

We support PV systems



K2 SYSTEMS RECOMMENDATION

Equipotential Bonding and Lightning Protection for PV mounting systems

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Basic information

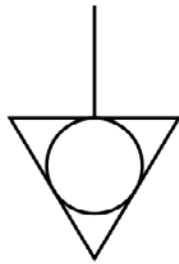
- / Below you will find recommendations on how equipotential bonding and connections capable of carrying lightning current can be established for different mounting systems from K2 Systems.
- / K2 Systems GmbH expressly points out that the use of the specified components is only a recommendation. Lightning protection components from other manufacturers can therefore also be used as an alternative.
- / Existing lightning protection may not be impaired by a PV system. In each case, the lightning protection concept must be coordinated with a lightning protection planning office of a lightning protection specialist.
- / Lightning protection that is to be established must be designed in such a way that it can fulfil its function even without a PV system.
- / During the planning and implementation of the connections between the cables and mounting systems, permanently suitable materials must be chosen in order to prevent contact corrosion, taking account of the electrochemical voltage series. The components listed below are required in addition to the mounting system items. Alternatively, additional or different connecting clamps can be purchased directly from specialist suppliers.
- / It is essential to observe the national and site-specific standards concerning the planning and implementation. We would like to point out that the recommendation was produced on the basis of the German standards.
- / Recommendations or installation instructions from the module manufacturer must be observed.
- / There is no standard module frame earthing. There are exceptions if the module manufacturer prescribes frame earthing, which is increasingly the case. We therefore recommend checking the module installation instructions. If necessary, each module frame must be included in the equipotential bonding!
- / Equipotential bonding must ideally be installed so that modules can be removed from the layout when servicing is required without the equipotential bonding losing its function.

General information

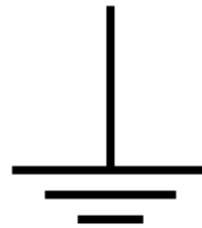
Equipotential bonding & earthing

- / If points are conductively interconnected to varying potentials, the potential difference between them is balanced out. The electrical voltage between the points can no longer be measured, thus establishing equipotential bonding.
- / The connection of a point on the electrical system to the ground is called earthing. This can fulfil certain tasks, such as
 - / Lightning protection
 - / Ensuring electromagnetic compatibility
 - / Protective or functional earthing of certain equipment, such as power inverters
 - / Equipotential bonding and an earthing system complement each other to form an effective protection system
 - / Equipotential bonding must always be added to PV systems in accordance with VDE 0100. This applies to all conductive and exposed components.
- / Protection against the direct and indirect effect of an electric shock [personal protection].

Equipotential bonding



Earthing

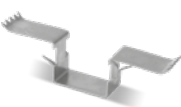
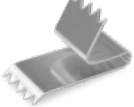


TerraGrif earthing components

- / TerraGrif earthing system:
- / Simple and fast module earthing solution for all K2 mounting systems
- / Complies with the earthing provisions in the standards NF C 15-100 and the guide UTE C15-712-1
- / Tested and approved by LCIE Bureau Veritas
- / Attention: For technical reasons, a TerraGrif cannot be used again after it has been used once and removed again.
- / Please also observe the TerraGrif assembly instructions k2-systems.com/en/terragrif

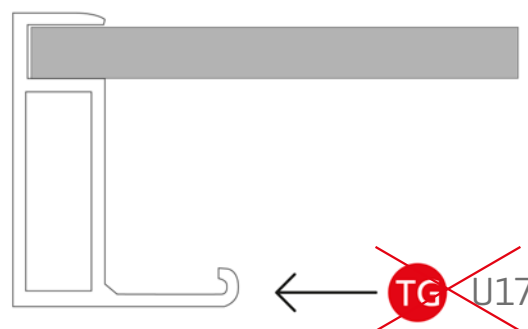
Overview of TerraGrif



	K2SZ	U17	K2MI	PL	K2PA	S Insertion rail
Figure						
Compatibility						
SingleRail	●	○	○	○	○	○
SolidRail	●	○	○	○	○	○
Insertion rail	○	○	○	○	○	●
SpeedRail	●	○	○	○	●*	○
MiniRail	○	○	●	○	○	○
MultiRail	●	○	○	○	○	○
D-/S-Dome	●	○	○	○	○	○
D-/S-Dome V	○	○	●	○	○	○
D-/S-Dome 6	○	○	●	●	○	○
Article number	2001881	2000056	2002649	2004102	2000055	2002397
General tolerance	Standard DIN 2095 grade 2					
Sheet material	Stainless steel 301 TA					
Standard	NFA 35573					
Weight [g]	3,2	1,8	3,6	1,15	2,4	1,5
Dimensions [mm]	10×16×60	20×5,8×17	40×11,7×36	22×10×8	10×31,7×12	10×13,5×21
Material [mm]	0,5					

● Compatible ● Not tested ○ Not compatible * Only for landscape assembly with AddOn.

- / We recommend the TerraGrif U17 for equipotential bonding of the S-Dome Classic and D-Dome Classic. First check the geometry of the module frame. The TerraGrif U17 cannot be used when the underside of the module frame is rounded (see diagram). In this case, we recommend the TerraGrif K2SZ as an alternative for the Dome systems. If you are unclear as to which TerraGrif you need to use, please contact our technical support at the following e-mail address: service@k2-systems.com



General information

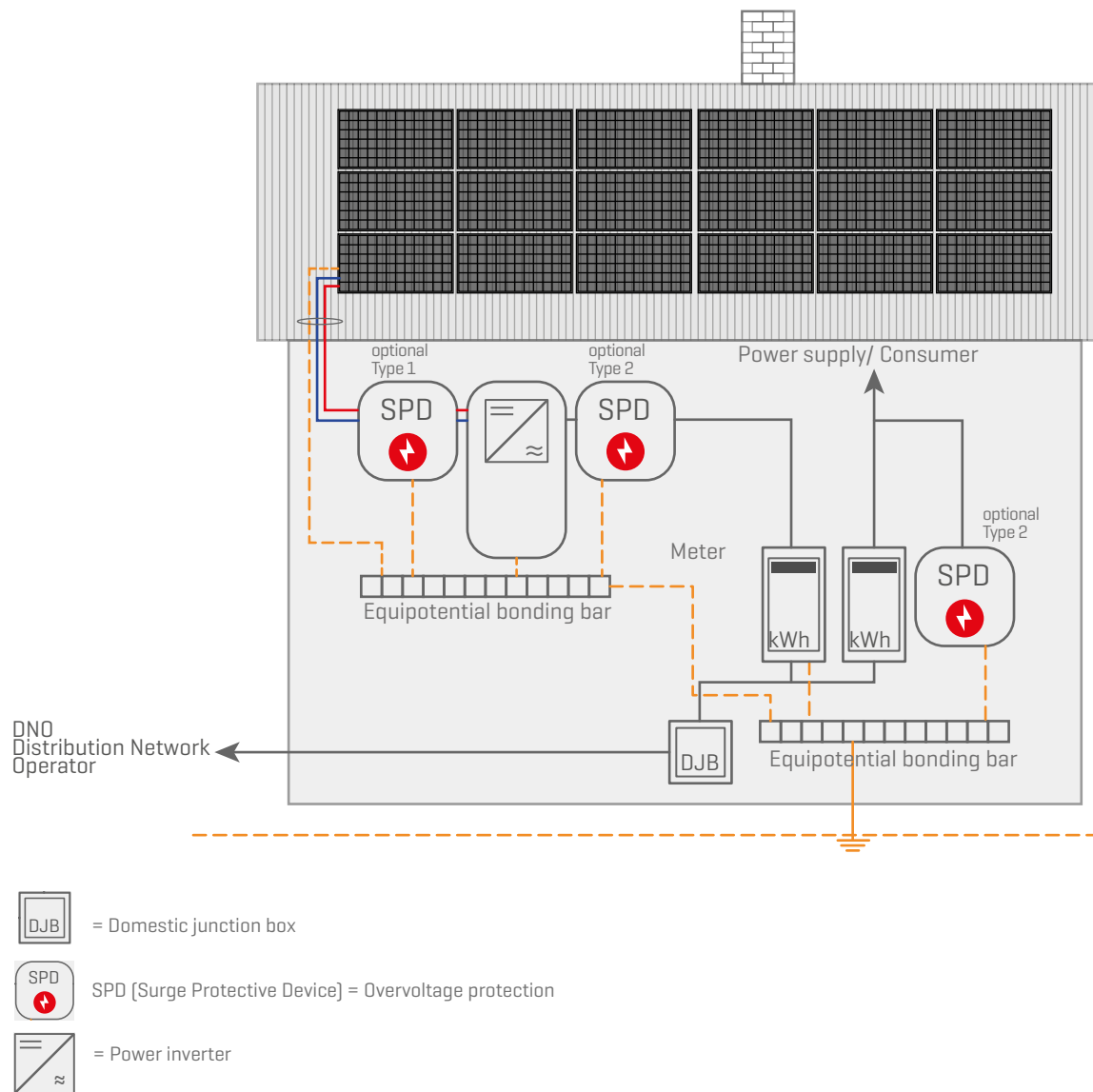
Lightning protection

- / A lightning protection system is deemed to be precautions against the adverse effects of lightning strikes on buildings.
- / Due to its strong electromagnetic field, the lightning can also indirectly affect electrical cables or metal parts, such as pipes within a building, and cause damage.
- / A lightning strike can cause fires.
- / A lightning protection system cannot provide absolute protection.
- / External lightning protection:
- / External lightning protection provides protection against lightning strikes that would directly hit the system to be protected. It consists of interception devices, lightning conductors (lightning conduction system) and an earthing system.
- / Internal lightning protection:
- / The overvoltage protection, which constitutes the internal lightning protection, consists of measures against overvoltage of all kinds. The effects of a lightning strike up to about 1.5 km away are also transferred to installations as well as electrical and electronic systems within the physical structure. Internal lightning protection also protects against effects from the mains.
- / Protection of property (objects) and persons

Lightning protection example 1

/ If external lightning protection is not available, no lightning protection needs to be established for the PV system.

/ The choice of overvoltage protection devices should be made in accordance with DIN EN 62305-33

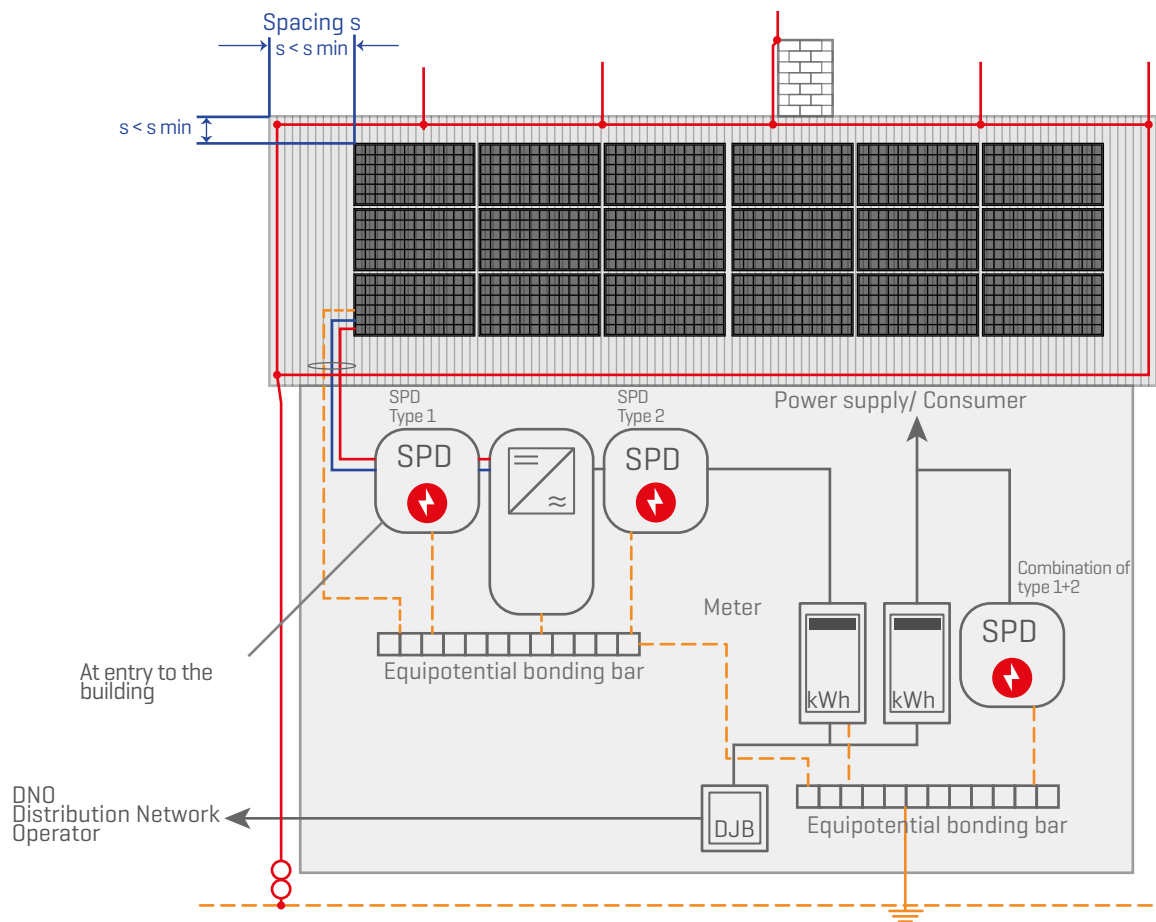


General information

Lightning protection example 2

/ External lightning protection is available, but the spacing "s" can be observed. The system is not integrated!

/ Note the requirements for overvoltage protection (mains entry) in accordance with DIN EN 62305-3!



