INOMAX

Medium and Low-Voltage drives Servo drives
Solar pump inverters Soft starters solution provider

MAX500-PV series solar pump inverter with MPPT >99%

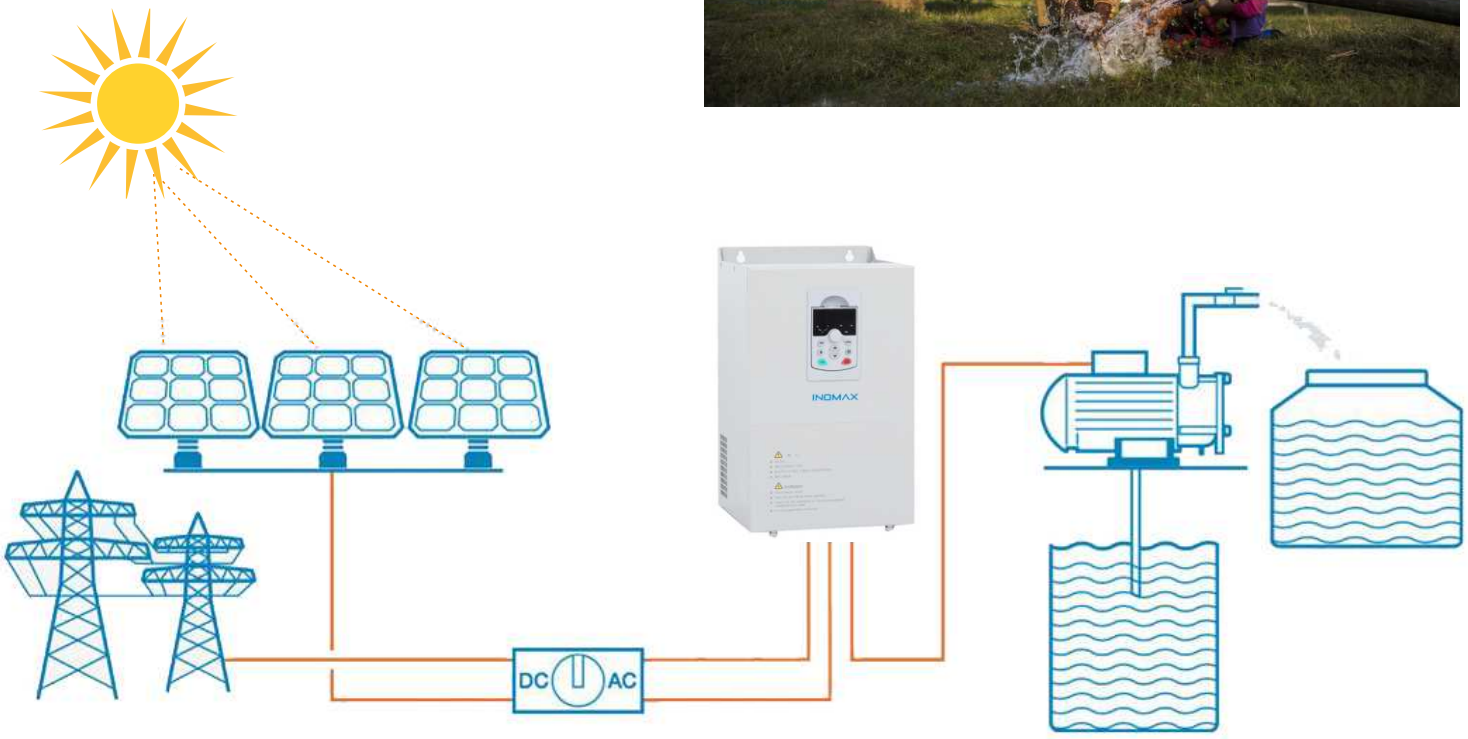
0.75KW-250KW

User manual

16111002

REV: V218
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SHENZHEN INOMAX TECHNOLOGY CO.LTD

