

GD100-PV Series

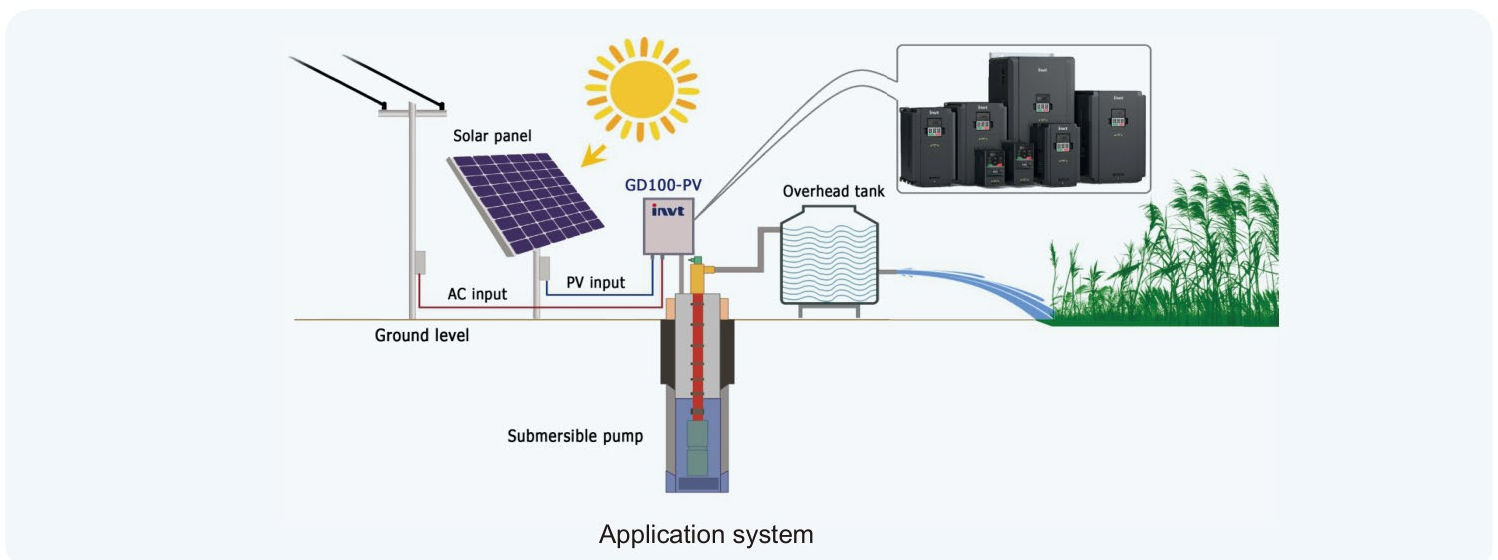
Solar Pumping Controller





- ◆ Effective protection function, including current detection zero drift protection, PV over-voltage protection, PV polarity reverse warning, auto derating against over-temperature, etc.
- ◆ Advanced MPPT algorithms: maximum solar tracking efficiency can reach 99.9%.
- ◆ Support GPRS module, which can remote monitor the controller by using the APP.
- ◆ The solar pump controller automatically start or sleep only after being connected to solar panel without any parameter setting.
- ◆ Support AC and DC simultaneous input.
- ◆ Support light sensor analog input.
- ◆ Model($\leq 2.2\text{kW}$) can be configured with the boost module, which can make the pump work in low voltage and reduce the cost by decreasing the numbers of solar panel.
- ◆ Optional cabinet product for IP54 protection level.

Applications



Type Selection

GD100 – 5R5G – 4 5 – PV

① ② ③ ④ ⑤

No.	Sign	Description	Remarks
①	GD100	Product abbreviation	GD100 is short for Goodrive100.
②	5R5	Power range + Load type	5R5: 5.5kW G: Constant torque load.
③	4	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%)
④	5	Protection level	5: IP54 Standard controller is IP20, not displayed.
⑤	PV	Industrial code	PV stands for solar pump.

