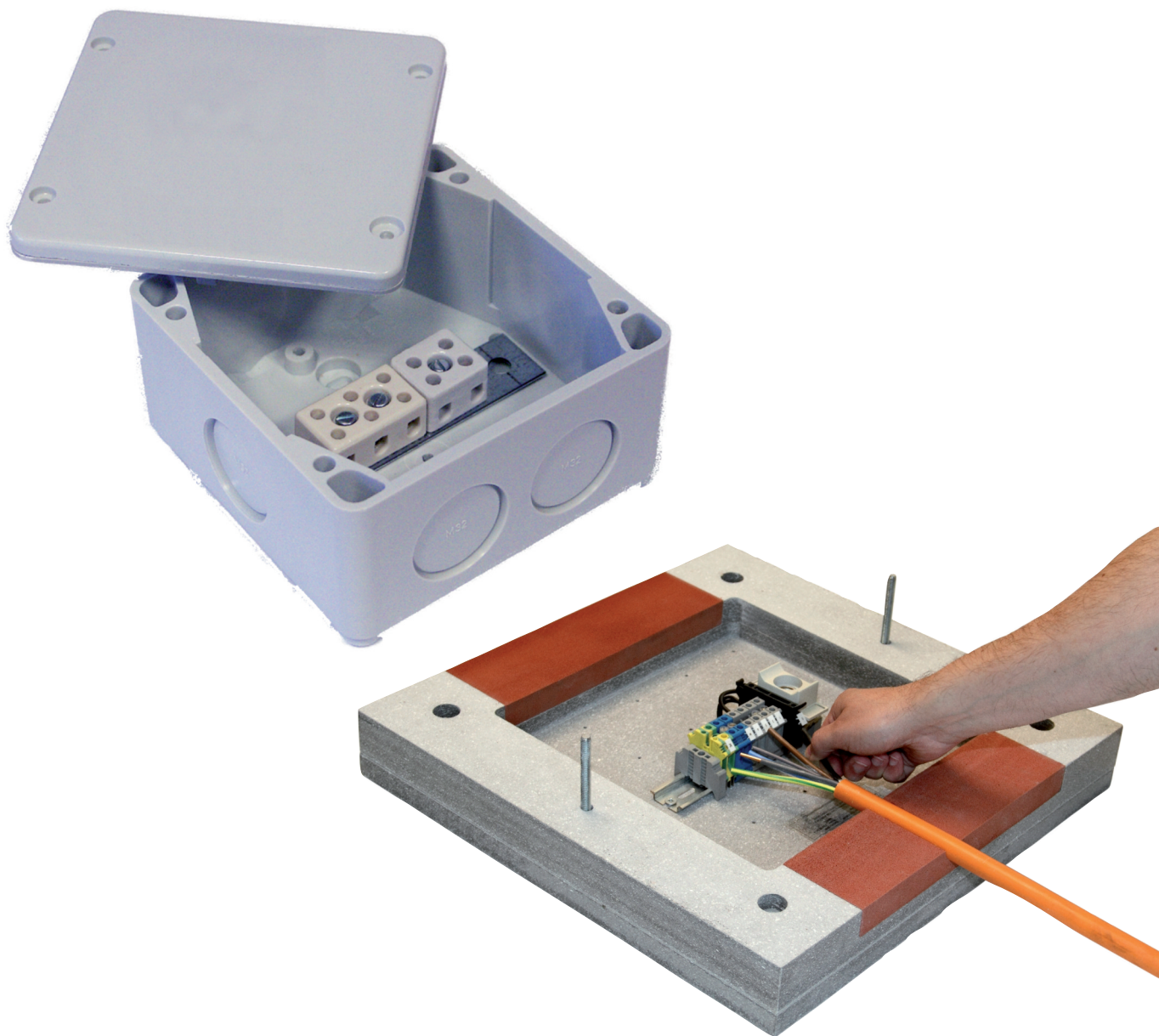


# Manual

**Fire-resistant connection box and small distribution board**  
for 90 min. or 30 min. with exposure to fire from the outside



|                           |                 |                 |                 |
|---------------------------|-----------------|-----------------|-----------------|
| Connection box:           | <b>FB1560SN</b> | <b>FB1050SN</b> |                 |
| Small distribution board: | <b>FB2010LN</b> | <b>FB3010LN</b> | <b>FB3010SN</b> |

Version 1.0



Transport/Storage/Assembly/Commissioning/Maintenance

NB:







It is imperative that you read the manual prior to commissioning for the first time. Please observe the safety information.

