

ENTELEGENT

INSTALLATION MANUAL

**Entelligent NMax M900A1 Rapid Shutdown
Device (RSD) with Optimization**

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1. Important safety instructions

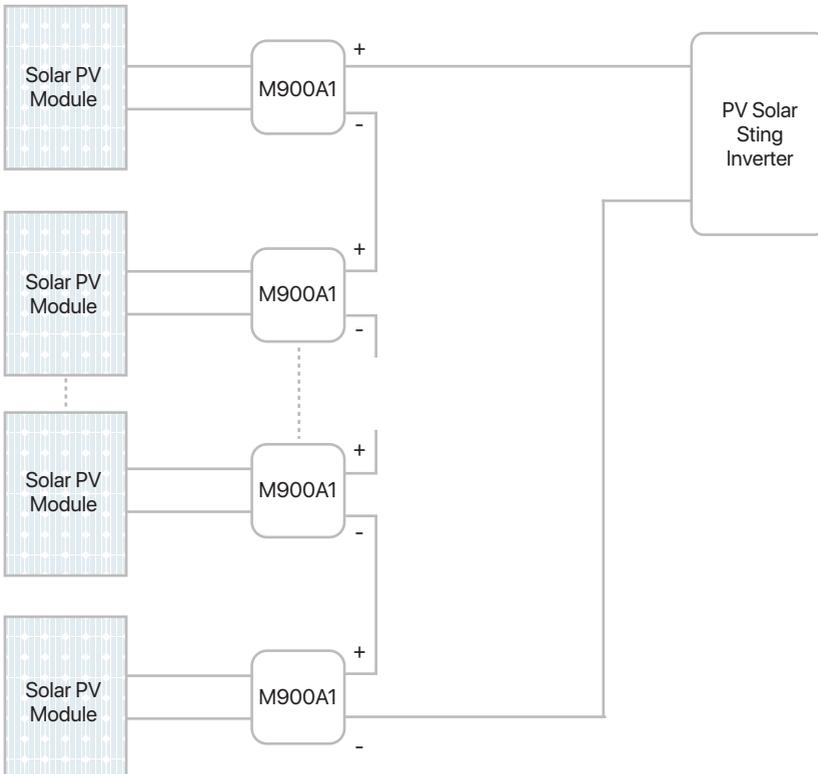
- This manual contains important instructions for Enteligen NMax M900A1 RSD with Optimization that shall be followed during installation and maintenance.
- Install the product in strict accordance with the installation manual.
- Risk of electric shock. Do not disassemble, or repair the unit, no user serviceable parts inside. Refer servicing to qualified service personnel.
- Before installing or using the Enteligen NMax M900A1, please read all instructions and warning markings on the Enteligen NMax M900A1 product, appropriate sections of your inverter manual, photovoltaic (PV) module installation manual, and other available safety guides.
- Only certified electricians are allowed to install, maintain, troubleshoot, and replace the optimizer. Enteligen NMax M900A1 does not assume liability for loss or damage resulting from improper handling, installation, or misuse of products.
- Before making connections to Enteligen NMax M900A1, ensure the optimizer is not damaged. Check existing cables and connectors, ensuring they are in good condition and appropriate in rating. Do not operate the Enteligen NMax M900A1 with damaged or substandard wiring or connectors. Enteligen NMax M900A1 must be mounted on the high end of the PV module frame, and in any case above ground.
- Do not connect or disconnect under load. Turning off the Inverter and/or the Enteligen NMax M900A1 may not reduce this risk. Internal capacitors within the inverter can remain charged for several minutes after disconnecting all power sources. Verify capacitors have discharged by measuring voltage across inverter terminals prior to disconnecting wiring if service is required.
- Wait 30 seconds after rapid shutdown activation before disconnecting DC cables or turning off DC disconnect.
- To allow proper heat dissipation and installation, maintain appropriate clearances between the optimizer and other objects.
- Before maintenance, power off the optimizer and strictly comply with the safety precautions in this document and associated documents to operate the optimizer.
- Failure to adhere to these instructions may result in injury or death, damage to the system, or voiding the factory warranty.

