



SUNFLO-X

DC SOLAR SUBMERSIBLE PUMP



Installation & Operating Manual

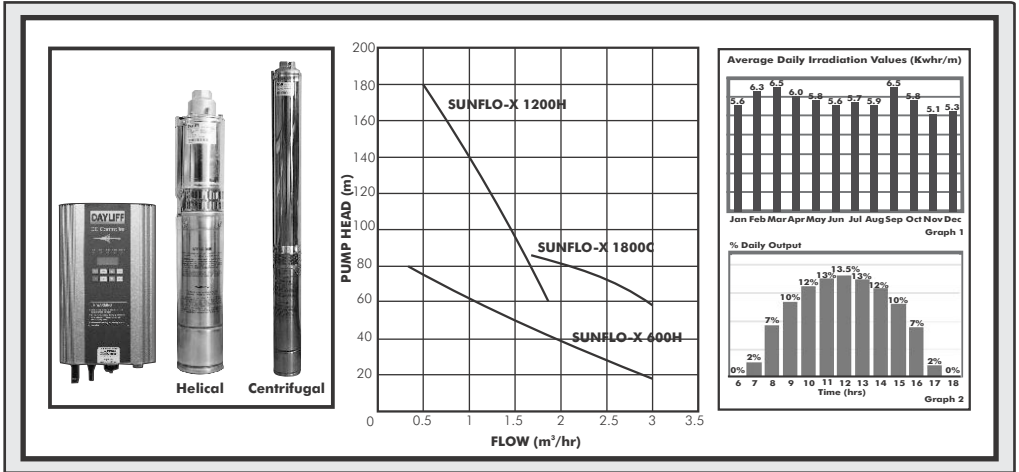
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Congratulations on selecting a Dayliff SunFlo-X Pump. They are manufactured to the highest standards and if installed and operated correctly will give many years of efficient and trouble free service. Careful reading of this Installation Manual is therefore important, though should there be any queries they should be referred to the equipment supplier.

1. PUMP SPECIFICATIONS



PUMP

DAYLIFF SUNFLO-X Range of pumps are high specification solar powered centrifugal and helical rotor DC pumps specifically designed for borehole applications and feature a remote surface mounted controller. Pumps are constructed principally from AISI 304 stainless steel and are engineered to the highest standards to give serviceability, excellent efficiency, high reliability and long life. Helical rotor type are supplied with spare rotor.

MOTOR

Pumps are fitted with Permanent Magnet brushless high efficiency, maintenance free DC motors without integrated electronics specifically designed for maximum efficiency. They should be powered by solar arrays configured to provide the input voltage required and sized at approximately 130% of the rated motor power.

Insulation Class: F

Enclosure Class: IP68

Speed: 3300rpm

CONTROLLER

Pumps are provided with matched controllers for monitoring, protecting and controlling pump operations with the following features:-

- Protection against reverse polarity, overload and over temperature.
- Integrated MPPT (Maximum Power Point Tracking) with 99% energy conversion efficiency to maximize module power output.
- Fully automatic operation and complete protection including low level control, dry running

and over/under voltage.

- Enhanced pump start on low sun intensity.
- Easy trouble shooting, where fault code is displayed on LCD screen for fast identification and problem solving.
- Enclosure Class: IP52

PUMP OUTPUTS

Performance curves are given at standard test conditions of 1000W/m² solar irradiance and 25°C. Output will vary throughout the year depending upon prevailing irradiation levels. For estimated daily outputs at continuous pumping multiply the indicated output at the duty point by the daily irradiation given in Graph 1. For indicative purposes factors of 1.1 can be applied for hot arid areas and 0.9 for temperate high altitude areas in the Tropics. Output will vary throughout the day as a proportion of the estimated hourly irradiation as shown in Graph 2.

OPERATING CONDITIONS

Pumped Liquid: Thin, clean, chemically non-aggressive liquids with a sand content of less than 0.1%.

