

Davis & Shirtliff

Industrial Area, Dundori Road, Nairobi
P.O. Box: 41762-00100, Kenya
+254 020 6968 000, +254 711 079 200
contactcenter@dayliff.com
www.davisandshirtliff.com

Friday, 31st Jan 2020

Solar Pumping Project - Kajiado

KIKUYU PIPES - 100KPIPES

Saikeri - North Keekonyokie, Kajiado County, Kenya

tkemboi@dayliff.com

+254 708 883 057

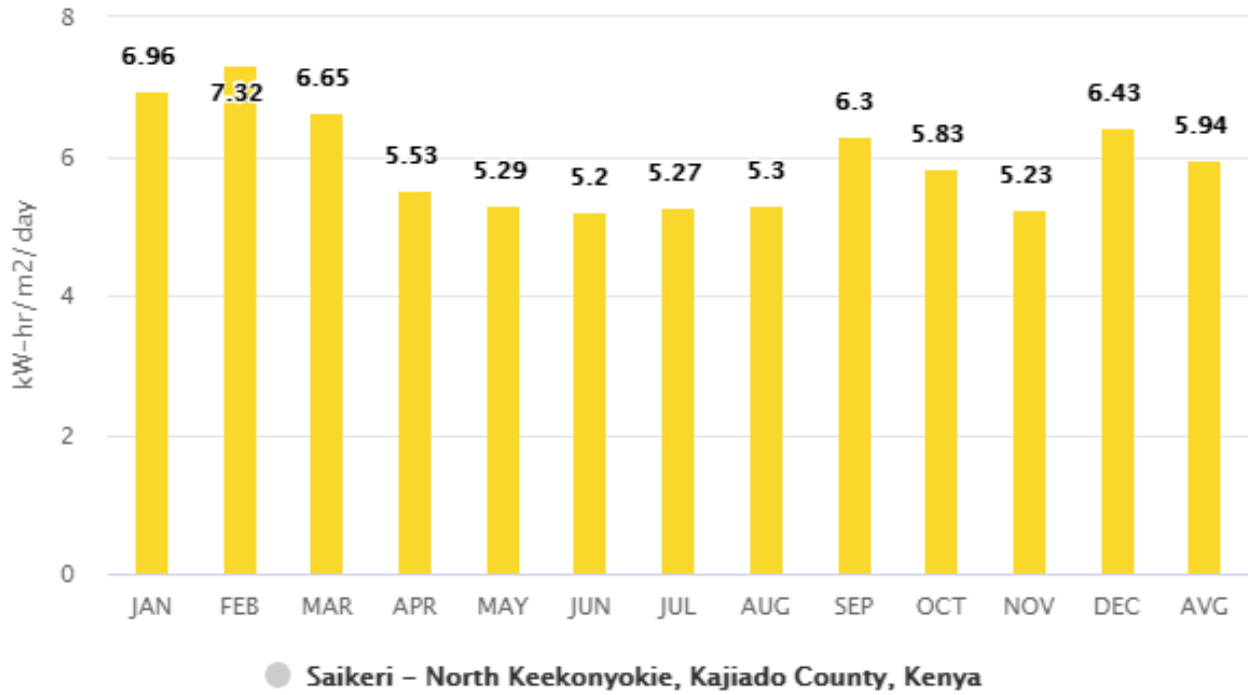
Lorem Ipsum is simply dummy text of the printing and typesetting industry. Lorem Ipsum has been the industry's standard dummy text ever since the 1500s, when an unknown printer took a galley of type and scrambled it to make a type specimen book. It has survived not only five centuries, but also the leap into electronic typesetting, remaining essentially unchanged. It was popularised in the 1960s with the release of Letraset sheets containing Lorem Ipsum passages, and more recently with desktop publishing software like Aldus PageMaker including versions of Lorem Ipsum.

