

DATASHEET: Energy Smart Water Solar PV Hot Water System - ROSC20 SERIES

Dated 14.07.2018

Model Numbers ending in E for Electric Boost or A for Alternate Boost	ROSC20-328E or ROSC20-328A	ROSC20-343E or ROSC20-343A	ROSC20-34319E or ROSC20-34319A	ROSC20-544E or ROSC20-544A	ROSC20-54432E or ROSC20-54432A	ROSC20-5443216E or ROSC20-5443216A	ROSC20-54443E or ROSC20-54443A
Rotex Thermal Store - Energy Storage Tank							
Dimensions (L x W x H) mm	595 x 615 x 1646			790 x 790 x 1658			
Storage tank volume	V = 300 l			V = 500 l			
Empty weight	55 kg	60 kg	67 kg	80 kg	90 kg	95kg	93 kg
Total weight (filled)	355 kg	360 kg	367 kg	580 kg	590 kg	595 kg	593 kg
Standby heat expenditure in 24 hours with 60°C	1.3 kWh			1.4kWh			
Drinking water - nominal content:	19 l	27.9l	27.9 l	24.8 l	29l	29l	29 l
- Heat exchange coil 1 (m)	28	43	43	44	44	44	44
- Heat exchange coil 2 (m)			19		32	32	43
- Heat exchange coil 3 (m)						16	
- Intermediary medium:	Unpressurised						
Corrosion protection	corrosion resistant						
Max. permitted storage tank temp.	T _{max} =85°C						
Max. Inlet Water Pressure (Coils)	600 kPa						
Cold and hot water	1" external thread						
Heating feed and return flow	1" external thread						
Installation Clearances	250mm clearance around tank, 1400mm above tank (for element removal). If this can't be achieved tank can be removed.						
myPV Electric photovoltaic powered immersion heater							
Connectors	Original MC4, 1 string						
Display	3 LED						
AC	≈ 220 - 240V/8.7A/2000W max./50/60Hz						
Heating Capacity	2000W						
Fuse	16A						
Cable	3m						
Standby -power	0 W in DC operation, <2 W in AC operation						
DC	= 100 - 360V/10A max./3600W max.						
Number of MPP Trackers	1						
Power rating	2000 W at 25°C ambient temp., derating when overheating						
Recommended PV Module Configuration	4-8 pieces polycrystalline PV module with 60 cells in a string array (Panels not included)						
MPP-matching efficiency	99.80%						
General Data							
Maximum Pressure	Max. 10bar (1MPa)						
Total efficiency	>99% power rating						
Interface	Serial IR Interface						
Environmental Rating							
Ambient Operating Temp	0 - 50°C (not suitable for heavy frost)						
Type of Protection	IP54						
Envionmental category	Outdoor						
Pollution Degree	2						
Relative Humidity Rating	0-99% (not condensing)						
Cooling	Convection						
Maximum Altitude	600 metres above sea level						
Overvoltage category for each input	Category 2						
Element Housing	Element housing should not be exposed to constant sun/weather conditions						
Water Quality	Suitable for use with Potable Water Only within the following maximum allowable conditions: pH (6.5-8.0); TDS - Total dissolved solids (600mg/L); Total Hardness (200mg/L); Chlorides (150mg/L); Magnesium (10mg/L); Calcium (20mg/L); Sodium (150mg/L); Iron (1mg/L)						
Warranty - For Domestic and Commercial Applications							
Tank	10 Years						
Heat Exchange Coils	3 Years						
Heating Element	2 Years						
Other Parts	1 Year						
Labour	1 Year						
Compliance							
CEC Registered PCE Device	http://www.solaraccreditation.com.au/products/inverters/approved-inverters.html						
Product Standards	AS/NZS 60335.2.21:2013+A1; AS/NZS 60335.1:2011+A1+A2+A3; IEC 62109-1:2010						
Earth Fault Alarm	Built in Earth Fault Alarm						

PV array configuration information - Note: Panels not included

PV array should not be functionally earthed. Positive and negative lines of the PV array must not be earthed at any time otherwise an earth fault error will occur. Metal frame and support structure of the PV panels shall be earthed according to AS 5033. A switch-disconnector is required adjacent to myPV SC20 (PCE) and within 3m and line of sight of the PCE. Additionally a switch-disconnector (DC isolator) is required adjacent to the PV array.

Note: A switch-disconnect must have: marked on/off; be lockable in the off position; be load breaking

PV array design rules

<p>Upper voltage limit calculation: example: Voc STC (25°C cell temp)= 37.3VDC Voc temp. coeff= -0.33%/°C @ -15°C => delta T= -40°C -40°C * -0.33%/°C = +13.2% Voc max =Voc STC + 13.2% = 44.22VDC 42.22V * 8 in series = 337VDC <360VDC DC voltage in range</p> <p>Notice: Panel characteristics at lowest possible temperature are decisive. If voltage exceeds 360VDC potential damage of unit!</p> <p>Upper current limit calculation: Overcurrent will be limited to 10A.</p> <p>Notice: Over current will not damage unit!</p>	<p>Low voltage limit calculation: Design value is minimum heating rod resistance = 15 Ohm example: Impp STC (25°C cell temp)= 8.26ADC Isc temp. coeff= +0.033%/°C @ 65°C => delta T= 40°C 40°C * 0.033%/°C = 1.3% Impp max = Impp STC + 1.3% = 8.37ADC Vmpp min = Vmpp STC -13.2% = 32.4VDC</p> <p>minimum voltage= 8.37*15 = 125VDC min number of panels: 125/32.4 = 4</p> <p>Notice: Panel characteristics at highest possible temperature are decisive. MPP tracking range is 100 to 360V. The higher the current, the more voltage is required to utilize the current. If voltage V<100: unit will not work if voltage/15 < current: unit will not run at MPP</p>
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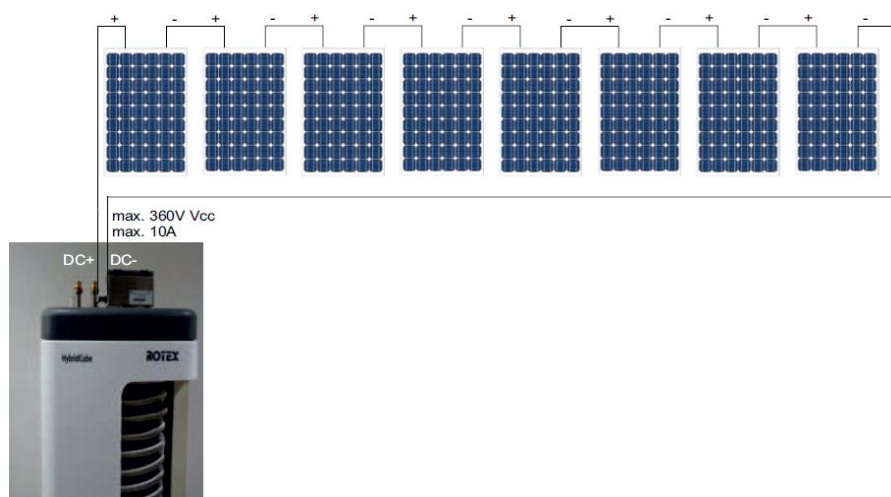


Figure 1: wiring schematic of PV Panels