= domestic junction box



SPD [Surge Protective Device] = overvoltage protection

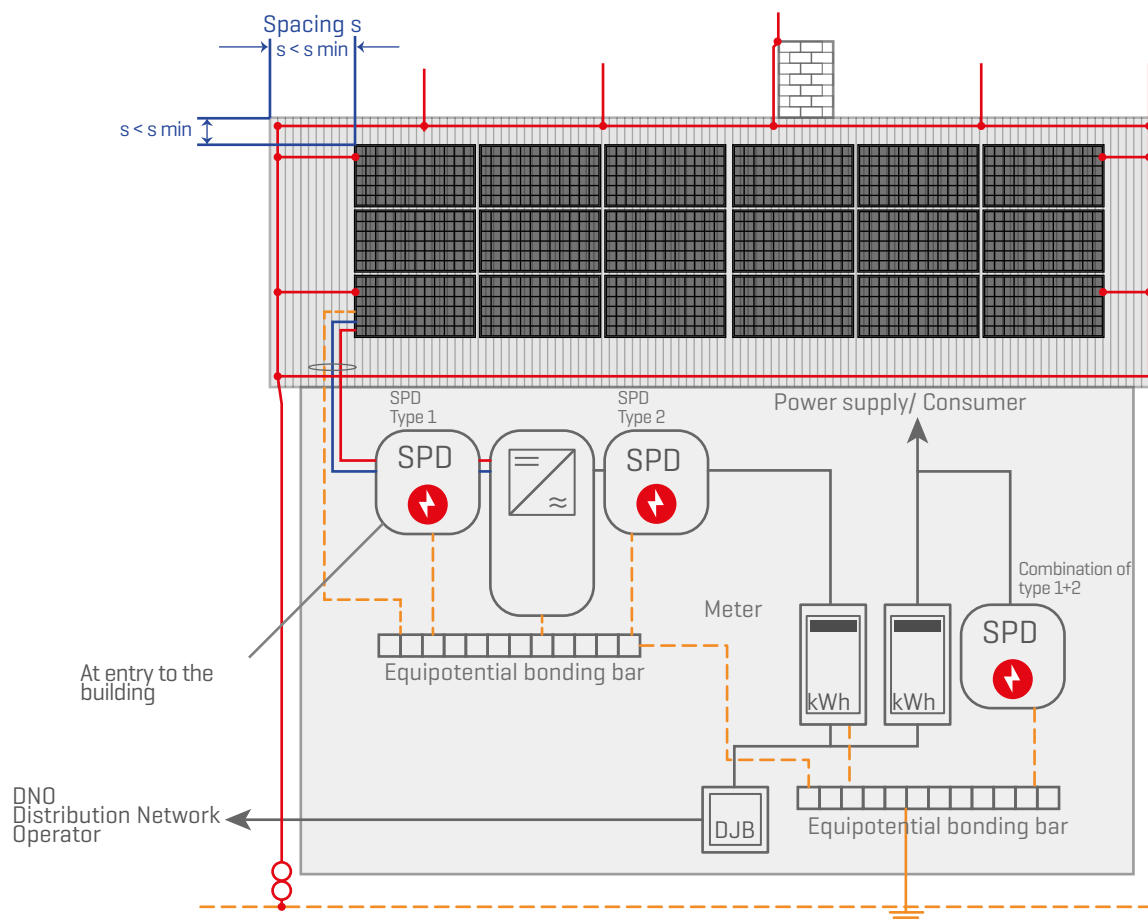


= power inverter

Lightning protection example 3

/ External lightning protection is available, but the spacing "s" cannot be observed. The system is integrated!

/ Note the requirements for overvoltage protection (mains entry & building entry) in accordance with DIN EN 62305-3!



= domestic junction box



SPD [Surge Protective Device] = overvoltage protection



= power inverter

General information

Lightning protection spacing

Spacing:

- / The spacing "s" is calculated using the following formula in accordance with DIN EN 62305-3. It is not a standard value!
- / Typical values for "s" are between 30 and 70 cm. The empirical formula "s" = 50 cm cannot be used safely!

- / Typical error in calculating "s":
The material factor for solid materials on the roof covering is $k_m = 0.5$
- / Software can be used for the calculation, e.g. DEHN Distance Tool
- / If the spacing is to be observed, all parts of the PV system must comply with this (modules, frame, cables, earthing)]

$$s = k_i \times \frac{k_c}{k_m} \times l$$

s = spacing

k_i = induction factor (depending on the lightning protection class).

k_c = current distribution coefficient: $k_c = \frac{1}{2h} + 0.1 + 0.2 \times 3^{-c}$

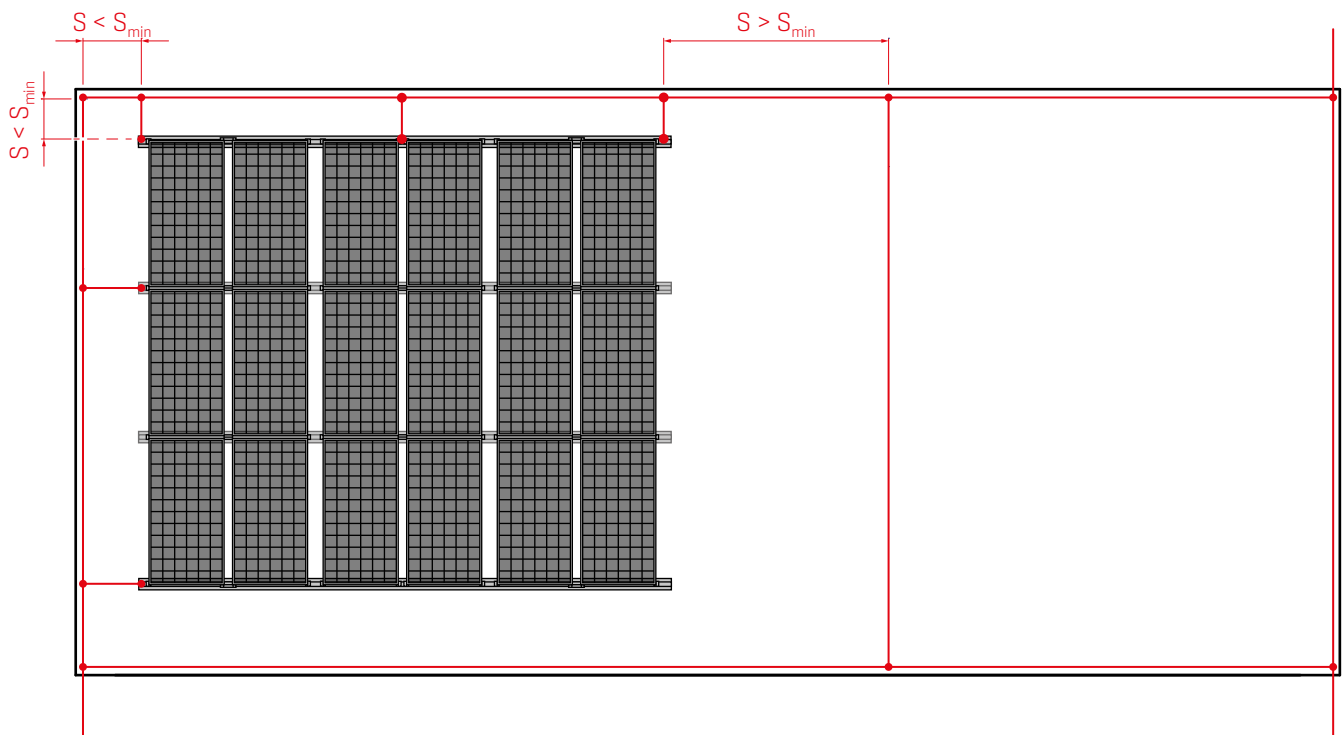
k_m = material factor: insulation properties of the environment

l = distance from the point of proximity, usually the distance to the foundations ["minimum distance"]

** Literary reference for the calculation: DEHN Lightning Planner, Wagner & Co. Lightning Protection Guide **

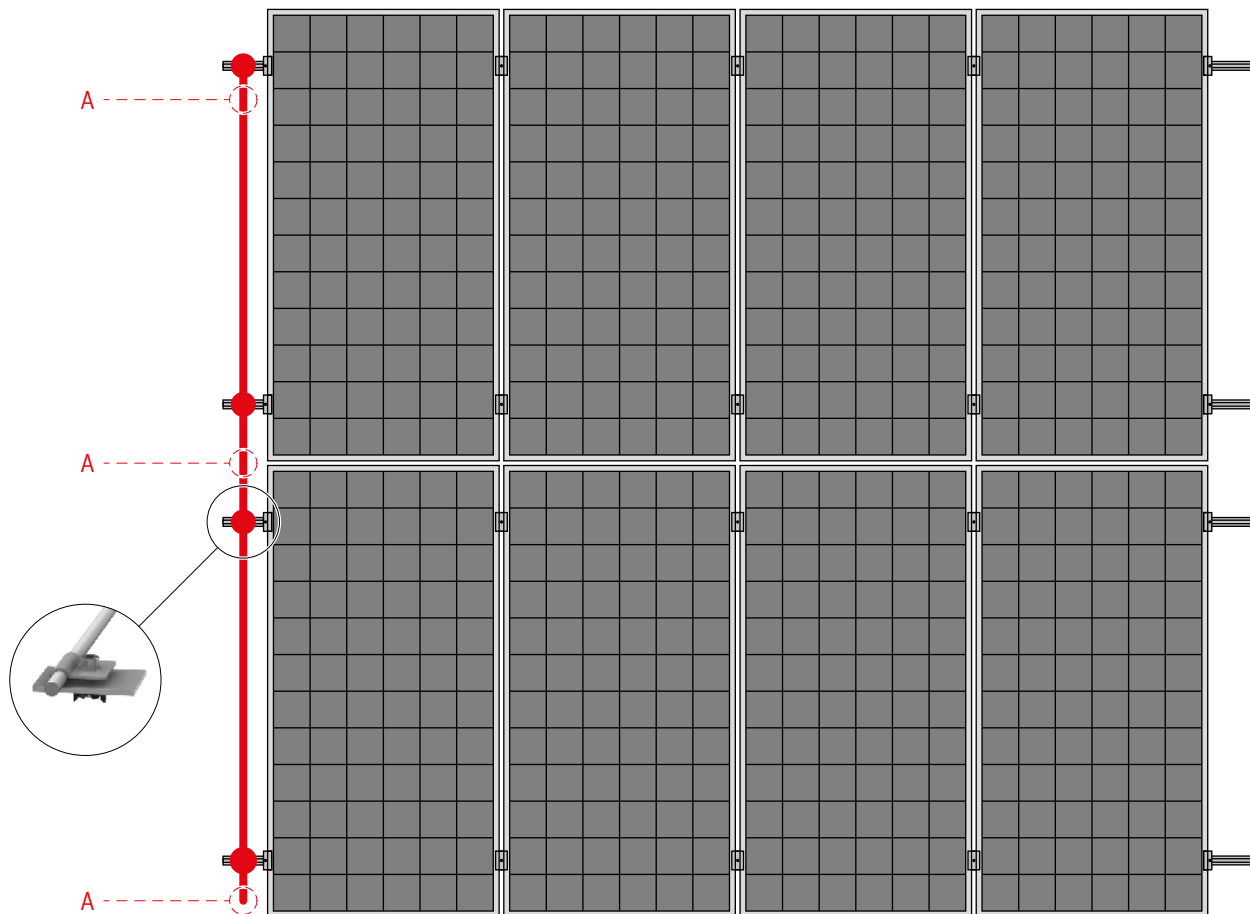
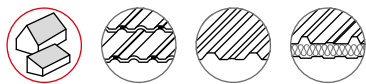
Lightning current capacity of mounting systems

- / If a mounting system is integrated into a building's existing external lightning protection, the connection to the mounting system must be designed in such a way that it is capable of carrying lightning current. However, as the mounting system is not used as a power output, it does not need to be capable of carrying lightning current because the existing lightning protection takes on this function.
- / The mounting system needs to be capable of carrying lightning current if the mounting system replaces part of the external lightning protection.
- / It is essential that the planning to integrate the system into the existing external lightning protection and therefore also the number of connections for the external lightning must be carried out by a lightning protection specialist.
- / It is important to ensure that the power input and output are designed with different cross-sections depending on the function.
- / We recommend a minimum cross-section of $\geq 6 \text{ mm}^2$ copper or $\geq 16 \text{ mm}^2$ aluminium for the electrical connection of the equipotential bonding.
- / We recommend a minimum cross-section of $\geq 16 \text{ mm}^2$ copper or $\geq 25 \text{ mm}^2$ aluminium for the electrical connection to the lightning protection.



Pitched roofs

Tiled roof cover



[A] Connection of the equipotential bonding cable as alternative lightning protection

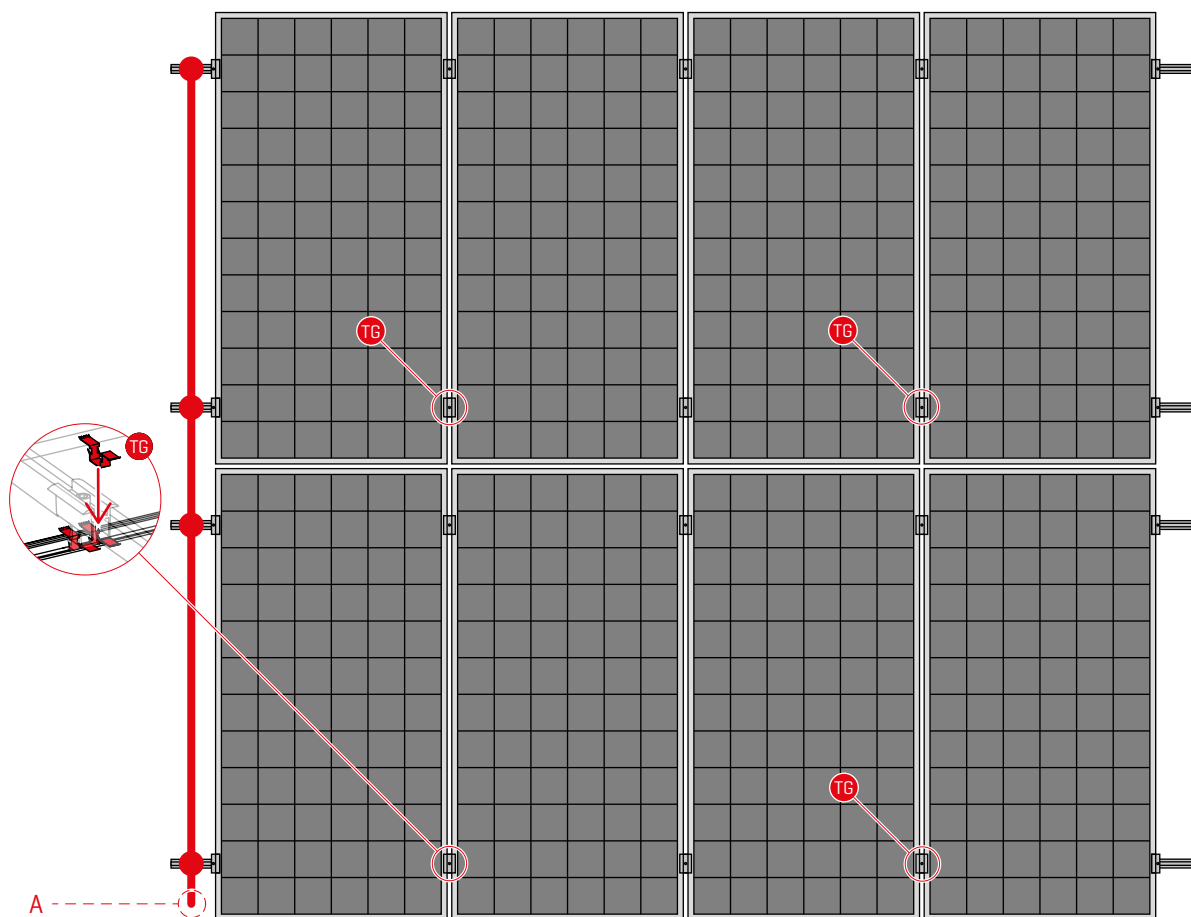
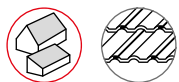
Lightning protection and equipotential bonding

- / We recommend establishing the connection of the rails in each module block with a round aluminium wire ($\geq 16 \text{ mm}^2$).
- / If necessary, the connection with a lightning protection clamp and round aluminium cable can be designed in such a way that it is capable of carrying lightning current ($\geq 25 \text{ mm}^2$ round aluminium wire).
- / The conductive connection must be checked and, if necessary, the oxide layer of aluminium must be sanded.
- / Only use permanently suitable cable lugs for the connection of the equipotential bonding, taking account of the electrochemical voltage series.
- / Module frame earthing is not required in this case.