www.inomaxtechnology.com

Quick Start

Model	MAX500-PV-1	MAX500-PV-2	MAX500-PV-3	MAX500-PV-4
Input DC Range(V)	170-800			270-800
MPPT Range(V)	170-800			270-800
Recommended Input DC(V)	330-800	330-800	330-800	540-800
Input AC(V)	220	220	220	380
Input AC Connect	Single Phase	Single Phase	Three Phases	Three Phases
Output AC(V)	220	220	220	380
Output AC Connect	Single Phase	Three Phases	Three Phases	Three Phases
Power Range(kW)	0.75 - 5.5	0.75 - 5.5	0.75 - 7.5	0.75 - 250
Recommended Configuration	Inverter power one level higher than pump power Solar panel power 2.0 times of pump power when pump power below 4kW Solar panel power 1.3 times of pump power when pump power over 2.2kW			
Terminal For AC Input	Please connect X4 and COM terminal when inverter get AC power input. Do not input AC power and DC power (from solar panel) at the same time to inverter, unless install optional device.			
Failure Signal Lamp	Terminal (TA, TB, TC, 24V, COM) can light the lamp (green running and red alarm signal) automatically and easily in control system.			
Wirin g	Please do not connect terminals (R S T U V W + -) directly because short circuit will damage inverter.			
Start Automatically	When inverter start working automatically with weak sunshine, inverter will start and stop frequently too many times. It will reduce inverter working life. Please set parameter P28.03 to protect inverter.			

1 Operation

1.1 Button

1. When P28.01=1 (default setting), inverter start working automatically once it getpower. When P28.01=0, please press "**RUN**" button to start inverter.
2. Keypad will show data in turn. If you press ▶ button, it will always shows same data.

1.2 Data

When inverter is in standby model, keypad will show the specification in turn

Solar panel DC voltage
Maximum output frequency
Output current

When inverter is outputting power, keypad will show the specification in turn

Solar panel DC voltage
Output frequency
Output current

2 Protection

Minimum frequency	If output frequency is lower than 35Hz for 60s, inverter will stop working for 300s and restart automatically.
Dry running	If output current smaller than the value (parameter 28.13) for 60s, inverter will stop working for 300s and restart automatically.
Over voltage	If DC voltage from solar panel is over 800V, inverter will stop working.
Tank full	If float switch sensor reach high position, sensor connect X2 and COM terminal. After sensor disconnect X2 and COM terminal, inverter will wait for 900s more and restart automatically.
Well empty	If floating switch sensor reach low position, sensor connect inverter X3 and COM terminal. After sensor disconnect X3 and COM terminal, inverter will wait for 900s more and restart automatically.

3 Parameter

No	Name	Detail	Range	Default
P28.01	Run command	0. Keypad； 1. Run automatically when power on 2.Control board terminal； 3.Communication channel.	0-3	1
P28.03	Waiting time in automatic model	0.10s； 1.30s； 2.60s； 3.90s； 4.180s； 5.300s； 6.600s； 7.1200s； 8.1800s； If set P28.01=1 and power on, inverter will wait for some time and start working automatically.	0-8	0
P28.04	Maximum output frequency	0.60Hz； 1.50Hz； 2.45Hz； 3.40Hz； 4.35Hz； 5.30Hz； 6.25Hz； 7.20Hz.	0-7	1
P28.05	Minimum output frequency	0.45Hz； 1.40Hz； 2.35Hz； 3.30Hz； 4.25Hz； 5.20Hz； 6.15Hz； 7.10Hz. Output frequency drops below 35Hz for 60s, inverter show alarm signal “111” and stop working 35Hz depends on P28.05. 60s depends on P28.06.	0-7	2

P28.06	Delay time of minimum frequency	Output frequency drops below 35Hz for 60s, inverter show alarm signal “111” and stop working 35Hz depends on P28.05. 60s depends on P28.06.	0-65535	60
P28.07	Restart time after minimum frequency	After alarm signal “111” last for 300s, inverter will restart automatically.	0-65535	300
P28.12	Dry running protection	0 Invalid; 1 Enable.	0-1	0
P28.13	Current of dry running	If inverter output current less than P28.13 value (Unit:Ampere) for 60s, inverter will show alarm signal “222” and stop. 60s depends on P28.14.	0-6553.5	/
P28.14	Protection time of dry running	If inverter output current less than P28.13 value (Unit:Ampere) for 60s, inverter will show alarm signal “222” and stop. 60s depends on P28.14.	0-6553.5	60
P28.15	Interval time of dry running restart	After alarm signal “222” last for 300s, inverter will restart automatically.	0-65535	300
P28.18	Motor rated power	Unit: kW	/	/
P28.19	Motor rated voltage	Unit: V	/	/
P28.20	Motor rated current	Unit: A	/	/
P28.21	Motor rated speed	Unit: rpm	/	/
P28.22	Parameter reset	0 Invalid； 1 Enable.	0-1	0
P28.30	Delay time of full water level signal	Inverter will show “555” alarm signal if full water signal last 5s.	0-1000	5
P28.31	Restart time after 555 alarm signal	If inverter don’t receive full water signal any more, inverter will wait for 900s and restart working.	0-1000	900

