

# ASC48-ES Solar Charger

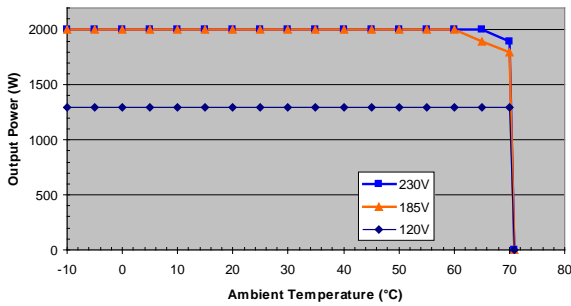


## Contents

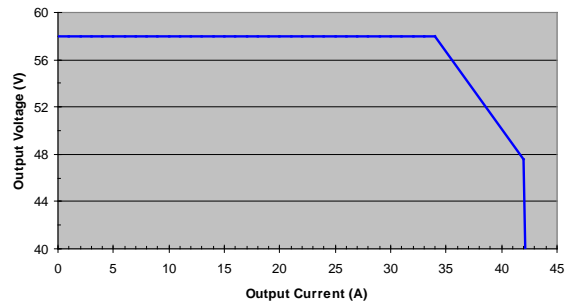
Solar Panel Input	2
DC Output	3
Environmental Requirements	3
Mechanical	4
Compliances	4
Certifications	4

Solar Panel Input

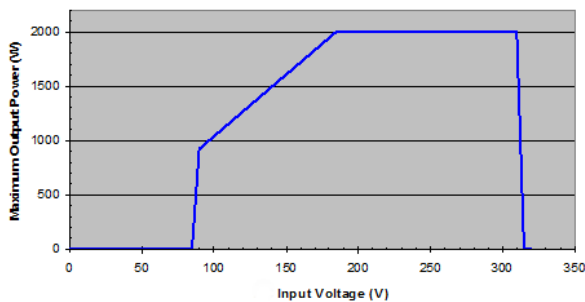
Nominal operating range	100 V DC to 300V DC
Start-up voltage <sup>1</sup>	100V DC
Minimum operating voltage <sup>2</sup>	< 50V DC
Maximum open-circuit voltage	350V DC
Absolute maximum input voltage	350V DC
Maximum Input Current:	11.4A (185V DC, 20°C)
Efficiency:	96.4% peak >95% (20 to 100% load, Vin=230V, Vout=54.5Vdc)
Maximum Power Point Tracking (MPPT)	Matches current draw to panel output for best power transfer
Input protection	
Swell Tolerance:	Controller shuts down above 400V, returns to normal operation when input is within operating range.
Surge:	6kV surge (varistors, gas arrestor)
Input Over-current Protection:	HRC fuses in positive and negative inputs
Input Fuse Ratings:	16A / 250V
Isolation	
Input to output	4242V DC
Input to ground	2220 V DC (Input varistors disconnected)
Output to ground	1000 V DC



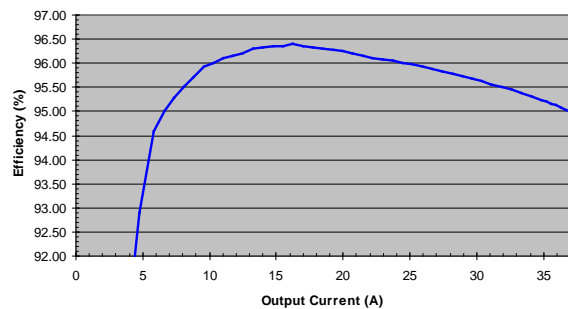
Output Power derating with Temperature and Input Voltage (Vout = 54.5V)



Output Voltage with Output Current (Input >185V, Vout = 48.0V)



Maximum Output Power with Input Voltage (Ambient Temperature ≤ 60°C)



Rectifier Efficiency with Output Current (Ambient Temperature 25°C, Vin = 230V, Vout = 54.5V)

<sup>1</sup> The input voltage must be above this voltage for the controller to start up.

<sup>2</sup> Once started, the controller will operate down to this voltage or lower.

