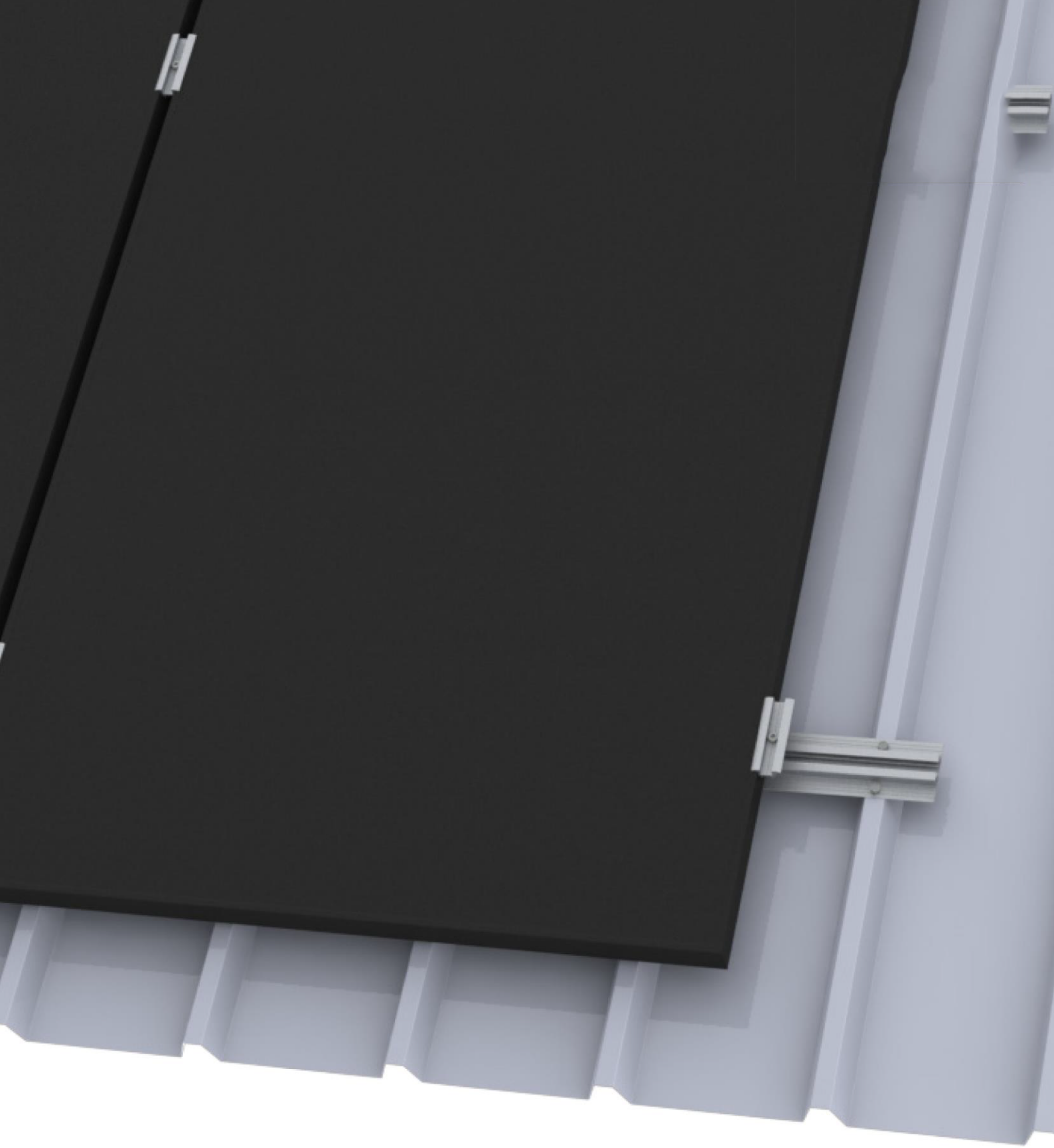


Installation Manual

Easy Mount Alu Base
Clad Roof
80

Safe
Solar
Solutions

GARO®

Table of contents

The aim of this installation manual is to outline the practical guidelines for the correct installation of a specific type of BISOL EasyMount mounting system. You will benefit from top quality EU-made solutions which offer a quick and easy installation, reductions in installation time and long time performance. Please read the entire manual before commencing the installation work. Pay special attention to the Safety and Liability information which can be found at the end of this manual. Our team of experts is at your disposal for any inquiries regarding the use of BISOL products.

