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- Industrial Automation:
- Variable-Frequency Drive
 - HMI
 - SVG
 - New Energy Vehicle Electric Control System

- Servo & Motion Control
 - Intelligent Elevator Control System
 - Solar Pump Controller

- Motor & Electric Spindle
 - Traction Drive
 - Online Energy Management System

- PLC

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Y9/1-07 V1.0



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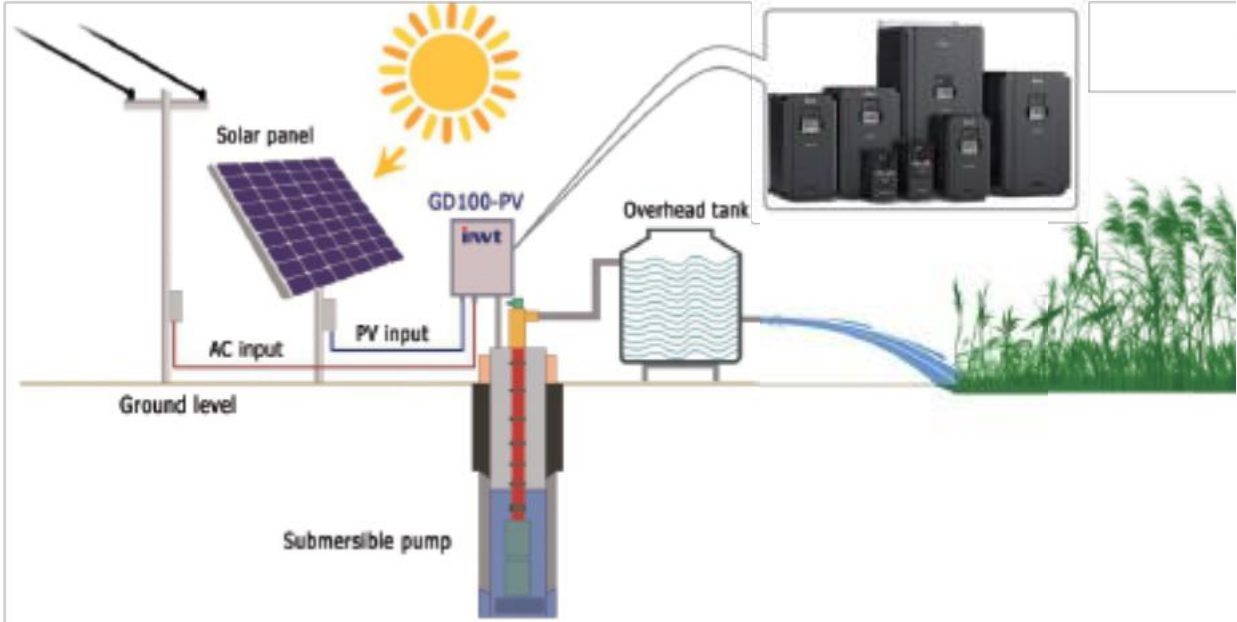
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PV pump application system

/ 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 200kW.

Easy to use

The solar pump controllers 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

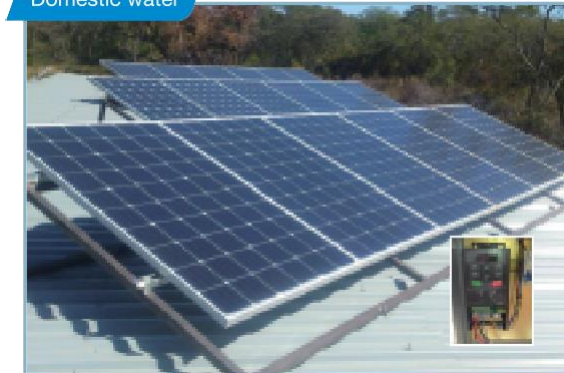
Support the GPRS module, which can remote monitor the controller by using the APP

Product for high protection level

Support cabinet product for IP54 protection level.