Paramaters									
Location	Saikeri - North Keekonyokie, Kajiado County, Kenya(-1.356593333496342, 36.53778939369864)								
Required Daily Output	50 m ³	Pipe Type	HDPE	Motor Cable	180m	Pipe Length & Inner Diameter	180m, 2"	Head (TDH)	139.85m
Product				Quantity	Details				
Pump - DSP 8/32				1	Suitability 97.42% , Efficiency 61.29%				
Inverter - SV2/5.5T				1					
Panels - Test 40W				38 x 5	5 string(s) each with 38 Solar panels.				
Motor Cable				Length 150 , Cross Sectional Area 2.5mm²					
Other Accessories									
Water Level Switch / Well Probe				1					
Water Level Sensor Cable				2 Core x 1.0mm2, Length - 150					
PV Disconnect				1	DAYLIFF 4ST 1000V/32A PV Disconnect Switch				
				1	DAYLIFF 2ST 1000V/16A PV Disconnect Switch				
Earthrod c/w Clamp				1					
6mm ² DC Cable for Earthrod				(As required)					
Daily output in average month - 50.49									

Monthly Irradiation Data

Direct Normal Irradiation

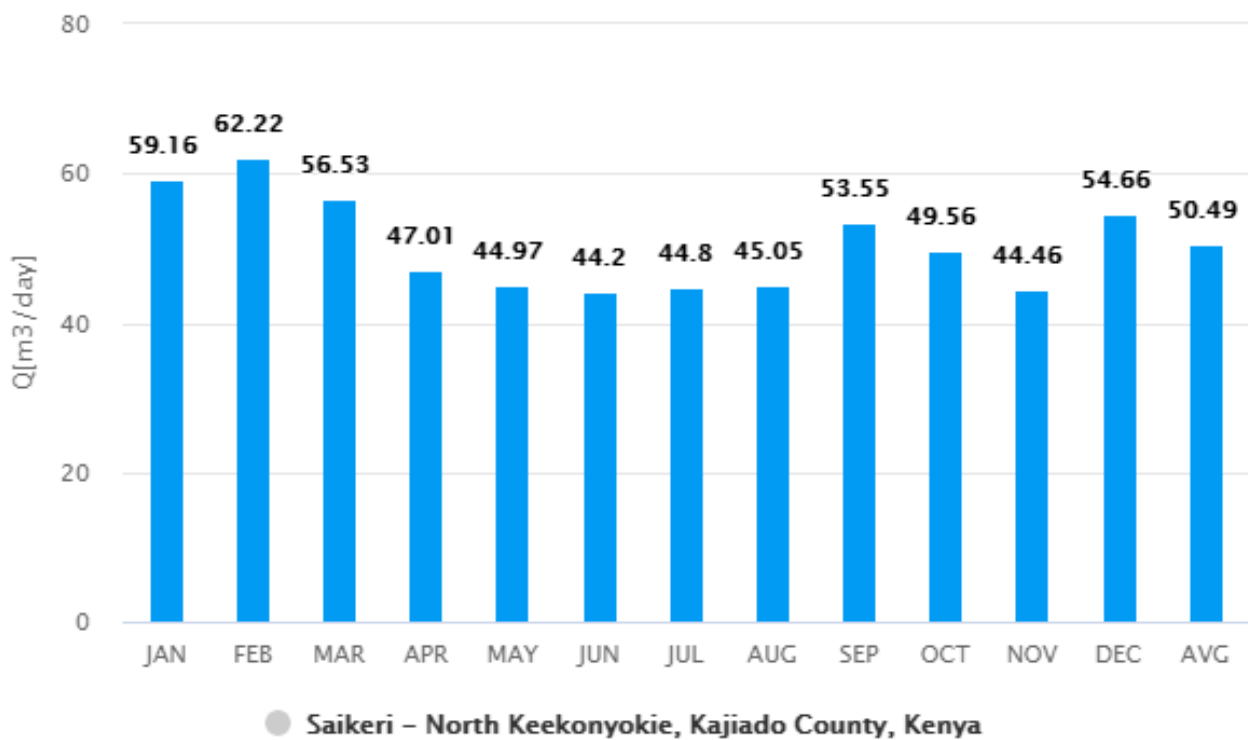
Source: NASA.gov POWER Single Point Data Access



Irradiation [kWh/m ²]	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Avg
	6.96	7.32	6.65	5.53	5.29	5.2	5.27	5.3	6.3	5.83	5.23	6.43	5.94

