

S-Max™ Series Grid-Tied Solar Inverter



Harvest the Power of the Sun

The renewable energy industry is experiencing record levels of growth and is gaining interest from a broad set of audiences. Solar electric systems convert sunlight into clean reusable electricity. Eaton's Power Chain™ Management solutions adhere to the specific equipment requirements for solar electric systems. With a proven track record for innovation and manufacturing, Eaton is poised to positively impact the performance, reliability and safety of solar electric systems.

The Eaton S-Max™ Series 250kW grid-tied solar inverter is listed to UL 1741, CSA 22.2, No. 107.1 for three-phase utility interactive operation. Backed by a century of experience with electrical power systems and a global reputation for excellence. The Eaton S-Max™ grid tied solar inverters convert sunlight into clean alternating current with an emphasis on:

- Maximum Energy Harvest
- System Reliability
- Enhanced Operations and Low Maintenance
- High Safety Standards



EATON

Powering Business Worldwide

S-Max™ Series Grid-Tied Solar Inverter

Maximum Energy Harvest

The Eaton S-Max™ Series of grid-tied solar inverters are based on Eaton's mature PowerChain® Management solutions, which incorporate Eaton's programmable logic controllers (PLCs), advanced variable frequency drives and protective relays. Every critical component inside the S-Max™ inverter is proven to be reliable based on the known life cycles of high volume industrial and electrical control equipment.

- CEC 96% efficiency
- >99% MPPT efficiency – 3rd Party verified
- Earliest startup - latest shutdown with DC excitation and zero load grid sync
- Minimized offline nuisance events with superior fault tolerance of a utility grade electric protection relay

System Reliability

At the heart of the Eaton S-Max™ Series 250 kW grid-tied solar inverter is the Eaton active front end (AFE) technology which is proven to reliably operate in harsh environments with 24/7 operation cycles over decades.

- AFE's are used in 24/7 applications, outdoors in the HVAC / Telecom and the Oil and Gas industry
- Designed with a low parts count and minimal interconnects
- Manufactured in an ISO 9001 facility

Operations and Maintenance

The Eaton S-Max™ Series grid-tied inverter is designed to operate as consistently as the sun rises and sets. Ensuring your PV system investment, the S-Max is supported by a global service infrastructure and backed by a company with more than 100 years of performance.

- Simplify inverter maintenance with a TFT display that captures performance and alarm metrics
- AC / DC circuit terminations accessible by side and bottom gland plates with the largest working volume in the industry
- Wye transformer interconnection
- Oversized bus bar in DC section with multiple fusing options
- National support and service infrastructure
- Extended warranties and service contracts available for long term maintenance

High Safety Standards

To maintain safe operation, Eaton has engineered a solar inverter that reduces physical contact with equipment.

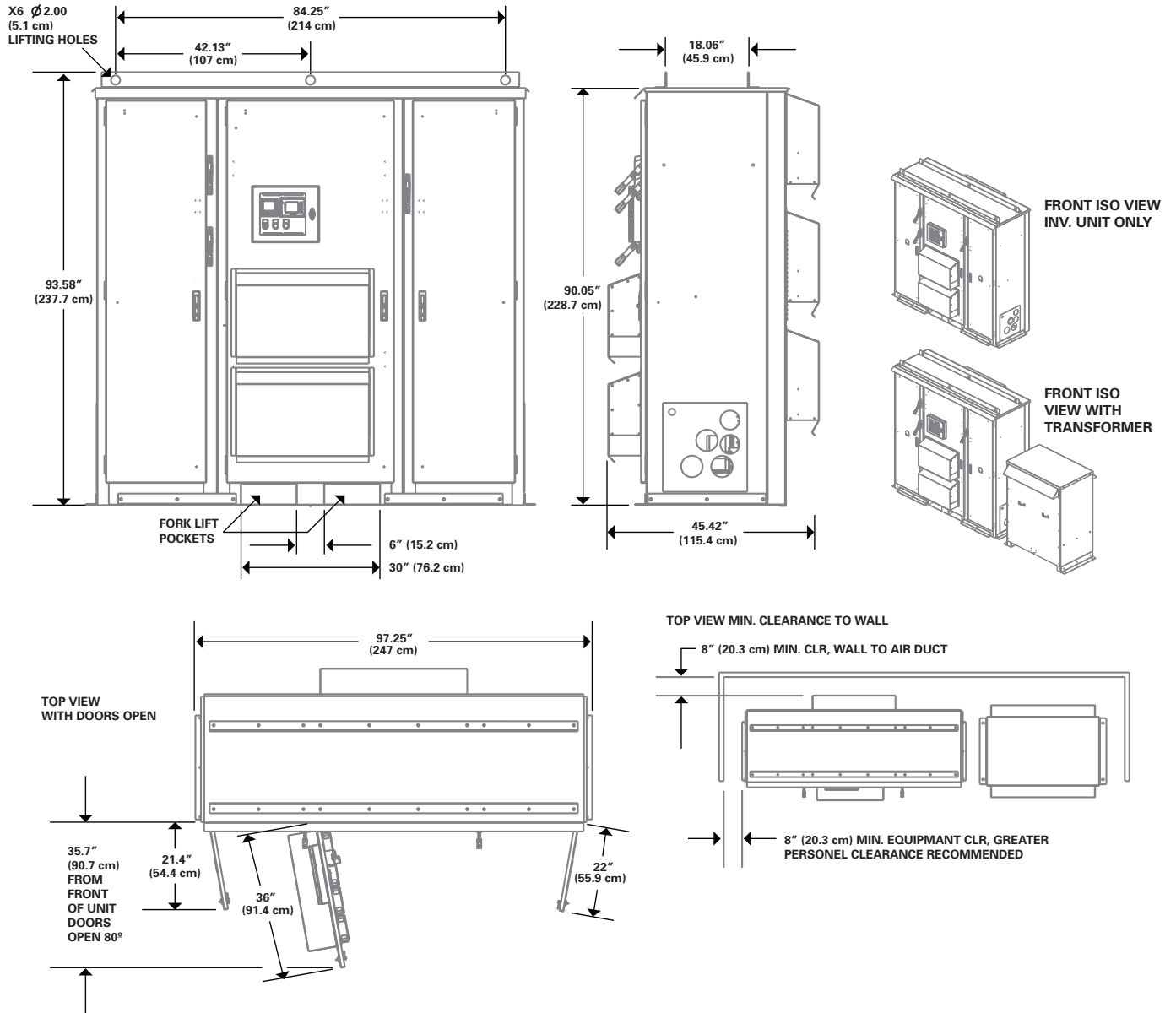
- Embedded intelligence automates commissioning, operation and shutdown
- Physical and software based interlocks prevent exposure to live circuits
- NEMA based visible blade disconnects for the AC and DC circuits ensure reliable PV system interconnection