Materials needed:

- / **K2 Lightning protection clamp multi**
Alu 8 mm Set consists of:
 - / Lightning protection clamp Multi
 - / Slot nut, stainless steel, PA
 - / Allen Bolt M8 x 30
 - / Washer 8,4×20×1,2 mm
- / **Round wire**
- / **K2 Underlay plate**

Tiled roof cover with the prescribed frame earthing



[A] Connection of the equipotential bonding cable as alternative lightning protection

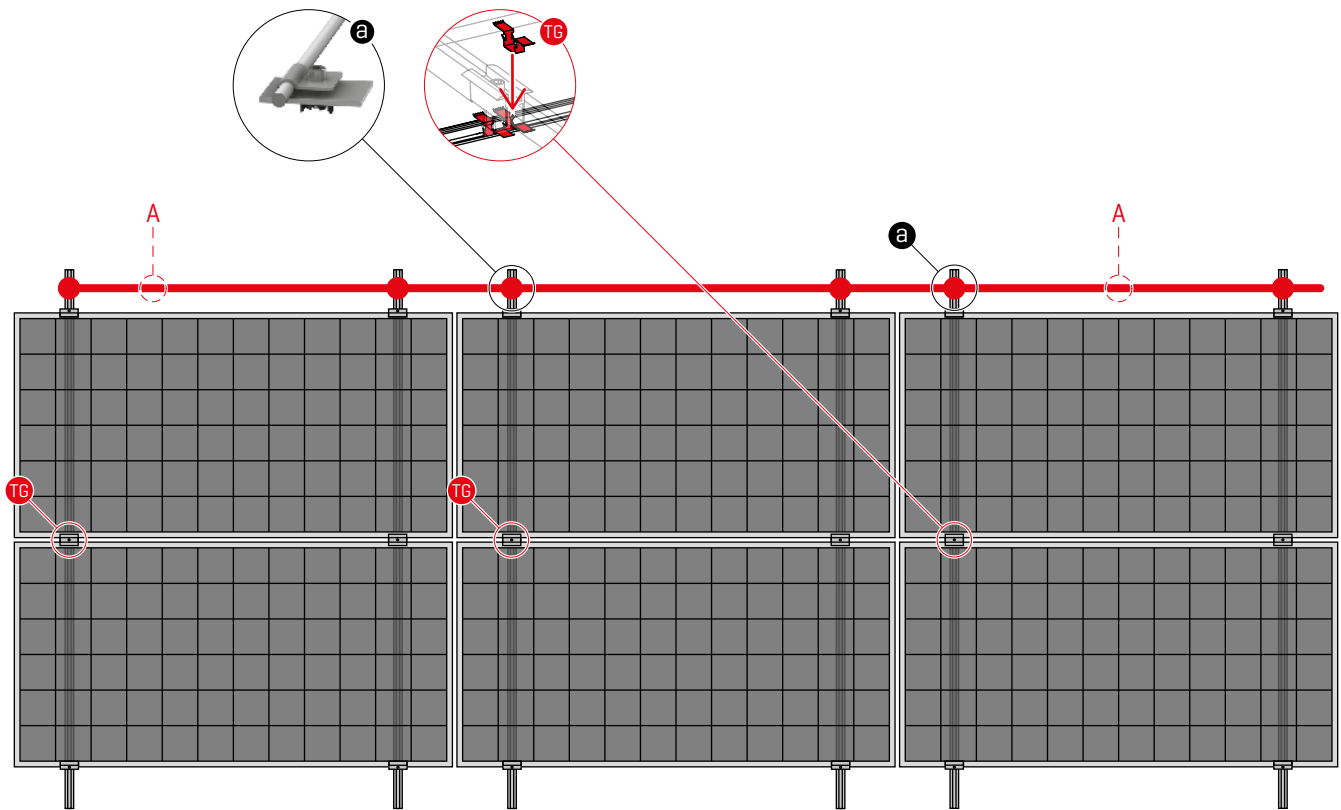
Lightning protection and equipotential bonding

- / If the module manufacturer prescribes frame earthing, we recommend using the TerraGrif.
- / The TerraGrifs are each positioned on the left and right under the module clamp.
- / You need at least one TerraGrif per module.
- / Please also observe the TerraGrif assembly instructions k2-systems.com/en/terragrif

Materials needed:

- / **K2 Lightning protection clamp multi Alu 8 mm Set** consists of:
 - / Lightning protection clamp Multi
 - / Slot nut, stainless steel, PA
 - / Allen Bolt M8 x 30
 - / Washer 8,4x20x1,2 mm
- / **Round wire**
- / **K2 Underlay plate**
- / If necessary TerraGrif K2SZ

Corrugated roof covers or trapezoidal metal sheet / sandwich panels with hanger bolts or solar fasteners



[A] Connection of the equipotential bonding cable as alternative lightning protection

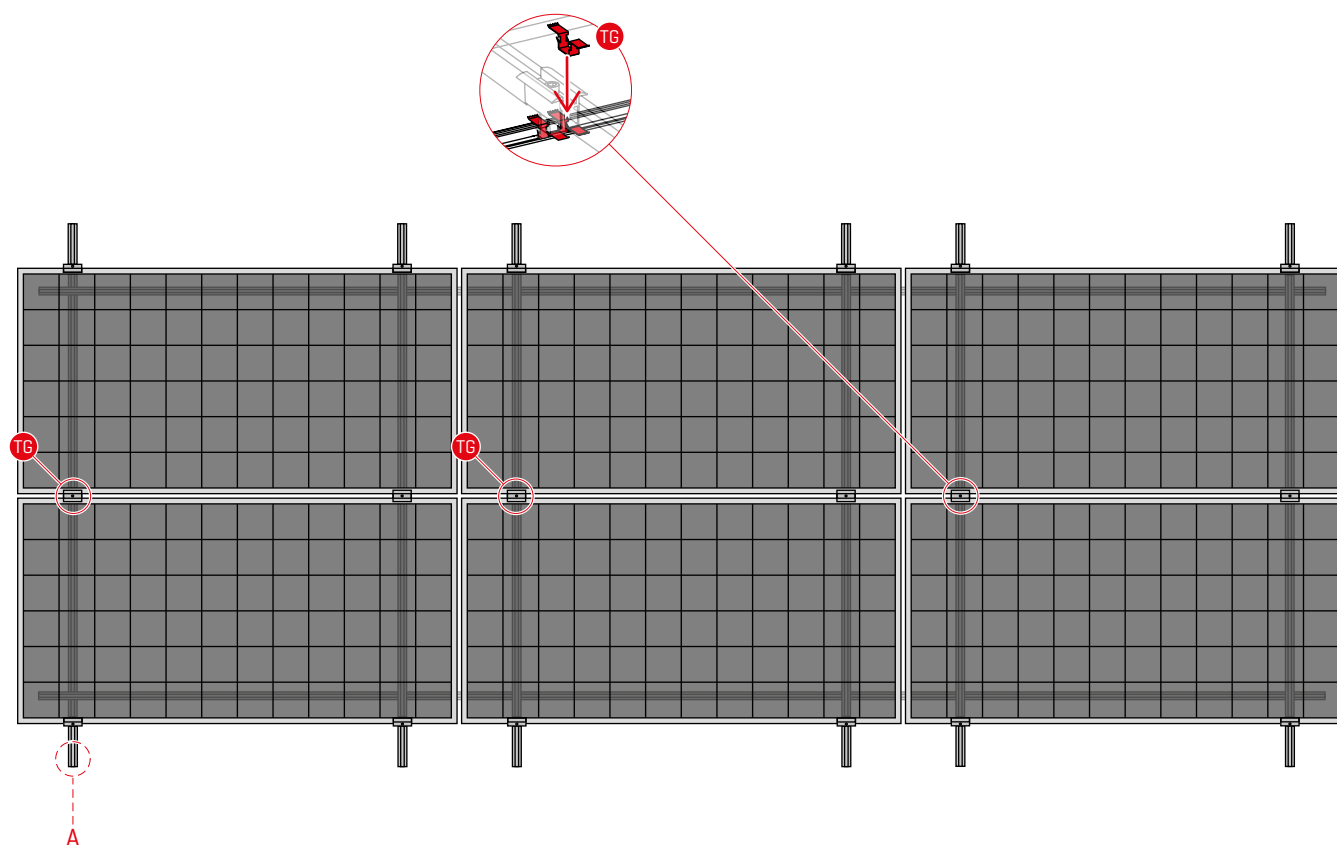
Lightning protection and equipotential bonding

- / The mounting procedure is the same as for a tiled roof when using hanger bolts or solar fasteners.
- / We recommend establishing the connection of the rails in each module block with a round aluminium wire ($\geq 16 \text{ mm}^2$).
- / If necessary, the connection with a lightning protection clamp and round aluminium cable can be designed in such a way that it is capable of carrying lightning current ($\geq 25 \text{ mm}^2$ round aluminium wire).
- / The conductive connection of the rails must be observed with a two-layer system.
- / A TerraGrif is used as shown in the diagram depending on the requirement for module frame earthing.
- / If module frame earthing is prescribed, you need one TerraGrif per module.

Materials needed:

- / **K2 Lightning protection clamp multi Alu 8 mm Set** consists of:
 - / Lightning protection clamp Multi
 - / Slot nut, stainless steel, PA
 - / Allen Bolt M8 x 30
 - / Washer 8,4 x 20 x 1,2 mm
- / **Round wire**
- / **K2 Underlay plate**
- / If necessary TerraGrif K2SZ

Assembly with second rail layer



[A] Connection of the equipotential bonding cable as alternative lightning protection

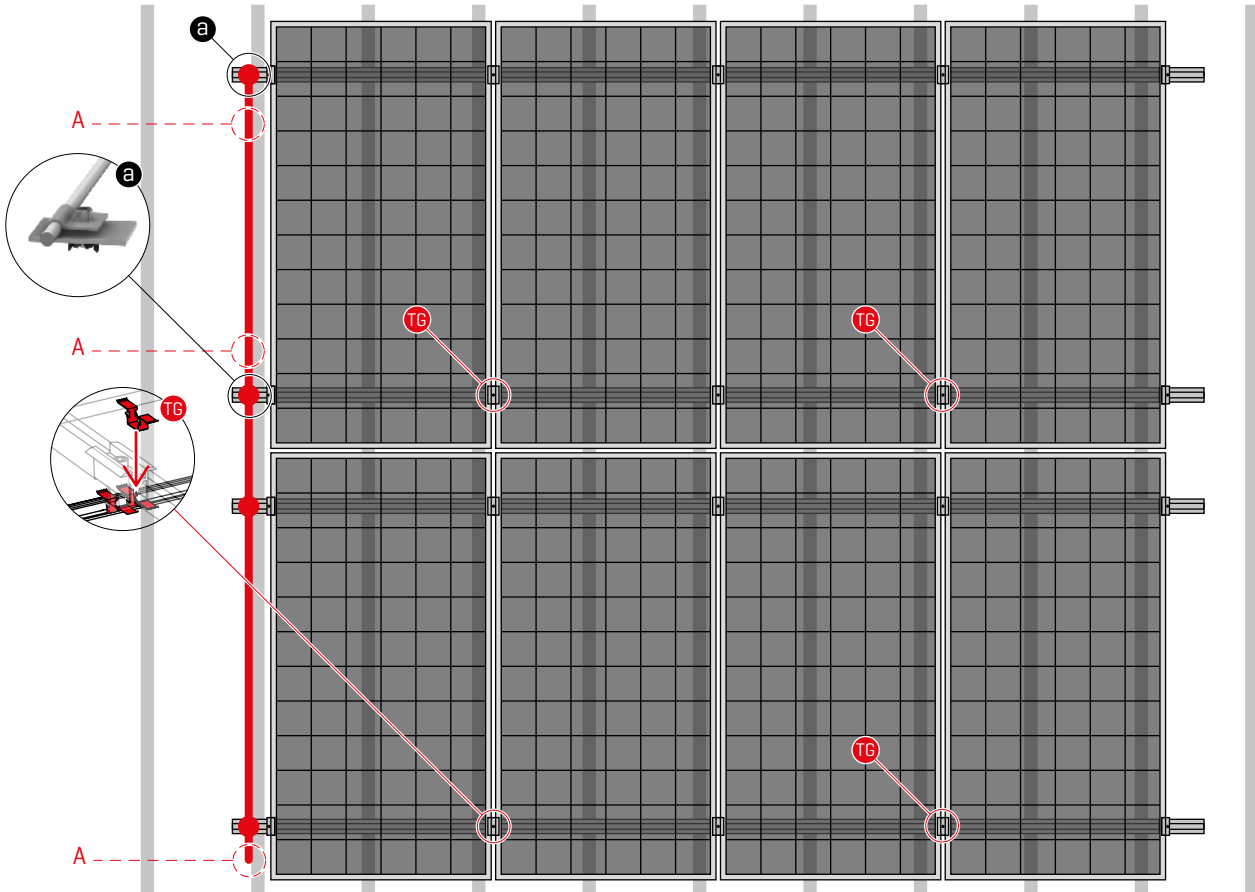
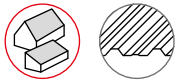
Lightning protection and equipotential bonding

- / An additional conductive connection of the rails is not required in a cross-bracing or two-layer rail system. However, the electrical connection of the rail positions must be ensured by removing the oxide layer on the cross struts of the rails.
- / A TerraGrif is used as shown in the diagram depending on the requirement for module frame earthing.
- / For black anodised rails, the conductive connection of the rail layers must be made on site!
- / If module frame earthing is prescribed, you need one TerraGrif per module.

