

GD100-PV Series

Solar Pump Controller

"Harvest the sun, irrigate your world"











E-mail: sales@inversun.tech Website: www.inversun.tech

SOLAR FIELDS TRADING SCS. Headquarters: Bekaa, Lebanon



- Protection function**
 - Pump dry run protection (low load protection)
 - Over/low voltage protection
 - Over load protection
 - Lightning and surge protection
 - Over temperature protection
 - Lose phase protection
 - Advanced MPPT algorithms**
 - MPPT software up to 99% efficiency
 - Support multiple pumps**
 - Support 220V, 1 phase AC pump with and without capacitor
- Wide working voltage**
 - Max. DC input 900V, AC input 380~440V
 - Max. DC input 500V, AC input 220~240V
 - Hybrid and Auto-switch function**
 - Support AC & PV input together, AC bypass function.
 - GPRS remote control**
 - Support 4G,WIFI module, which can remote monitor the controller through mobile phone and web browser.
 - Product for high protection level**
 - Support cabinet product for IP54 protection level
 - Support multiple sensor**
 - Support controlling the controller through radiation sensors and water level sensor.

Product Specification

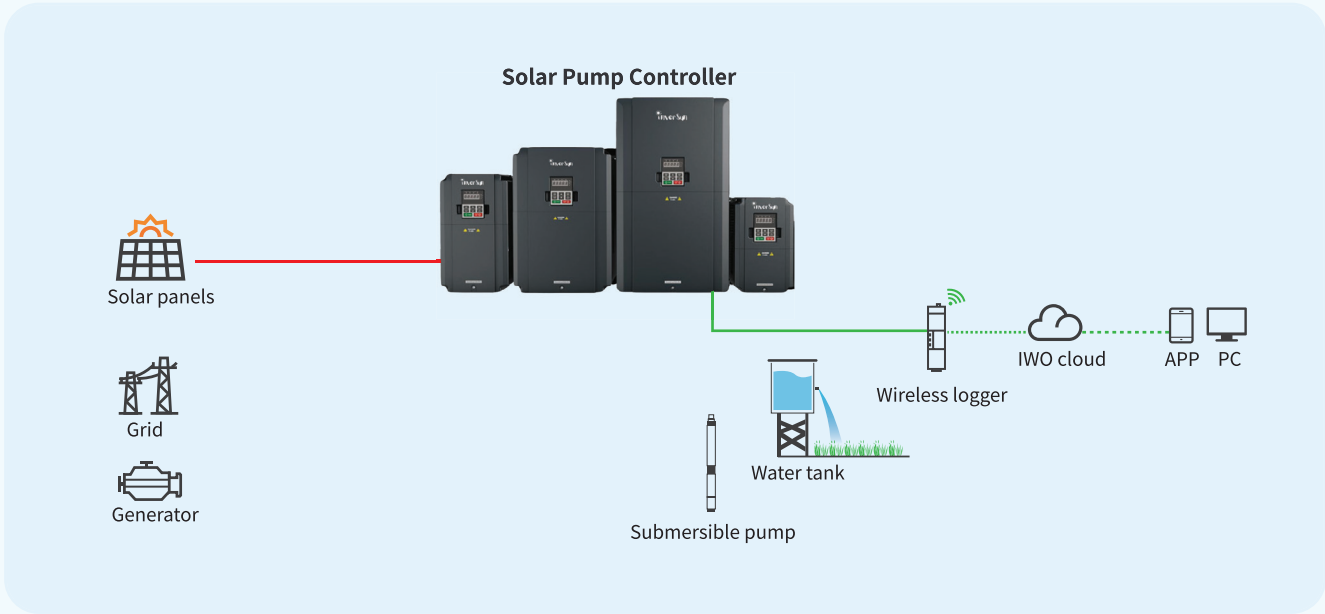
Model	-SS2		-S2		-2		-4
AC input voltage (V)	220(-15%) ~240(+10%) (1PH)				220(-15%) ~240(+10%) (3PH)		380(-15%) ~440(+10%) (3PH)
Max. DC input voltage (V)	440	500	440	500	440	500	900
Start-up voltage (V)	200		200		200		300
Lowest working voltage (V)	150		150		150		250
Recommended DC input voltage range (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 efficiency	99%						
Installation method	Wall mounting/Rail mounting/Flange installation.						
Environment parameters	-10℃~+50℃, When the ambient temperature exceeds 40℃, derate 1% for every increase of 1℃.						
Altitude	Lower than 1000m, When the altitude exceeds 3000m, consult the local INVERSUN dealer or office.						
Cooling manner	Fan cooling						
Protection level	IP20 ; IP54 Cabinet (Options)						

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.



