



K'ELECTRIC



**K'ELECTRIC
PV EXTRACT
VERSION 2**

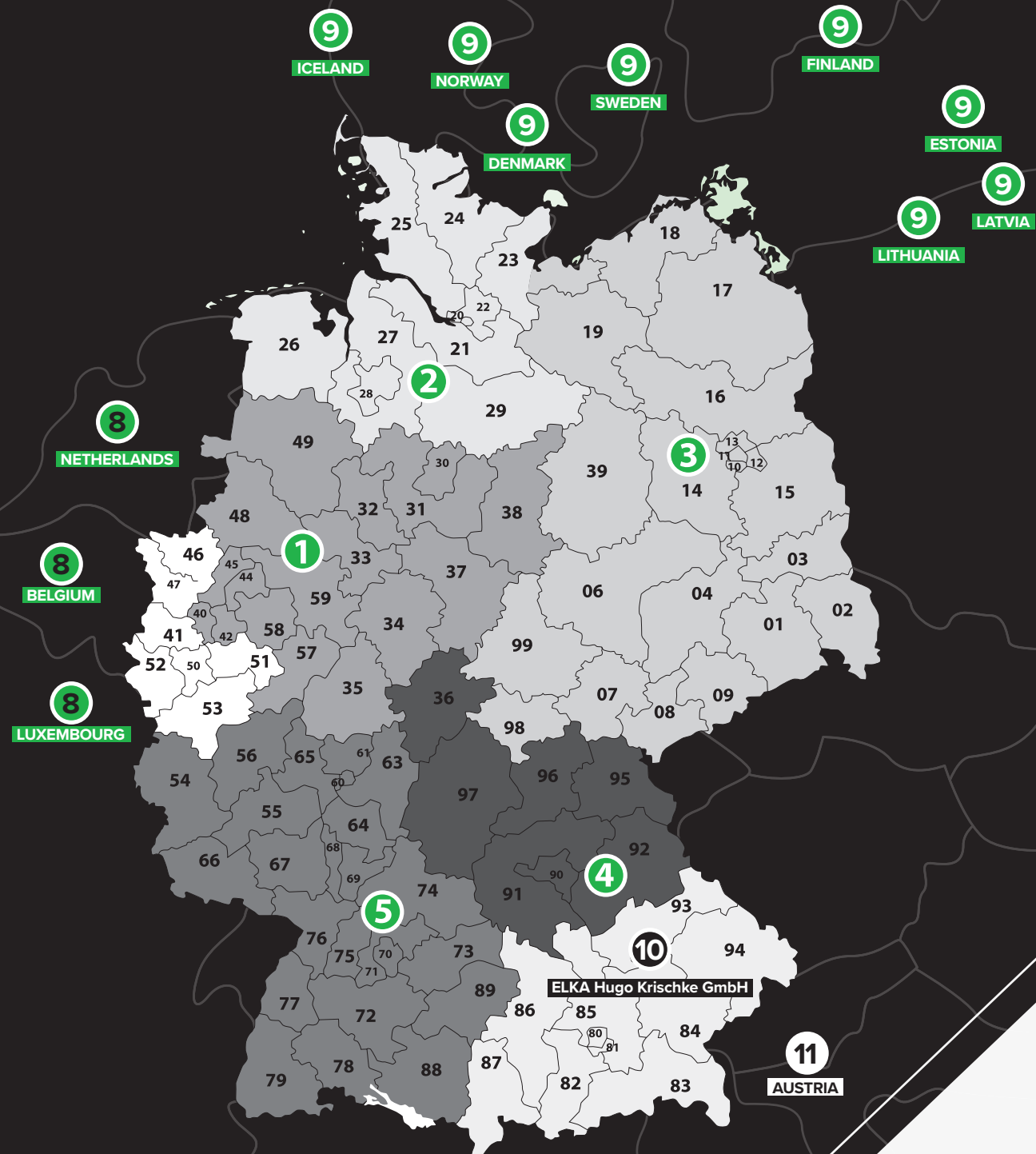
Also in your area.

You want to find your contact person?

We will be happy to advise you on all aspects of our product worlds.

Please use one of our contact options.

We look forward to hearing from you.