Maximum Liquid Temperature: 0-35°C

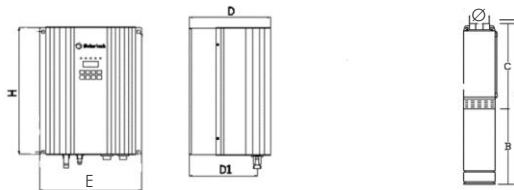
Controller Ambient Temperature: -20°C to +60°C

Max Immersion Depth: 250m

Minimum Borehole Diameter: 125mm

PUMP DATA

Model	Type	Power			Required MPP Voltage	Dimensions (mm)								Weight (kg)
		kW	Max Current (A)	Max Voltage (VDC)		A	B	C	D	D1	Ø	E	H	
SUNFLO-X 600H	Helical Rotor	0.6	15	150	60-120VDC	560	351	209	146	113	32	202	244	16
SUNFLO-X 1200H	Helical Rotor	1.2	15	200	120-160VDC	600	358	242	146	113	32	202	284	20
SUNFLO-X 1800C	Centrifugal	1.8	15	200	120-160VDC	1040	389	651	146	113	40	202	284	24



2. SYMBOLS AND WARNINGS



Misuse will result in fire, serious injury to person or even death.



Misuse may damage equipment or cause light to medium injuries to a person.



Do not install the inverter if it is damaged or with missing parts. Otherwise may cause accidents.



To ensure a good convective cooling effect, the inverter must be installed vertically with at least 10 cm space left at the top and bottom.



Suitable for indoor installation with sufficient ventilation. Do not install under direct sunlight and keep away from dust.



Wiring must be performed by a qualified electrical professional.



Input power must be isolated before wiring and connection.



Earth terminal must be reliably grounded or else inverter enclosure may be electrified.



The selection of solar array, motor and inverter should be compatible. In case of doubt, consult nearest Dayliff dealer.



Terminals should be tightly fastened or else there is risk of arcing and fire.



Capacitor or phase-advanced LC/RC noise filter must not be connected with inverter output.



All wiring and connection should be correctly connected before powering on, or else damage may occur to the controller or cause fire.



Before operation, function parameters should be adjusted according to the steps indicated in this manual. These should not be changed randomly, or else it may cause damage to the equipment.



The temperature of heat sink is normally high when inverter is running and it should not be touched or else it may cause burns.



For areas with altitude over 2000m, the inverter output current should be derated at 10% for every 1500m increase in height.



Maintenance and inspection must be performed by a qualified technician.



The inverter should not be disassembled during operation. It must be powered off at least 5 minutes before conducting maintenance and inspection to avoid the residual voltage of electrolytic capacitor in major loop causing injury.



At the end of its design life, the inverter should be disposed as industrial waste. During incineration, the electrolytic capacitor may explode and some parts may produce toxic and harmful gases.

3. INSTALLATION AND WIRING

3.1 Pump Installation

- Three models are available and the pump selected must be matched to the borehole output to provide optimal operating performance. This should be done with reference to the borehole drillers report in consultation with a borehole installation specialist. As a rule pump output should not exceed 65% of maximum tested borehole yield.
- Pumps can be installed either vertically or horizontally, though if installed horizontally the discharge outlet should never fall below 10° the horizontal plane.

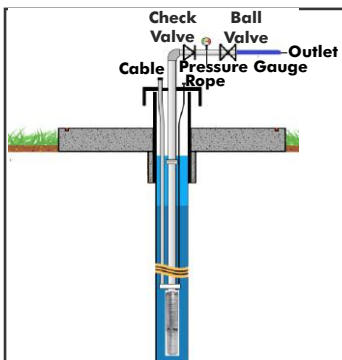


Fig. 1 Pump Installation Arrangement

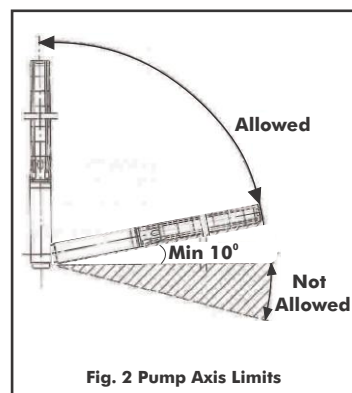


Fig. 2 Pump Axis Limits

- When positioning the pump it is important to ensure adequate motor cooling through water flow past the motor. This will be achieved by installing the pump suction above the borehole main aquifer or well screen and if not possible or in cases of open water installation a cooling sleeve must be used. Recommended minimum flow rate past the motor is $0.2\text{m}^3/\text{sec}$.
- It is recommended that the complete pump is submerged at least 3m below the dynamic water level and if possible the pump should be installed at least 3m from the bottom of the borehole to prevent silting damage. As a rule the pump should be positioned mid-way between the bottom of the borehole and the dynamic water level assuming that the main aquifer is below this level. If in doubt consult the pump supplier.