2. Package contents

- Power optimization
- Manual
- Heatsink grounding bracket and tooth washer

3. Overview

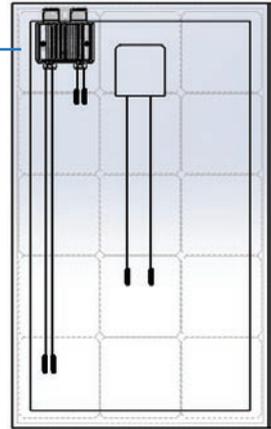
- Bracket clip mount to module frame without tools.
- Enteligent NMax M900A1 inputs connect to module junction box, outputs are connected in series to form a string.
- No additional grounding required.
- The Enteligent NMax RSD with Optimization optimizer is a DC-DC converter installed on the back of solar panels in a solar system. It tracks the maximum power point (MPP) of each solar panel to improve energy yield of the whole solar system. It is also a rapid shutdown device (RSD) complied with NEC 2017 and NEC 2020 article 690.12.



4. Installation

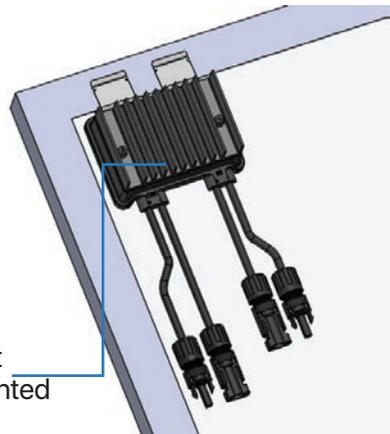
i) Mounted on standard PV module

- M900A1 mounting is recommended on the upper left as shown, but can be placed on upper right if needed (due to racking constraints, etc).



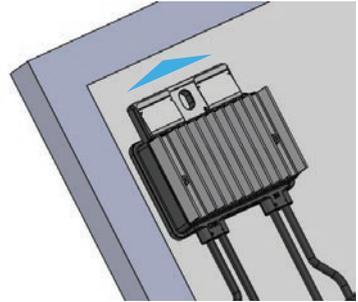
- M900A1 cable glands must not be facing up.

- Allow clearance between PV module and mounting surface for air circulation around the Enteligent NMax M900A1.



- Recommended orientation of the Enteligent NMax M900A1 on module frame after mounted as shown (heatsink face outwards).

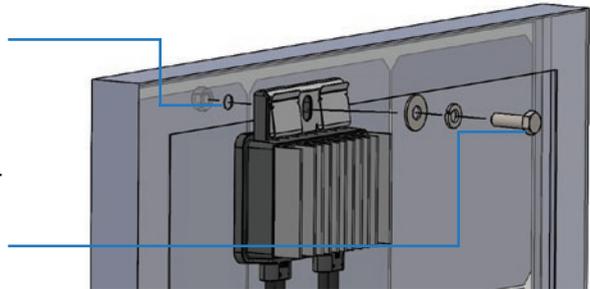
- Use bracket clip mount to module frame, just simply insert the clip up to the end into the frame in the desired location.



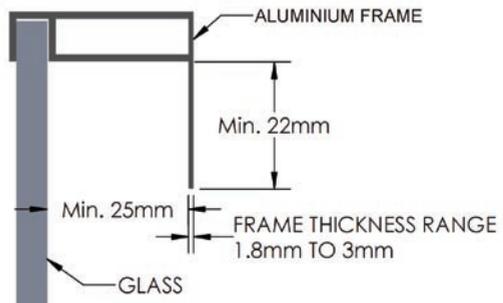
- Other than using the bracket clip, the Enteligent NMax M900A1 can also be mounted on the module frame by screw, washers and nut (parts do not include in product) if there is mounting hole on the module frame.