Materials needed:

- / **K2 Lightning protection clamp multi Alu 8 mm Set** consists of:
 - / Lightning protection clamp Multi
 - / Slot nut, stainless steel, PA
 - / Allen Bolt M8 x 30
 - / Washer 8,4×20×1,2 mm
- / **Round wire**
- / **K2 Underlay plate**
- / If necessary TerraGrif K2SZ

Trapezoidal metal sheet roof covers with SpeedRail



[A] Connection of the equipotential bonding cable as alternative lightning protection

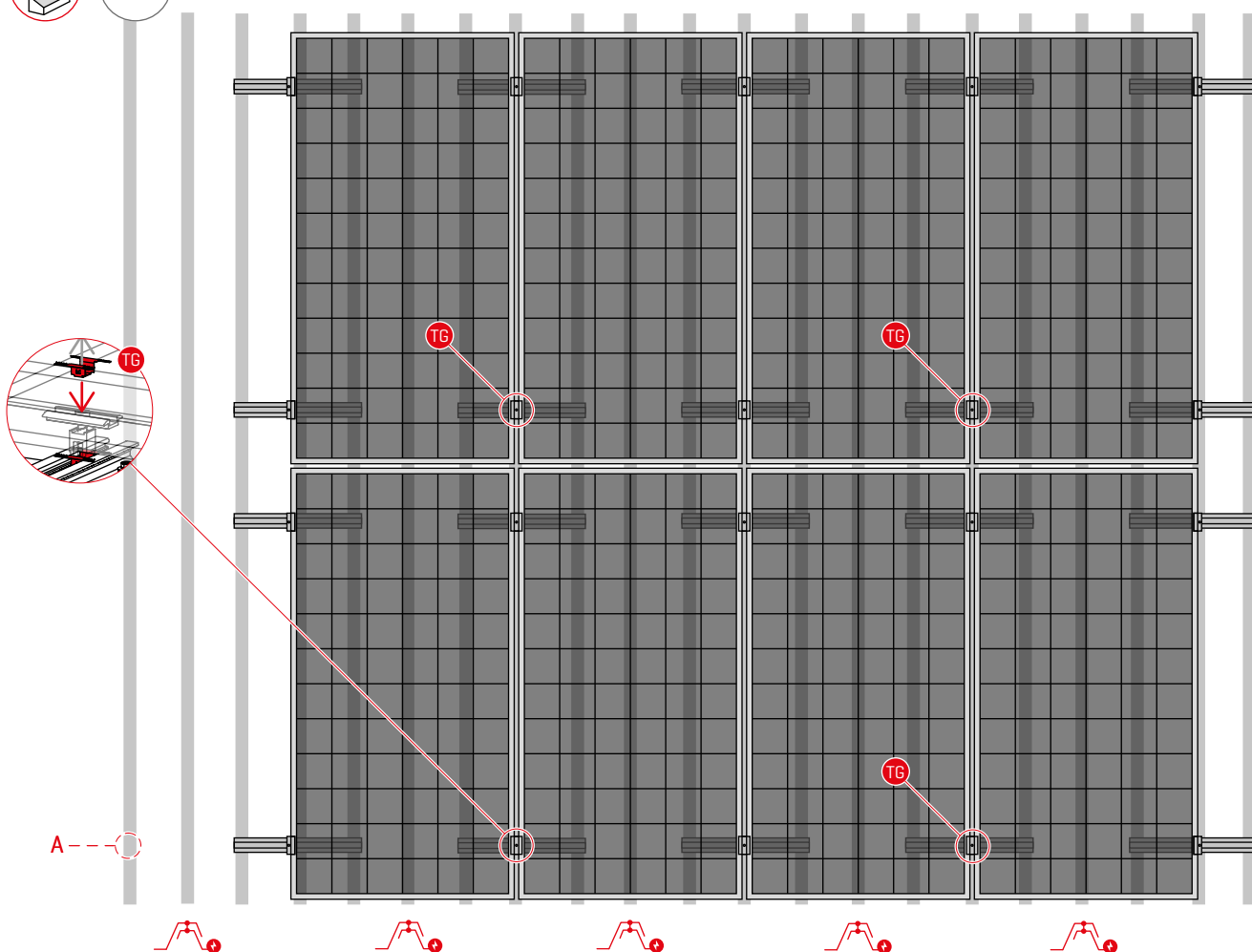
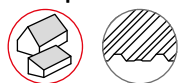
Lightning protection and equipotential bonding

- / With SpeedRail systems, there is no conductive connection via the trapezoidal metal sheet to the rails just like with a tiled roof.
- / We recommend establishing the connection of the rails in each module block with a round aluminium wire ($\geq 16 \text{ mm}^2$).
- / If necessary, the connection with a lightning protection clamp and round aluminium cable can be designed in such a way that it is capable of carrying lightning current ($\geq 25 \text{ mm}^2$ round aluminium wire).
- / A TerraGrif is used as shown in the diagram depending on the requirement for module frame earthing.

Materials needed:

- / **K2 Lightning protection clamp multi**
- Alu 8 mm Set** consists of:
 - / Lightning protection clamp Multi
 - / Slot nut, stainless steel, PA
 - / Allen Bolt M8 x 30
 - / Washer 8,4 x 20 x 1,2 mm
- / **Round wire**
- / **K2 Underlay plate**
- / If necessary TerraGrif K2SZ

Trapezoidal metal sheet roof covers with MiniRail



The trapezoidal sheets must be conductively connected to each other!



[A] Connection of the equipotential bonding cable as alternative lightning protection

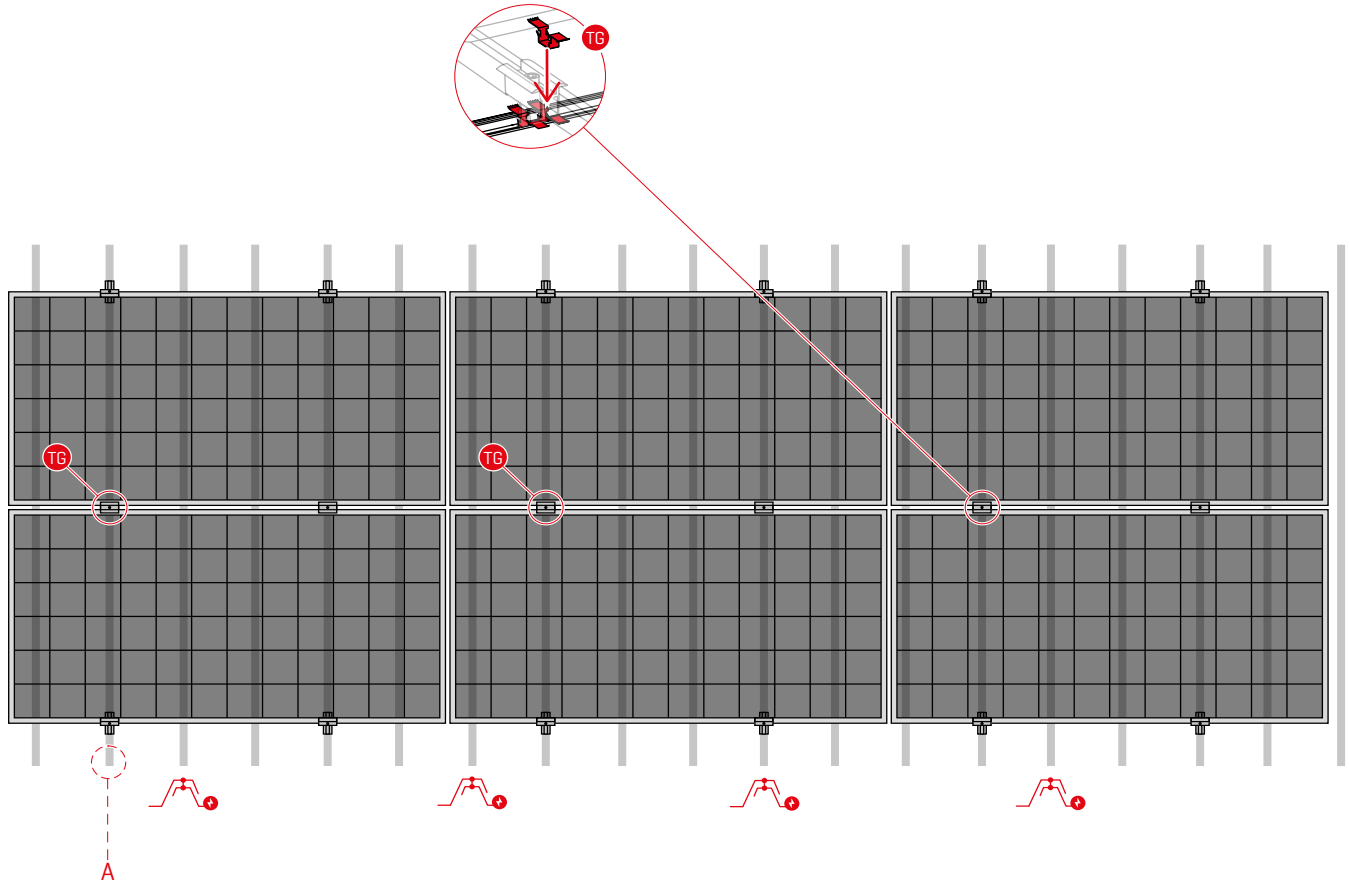
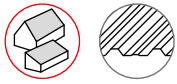
Lightning protection and equipotential bonding

- / The drill holes in the MiniRail are chosen in such a way that the screws included in the set are purposefully worked into the aluminium to create an electrical connection between the metal sheet and the MiniRail.
- / We therefore recommend adding equipotential bonding to the trapezoidal sheets. Make sure that the individual trapezoidal profiles are also electrically connected to each other.
- / This ensures the equipotential bonding via the trapezoidal metal sheet.
- / A TerraGrif is used as shown in the diagram depending on the requirement for module frame earthing.
- / For a connection to the lightning protection, all MiniRail sets must be connected in such a way that they are capable of carrying lightning current. We recommend observing the spacing to the existing lightning protection!

Materials needed:

If necessary TerraGrif K2SZ

Trapezoidal metal sheet roof covers with MultiRail



The trapezoidal sheets must be conductively connected to each other!

[A] Connection of the equipotential bonding cable as alternative lightning protection

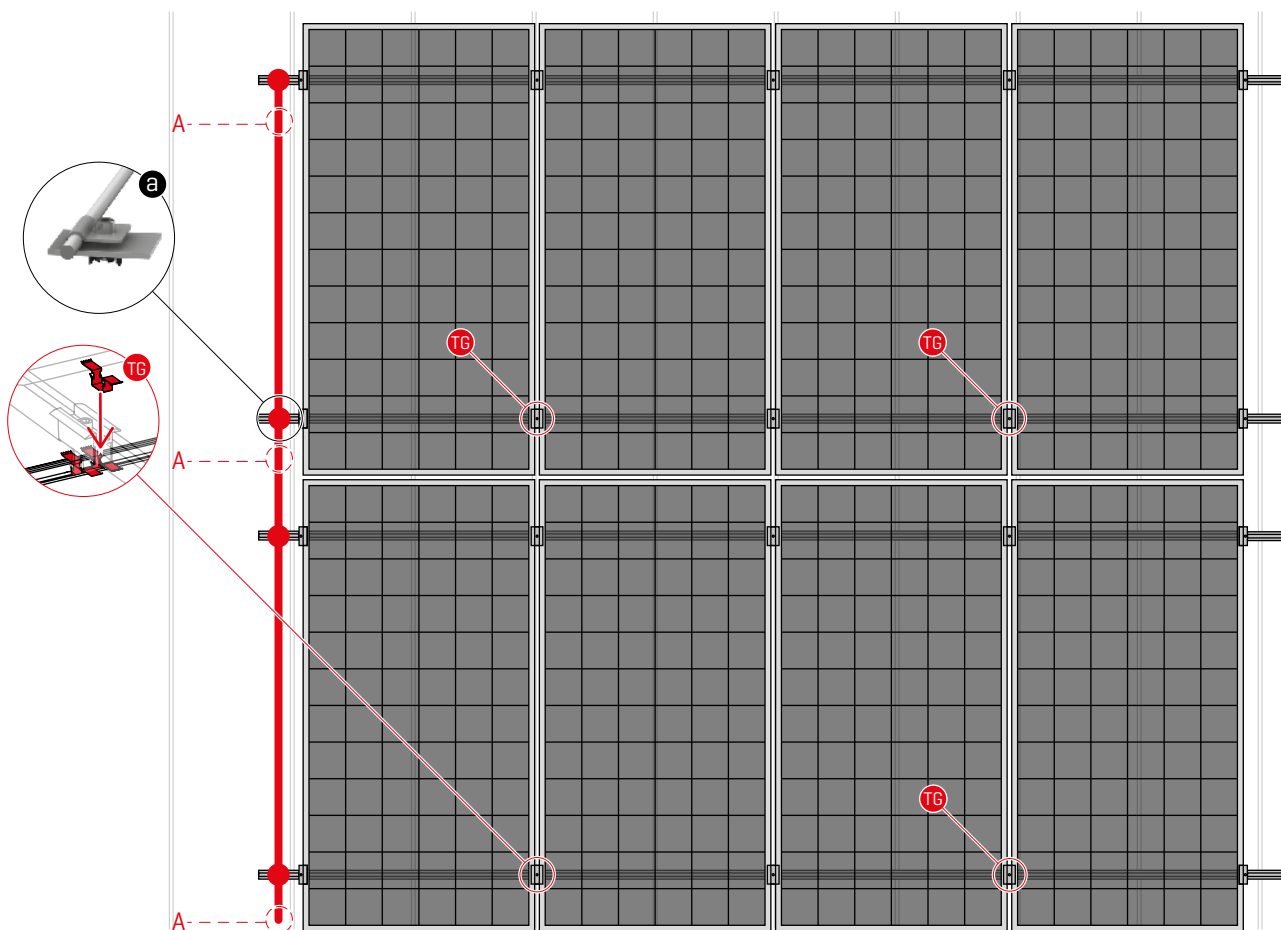
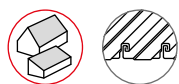
Lightning protection and equipotential bonding

- / The drill holes in the MultiRail are chosen in such a way that the screws included in the set are purposefully worked into the aluminium to create an electrical connection between the metal sheet and the MultiRail.
- / We therefore recommend adding equipotential bonding to the trapezoidal sheets. Make sure that the individual trapezoidal profiles are also electrically connected to each other.
- / This ensures the equipotential bonding via the trapezoidal metal sheet.
- / For a connection to the lightning protection, all MultiRail sets must be connected in such a way that they are capable of carrying lightning current. We therefore recommend observing the spacing to the existing lightning protection!
- / A TerraGrif is used as shown in the diagram depending on the requirement for module frame earthing.

Materials needed:

If necessary TerraGrif K2SZ

Standing seam roof covers



Lightning protection and equipotential bonding

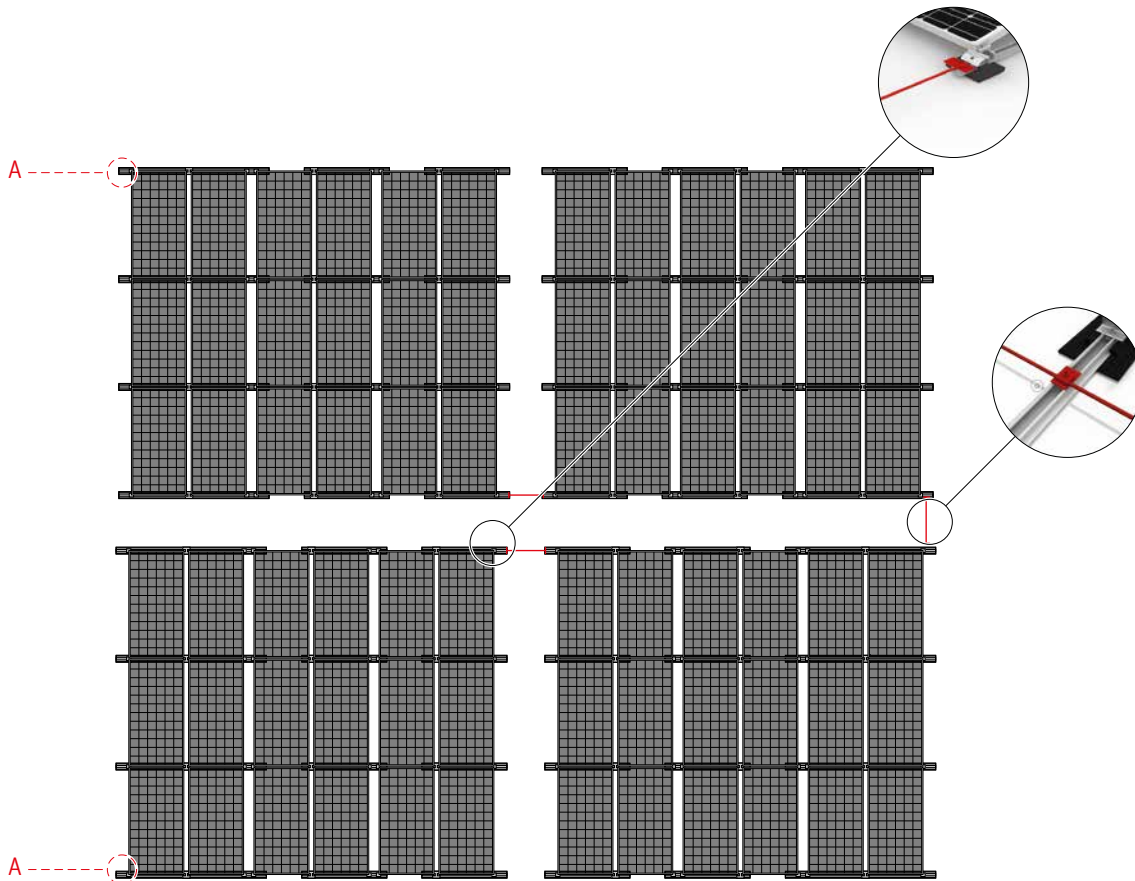
- / An electrical connection via the roof sheeting cannot be ensured with standing seam roofs. Too many types of roof sheeting are surface-coated.
- / We recommend establishing the connection of the rails in each module block with a round aluminium wire ($\geq 16 \text{ mm}^2$).
- / If necessary, the connection with a lightning protection clamp and round aluminium cable can be designed in such a way that it is capable of carrying lightning current ($\geq 25 \text{ mm}^2$ round aluminium wire).
- / The individual module blocks can be connected to each other in the same way.
- / A TerraGrif is used as shown in the diagram depending on the requirement for module frame earthing.
- / If module frame earthing is prescribed, you need one TerraGrif per module.