Applications

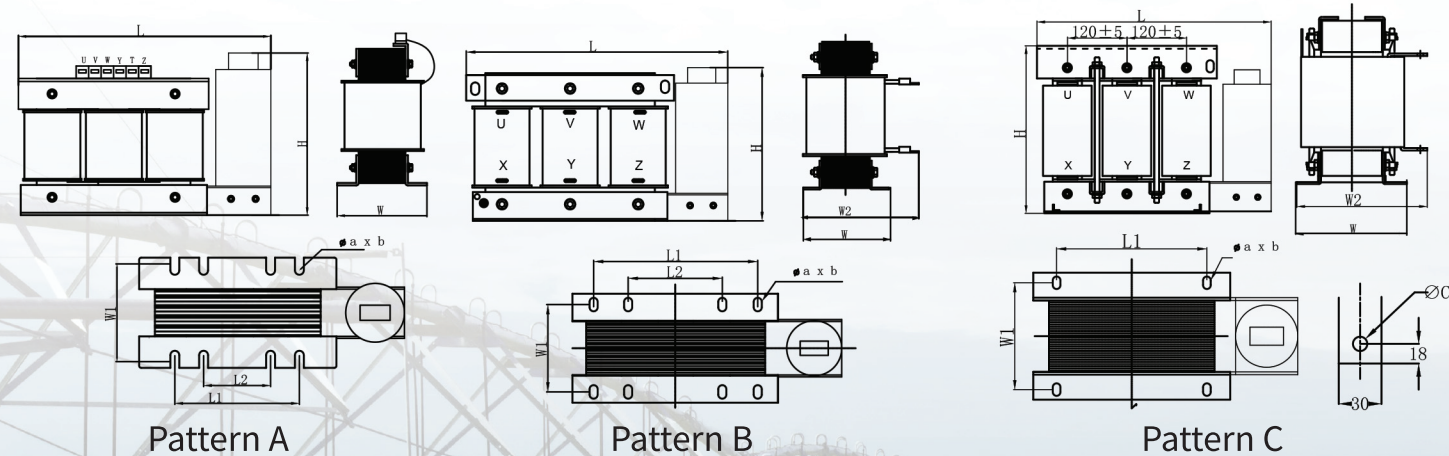


Power Ratings

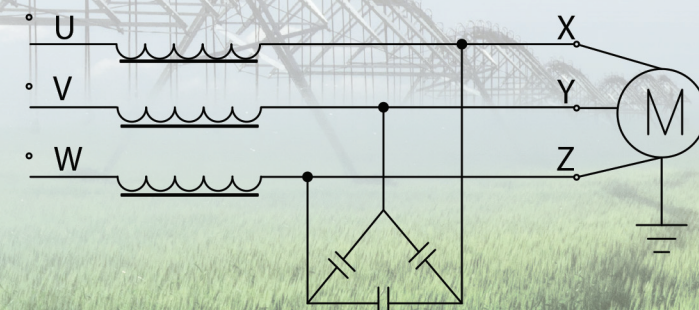
Series	Model	Rated output power		Rated input current (A)	Rated output current (A)
		kW	Hp		
1PH 220 Input 1PH 220V Output	GD100-0R4G-SS2-PV	0.4	0.5	6.5	4.2
	GD100-0R7G-SS2-PV	0.75	1	9.3	7.2
	GD100-1R5G-SS2-PV	1.5	2	15.7	10.2
	GD100-2R2G-SS2-PV	2.2	3	24	14
1PH 220V	GD100-0R4G-S2-PV	0.4	0.5	6.5	2.5
	GD100-0R7G-S2-PV	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
3PH 380V	GD100-7R5G-2-PV	7.5	10	33	30
	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
	GD100-220G-4-PV	220	299	430	425
	GD100-250G-4-PV	250	340	485	480
	GD100-280G-4-PV	280	381	545	530
	GD100-315G-4-PV	315	428	610	600
	GD100-355G-4-PV	355	482	625	650
	GD100-400G-4-PV	400	544	715	720
	GD100-450G-4-PV	450	612	840	820
	GD100-500G-4-PV	500	680	890	860