- Hole on module frame (around 9mm diameter)

- M8 x min.30mm screw, spring washer, plain washer and nut. Washer outside diameter do not larger than 22mm

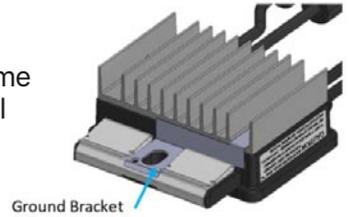


- Module Frame Requirement for mounting the Enteligent NMax M900A1



ii) Optional Heatsink Grounding

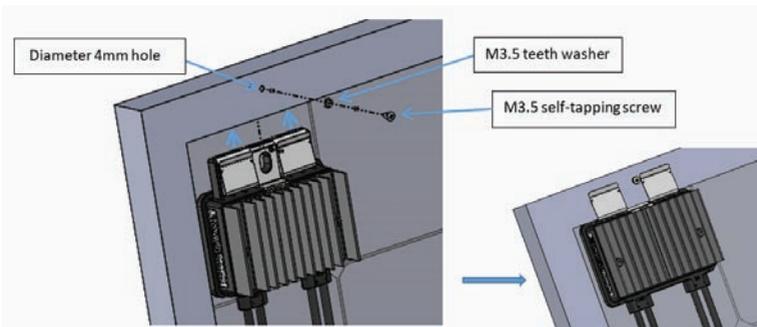
- The M900A1 heatsink is in electrical isolation. The heatsink can be optionally ground to the metallic frame of the PV module through attachment of the optional grounding bracket. Grounding of all exposed metal, such as the heatsink, may be required for regulatory compliance or system configuration architecture.



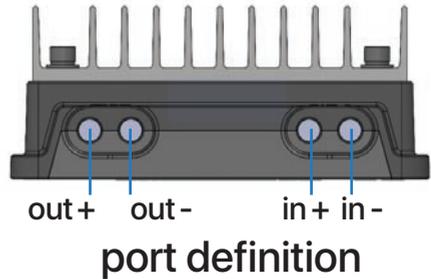
- To fasten the grounding bracket to the heatsink, remove the existing M4 screw as shown on the diagram below, affix the ground bracket, and replace the M4 screw with the enclosed tooth washer.



- Once the assembly is installed to the PV module frame, drill a 4mm diameter hole through the metal PV module frame in line with the ground hole in the grounding bracket, as per the diagram below. Secure the bracket with a M3.5 self-tapping screw and a M3.5 tooth washer or equivalents. Note that the self tapping screw and tooth washer are not provided.



iii) Connection

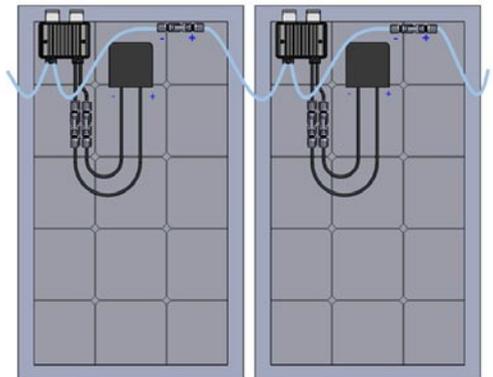


- Each the Enteligent NMax M900A1 must have PV module(s) connected to its inputs before connecting the outputs of M900A1 units in series or in parallel. To disconnect the Enteligent NMax M900A1 from module(s), disconnect the M900A1 outputs from the string before disconnecting the M900A1 inputs from the module(s) junction box.

Note: Do not connect or disconnect under load. It is always to connect module to the Enteligent NMax M900A1 inputs before connecting to outputs.

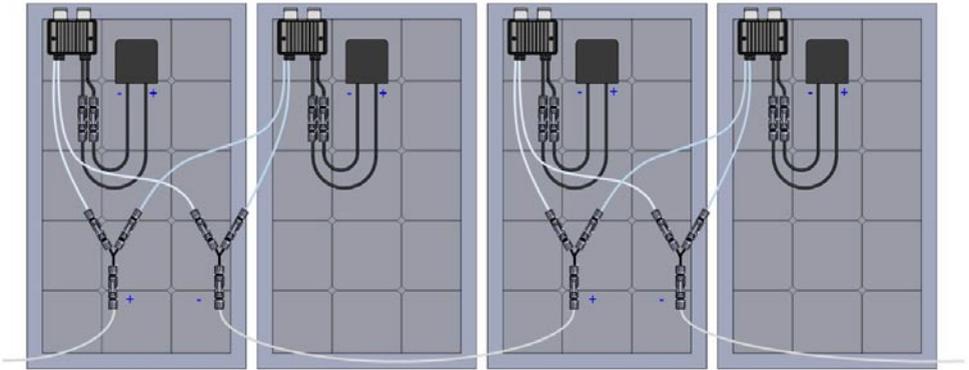
- Standard modules can be equipped with the Enteligent NMax M900A1 add-on units as shown below

