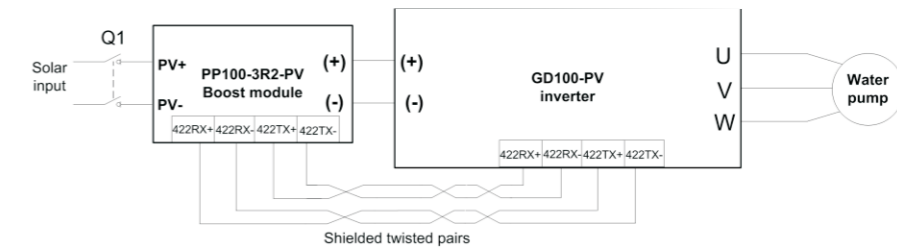
Product rated specification parameters

Series	Model	Rated output power (kW)	Rated input current (A)	Rated output current (A)
-SS2 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 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 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
	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
-4 Three-phase, 380V (0.75-110kW)	GD100-030G-4-PV	30	70	60
	GD100-037G-4-PV	37	80	75
	GD100-045G-4-PV	45	94	92
	GD100-055G-4-PV	55	128	115
	GD100-075G-4-PV	75	160	150
	GD100-090G-4-PV	90	190	180
	GD100-110G-4-PV	110	225	215

Note: When demanding for the inverters above 37kW, contact INVT to customize.

Boost module

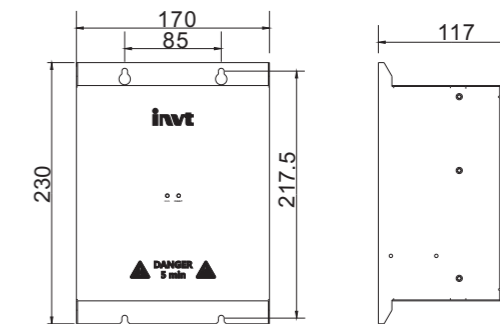
0.4-2.2kW models can be configured with the boost module, which can improve the utilization of the solar component.



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

Solution for Auto Switch

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.

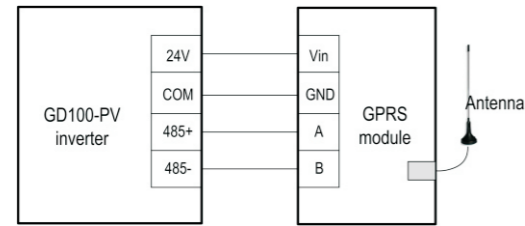
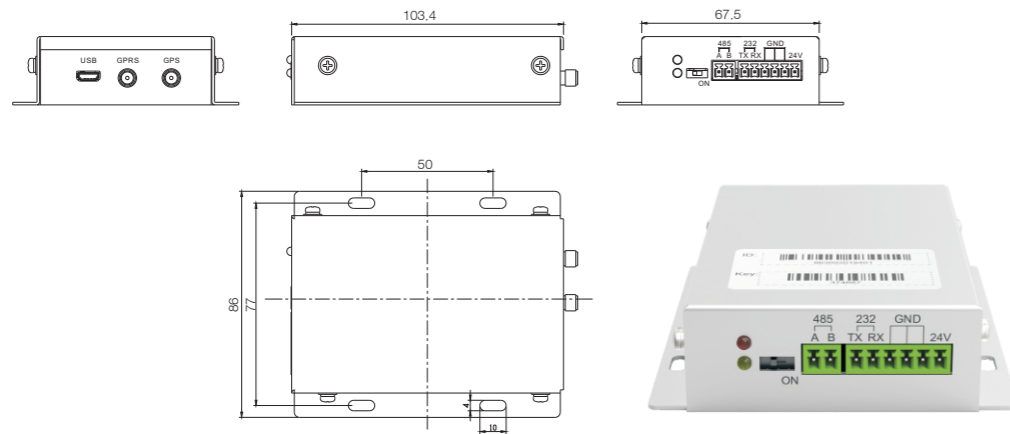
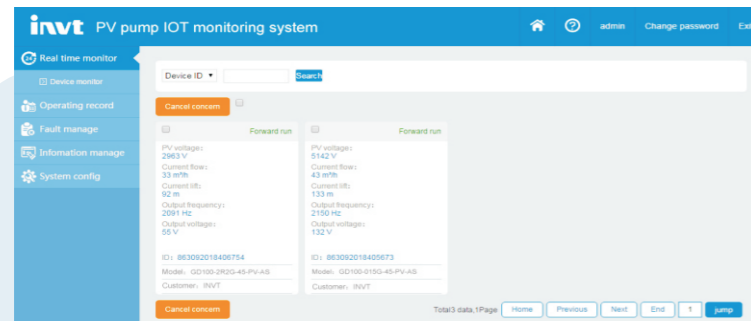


