

E-Port Home Premium Installation manual



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# 1. Introduction

## 1.1 Brief Description

The E-Port Home Premium is a robust single carport for the installation of up to 6 solar modules (2278x1134x35 mm) on the roof. The scope of delivery consists of the basic structure in the form of steel profiles and all the necessary small parts for mounting the modules on the trapezoidal sheet. In addition, a roof edging and a drainage system is included.

## 1.2 About the Guide

#### Subject

These instructions describe the assembly of the E-Port Home Premium and the mounting of the solar modules to the trapezoidal sheet metal. Furthermore this manual contains system-specific information on planning, safety instructions and a list of the components to be installed. It is essential that you read these installation instructions as well as all other applicable documents before assembly, maintenance and disassembly work. You will find all the information for safe and complete assembly, maintenance maintenance and disassembly. Should any questions arise, please contact Mounting Systems GmbH.

#### **User Group**

These installation instructions are intended for the following persons (user group):

- Skilled personnel
- Instructed personnel

#### **Skilled Personnel**

Skilled personnel are people who are able to execute installation, maintenance and disassembly work properly on the basis of their rofessional training.

#### **Instructed Personnel**

Instructed personnel are person who have been instructed and taught appropriately regarding the assigned tasks and the possible risks in the event of improper conduct. An instructed person must have received instructions regarding the required safety devices, precautions, relevant regulations, accident prevention regulations as well as operating conditions and must have demonstrated their competence. The implemented work must be inspected and accepted by skilled personnel.

#### **Guidance Notes**

The following guidance notes enhance the orientation when handling this installation manual:

#### **Pictograms:**



This symbol indicates important information and useful tips.



This Symbol indicates ways and means to make the installation process easier

## 1.3 Warnings

The following warnings are used in these Installation Instructions to indicate safety-related information.

They include:

- Warning symbols (pictograms)
- Signal words that identify the hazard level
- Information about the type
  and source of the hazard
- Information about the potential consequences if the hazard is disregarded
- Measures for the prevention of hazards and the prevention of injuries or damage to property

The signal words of the warnings respectively indicate one of the following hazard levels:



Indicates a potentially mortal danger, disregard for which may result in death or serious injury.



Indicates a potentially dangerous situation that may result in serious injury or damage to property.

## 1.4 Safety

All universally valid safety instructions for products of Mounting Systems GmbH are listed in the document "Installation manual for PV mounting systems – general part".

Please read this document carefully and observe the instructions given within: Do not use the product in a manner other than intended, comply with the obligations of the owner and observe all general and specific safety instructions.

In addition, please observe the specific safety instructions given in this installation manual for all installation work. The specific safety instructions are positioned in each case directly with the respective installation step.



# 2. Technical Description



#### **E-Port Home Premium Components:**

- 1. Right longitudinal beam (5123mm)
- 2. Left longitudinal beam (5123mm)
- 3. Front crossbeam (3704mm)
- 4. Left low pole (2375mm)
- 5. Right low pole (2375mm)
- 6. Left high pole (2900mm)
- 7. Right high pole (2900mm)
- 8. Crossbeam with gutter (3704mm)
- 9. Crossbeam (3614mm) (under the trapezoidal sheet)
- 10. Trapezoidal sheets (960x5170x0,70mm) (under solar modules)
- 11. Module Mounting Kit

## 2.1 Components

Check all component of the delivered goods from 1 to 35 for completeness.



Nr.	Quantity	Name
1	1	Right longitudinal beam (5123mm)
2	1	Left longitudinal beam (5123mm)
3	1	Front crossbeam (3704mm)
4	1	Left low pole (2375mm)
5	1	Right low pole (2375mm)
6	1	Left high pole (2900mm)
7	1	Right high pole (2900mm)
8	1	Crossbeam with gutter (3704mm)
9	5	Crossbeam (3614mm)
10	8	Threaded sheet 120 x 55 x 10
11	2	Water drain
12	4	Trapezoidal sheet TRB 45, 960 x 5170 x 0,70, RAL 7016
13	12	Screw M16 x 200, DIN 933
14	16	Screw M16 x 30, DIN 933
15	20	Screw M12 x 25, DIN 933
16	4	Screw M8 x 20, DIN 933
17	6	Drilling screw 5,5 x 25 mm
18	20	Nut for M12, DIN 934
19	4	Nut for M8, DIN 934
20	28	Spring washer for M16, DIN 127
21	20	Spring washer for M12, DIN 127
22	28	Washer for M16, DIN 125
23	40	Washer for M12, DIN 125
24	8	Washer for M8, DIN 125
25	85	Drilling screw 5,5 x 19 mm
26	2	Led cover for low pole, L = 2 152 mm
27	2	Led cover for high pole, L = 2 674 mm
28	2	PVC-Pipe Ø50 mm, L = 1 750 mm
29	4	PVC-elbow, 30 Grad, Ø50 mm
30	2	PVC-elbow, 45 Grad, Ø50 mm
31	2	PVC-elbow, 67 Grad, Ø50 mm
32	6	Pipe clamp for PVC pipe Ø50 mm
33	4	Set of LED modules for high pole
34	4	Set of LED modules for low pole
35	1	Module Mounting Kit 720-1747 (Frame height 33-45)