K'ELECTRIC

Social Media Accounts



k.electric.gmbh



K'ELECTRIC GmbH



K'ELECTRIC GmbH



K'ELECTRIC GmbH

Technical Support | support@k-electric-gmbh.de | Tel. +49 (0) 921 151 26 78 30

1 Andreas Gröger
Tel. +49 (0) 171 224 11 14
a.groeger@k-electric-gmbh.de

2 Andreas Silling
Tel. +49 (0) 170 899 14 04
a.silling@k-electric-gmbh.de

3 Peter Rassel
Tel. +49 (0) 170 910 03 31
p.rassel@k-electric-gmbh.de

4 Frank Wirth
Tel. +49 (0) 160 882 50 08
f.wirth@k-electric-gmbh.de

5 Manfred Itschner
Tel. +49 (0) 170 931 64 20
m.itschner@k-electric-gmbh.de

6 Philipp Stöcklein
Tel. +49 (0) 151 196 75 54 2
p.stoeklein@k-electric-gmbh.de

7 Frank Bulmahn
Tel. +49 (0) 151 598 57 60 5
f.bulmahn@k-electric-gmbh.de

8 Christian Grün
Tel. +49 (0) 151 177 66 89 2
c.gruen@k-electric-gmbh.de

9 Martin Westlin
Tel. +46 (0) 76 781 20 73
m.westlin@k-electric-gmbh.de

10 Gerhard Brune
Tel. +49 (0) 893 090 40 90
gerhard.brune@elka-krischke.de

11 Martin Mateyka
Tel. +43 (0) 676 782 07 74
k-electric@bevmat.eu

12 Sven Wehrfritz
Tel. +49 (0) 175 751 08 93
s.wehrfritz@k-electric-gmbh.de

13 Michael Sachs, Sales manager
Tel. +49 (0) 170 990 33 87
m.sachs@k-electric-gmbh.de



PREFACE

K'ELECTRIC – one of the innovative suppliers of brand-name technology in the field of fuse system components – continues to focus on close customer relations even after its devices have been delivered. The aim is to exchange valuable practical experience, take suggestions on board and, above all, provide expert support for sophisticated components.

Over the past few decades, the DIN VDE regulations have evolved from a handy guide to a comprehensive technical library—it is almost impossible to stay up to date.

It is important to remember that the commercial sector is not limited to manufacturing, trade, and skilled trades, but also includes government agencies, schools, clinics, and other public institutions.

That's why we're presenting the PV excerpt from K'ELECTRIC. This handy reference work is designed to serve as a valuable aid in your everyday work and eliminate the need for time-consuming searches through standards.

We wish you every success and enjoyment in your daily use of our product manual. We would be grateful to receive your feedback on this publication at any time.

K'ELECTRIC accepts no liability for incorrect information and its consequences. All technical data in this guide and the standards cited correspond to the status at the time of printing and have been compiled to the best of our knowledge. Nevertheless, errors and misprints cannot be completely ruled out.

The original version of the applicable regulation or standard is always authoritative for the performance of tests. This publication is not intended to infringe on existing patents or other property rights.

The information provided in the device descriptions does not constitute guaranteed characteristics in accordance with § 459 BGB (German Civil Code). Our catalog is the sole authoritative source for the devices and designs that are available for delivery. The photos shown in this guide are for illustrative purposes only and are not binding for delivery.

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If you have any technical questions,
please contact our support team at:

0921 151 26 78 - 30 or by email:

support@k-electric-gmbh.de

Our sales representatives are also available to
assist you at any time.



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1. EXPLANATIONS OF TERMS

1.1 Suspense

Formula symbol: U, unit: volt

Voltage transports the electrical charge; it is the basis for electricity to flow. There are two common types of voltage: direct current (DC, e.g., solar panels, batteries) and alternating current (AC, e.g., „household electricity“).

1.2 Electricity

Formula symbol: I, unit: ampere

Electric current refers to the electrical charge flowing in an electrical circuit.

1.3 Power

Formula symbol: P, unit: watt

Power refers to the energy converted (by voltage and current) per unit of time.

1.4 Photovoltaik system

(Abbreviation for: photovoltaic system)

A PV system describes the entire installation, typically consisting of several solar panels, an inverter, a generator connection box, and possibly battery storage.