Power Ratings

Series	Model	Rated output power		Rated input current (A)	Rated output current (A)
		kW	Hp		
1PH 220 Input 1PH 220V Output	GD100-0R4G-SS2-PV	0.4	0.5	6.5	4.2
	GD100-0R7G-SS2-PV	0.75	1	9.3	7.2
	GD100-1R5G-SS2-PV	1.5	2	15.7	10.2
	GD100-2R2G-SS2-PV	2.2	3	24	14
1PH 220V	GD100-0R4G-S2-PV	0.4	0.5	6.5	2.5
	GD100-0R7G-S2-PV	0.75	1	9.3	4.2
	GD100-1R5G-S2-PV	1.5	2	15.7	7.5
	GD100-2R2G-S2-PV	2.2	3	24	10
3PH 220V	GD100-1R5G-2-PV	1.5	2	7.7	7.5
	GD100-2R2G-2-PV	2.2	3	12	10
	GD100-004G-2-PV	4	5.5	17	16
	GD100-5R5G-2-PV	5.5	7.5	25	20
	GD100-7R5G-2-PV	7.5	10	33	30
3PH 380V	GD100-0R7G-4-PV	0.75	1	3.4	2.5
	GD100-1R5G-4-PV	1.5	2	5	4.2
	GD100-2R2G-4-PV	2.2	3	5.8	5.5
	GD100-004G-4-PV	4	5.5	13.5	9.5
	GD100-5R5G-4-PV	5.5	7.5	19.5	14
	GD100-7R5G-4-PV	7.5	10	25	18.5
	GD100-011G-4-PV	11	15	32	25
	GD100-015G-4-PV	15	20	40	32
	GD100-018G-4-PV	18.5	25	47	38
	GD100-022G-4-PV	22	30	56	45
	GD100-030G-4-PV	30	41	70	60
	GD100-037G-4-PV	37	50	80	75
	GD100-045G-4-PV	45	61	90	92
	GD100-055G-4-PV	55	73	105	115
	GD100-075G-4-PV	75	100	139	150
	GD100-090G-4-PV	90	120	168	180
	GD100-110G-4-PV	110	147	201	215
	GD100-132G-4-PV	132	177	265	260
	GD100-160G-4-PV	160	214	310	305
	GD100-185G-4-PV	185	248	345	340
GD100-200G-4-PV	200	268	385	380	

Product specification

Model	-SS2	-S2	-2	-4	
AC input voltage (V)	220(-15%) ~240(+10%) (1PH)		220(-15%) ~240(+10%) (3PH)	380(-15%) ~440(+10%) (3PH)	380(-15%) ~440(+10%) (3PH)
Max. DC input voltage (V)	440	440	440	800	900
Start-up voltage (V)	200	200	200	300	300
Lowest working voltage (V)	150	150	150	250	250
Recommended DC input voltage range (V)	200~400	200~400	200~400	300~750	300~850
Recommended MPP voltage (V)	330	330	330	550	550
Rated output voltage (V)	220 (1PH)	220 (1PH)	220 (3PH)	380 (3PH)	380 (3PH)
Output frequency range (Hz)	0~400				
MPPT	99.9%				
Installation method	Wall mounting/Rail mounting/Flange installation.				
Environment parameters	Temperature: -10°C~+50°C. If above 40°C, derate 2% for every additional 1°C. Humidity: RH≤95%. No condensation is allowed.				
Altitude	Below 1000m. If above 1000m, derate 1% every additional 100m.				
Fault protection	More than 30 protection functions, such as current detection zero drift protection, PV overvoltage protection, PV undervoltage protection, lower sunshine protection, dry running protection, water level protection, overcurrent protection, overtemperature protection, phase loss protection and overload protection, etc.				
Cooling manner	Fan cooling				
Protection level	IP20 ; IP54 (Cabinet)				

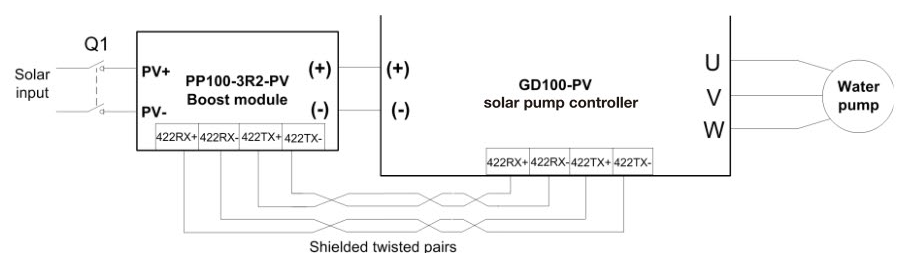
Options

Recommended configuration for solar pumping controllers with the boost module

PP100-3R2-PV + Solar pumping controller	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

