

YSHIELD

EMR - PROTECTION

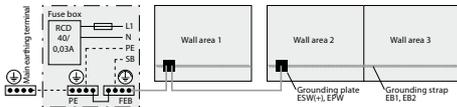
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Grounding informations

Important safety guidelines

Large shielding measures with shielding materials are no electrical equipment but „new conductive parts“ according to IEC 826-03-03 or IEC 195-06-11 and thereby a new method of DIN VDE 0100-100:2009-06. By connecting the material(s) to the potential equalization they are inherent part of the electrical system. Generally accepted rules of technology have to be respected.

The state of the technology differentiates between protective equipotential bonding and functional equipotential bonding (FEB). The protective equipotential bonding (green/yellow cable) is a protective measure and ensures that, in the event of a fault, sufficient fault current flows to operate the disconnection device (e.g. line circuit breaker). The functional equipotential bonding (transparent cable) has the function to „reduce the emission of low-frequency electrical fields“, i.e. prevents from leaking electrical field. Installation of a functional equipotential bonding is as follows:



- Grounding/earthing measures are only permitted in TN-S, TT and IT networks. Grounding measures must never be executed in network forms with combined PEN-wiring!
- A leakage/fault circuit breaker with ≤ 30 mA must be installed!
- DIN EN 62305-3 (VDE 185-305-3:2006-10) applies to buildings with outer lightning protection system.

Instructions on proper grounding sequence: 1 The FEB-balancing circuit has to be connected directly to the FEB-busbar with a 4 mm² cable in the electric circuit distributor (fuse box). 2 In exceptional cases, the FEB-balancing circuit can be connected to a suitable protective earth conductor or balancing line. This exemption clause is important to make earthing possible without the need for making modifications to the fuse box. 3 Grounding with a 2,5 mm² cable at a protective conductor in the electric installation. 4 Grounding with our grounding plug EST and EPS (included in ESW+, ESW+, ESS) for plugging or screwing in the power socket. Grounding is to be completed by a licensed electrician! 5 Metallic pipe systems or detached grounding rods which are not included in the potential equalization of the building are of limited suitability. It is nevertheless possible to use them in network forms with combined PEN-wiring. Please be sure to follow all local laws and standards.

Grounding system with press studs



Many of our grounding components and products can be connected directly to each other with our grounding cables EK! We use stiff closing, very stable sockets and press studs normally used in boat building. If local regulations require it, the plugs can be mechanically fixed. Mounting hint for the cable ties: Fold it to a curve 5 mm away from the front end so you can easily push it through both holes in the grounding plate!

Grounding sets ESW(+)/EPW

Grounding set for shielding paints, fleeces and nettings in the interior. Per each continuous connected area (per room), one ESW is needed.

- Don't remove the backside fleece! Mounting at an easily accessible point, close to the final ground connection.
- Drill 6 mm holes. Make sure you do not drill cables in the proximity of power outlets and switches!

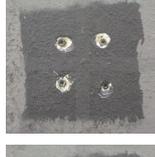
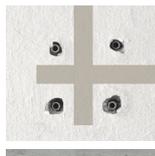
- For shielding paints: Stick grounding strap EB2 as shown under „Grounding straps“. Paint the area with the shielding paints as recommended in the corresponding technical data sheet. After drying, apply a second coat under and around the plate. Let it dry.

- For nettings, fleeces: Stick grounding strap EB as shown under „Grounding straps“. Adhere the materials on the area with some overlap as recommended in the corresponding technical data sheets. Our dispersion glue DKL90 is electrically conductive, why there is a low electrical resistance after drying, which is necessary for proper grounding. This also applies to various wallpaper paste, but there is no guarantee on that! Let it dry. Drill out holes again.

- Insert dowels and screw down the plate tightly.

- Mask the grounding plate, it is not allowed to overpaint it! Overpaint the area with commercial wall paints, wallpapers or use fine plaster as recommended in the corresponding technical data sheets.

- Press down the grounding plug tightly. Fix it with a cable tie. Alternatively install own cables 2.5-4 mm² with the included terminal lugs.

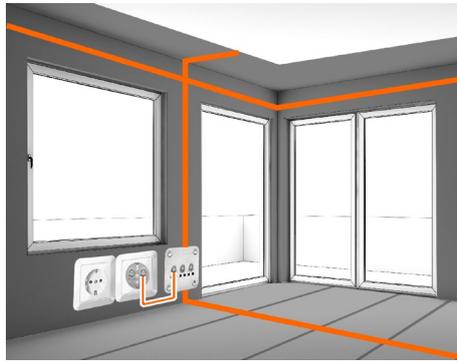


Grounding straps EB1 / EB2

Self-adhesive grounding straps for shielding paints, fleeces and nettings in the interior.

- The glue on EB1 is electrically conductive. Therefore the EB1 can be stucked under and on the materials. Application under and on nettings, fleeces to connect the limited width of material. With an adhesive force of 3 N/cm, it sticks relatively poor on difficult undergrounds (e.g. plasterboards). Use a primer first!

- The glue on EB2 is electrically non-conductive. Therefore the EB2 can be stucked only under the materials. Application under shielding paints to bridge cracks in the underground. With an adhesive force of 10 N/cm it sticks very well even on difficult undergrounds.