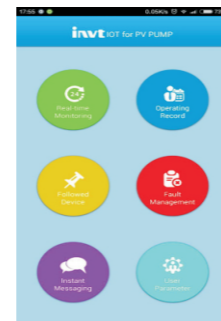
Diagram of connecting the GPRS module to the inverter



GPRS module installation dimensions



Computer monitoring interface



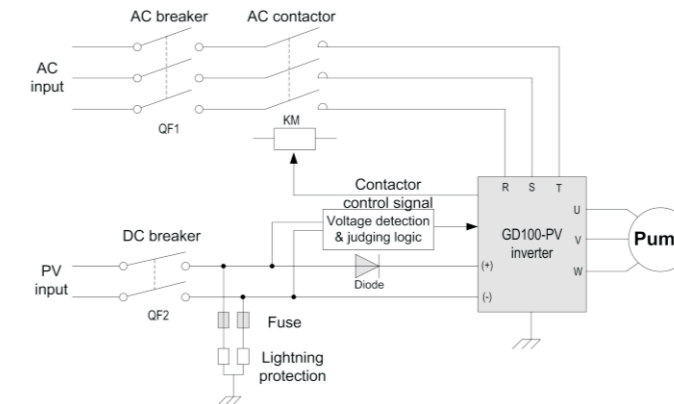
Mobile APP interface



The web page of IOT monitoring system for GD100-PV is: iot.invt.com:12000, and you can download the android APP by sweep the QR-Code.

Solution Introduction

Generally, inverters do not allow simultaneous connection of PV and grid input. If such simultaneous connection is required, external configuration must be made to switch the control circuit. One solution for auto switch is recommended:

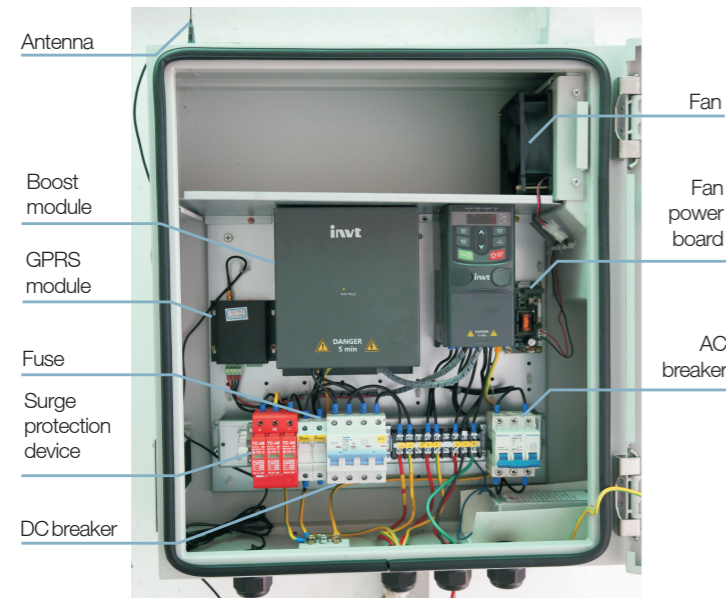


Model selection reference for low-voltage apparatus

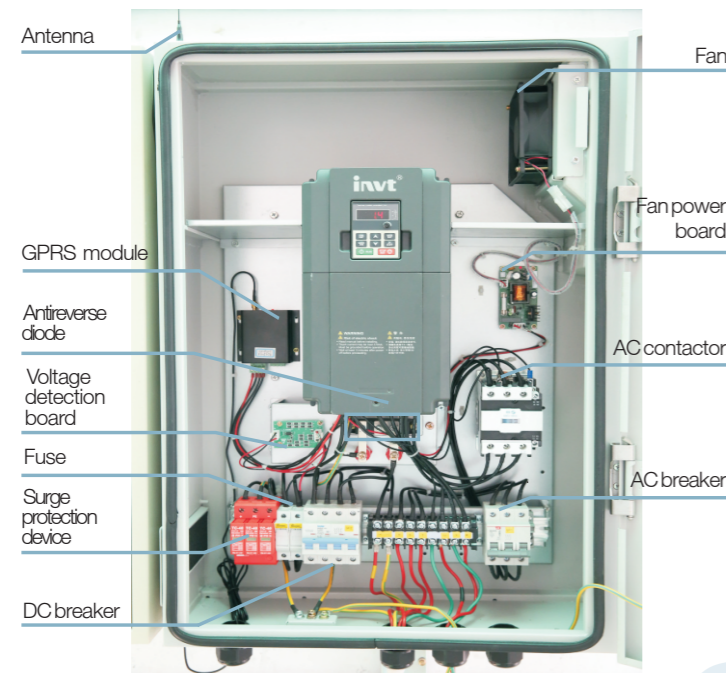
Model	AC breaker (A)	DC breaker (A)	AC contactor (A)	Surge protection	Fuse	Diode		
GD100-0R4G-S2-PV-AS	16	16A/500V	10	Type II 1000VDC	30A	Not required since equipped the boost module		
GD100-0R7G-S2-PV-AS	16		16					
GD100-0R4G-SS2-PV-AS	16		16					
GD100-1R5G-S2-PV-AS	25		25					
GD100-0R7G-SS2-PV-AS	25		25					
GD100-2R2G-S2-PV-AS	40		32					
GD100-1R5G-SS2-PV-AS	40	16A/1000V	32			Type II 1000VDC	30A	Not required since equipped the boost module
GD100-2R2G-SS2-PV-AS	40		32					
GD100-0R7G-4-PV-AS	10		10					
GD100-1R5G-4-PV-AS	10		10					
GD100-2R2G-4-PV-AS	16		10					
GD100-004G-4-PV-AS	25		16					
GD100-5R5G-4-PV-AS	25	63A/1000V	16	Type II 1000VDC	30A			55A/ 1600V
GD100-004G-2-PV-AS	25		16					
GD100-7R5G-4-PV-AS	40		25					
GD100-5R5G-2-PV-AS	40		25					
GD100-011G-4-PV-AS	63		32					
GD100-7R5G-2-PV-AS	63		32					
GD100-015G-4-PV-AS	63	80A/1000V	50			Type II 1000VDC	30A	55A/ 1600V
GD100-018G-4-PV-AS	100		63					
GD100-022G-4-PV-AS	100		80					
GD100-030G-4-PV-AS	125		95					
GD100-037G-4-PV-AS	160		120					
		125A/1000V	80	Type II 1000VDC	30A			110A/ 1600V
			95					
			120					

Inverter of IP54

For the application of auto switch between PV and grid input, INVT provides two types of inverters for IP54 protection level: the inverter with or without the auto switch function.



Internal structure of GD100-2R2G-S25-PV-AS



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

Note:

1. The inverters of IP54 without the auto switch function do not have the suffix -AS.
2. The inverters of IP54 with the rated power equal to or less than 2.2kW are equipped with the boost module, supporting auto switch.

Recommended Solar Array Configuration

Recommended configuration in standard condition

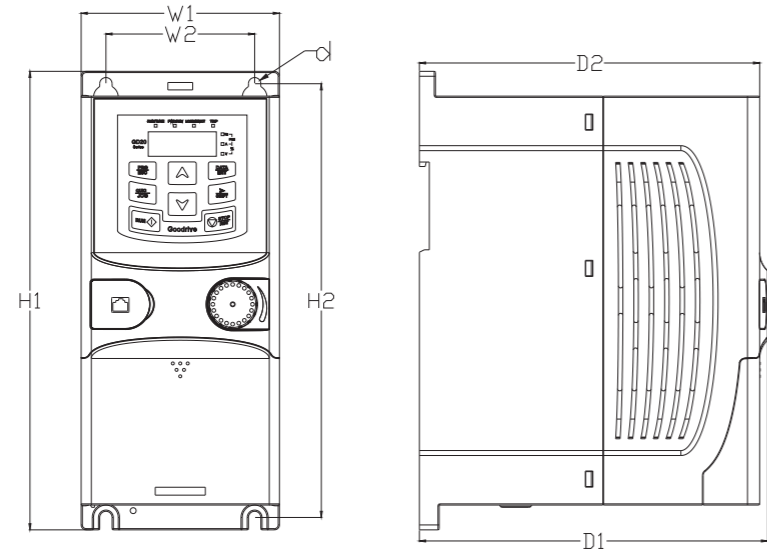
Solar pumping inverter model	Open-circuit voltage degree of solar module			
	37±1V		45±1V	
	Module power±5Wp	Modules per string * strings	Module power±5Wp	Modules per string * strings
GD100-0R4G-SS2-PV	250	11*1	300	9*1
GD100-0R7G-SS2-PV	250	11*1	300	9*1
GD100-1R5G-SS2-PV	250	11*1	300	9*1
GD100-2R2G-SS2-PV	250	11*1	300	9*1
GD100-0R4G-S2-PV	250	11*1	300	9*1
GD100-0R7G-S2-PV	250	11*1	300	9*1
GD100-1R5G-S2-PV	250	11*1	300	9*1
GD100-2R2G-S2-PV	250	11*1	300	9*1
GD100-004G-2-PV	250	11*2	300	9*2
GD100-5R5G-2-PV	250	11*3	300	9*3
GD100-7R5G-2-PV	250	11*4	300	9*4
GD100-0R7G-4-PV	250	18*1	300	15*1
GD100-1R5G-4-PV	250	18*1	300	15*1
GD100-2R2G-4-PV	250	18*1	300	15*1
GD100-004G-4-PV	250	20*1	300	16*1
GD100-5R5G-4-PV	250	18*2	300	15*2
GD100-7R5G-4-PV	250	18*2	300	15*2
GD100-011G-4-PV	250	18*3	300	15*3
GD100-015G-4-PV	250	18*4	300	15*4
GD100-018G-4-PV	250	18*5	300	15*5
GD100-022G-4-PV	250	18*6	300	15*6
GD100-030G-4-PV	250	18*8	300	15*8
GD100-037G-4-PV	250	18*9	300	15*9