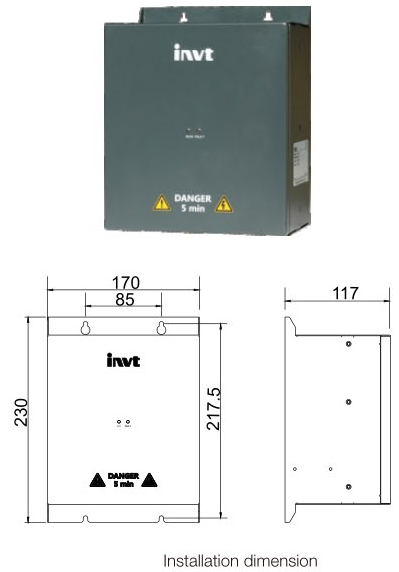
Boost module

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



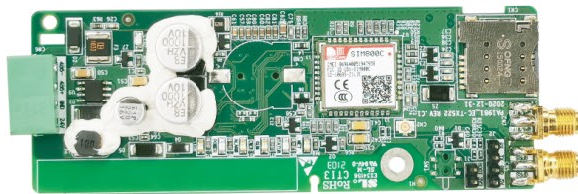
Connection between the boost module and solar pumping controller

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 controller)



GPRS module and monitoring APP

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



GPRS module

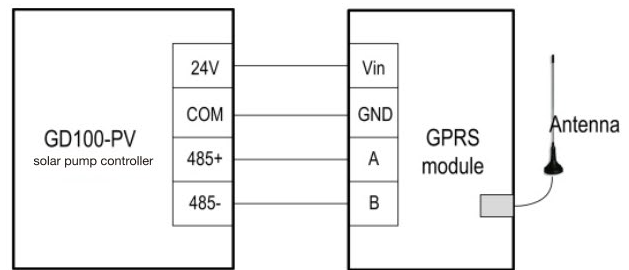
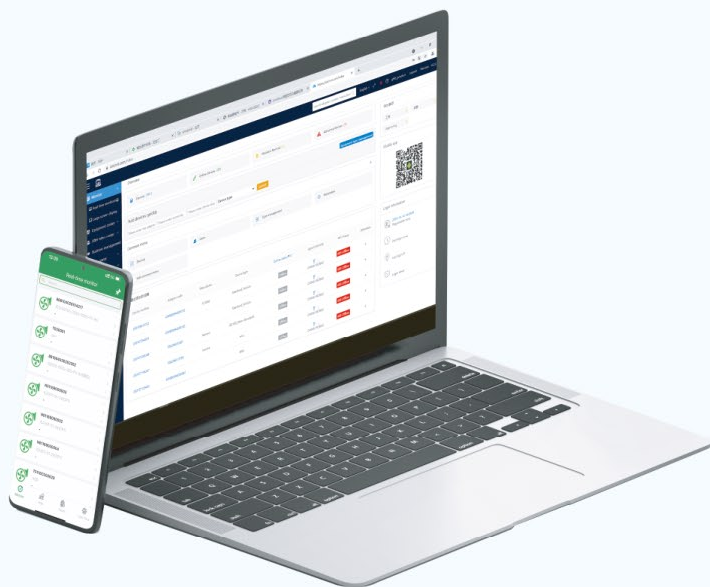


Diagram of connection the GPRS module to the controller



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.

Reactors

Controller power	Output reactor	Controller power	Output reactor
GD100 -1R5G -2-PV	OCL2 -004 -4	GD100 -018G -4-PV	OCL2 -018 -4
GD100 -2R2G -2-PV	OCL2 -004 -4	GD100 -022G -4-PV	OCL2 -022 -4
GD100 -004G -2-PV	OCL2 -5R5 -4	GD100 -030G -4-PV	OCL2 -037 -4
GD100 -5R5G -2-PV	OCL2 -7R5 -4	GD100 -037G -4-PV	OCL2 -037 -4
GD100 -7R5G -2-PV	OCL2 -015 -4	GD100 -045 G-4-PV	OCL2 -045 -4
GD100 -0R7G -4-PV	OCL2 -1R5 -4	GD100 -055 G-4-PV	OCL2 -055 -4
GD100 -1R5G -4-PV	OCL2 -1R5 -4	GD100 -075 G-4-PV	OCL2 -075 -4
GD100 -2R2G -4-PV	OCL2 -2R2 -4	GD100-090G-4-PV	OCL2-110-4
GD100 -004G -4-PV	OCL2 -004 -4	GD100-110G-4-PV	OCL2-110-4
GD100 -5R5G -4-PV	OCL2 -5R5 -4	GD100-132G-4-PV	OCL2-160-4
GD100 -7R5G -4-PV	OCL2 -7R5 -4	GD100-160G-4-PV	OCL2-200-4
GD100 -011G-4-PV	OCL2 -011-4	GD100-185G-4-PV	OCL2-200-4
GD100 -015G -4-PV	OCL2 -015 -4	GD100-200G-4-PV	OCL2-200-4