3.2 Pump Lowering

For shallow boreholes (less than 50m) a manual tripod arrangement can be used. When moving the pump the following procedures should be followed:-

- Before starting pump lowering it is important to check the borehole depth and straightness to ensure it is as expected and there is unobstructed passage. The pump should be carefully lowered into the borehole and if an obstruction is encountered the pump should be removed and the cause investigated to avoid pump or cable damage.
- Fit the first starter pipe into the pump outlet and ensure a tight leak free joint while the pump is on the surface. The thread on the starter pipe should not be longer than the threads in the pump outlet or it will interfere with operation of the non-return valve.
- Screw the starter pipe into a robust adaptor hook attached to the winch or tripod cable and lower the pump and pipe section into the borehole. When fully lowered hold the pipe below the socket with a clamp, disconnect the lifting hook and attach to the next pipe length ensuring a water tight connection. Ensure the pipe joint is fully home and repeat until all pipes are lowered.
- While the pipes are being, lowered bind the drop cable, low level cable and airline to the drop pipes with a PVC cable clip at 2m/centres.

3.3 Pump Operation

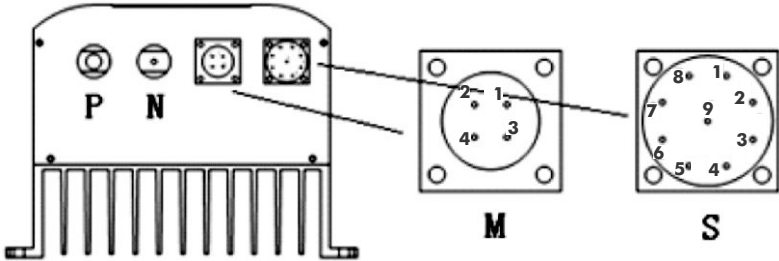
When the pump has been connected correctly and is submerged in water proceed as follows:-

- First check the direction of rotation by starting the pump and observing a normal water flow. If low or uneven, change the direction of rotation by switching two phase connections.
- The pump should then be run with the discharge valve restricted to approximately 1/3 of its maximum volume of water. Observe if there are impurities in the water and then gradually open the valve until the water is observed to be clear. If the water continues to be silted the pump is installed too low in the borehole and it should be raised until it is in a position of clear water availability. Alternatively a borehole problem is indicated and a driller should be consulted.

- As the valve is being opened, the water output should be monitored to ensure that the pump output does not exceed the borehole capacity as indicated by the pump starting and stopping on the low level relay (if fitted) or uneven water flow at the outlet. If this occurs the pump should either be changed to one of suitable specification or throttled on the outlet valve to a sustainable output. Note that the dynamic water level should always be above the suction interconnector of the pump.
- After the water flow settles, the pump overload relay should be set. This is carried out by reducing the overload setting to the cutout condition and then increasing by +10%.
- During regular operation the pump operating current should be periodically monitored and if a substantial change is noted ($\pm 10\%$) it should be investigated by a service technician. Pump output should also be monitored and if the flow rate or consistency changes, investigations should be made.
- In order to obtain maximum pump life, the number of starts should not exceed 30 per hour. It is also necessary to start the pump at least once monthly to prevent seizure.

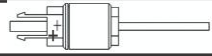
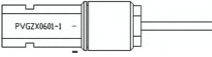
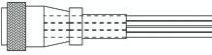
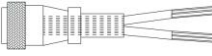
3.4 Enclosure Sockets

Fig. 3 Wiring Diagram



Socket	Terminal Description
DC Input	P
	N
Motor Output	M
Water Level Switch Input	S