Sine Wave Filters

Inversun Sinewave filter Recommended for distance of motor line for up to 1000 meters																												
Model Number	Power (KW)	Current (A)	Inductance (mH)	weight (Kg)	Insulation Type	Frequency (HZ)	Winding Material	Voltage Drop	Rated Voltage (V)	Pattern	L	H	W	L1	L2	W1	W2	a*b	c									
ISFR0015A4M00C	5.5	15	4	11.3	F, H	50	Cu	8%-10%	380-400	A	290	210	115		120	90		4-8.5x20										
ISFR0020A3M00C	7.5	20	3	14.5	F, H	50	Cu	8%-10%	380-400		290	210	123	120	65	100		4-8.5x20										
ISFR0030A2M00C	11	30	2	21.1	F, H	50	Cu	8%-10%	380-400		330	190	130	182		104	185	4-11x18										
ISFR0040A1M50C	15							8%-10%	380-400	B																		
	18,5																			40	1.4	21,3	F, H	50	Cu			
ISFR0050A1M20C	22	50	1.2	32,9	F, H	50	Cu	8%-10%	380-400											380	250	145	214	150	118	200	8-11x18	
ISFR0060A1M10C	30	60	1	35,7	F, H	50	Cu	8%-10%	380-400											380	250	145	214	150	118	200	8-11x18	
ISFR0080A0M85C	37	80	0.8	50	F, H	50	Cu	8%-10%	380-400											460	270	185	243		150	230	4-11x18	
ISFR0120A0M52C	45	120	0.52	52,7	F, H	50	Cu	8%-10%	380-400											460	290	175	243		144	240	4-11x18	
	55																											
ISFR0150A0M45C	75	150	0.45	89,7	F, H	50	Cu	8%-10%	380-400											C	490	335	195	260		154	275	4-15x25
ISFR0200A0M35C	90	200	0.35	109	F, H	50	Cu	8%-10%	380-400	515	335	217	260		176	295	4-15x25	11										
ISFR0250A0M28C	110	250	0.3	134	F, H	50	Cu	8%-10%	380-400	510	330	255	260		214	310	4-15x25	11										
ISFR0290A0M23C	132	290	0.24	123	F, H	50	Cu	8%-10%	380-400	540	375	215	260		176	320	4-15x25	11										
ISFR0360A0M20C	160	360	0.2	151	F, H	50	Cu	8%-10%	380-400	520	380	260	260		196	330	4-15x25	11										
	185																											



SCHEMATIC

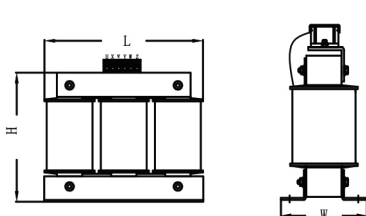


Reactors

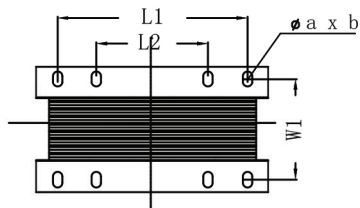
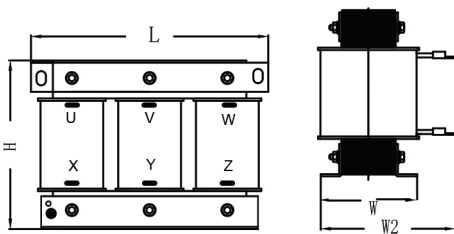
Inversun 3 phase Ac Output Reactor 3% Recommended for distance of motor line for up to 350 meters																			
Model Number	Power (KW)	Current (A)	Inductance (mH)	weight (Kg)	Insulation Type	Frequency (HZ)	Winding Material	Voltage Drop	Rated Voltage (V)	Pattern	L	H	W	L1	L2	W1	W2	a*b	c
IOCR0015A1M41C	5.5	15	1.397	4.3	F, H	50	Cu	3%	380-400	A	155	165	85	95	55	63		4-6x15	
IOCR0020A1M05C	7.5	20	1.048	5.4	F, H	50	Cu	3%	380-400		155	165	100	95	55	76		4-6x15	
IOCR0030A0M69C	11	30	0.698	10	F, H	50	Cu	3%	380-400	B	195	165	120	120		90	160	4-8.5x20	
IOCR0040A0M54C	15	40	0.524	11	F, H	50	Cu	3%	380-400		195	165	120	120		90	160	4-8.5x20	
IOCR0050A0M42C	18.5	50	0.419	11.9	F, H	50	Cu	3%	380-400		195	165	125	120		95	168	4-8.5x20	
IOCR0060A0M36C	22	60	0.349	12.8	F, H	50	Cu	3%	380-400		195	165	130	120		100	175	4-8.5x20	
IOCR0080A0M26C	30	80	0.262	19.6	F, H	50	Cu	3%	380-400	C	250	195	130	182		104	180	4-11x18	
IOCR0090A0M23C	37	90	0.233	21.9	F, H	50	Cu	3%	380-400		250	195	140	182		114	195	4-11x18	
IOCR0120A0M17C	45	120	0.175	24.2	F, H	50	Cu	3%	380-400		250	195	140	182		114	215	4-11x18	
IOCR0150A0M14C	55	150	0.140	33.1	F, H	50	Cu	3%	380-400		290	250	140	214	150	128	225	8-11x18	
IOCR0200A0M10C	75	200	0.105	40.6	F, H	50	Cu	3%	380-400	D	290	265	138	214	150	112	215	8-11x18	11