Note:

If the distance between the inverter and motor is more than 50 m, select the reactor according to the following table.

Model selection reference for low-voltage apparatus

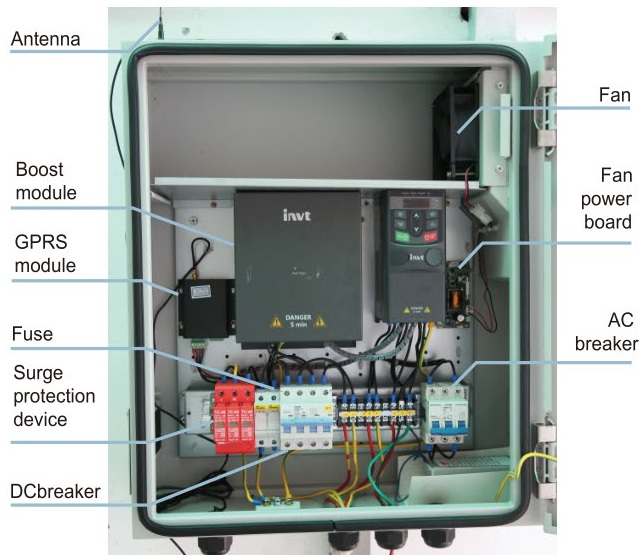
Model	AC breaker (A)	DC breaker (A)	AC contactor (A)	Surge protection	Fuse	Diode
GD100-0R4G-SS25-PV-AS	16	16A/500V	16	Type II 1000VCC	30A	Not required since equipped the boost module
GD100-0R7G-SS25-PV-AS	25		25			
GD100-1R5G-SS25-PV-AS	40		32			
GD100-2R2G-SS25-PV-AS	40		32			
GD100-0R4G-S25-PV-AS	16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

Note:

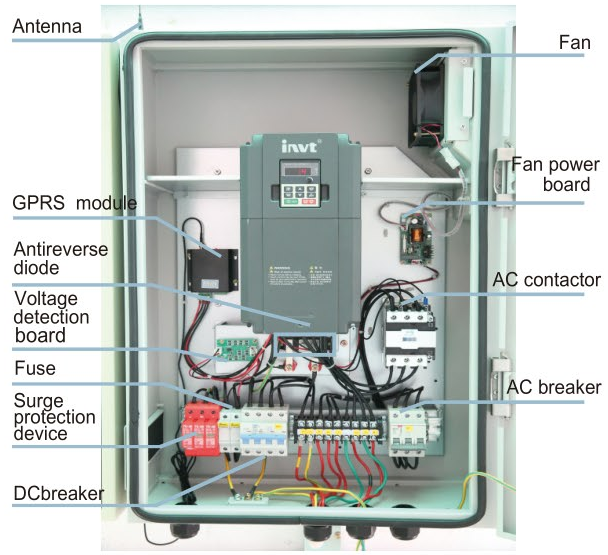
Above 37kW of IP54 model please refer operation manual page 57-58.