Recommended configuration for inverters with the boost module

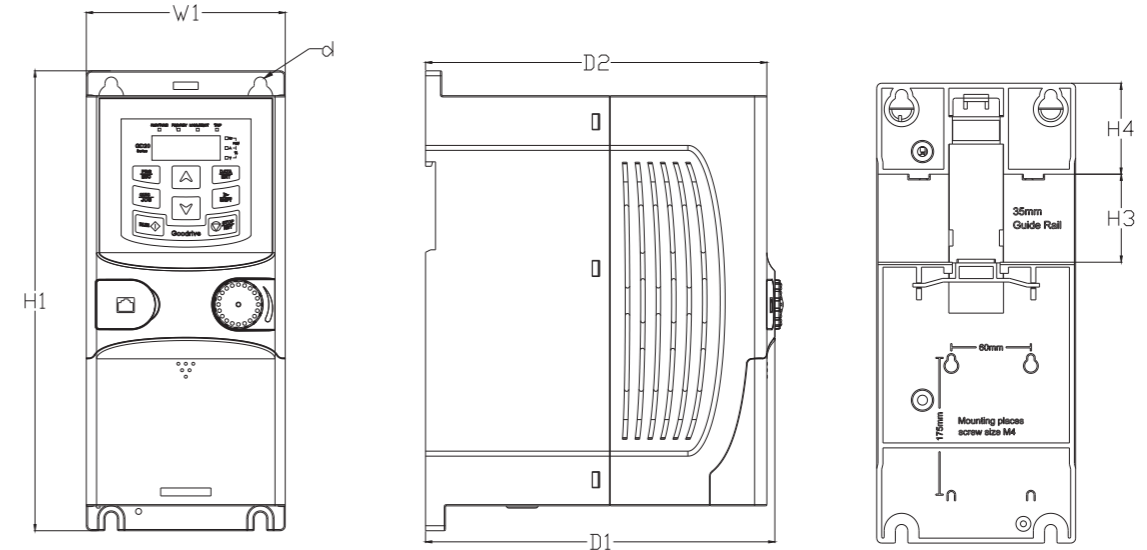
Solar pumping inverter	Max. DC input current (A)	Open-circuit voltage degree of solar module			
		37±1V		45±1V	
		Module power±5Wp	Modules per string * strings	Module power±5Wp	Modules per string * strings
GD100-0R4G-SS2-PV	12	250	4*1	300	3*1
GD100-0R7G-SS2-PV	12	250	5*1	300	4*1
GD100-1R5G-SS2-PV	12	250	8*1	300	7*1
GD100-0R4G-S2-PV	12	250	4*1	300	3*1
GD100-0R7G-S2-PV	12	250	5*1	300	4*1
GD100-1R5G-S2-PV	12	250	8*1	300	7*1
GD100-0R7G-4-PV	12	250	5*1	300	4*1
GD100-1R5G-4-PV	12	250	8*1	300	7*1
GD100-2R2G-4-PV	12	250	13*1	300	11*1