1.5 Inverter

An inverter is an electronic device that converts the direct current from solar panels into alternating current that can be used in the home power grid.

1.6 MPP

(Maximum Power Point, short form of MPPT: Maximum Power Point Tracker)

MPP describes the process by which the load on the solar cell is continuously adjusted in order to extract the maximum power from the cell under the given conditions (e.g., solar radiation). The term MPP is also often used as a synonym for inverter inputs.

1.7 String

A string is typically a group of solar panels connected in series. The following applies here:

$U_{\text{string}} = U_{\text{panel}} \times n$ (number of panels); Common voltages here are 800 - 1000VDC. $I_{\text{string}} = I_{\text{panel}}$

1.8 GAK

(German abbreviation for: generator connection box)

The main task of the GAK is surge protection to protect solar panels and inverters from lightning strikes, for example. Strings are often combined in the GAK, which simplifies the cabling to the inverter.

1.9 FWS

(German abbreviation for: safety solar switch)

FWS is installed as close as possible to the panels in order to disconnect the solar panels from the rest of the DC system in case of danger. It should be installed close to the modules, where the DC cable enters the building from the roof.

1.10 Solar panel

A combination of several solar cells in one housing. As a rule, each solar panel has a positive and negative terminal.

1.11 Back-current carrying capacity

Reverse current carrying capacity describes the maximum current that can flow through a solar panel without damage in the event of a fault. Only relevant when several strings are connected in parallel.

1.12 I_{sc}

Short-circuit current

At maximum solar radiation, I_{sc} describes the maximum current that a single solar panel can deliver when the positive and negative terminals are directly connected.



1.11 MC4

MC4 is a widely used standard for connectors in solar technology. MC is the manufacturer's abbreviation for the original manufacturer Multi-Contact (now Stäubli Electrical Connectors) and 4 indicates the contact diameter. It is essential to avoid disconnecting MC4 connections under load, no matter how small. It should also be noted that not all manufacturers are compatible without reservation.

Caution: Only use the original counterparts for connecting the MC4 plugs and sockets!

1.12 IP protection class

IP protection class: specifies the different environmental conditions (humidity, dust) under which electrical equipment may be used. Specifications for this are provided by DIN EN 60529, the latest version of which applies.

Example from DIN EN 60529:2014-09:

1. Reference number

DIN EN 60529	Protection against foreign objects	Protection against contact
0	no protection	no protection
1	Protected against solid foreign objects with a diameter ≥ 50 mm	Protected against access with the back of the hand
2	Protected against solid foreign objects with a diameter ≥ 12.5 mm	Protected against access with a finger
3	Protected against solid foreign objects with a diameter ≥ 2.5 mm	Protected against access with a tool
4	Protected against solid foreign objects with a diameter ≥ 1.0 mm	Protected against access with a wire
5	Protected against dust in harmful quantities	Complete protection against contact
6	dustproof	Complete protection against contact

2. Reference number

DIN EN 60529	Protection against water
0	no protection
1	Protection against dripping water
2	Schutz gegen fallendes Tropfwasser, wenn das Gehäuse bis zu 15° geneigt ist
3	Protection against dripping water when the enclosure is tilted up to 15°
4	Protection against splashing water from all directions
5	Protection against water jets (nozzle) from any angle
6	Protection against strong water jets
7	Protection against temporary submersion
8	Protection against continuous submersion. Unless otherwise specified, protection is provided up to a water depth of 1 meter. Other water depths must be specified or agreed separately.
9	Protection against water during high-pressure/steam jet cleaning, especially in agriculture



2. FAQ - FREQUENTLY ASKED QUESTIONS

2.1 Are GAKs required by law?

That always depends on the individual case.

If external lightning protection (lightning conductor) is present and the separation distance cannot be maintained, the DC side must be additionally protected. This is particularly the case in public buildings, such as schools, as external lightning protection is mandatory here. In single-family homes, there is therefore no legal basis (as no external lightning protection is required) for installing a GAK if surge protection is already provided in the inverter. Nevertheless, you should consider whether surge protection makes sense. What many people don't know is that the surge protection built into many inverters only protects your solar panels. In the event of a power surge, you risk expensive damage to the inverter. To prevent this, we generally recommend the use of a GAK. Furthermore, GAKs are often used to combine individual strings directly at the building entrance, thereby significantly reducing the cabling effort in the rest of the building. Furthermore, DIN VDE 0100 712:2016-10 recommends using an additional type 2 surge protection device for cable lengths exceeding 10 m between the terminal device and the surge protection device. In addition, insurance companies often require additional surge protection.