Solar Pumping Controller of IP54

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



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

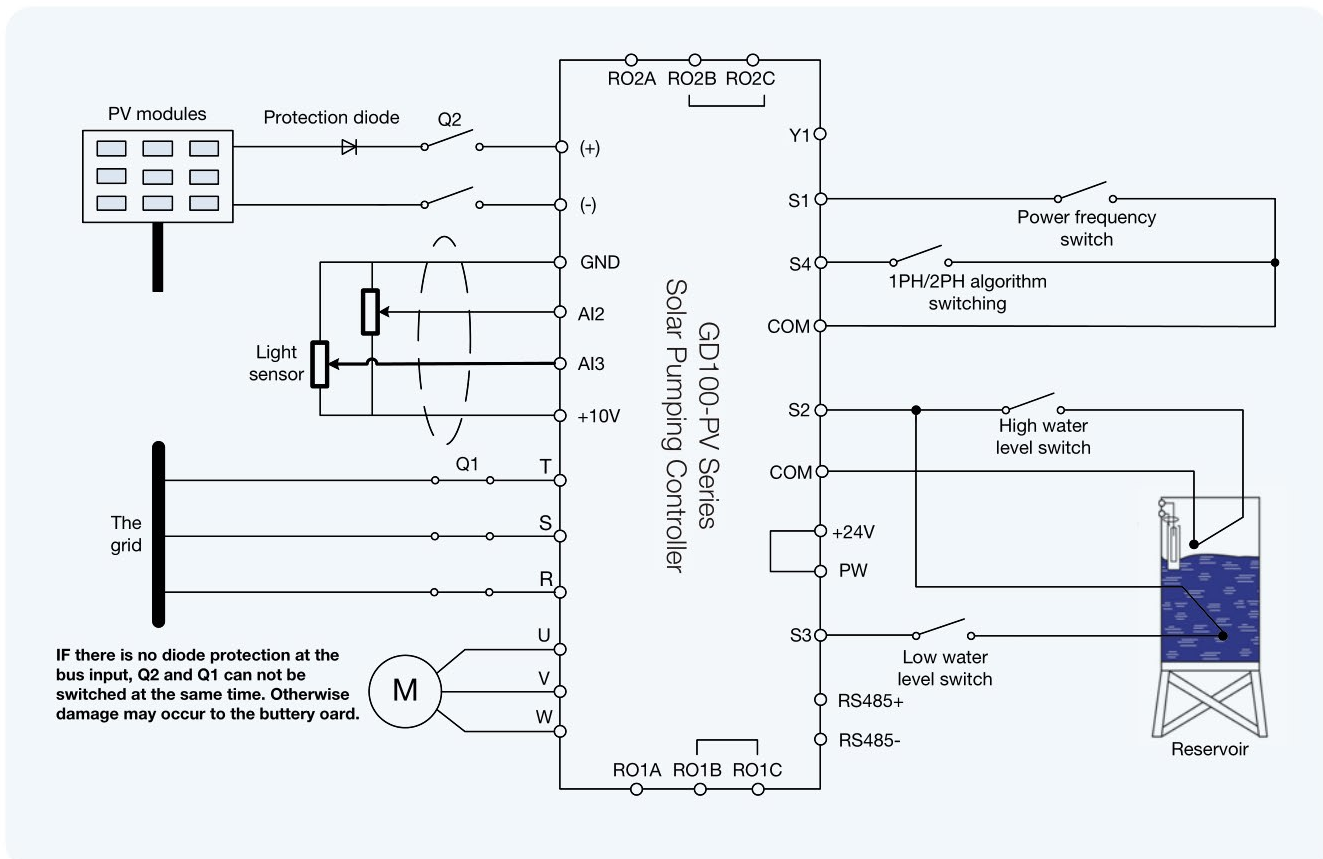


Internal structure of GD100-015G-45-PV-AS

Note:

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

System wiring diagram



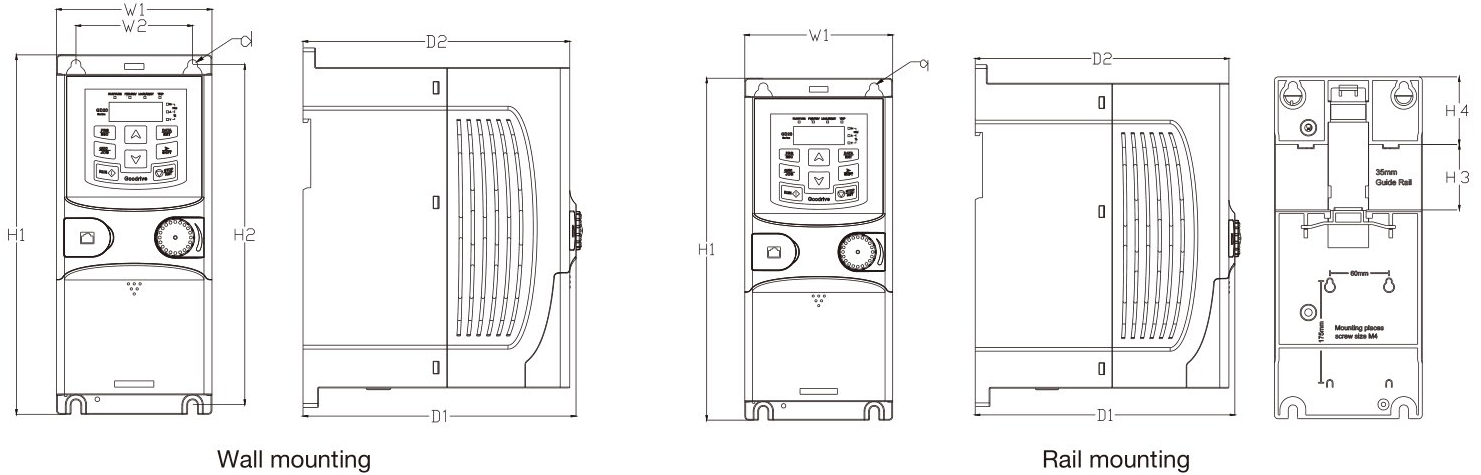
Recommended Solar Array Configuration

Recommended configuration in standard condition

Model	Open-circuit voltage degree of solar module			
	Voc=45±1Vdc		Voc=49±1Vdc	
	Panel Power (W)	Configuration (Per string*strings)	Panel Power (W)	Configuration (Per string*strings)
GD100-0R4G-SS2-PV	300	9*1	540	8*1
GD100-0R7G-SS2-PV	300	9*1	540	8*1
GD100-1R5G-SS2-PV	300	9*1	540	8*1
GD100-2R2G-SS2-PV	300	9*1	540	8*1
GD100-0R4G-S2-PV	300	9*1	540	8*1
GD100-0R7G-S2-PV	300	9*1	540	8*1
GD100-1R5G-S2-PV	300	9*1	540	8*1
GD100-2R2G-S2-PV	300	9*1	540	8*1
GD100-1R5G-2-PV	300	9*1	540	8*1
GD100-2R2G-2-PV	300	9*1	540	8*1
GD100-004G-2-PV	300	9*2	540	9*1
GD100-5R5G-2-PV	300	9*3	540	8*2
GD100-7R5G-2-PV	300	9*4	540	9*2
GD100-0R7G-4-PV	300	15*1	540	14*1
GD100-1R5G-4-PV	300	15*1	540	14*1
GD100-2R2G-4-PV	300	15*1	540	14*1
GD100-004G-4-PV	300	16*1	540	14*1
GD100-5R5G-4-PV	300	15*2	540	14*1
GD100-7R5G-4-PV	300	15*2	540	16*1
GD100-011G-4-PV	300	15*3	540	14*2
GD100-015G-4-PV	300	15*4	540	16*2
GD100-018G-4-PV	300	15*5	540	14*3
GD100-022G-4-PV	300	15*6	540	14*4
GD100-030G-4-PV	300	15*8	540	15*5
GD100-037G-4-PV	300	15*9	540	15*6
GD100-045G-4-PV	300	15*11	540	16*7
GD100-055G-4-PV	300	15*14	540	15*9
GD100-075G-4-PV	300	15*19	540	14*13
GD100-090G-4-PV	300	15*22	540	15*14
GD100-110G-4-PV	300	15*27	540	15*18
GD100-132G-4-PV	300	15*38	540	15*21
GD100-160G-4-PV	300	15*46	540	15*26
GD100-185G-4-PV	300	15*53	540	15*30
GD100-200G-4-PV	300	15*57	540	15*32