Inversun 3 phase Ac Output Reactor 5% Recommended for distance of motor line for up to 550 meters																			
Model Number	Power (KW)	Current (A)	Inductance (mH)	weight (Kg)	Insulation Type	Frequency (HZ)	Winding Material	Voltage Drop	Rated Voltage (V)	Pattern	L	H	W	L1	L2	W1	W2	a*b	c
IOCR0015A2M35C	5.5	15	2.328	6.85	F, H	50	Cu	5%	380-400	A	195	185	100	120		72		4-8.5x20	
IOCR0020A1M75C	7.5	20	1.746	10.4	F, H	50	Cu	5%	380-400	B	205	170	125	120		100	170	4-8.5x20	
IOCR0030A1M15C	11	30	1.164	11.2	F, H	50	Cu	5%	380-400		205	170	125	120		100	170	4-8.5x20	
IOCR0040A0M90C	15	40	0.873	15.9	F, H	50	Cu	5%	380-400	C	250	195	125	182		94	175	4-11x18	
IOCR0050A0M70C	18.5	50	0.698	19.2	F, H	50	Cu	5%	380-400		250	195	135	182		104	180	4-11x18	
IOCR0060A0M60C	22	60	0.582	20.1	F, H	50	Cu	5%	380-400		250	195	135	182		104	180	4-11x18	
IOCR0080A0M44C	30	80	0.437	29.2	F, H	50	Cu	5%	380-400		290	225	145	214	150	118	220	4-11x18	
IOCR0090A0M39C	37	90	0.388	30.7	F, H	50	Cu	5%	380-400		290	225	145	214	150	118	220	4-11x18	
IOCR0120A0M29C	45	120	0.291	39.1	F, H	50	Cu	5%	380-400		280	215	165	214	150	138	230	4-11x18	
IOCR0150A0M23C	55	150	0.233	42.1	F, H	50	Cu	5%	380-400		285	215	175	214	150	148	235	4-11x18	
IOCR0200A0M18C	75	200	0.175	57.5	F, H	50	Cu	5%	380-400		285	290	175	214	150	150	235	4-11x18	9
IOCR0230A0M15C	90	230	0.152	68.6	F, H	50	Cu	5%	380-400	D	325	295	215	243		184	255	4-11x18	9
IOCR0250A0M14C	110	250	0.140	73.6	F, H	50	Cu	5%	380-400		325	315	215	243		184	255	4-11x18	9
IOCR0290A0M12C	132	290	0.120	88.1	F, H	50	Cu	5%	380-400	E	355	330	225	260		184	265	4-15x25	11
IOCR0330A0M11C	160	330	0.106	99.6	F, H	50	Cu	5%	380-400		340	335	235	260		194	285	4-15x25	11
IOCR0390A090UC	200	390	0.090	103	F, H	50	Cu	5%	380-400		350	335	235	260		194	285	4-15x25	11

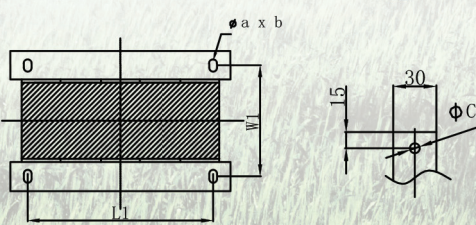
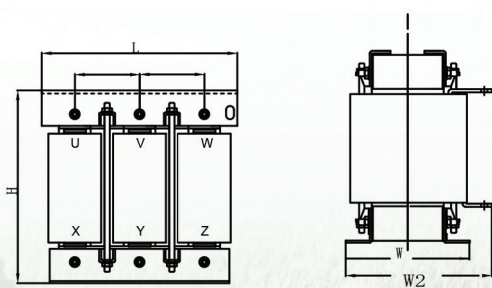
Patterns



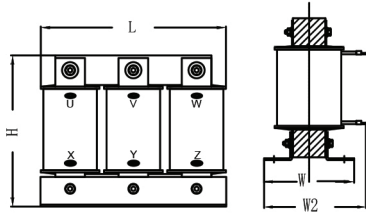
Pattern A



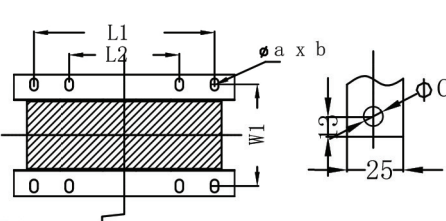
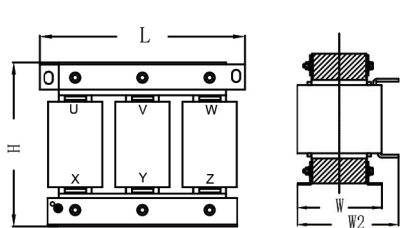
Pattern C