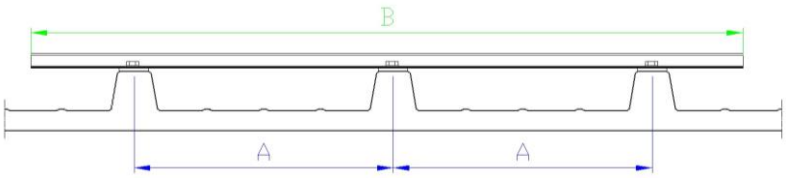
PRODUCT INFORMATION

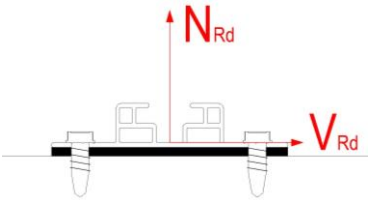
BISOL EasyMount ALU Rail 80 is a versatile solution suitable for all types of trapezoidal metal sheet roofs and designed to fit all wave angles and dimensions. This system is compatible with all module sizes and allows portrait and landscape module orientation with no additional material required. BISOL EasyMount ALU Rail 80 is made to withstand high wind and snow loads and provides high shear and pull-out resistance. Its simplicity and modularity allows for a quick and easy installation.

Technical Specs

Application	Pitched roofs with trapezoidal metal sheet (minimal thickness 0.6 mm)
Trapezoidal wave type	All trapezoidal wave dimensions and angles
Method of installation	Directly into the metal sheet
Module orientation	Portrait or landscape
Module frame tolerances	Suitable for all framed module dimension
Material	Aluminum EN-AW 6060 T5 (ALU Rail 80) / Stainless steel (fastening elements)
System weight	0.005 kN/m^2 (without PV module)
Dimensions	Width: 80 mm / Height: 15 mm / Length: 450 mm or 530 mm or 730 mm

Distance between two waves (A)	Length of ALU Rail 80 (B)
Up to 21 cm (8.3″)	450 mm (1′5.7″)
21 (8.3″) – 25 cm (9.8″)	530 mm (1′8.9″)
25 (9.8″) – 35 cm (1′1.8″)	730 mm (2′4.7″)



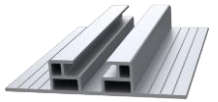
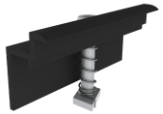
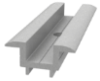


Pull out and shear resistance for self-drilling screws DIN7504 5.5x25 depending on type of trapezoidal sheet:

Design resistance of self-drilling screw DIN7504 5,5x25 and steel trapezoidal metal sheet								
Trapezoidal metal sheet thickness [mm]	**0.60**	**0.63**	**0.75**	**0.88**	**1.00**	**1.13**	**1.25**	**1.50**
Pull-out design resistance [N_{Rd} in kN]	0.32	0.34	0.50	0.74	0.93	1.09	1.26	1.26
Shear design resistance [V_{Rd} in kN]	0.53	0.65	0.80	0.93	0.96	0.96	0.96	0.96

Design resistance of self-drilling screw DIN7504 5,5x25 and aluminum trapezoidal metal sheet								
Trapezoidal metal sheet thickness [mm]	**0.70**	**0.75**	**0.80**	**0.90**	**0.95**	**1.00**	**1.20**	**1.50**
Pull-out design resistance [N_{Rd} in kN]	0.17	0.19	0.21	0.25	0.27	0.29	0.39	0.54
Shear design resistance [V_{Rd} in kN]	0.45	0.50	0.55	0.66	0.72	0.77	1.02	1.42