P28.32	Delay time of low water level signal	Inverter will show “777” alarm signal if low water signal last 5s.	0-1000	5
P28.33	Restart time after 777 alarm signal	If inverter don’t receive low water signal any more, inverter will wait for 900s and restart working.	0-1000	900
P28.39	Single phase model	0 Invalid； 1 Enable. Take out capacity in pump and set P28.39=1, inverter will start pump easier.	0-1	0

4 Specification

4.1 Designation

MAX500-PV-X-XRX

① ② ③

Sign	Identification	Description	Content
①	MAX500-PV	Series name	Solar pumping series
②	X	Voltage degree	4: 380V/three phase input/ three phase output 3: 220V/three phase input/ three phase output 2: 220V/single phase input/ three phase output 1: 220V/single phase input/single phase output
③	XRX	Output power	0R7: 0.75kW 1R5: 1.5kW 002: 2.2kW 004: 4kW …… 250: 250kW

4.2 Specification

Voltage Degree	220V	380V
Maximum Input DC Voltage	800V	
Minimum Input DC Voltage	170V	270V
MPPT Voltage	170-660V	270-660V
Recommended DC Voltage	330-750V	540-750V

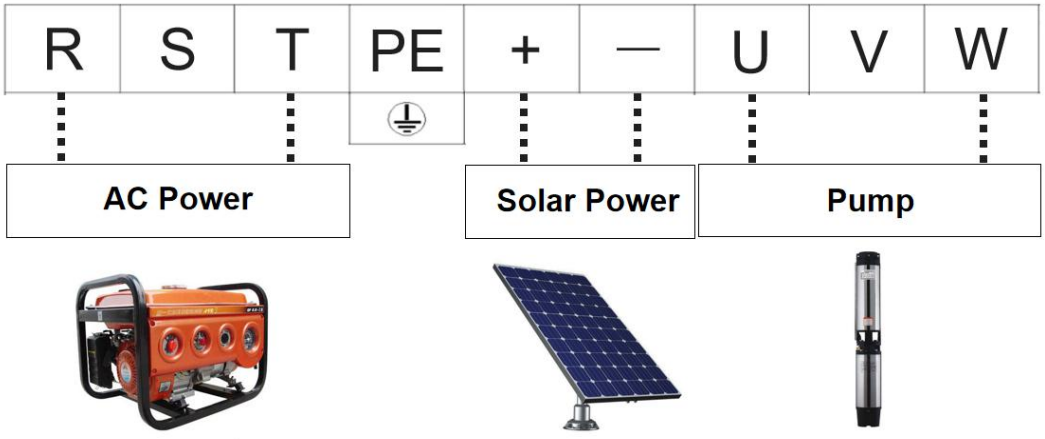
Model	Input AC Voltage(V)	Input AC current (A)	Output AC current (A)	Panel power (kW)	Pump power (kW)
MAX500-PV-10R7	220	9	7	0.8	0.4
MAX500-PV-11R5	220	16	9	1.4	0.7
MAX500-PV-1002	220	24	14	3.0	1.5
MAX500-PV-1004	220	27	17	4.4	2.2
MAX500-PV-1005	220	30	25	5.2	4.0
MAX500-PV-20R7	220	9	4	0.8	0.4
MAX500-PV-21R5	220	16	7	1.4	0.7
MAX500-PV-2002	220	24	9	3.0	1.5
MAX500-PV-2004	220	30	17	4.4	2.2
MAX500-PV-2005	220	35	25	5.2	4.0
MAX500-PV-30R7	220	5	4	0.8	0.4
MAX500-PV-31R5	220	8	7	1.4	0.7
MAX500-PV-3002	220	11	10	3.0	1.5
MAX500-PV-3004	220	15	13	4.4	2.2
MAX500-PV-3005	220	26	25	5.2	4.0
MAX500-PV-3007	220	35	32	7.2	5.5
MAX500-PV-40R7	380	4	3	0.8	0.4
MAX500-PV-41R5	380	5	4	1.4	0.7
MAX500-PV-4002	380	6	5	3.0	1.5
MAX500-PV-4004	380	14	9	4.4	2.2
MAX500-PV-4005	380	20	13	5.2	4.0
MAX500-PV-4007	380	25	17	7.2	5.5
MAX500-PV-4011	380	32	25	10	7
MAX500-PV-4015	380	40	32	14	11
MAX500-PV-4018	380	47	38	20	15
MAX500-PV-4022	380	56	45	23	18
MAX500-PV-4030	380	70	60	29	22
MAX500-PV-4037	380	80	75	39	30
MAX500-PV-4045	380	92	90	48	37