Serial number: \_\_\_\_\_  
to be completed after delivery

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## 2 Safety information

|  |  |
|--|--|
| <br> | <p style="text-align: center;"><b>⚠ WARNING</b></p> <p>Untrained personnel can not mount the housing safely or in line with standards.</p> <p>→ <b>Risk of an electric shock</b></p> <p>→ <b>Impaired fire safety effectiveness</b></p> <ul style="list-style-type: none"> <li>▶ Have the housing handled by a qualified electrician.</li> <li>▶ Have operating personnel instructed professionally and correctly.</li> <li>▶ Ensure that operating personnel fully understand their tasks and activities and have them supervised by a qualified electrician.</li> </ul>  |
|   | <p style="text-align: center;"><b>⚠ WARNING</b></p> <p>The insulating materials in the housing react sensitively to external factors.</p> <p>→ <b>Impaired fire safety effectiveness</b></p> <ul style="list-style-type: none"> <li>▶ Ensure that the housing does not display any damage (cracks, displaced insulation etc.).</li> <li>▶ Only use the housing when it is in a safe and technically perfect condition.</li> <li>⊘ <b>Never</b> mount the housing outside.</li> <li>⊘ <b>No</b> dusty or vibrating environments</li> <li>⊘ Do <b>not</b> mount the housing in rooms with temperatures <b>below 10 °C or over 40 °C</b>.</li> <li>⊘ Do <b>not</b> store or mount the housing in rooms with <b>air humidity exceeding 50%</b>.</li> </ul> |
|   | <p style="text-align: center;"><b>⚠ WARNING</b></p> <p>Doors/Flaps left open</p> <p>→ <b>Impaired fire safety effectiveness</b></p> <ul style="list-style-type: none"> <li>▶ Always close the housing when it is in operation.</li> <li>▶ Minimise periods of access to the housing interior.</li> </ul>   |
|   | <p style="text-align: center;"><b>⚠ CAUTION</b></p> <p>If the manual is missing</p> <p>→ <b>Non-designated handling of the enclosure</b></p> <ul style="list-style-type: none"> <li>▶ Always leave the manual inside the housing or within the reach of operating personnel.</li> </ul>  |
|   | <p style="text-align: center;"><b>⚠ CAUTION</b></p> <p>If the fire safety system is not planned in conformity with the law</p> <p>→ <b>Attenuation of the fire safety effectiveness of the overall system</b></p> <ul style="list-style-type: none"> <li>▶ Please observe the MLAR, the respective LAR applicable in your country, the VDE regulations, the DIN, the general building inspectorate approval and the stipulations of the fire safety authorities and building supervisory authorities (see section 5).</li> </ul>   |

## 2.1 Manufacturer's declaration



No liability is accepted for formulation or printing errors.

Modifications made by the customer to the design and/or housing will lead to the loss of certification and will release Hager Electro GmbH & Co. KG from any claims for compensation or recourse.

The manufacturer retains the right to make technical and structural modifications.

## 3 Transport and storage

When you accept the fire protection housing, please observe the enclosed Info note on delivery after transport. Information is also available in section 11.3 of this manual.

|  |  |
|--|--|
|  |  <b>WARNING</b>   |
|  | <p>The housing can incur damage during transport and storage.</p> <p>→ <b>Impaired fire safety effectiveness</b></p> <p>▶ Please follow the basic information on handling the housing with care (see below).</p> |

### 3.1 Basic information on handling the housing with care

- ▶ If possible, transport the housing in the packaging supplied (possibly also on a transport pallet).
- ▶ Protect the housing from moisture, rain, splashwater and external weather conditions.
- ▶ Leave the housing in its packaging during interim storage.
- ▶ Store the housing on a firm, level and clean surface only.
- ⊗ Do **not** store the housing in rooms with temperatures **below 10 °C or over 40 °C**.
- ⊗ Do **not** store the housing in rooms with **air humidity exceeding 50 °C**.
- ⊗ Do **not** store the housing outside.
- ⊗ Do **not** expose the housing to frost.
- ⊗ Do **not** stack.
- ⊗ Do **not** load.
- ⊗ **Avoid** hard impact.

## 4 About this manual

This manual is aligned towards qualified personnel entrusted with the transport, storage, installation, commissioning and maintenance of the connection box. The manual aims to help you to carry out these tasks safely to ensure that the housing is always capable of fully complying with its functions.

Please read the manual carefully before handling the connection box in any way. It is also imperative that you note the information on transport and storage (section 3) as it is important for the fire safety function that the distribution is handled correctly from the moment of delivery.

The manual must always be kept in the housing or within the reach of operating personnel.

### 4.1 Information on manual layout

This manual displays a consistent layout which aims to help you to swiftly find the requisite information and clearly identify the type of information supplier (general information, operating instructions, sources of danger etc.).

A result is indicated by an arrow:

- This is the result of an action or situation

Operating instructions are indicated by an arrowhead:

- ▶ 1. Please follow these instructions

Instructions to be followed step-by-step are numbered consecutively.



A ban is indicated by the prohibition sign:

- ⊘ Do not do the following

If additional tools or other items are required, they are indicated by a ring:

- This is required

To enable you to identify safety information as such, it is depicted in a box similar to the following.

|   |  |
|---|--|
|  |  <b>CAUTION</b> |
|   | Type and source of danger<br>→ <b>Possible consequences</b><br>▶ Measures or<br>⊘ prohibitions     |

A safety symbol in the left-hand column enables you to immediately classify the type of danger involved; a risk of fracture is symbolised in this example.

The headline in the hazard warning contains a triangle with an exclamation mark (the safety symbol for a general hazard area) followed by **CAUTION** or **WARNING**.

**CAUTION** for information which can lead to minor injury if ignored.

**WARNING** for information which can lead to death or serious, long-term injury if ignored.



The headline is then followed by a description of the type and source of danger.

The → symbol indicates the possible negative consequences.