LIST OF BASIC COMPONENTS

Product code		Components included in the set (all components available as options for individual order)	
	EasyMount ALU Rail 80 x 450 mm set **SEKP-EMRL80_450** EasyMount ALU Rail 80 x 530 mm set **SEKP-EMRL80_530** EasyMount ALU Rail 80 x 730 mm set **SEKP-EMRL80_730**	EasyMount ALU Rail 80 x 450 mm, SEKP-EMRL80_450 (1 pc) EasyMount ALU Rail 80 x 530 mm, SEKP-EMRL80_530 (1 pc) EasyMount ALU Rail 80 x 730 mm, SEKP-EMRL80_730 (1 pc)	
		EPDM rubber insert 3 mm self-adhesive, L=30 mm W=80 mm, SEKP-EPDMR_80_30 (3 pc)	
		Screw self-drilling 5.5 x 25 with washer, SEK-DIN7504_5525 (6 pcs)	
 	Clamp end EasyMount, preassembled **SEKP-EMEC**[(1)] Clamp end EasyMount, black, preassembled **SEKP-EMEC_B**[(1)]	Clamp end EasyMount, SEK-EMEC (1 pc) Clamp end EasyMount, black, SEK-EMEC_B (1 pc)	
		Screw Inbus M8x45 A2-70, SEK-DIN912_8_45 (1 pc)	
		Nut rhomboidal M8, SEK-ZPL8 (1 pc)	
		Spring EasyMount, SEK-EMS_40 (1 pc)	
 	Clamp middle EasyMount, preassembled **SEKP-EMMC**[(1)] Clamp middle EasyMount, black, preassembled **SEKP-EMMC_B**[(1)]	Clamp middle EasyMount, SEK-EMMC (1 pc) Clamp middle EasyMount, black, SEK-EMMC_B (1 pc)	
		Screw Inbus M8x45 A2-70, SEK-DIN912_8_45 (1 pc)	
		Nut rhomboidal M8, SEK-ZPL8 (1 pc)	
		Spring EasyMount, SEK-EMS_40 (1 pc)	
	Grounding plate EasyMount **SEK-EMGP**		

[(1)]BISOL EasyMount end and middle clamps are available in a variety of colours (black, RAL 1036, RAL 4007, RAL 4004, RAL 6003, RAL 6009, RAL 7011, RAL 8017) for use with BISOL Spectrum coloured PV modules.

LIST OF REQUIRED TOOLS

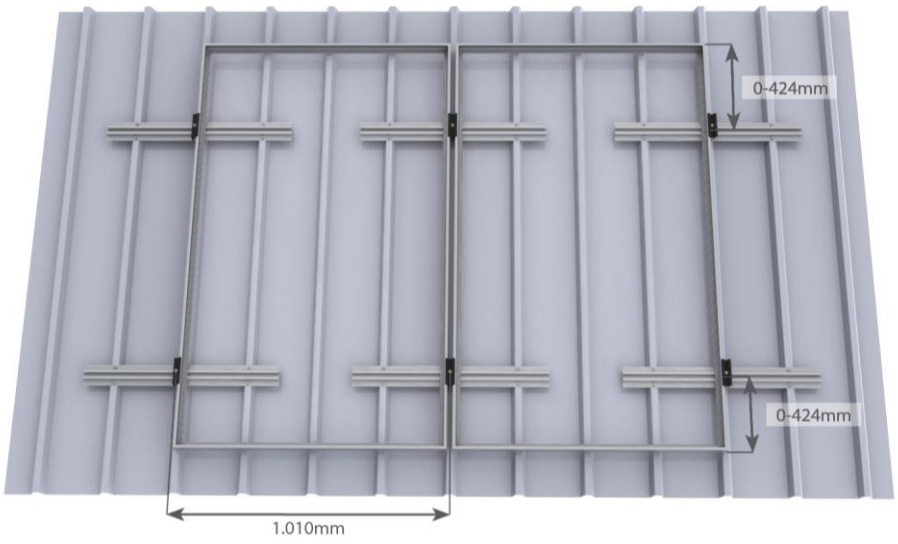
	Hexagon wrench (size 6; torque range 5 Nm – 20 Nm)
	Tape measure
	Electric drill with drill bit for aluminium (size 4) and with adapter for screw 5.5