Pattern E

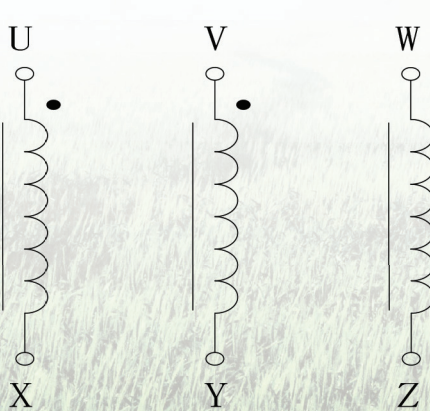


Pattern B



Pattern D

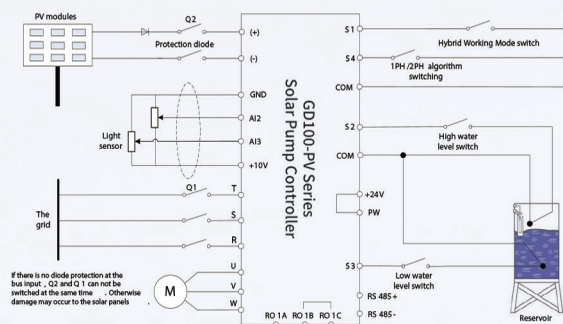
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Auto-switching / Hybrid Mode

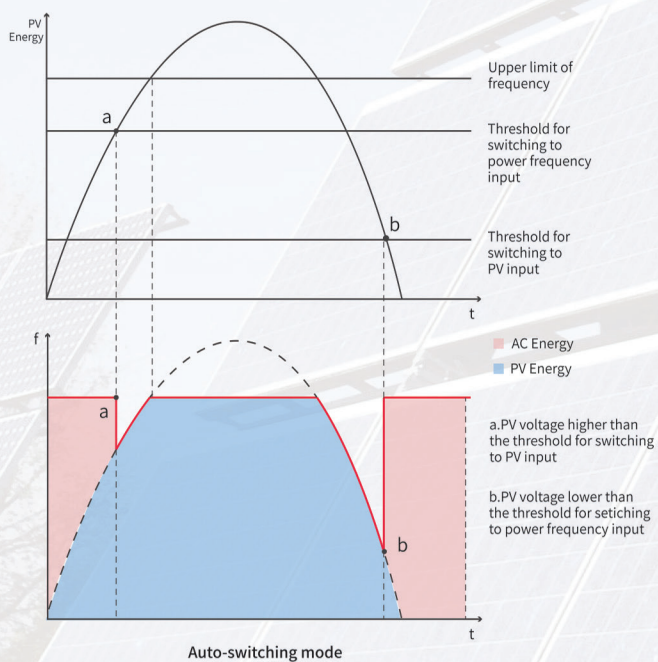
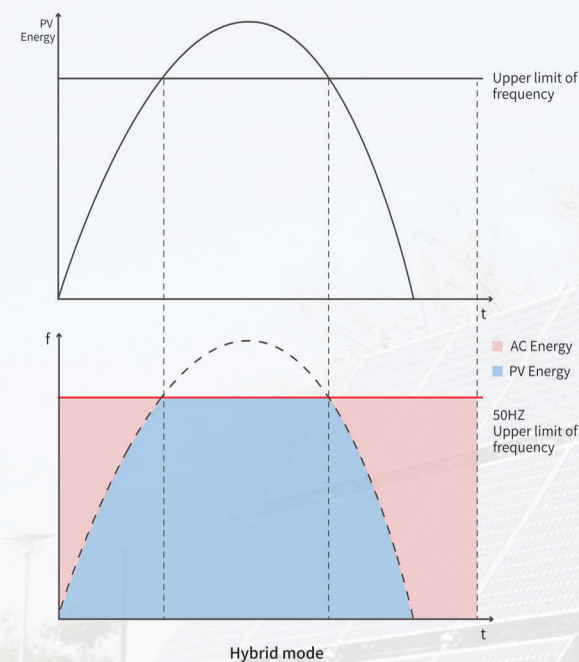
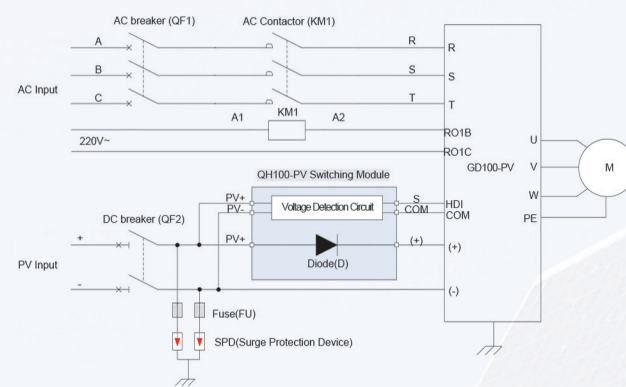
Hybrid mode

In hybrid mode, GD100-PV will use the energy of both PV modules and grid (or generator) at same time. The stronger the light radiation, the less AC energy is consumed. As the radiation reduction, the consumption of AC energy will increase to maintain the output.