And depending on the situation, this is followed by the measures to be taken (▶) or information regarding prohibited measures (⊘).

## 5 Abbreviations and terms

### Fire-resistance rating

The fire-resistance rating is the period of time which a component retains its cold properties (load-bearing, room-enclosing) during testing based on DIN 4102, Part 2.

### Maintenance of performance

Functionality concerns maintaining a property or condition in the event of a fire (e.g. power supply for systems of safety relevance). To enable the installer to assess whether the system retains its function in the event of a fire, Hager provides the relevant parameters from the fire tests on the housing on request.

### DIN 4102

The DIN 4102 standard defines the combustibility of building materials and the fire resistance of components. It is the classic standard governing building regulations which outlines how the structural fire safety specified by the building regulations is to be realised. It makes examination of fire performance compulsory by means of standard testing.

Until such a time as a test standard is available for distribution functions, they are tested by manufacturers on the basis of DIN 4102, Parts 2 and 12.

Typical fire-resistance classes (some are also referred to as fire safety classes) in accordance with DIN 4102 are:

- Fire-resistance rating F0: The component complies with its function for less than 30 minutes in the event of a fire.
- Fire-resistance rating F30: The component complies with its function for at least 30 minutes. This roughly corresponds with the following building inspectorate term: fire-retardant.



- Fire-resistance rating F60: The component complies with its function for at least 60 minutes. This roughly corresponds with the following building inspectorate term: highly fire-retardant.
- Fire-resistance rating F90: The component complies with its function for at least 90 minutes. This roughly corresponds with the following building inspectorate term: fire-resistant.
- Fire-resistance rating F120: The component complies with its function for at least 120 minutes. This roughly corresponds with the following building inspectorate term: highly fire-resistant.
- Fire-resistance rating F180: The component complies with its function for at least 180 minutes. This roughly corresponds with the following building inspectorate term: extremely fire-resistant.

### MBO (model building regulation)

Building fire safety for standard buildings is essentially regulated in Germany by the MBO, whereby § 14 must be observed in particular (version dated November 2002):

#### § 14 Fire protection

Structural systems must be arranged, constructed, modified and maintained in such a way that the outbreak of fire and the spreading of fire and smoke (fire propagation) are prevented and the rescue of people and animals as well as effective fire extinguishing is possible in the event of a fire.

The state building regulations (LBO) shall apply as implementations of the MBO in the individual federal states.

### MLAR (pipe supply regulation draft)

The MLAR outlines the technical fire protection requirements on piping systems in all types of buildings. The updated MLAR 11/2005 has already been introduced in many federal states or must be taken into consideration as the "state of the art". It replaces the MLAR 03/2000.

The MLAR is implemented at state level in the form of piping system guidelines (LAR) and guidelines governing technical fire protection requirements on piping systems (MLAE, e.g. Bavaria and Saxony).

The MLAR 11/2005 applies for

- Piping systems in necessary stairwells, in rooms between stairwells and exits to outdoor areas, in necessary corridors with the exception of open corridors against outer walls,
- the installation of lines through room-enclosing components (walls and ceilings),
- the function of electric line systems in the event of a fire.

### Connection box and small distribution board

The products with the order numbers FB1560SN and FB1050SN are summarised under the term "connection box" and the products with the order numbers FB2010LN, FB3010LN and FB3010SN are summarised under the term "small distribution board". The terms "fire-resistant connection box / small distribution board" and the more general terms "fire protection distribution", "fire protection housing" and "housing" are used with the same meaning here.