MOUNTING INSTRUCTIONS

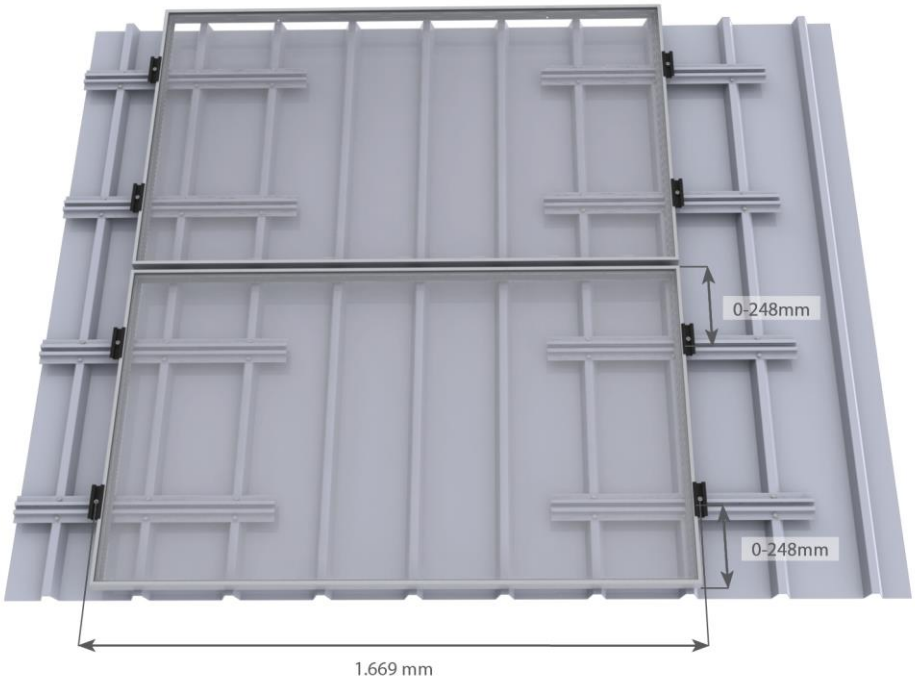
STEP 1 – DESIGNING THE PV SYSTEM AREA

The ALU Rail 80 solution allows PV module installation in both portrait and landscape. The layout examples below are shown for use with BISOL standard size PV modules. Please follow the guidelines of specific manufacturers when using other PV module brands.

PORTRAIT INSTALLATION:



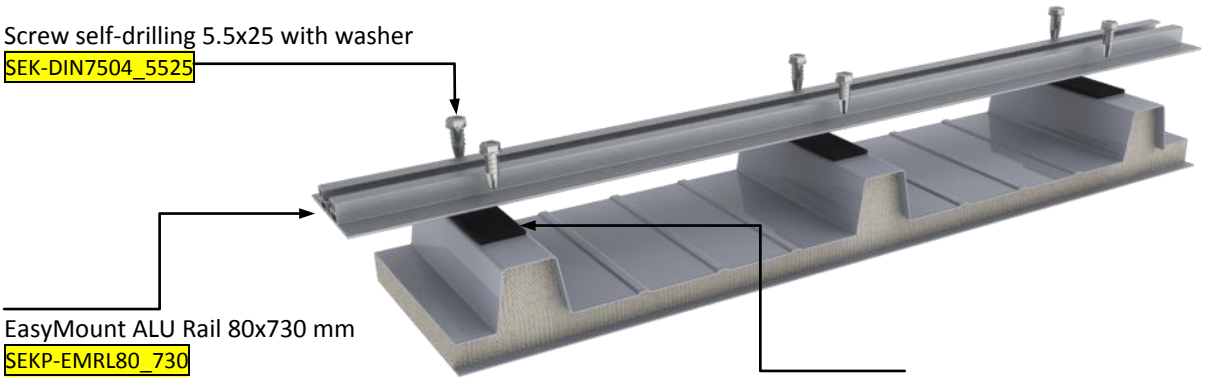
LANDSCAPE INSTALLATION:



STEP 2 – MOUNTING THE ALU RAIL 80

The BISOL EasyMount ALU Rail 80 must be mounted across three adjoining waves.

1. Place one EPDM strip on top of each of the three adjoining waves where the ALU Rail 80 will be attached, to protect the roof surface.
2. Fix the ALU Rail 80 to the trapezoidal waves with six self-drilling screws DIN7504 5.5x25 (two screws per each wave).