/ Product Applications

Domestic water



Municipal water



Agriculture irrigation



Pasture animal husbandry



Desert Oasis Irrigation



Regional living water



/ Type Designation Key

GD100 – 5R5G – 4 5 – PV
① ② ③ ④ ⑤

Field identification	Sign	Detailed description of the sign	Detailed content
Product	①	Product abbreviation	
	②	Power range + Load type	
Voltage degree	③	Voltage degree	
	④		
	⑤		

/ Product Specifications

Product function parameters

Model	-SS2	-S2		
AC input voltage (V)	220(-15%) ~240(+10%) (1PH)		220(-15%) ~240 (+10%) (3PH)	380(-15%) ~440 (+10%) (3PH)
		500	500	
Start-up voltage (V)	200	200	200	300
Lowest working voltage (V)				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)				
Output frequency range (Hz)	0~400			
MPPT	99%			
Installation manner				
Environment temperature				
Altitude				
	IP20;			

Product rated specification parameters

Series	Model	Rated output power (kW)	Rated input current (A)	Rated output current (A)
-SS2 (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
-4 Three-phase, 380V (0.75-200kW)	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	51	45
	GD100-030G-4-PV	30	70	60
	GD100-037G-4-PV	37	80	75
	GD100-045G-4-PV	45	98	92
	GD100-055G-4-PV	55	128	115
	GD100-075G-4-PV	75	139	150
	GD100-090G-4-PV	90	168	180
	GD100-110G-4-PV	110	201	215
	GD100-132G-4-PV	132	265	260
	GD100-160G-4-PV	160	310	305
	GD100-185G-4-PV	185	345	340
	GD100-200G-4-PV	200	385	380

Note : When demanding for the solar pump controllers above 200kW , contact INVT to customize.

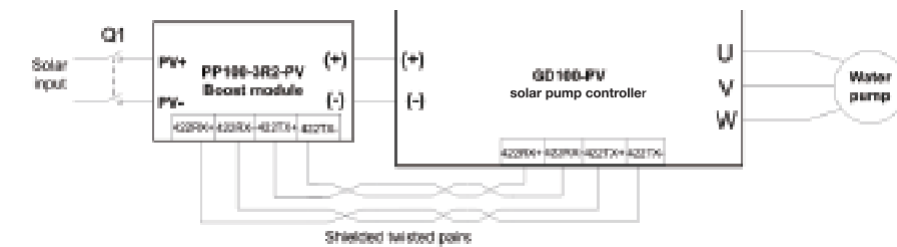
Options

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

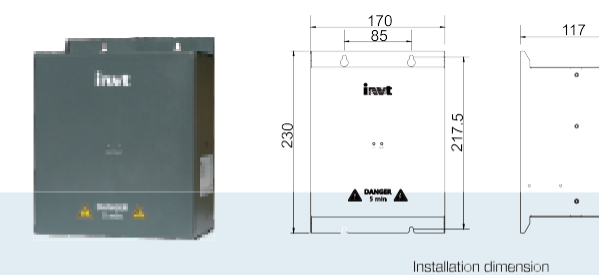
0.4-2.2kW models can be configured with the boost module, which can improve the utilization of the solar component.



Connection between the boost module and solar pumping controller

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 controller)



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 controller operation state can be monitored on the APP in the mobile phone or web page in real time.