## 6 Performance description

### 6.1 Designated use

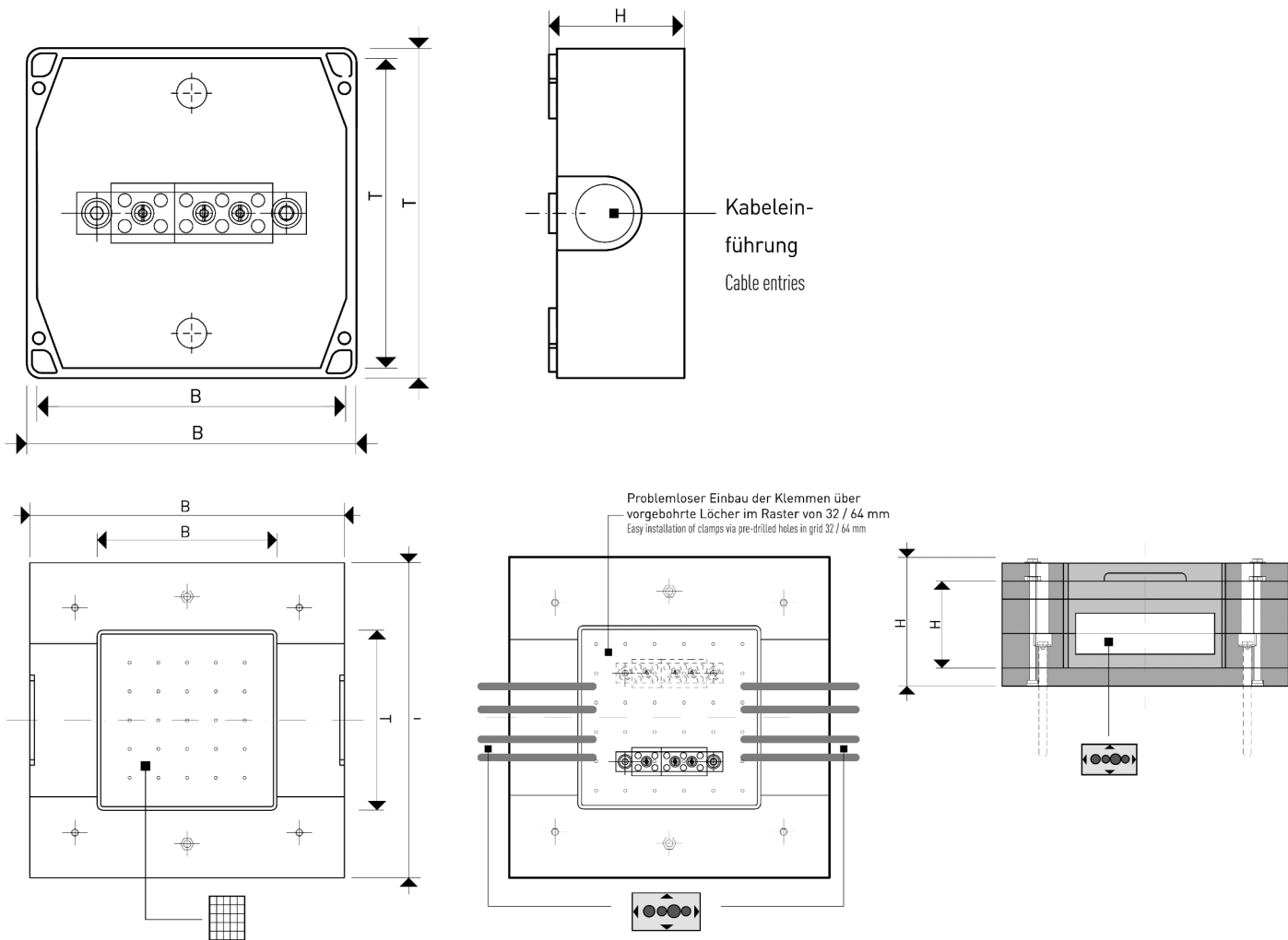
These fire-resistant connection boxes and small distribution boards exclusively serve towards ensuring the maintenance of performance by installations over a certain period of time in the event of a fire.

Transport, storage, installation, commissioning and maintenance of the connection box / small distribution board may only be carried out by qualified personnel.

The connection box / small distribution board may not be mounted in rooms in which the technical fire safety requirement of the MLAR or state-specific implementation thereof demands a higher fire rating.



## 6.2 Technical data



| Model                    | Reference | Outer dimensions |       |       | Inner dimensions |       |       | Weight | Equipment                                |
|--------------------------|-----------|------------------|-------|-------|------------------|-------|-------|--------|--|
|                          |           | Height           | Width | Depth | Height           | Width | Depth |        |  |
| Small distribution board | FB2010LN  | 350              | 350   | 128   | 200              | 200   | 100   | 20 kg  | none                                     |
| Small distribution board | FB3010LN  | 450              | 450   | 128   | 300              | 300   | 100   | 29 kg  | none                                     |
| Small distribution board | FB3010SN  | 450              | 450   | 148   | 300              | 300   | 100   | 35 kg  | none                                     |
| Connection box           | FB1560SN  | 165              | 165   | 76    | 155              | 155   | 60    | 0,8 kg | 5 terminals $\leq 10\text{mm}^2$         |
| Connection box           | FB1050SN  | 115              | 115   | 66    | 105              | 105   | 50    | 0,5 kg | 5 terminals, each 2.5-6.0mm <sup>2</sup> |

### Connection box

- Fire resistance of 90 min.
- Suitable for maintaining performance for 90 min.
- Cable entry is possible from 4 sides
- Safety class I
- IP54
- Cover is screwed on and smoke-resistant
- Equipped with ceramic terminals

### Small distribution board

- Fire resistance of 30 or 90 min.
- Suitable for maintaining performance for 30 or 90 min.
- Cable entry is possible from 2 sides
- Protection class II
- IP41
- Cover is screwed on and smoke-resistant
- For installing terminals / melting fuses
- Frame plate system can be dismantled for easy cable entry

## 7 Device description

### 7.1 Scope of supply

Once you have unpacked the connection box, please check the goods supplied for completeness.

The scope of supply includes:

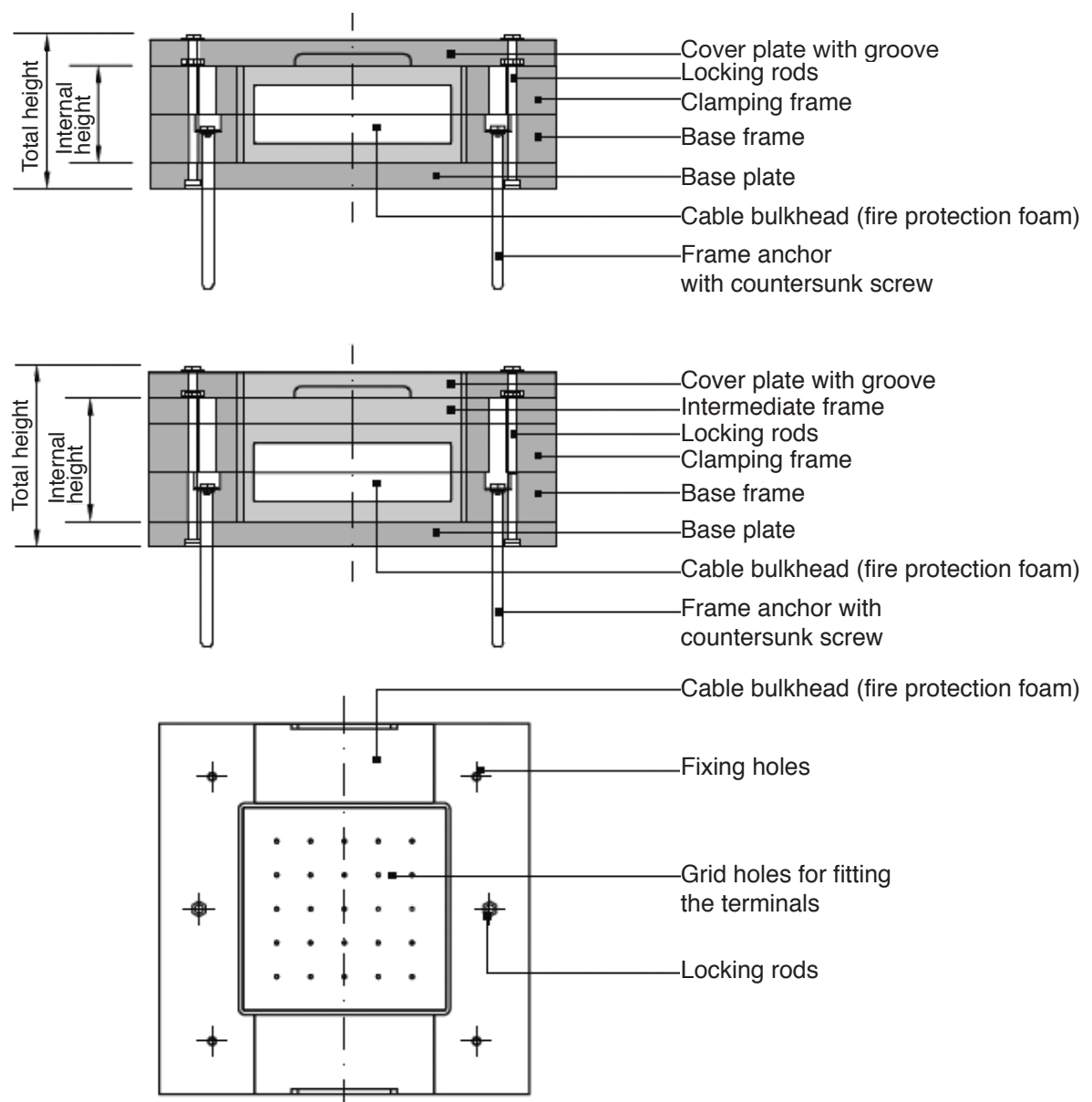
#### Connection box

- 1 x connection box
- 2 x anchors + screws FUR 8 x 80T
- 2 x lid fixing screws
- 1 x manual

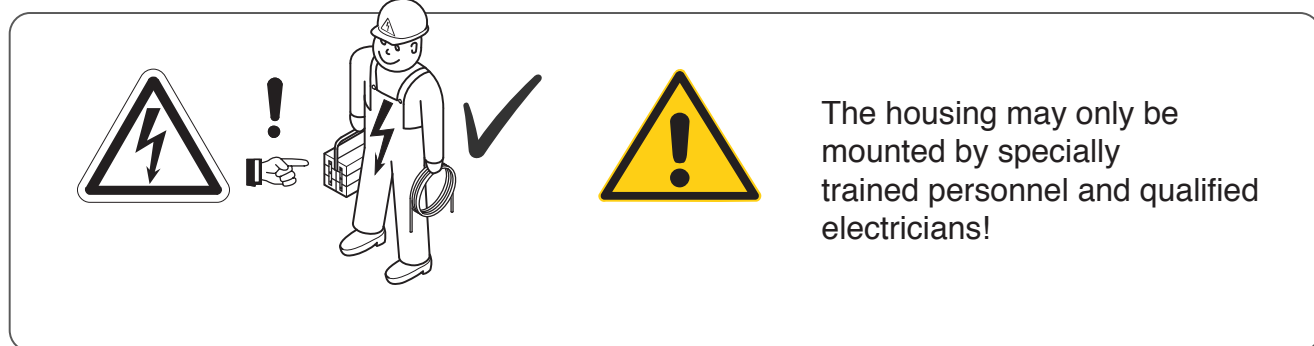
#### Small distribution board

- 1 x electrical terminal box
- 1 x fastening material for wall  
(4 frame anchors with countersunk screws)

### 7.2 Small distribution board design






## 8 Mounting

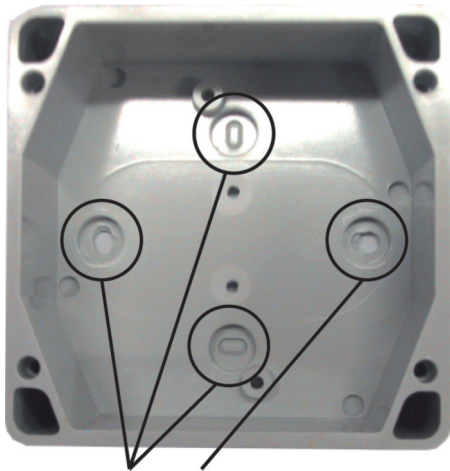


Some key rules must be observed when mounting the connection box. Please read and follow the safety information as well as observing the safety instructions in section 2.