# 3. Foot Posture Planning

Measure the position of the supports and mark them in the previously prepared foundations.



Assembly Step:

 Later, attach the 4 feet to the concrete foundation using 3 anchor bolts M16 x 200 (13) to the concrete foundation. (see 4.1 - 3)

#### **Tightening Torques:**

• Wedge anchor M16 - 110Nm

# 4. Assembly of Rafters and Poles

## 4.1 Fixing the Poles

Please remove the LED cover and downpipe from the poles before you start assembling the carport.

Place the right low pole (5) and the right high pole (7) and the right longitudinal beam (1) next to the two supports according to the desired orientation.

#### Assembly Steps:

 On the floor, attach the right low pole (5) to the right longitudinal beam (1) with two M16x30 screws (14), two washers (22), threaded sheet (10) and two spring washers for M16 (20).



 On the floor, attach the right high pole (7) to right longitudinal beam (1) with two screws M16 (14), two washers (22) and a threaded sheet (10) with spring washers (20).



 Then fasten the right low pole (5) and the right high pole (7) using three screws M16x200 (13) on the concrete foundation.



















Insert the crossbeam with gutter(8) with the connection of the gutter into the left low pole (4).



Separately, attach the left low pole (4) to the crossbeam with gutter (8) with two M16x30 screws (14), two washers (22) and threaded sheet (10) and two spring washers (20).

•



Attach the crossbeam with gutter (8) to the right low pole (5) with two washers (22), threaded sheet (10) and two spring washers (20).



Separately, attach the left high pole (6) to front crossbeam (3) with two M16x30 screws (14), two washers (22), threaded sheet (10) and two spring washers (20).



 Fasten the cross front crossbeam (3) with the right high pole (7), two M16x30 screws (14), two washers (22), one threaded sheet (10) and spring washers (20).



 Attach the left high pole (6) to the left longitudinal beam (2) with two M16x30 screws (14), two washers (22), one threaded sheet (10) and two spring washers (20).



 Attach the left low pole (4) to the left longitudinal beam (2) with two M16x30 screws (14), two washers (22), one threaded sheet (10) and two spring washers (20).









For the correct position of the supports (4) and (6), the diagonal (see point 3) should be measured. Attach the support to the position position defined by you, with the anchor bolts M16x200 (13) provided for this purpose in the previously prepared foundations.

**Tightening Torques:** 

• Wedge anchor M16 - 110Nm





4.2 Fastening the Crossbeams

Crossbeam 5 pieces (9)



Fasten the cross crossbeam (9) to the right longitudinal beam (1) and (2) with four M12 screws (15), four washers (23), four nuts (18) and four spring washers (21) per crossbeam (9).



# 5. Trapezoidal Sheet Mounting





## 5.1 Fixing the Trapezoidal Sheet

Assembly Steps:

- Place the trapezoidal sheets (12) on the crossbeams (9). Make sure that each sheet overlaps with at least one bead.
- Leave space at the bottom edge and side edge for the rain gutter.

• Fasten the four trapezoidal sheets (12) to the crossbeam (9) in the deep beadings using the M5.5x19 drilling screw (25).

Screw-in speed max. 1800 U/min







# 6. Downpipe



Fasten the pipe clamps (32) with the drilling screw 5,5x25 (17) to the right and left low poles (4,5).

- Guide the pipes (28,29,30 and 31) through the opening in the right and left low poles (4,5).
- Attach the preassembled pipe (28,29,30 and 31) to the discharge funnel.
- Fasten the water drain (11) with two screws M8x20 (16), two nuts (19) per left and right low pole (4,5) and two washers (24).

Fasten the pipes (28,29,30 and 31) with three pipe clamps (32) per left and right low pole (4,5).

# 7. LED / Lighting

j l

Lamps Installation

# 7.1 LED Cover

The electrical installation of the LED lamps should only be carried out by a qualified electrician.

