MODULE INSTALLATION INSTRUCTION SHEET

SOLARVATIO SERIES SV-XXX MONO-5-36UL

GENERAL INFORMATION

This instruction sheet provides information regarding the photovoltaic modules of the series **SV-XXX MONO-5-36UL** SOLARVATIO UL. Please read this instruction sheet in its entirety before installing, connecting or using this Module. A licensed electrician must perform or supervise the installation and wiring of this Module.

HANDLING AND GENERAL USE

Photovoltaic modules generate electricity when exposed to light, even when they are not connected in a circuit. Shock and burns can occur when in direct contact with the module output leads. Under normal conditions a photovoltaic module is likely to produce more current and / or voltage than those detected in the standard test, consequently, the Isc and Voc values marked on this module must be multiplied by a factor of 1.25 (reduction of 80 percent) to determine component voltage rating, conductor ampacities, fuse size, and size of controls connected to the PV output. These risks increase when multiple modules are interconnected to increase output current or voltage.

- Do not bend or disassemble the module.
- Do not walk on the modules.
- Do not try to increase the power of the modules by concentrating light on their surface.
- Artificially concentrated sunlight shall not be directed on the module or panel.
- If the power system includes accessories, others (inverters, batteries, charge regulator, etc.), be sure to follow the safety recommendations of their respective manufacturers. Fuse or lockout circuit must be used for the current device upon installation.

APPLICATION OF THE INFORMATION

Series modules SV-XXX MONO-5-36UL they produce direct current electricity. They can be used in various module systems as a single module. Some applications may require the use of a blocking diode, which prevents battery discharge during periods of darkness, or a battery discharge regulator which prevents overcharging and possible battery damage. The module must be mounted on a fire-resistant roof, sheathing, rated for this application, that has a maximum slope of 5in / ft (127mm / 305mm) to maintain a fire class rating. National or local codes may govern the installation and use of this PV Module. In particular, these codes may specify installation requirements on roofs, exterior walls, and vehicles. Installers must comply with these codes where applicable.

You must mount the modules using UL approved methods or rack spacers when installed in a building, with the junction box in the highest position. The support rail should be flush with the module frame and parallel to the short end of the module. The module must be securely attached to a support frame using four 1 / 4-20 x 75 "stainless steel machine screws through the four mounting holes, located 16.13" from the corners of the frame. Place a "stainless steel flat washer on the Machine Screw, insert the assembly through the rack and bracket, and secure from behind with another stainless steel flat washer, lock washer, and locknut. Modules have been evaluated by UL for a maximum positive or negative design loading of 50 lbs/ft2.

The modules have been evaluated by UL for mounting using the 4 provided mounting holes in the frame, using bolt & nut hardware torqued to 20 ft-lbs, with a minimum recommended stand-off height of 4 inches above the roof plane.

MODEL	SV-XXX MONO-5-36UL
DIMENSIONS	1506 mm X 681 mm X 35 mm
WEIGHT	11.8 Kg

MODULE CHARACTERISTICS	
Maximum System Voltaje:	600 V DC (UL) 1000 (TUV)
Maximum Fuse Series:	15 A
Flammability:	Type 12
Contains 3 blocking diodes, in a TIGO ENERGY junction box	

MODULE FEATURES (CONTINUED)						
Specs electrical (nominal values)	SV-XXX MONO-5-36UL					
Maximum power, Pmax. (watts)	150	160	170	180	190	200
Voltage @ Maximum power, Vmax (V dc)	18.0	18.40	18.10	18.36	19.27	20.23
Current @ maximum power, Imax (A dc)	8.33	8.70	8.52	8.88	9.78	9.78
Current @ short circuit, Isc (A dc)	8.75	9.05	8.90	9.20	9.66	10.0
Voltage Open circuit, Voc (V dc)	22.40	22.80	22.47	22.92	24.06	25.26
Facilities UL (1 parallel)	25 Series					

Since the modules can be installed in parallel electrically, each module (series string of connected modules) must be provided with the maximum power delivery protection that is within ± 10% of the values measured in the standardized test conditions of 1000 W / m, at 25 ° C cell temperature and a solar spectral irradiance of AM1.5 per IEC TS 61836, see Section 690-8 of the US National Electrical Code for an additional factor of multiplication of 125 percent (80 percent derating), which may be applicable.