Only use the anchors and screws supplied for mounting. These mounting materials are only suitable for concrete, solid bricks and solid sand-lime bricks. Where other wall materials are used, please obtain the corresponding approved anchors from a specialist retail outlet. Ensure that they offer a secure hold when combined with the respective wall/ceiling material and comply with at least the fire resistance displayed by the device.

|   |  |
|---|--|
|  | <p style="text-align: center;"><b>⚠ WARNING</b></p> <p>A secure hold by the connection box on the wall/ceiling can be impaired by many factors.</p> <p>→ <b>Impaired function in the event of a fire</b></p> <ul style="list-style-type: none"> <li>▶ Observe the static conditions.</li> <li>▶ Only mount on a wall which displays the fire-resistance period demanded by the operating conditions of the fire protection housing.</li> <li>▶ Use fire protection silicone/putty to compensate for any gaps between the wall/ceiling surface and the connection box.</li> <li>▶ Use the appropriate anchors and screws.</li> <li>⊘ Do not exert any tension on the housing when securing the screws.</li> <li>⊘ Do not overload the masonry statics.</li> </ul> |
|  | <p style="text-align: center;"><b>⚠ WARNING</b></p> <p>The covers are perfectly adapted to the respective housing base. The wrong cover will not fit properly.</p> <p>→ <b>Impaired function in the event of a fire</b></p> <ul style="list-style-type: none"> <li>⊘ <b>Never</b> interchange the covers.</li> </ul>   |
|  | <p style="text-align: center;"><b>⚠ CAUTION</b></p> <p>The fire safety housing has sharp edges and is difficult to handle.</p> <p>→ <b>Risk of crushing hands</b></p> <ul style="list-style-type: none"> <li>▶ Use work gloves.</li> </ul>   |

### 8.1 Mounting the connection box



Fixing points

1. Unscrew the cover and remove the accessory parts.
2. Align the terminal box without its cover against the solid wall or ceiling. Mark the fixing points through the visible holes.
3. Use a 6 mm drill to drill holes at least 40 mm deep in the wall.



4. Hold the terminal box against the wall/ceiling and hammer the nail anchors into the fixing holes in the wall as far as the nuts. Tighten the nuts until the anchors are secure. Carry out a tensile test.



5. Place the terminal carrier rail on the nail anchors



6. Turn the pan-head nuts on the threaded bolts and tighten with an Allen key.

**Connecting:**

**No contact** between conductors with varying potential values.

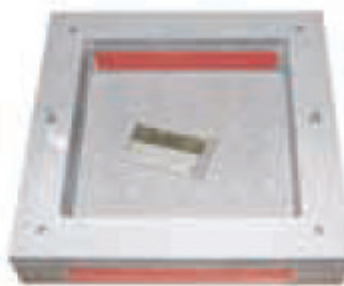
## 8.2 Mounting the small distribution board

### 1.

Unscrew the cover plate and check that the accessories are complete.

(4 frame anchors with countersunk screws)

All of the individual plates must be removed except the base plate.



### 2.

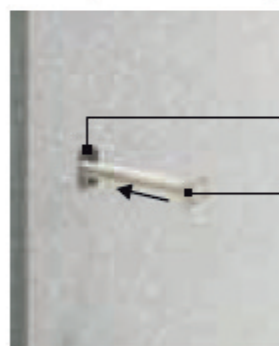
Align the base plate against the wall or ceiling.

Mark the fixing points through the holes.

Use a 10 mm drill to drill holes at least 80 mm deep in the wall.

Blow out the drilling dust.

Insert the locking rods into the lower grooves on the base plate.



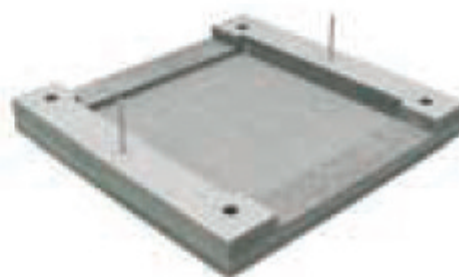
Groove

Locking rod

Underside of base plate

### 3.

Mount the base frame on the locking rods on the base frame.