**DC Output**

Nominal Voltage:	48V
Adjustable Voltage Range:	43 to 57.5V <i>Constant power output characteristic 48 – 57.5V. Load required below 45V.</i>
Rated Output Power:	2000W @ 185 – 275V (230V nominal) 1150W @ 110 – 120V (120V nominal)
Preset Accuracy	±0.1V
Regulation:	±0.1V <i>Constant voltage mode, AVC enabled from system controller.</i>
Default (Fail-safe) voltages Loss of System Communication: Preset voltage:	Output voltage resets to system preset voltage 54.5 ±0.1V (manufacturer preset)
Hold-up Time:	12ms <i>At 80% output power and 230V input, the DC output voltage change is 54.5V to 43V.</i>
Start-up (soft start) Start up delay: Output ramp slope: (rectifier rated output, % Amps per second)	Adjustable 0 to 600 seconds (factory preset: 2 seconds) Adjustable 1 to 100% per second (factory present 20% per second)
Protection Current Limit: Over Temperature Turndown: Over Voltage Shutdown: Short-circuit:	41.7A Automatic power turndown. See temperature derating graphs. <3ms delay Full short-circuit protection. Output current limited to less than 130% of rated output current. <i>Rectifier will continue normal operation after short-circuit is removed. Non-urgent (Current Limit) alarm generated.</i>
Noise Ripple (<100Hz) Audio Frequency (300 Hz – 3.4 kHz): Wide band (5Hz – 1MHz): Peak to peak (0 – 20 MHz): Discrete frequency (3.4kHz – 150kHz):	<20mV rms (unweighted) <2mV (psophometric) <20mV rms (unweighted) <200mV p-p (unweighted) <5mV rms (1kHz wide selective frequency) <i>At 25°C, 54.5V output</i>
Parallel operation (ASC48-ES output only) Number of units in parallel Current sharing mode  With SC200/SC300 controller Without SC200/SC300	Up to 12 units  Active current sharing managed by controller Passive, set buy solar panel and ASC48-ES output characteristics

**Environmental Requirements**

Ambient Temperature Rated Operating Range: Extended Operating Range:	-10°C to +50°C [14°F to 122°F] -40°C to +70°C [-40°F to 158°F] <i>Output characteristics de-rate above 50°C and below -10°C [14°F]. Refer to de-rating graphs.</i>
Humidity Nominal: Range:	50% RH < 95% RH (non condensing)
Altitude:	< 3000m [9800 feet]

**Mechanical**

Dimensions H, W, D:	3U (130mm, 5.1"), 42mm (1.6"), 266mm (10.5") overall
Weight:	1.7kg [3.7 lb]
Connector:	PCB Edge
Rack compatibility	Mounts in modified APS-3G racks <sup>3</sup>
Cooling:	Temperature controlled, variable speed high reliability fan
Front panel LEDs: Power on: Minor alarm: Major alarm:	Green Amber Red

**Compliances**

Safety:	AS/NZS 60950.1, UL 60950-1, IEC 60950-1
EMC – immunity Electrostatic discharge: Radiated radio frequency: Electrical fast transients: Surge: Conducted radio frequency: Dips, interruptions & variations:	EN 61000-4-2 EN 61000-4-3 EN 61000-4-4 EN 61000-4-5 EN 61000-4-6 EN 61000-4-11
EMC – emissions Conducted emissions (AC): Conducted emissions (DC): Radiated emissions: Harmonics: Fluctuations and flicker:	EN 55022 / CISPR 22 (Class B) EN 300 386 (Class A) EN 55022 / CISPR 22 (Class B) EN 61000-3-2 EN 61000-3-3

**Certifications**

Europe	CE-mark RCM
--------	----------------

© Eaton Corporation. All Rights Reserved. In the interests of continual product improvement all specifications are subject to change without notice. Performance ratings are valid with all other variables at Nominal. Specifications guaranteed over rated operating range. Eaton, Powerware, Intergy, CellSure, SiteSure, DCtools and PowerManager are trade names, trademarks, and/or service marks of Eaton Corporation or its subsidiaries and affiliates. All other marks are the property of their respective owners.

<sup>3</sup> Requires special subrack option for DC input connections.