Mounting systems for solar technology

ASSEMBLY INSTRUCTIONS
S-LEVEL 2.11 SYSTEM

GB

TABLE OF CONTENTS

PARTNER WITH A SYSTEM

With sophisticated, fully developed product ideas and obvious customer-orientation, K2 Systems is your friendly partner in the field of mounting systems for solar technology. International customers appreciate the tried and tested designs for use on roofs and in outdoor and individual solutions.

Mounting systems from K2 Systems impress with their attractive design and many well thought-out details. High grade materials and quality workmanship guarantee outstanding functionality and durability.

Our products consist of few yet perfectly matching components - this reduces the amount of material used, simplifies assembly while saving time and money.

As an energetic, experienced company, and in keeping with the times, we benefit from cooperation as partners in order to ensure the dynamic development of our company. The experiences from the personal dialogue with our customers forms the basis for permanent optimisation of our range of products.The team of K2 Systems looks forward to a successful cooperation with you.

TESTED QUALITY – FOUR CERTIFICATIONS

K2 Systems stands for secure connection, highest quality and precision. Our customers and business partners have already known that for a long time. And three independent institutes have tested, confirmed and certified our capabilities and components.

GENERAL SAFETY INSTRUCTIONS

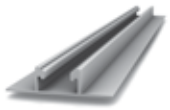
Please be aware that our General Assembly Regulations must be adhered to.
They can be viewed under **www.k2-systems.com/en/downloads/product-information.html**

In general, the following applies:

- Systems may only be installed and put into use by people who can ensure the proper carrying-out of the work due to their technical suitability (e.g. training or occupation) and/or experience.
- Before assembly, it must be checked that the product meets the local static requirements. For roof systems, the load-bearing capacity of the roof has to be checked in principle.
- National and local building regulations, standards and environmental regulations are always to be adhered to.
- Work safety and accident prevention regulations and corresponding standards and regulations of occupational associations are to be adhered to! In particular, it is to be ensured that:
  - Safety clothing is worn (especially safety helmets, work shoes and gloves).
  - For work on roofs, the regulations for working on roofs are to be adhered to (e.g. use of anti-fall guards, scaffolding with arrestor equipment from an eaves height of 3m etc.)
  - Presence of two people is vital for the entire course of the assembly, so that swift help can be ensured in the case of an accident.
- K2 mounting systems are constantly being developed further. Because of this, assembly procedures can change. Therefore, before assembly, always check that the assembly instructions are up-to-date under **www.k2-systems.com/en/downloads/product-information.html**. We can also send you the latest version on request.
- The assembly instructions of the module manufacturer are to be adhered to.
- The grounding must be prepared on site (if necessary use lightning protection clamp).
- During the entire assembly time it is to be ensured that at least one copy of the assembly instructions is available on site.
- In the event of non-adherence to our General Safety Instructions and if competitor's parts are built in or attached, K2 Systems GmbH reserves the right to refuse liability.
- With disregarding our general installation and assembly instructions and not using all system components and assemblies according to these instructions as well when components are used, which were not obtained from us, K2 Systems is not liable for any resulting defects and damages. Warranty is excluded in such cases.
- If all safety instructions are adhered to and the system is correctly installed, there is a product warranty entitlement of 12 years! In this context we strongly recommend to also read our terms of guarantee which can be viewed under www.k2-systems.com/en/downloads/product-information.html. We can also send them to you on request.
- The dismantling of the system takes place according to the assembly steps, in reverse order.
- K2 components made of stainless steels are available in different corrosion resistance classes. In every case,the expected corrosion exposure of each structure or component must be checked.

ESSENTIAL: THE MATERIALS REQUIRED

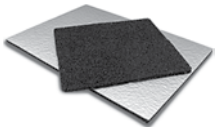
All system components listed in the following are essential for assembling the K2 Systems S-Level System 2.11. The piece quantities are calculated on the basis of the respective requirements. The listed item numbers facilitate the comparison of items.



FlatRail 22; 6,10 m | 1000169

Material: Aluminium

Alternative: SpeedRail | 2,10 m 1003933
| 4,20 m 1003379
| 6,10 m 1001163



Building protection mat 6 mm | 1006200

Material: PUR bound rubber granules with aluminium triplex foil, laminated

Alternative: Building protection mat 6 mm | 2000084
Material: Unlaminated PUR-bonded rubber granulate

Alternative: Building protection mat 20 mm | 1006199
Dimensions: 1200x100 mm

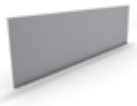
The respective use of a laminated or unlaminated building protection mat depends on the material of the roof membrane and must thus be checked on site.