Monthly Output Data

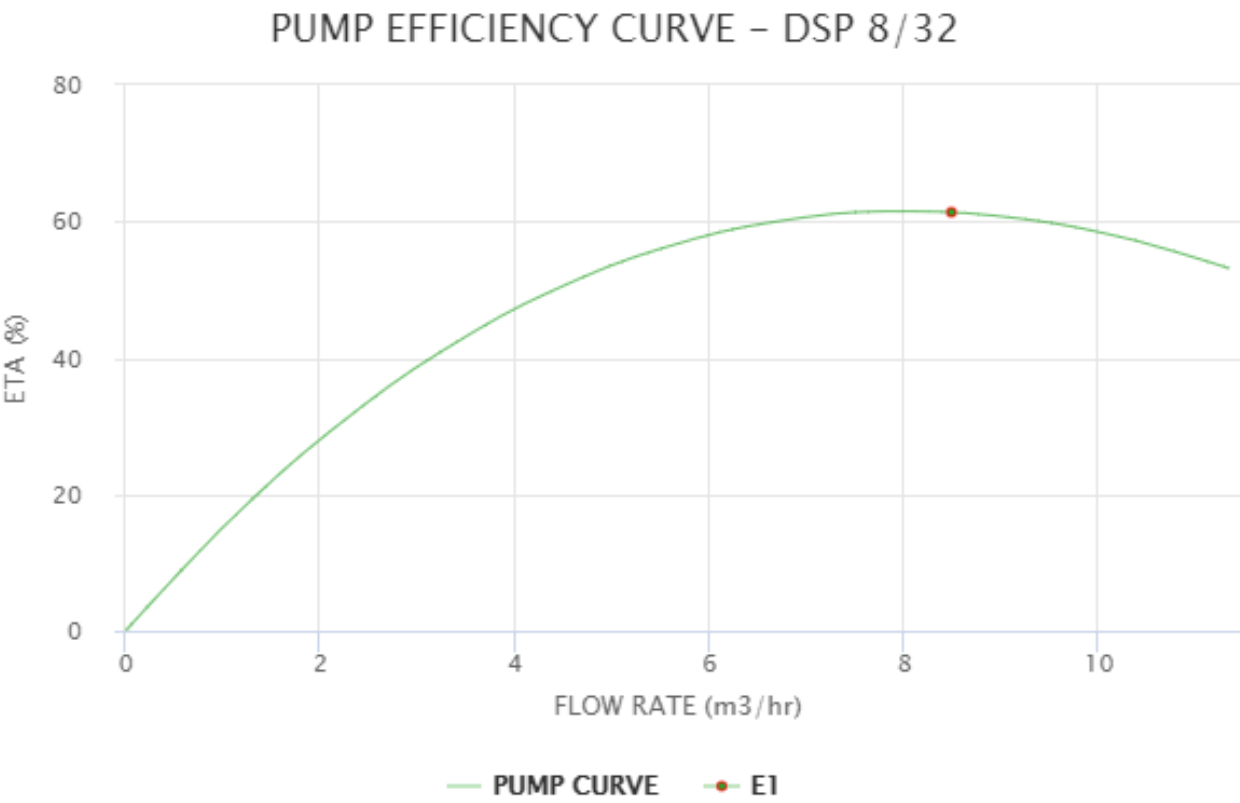