The grounding straps must be pressed down tightly to adapt perfectly to the underground. Mounting: Cross all areas once and connect them with each other, starting from ESW (EPW). The strap can be stucked under the baseboard if there are no doors.

Stainless steel tape ELB

Grounding tape for stainless steel gauges, under plaster or in drywall constructions.

- The groundable materials have to be screwed, stapled or glued with 5 cm overlap.
- To electrically connect the limited width of the materials, the steel tape has to be screwed across all paths as often as possible, especially at the overlapping positions. In case of processing under plaster you should not plaster over the tape before you have screwed it!
- Screw on your own grounding cable with a suitable M6-screw, screw-nut and cable clamp M6 directly to the steel tape.



Grounding set ESA

Grounding set for shielding paints in the exterior. For each continuous connected area two ESA are required.

- Mounting at an easily accessible position, near to the final ground connection point.

- The underground has to be smoothed on 20 x 20 cm with a fine filler (fine mortar) that is suitable for your facade. It is important that the plate has an absolute plane underground for a good contact to the shielding paint. Let the fine filler dry.

- Drill 6 mm holes. Make sure you don't drill cables! Insert dowels.

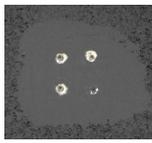
- Paint the area with the shielding paint, as recommended in the corresponding technical data sheet. After drying, apply a second coat under and around the plate. Let it dry.

- Screw down the plate tightly. Stick the protective housing around the plate with the enclosed waterproof glue. Use much glue, especially on the cable outlet, that the plate is completely protected against water all around.

- Paint the area with water-repellent facade paints, as recommended in the corresponding technical data sheet.

- As required extend the cable end. The enclosed shrink tubing is filled with a glue which seals the cable clamps waterproof.

- The grounding of facades has to be included in the potential equalization of the building to which the lightning protection systems are connected to as well! Use lightning protection components!



Grounding rods ES50 / ES100

Grounding rods to connect other grounding components and groundable products. ES50 for mobile applications, ES100 for permanent mounting.

- Hammer the rod into the earth with suitable heavy tools.

- Put the heat shrink tube over the rod.

- Connect the cable. Either you use a ready-made cable (e.g. EK1000), or you use an own cable 16 mm² with a cable lug. Attention: Don't forget anything, the heat shrink tube glues all together permanently!

- Shrink the heat shrink tube with a hot-air gun (> 150°C).



Grounding set MCL

Grounding set for magnetic shielding film MCL61. Sufficient for 5-10 sheets.

- Glue MCL61 with the underground.
- Drill 6 mm holes. Make sure you do not drill cables in the proximity of power outlets and switches!

- Insert dowels. The teeth of the chopper disk must show down.

- Screw down the cable lug on the chopper disk very hard, so that the teeth penetrates the polyester film.



Grounding sets ESR / EPR

Grounding set to connect our grounding components to grounded (heating) pipes.

- Put the plate on an unisolated position on the (heating) pipe and screw it down with the both worm drive clamps.
- Press down the grounding plug tightly. Fix it with a cable tie.



Grounding sets ESV / EPV

Grounding set for loosely laid nettings, fleeces, etc.

- Unscrew the wing nut and disassemble the both plates.
- Take a textile cutter or a knife (risk of injury!) and pierce a small hole of 4 mm in the material.
- Insert the plate with the screw-nut from behind through the hole.
- Put on the front plate and screw it down with the wing nut.
- Press down the grounding plug tightly and fix it with a cable tie.



Grounding cables EK

Grounding cables for connecting our grounding components and groundable products.

To directly connect ESW and EPW (on walls), ESV and EPV (for loosely laid nettings, fleeces and fabrics), ESR and EPR (on pipes), canopies (Perspective, Silver-Tulle), floor mats with integrated press studs, etc.



Grounding set EST

Grounding plug for loosely laid nettings, fleeces, canopies, floor mats, etc.

Suitable only in countries with CEE-7/4* and CEE-7/7** power sockets, see list below.

- Only a licensed electrician is allowed to push this grounding plug into a power outlet, see „Important safety guidelines“!
- The mounting of the plates is generally the same as with grounding set ESV!



Plug in ESS / ESW+ / ESV+ / EPS

Grounding plug for power sockets, included in following grounding sets: ESW+, ESV+, ESS, EPS.

Suitable only in countries with CEE-7/4* power sockets, see list below.

- Open and remove the screw of the socket cover.
- Only a licensed electrician is allowed to put / screw this grounding plug in a power outlet, see „Important safety guidelines“!
- To fix this plug permanently in the power socket, it can be screwed together with the socket cover using the enclosed screw.
- Press down the grounding plug tightly and fix it with a cable tie.



* Countries with CEE-7/4 sockets

„German system“: Afghanistan, Algeria, Andorra, Austria, Bosnia-Herzegovina, Bulgaria, Croatia, Estonia, Finland, Germany, Greece, Hungary, Iceland, Indonesia, Italy, Korea, Latvia, Lithuania, Luxembourg, Macedonia, Moldova, Montenegro, Netherlands, Norway, Portugal, Romania, Russia, Serbia, Slovenia, South Korea, Spain, Sweden, Syria, Turkey, Ukraine.

** Countries with CEE-7/7 sockets

„French system“: Belgium, Czech Republic, France, Monaco, Morocco, Poland, Slovakia, Tunisia.