Materials needed:

- / **K2 Lightning protection clamp multi Alu 8 mm Set** consists of:
 - / Lightning protection clamp Multi
 - / Slot nut, stainless steel, PA
 - / Allen Bolt M8 x 30
 - / Washer 8,4 x 20 x 1,2 mm
- / **Round wire**
- / **K2 Underlay plate**
- / If necessary TerraGrif K2SZ

Flat roofs

General notes

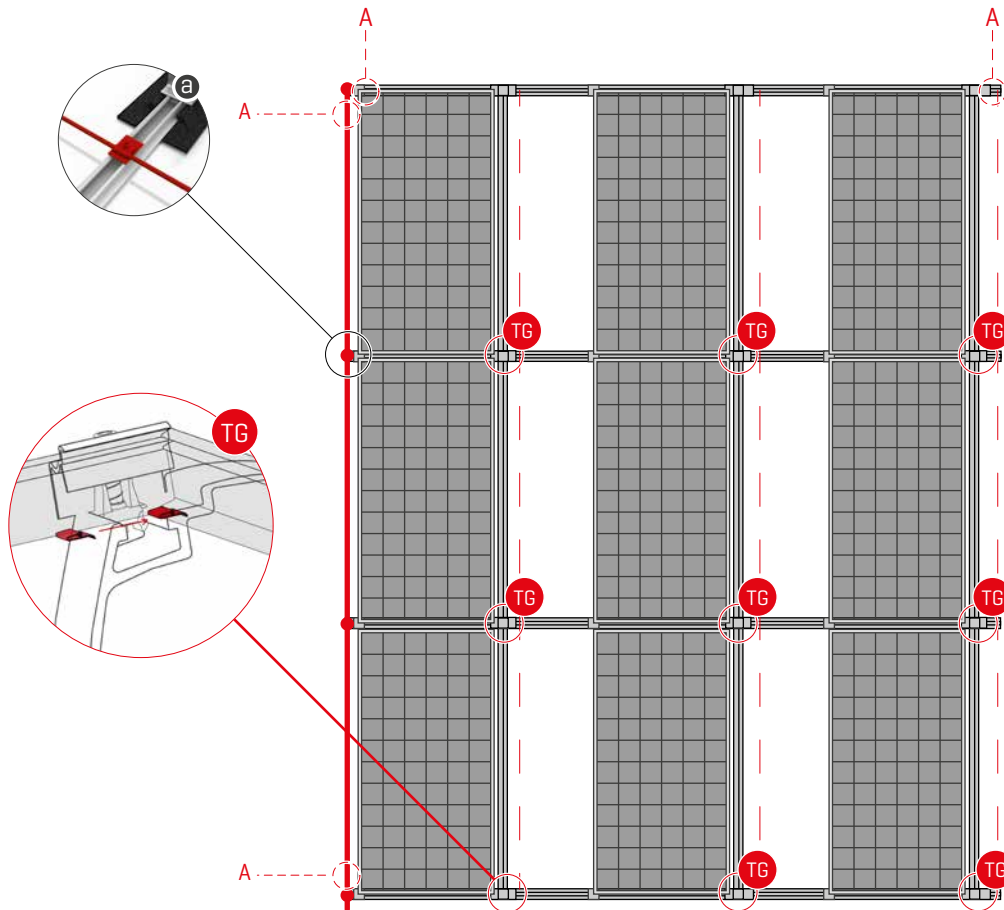


- / We recommend using round aluminium wire for the connection to individual module blocks and the connection between each other.
- / The connection [A] shows the possible connection point on the building's equipotential bonding!

S-Dome Classic: Equipotential bonding and lightning protection



The example shows the equipotential bonding of the mounting system in module direction with aluminium round wire and the alternative with TerraGrif K2MI as well as in rail direction with TerraGrif PL.



- / The mounting system is capable of carrying lightning current!
- / A [lightning protection] equipotential bonding in module direction is carried out via the windbreaker/wind deflector plates.
- / Alternatively, equipotential bonding can be established with aluminium round wire.
- / If the system is to be integrated into an existing lightning protection system, lightning current-carrying connections must be made to the mounting system.
- / We recommend an aluminium round wire [$\geq 25 \text{ mm}^2$] for the connection and discharge to a lightning protection.
- / In case of gaps in the module layout, make sure that all modules are integrated in the equipotential bonding or lightning protection.
- / The planning for integrating the system into the lightning protection and thus the number of connections to the external lightning protection must be carried out by a lightning protection specialist.
- / Module frame earthing is carried out as required. We recommend using a TerraGrif U17/module or a K2SZ/module.

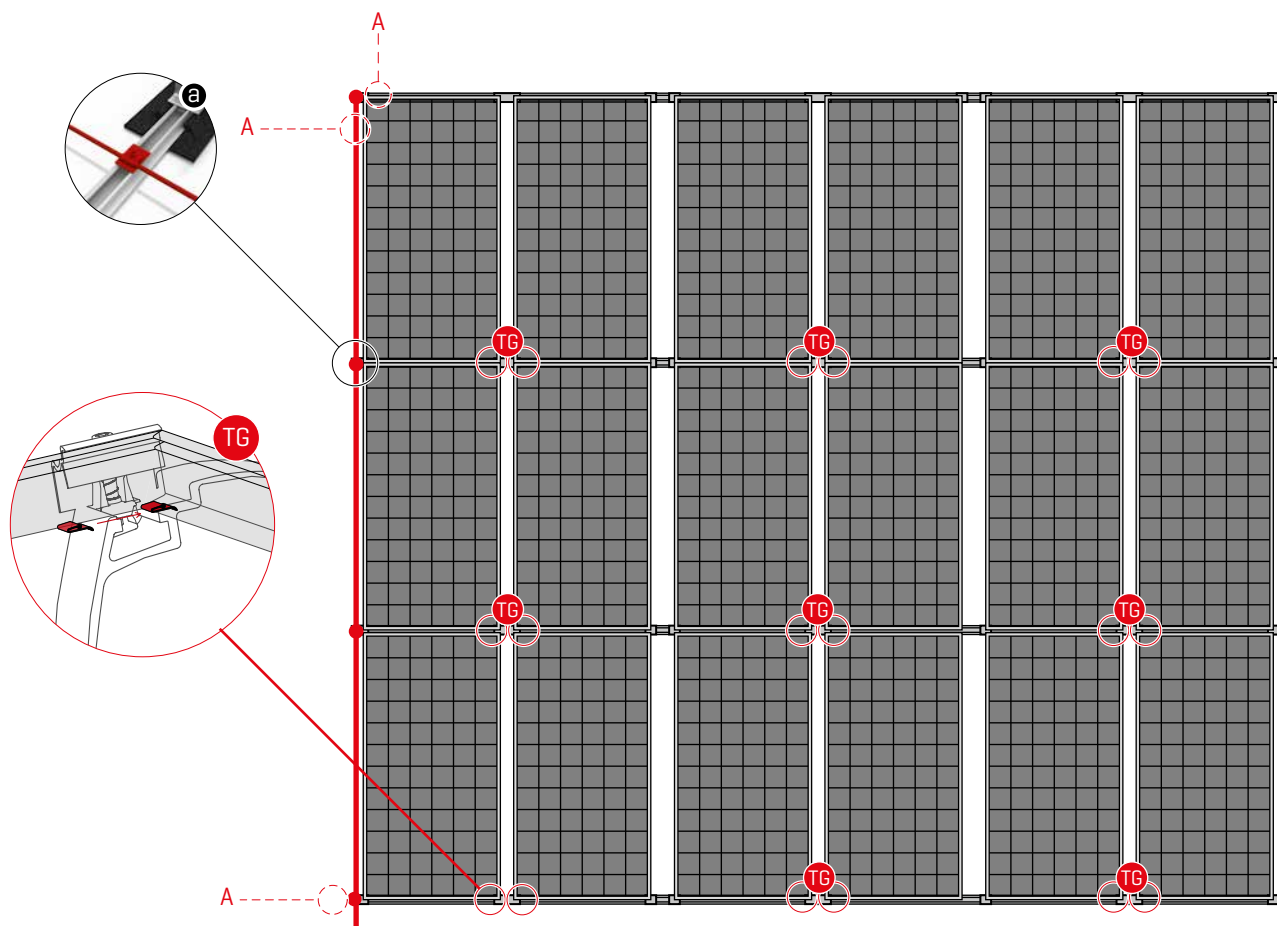
Materials needed:

- / **K2 Lightning protection clamp multi**
- / **Alu 8 mm Set** consists of:
 - / Lightning protection clamp Multi
 - / Slot nut, stainless steel, PA
 - / Allen Bolt M8 x 30
 - / Washer 8,4×20×1,2 mm
- / **Round wire**
- / **K2 Underlay plate**
- / If necessary TerraGrif K2SZ

D-Dome Classic: Equipotential bonding and lightning protection



The example shows the equipotential bonding of the mounting system in module direction with aluminium round wire, in rail direction with TerraGrif PL and of the module frame with TerraGrif K2MI.



- / The mounting system is capable of carrying lightning current!
- / If the system is to be integrated into an existing lightning protection system, lightning current carrying connections to the mounting system must be made.
- / The planning for integrating the system into the existing external lightning protection and thus the number of connections to the external lightning protection must be carried out by a lightning protection specialist. We recommend connecting and disconnecting with aluminium round wire ($\geq 25\text{mm}^2$).
- / Alternatively, we recommend maintaining the separation distance. In addition to the lightning protection, the potential equalisation of all components must be established. We recommend installing the equipotential bonding with aluminium round wire, alternatively with TerraGrif K2SZ.
- / In case of gaps in the module layout, ensure that all modules are integrated in the equipotential bonding or lightning protection.
- / Module frame earthing is carried out as required. We recommend a TerraGrif U17 / module or a K2SZ / module.

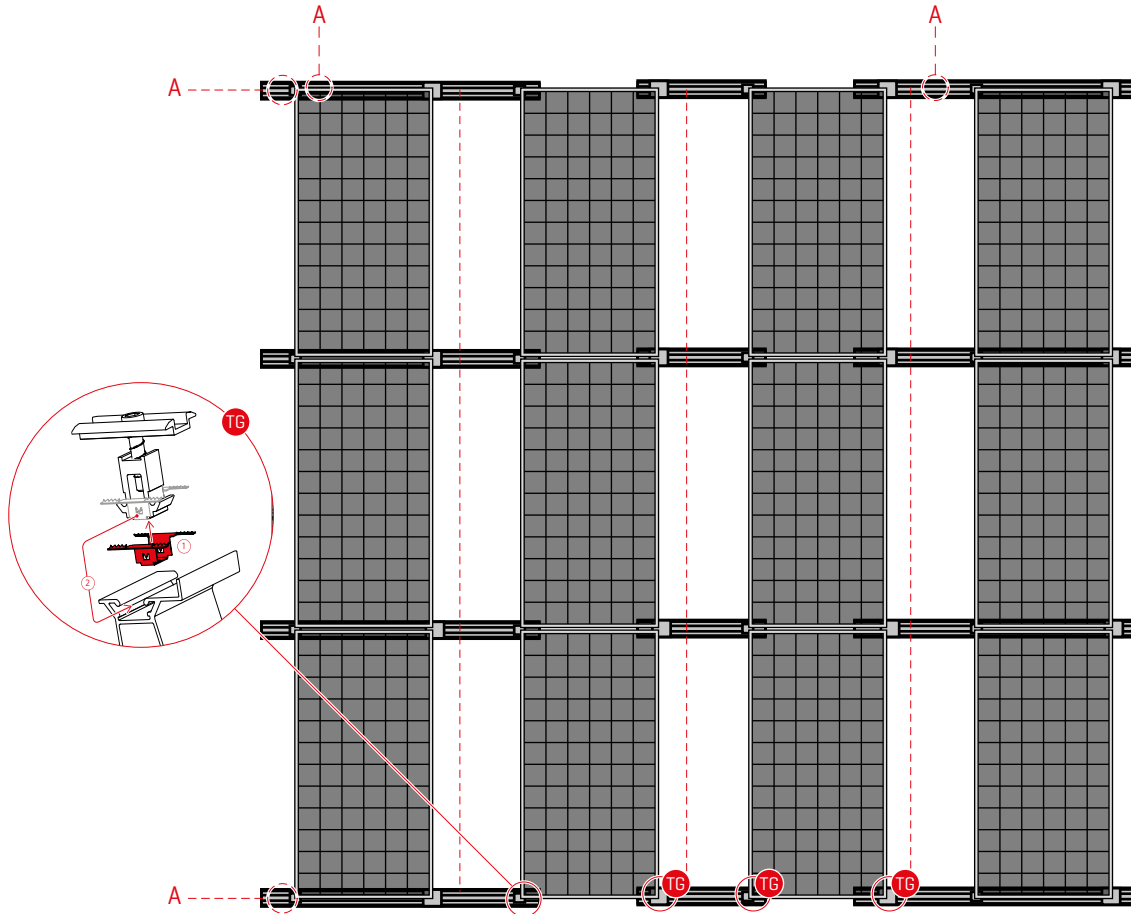
Materials needed:

- / **K2 Lightning protection clamp multi Alu 8 mm Set** consists of:
 - / Lightning protection clamp Multi
 - / Slot nut, stainless steel, PA
 - / Allen Bolt M8 x 30
 - / Washer 8,4×20×1,2 mm
- / **Round wire**
- / **K2 Underlay plate**
- / If necessary TerraGrif K2SZ

S-Dome V: Equipotential bonding



The example shows equipotential bonding of the mounting system in module direction via the windbreaker and in rail direction with K2MI.