2.2 Can any GAK be operated on any inverter?

Here, too, individual cases must be considered. The combination of inverter/string is crucial here. For example, combining two or more strings in the GAK can cause some inverters to report a fault.

2.3 What type of surge protector do I need (Type 2/Type 1+2)?

Type 1+2: External lightning protection is present and the separation distance cannot be maintained.

Type 2: External lightning protection is present and the separation distance can be maintained, or no external lightning protection is present.

2.4 What conductor cross-sections are specified for the protective conductor (PE)?

For type 1+2 combination arresters, a minimum of 16 mm² is generally required (DIN VDE 0100 712:2016-10); for type 2 arresters, however, a minimum of 6 mm² is required. Depending on the cable length, it may be advisable to increase this in individual cases. It is not permissible to fall below this minimum.

2.5 In the event of a fault (overvoltage), is it sufficient to replace only the modules of the arrester?

Here, cost considerations and operational safety usually stand in the way of each other. For cost reasons, one could argue that only the plug-in modules of the arresters should be replaced, and usually only the defective module. At the end of the day, however, operational safety should always be the top priority in surge protection. In most cases, it is not possible to attribute a surge to a single cause with 100% certainty, and the assumption that a minor surge, e.g., caused by a switching operation at the power supplier, is responsible can quickly turn out to be an expensive and life-threatening misjudgment. Protecting against surges means protecting lives, which is why defective arresters should be replaced as a unit.

2.6 How should strings be divided?

The strings must always be connected in series. When dividing them up, you should ensure that the solar panels are divided into sensible groups that are as equal in size as possible. Furthermore, the number of solar panels and the voltage per solar panel are decisive for the string voltage. You must also keep an eye on the voltage resistance of the devices being used. K'ELECTRIC GAKs are all approved for up to 1100V. If you combine your strings in the GAK, you must pay close attention to the total current. This is added up for each combined string. K'ELECTRIC GAKs can be loaded with up to 40A.

2.7 When are string fuses necessary and how are they dimensioned?

IEC62548-1:2023 (PV systems, general requirements) is quite clear on this point:

Section 6.5.3.1 point a) requires string fuses due to reverse currents in the event of a fault if the expected reverse current is greater than the reverse current capability of the solar panels.

The expected reverse current is calculated as follows:

$I_{sc} \text{ (short-circuit current of the panel)} \times (N_g \text{ (number of strings that are grouped)} - 1)$

The string fuse size is calculated as specified in Annex F.2 of the above standard:

Maximum fuse size = $I_{sc} \times 1.25$

Example: $I_{sc} = 14A \times 1.25 = \text{maximum fuse size } 17.5A$, meaning that the next possible size would be 16A.



2.8 Which cross-sections should be used?

The correct dimensioning of PV cables depends on many factors.

The length of the cable, the type of solar panel, the wiring, and, in case of doubt, the specific cable resistance all play a role here.

When considering power loss, for example, one might assume that a 2.5 mm² cable would be sufficient in most scenarios to keep the voltage drop below 1%.

However, this is not the case! As a rule of thumb, a 4 mm² cable is usually sufficient for wiring the solar panels together. However, as soon as strings are combined or the cable length exceeds 10 m, the cable size should be increased to 6 mm².

When considering power loss, for example, one would assume that a 2.5 mm² cable would be sufficient in most scenarios. Depending on the combination, it may be advisable to have the cross-section calculated specifically for your system by a specialist.

When calculating, it is recommended to use I_{sc} (short-circuit current of the panel) x 1.25 (ref. IEC62548-1:2023) as a basis in order to cover all eventualities.

2.9 What type of cable should be used?

There is a specific standard for this. DIN EN 50618:2025-11 summarizes this in Chapter 5:

A PV cable must be double insulated, resistant to expected weather conditions, and equipped with a continuously tinned conductor.

These cables are part of the standard range offered by most cable manufacturers.

However, the designations vary depending on the manufacturer.