3.5 External Socket Description

Left Side Connection	Socket	Wire Description	Connection Description	
P		One-strand, black	Connected to positive side of solar array	
N		One-strand, black	Connected to negative side of solar array	
M		Four - core wire	Yellow green wire	Connected to protective ground wire (yellow green) (1)
			Red wire	Connected to U phase of the motor (black) (2)
			Yellow wire	Connected to V phase of the motor (brown) (3)
			Blue wire	Connected to W phase of the motor (blue) (4)
S		White three - core wire	S1	Connect to ground signal wire
			S6	Connect to well signal line 1
			S5	Connect to well signal line 2
			S8	Connect to well signal line 1
			S7	Connect to tank signal line 2

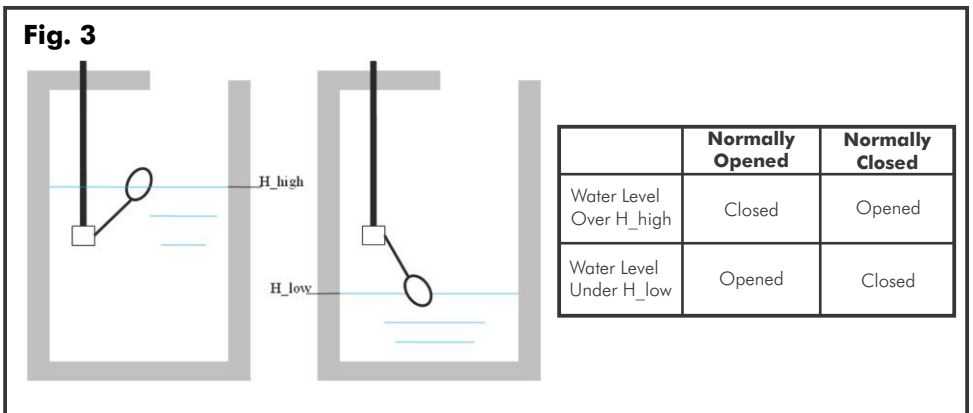


Ensure that the wires are connected according to the above instruction, incorrect connection may lead to faulty operation of system.

3.6 Water Level Switch

Solar pumping inverter can work with water level switches for well and tank. Water level switch for well is used to protect against low water level in the well, water level switch for tank is used to turn off the pump when the tank is full.

Water level switch has Normally-Open and Normally-Closed contact type. The difference is shown in the picture below. Low level control should be set to Normally Open, High level to Normally Closed.



Switch Fault

The water level switch may not work properly if the cable is wrongly connected or the signal wire is disconnected due to wear and tear.



To ensure stable operation of system, select cable size according to recommendation as below.

Model	Solar Array Cable (P,N) (mm ²)	Earth Wire (PE) (mm ²)	Pump Cable (U, V, W) (mm ²)	Water Level Switch Wire (S) (mm ²)
SunFlo-X 600H	2.5	2.5	≥2.5	2.5
SunFlo-X 1200H	2.5	2.5	≥2.5	2.5
SunFlo-X 1800C	2.5	4.0	≥4.0	4.0

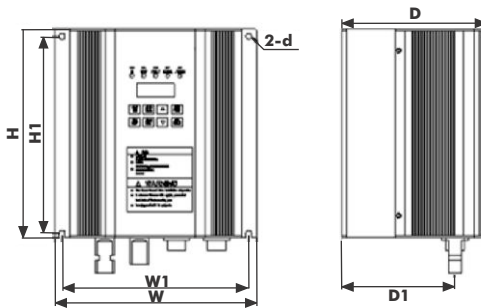


Ambient temperature condition for the above-recommended wire size is ≤60°C.

3.7 Earthing Instructions

The inverter must always be earthed with an earthing conductor connected to earthing terminal. This ensures the safety of operation and lightning surge protection.