1. the Enteligent NMax M900A1 in series



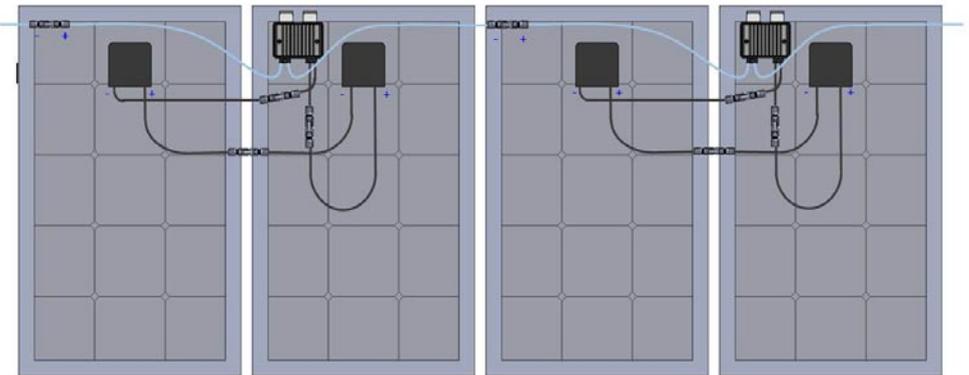
Panel Max Rating: 80Voc, 12.5A max, 900W max

2. Enteligent NMax M900A1 in parallel



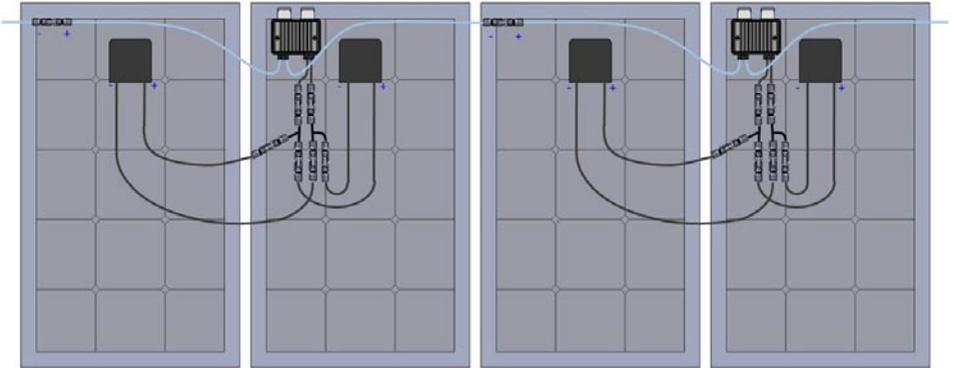
Panel Max Rating: 80Voc, 10A max, 800W max

3. Panels in series into the Enteligent NMax M900A1



Panel Max Rating: 40Voc, 12.5A max, 450W max

4. Panels in parallel into the Enteligent NMax M900A1



Panel Max Rating: 80Voc, 6.25A max, 450W max

With add-on units, failing to follow the sequence of installation steps may result in the Enteligent NMax M900A1 damage and not covered under warranty.