Rail Connector Set Flat-Rail/SpeedRail | 1006039

Material: Aluminium

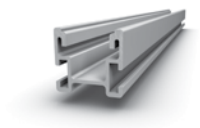
S-Level Triangle Set, pre-assembled at 20° | 981 - 1001 mm 1006113

(Set consisting of S-Level Angle Set, M8 hexagon socket screw, M8 self-locking nut, K2 slot nut, Climber 62/90, S8 locking washer, self-tapping screw with sealing washer)
Material: Aluminium



S-Level Windbreaker 20° | 981 - 1001 mm 1005653

Material: Aluminium



Mounting Rail CrossRail 36

Material: Aluminium

| 2,10 m 1004369
| 3,40 m 1002933
| 4,25 m 1002934
| 6,10 m 1001932

Rail Connector Set CrossRail 36

Material: Aluminium

| 1002389

Module End Clamp Standard

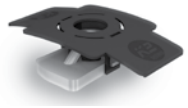
Material: Aluminium

| item number system-specific

AddOn

Material: glas fibre reinforced polyamid

| 1002792



M K2 slot nut with clip

Material: stainless steel, plastic

| 1001643

Allen Bolt DIN 912 M8

Material: stainless steel

| item number system-specific

Washer

Material: stainless steel

| 1000473

Optional: K2 Scale Set

Folded Sheet metal as fixable support to take ballast;
can be placed onto FlatRail and SpeedRail.
Material: Aluminium

| 1005416

AT A GLANCE: OVERVIEW OF THE TOOLS

K2 Systems mounting systems are designed to ensure effortless assembly. Only the tools that are required are not included in the scope of supply. Here we have listed them together for ease of reference.

Torque wrench

With attachment for SW 6, SW 13

Chalk line or guide line

Measuring tape

Percussion drill

With 8 mm diameter drill bit

S-LEVEL SYSTEM 2.11 ASSEMBLY: STEP BY STEP

In order to ensure safe and proper assembly of the system, please first read through the entire assembly instructions and check the technical requirements for the system.

¬ The General Assembly Instructions must be adhered to. These can be viewed at:
www.k2-systems.com/en/downloads/product-information.html

Technical Requirements:

¬ The S-Level System 2.11 can be installed on all standard flat roofs with pressure-resistant carrier materials with a maximum pitch of 5 °. The structural requirements of the roof must be checked on-site in detail.

¬ At least 1 row of two modules must be installed consecutively in order to use this system.

¬ The layout including requirements of additional ballast has to be planned and calculated using the K2 Base software layout tool or by an employee of the K2 technical sales department. The report is the basis for any further structural analysis and certification.

Technical information for the assembly of the S-Level System 2.11:

¬ If necessary, paving stones can be placed as ballast on the K2 Sfolded sheet metal item designed to take the ballast of the elevated systems, alternatively they can be placed on the K2 FlatRail or K2 SpeedRail.

¬ A building protection mat should be placed between the roof surface and the bottom of the FlatRail or SpeedRail to act as a protective separation layer. The rails are placed onto the building protection mat without penetration; in doing so, make sure the aluminum coating of the mats face downwards.

¬ The minimum distance from the roof edges must be at least 500 mm.

¬ The S-Level System is suitable for all modules with a frame height of 35 - 50 mm; please contact the technical sales department when using frameless modules.

¬ For assembly with the AddOn, only standard clamps may be used as fixtures; the K2 XS clamp variations and the K2 Clamp Sets do not work here.

For further questions about the system, contact us on our

SERVICE-HOTLINE: +49 (0) 7152-3560-0

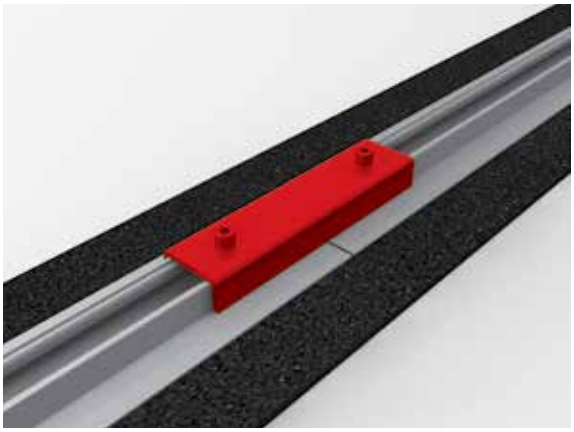
S-LEVEL SYSTEM 2.11 ASSEMBLY: STEP BY STEP

1 of 12

PLACE FLATRAIL

These assembly instructions only apply to flat roofs.
The S-Level System 2.11 has an elevation angle of 20 °.
It is recommended to use a **separation layer in the form of a building protection mat** to protect the roof surface.
The building protection mat is installed with the aluminum coating clad side facing downwards. The FlatRail is placed directly on the separation layer without roof penetration.
A parallel distance of 1.59 - 1.67 m between the individual FlatRails is recommended for a later installation of the Standard Windbreaker.
Between the building protection mats a spacing of approx. 10 cm must be kept, to allow accumulated water to drain away.

