SOLOBOX RAIL INSTALLATION GUIDE



UNIRAC Code-Compliant Installation Manual

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INSTALLATION GUIDE

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SAFETY INSTRUCTIONS INSTALLATION GUIDE

READ ALL INSTRUCTIONS AND SAFETY WARNINGS PRIOR TO INSTALLATION

SAVE THESE INSTRUCTIONS

This manual details important instructions that must be followed prior to installation, during installation, and during service and/or maintenance. This manual must be readily accessible at all times.



IDENTIFIES CONDITIONS OR PROCEDURES, WHICH IF NOT FOLLOWED, COULD RESULT IN SERIOUS INJURY, DEATH OR PROPERTY DAMAGE.



IDENTIFIES CONDITIONS OR PROCEDURES, WHICH IF NOT FOLLOWED, COULD RESULT IN SERIOUS DAMAGE OR FAILURE OF EQUIPMENT.

SAFETY WARNINGS AND CAUTIONS:

- All instructions contained in this manual must be performed by a licensed electrician or qualified personnel and the installation must comply with all applicable national, federal, state, municipal and local codes. All wiring methods must be in accordance with the National Electric Code, ANSI/NFPA 70.
- Lethal voltages may be present prior to installation, during installation, and during maintenance and/or operation of this equipment. Always ensure that all electrical connections are at zero voltage and properly disconnected before installing or when performing maintenance.
- Always de-energize circuits prior to installation or service. When disconnecting inverter, allow the appropriate amount of time for all electrical storage components to discharge before servicing.
- Proper safety equipment and personal protective equipment must be worn at all times.
- Do not install this equipment in wet conditions or if roof surface is wet, covered in frost, ice, or snow.
- This equipment must be installed as specified in this manual. Failure to do so may void the warranty or cause property damage.
- Do not exceed maximum voltage or wire sizes specified in this manual.
- Spacings not less than the minimum required in UL 1741 shall be provided between uninsulated live parts and a conduit bushing installed at any location on the enclosure.
- Bonding between conduit connections is not automatic and must be provided as a part of the installation.
- Maintain a spacing of at least 1 inch between uninsulated live parts and fittings for conduit, armored cable, and uninsulated live parts of opposite polarity.

SAFETY INSTRUCTIONS INSTALLATION GUIDE **PAGE**

SAFETY WARNINGS AND CAUTIONS (Cont.):

- All wires are to be copper conductors with insulation rated to 90°C or higher.
- The hub shall be connected to the conduit before the hub is connected to the enclosure.
- Ensure all proper jumpers or other bonding mechanisms of SOLOBOX are in place per NEC.
- Wiring must adhere to wire bending space as listed in UL1741.
- The PV system grounding must be installed per the requirements of Sections 690.41 through 690.47 of the National Electrical Code, ANSI/NFPA 70, UL1741.

LEGAL NOTICES

SOLOBOX RAIL[™] is a trademark of Unirac, Inc., Registration pending. Visit *www.unirac.com/patents* for further details about patents.

PRODUCT OVERVIEW INSTALLATION GUIDE PAGE



	ITEM NO. DESCRIPTION	QUANTITY
ITEM NO.		SBOXRAIL-D
		(Solobox Rail With Din Rail)
1	SCREW, 0.25-20 x .625 PAN HEAD PHILLIPS SS	1
2	SCREW .25-20 X 3.25, PAN HEAD, PHILLIPS, 316 SS	1
3	SOLOBOX RAIL TOP	1
4	THREAD FORMING SCREW, #10-16 x.875	2
5	GROUNDING BAR ASSEMBLY	1
6	QA/QC LABEL	1
7	SCREW, #10 x 0.5 THREAD FORMING PHILLIPS ROUND HEAD SS	2
8	SOLOBOX RAIL UPPER CLAMP	1
9	SOLOBOX RAIL LOWER CLAMP	1
10	35mm x 7.5mm SLOTTED DIN RAIL	1
11	WEEPHOLE PLUGS	3
12	SOLOBOX RAIL BOTTOM	1
13	INSERT, 0.25-20 PRESS FIT TWIST RESISTANT	1