Fig. 4 Product appearance and installation dimension



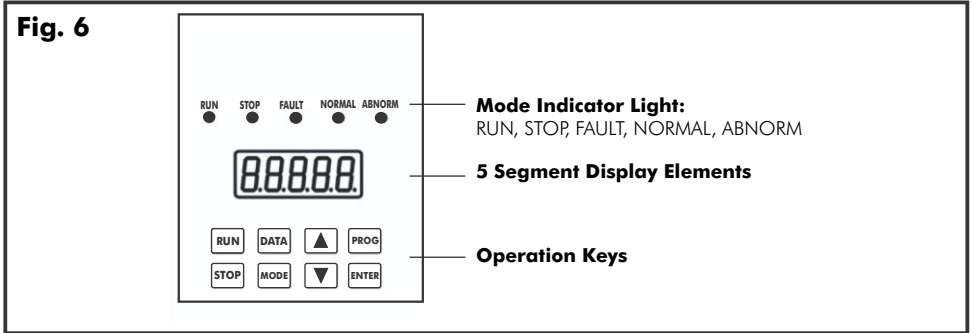
Model	Appearance and installation dimensions (mm)							Weight kg
	W	H	D	W1	H1	D1	d	
SunFlo-X 600H	202	244	146	187	232	113	6	3.6
SunFlo-X 1200H	202	284	146	187	272	113	6	4.3
SunFlo-X 1800C	202	284	146	187	272	113	6	4.3













To ensure good cooling effect, use vertical installation for the inverter. If vertical installation cannot be applied, ensure the tilt angle is no more than 10°.

3.8 Panel Layout and Instruction

Dayliff solar pumping inverter uses LED display operation panel as shown in the figure below, it includes 5 LED lights and 5-digit 8-SEG nixie tubes and 8 keys in 2 rows.



Indicator Lights & Keys	Name	Function Description	
		Color	Description
RUN	Running Indicator Light	Green	Bright: Inverter is running
STOP	Shutdown Indicator Light	Red	Bright: Inverter is shut down
FAULT	Fault Indicator Light	Red	Bright: System fault
NORMAL	Normal Indicator Light	Green	Bright: System normal
ABNORMAL	Abnormal Indicator Light	Red	Bright: Water tank or well water level is abnormal
	Run Key	Control the start of the inverter	
	Stop Key	Control the stop of the inverter	
	Data Inquiry Key	Not being used	
	Mode Switch Key	<ol style="list-style-type: none"> 1. Switch for data viewing 2. Switch for data editing 	
	Increasing Key	<ol style="list-style-type: none"> 1. Increase parameter number or its value in control parameter display status 2. Increase output frequency or display current running data according to operation mode 	

Indicator Lights & Keys	Name	Function Description
	Decreasing Key	<ol style="list-style-type: none"> 1. Decrease parameter number or its value in control parameter display status 2. Decrease output frequency or display current running data according to operation mode
	Programming Key	Enter or quit from the display status of the control parameter
	Enter Key	<ol style="list-style-type: none"> 1. Confirm the content to be viewed or modified 2. Confirm and save the parameter value when the parameter is modified
 + 	Reset Key	Press the combination key to restore normal operation in protection status

4. OPERATION

4.1 Initial Settings before First Operation

Below operations must be performed by a qualified electrician to ensure safety. To ensure the pump is not running in reverse, refer to below instructions:

Helical Rotor Pump	<p>Lower the water inlet in the water, switch on and observe the water outlet.</p> <p>If no water comes out, exchange any pair of pump cable connections with the inverter.</p> <p>If there is water yield, that is the correct wiring.</p>
Centrifugal Pump	<ol style="list-style-type: none"> 1. Power on when the sunshine is sufficient. 2. Observe the water yield when pump is steadily working. 3. Exchange any pair of pump cable connections with the inverter. 4. Observe the water yield when pump is steadily working. <p>Choose the wiring with more water yield.</p>

When using water level switch, user needs to set the related control parameter of the selected water level switch type.

Step	Debugging Content	Instruction
1	Modify the control parameter as read-write parameter	Press "STOP" to stop the operation when power on. Modify Pr.0 value to 0
2	Modify the setting of well water level switch	Refer to page 8 for recommended sensor type 1. Modify Pr.31 value to 1 if using Normally-Close type water level switch for well. 2. Modify Pr.31 value to 2 if using Normally-Open type water level switch for well.
3	Modify the setting of tank water level switch	Refer to page 8 for recommended sensor type 1. Modify Pr.32 value to 1 if using Normally-Close type water level switch for tank. 2. Modify Pr.32 value to 2 if using Normally-Open type water level switch for tank.
4	Modify the control parameter as read only	Modify the Pr.0 value to 1 before resetting the inverter



The control parameter of the inverter must be changed with caution or the system will malfunction.



















4.2 Display Status

There are 2 statuses on the operation display panel: current operating parameters display and control parameter display. The default status is operating parameter display.