STEP 3 – FIXING THE PV MODULES WITH CLAMPS

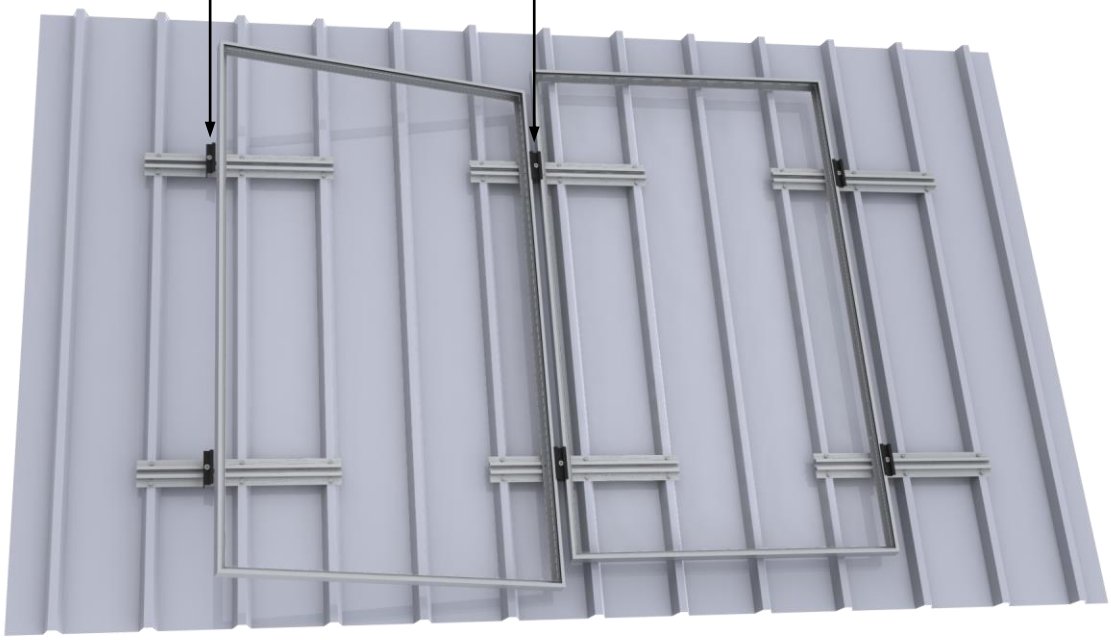
The end and middle clamps are delivered pre-assembled. End clamps are used at the ends of each row, while middle clamps are used to fixate two adjoining modules in the same row.

Please check and follow national regulatory requirements for grounding.

1. Insert the M8 threaded plate part of the clamp into the top slot of the ALU Rail 80 and rotate by 90°. The spring will keep the clamp in place until the module is placed.
2. Insert the PV module and fix the clamps applying a torque of 15 Nm.

Clamp end EasyMount, pre-assembled
SEKP-EMEC
Clamp end EasyMount, black, pre-assembled
SEKP-EMEC_B

Clamp middle EasyMount, pre-assembled
SEKP-EMMC
Clamp middle EasyMount, black, pre-assembled
SEKP-EMMC_B



SAFETY AND LIABILITY

The sole purpose of this installation manual is to demonstrate the installation of BISOL EasyMount mounting systems, therefore PV module installation guidelines and related safety precautions are not a part of this manual. For guidelines on how to safely and effectively install BISOL PV modules please refer to the manual available at http://www.bisol.com.

All installation work must be carried out by a specialized company with qualified personnel. Strict safety and accident prevention measures as defined by relevant regulations must be carried out and should be known to the installer. Appropriate protective equipment for work at height must be used throughout the installation process. The installer carries all responsibility for PV system dimensioning, static calculations of the roof, weather and environmental conditions at location, proper selection and use of components and their mounting. The installer is responsible for the mechanical durability and water tightness of the installed interface connections at the building surface. All safety warnings outlined in this manual are to be closely considered.

Although electrical connections are strictly not part of this manual, some safety warnings are in place. PV modules and mounting structure must be grounded even when the site is already equipped with lightning protection. PV modules are under high voltage and generate electrical current even in low light conditions. When modules are connected in series, life-threatening voltage is present at the end of the terminals. Open circuited branches can cause electric arc when in touch with conductive surface. Electrical installations must not be carried out in case of dampness.

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Environment Management System
Reg.-No. CH08/0739.0/1996

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