Other typical components (not included with SOLOBOX RAIL)

- 1/2" 1" Conduit Hub/Fittings
- 14 AWG 6 AWG (PV/THHN Wire)
- 14 AWG 6 AWG (Ground Wire)
- Terminal Blocks, fuse holder, rail stop and/or end plates
- Standard Wire Nuts
- Push-In Wire Connectors
- Grounding Lugs
- Conduit Hub Grounding Bushings

SPECIFICATIONS & RATINGS INSTALLATION GUIDE PAGE

SOLOBOX RAIL Specifications and Ratings

- Product Certifications:
 - UL 1741
- Enclosure Rating: Type 3R
- Maximum Voltage: 1000 Volts
- Maximum Current: 80 Amps
- Maximum Current per Circuit: 60A
- Maximum number of Input Circuits: 8
- Allowable Wire:
 - Inputs: 14 AWG 6 AWG
 - Outputs: 14 AWG 6 AWG
 - Ground: 14 AWG 6 AWG
- Mounting Positions:
 - On Roof: Slope Range: 1:12 12:12
- Max Side Wall Fitting Size: 1"
- Ambient Operating Conditions: -35°C to 75°C
- Wire connectors requirement:
 - UL486C, UL486D, or other applicable standard listed wire connectors for wire gauge 14 AWG to 6 AWG



DO NOT EXCEED MAXIMUM VOLTAGE, CURRENT OR FITTING SIZES. FAILURE TO DO SO COULD RESULT IN SERIOUS INJURY, DEATH, OR PROPERTY DAMAGE.



ALL CONDUIT HUBS AND CABLE FITTINGS MUST BE RAINTIGHT, RATED FOR WET LOCATIONS, AND COMPLY WITH THE UL 514B STANDARD FOR CONDUIT, TUBING AND CABLE FITTINGS.

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STEP 1: POSITION SOLOBOX ON RAIL:

- 1.1 Place SOLOBOX clamp onto the rail at desired location.
- 1.2 Ensure the bottom face of the SOLOBOX is parallel to the roof surface.

PRO TIP: It can be easier to install cable fittings into the box before securing box onto the rail.



SOLOBOX FRONT SIDE FACES DOWNSLOPE

WEEPHOLE PLUGS INSTALLATION

• Weephole plugs can be installed either before or after the SOLOBOX is secured to the rail.



1.3 Secure SOLOBOX in position by tightening the screw on the clamp.



Ensure the SOLOBOX mounting rail is grounded.



SOLOBOX FRONT SIDE FACES UPSLOPE

WEEPHOLE PLUGS INSTALLATION (CONT.)

• Insert the plugs into two upslope weepholes of SOLOBOX from outside as shown above.

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STEP 2: CABLE FITTING LOCATIONS

Install outdoor-rated, UL514B, NEMA 3R approved fittings and/or strain reliefs to the side walls as mentioned above and complete wiring installation. Raintight fittings up to 1" are acceptable.

Bonding between conduit connections is NOT automatic and must be provided as a part of the installation.



STEP 3: PROVIDE CONNECTIONS

Install the appropriate wire connectors, terminal blocks, and/or other necessary components inside the SOLOBOX.



Ensure that terminal blocks never contact conduit hubs.

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STEP 4: DIN RAIL INSTALLATION

Din rail can also be installed into a box at site if it is not pre-assembled. Din rail should be positioned as shown in the image and secure it with two (2) $#10-16 \times .5$ " thread forming screws.





STEP 5: CLOSE LID:

Once all connections are securely placed inside the box, close the lid. Hand tighten the screw into bottom of box until the top and bottom tabs are flush and secured.

Torque Grounding Bar Terminals to 2.2 ft-lbs (3 N-m)

APPLY LABEL (OPTIONAL)

- Fill all the information on the label.
- Affix the QA/QC label at the indicated location in the figure