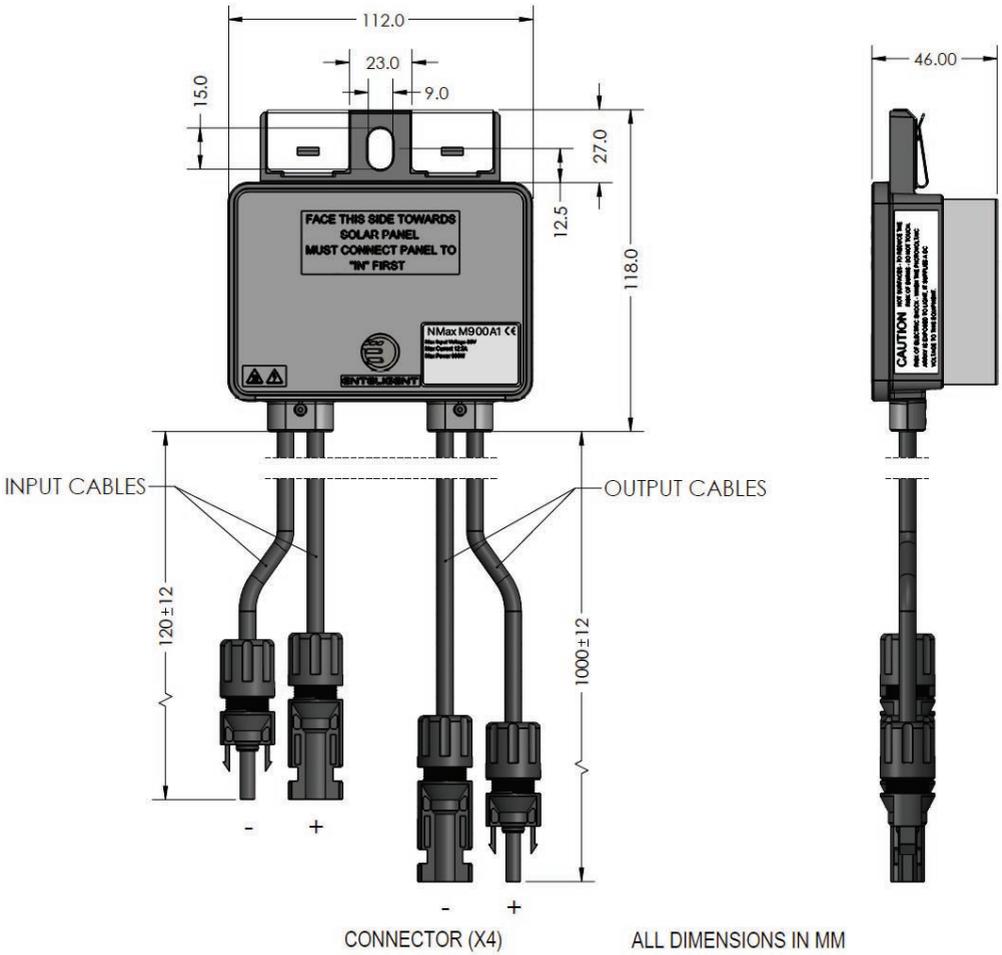
5. Connector Types

- PV modules use a variety of output connectors. Enteligent NMax RSDs come with several options of supporting connectors by M900A1 module number as listed in Section 6: Specifications. Enteligent's warranty will not apply to issues relating to use of non-identical connector types without first verifying compatibility between Enteligent NMax RSDs and PV modules or other devices.

CAUTION: Installation of Enteligent NMax RSDs without first ensuring its compatibility with the PV module connectors may be unsafe and could cause functionality issues such as ground faults, resulting in system shutdown.

6. Technical Specification

Product	Entelligent NMax M900A1 RSD with Optimization
Electrical	
Maximum Input Voltage	80 V
Maximum Output Voltage	80 V
Maximum Current	12.5 A
Maximum Power	900 W
Maximum Power Consumption	1.8 W
Mechanical	
Operating Ambient Temp Range	-40°C to +85°C
Dimensions (without cable)	112 x 118 x 46 mm
Weight	700g
Cable Length	Input Cable Length: 0.12m Output Cable Length: 1m
Cable	12AWG
Enclosure Rating	NEMA Type 6P / IP 68
Features & Compliance	
Power Optimization	Yes (MPPT)
Communication	PLC
Safety Compliance	NEC 2017 (690.12) NEC 2020 (690.12) UL 1741 CSA C22.2 No. 107.1
EMC Compliance and others	FCC Part 15 Class B IE C 61000-6-2 IE C 610000-6-3 SunSpec™ RSD Certified Over temperature protection
Model Number by Connector Type	
BizLink S418 (MC4 Compatible)	M900A1-S4
Staubli MC4	M900A1-M4



Marking Description



Electric Shock Warning



Hot Surface Warning



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