- / Equipotential bonding in the module direction is achieved with S-Dome V via the windbreaker/wind deflector plates.
- / For equipotential bonding in the rail direction, we recommend TerraGrif K2MI. The TerraGrif must always be positioned over the gaps in the base rails in order to conductively bridge them via the module frame.
- / In the case of gaps in the module layout, ensure that all modules are integrated in the equipotential bonding. Additional TerraGrifs may be required.
- / Module frame earthing is carried out as required. Make sure that each module is connected by means of TerraGrif.
- / For the equipotential bonding of the mounting system, you need up to approx. 0.5 TerraGrif times the number of modules. For equipotential bonding, which includes the module frame earthing, approx. one TerraGrif times the number of modules.

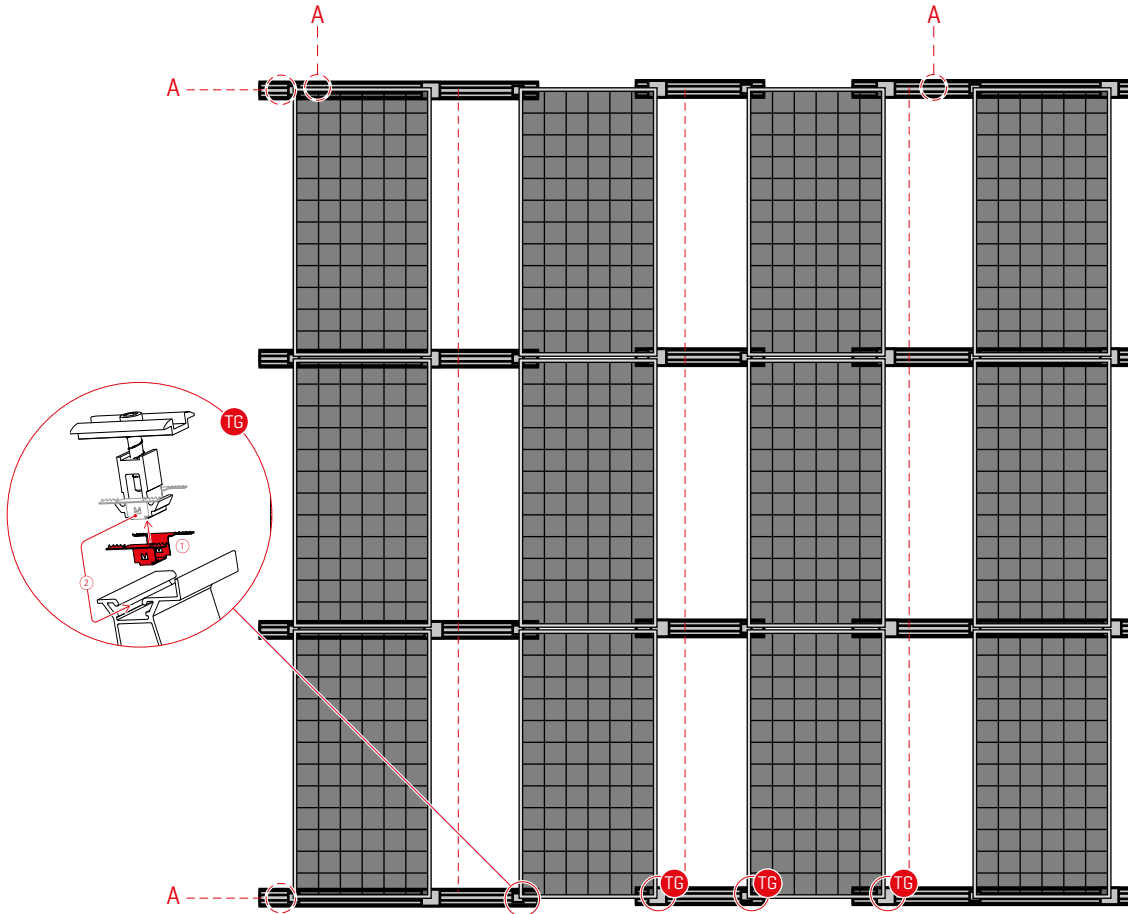
Materials needed:

- / **K2 Lightning protection clamp multi Alu 8 mm Set** consists of:
 - / Lightning protection clamp Multi
 - / Slot nut, stainless steel, PA
 - / Allen Bolt M8 x 30
 - / Washer 8,4×20×1,2 mm
- / **Round wire**
- / **K2 Underlay plate**
- / **TerraGrif K2MI**

S-Dome V: Lightning protection



The example shows equipotential bonding of the mounting system in module direction via the windbreaker and in rail direction with K2MI.



- / Should the system be integrated into existing lightning protection, the connections to the mounting system must be capable of carrying lightning current. The connection within the sub arrays in existing external building lightning protection does not need to be designed in such a way that it is capable of carrying lightning current.
- / It is essential that the planning to integrate the system into the existing external lightning protection and therefore also the number of connections for the external lightning must be carried out by a lightning protection specialist. We recommend using a round aluminium wire for the power input and output ($\geq 25\text{mm}^2$).
- / Alternatively, we recommend observing the spacing.
- / In addition to the lightning protection, equipotential bonding must be established for all components.

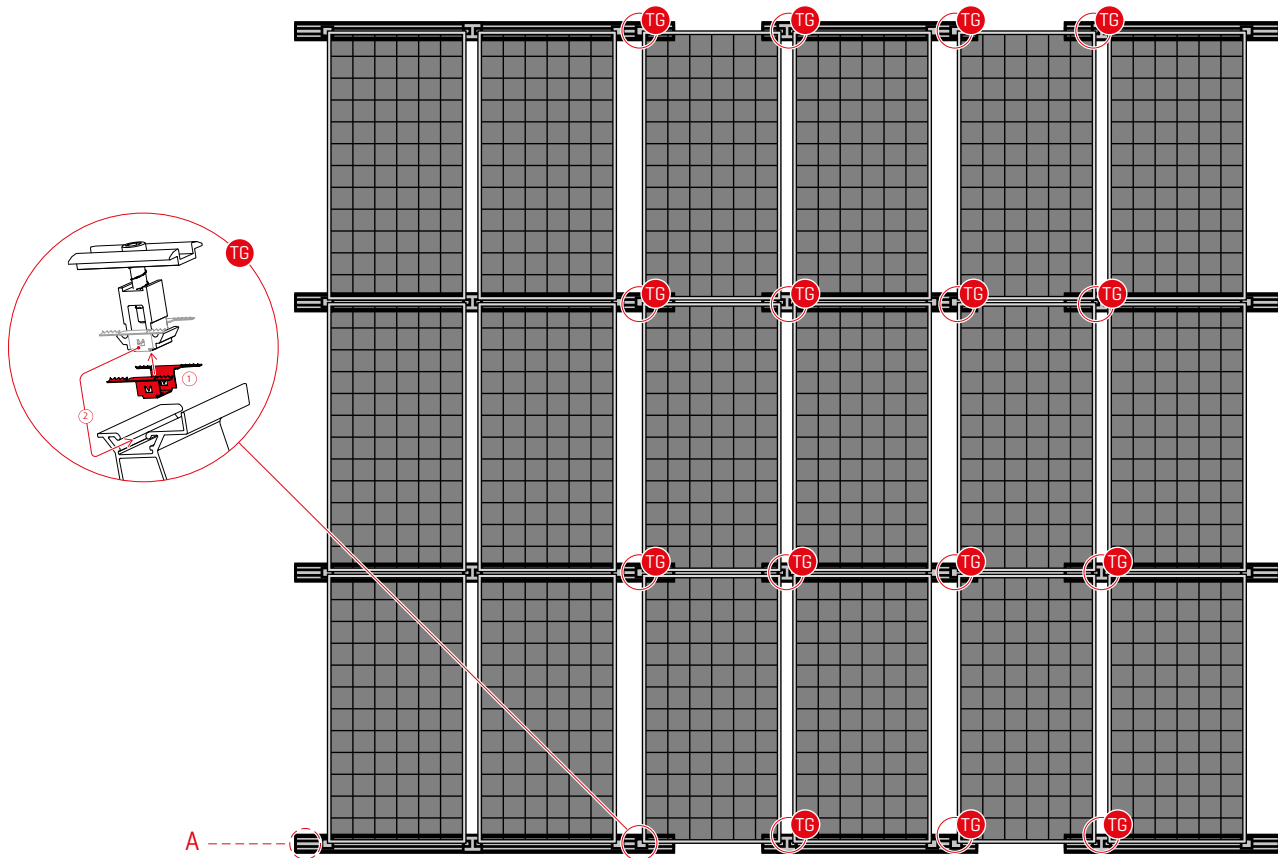
Materials needed:

- / **K2 Lightning protection clamp multi Alu 8 mm Set** consists of:
 - / Lightning protection clamp Multi
 - / Slot nut, stainless steel, PA
 - / Allen Bolt M8 x 30
 - / Washer 8,4x20x1,2 mm
- / **Round wire**
- / **K2 Underlay plate**
- / **TerraGrif K2MI**

D-Dome V: Equipotential bonding



The example shows equipotential bonding of the mounting system in module direction and in rail direction with TerraGrif K2MI



- / We recommend the use of a TerraGrif for the equipotential bonding in the rail and module direction. The TerraGrif must always be positioned over the gaps in the base rails to provide a conductive bridge between these rails via the module frames.
- / Make sure that all modules are integrated into the equipotential bonding when there are gaps in the module layout. It may be necessary to use additional TerraGrifs.
- / Module frame earthing is established if required. Make sure that each module is connected with a TerraGrif.
- / For the mounting system equipotential bonding you need up to approx. one TerraGrif multiplied by the number of modules. For the equipotential bonding including the module frame earthing you need approx. 1.5 TerraGrifs multiplied by the number of modules. Calculate the reserves for gaps in the module layout.

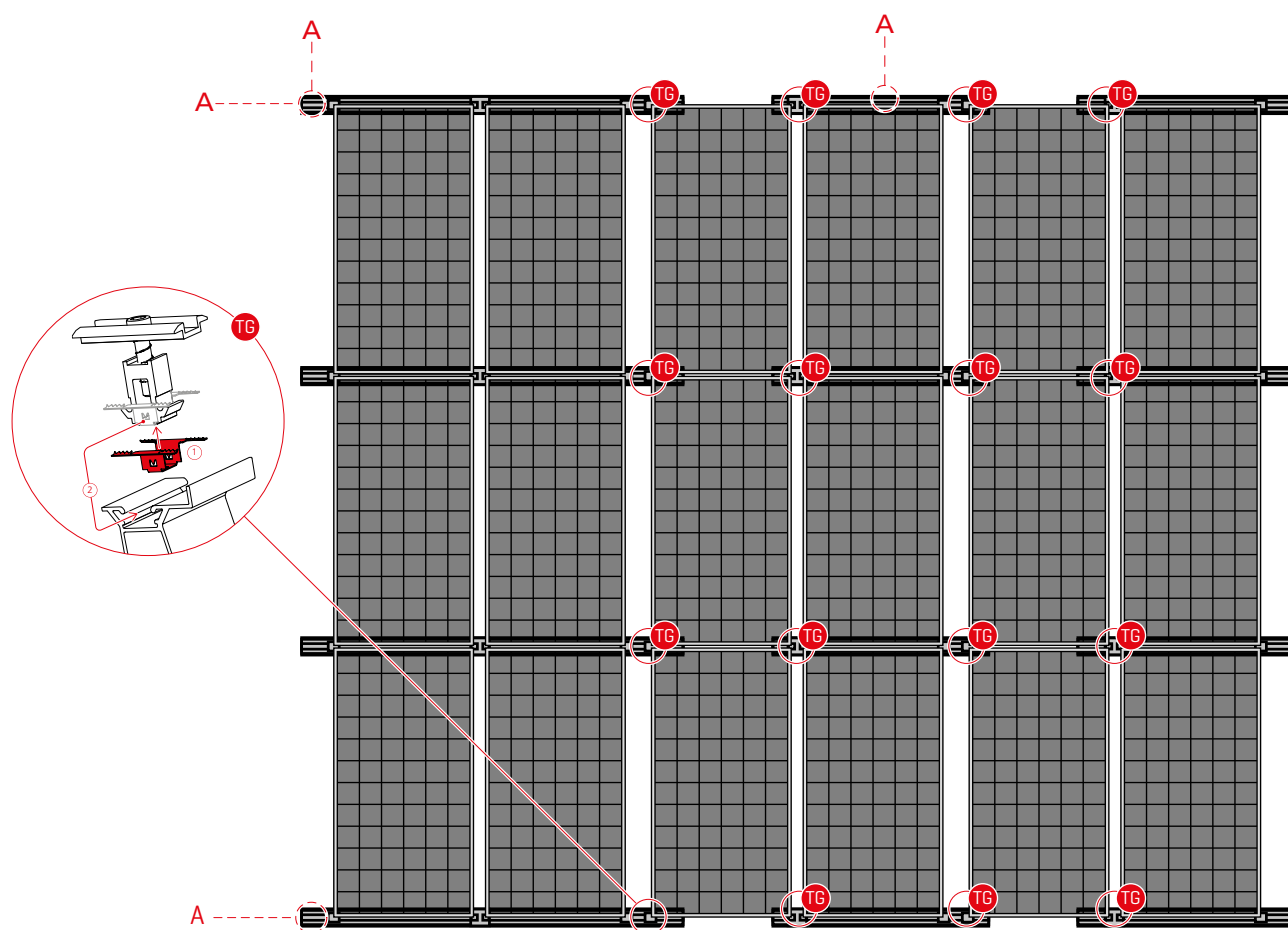
Materials needed:

- / **K2 Lightning protection clamp multi**
Alu 8 mm Set consists of:
 - / Lightning protection clamp Multi
 - / Slot nut, stainless steel, PA
 - / Allen Bolt M8 x 30
 - / Washer 8,4×20×1,2 mm
- / **Round wire**
- / **K2 Underlay plate**
- / **TerraGrif K2MI**

D-Dome V: Lightning protection



The example shows equipotential bonding of the mounting system in module direction and in rail direction with TerraGrif K2MI



- / If the system is to be integrated into an existing lightning protection system, lightning current carrying connections to the mounting system must be made. The connection within the blocks does not have to be designed with lightning current carrying capacity in case of an existing external building lightning protection.
- / The planning for integrating the system into the existing external lightning protection and thus the number of connections to the external lightning protection must be carried out by a lightning protection specialist. We recommend connecting and disconnecting with aluminium round wire ($\geq 25 \text{ mm}^2$).
- / Alternatively, we recommend maintaining the separation distance.
- / In addition to the lightning protection, the potential equalisation of all components must be established.

