

Grundfos SQ-Flex Solar Systems

The Grundfos SQ-Flex Solar pumps will run on 30-300 VDC or 90-240 VAC power. A typical application for this product would be a solar powered, submersible water well application with an option of supplemental power supplied by an electric wind turbine generator and/or a gasoline powered AC generator set. The following power configurations are available:



SQ-Flex Solar

Using special Grundfos solar panels specifically designed for the SQ-Flex pumping system, SQ-Flex Solar allows efficient and reliable water supply in even the most remote areas. The SQ-Flex Solar is very economical and virtually maintenance-free.

SQ-Flex Wind

Equally cost-effective and easy to maintain, SQ-Flex Wind is particularly suitable for open fields, valleys and landscapes where the wind blows constantly. The complicated process of converting wind energy to electrical energy has been made both easy and reliable with the use of sophisticated components.

SQ-Flex Combo

Two energy sources: solar panels for when the sun is shining; a wind turbine for when the wind is blowing. And, it's all automatic, so no manual switching is required. The added benefits of SQ-Flex Combo are even greater dependability and water whenever it's needed.

SQ-Flex Back-Up

Natural energy rarely runs low, but if it ever does, both SQ-Flex Solar and Wind systems can fall back on generator power or batteries. It's that simple. The SQ-Flex System is designed to make changing between power supplies easy.

Features of the Grundfos SQ-Flex System

PUMP

The SQF pump range comprises two pump technologies:

- Helical rotor pump (3") for high heads and small flows.
- Centrifugal pump (4") for low heads and large flows based on the Grundfos SPA pump.

All pump types are 304 Stainless Steel.

MOTOR

The SQ-Flex motor range comprises only one motor size, the MSF3 with maximum power input of 1400 watts. The MSF3 is a 3" motor. The speed range for the motor is 500-3600 rpm depending on the power input and the load. The motor is designed according to the permanent-magnet principle with a built-in electronic unit that will protect against over and under voltage, overload and over temperature. Construction is of 304 Stainless Steel. The motor lead features a built-in dry-run sensor electrode located 12-24" above the top of the pump end. When the water level drops below this sensor the motor is shut down. The motor will restart five minutes after the water is above the water level electrode.

Grundfos SQ-Flex Controls

CU200 Pump Interface

The CU 200 is a combined status, control and communication unit. It also enables the connection of a level switch. Communication between the CU200 and the SQ-Flex pump takes place via the pump power supply cable. Features include:

- Pump start-stop switch
- Power usage display (watts)
- Run indicator
- Full tank stop indicator
- Dry run stop indicator
- No pump contact indicator
- Over voltage indicator
- Over temperature indicator
- Overload indicator



IO50 Switch Box

The IO50 enables manual starting and stopping of the pump and functions as a connection box joining all necessary cables. This is an on-off switch only.

IO101 Transfer Switch

The IO101 is a transfer switch that enables the connection of a generator backup without the need to manually disconnect the solar array. The switch to generator power is made when the internal circuit of the IO101 senses the incoming power from the generator. When the generator stops the IO101 will automatically switch back to solar power. This unit will work with a 115 volt generator only. The power cord comes without a plug which must be supplied separately. The IO 101 on-off switch will disconnect power to the pump from either the solar array or the generator.



IO102 Wind Turbine Breaker Box

The IO102 converts three phase AC power to 120V DC power. It also includes breakers to slow down or stop the wind turbine and disconnect the incoming power from the solar array.