Materials required: FlatRail, K2 Systems building protection mat



2 of 12

ASSEMBLE RAIL CONNECTORS

Two FlatRails are connected at the rail joint with the rail connector. This fixes the Flat-Rails in longitudinal direction. Insert both M K2 nuts in the rails and turn 90 ° clockwise to lock. Assemble rail connectors with two M8 hexagon socket screws and one locking washer each. Maximum continuous length of the FlatRail is 18.30 m.

Tightening torque 16 Nm.

Materials required: Rail Connector Set FlatRail

3 of 12

OPEN UP S-LEVEL TRIANGLE AND ASSEMBLE

Loosen pre-assembled screw on S-Level triangle and open back support by 90°. Assemble triangle at 90° angle with two M8 hexagon socket screws, locking washers and self-locking nuts.

Tightening torque 16 Nm.

Materials required: S-Level Triangle Set

4 of 12

ASSEMBLY OF S-LEVEL TRIANGLE ON FLATRAIL

Assemble S-Level Triangle onto FlatRail with the MK 2 nuts and M8 screws. Insert M K2 nuts in the rail and turn 90 ° clockwise until they lock. Assemble triangle with two M8 hexagon socket screws each with one locking washer. Mark the correct alignment and shading distance of the respective rows with a chalk line or guide line.
The recommended **parallel distance between the triangles is 1.59 to 1.67 m** corresponding to the distance between the FlatRail or SpeedRail.

Tightening torque 14 Nm.

Materials required: S-Level Triangle Set

5 of 12

ASSEMBLE THE CROSSRAIL LOWER MODULE MOUNTING RAIL

The bottom end of the triangle has a threaded insert where the K2 Climber is used to mount CrossRail to the triangle. Attach the Climber to the triangle using an M8 hexagon socket screw using a locking washer below the screw head, then insert the CrossRail and screw it into place afterwards.

Maximum continuous length at a time is 18,30 m.

Tightening torque 16 Nm.

Materials required: CrossRail 36, K2 Climber, DIN 912 M8 hexagon socket screw, locking washer

6 of 12

ASSEMBLE THE CROSSRAIL UPPER MODULE MOUNTING RAIL

The triangle has an elongated borehole in the upper area in order to enable assembly for different module widths.
The CrossRail is mounted on the triangle using the K2 Climber.
To do this, fasten the Climber to the S-Level Triangle with an M8 hexagon socket screw and a locking washer below the screw head and insert the CrossRail afterwards.
The screw is tightened on the bottom of the triangle with an M8 locking nut.
Set the desired distance (module width + 19 mm) of both CrossRails (see Fig. 1: Measuring of CrossRail distance).
Tightening torque 16 Nm.

Materials required: CrossRail 36, K2 Climber, DIN 912 M8 hexagon socket screw, locking washer, M8 self-locking nut

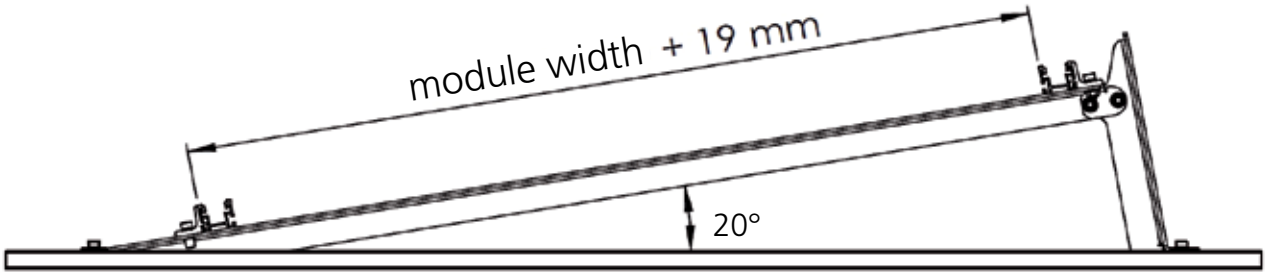


Figure 1: Measuring of CrossRail distance

7 of 12

ASSEMBLE RAIL CONNECTORS

Install CrossRails and connect with rail connectors, 4 T-bolts and self-locking nuts. **The rail joint may not be located close to the position of the S-Level Triangle.** Tightening torque 16 Nm.