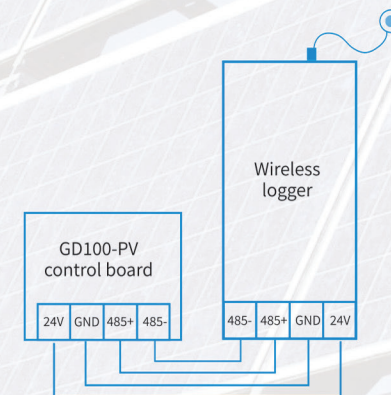
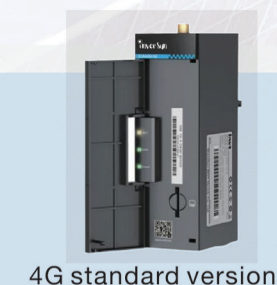
Auto-switching

If don't need to run at full high frequency at all times, you can choose to configure an auto-switch module. It can monitor the PV voltage, and when the voltage is below the set threshold, it can control the contactor to act and connect AC power to meet energy needs. When the voltage on the PV side exceeds the set threshold, the contactor can be controlled to operate and disconnect the AC power to reduce energy consumption.



Online Platform

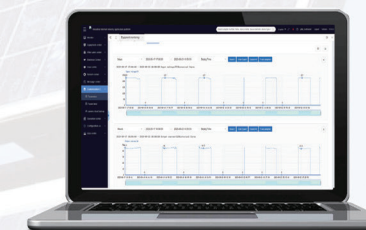
INVERSun solar pump remote monitoring platform. Option 4G & WIFI data logger.



Diagram



APP



PC client



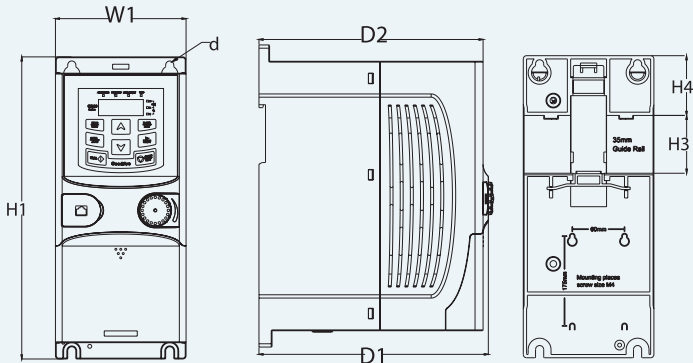
• Solution

1. Smart regular inspection and efficient O&M: can realize remote monitoring and analysis of PV water pump faults and exceptions, effectively solving practical problems such as difficult monitoring and control of PV water pumps, inspection difficulty, and low O&M effectiveness. Ultimately, the annual cost of O&M and inspection can be reduced by 30%.
2. Panoramic monitoring: can acquire operational data information such as voltage, current, and power of PV water pumps in real time, comprehensively monitor the operation of PV devices, and make intelligent analysis to achieve maximum operational efficiency of the entire PV water pump system.
3. PV water pump devices can be remotely controlled through computers and mobile phones, and key parameters of the devices can be remotely regulated.

Recommended Solar Array Configuration

Recommended configuration in standard condition

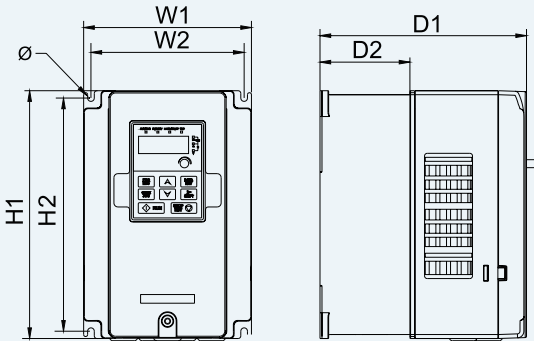
Model	Open-circuit voltage degree of solar module			
	Voc=45±1Vdc		Voc=49±1Vdc	
	Panel Power (W)	Configuration (Per string*strings)	Panel Power (W)	Configuration (Per string*strings)
GD100-0R4G-SS2PV	300	9*1	540	8*1
GD100-0R7G-SS2PV	300	9*1	540	8*1
GD100-1R5G-SS2PV	300	9*1	540	8*1
GD100-2R2G-SS2PV	300	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
GD100-220G-4-PV	300	15*63	540	15*36
GD100-250G-4-PV	300	15*72	540	15*40
GD100-280G-4-PV	300	15*80	540	15*45
GD100-315G-4-PV	300	15*91	540	15*50
GD100-355G-4-PV	300	15*102	540	15*57
GD100-400G-4-PV	300	15*155	540	15*64
GD100-450G-4-PV	300	15*130	540	15*72
GD100-500G-4-PV	300	15*144	540	15*80