Grundfos SQ-Flex Solar Systems

Pumps					
Pump Model	Discharge Size IPS (in)	Voltage Range DC	Voltage Range AC	Approx. Weight (lbs)	Grundfos Product Number
3SQF-2	1	30-300	90-240	21	95027332
3SQF-3				22	95027333
6SQF-2				22	95027334
6SQF-3				22	96834840
11SQF-2	1-1/4	30-300	90-240	22	95027335
16SQF-10	1-1/2	30-300	90-240	25	95027350
25SQF-3				22	95027351
25SQF-6				23	95027352
40SQF-3	2	30-300	90-240	25	95027354
40SQF-5				28	95027355
60SQF-3				28	95027443

Interface Boxes			
Product Number	Item Description	Approx. Wt. (lbs)	Grundfos Number
IO 50	On-Off Switch	2	96959028
IO 101	115 Volt Generator Switch	5	96481502
CU 200	Pump Status Control	5	96467801
00010748	Level Switch (for CU200 only.)	2	00010748

Solar Panels								
Product Number	Panel Brand	Watt Peak	OC Voltage	Power Voltage	Approx. Size (cm)		Connector	Approx. Wt. (lbs)
					Length	Width		
MPE-180	Schuco	180	45	36	158.0	80.8	MC4	35

Wiring Kits				
Product Number	Item Description	Brand	Length (ft)	Approx. Wt. (lbs)
5500051	Array to Controller Wire Kit MC4	Generic	30	3

Solar Panel Support Structures					
Product Number	Support Brand	Number of Panels Supported		Mounting Pole Size* IPS (in)	Approx. Weight (lbs)
		Schuco			
		MPE-180			
FX3-68XL	Zomeworks	2		3	36
FX49.5-320		4		4	85

*Poles for support structures sold separately.

Extended Warranty	
Item Description	Product Number
SQ-Flex 5 Year Warranty	SQFW

**SQ Flex Sizing Table - El Paso, Texas
180 Watt Panels, 45 Voc, 36 Vmp**

Head (ft)	100	200	300	400	500	600	700	800	Number of Panels	Number of Panels in Series
GPD	3654	2005	1551	1046					2	2
GPM	8.2	4.7	3.6	2.6						
Model	11SQF-2	6SQF-2	6SQF-2	6SQF-3						
Cable	14	12	10	10						
GPD	5519	2739	2433	1823	1236	1067			3	3
GPM	11.9	5.5	5.5	4.2	2.6	2.6				
Model	11SQF-2	6SQF-2	6SQF-3	6SQF-3	3SQF-3	3SQF-3				
Cable	14	14	12	12	10	10				
GPD	6483	4335	2924	2491	1979	1321	962	505	4	4
GPM	12.5	10.0	5.8	5.6	4.7	2.7	2.6	1.5		
Model	11SQF-2	11SQF-2	6SQF-3	6SQF-3	6SQF-3	3SQF-3	6SQF-3	6SQF-3		
Cable	14	14	14	12	12	10	10	10		
GPD	10525	5725	3331	3006	2602	2211	1794	1297	6	6
GPM	24.7	12.0	5.9	5.7	5.5	5.2	4.6	3.5		
Model	25SQF-7	11SQF-2	6SQF-3	6SQF-3	6SQF-3	6SQF-3	6SQF-3	6SQF-2		
Cable	14	14	14	14	14	12	12	12		
GPD	11489	6393	4351	3252					8	4
GPM	23.3	12.0	10.6	5.7						
Model	25SQF-7	11SQF-2	11SQF-2	6SQF-3						
Cable	14	12	10	10						
GPD	15039	7827	3757	3503	3265	2948	2589	2243	12	6
GPM	27.7	14.5	5.9	5.7	5.5	5.2	4.9	4.6		
Model	25SQF-7	11SQF-2	6SQF-3	6SQF-3	6SQF-3	6SQF-3	6SQF-3	6SQF-3		
Cable	14	14	12	12	10	10	8	8		

This chart can be used to select an SQ Flex Solar pumping system for El Paso, Texas and will approximate the performance for the SQ Flex systems through out our sales territory. The chart is based on the maximum daily flow rate. For specific computerized system sizing, please call our office. Using the Grundfos Win Caps computer aided sizing program we can custom size the pumping system that best fits your needs

The cable sizing allows for a 5% voltage drop.