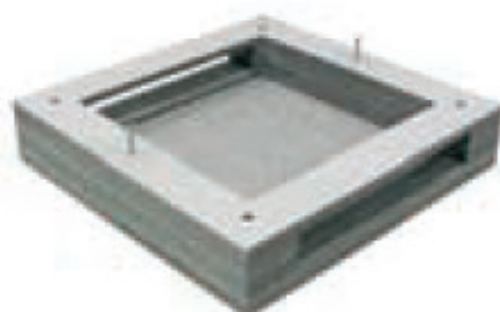
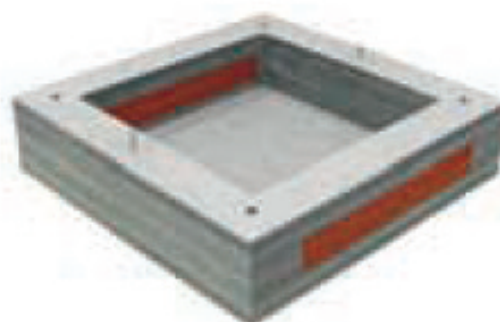
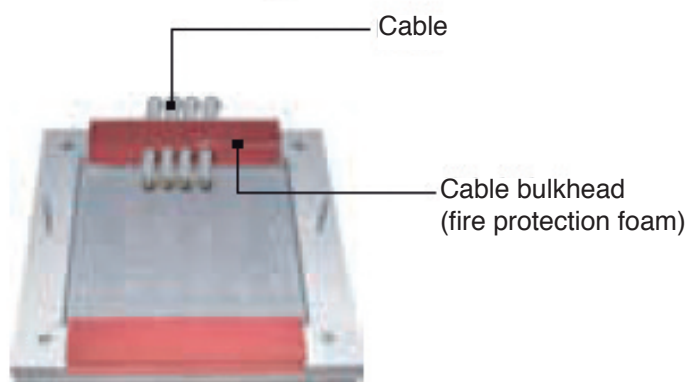
**4.**

Hammer the frame anchors through the base frame and base plate holes until fully integrated in the wall. Insert the countersunk screw and tighten.

**5.**

Mount the terminal and intermediate frame\* over the locking rod and insert the fire protection foam.

\*Intermediate frame only available for terminal boxes 100 mm in height

**Cable entry**

Distributed evenly, the connection cables must be entered between the two fire protection foam sections.

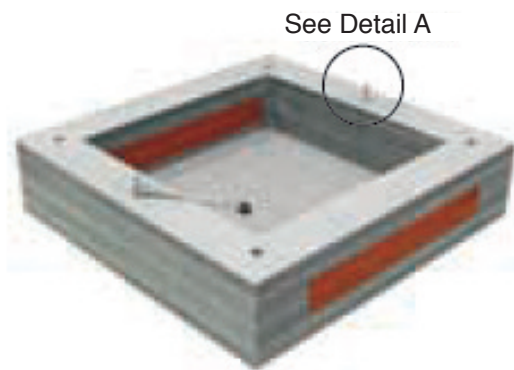
See drawing on the next page.

## 6.

Apply a ring washer and turn the hexagonal nuts on the locking rods. Tighten using a size 13 key.

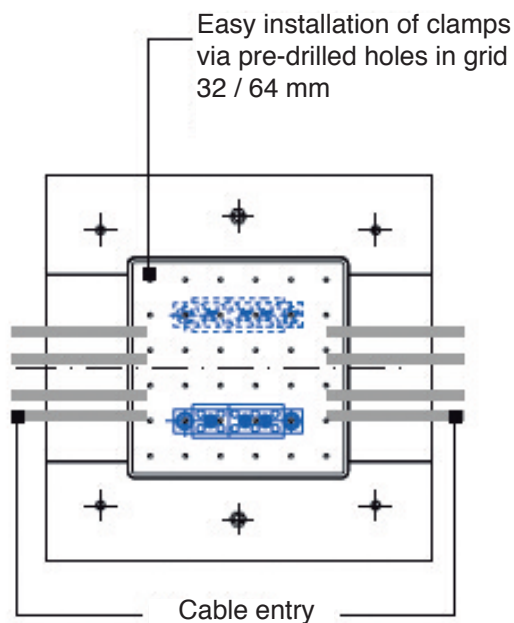
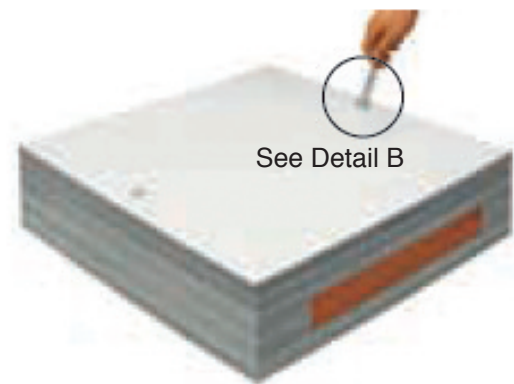


Detail A



## 7.

Put the cover plate on. Apply the ring washers and turn the safety nuts on the locking rods. Tighten using a size 13 key.



Diagram



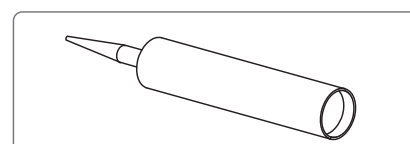
Detail B

**IP protection**

For a higher protection rating (e.g. IP54), the cable bulkhead and inserted cable must be circumferentially sealed with silicone.