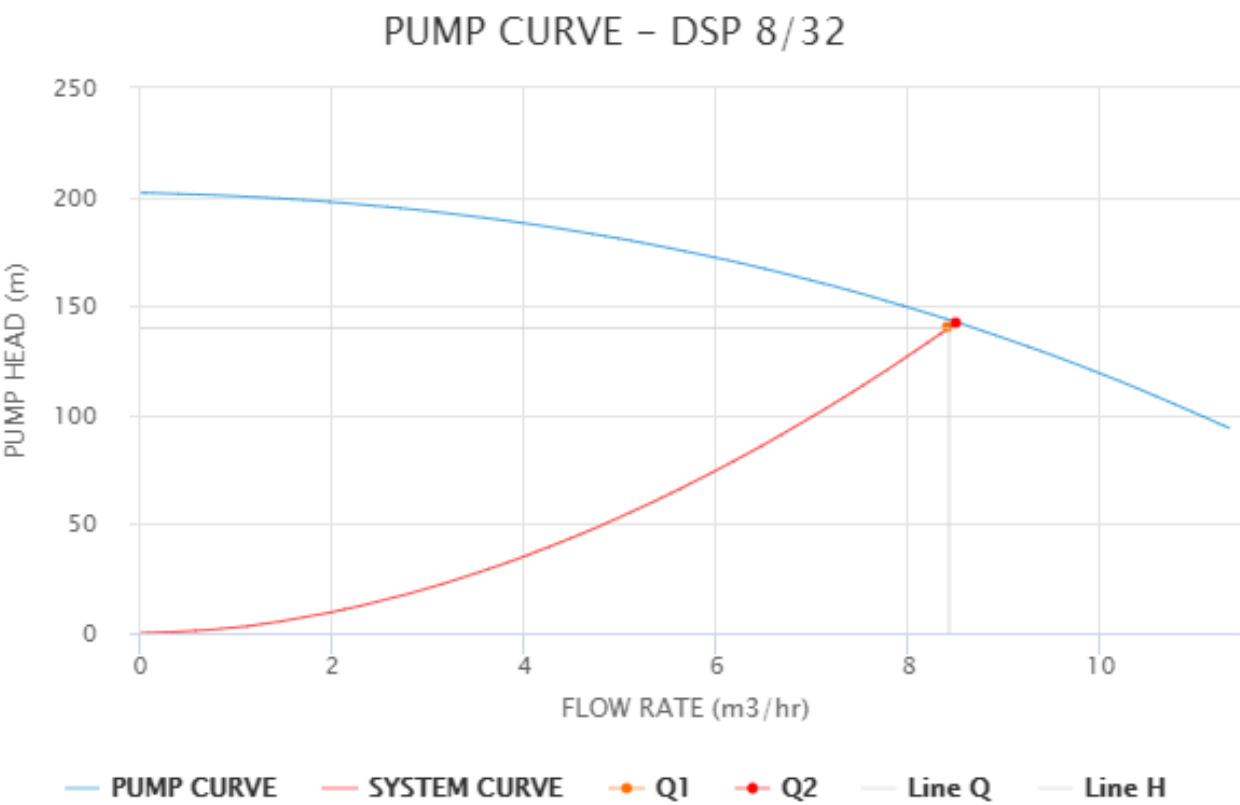
Output – Saikeri – North Keekonyokie, Kajiado County, Kenya