Installation Dimensions

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



Wall mounting



Rail mounting

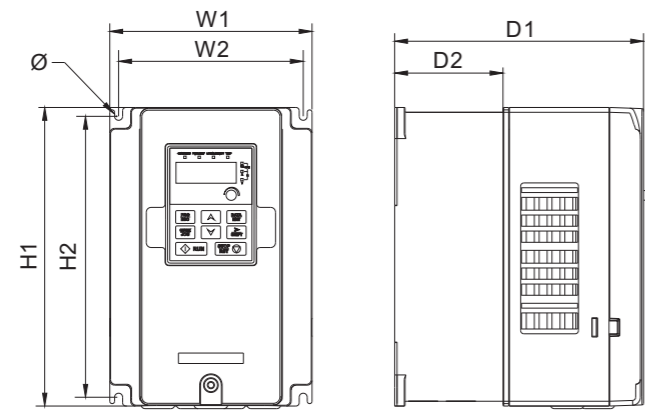
Dimensions in wall mounting (unit: mm)

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

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

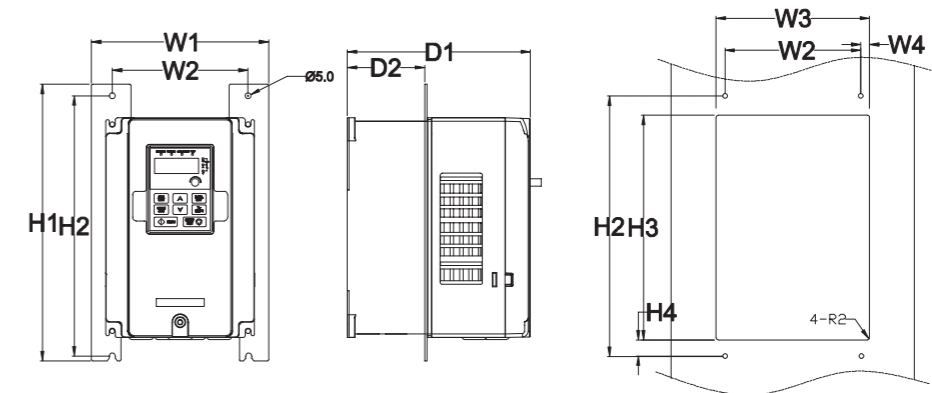
4-37kW models support wall mounting and flange mounting:



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



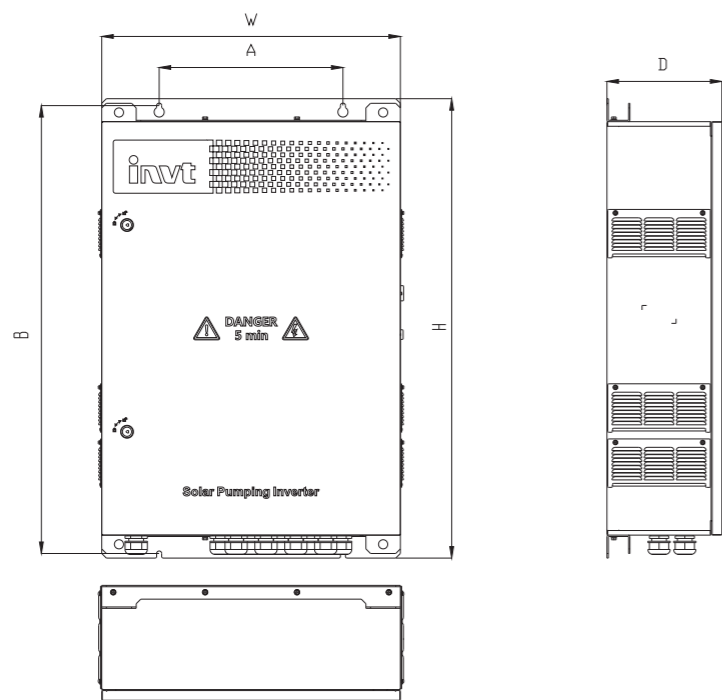
Flange installation

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 use flange installation, you must configure flange installation boards.