Order number  
Fire protection putty



VZ449





## 9 Commissioning

|   |  |
|---|--|
|  |  <b>WARNING</b>   |
|   | <p>Fuse function can not be guaranteed in the connection boxes.</p> <p>→ <b>Impaired function in the event of a fire</b></p> <p>⊖ Do not install any fuses in the housing.</p> |

|   |  |
|---|--|
|  |  <b>WARNING</b>   |
|   | <p>Fire resistance can only be guaranteed where the appropriate cable connections are used.</p> <p>→ <b>Impaired function in the event of a fire</b></p> <p>▶ Install fire-resistant ceramic terminals.</p> <p>▶ Install the appropriate cables with functional integrity.</p> |

- ▶ During commissioning, please observe the safety information in section 2.
- ▶ Note the serial number on the rating plate which is indicated on the front page of this manual. This ensures that the manual is assigned to the correct housing.
- ▶ Check the integrity of the device each time before it is used.
- ▶ Check the correct position and integrity of all seals in particular.
- ▶ The covers match the respective housing base and should not be interchanged.
- ▶ When planning and designing electrical systems in the fire protection housing, please consider the operating conditions ensuing from the use of the fire protection housing.
- ▶ When equipping the fire protection housing, please note its maximum heat dissipation.
- ▶ Please note that devices sensitive to temperature and humidity should not be installed as they can cause the system to switch off prematurely.
- ▶ Go through the maintenance checklist on page 17.

## 10 Maintenance and repair

- ▶ During maintenance and repair, please observe the safety information in section 2.
- ▶ Hager fire protection housings should be regarded as technical safety systems which require maintenance and functional testing at least once a year.
- ▶ Go through the maintenance checklist in section 11.3 once a year. Make a copy of the maintenance checklist for this purpose.
- ▶ We recommend having this test carried out by an employee authorised by us as comprehensive knowledge and experience make for particularly thorough maintenance.
- ▶ We recommend a monthly visual inspection of the fire protection housing.
- ▶ If damage of technical safety relevance is detected, the cabinet must be repaired using original parts before further use. This must be carried out by personnel authorised by Hager.
- ▶ Clean the outside of the housing using a standard household cleaning agent.

## Info note on delivery after transport

If the product supplied is incomplete or has been damaged during transport, please assert your claims within a period of 6 days.

To ensure that you do not incur any disadvantages, please note the following items of information:

- ▶ Check the packaging and its contents for completeness and integrity on delivery after transport. This guarantees that any transport damage which may have been incurred is not borne by you.
- ▶ The driver of the delivery vehicle is obliged to wait until you have inspected the transported goods. If the driver does not wish to wait, please note the vehicle license number and have the driver sign to confirm that he does not wish to wait.
- ▶ If transport damage or shortfall quantities are detected, please note these on the consignment note along with the vehicle license number and have the driver sign the note as confirmation. Reimbursement by our or your insurance is not possible without these documents.
- ▶ Leave damaged goods untouched and:
  - On delivery by post:  
Please contact your local post office.
  - On delivery by forwarding agent:  
Please contact our Technical Service:

E-Mail: [technikblau@hager.de](mailto:technikblau@hager.de)  
Telefon: 0180 3 84 74 24\*

\*0,09€ per minute on Telekom landlines, rates may differ for mobile phones  
(valid as at 11/2009)

## Maintenance checklist

Complete a copy of the maintenance checklist every year, check to confirm the individual items and sign the form.

If you are unable to confirm individual items, the fire safety function is no longer guaranteed in full and you are obliged to take the appropriate steps without delay.

The Hager **Technical Service Department** would be delighted to provide you with support:

E-Mail: **technikblau@hager.de**

Telefon: **0180 3 84 74 24\***

\*€ 0.09 per minute on Telekom landlines, rates may differ for mobile phones  
(valid as at 11/2009)

By confirming the individual items on this maintenance checklist, only obvious impairments of the effectiveness of fire safety can be excluded.

The respective personnel signs to confirm that the checklist does not release him/her from the obligation to permanently and carefully observe the fire-resistance effect of the system as a whole.

Name of inspector:

Date:

Serial number:

Signature:

|  |                          |   |                          |
|--|--------------------------|---|--------------------------|
|  | <input type="checkbox"/> | Does the door/flap close tightly?   | <input type="checkbox"/> |
| Is the rating plate available?   | <input type="checkbox"/> |   | <input type="checkbox"/> |
| Is the housing screwed into all of the mounting holes?   | <input type="checkbox"/> |   | <input type="checkbox"/> |
| Is the manual inside the housing or within the reach of operating personnel?                                     | <input type="checkbox"/> | Does the installation location still comply with the fire protection requirements complied with by the housing? | <input type="checkbox"/> |
| Are the cable entries in proper working order?   | <input type="checkbox"/> | Is the housing flush with the wall/ceiling without any gaps?  | <input type="checkbox"/> |
| Are the cables inserted through the cable entries in line with the specifications (strain relief, dimensioning)? | <input type="checkbox"/> |   | <input type="checkbox"/> |

## Imprint

|           |  |
|-----------|--|
| Title     | Manual   |
|           | Fire-resistant connection box and small distribution board for 90 min. or 30 min. with exposure to fire from the outside |
| Publisher | Hager Electro GmbH & Co. KG  |
| Valid for | FB1560SN    FB1050SN<br>FB2010LN    FB3010LN    FB3010SN   |
| Print run | 1st print run in December 2009   |

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## Contact

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