

Energy Smart Water Solar PV Hot Water System - ROSC20 SERIES

Model Numbers:	ROSC20-328E	ROSC20-343E	ROSC20-34319E	ROSC20-544E	ROSC20-54443E	ROSC20-328A	ROSC20-343A	ROSC20-34319A	ROSC20-544A	ROSC20-54443A
ENERMAX SMARTcube - Energy storage tank										
Dimensions (L x W x H) mm	595 x 615 x 1646			790 x 790 x 1658		595 x 615 x 1646			790 x 790 x 1658	
Storage tank volume	V = 300 l			V = 500 l		V = 300 l			V = 500 l	
Empty weight	55 kg	60 kg	67 kg	80 kg	93 kg	55 kg	60 kg	67 kg	80 kg	93 kg
Total weight (filled)	355 kg	360 kg	367 kg	580 kg	593 kg	355 kg	360 kg	367 kg	580 kg	593 kg
Standby heat expenditure in 24 hours with 60°C	1.3 kWh			1.4kWh		1.3 kWh			1.4kWh	
Drinking water - nominal content:	19 l	27.9l	27.9 l	24.8 l	29 l	19 l	27.9l	27.9 l	24.8 l	29 l
- Heat exchange coil 1	28 m	43 m	43 m	44 m	44 m	28 m	43 m	43 m	44 m	44 m
- Heat exchange coil 2			19 m		43 m			19 m		43 m
- 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									
myPV Electric photovoltaic powered immersion heater										
Connectors	Original MC4, 1 string									
Display	3 LED									
AC (Boost)	≈ 220 - 240V/8.7A/2000W max./50/60Hz					Wired for alternate boost connection				
Heating Capacity	2000W									
Fuse	16A									
Cable	3m									
Standby -power	0 W in DC operation, <2 W in AC operation									
DC (Primary heat source)	= 100 - 360V/10A max./3600W max.									
Short circuit current of the solar	15A									
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	0.998									
General Data										
Maximum Pressure	Max. 10bar (1MPa)									
Total efficiency	>99% power rating									
Interface	Serial IR Interface									
Topology	Transformerless									
Environmental rating										
Ambient Operating Temp	0 - 50°C (not suitable for heavy frost)									
Type of Protection	IP54									
Environmental 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	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 and labour	1 Year
Compliance	
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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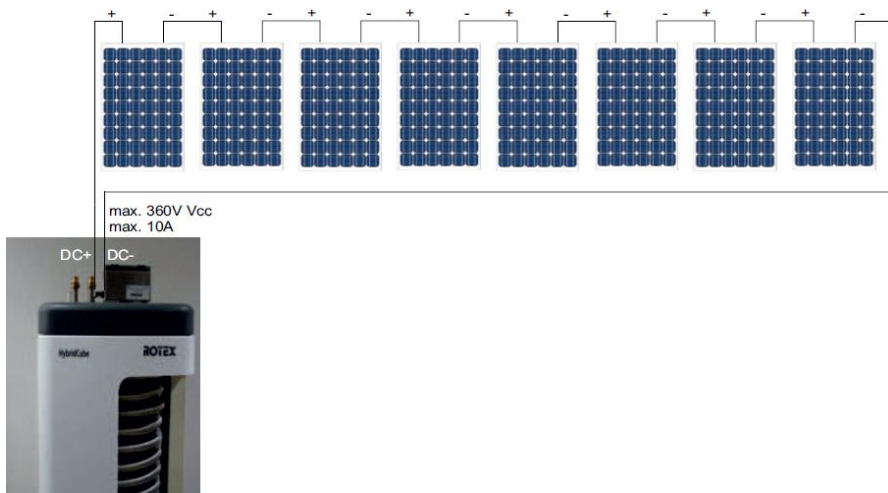


Figure 1: wiring schematic of PV Panels