Rail mounting for the models below 2.2kW

(unit: mm)

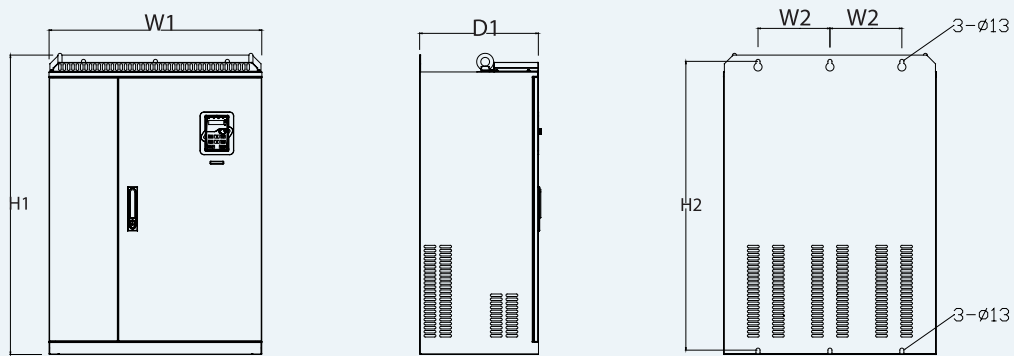
Voltage level	VFD model	W1	H1	H3	H4	D1	D2	Installation hole diameter (d)
1PH 220V	0.4-0.75kW	80.0	160.0	35.4	36.6	123.5	120.3	Ø 5
1PH 220V in 1PH 220V out	0.4kW	80.0	160.0	35.4	36.6	123.5	120.3	Ø 5
1PH 220V	1.5-2.2kW	80.0	185.0	35.4	36.6	140.5	137.3	Ø 5
1PH 220V in 1PH 220V out	0.75-2.2kW	80.0	185.0	35.4	36.6	140.5	137.3	Ø 5
3PH 380V	0.75-2.2kW	80.0	185.0	35.4	36.6	140.5	137.3	Ø 5



Wall mounting for the 4~200kW models

(unit: mm)

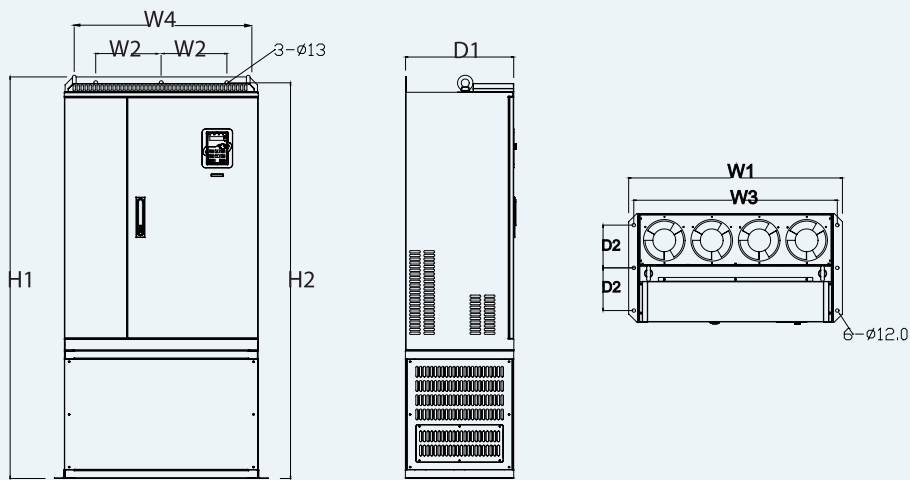
Voltage level	VFD model	W1	W2	H1	H2	D1	D2	Installation hole diameter (d)
3PH 220V	1.5-2.2kW	146.0	131.0	256.0	243.5	167.0	84.5	Ø 6
3PH 380V	4-5.5kW	146.0	131.0	256.0	243.5	167.0	84.5	Ø 6
	7.5-15kW	170.0	151.0	320.0	303.5	196.3	113.0	Ø 6
3PH 220V	4-7.5kW	170.0	151.0	320.0	303.5	196.3	113.0	Ø 6
3PH 380V	18.5-22kW	200.0	185.0	340.6	328.6	184.3	104.5	Ø 6
	30-37kW	250.0	230.0	400.0	380.0	202.0	123.5	Ø 6
	45-75kW	282.0	160.0	560.0	542.4	238.0	138.0	Ø 9
	90-110kW	338.0	200.0	554.0	534.0	326.2	/	Ø 9.5
	132-200kW	500.0	360.0	870.0	850.0	360.0	/	Ø 11