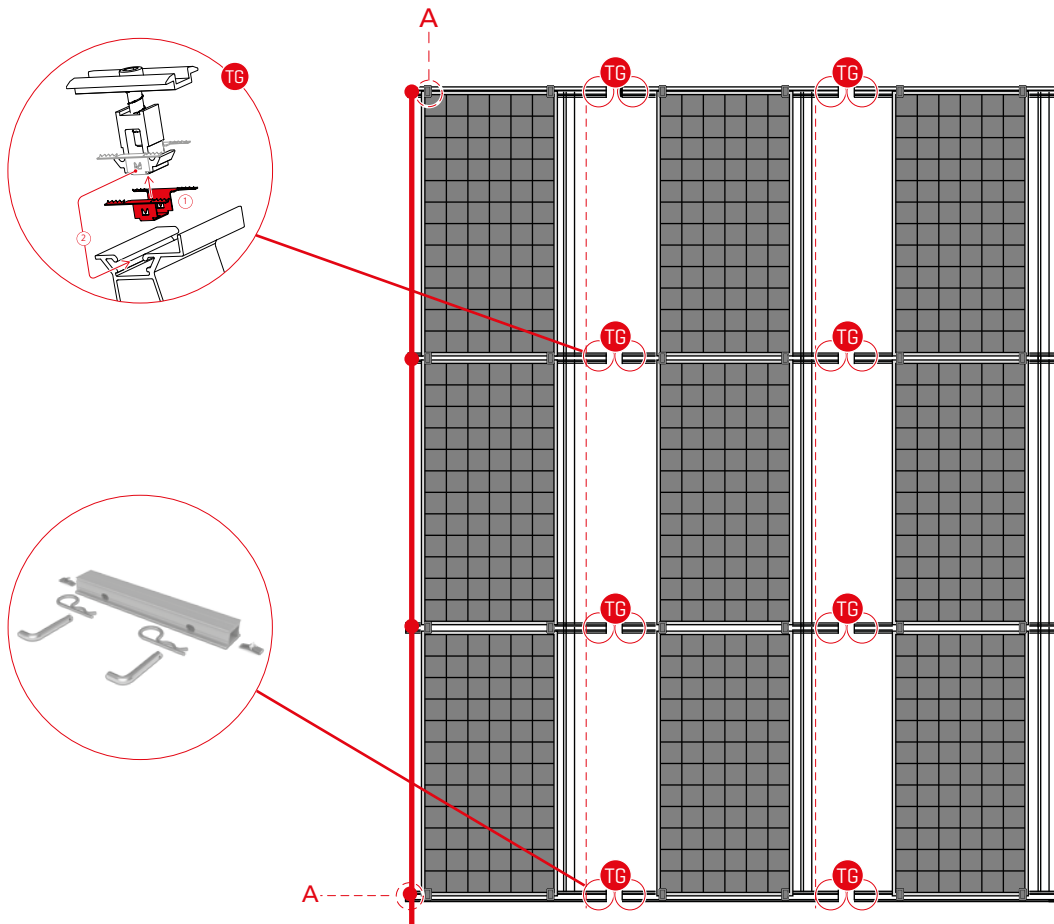
Materials needed:

- / **K2 Lightning protection clamp multi**
Alu 8 mm Set consists of:
 - / Lightning protection clamp Multi
 - / Slot nut, stainless steel, PA
 - / Allen Bolt M8 x 30
 - / Washer 8,4x20x1,2 mm
- / **Round wire**
- / **K2 Underlay plate**
- / **TerraGrif K2MI**

S-Dome 6: Equipotential bonding



The example shows the equipotential bonding of the mounting system in module direction via the windbreaker, alternatively with aluminium round wire in rail direction with TerraGrif PL and of the module frame with TerraGrif K2MI.



- / Equipotential bonding in the direction of the module is ensured via the windbreaker/wind deflector sheet. Alternatively, earthing in module direction can be established with aluminium round wire.
- / For equipotential bonding in the rail direction, we recommend using two TerraGrifs PL per rail connector.
- / Module frame earthing is carried out as required. If required, each module must be connected by means of TerraGrif K2 MI. For module frame earthing, we recommend a factor of 0.8 to 1 TerraGrif/module.

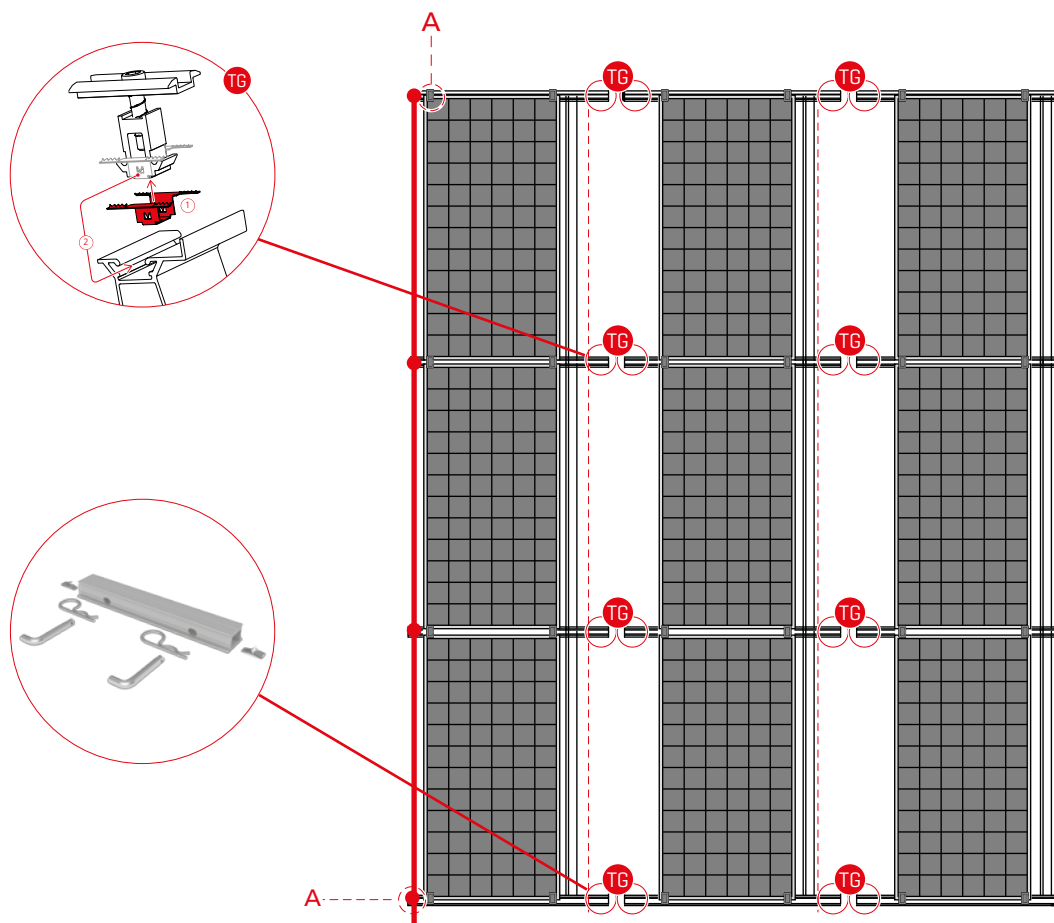
Materials needed:

- / **K2 Lightning protection clamp multi**
Alu 8 mm Set consists of:
 - / Lightning protection clamp Multi
 - / Slot nut, stainless steel, PA
 - / Allen Bolt M8 x 30
 - / Washer 8,4×20×1,2 mm
- / **Round wire**
- / **K2 Underlay plate**
- / **TerraGrif K2MI**
- / **TerraGrif PL**

S-Dome 6: Lightning protection



The example shows a potential equalisation of the mounting system in module direction via the Windbreaker, alternatively with aluminium round wire in rail direction with TerraGrif PL.



- / If the system is to be integrated into an existing lightning protection system, lightning current carrying connections to the mounting system must be made. The connections within a block do not have to be designed to carry lightning current if the external building lightning protection is functioning.
- / The planning for integrating the system into the existing external lightning protection and thus also the number of connections to the external lightning protection must be carried out by a lightning protection specialist. We recommend connecting and disconnecting with aluminium round wire [$\geq 25 \text{ mm}^2$].
- / Alternatively, we recommend maintaining the separation distance.
- / In addition to the lightning protection, the potential equalisation of all components must be established.

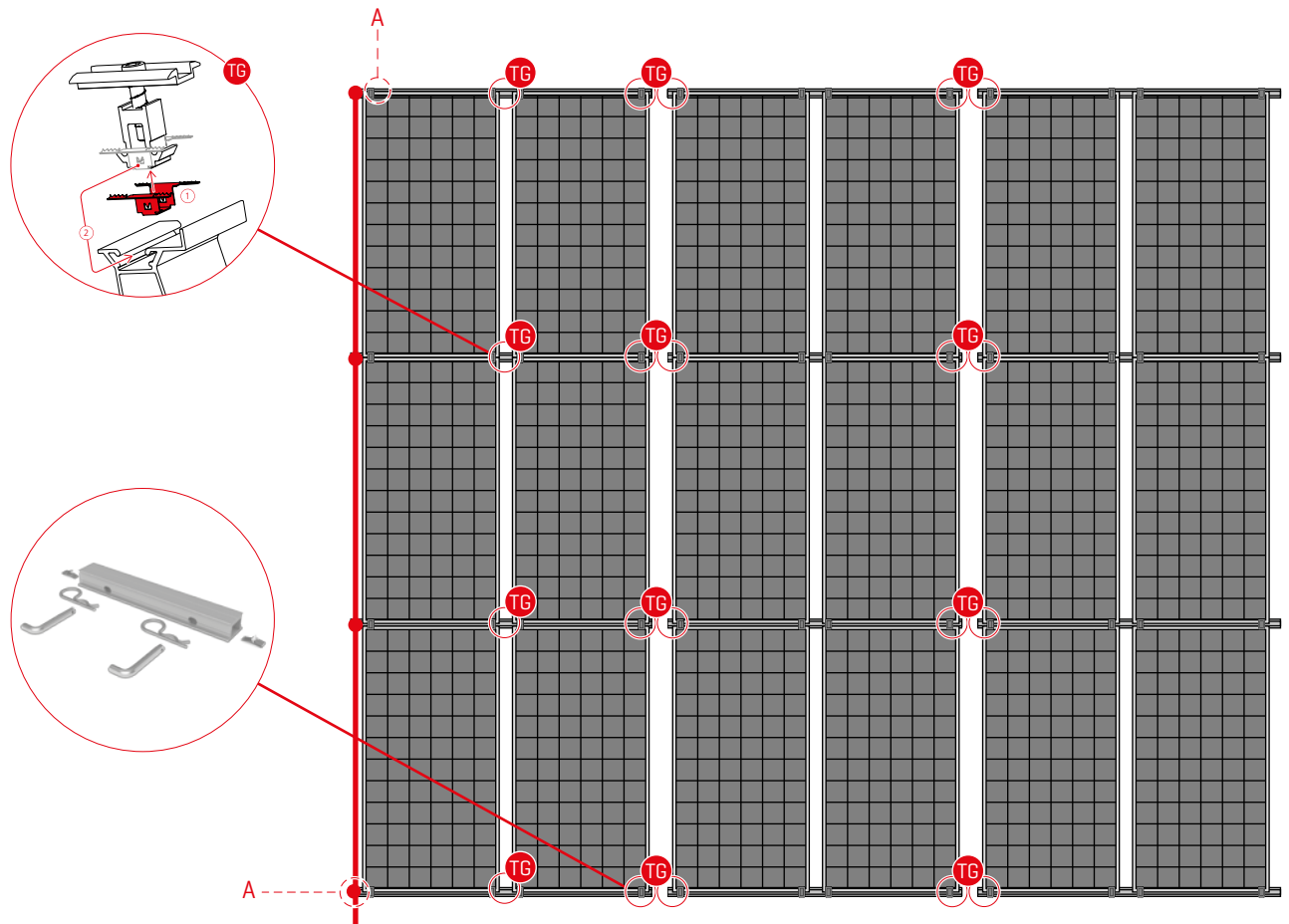
Materials needed:

- / **K2 Lightning protection clamp multi**
Alu 8 mm Set consists of:
 - / Lightning protection clamp Multi
 - / Slot nut, stainless steel, PA
 - / Allen Bolt M8 x 30
 - / Washer 8,4x20x1,2 mm
- / **Round wire**
- / **K2 Underlay plate**
- / **TerraGrif K2MI**
- / **TerraGrif PL**

D-Dome 6: Equipotential bonding



The example shows the equipotential bonding of the mounting system in module direction with aluminium round wire and the alternative with TerraGrif K2MI as well as in rail direction with TerraGrif PL.



- / For equipotential bonding in the direction of the module, we recommend making a connection with aluminium round wire. Alternatively, a connection can be made via the module frame with TerraGrif K2MI.
- / For equipotential bonding in the rail direction, we recommend using two TerraGrifs PL per rail connector.
- / Module frame earthing is carried out as required. If required, each module must be connected by means of TerraGrif K2 MI. For module frame earthing, we recommend a factor of 0.8 to 1 TerraGrif/module.
- / The factor changes if the equipotential bonding of the mounting system is also established with TerraGrif K2MI.

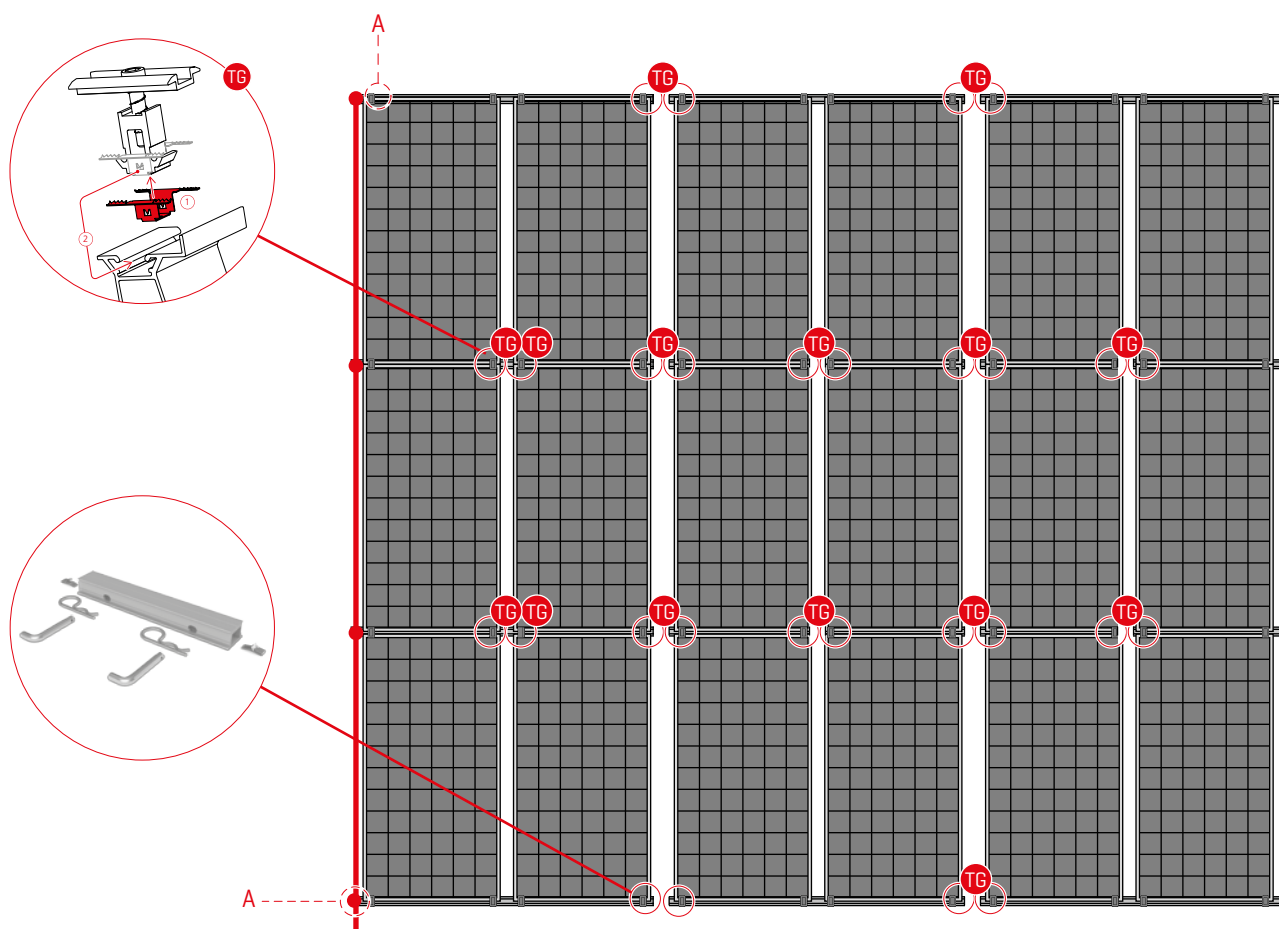
Materials needed:

- / **K2 Lightning protection clamp multi**
Alu 8 mm Set consists of:
 - / Lightning protection clamp Multi
 - / Slot nut, stainless steel, PA
 - / Allen Bolt M8 x 30
 - / Washer 8,4×20×1,2 mm
- / **Round wire**
- / **K2 Underlay plate**
- / **TerraGrif K2MI**
- / **TerraGrif PL**

D-Dome 6: Lightning protection



The example shows the equipotential bonding of the mounting system in module direction with aluminium round wire, in rail direction with TerraGrif PL and of the module frame with TerraGrif K2MI.