Installation Dimensions

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



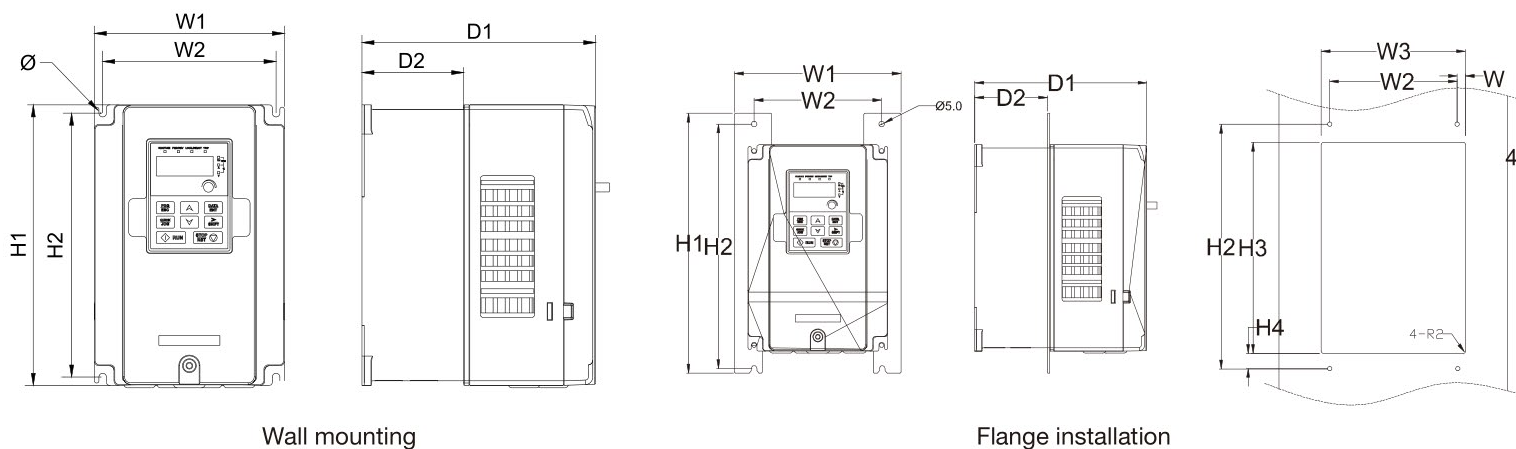
Dimensions in wall mounting (unit: mm)

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:



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

Note:

Dimensions in wall mounting for 45-200kW please refer operation manual page 63-64.

Dimensions in flange mounting (unit: mm)

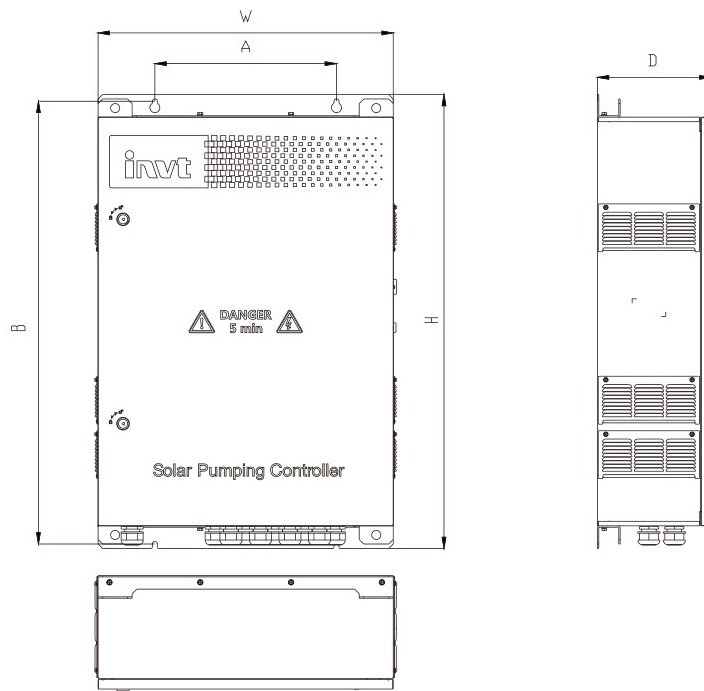
Model	W1	W2	W3	W4	H1	H2	H3	H4	D1	D2	Installation hole (d)	Nut specs
GD100-004G-4-PV	170.2	131	150	9.5	292	276	260	6	167	84.5	6	M5
GD100-5R5G-4-PV	170.2	131	150	9.5	292	276	260	6	167	84.5	6	M5
GD100-7R5G-4-PV	191.2	151	174	11.5	370	351	324	12	196.3	113	6	M5
GD100-011G-4-PV	191.2	151	174	11.5	370	351	324	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 board.

Dimensions in flange installation for 45-200kW please refer operation manual page 64-65.

Models of IP54 support wall mounting



IP54 controller dimension drawing

IP54 controller dimension (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										
	GD100-0R7G-SS25-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										

Note:

If you need capacity above 37kW of IP54 model please contact INVT.

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