Flange mounting for the 4-200kW models

(unit: mm)

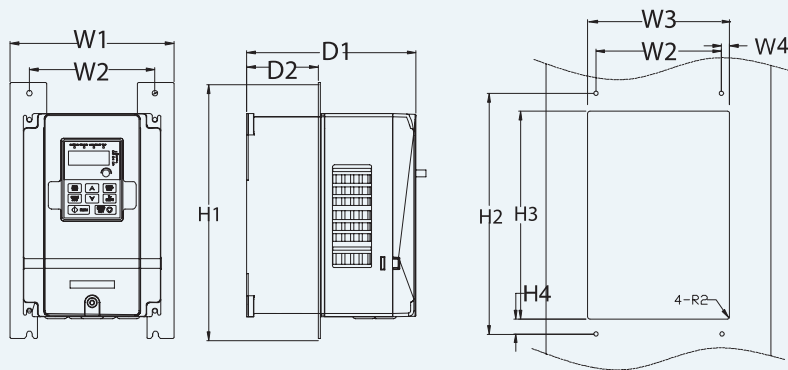
Voltage level	VFD model	W1	W2	H1	H2	D1	Installation hole diameter (d)
3PH 380V	220-315kW	680	230	960	926	387.9	Ø 13



Floor mounting for the 220-315kW models

(unit: mm)

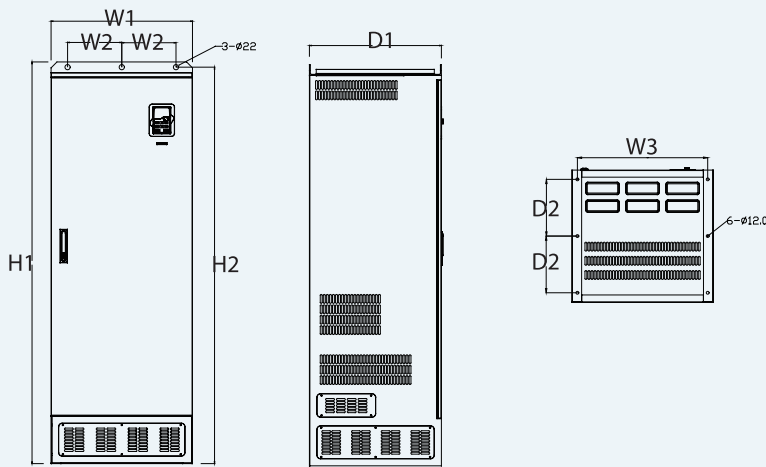
Voltage level	VFD model	W1	W2	W3	W4	H1	H2	D1	D2	Installation hole diameter (d)
3PH 380V	220-315kW	750	230	714	680	1410	1390	380	150	Ø 6



Flange mounting for the 4-200kW models

(unit: mm)

Voltage level	VFD model	W1	W2	W3	W4	H1	H2	H3	H4	D1	D2	Installation hole diameter (d)
3PH 380V	4-5.5kW	170.2	131	150	9.5	292	276	260	6	167	84.5	Ø 6
	7.5-15kW	191.2	151	174	11.5	370	351	324	12	196.3	113	Ø 6
3PH 220V	1.5-2.2kW	170.2	131	150	9.5	292	276	260	6	167	84.5	Ø 6
	4-7.5kW	191.2	151	174	11.5	370	351	324	12	196.3	113	Ø 6
3PH 380V	18.5-22kW	266	250	224	13	371	250	350.6	20.3	184.6	104	Ø 6
	30-37kW	316	300	274	13	430	300	410	55	202	118.3	Ø 6
	45-75kW	352	332	306	13	580	400	570	80	238	133.8	Ø 9
	90-110kW	418.5	361	389.5	14.2	600	559	370	108.5	329.5	149.5	Ø 9.5
	132-200kW	500	360	480	60	870	850	796	37	358	178.5	Ø 11



Floor mounting for the 355-500kW models

(unit: mm)

Voltage level	VFD model	W1	W2	W3	W4	H1	H2	D1	D2	Installation hole diameter (d)
3PH 380V	355-500kW	620	230	573	/	1700	1678	560	240	Ø 22/12