2.10 Advantages of electronic FWS over mechanical FWS

Safety solar switches are available in two versions on the market: electrical and mechanical safety solar switches. Mechanical safety solar switches usually disconnect the system with the aid of an undervoltage release. It is important to note that this is a „one-way street.“ Once a mechanical safety solar switch has been triggered, it remains off until someone on site switches it back on.

Considering the recommendation to install the safety solar switch as close as possible to the building entrance, this can entail considerable operating costs.

Electronic safety solar switches solve this problem by means of an internal buffer memory and a motor-driven switch.

This ensures that the system is shut down just as reliably as with mechanical safety solar switches, but when the mains voltage returns or the system is reactivated via remote switch, the electronic safety solar switch automatically switches to an operational state.

2.11 Is there a requirement for a PV safety solar switch?

Currently, there is no obligation. However, a photovoltaic shutdown device is often part of the safety concept.

2.12 Do I need a DC disconnect switch?

The short answer is yes.

As things stand today, the DC disconnect switch used by many manufacturers in inverters is sufficient (ref. DIN VDE0100-712:2016-10 Section 537.2.2.101).

However, the current standard is already being revised. A brief look into the future reveals that this will be specified with the publication and entry into force of the new standard for the installation of PV systems, and that it must be possible to safely replace the inverter after switching off the DC disconnect switch (ref. E DIN VDE0100-712:2022-10 Section 537.2.102).

So if you want to build a system according to the latest standards, you should install a DC disconnect switch in addition to the inverter's switch.

2.13 When is an AC disconnect switch useful?

A disconnecting device on the AC side is always mandatory (ref. DIN VDE0100-712:2016-10 Section 537.2.2.102). The appropriate device is selected according to the manufacturer's specifications for the inverter.

Some manufacturers require a residual current circuit breaker, while others only require a circuit breaker. However, if the inverter manufacturer requires a residual current circuit breaker, section 531.3.101 of the DIN VDE0100-712:2016-10 standard specifies that it must be type B.

In Europe, however, an additional switch is often required directly on the inverter so that the device can be switched off directly.

2.14 When does a net zero emergency switch make sense?

The purpose of a mains emergency switch is to provide a disconnection point in the event of faults in the local power supply network, allowing the system to be disconnected from the mains at short notice and switched to island mode. In particularly critical supply situations, it may even be advisable to provide a connection for an emergency generator.