MAX500-PV-4055	380	115	110	59	45
MAX500-PV-4075	380	160	150	72	55
MAX500-PV-4090	380	190	180	98	75
MAX500-PV-4110	380	225	215	117	90
MAX500-PV-4132	380	265	260	143	110
MAX500-PV-4160	380	307	304	172	132
MAX500-PV-4200	380	385	377	208	160
MAX500-PV-4220	380	430	426	260	200
MAX500-PV-4250	380	468	465	286	220

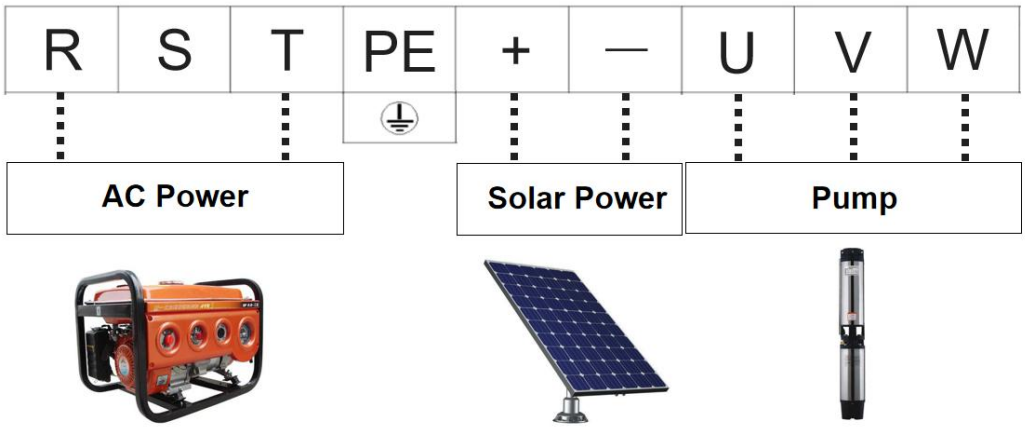
5 Installation

5.1 Main Circuit Terminals

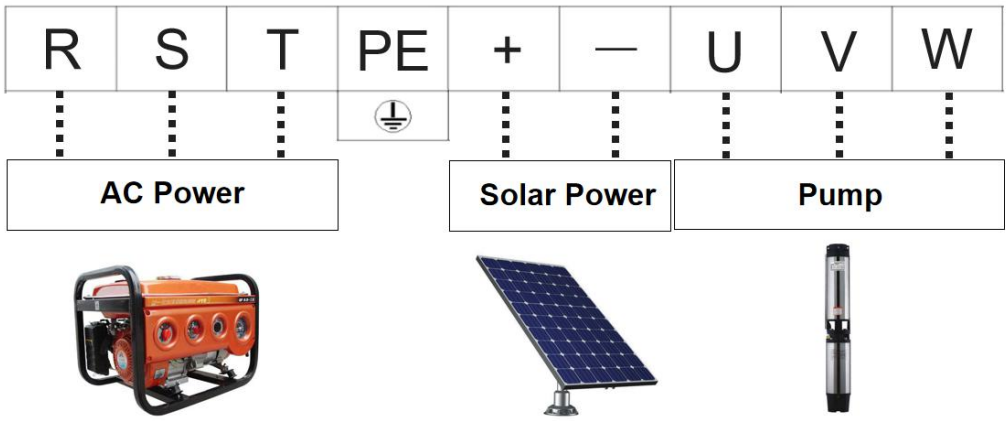
MAX500-PV-1 (220 V single phase input and 3 phase output)