ELECTRIC CONNECTIONS

To avoid electric shock and fire hazard, the matrix or module frame must be grounded before wiring the circuit. Facing the rear of the module, attach an ILSCO GBL-4DB (ground lug) to the ground terminal of either hole, located 16.51 cm from the upper right corner and 16.51 cm from the lower left corner of the frame. Place the ground terminal on the outer surface of the frame and line length. Insert a # 10-32 x 0.5 "steel screw through the ground lug and frame, and secure back with a # 10 steel star steel washer and nut. Grounding must be in accordance with the methods in accordance with Articles 250 of the NEC and in accordance with CSA C22.1, Safety Standard for Electrical Installations, Canadian Electrical Code, Part 1 are used. The correct torque is 2.5 (SI units) Nm. or 20 lbf-in (US units). These pairs for connecting the grounding system to the terminal are listed in the following table.

WIRE RANGE	WIRE AWG	TYPE OF PAIR IN POUNDS
4 -6	BRAIDED WIRE	325
8	BRAIDED WIRE	235
10 – 12	SOLID	220
10 - 12	BRAIDED WIRE	220

For field connections, use the UL recognized Zhejiang Zhonghuan Sunter PV Technology Co., Ltd. AWG copper connector, (for minimum rated insulation 90 ° C, PV wire by Zhejiang Zhonghuan Sunter PV Technology Co., Ltd. UL file No. E353853).

Use constant wiring and connection techniques with outdoor installations. All exposed wiring must be wire-type photovoltaic sunlight resistant (per Suzhou Xityong photovoltaic UL file no. E474846). Use only modules of the same type for series and parallel connections, the cable connectors must be bonded through the rated UV cable ties.

Only identical connectors of the same make and model should be mated together. Please see table below for mating details.

MAKE	FEMALE CONNECTOR TYPE/MODEL	MALE CONNECTOR TYPE/ MODEL
QC SOLAR CORP	PV-QC4.10-a5c13d3e2	PV-QC4.10-a5c13d3e2
STAUBLI ELECTRICAL CONNECTORS AG	MC4 / PV-KBT4/2.5II-UR	MC4 / PV-KBT4/2.5II-UR

ASSEMBLY INSTRUCTIONS

The module is considered to be in compliance with UL 1703 only when the module is mounted in the manner specified by the mounting instructions below. Use caution and be aware of slippery surfaces when installing modules on a roof. Falling can cause serious injury or death. It is the customer's responsibility to ensure that the mounting system used is capable of safely supporting the module. A professional engineer should review all mounting structures for wind loading and other external loading conditions for the particular installation site for ceiling mounted systems, provide adequate back ventilation in a cooling module (100mm / 4in minimum separation). Note that the modules are to be mounted in such a way that their junction box is in the upper position at the rear of the modules. Using other means of mounting, other than the above specification, may affect the UL List.

SCREW TIGHTENING INSTRUCTIONS

A module with exposed conductive parts is considered to be in compliance with UL 1703 only when grounded in accordance with the instructions presented below and the requirements of the National Electrical Code. You should start tightening the screws by hand. After 5 turns by hand, use a socket screwdriver and finish tightening. Correct tightening (is 2.5 No. units (SI) or 20 (US units lb-in). Protective grounding of individual PV modules is achieved by attaching the modules to the mounting frames. Mounting should be closely followed, in order to ensure a reliable ground connection.

MAINTENANCE

Inspect all electrical and mechanical connections annually for tightness and freedom from corrosion. Periodically wipe the surface of the module with a soft tissue or sponge using water and a mild detergent.

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