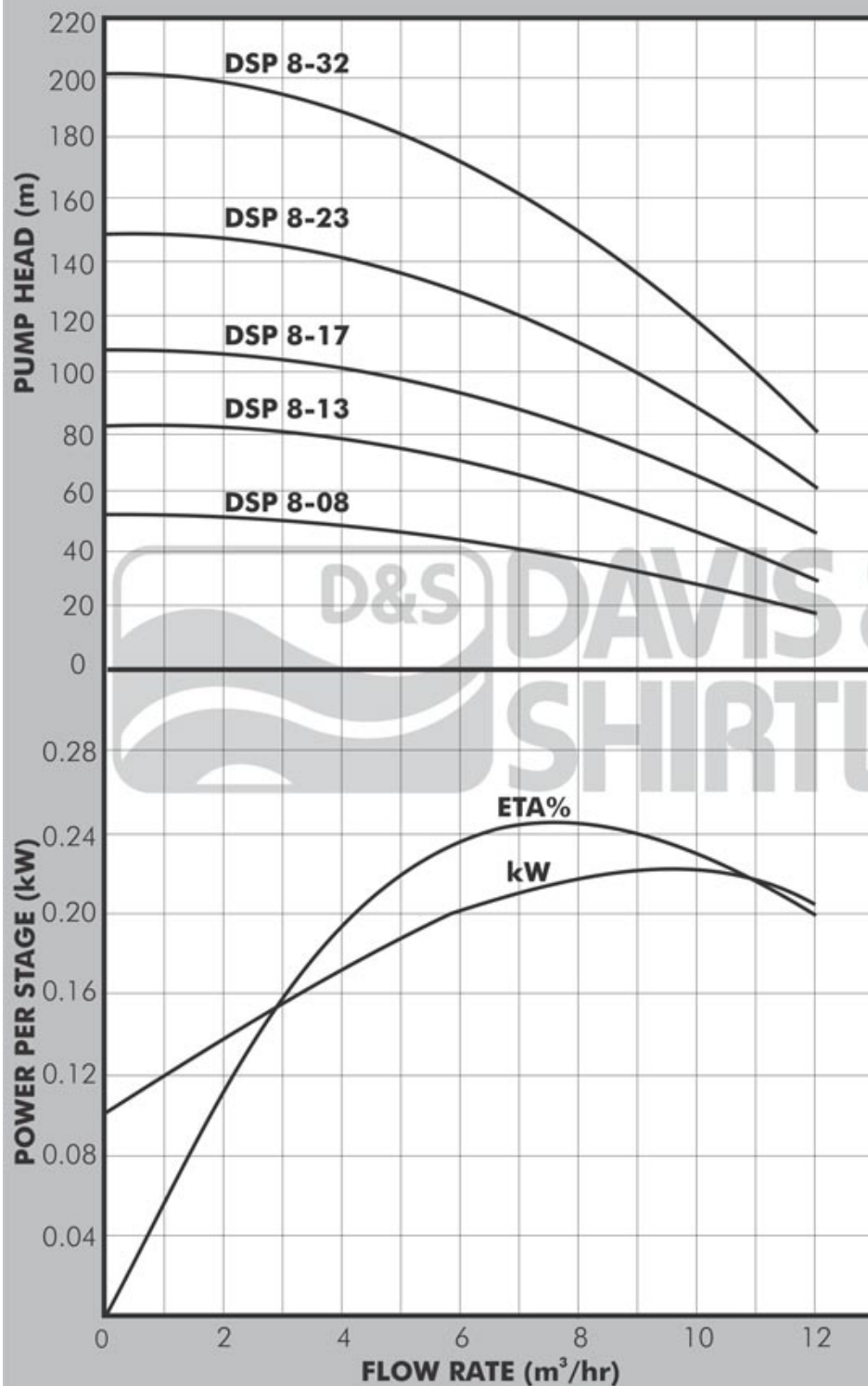


Output [m ³ /day]	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Avg
	59.16	62.22	56.53	47.01	44.97	44.2	44.8	45.05	53.55	49.56	44.46	54.66	50.49

59.16	62.22	56.53	47.01	44.97	44.2	44.8	45.05	53.55	49.56	44.46	54.66	50.49
-------	-------	-------	-------	-------	------	------	-------	-------	-------	-------	-------	-------

Pump & System Curves





PUMP

The DAYLIFF DSP range of submersible multistage centrifugal pumps are specially designed for borehole supply applications. Material of construction include noryl impellers, glass filled polycarbonate diffusers, stainless steel inlet and outlet chambers, stage casings, shaft and pump housing. These quality materials together with the floating type impeller design provide the pumps with efficient performance ,excellent sand handling capabilities and long life.

MOTOR

The pump is coupled to a two pole sealed motor constructed principally from stainless steel. Single phase motors are supplied with a separate control unit that incorporates an isolator, run indicator light, thermal overload protection and starting capacitor which can be connected directly to the mains power. The box is also provided with auxiliary terminals for control probes, pressure switch or float switch. Three phase motors require a remote DOL starter; a DAYLIFF electronic pump controller is recommended for comprehensive pump control including wireless low level protection, motor overload and voltage fluctuation.

Enclosure Class: IP68

Insulation Class: F

Speed:

OPERATING CONDITIONS

Pumped liquid: Thin, clean, chemically non aggressive liquids with a max. sand content of 50g/m³.