Press the **PROG** key to enter the status of control parameter display, and press the key again to return to the running data display status.



4.3 View Current Operational Parameters

Operation	Description	Display
Initial Status: Current running data  	Display current running data. Output frequency of the inverter	Example: F. 5000 Indicate: 50.00Hz
 	Display current running data Input voltage of the inverter	Example: UD. 120 Indicate: 120V
 	Display current running data Input current of the inverter	Example: I. 50 Indicate: 5.0A
 	Display current running data Output power of the inverter	Example: P. 570 Indicate: 570W
 	Display current running data Output voltage of the inverter	Example: U_a. 50 Indicate: 50V
 	Display current running data Output current of the inverter	Example: I 0. 11.5 Represent: 11.5A
 	Display current running data Inverter temperature	Example: R. 35 Represent: 35°C
 	Display current running data Motor rotating speed	Example: R. 2700 Represent: 2700rad/min
 	Display current running data Output frequency of the inverter	Example: F. 5000 Represent: 50.00Hz

4.4 View or Modify the Control Parameters

Operation	Description	Display
<p>Initial Status: non-control parameter display</p>	<p>Enter the parameter modification interface</p> <p>Display parameter 0</p>	<p>PR. 0</p> <p>Indicate Pr.0</p>
	<p>Select the parameter to be viewed and modified</p> <p>Display parameter number</p>	<p>Example: PR.031</p> <p>Indicate: Pr.31</p>
	<p>Confirm to view and modify the parameter</p> <p>Display parameter value</p>	<p>Example: 0</p> <p>Indicate: 0</p>
	<p>Change parameter value</p>	<p>Example: 1</p> <p>Indicate: 1</p>
	<p>Confirm and save the parameter value</p> <p>Display next parameter number</p>	<p>Example: PR.032</p> <p>Indicate: Pr.32</p>
	<p>Quit from the parameter display mode</p> <p>Display current running data</p>	<p>Example: F.0.00</p> <p>Indicate: Pr.32</p>



When inverter is operating, the control parameters can only be read. To modify, the inverter must be stopped first.

4.5 Change Frequency during Operation

Operation	Description	Display
<p>Initial Status</p>	<p>Display current running data</p> <p>Output frequency of the inverter</p>	<p>Example: F.30.00</p> <p>Indicate 30.00Hz</p>
	<p>Enter the parameter modification interface</p> <p>Display the current target frequency</p>	<p>Example: 30.00</p> <p>Indicate: 30.00Hz</p>
	<p>Switch the digit to modify (unit, decade, hundred)</p>	<p>Example: 30.00</p> <p>Indicate: the blinking digit can be modified</p>
	<p>Modify the target frequency</p>	<p>Example: 50.00</p> <p>Indicate: Change to 50Hz</p>
	<p>Confirm the change and save the target frequency</p> <p>Display current operation frequency of the inverter</p>	<p>Example: F.50.00</p> <p>Indicate: 50Hz</p>



The modification can be only applied when Pr.33 value is 0.

4.6 Function Parameter Description

Number	Name	Scope	Description	Factory Set Value
Pr.0	Mode of parameter setting	0-2	0: Parameter can be read and edited. Other parameter values cannot be modified until Pr.0 is modified to 0. 1: All parameters can only be read. 2: Restores all parameters to factory values	1
Pr.1-Pr.30	Records of fault type and fault information	Read only	Each fault information is stored in 3 parameters as fault type, motor input voltage when fault happened, pump operating frequency when fault happened. The inverter can store the last 10 groups of fault information. For example, Pr.1~Pr.3 are the information of the first fault. Pr.1 records the fault type, Pr.2 records the motor input voltage, Pr.3 records the pump operation frequency. Pr.4~Pr.6 are the information of the next fault, and so on. Please refer chapter 4 to see the fault code description.	no
Pr.31	Well switch setting	0-2	0: By-pass water level switch. 1: Normally-Close well water level switch. 2: Normally-Open well water level switch.	0
Pr.32	Tank switch setting	0-2	0: By-pass water level switch. 1: Normally-Close tank water level switch. 2: Normally-Open tank water level switch.	0
Pr.33	Control model setting	0-1	0: Press RUN key to run while the target frequency can be changed manually. 1: Full-automatic operation	1
Pr.34	Start delay time	1-6000	Start delay time when power is on or shutdown	30s
Pr.35	Loss of load protection is valid or not	0-2	0:invalid 1:valid for helical rotor pump 2:valid for centrifugal pump	0
Pr.36	Total generated energy	Read Only	Unit: kWh	0



After modifying the parameters in the table above, the next operation cannot be performed until the inverter has been reset.