Safety and Security Global Manufacturer

1. DC bus bar terminations with generous area for wire management
2. DC disconnects are UL 98 load break rated with visible blades
3. IEEE 1547 sensing with utility grade electric protection relay
4. Control panel isolated from primary air flow with card cage controllers, DC power supply, and PLC
5. Condensation management via fan and heater control
6. 1000 Volt DC rated inverter(s) de-rated for 600 volt solar application
7. 100 kA surge suppression
8. UL 98 Listed, fused 350 Amp AC disconnect
9. Optional viewing windows for disconnect's visible blades status
10. Optional IR Thermograph ports

S-Max™ Series 250kW Mechanical Drawing



AC Output Specifications - Factory Default

Maximum Continuous Output Power (kW)	250
Weighted Efficiency (CEC) %	96
Maximum Continuous Output Current (A)	250
Maximum Branch Over Current Protection (A)	350 ¹
Nominal Operating Voltage (Vac)	3ø 600
Operating Voltage Range (Vac)	528 - 660
Nominal Operating Frequency (Hz)	60
Operating Frequency Range (Hz)	57.0 - 60.5
Tare Loss (W)	70
Total Harmonic Distortion (% THD)	< 3
Power Factor	> .99
Utility Connection	Wye 4-Wire (A,B,C,N)

DC Input Specifications

DC Maximum Input Voltage (Vdc)	600
DC Maximum Power Point Tracking Range (MPPT) (Vdc)	300 - 500
DC Operating Range (Vdc)	300 - 600
DC Input Start (Vdc)	400 ²
DC Operating Current Nominal (A)	860
Maximum DC ISC Input (A)	1340
Factory Configured PV Array Grounding	Pos / Neg

Features and Options

UL 98 Load Break, Visible Blade, Fused 350 Amp AC Disconnect	
100kA Surge Protection, AC	
Optional Infra Red Inspection Ports for the AC and DC Cabinet Sections	
Optional Visual Inspection Port in AC & DC Cabinet for Visible Blade Status Verification	
Optional CEC Approved System Performance Meter, 2% Accurate	
Factory Configured Fused Input Options with Branch Circuit Rated Fuses	No Fusing / 2 x 600 A / 4 x 300 A / 8 x 150 A

Mechanical Specifications

Operating Temperature Range (C) without Power Fold back	-20 to 50
Storage Temperature Range (C)	-40 to 70
Enclosure Rating	UL Type 3R
Enclosure(s) Construction	Polyester Powder Coated Cold Rolled Steel
Relative Humidity	0 to 95 % Non Condensing
Inverter Weight	1814 kg / 4000 lbs
Transformer Weight	1293 kg / 2850 lbs
Inverter Envelope Dimensions - in (cm)	94 H x 93 W x 46 D (239 H x 236 W x 117D)
Transformer Dimensions - in (cm)	79 H x 65 W x 46 D (188H x 165W x 117D)
Inverter and Transformer Mounting	Pad Mount - Not Free Standing
Isolation Transformer - External	Delta/Delta
Cooling	Forced Air / Convection
Max Altitude (before potential derating)	1000 M / 3300 Feet
Air Flow / Inverter	1700 cfm ²
Seismic Rating Successfully Evaluated To	Seismic Qualified to IBC/CBC

Certifications

UL 1741 2nd Ed Jan 2010, IEEE 1547, CSA 22.2 No. 107.1



¹ Fused 350 Amp AC disconnect

² Factory default is 400 Vdc

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