Max. Water temperature: +35°C

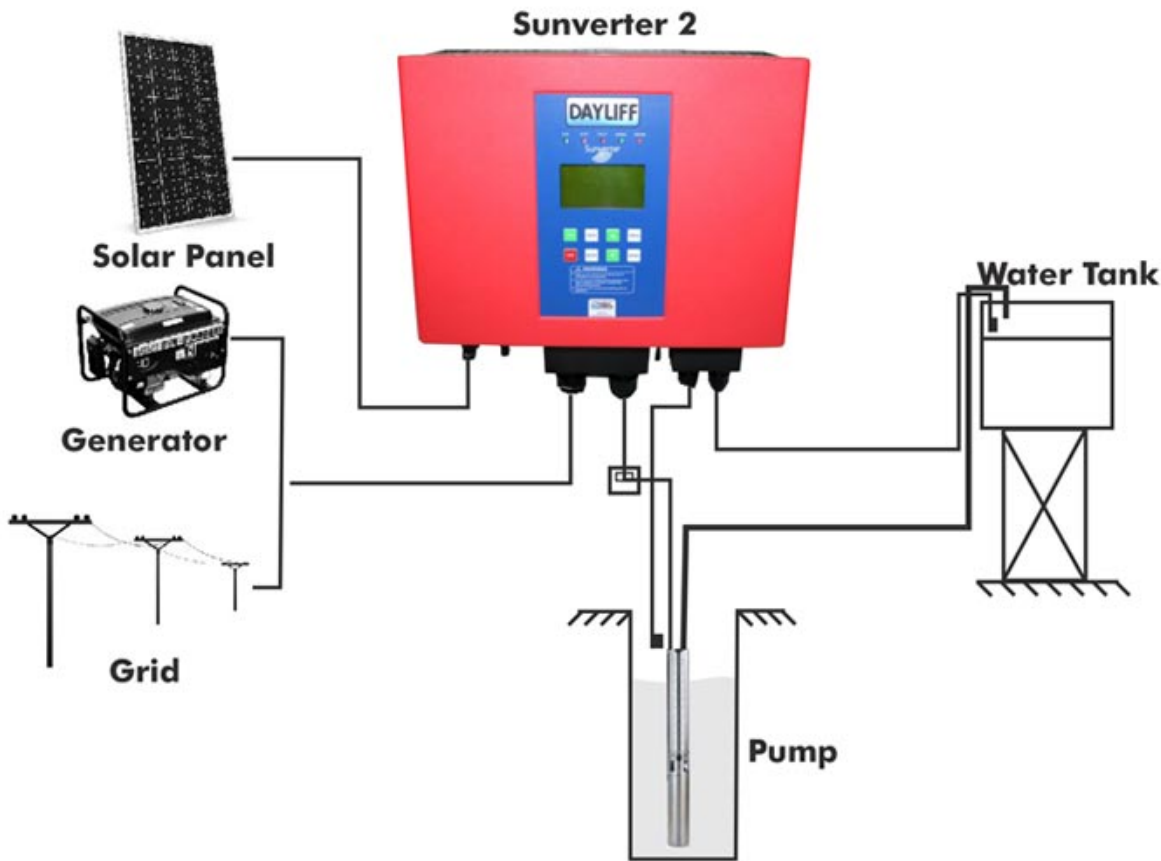
Max. immersion depth: 200m

Min. borehole diameter: 110mm

PUMP DATA

Model	Voltage (V)	Power		Current (A)	I _{start} /I	DN (")	Dimensions (mm)			Weight (kg)
		kW	HP				A	C	D	
DSP 8-08	1x240	1.5	2	10.4	3.7	2	418	98	858	27
	3x415			4	3.5				823	24
DSP 8-13	1x240	2.2	3	15	3.1		573		1068	34
	3x415			5.6	3.9				1013	29
DSP 8-17	3x415	3	4	7.4	5.8		697		1213	37
DSP 8-23	3x415	4	5.5	9.8	5		959		1528	47
DSP 8-32	3x415	5.5	7.5	13.7	4.7		1276		1921	57

SV2/5.5T



Dayliff Sunverter 2 is an advanced AC/DC inverter specially designed for solar powering AC motors in various water pumping applications. A particular feature is hybrid capability that enables for the connection of direct AC power from mains or generator supply. It is adaptable to all AC motor types and can be retro fitted to the solarisation of existing AC supply installations. Particular features include;

- Patented MPPT (Maximum Power Point Tracking) capability providing fast response, good stability and up to 99% efficiency.
- Fully automatic operation with up to 8 years storage capacity of operating data.
- Supports motor soft start and gives full motor protection
- User friendly LCD display interface with comprehensive display information
- Hybrid capability with the option of DC solar power, generator or mains grid power inputs
- Remote monitoring and control capability using the unique iDayliff GPRS interface
- Strong IP65 rated enclosure for enhanced component protection

CONTROLLER FUNCTIONALITY

The controller offers the following control functions:-

- Settable minimum and maximum frequency and open circuit voltage.
- Display of operating parameters including frequency, voltage, amperage, input power and pump speed.
- Display of historical data including energy generation, maximum power and operating times.
- Protection against over and under voltage, over current, system overload and module over temperature.
- Fault detection with error code display.