Materials required: CrossRail rail connector set

8 of 12

INSERT M K2

The M K2 slot nut is inserted in the K2 CrossRail and turned clockwise by 90°.

Materials required: M K2

9 of 12

INSERT ADDON

The AddOn is inserted on the slot nut into the CrossRail. The slot nut is thereby fastened by the AddOn. The AddOn is placed in the upper rail row so that the K2 Logo appears on the left upper side. In the bottom row, make sure that the AddOn is placed so that the K2 Logo appears on the bottom right.
Attention: The AddOn is only used for module frame heights between 35 - 50 mm.

Materials required: AddOn

10 of 12

INSERT MODULES AND FASTEN END CLAMPS

The modules must be fastened in accordance with the manufacturers' instructions in the appropriate positions with the end clamps.
To do this, the AddOn can be moved, together with the slot nut, to any position in the rail.
To calculate the required screw length, 5 mm must be added when using the AddOn, due to the thickness of the AddOn material.

Essential: The AddOn may only be used in conjunction with the K2 Standard Module Clamps. The recommended tightening torque is 14 Nm.

Materials required: End Clamp, locking washer, DIN 912 M8 hexagon socket screw

11 of 12

ASSEMBLY OF WINDBREAKER

The S-Level Windbreaker has elongated boreholes on the top and bottom, which enable a continuous setting of the span width between 1.57 - 1.67 m.
For assembly, the Windbreaker is placed flush against the holes on the reverse side of the S-Level Triangle; it must be made sure that the Windbreaker ends flush with the module frame at the row ends. **The assembled S-Level Windbreakers have the same length as the module row.** Each Windbreaker is fixed to the S-Level Triangle with 4 self-tapping screws.

Tightening torque: depends on stop.

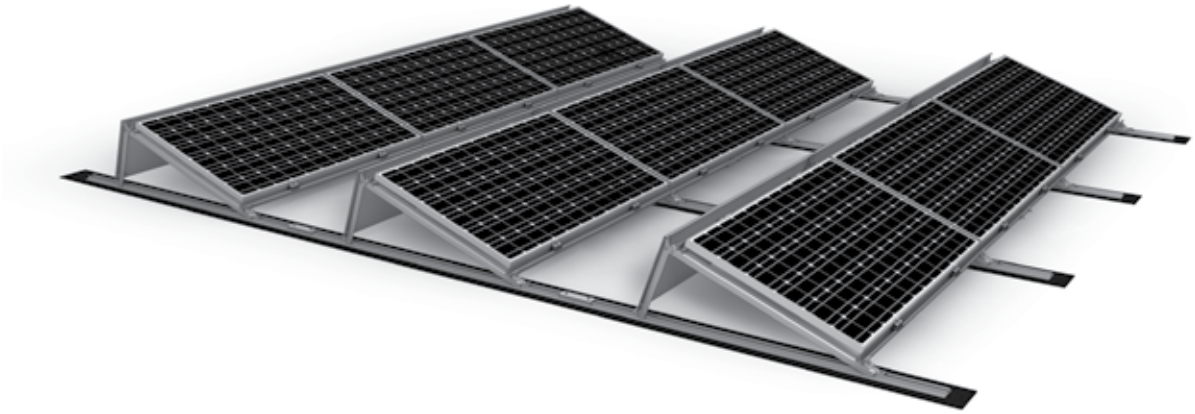
Materials required: S-Level Windbreaker, self-tapping screw ø 6 mm

12
of 12

PROPER APPLICATION OF BALLAST

The application of ballast, if required, to be conducted only in accordance with the K2 offer or the K2 order confirmation using the K2 Scale (fixable support to take ballast), that is screwed to the FlatRail / SpeedRail.
This is due to the individually performed structural analysis.

Materials required: in accordance with quotation or order confirmation, K2 Scale



Ready!

THANK YOU FOR CHOOSING A K2 MOUNTING SYSTEM.

Systems from K2 Systems are fast and simple to install. We hope these instructions have helped you in this. Please contact us if you have any questions or suggestions for improvements.
We are looking forward to receive your call on our

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Mounting systems for solar technology

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Product illustrations are exemplary illustrations and may differ from the original.