- / If the system is to be integrated into an existing lightning protection system, lightning current carrying connections to the mounting system must be made. The connections within a block do not have to be designed to carry lightning current if the external building lightning protection is functioning.
- / The planning for integrating the system into the existing external lightning protection and thus also the number of connections to the external lightning protection must be carried out by a lightning protection specialist. We recommend connecting and disconnecting with aluminium round wire [$\geq 25\text{mm}^2$].
- / Alternatively, we recommend maintaining the separation distance.
- / In addition to the lightning protection, the potential equalisation of all components must be established.

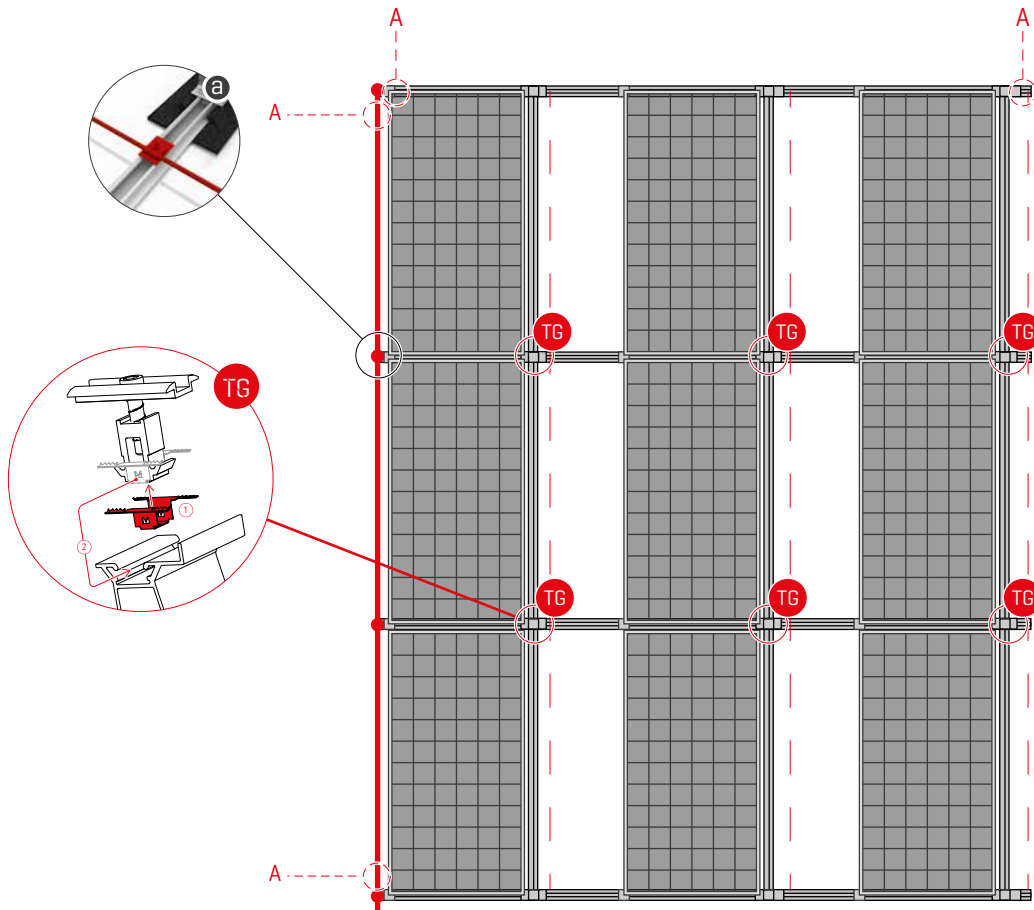
Materials needed:

- / **K2 Lightning protection clamp multi**
Alu 8 mm Set consists of:
 - / Lightning protection clamp Multi
 - / Slot nut, stainless steel, PA
 - / Allen Bolt M8 x 30
 - / Washer 8,4x20x1,2 mm
- / **Round wire**
- / **K2 Underlay plate**
- / **TerraGrif K2MI**
- / **TerraGrif PL**

S-Dome 6 unmounted: Potential equalisation and lightning protection



The example shows a lightning protection equipotential bonding of the mounting system in module direction via the windbreakers, alternatively with aluminium round wire and the module frame earthing with K2MI.



- / The mounting system is capable of carrying lightning current!
- / A [lightning protection] equipotential bonding in module direction is carried out via the windbreaker/wind deflector plates.
- / Alternatively, equipotential bonding can be established with aluminium round wire.
- / If the system is to be integrated into an existing lightning protection system, lightning current-carrying connections must be made to the mounting system.
- / We recommend an aluminium round wire ($\geq 25 \text{ mm}^2$) for the connection and discharge to a lightning protection.
- / In case of gaps in the module layout, make sure that all modules are integrated in the equipotential bonding or lightning protection.
- / The planning for integrating the system into the lightning protection and thus the number of connections to the external lightning protection must be carried out by a lightning protection specialist.
- / Module frame earthing is carried out as required. We recommend using a TerraGrif K2MI/module.
- / For this, we recommend a factor of 0.8 TerraGrif/module.

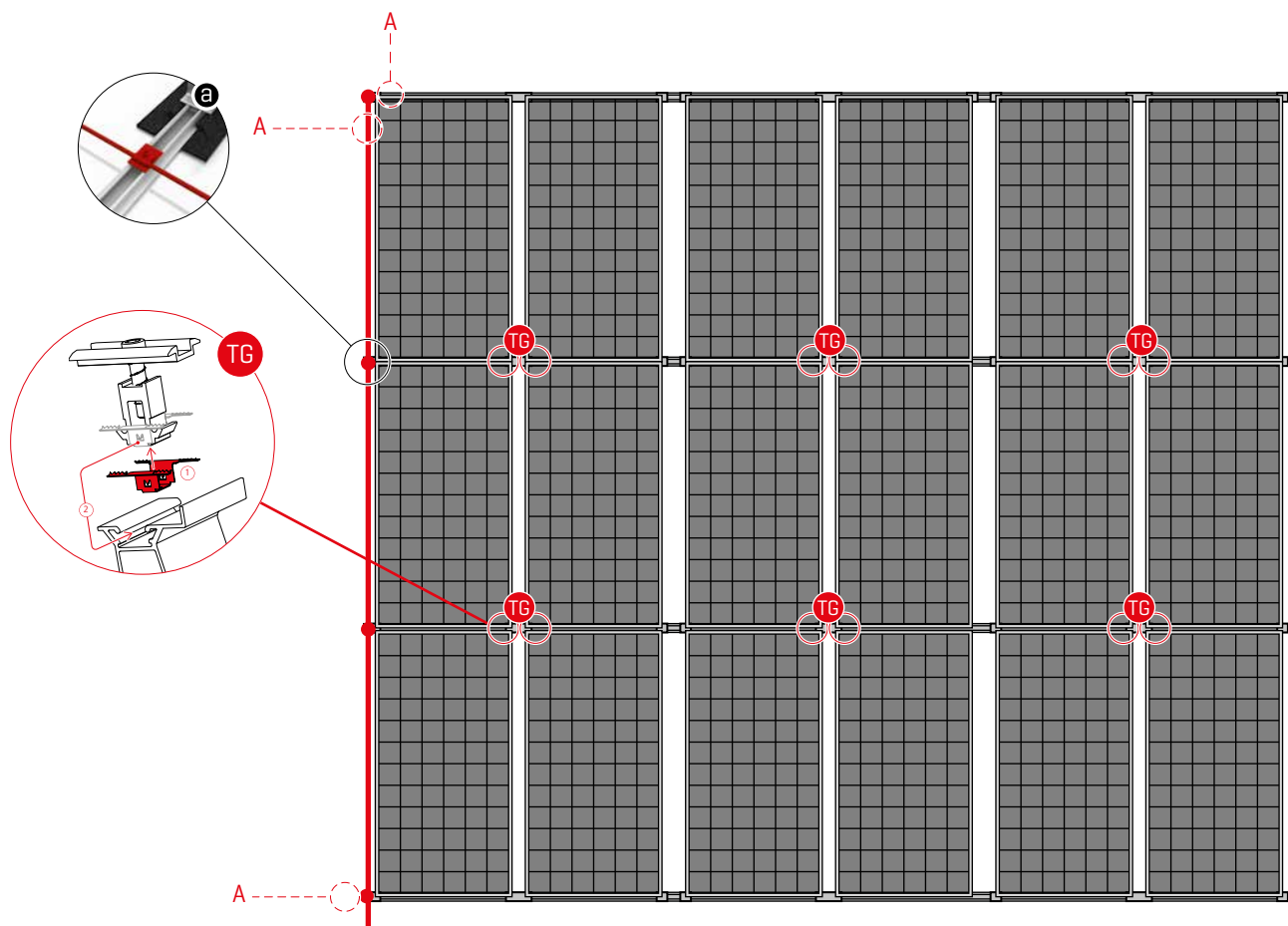
Materials needed:

- / **K2 Lightning protection clamp multi Alu 8 mm Set** consists of:
 - / Lightning protection clamp Multi
 - / Slot nut, stainless steel, PA
 - / Allen Bolt M8 x 30
 - / Washer 8,4x20x1,2 mm
- / **Round wire**
- / **K2 Underlay plate**
- / **TerraGrif K2MI**

D-Dome 6 unmounted: Potential equalisation and lightning protection



The example shows a lightning protection equipotential bonding of the mounting system in module direction with aluminium round wire and the module frame earthing with K2MI



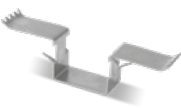
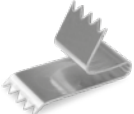
- / The mounting system is capable of carrying lightning current!
- / The [lightning protection] equipotential bonding in module direction is carried out with aluminium round wire.
- / The planning for integrating the system into the existing external lightning protection and thus the number of connections to the external lightning protection must be carried out by a lightning protection specialist. We recommend connecting and disconnecting with aluminium round wire [$\geq 25\text{mm}^2$].
- / Alternatively, we recommend maintaining the separation distance. In addition to the lightning protection, the potential equalisation of all components must be established. We recommend setting up the equipotential bonding with aluminium round wire, alternatively with TerraGrif K2 MI.
- / In case of gaps in the module layout, make sure that all modules are integrated in the equipotential bonding or lightning protection.
- / Module frame earthing is carried out as required. We recommend using a TerraGrif K2MI. You need a factor of 0.8 TerraGrif/module.

Materials needed:

- / **K2 Lightning protection clamp multi**
Alu 8 mm Set consists of:
 - / Lightning protection clamp Multi
 - / Slot nut, stainless steel, PA
 - / Allen Bolt M8 x 30
 - / Washer 8,4×20×1,2 mm
- / **Round wire**
- / **K2 Underlay plate**
- / **TerraGrif K2MI**

Components

TerraGrif types: compatibility and technical data

	K2SZ	U17	K2MI	PL	K2PA	S Insertion rail
Figure						
Compatibility						
SingleRail	●	○	○	○	○	○
SolidRail	●	○	○	○	○	○
Insertion rail	○	○	○	○	○	●
SpeedRail	●	○	○	○	●*	○
MiniRail	○	○	●	○	○	○
MultiRail	●	○	○	○	○	○
D-/S-Dome	●	○	○	○	○	○
D-/S-Dome V	○	○	●	○	○	○
D-/S-Dome 6	○	○	●	●	○	○
Article number	2001881	2000056	2002649	2004102	2000055	2002397
General tolerance	Standard DIN 2095 grade 2					
Sheet material	Stainless steel 301 TA					
Standard	NFA 35573					
Weight [g]	3,2	1,8	3,6	1,15	2,4	1,5
Dimensions [mm]	10×16×60	20×5,8×17	40×11,7×36	22×10×8	10×31,7×12	10×13,5×21
Material [mm]	0,5					

● Compatible

○ Not tested

○ Not compatible

* Only for landscape assembly with AddOn.

K2 lightning protection elements

for aluminium round wire 8 mm

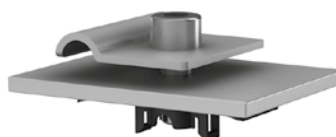
K2 Lightning protection clamp

multi Alu 8 mm Set consists of:

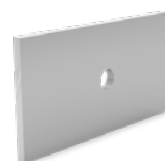
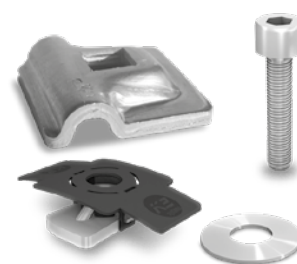
- / Lightning protection clamp Multi
- / Slot nut, stainless steel, PA
- / Allen Bolt M8 x 30
- / Washer 8,4×20×1,2 mm

optional: K2 Underlay plate

Sheet material: Aluminium



2002473



1000789

General notes

Different components are needed to connect the mounting system to existing lightning protection. We recommend using suitable components for the lightning protection as required. The connections must be permanently suitable when connecting different materials, taking account of the electrochemical voltage series:

- / Cross connections
- / Parallel connections
- / Connections

We support PV systems



Thank you for choosing K2 components.

Systems from K2 Systems are quick and easy to assemble.

We hope that these instructions have been of help to you.

Please do not hesitate to contact us if you have any suggestions, questions or ideas for improvements. All contact details can be found at:

► www.k2-systems.com/en/contact

► **Service hotline: +49 (0) 7159 42059-0**

German law applies to the exclusion of the UN Convention on Contracts for the Sales of Goods. The place of jurisdiction is Stuttgart.

Our General Terms and Conditions of Delivery apply and can be found at:
www.k2-systems.com

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