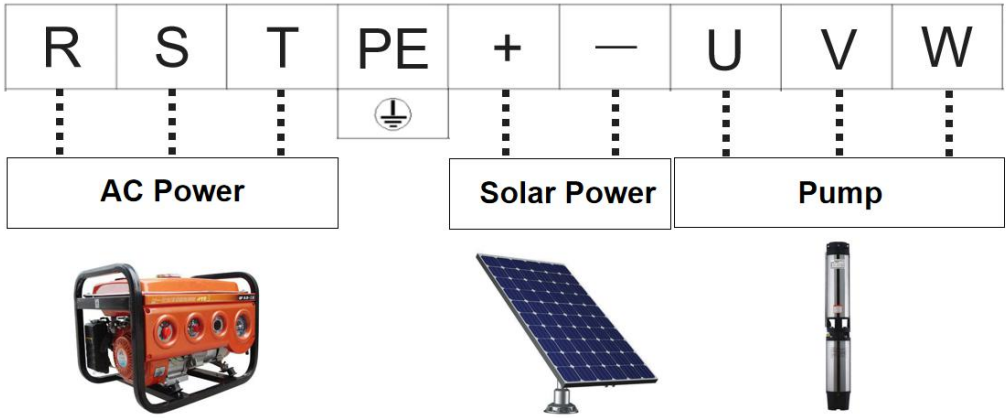
MAX500-PV-2 (220 V single phase input and 3 phase output)



MAX500-PV-3 (220 V single phase input and 3 phase output)



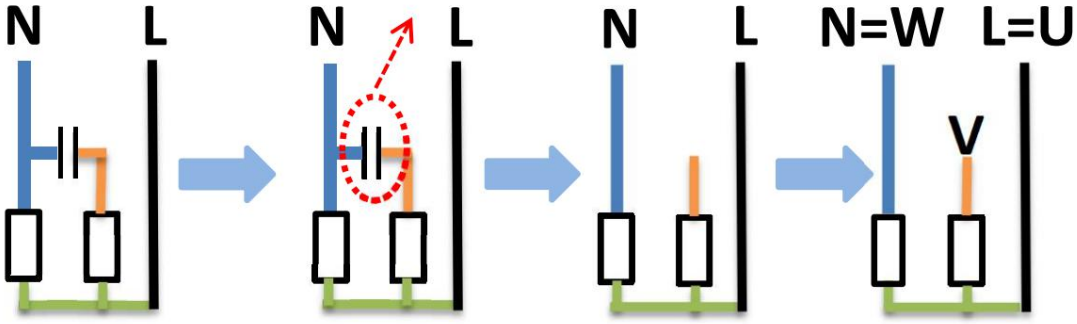
MAX500-PV-4 (380 V single phase input and 3 phase output)