5. TROUBLE SHOOTING

5.1 Fault Codes Description and Counter Measure

DC solar pumping inverters have complete protection functions. When system fault occurs, the inverter will take protection counter measures: The general protection measure is to stop the inverter immediately and not allow the inverter to restart in a while.

When fault or protection occurs, the inverter operation panel will automatically display the blinking fault code in the last 2 digit nixie tubes. If the first 1 digit nixie tube displays "P", it means the fault or protection requires the inverter to reset to restore normal operation. User can shut off the power supply and then power on the inverter until the internal power supply is off, or press the "RESET" key combination to reset. If the fault persists after resetting, contact the nearest D&S dealer.

When the fault or protection has been cleared after resetting, the inverter will automatically proceed with the restart countdown. During this time, the fault code will appear in the first 2 nixie tubes, and the last 3 digit nixie tubes will display the restart countdown time, when the countdown time is reached, fault code display will disappear automatically and the inverter will display operation status.

Code	Code Description	Possible Reason	Counter Measures
O.U	Over - Voltage	High Input Voltage	Inspect solar array voltage
L.U	Under - Voltage	Low Input voltage Weak sunlight intensity	Inspect solar array voltage
O.C	Over - Current	Large pump load Low solar array voltage Motor stopped operating	Change low - power pump load Inspect solar array voltage Increase cable size
O.L	Overload	Large Load	Reduce the highest operation frequency
O.P	Over-current of the module	Output short circuit or grounding Module damaged	Inspect the wiring
I.R	Over-temperature of the module	Air duct blocked High temperature	Clear the air duct or improve the ventilation
C.I	AC CT fault	Device or circuit damaged	Contact D&S dealer
C.D	DC CT fault	Device or circuit damaged	Contact D&S dealer
D.F	Step out fault	Device or circuit damaged	Contact D&S dealer
C.E	Phase loss fault	Output circuit broken	Inspect the output wires of motor
R.E	Locked rotor fault	Pump stuck	Inspect the pump
P.EE	Communication fault	Device or circuit damaged	Reset contact dealer

5.2 Other Codes Description

Code	Code Description	Relevant Description
P 1.U.	Parameter initialisation	Return to normal after resetting
P E.C	Important parameter modification	Return to normal after resetting
L-600	Inverter model	L :48V rated voltage H:110V rated voltage 600:1800:rated power
H-1800		
ON 30	Start delay time	Countdown of the restart: 30 seconds
AB.5L	Well water level is too low	When well water level becomes normal, system will restart after 600 seconds
AB.RF	Tank water level is too high	When tank water level becomes normal, system will restart after 600 seconds

5.3 Fault Inquiry and Reset

The inverter record the fault codes of the last 10 events. Fault information is stored together with the control parameter Pr.1-Pr.30. Please refer to panel operation method to search and find out the fault information.

When the inverter fault occurs, please press  and  reset keys combination together, or cut off the power supply and restore normal operation.



Before resetting, complete the check up on the cause of the fault. Otherwise the inverter may get damaged.



The reset should be delayed for 5 minutes when the inverter is overloaded or overheated.