INSTALLATION

Dayliff Sunverter 2 controllers are surface mounted and should be provided with a housing for water and heat protection. They must also be provided with a circuit breaker between the PV modules and controller. Due to the high operating voltages proper earthing is essential, which must be done by a qualified electrician. As a rule all PV powered solar pumping systems should be provided with a solar module array with a nominal output about 30% greater than the motor size. The arrays should be wired in a combination of series and parallel connections to ensure that the correct voltage is available in to the inverter. It is important that the connection arrangement is approved by the pump supplier.

OPERATING CONDITIONS

Enclosure Class: IP65

Ambient Temperature: -20 C to 60 C

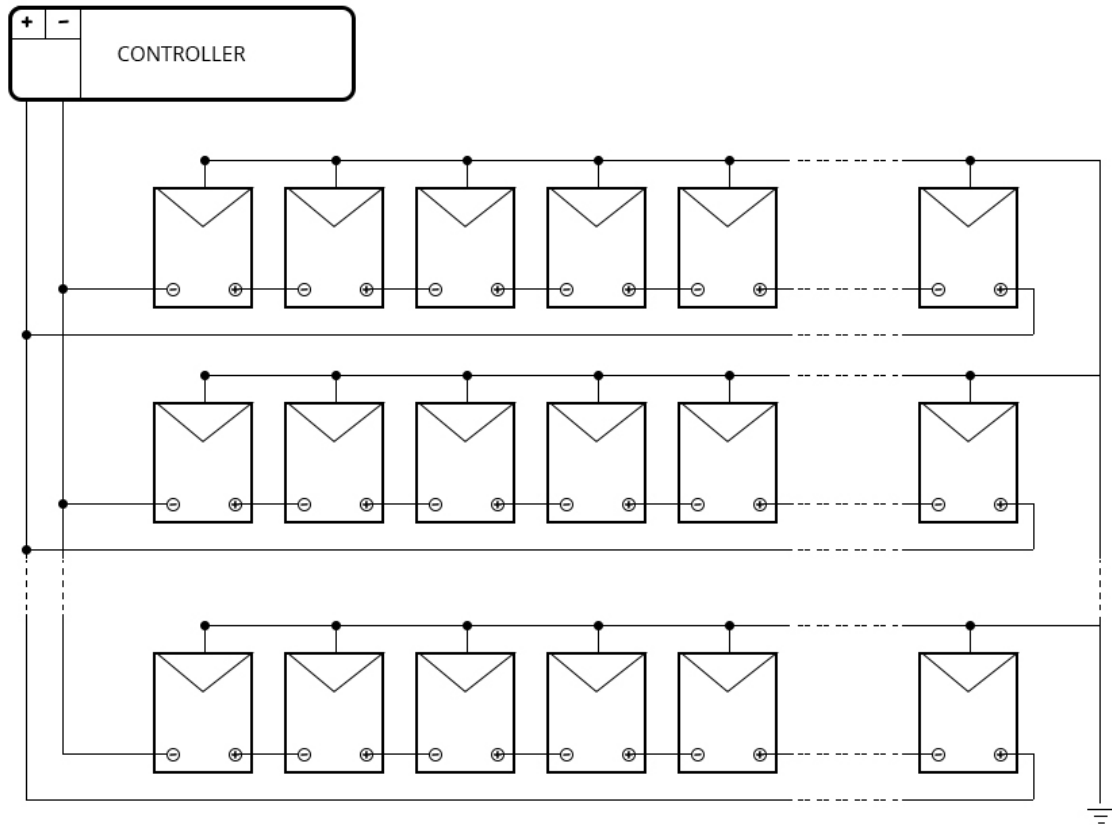
Relative Humidity: 0-95%

Frequency: 0-60Hz

CONTROLLER DATA

model	Motor rated power (Kw)	Rated Voltage (V)	Max Solar input power (kWp)	Output Current (A)	Max DC input Voltage VDC	MPP Voltage VDC	Dimensions (mm)			Weight (kg)
							H	W	D	
SV2/1.5M	1.1	1x240V	2.2	8.6	450	150-160	335	175	11	
SV2/2.2M	1.5		3.3	11		11.5				
SV2/3.7M	2.2		5	17		13				
SV2/3.7T	3.7	3x415V	5	9	850	500-700	425	415	205	16.5
SV2/5.5T	5.5		8	13						
SV2/7.5T	7.5		11	18						
SV2/11T	11		16	24						
SV2/15T	15		22	30						
SV2/18T	18.5		28	39						

Wiring Diagram



38 panels by 5 string(s)