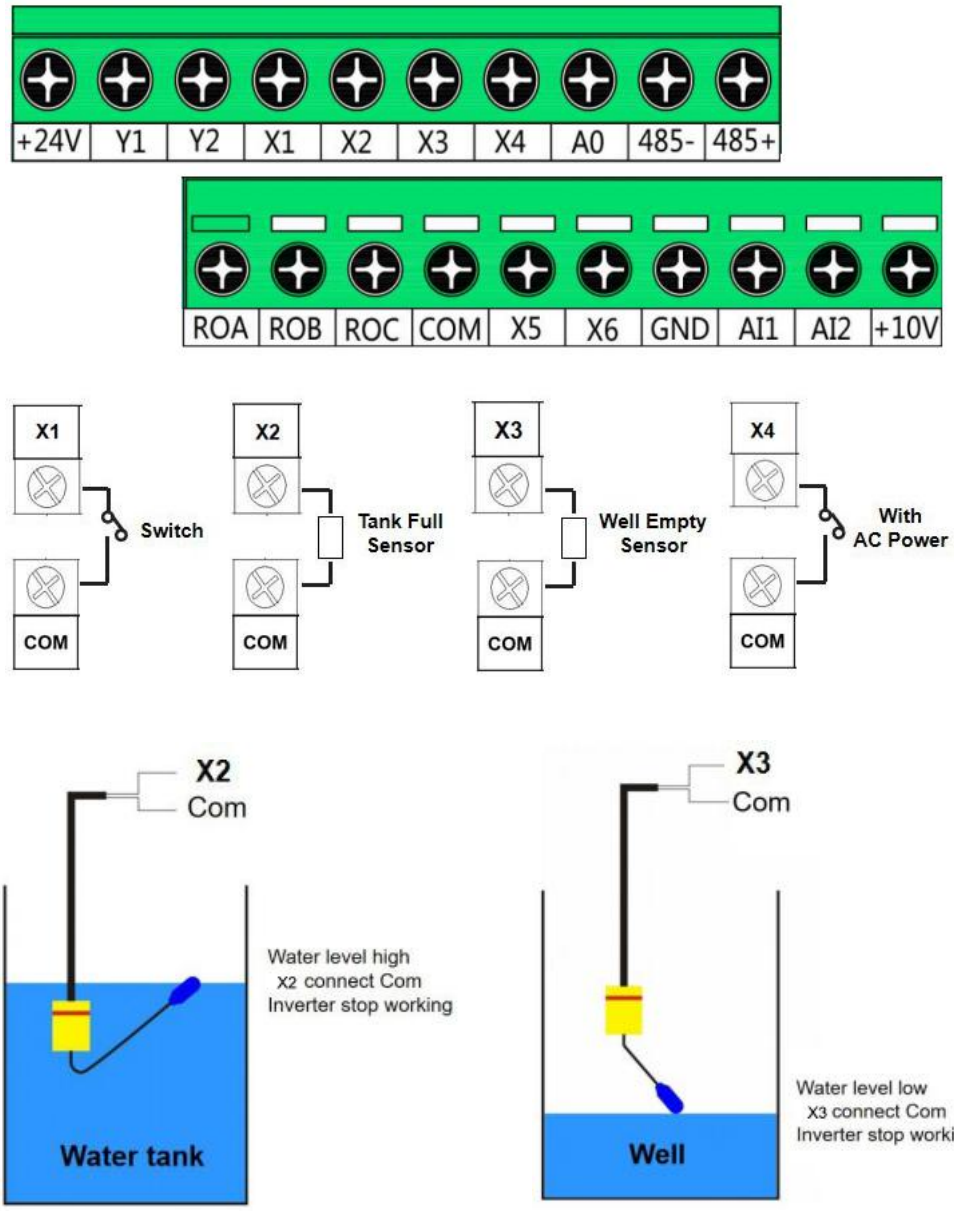
Terminal symbol	Terminal wiring
R S T	AC power input terminals for three phases
R T	AC power input terminals for single phases
+ -	DC input terminals for solar DC power(Do not charge inverter by generator and solar panel at the same time unless you add optional device)
PE	Grounding terminal
U V W	AC power output terminals for three phases
U W	AC power output terminals for single phases, if can not start single phase pump please take out capacity, change the wiring as photo below, and set P28.39=1.
PB	Invalid terminal

4.3 Pump connection:





4.4 Control board Terminal



Terminal	Terminal function description
X1	Set Parameter P28.01=2 for terminal control, connect X1 and COM terminal together, inverter will run.
COM	
X2	Tank full sensor, connect X2 and COM terminal for full water signal, inverter will stop in 5s, show alarm signal “555”, and restart automatically in 900s.
COM	
X3	Well empty sensor, connect X3 and COM terminal for empty water signal, inverter will stop in 5s, show alarm signal “777”, and restart automatically in 900s.
COM	
X4	When inverter get AC power input from RST terminal, please connect X4 and COM terminal.
COM	

5 Alarm signal

When inverter show alarm signal with software default setting, keypad will show number as below

111	When inverter output frequency is lower than 35Hz for 60s, inverter shows alarm signal “111”.
222	When pump are dry running for 60s and output current is smaller than P28.13 value, inverter shows alarm signal “222”.
333	When solar panel voltage is lower than 170V (220V inverter) or 270V(380V inverter), inverter shows alarm signal “333”.
444	When solar panel voltage higher than 800V, inverter shows alarm signal “444”.
555	Inverter will show “555” alarm signal if full water signal last 5s. After inverter shows alarm signal “555” and stop receiving full water signal, inverter will wait for 900s and restart.
777	Inverter will show “777” alarm signal if low water signal last 5s. After inverter shows alarm signal “777” and stop receiving low water signal, inverter will wait for 900s and restart.
888	When inverter output current is too big and may damage pump, inverter shows alarm signal “888”.
999	When inverter output power is too big and may damage pump, inverter shows alarm signal “999”.

7 Customer Installation Record

INOMAX

Build your trust of technology from China

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