#### Assembly Steps:

- Mount the LED bulbs according to the description from the manufacturer.
- Insert the left side of the LED cover (26 and 27) first into the opening of any poles.
- Bend in the other side of the LED plastic cover (26) and (27) until you hear an audible click.







# 8. Planning the Module Area for a Portrait Layout of the Modules

For vertical installation, the profile rails are fastened to the deep beads of the trapezoidal sheet using trapezoidal fasteners. The trapezoidal fasteners must be mounted at defined intervals, depending on the material and thickness of the trapezoidal sheet, the deep bead spacing, the consideration of the edge area and the static conditions<sup>\*</sup>. The design is carried out with the aid of a configuration tool or via project-related static verifications.

The trapezoidal fasteners should be placed so that they are as close as possible to the module clamps, taking into account the points mentioned above.

When positioning the trapezoidal fastener, make sure that:

 the dimensions given are approximate and the dimensions of the trapezoidal sheet and the deep beads in relation to each other define the true distance horizontally.



2

Height of the module field: nMV x ML + (Total gap dimension, if needed)

- Width of the module field:: nMH x (MW + 19 mm) + 2 x 41 mm - 19 mm
- nMV Number of modules vertical nMH Number of modules horizontal
- 3 Distance of the base rail vertically (according to the clamping points defined by the module manufacturer) approx. quarter points of the modules = 1/2 x module length
- 4

Distance between the modules = 17–19 mm

Module length (ML)

Module width (MW)

41 mm overlap of the rail for fastening the end clamps

Design according to local conditions in accordance with Eurocode 1-DIN EN 1991-1-1/ Eurocode 9-DIN EN 1999-1-1 required



# 9. Installing Rails for Portrait

#### **Portrait Orientation**

Trapeze ProLine rail 32 mm high



## 9.1 Installation - Single Layer Substructure

#### Mounting Steps:

- check seat of the rails against the module clamp specification
- Use 4 screws per rail. In order to prevent waterpenetrating between the mounting rail and the roof cover, always mount the rail on the corrugation peak.
- The rail is predrilled for the customary corrugation width of 173 mm to 333 mm.
- An EPDM sealing strip is affixed below.





Attention!

ositioning in line with the structural equirements and installation conditions

Alignment of metal roof mounting rails with plumb line









Complete the installation of the bottom rai.

# 10. Mounting Modules in Portrait Orientation

The modules are mounted to the rails one by one. Mounting Systems GmbH recommends mounting the modules starting from one side. Module clamps and module end clamps are used for the fastening of the modules. The module end clamps can hold one module each. The module clamps are positioned between two modules.

## **10.1 Fixing Clickstones**

Clickstones are used for the installation of the modules. The Clickstone is a special clip with which the module clamps are fastened to the rail. You only need an Allen key (5 mm) for the mounting. You can insert the Clickstone from above into the channel of the rail

**Mounting Steps:** 

- Insert the Clickstone at a slight angle into the rail channel.
- Push the Clickstone down. Make sure you hear the Clickstone clicking into the rail.
- Tighten the hexagon socket screw to 8 Nm.



# Note

The Clickstone shape corresponds exactly to the rail channel profile. The Clickstones are constructed so that it is not easy to move them sideways, so they don't slide away. In order to shift the Clickstone, press the screw down lightly and slide the component in the rail channel, pressing on it gently.

## 10.2 Fixing the Modules From the Outside

Edge modules in a PV arrangement (and for a vertical installation – the outermost left and right module column) are fixed from the outside using two edge clamps per module.

#### Mounting Steps:

- Apply an external module and position it correctly. Leave 41 mm of free rail length protruding towards the outside of the field.
- Insert the Clickstone for the end clamp into the rail channel.
- Slide the module end clamp all the way to the frame.
- Tighten the screw (torque: 8 Nm), the module is clamped.



## Attention! Material damage due to

Material damage due to incorrect installation.

Modules fixed the wrong way may fall and become damaged.

Make sure the Clickstones are fixed properly. Slide the module all the way to the end clamp. When tightening screws, adhere to the indicated torque values. After installation make sure that the module is fixed well.







#### 10.3 Fixing the Modules From the Inside

Always fix two module clamps between modules.

#### Mounting Steps:

- Embed the Clickstone of the end clamp in the profile rail channel.
- Slide the module clamp all the way to the frame of the module already installed.
- Slide the second module to the module clamp; lay out properly.
- Tighten the screw (torque: 8 Nm), so the module is properly fixed.

#### Attention!

Material damage due to incorrect installation

Modules installed the wrong way may fall and become damaged.

Make sure the Clickstones are fixed properly. Slide the module all the way to the end clamp. When tightening screws, adhere to the indicated torque values. After installation make sure that the module is fixed well.