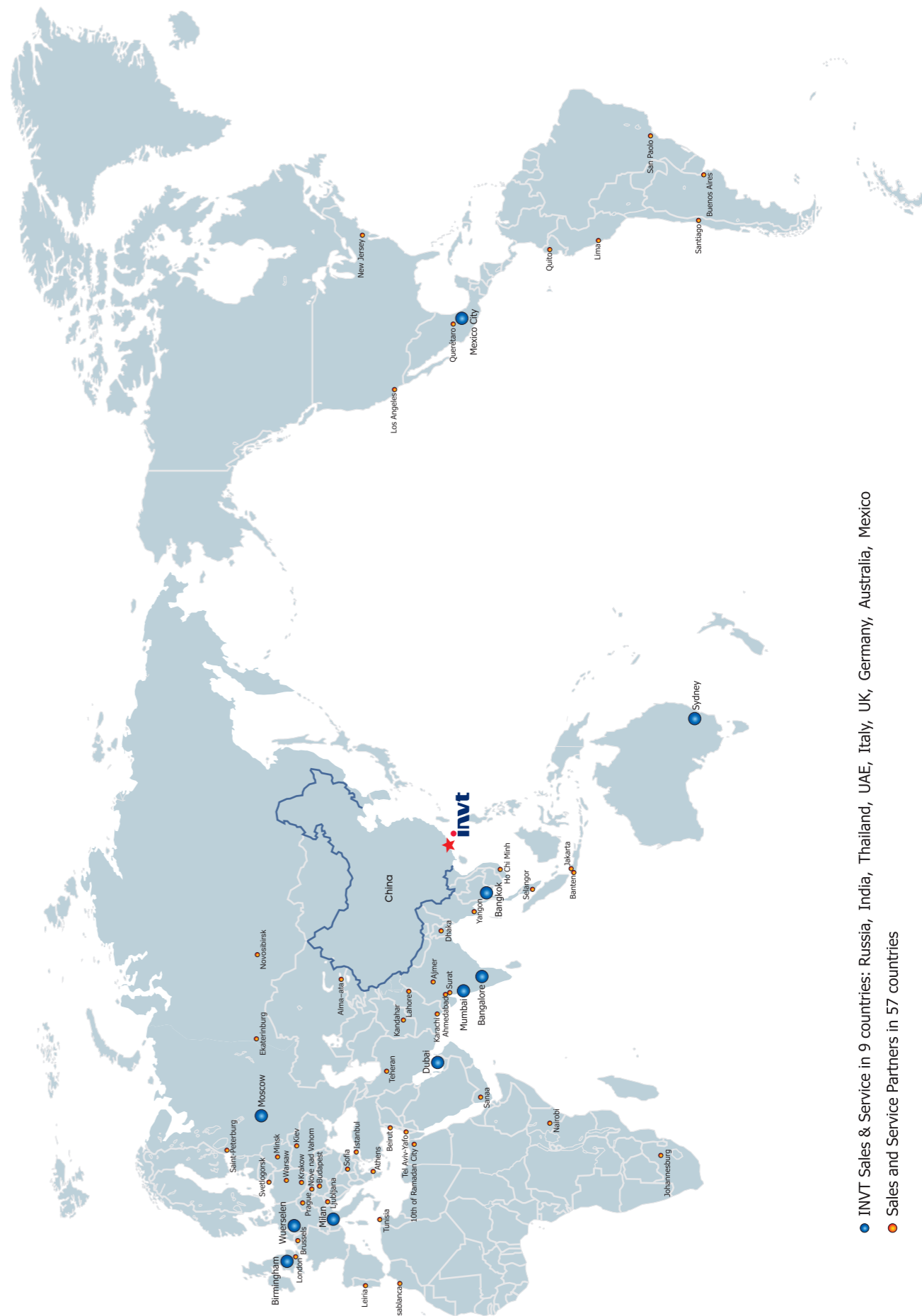
Models of IP54 support wall mounting



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	GD100-1R5G-45-PV-AS										
	GD100-1R5G-S25-PV-AS										
	GD100-1R5G-SS25-PV-AS										
2.2	GD100-2R2G-45-PV-AS										
	GD100-2R2G-S25-PV-AS										
	GD100-2R2G-SS25-PV-AS										
4	GD100-004G-45-PV-AS	550	900	225	400	875					
	GD100-004G-25-PV-AS										
5.5	GD100-5R5G-45-PV-AS										
	GD100-5R5G-25-PV-AS										
7.5	GD100-7R5G-45-PV-AS										
	GD100-7R5G-25-PV-AS										
11	GD100-011G-45-PV-AS										
15	GD100-015G-45-PV-AS										
18.5	GD100-018G-45-PV-AS						650	1000	250	400	975
22	GD100-022G-45-PV-AS										
30	GD100-030G-45-PV-AS										
37	GD100-037G-45-PV-AS										



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