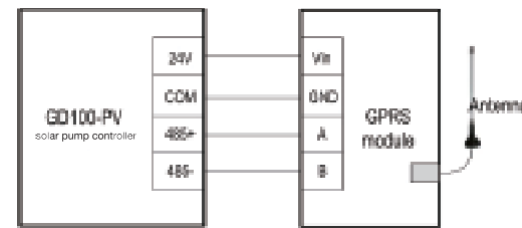
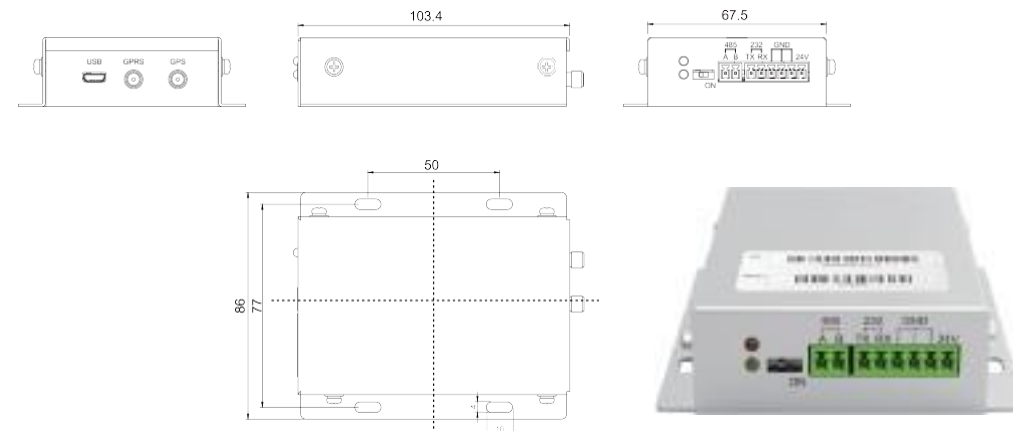
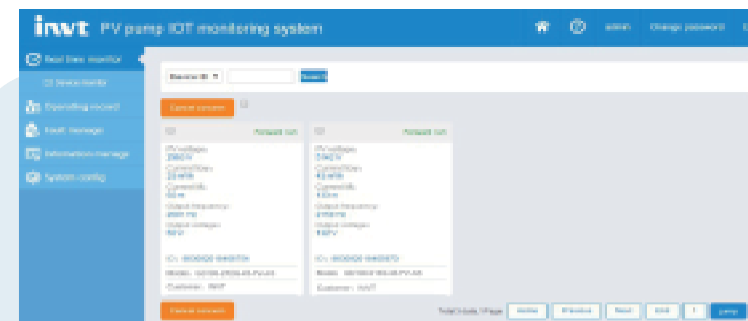


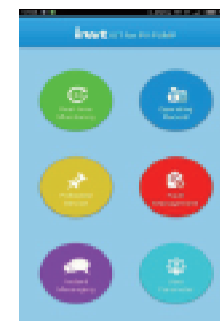
Diagram of connecting the GPRS module to the controller



GPRS module installation dimensions



Computer monitoring interface



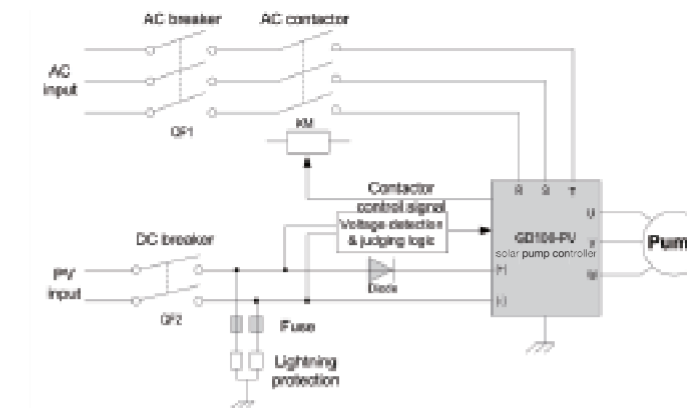
Mobile APP interface



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, controllers 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-SS2-PV-AS	16	16A/500V	16	Type II 1000VDC	30A	Not required since equipped the boost module
GD100-0R7G-SS2-PV-AS	25		25			
GD100-1R5G-SS2-PV-AS	40		32			
GD100-2R2G-SS2-PV-AS	40		32			
GD100-0R4G-S2-PV-AS	16	16A/1000V	10			55A/ 1600V
GD100-0R7G-S2-PV-AS	16		16			
GD100-1R5G-S2-PV-AS	25		25			
GD100-2R2G-S2-PV-AS	40		32			
GD100-0R7G-4-PV-AS	10	63A/1000V	10			110A/ 1600V
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	80A/1000V	16			110A/ 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	125A/1000V	32			110A/ 1600V
GD100-7R5G-2-PV-AS	63		32			
GD100-015G-4-PV-AS	63		50			
GD100-018G-4-PV-AS	100		63			
GD100-022G-4-PV-AS	100	125A/1000V	80			110A/ 1600V
GD100-030G-4-PV-AS	125		95			
GD100-037G-4-PV-AS	160		120			

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