PROBLEM	POSSIBLE CAUSE	SOLUTION
Inverter does not work when powered on	Indicator light is off	Check DC input wires connection
	Indicator light is on	Cut of inverter input wires and check if input voltage is abnormal
The pump does not run	The motor overload has tripped out	Reset the motor starter overload. If it trips again, check the voltage and if normal call service technician
	The inverter is defective	Check the inverter
	The dry running protection has cut out the pump due to low water level	Check the water level. If it is in order check the water level electrodes/level switch
	The pumps submersible drop cable is defective	Repair/replace the pump cable
Flow not sufficient	Solar array has not met design requirement	Resize and increase the solar array
	Operation voltage insufficient	Select an appropriate pump
	The draw down is larger than anticipated	Increase the installation depth of the pump, throttle the pump or replace it by a smaller model to obtain a smaller capacity
	Wrong direction of rotation	Change direction of rotation
	The valves in the discharge pipes are partly closed or blocked	Check and clean or replace the valves and discharge pipe
	The non-return valve of the pump is partly blocked	Pull out the pump. Check and clean or replace the pump if necessary
	The pump is defective	Repair or replace the pump
	Leakage in the pipework	Check and repair the pipe work
High operation frequency but no water yield	Wires loosely connected	Tighten wires and check if firmly connected
	Installation head is more than pump maximum lift head	Select an appropriate pump
	Pump is running in reverse	Check connections
	Dirt in the pump	Clean pump

PROBLEM**POSSIBLE CAUSE****SOLUTION**

Frequent starts and stops

The water level sensor not installed correctly

Check water level sensor and correct

The non-return valve is leaking or stuck half open

Pull out the pump and clean or replace the non-return valve

The pump is oversized for borehole

Increase the installation depth of the pump, throttle the pump or replace it with a smaller model to obtain a smaller capacity

Long delay before water flow after start

Riser pipe leakage

Check and repair riser pipe

Pump NRV faulty

Lift pump and rectify NRV

Loud noise in the pipework

Water hammer

Fit a surface non-return valve and a diaphragm tank on the surface delivery piping

Mechanical damage to pump and motor

Pump activation due to low system head resulting in operation at insufficient pressure

Throttle the pump or replace it with a lower pressure alternative

6. SERVICE AND MAINTENANCE

6.1 Routine Inspection and Maintenance

The inverter is affected by ambient temperature, humidity, dust, vibration and internal device aging of the inverter. To make the inverter operate for longer, periodic inspect must be carried out every year.

6.2 Requirement of Inspection and Maintenance

- The inspection must be performed by a qualified technical personnel and the power supply of the inverter should be cut off .
- Avoid leaving any extra metal parts in the inverter, or else it can cause damage to the equipment.
- Electrical insulation test has been performed on the inverter before factory delivery, so user does not have to carry out a withstand-voltage test.
- If it is necessary to conduct insulation test on the inverter, all the input and output terminals must have reliable grounding. It is not advisable to conduct insulation test on a single terminal. 500V megohm meter is recommended to test the control circuit.
- It is not advisable to use the megohm meter to test in the control circuit.
- Before conduction insulation test on motor, dismantle the connections between motor and inverter.

7. TERMS OF WARRANTY

i) General Liability

- In lieu of any warranty, condition or liability implied by law, the liability of Dayliff (hereafter called the Distributor) in respect of any defect or failure of equipment supplied **is limited to making good by replacement or repair** (at the Distributor's discretion) defects which under proper use appear therein and arise solely from faulty design, materials or workmanship within a specified period. This period commences **immediately after the equipment has been delivered to the customer** and at its termination all liability ceases. Also the warranty period will be assessed **on the basis of the date that the Distributor is informed of the failure.**
- This warranty applies solely to equipment supplied and **no claim for consequential damages**, however arising, will be entertained. Also the warranty specifically excludes defects caused by fair wear and tear, the effects of careless handling, lack of maintenance, faulty installation, incompetence on the part of the equipment user, Acts of God or any other cause beyond the Distributors's reasonable control. Also, any repair or attempt at repair carried out by any other party **invalidates all warranties.**

ii) Standard Warranty

If equipment failure occurs in the normal course of service having been competently installed and when operating within its specified duty limits warranty will be provided as follows:-

- **Up to 6 months - The item will be replaced or repaired at no charge.**
- **Over 6 months, less than one year - The item will be replaced or repaired at a cost to the customer of 50% of the Davis & Shirliff market price.**

The warranty on equipment supplied or installed by others is conditional upon the defective unit **being promptly returned free to a Davis & Shirliff office** and collected thereafter when repaired. No element of site repair is included in the warranty and any site attendance costs will be payable in full at standard chargeout rates. Also proof of purchase including the purchase invoice must be provided for a warranty claim to be considered.

DAYLIFF is a brand of **Davis & Shirliff**

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for details of the nearest branch or stockist