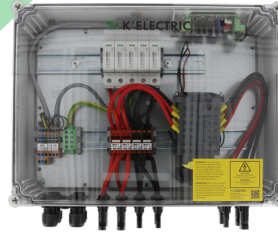
3.1

GAKS DC GENERATOR CONNECTION BOXES



3.2

SAFETY SOLAR SWITCHES WITH SURGE PROTECTION



3.3

AC/DC SURGE PROTECTION DEVICES



3.4

DIVERTER SWITCHES & REPAIR SWITCHES



3.5

3-POINT PLUG-IN METER TERMINALS



D0 SWITCH DISCONNECTOR WITH
INTEGRATED MEASUREMENT
AREX® TQ



3.6

ELECTRICITY METER



3.7

CYLINDER LOCKING
SYSTEMS



3.8

NH FUSE SWITCH
DISCONNECTORS



3.9

FUSES

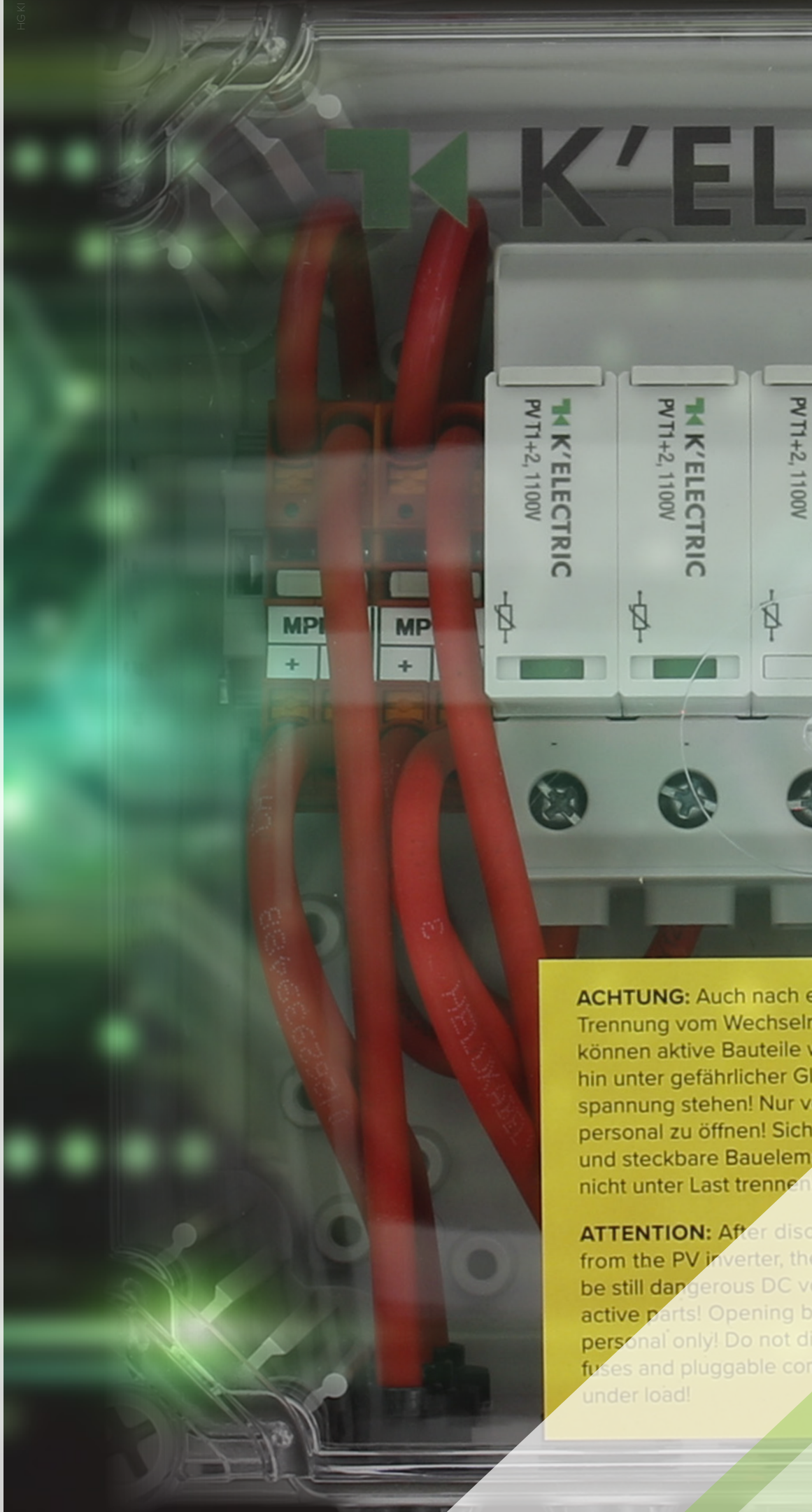


Abbildung ähnlich

3.10

3.1 DC GENERATOR CONNECTION BOXES

HGS K'Electric



ACHTUNG: Auch nach der Trennung vom Wechselstrom können aktive Bauteile weiterhin unter gefährlicher Gleichspannung stehen! Nur vom Fachpersonal zu öffnen! Sichere und steckbare Bauelemente nicht unter Last trennen!

ATTENTION: After disconnection from the PV inverter, there may still be dangerous DC voltage on active parts! Opening the box is for personal use only! Do not disconnect fuses and pluggable components under load!

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PV TT+2, 1100V
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113531 EN 50618 TUV R 60157250

2 M



ACHTUNG:
Rückspannung von der
PV Anlage! Lichtbogengefahr!

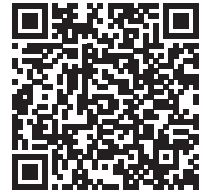
ATTENTION:
rebound voltage from the
PV system!

K'ELECTRIC

K'ELECTRIC GmbH
Carl-Benz-Str. 7, 95448 Bayreuth
+49 921/151 26 78-0
office@k-electric-gmbh.de



Generator connection boxes, version 1



Go directly to the generator connection boxes.

Selectable with cable gland or MC4 connection

- ✓ Per MPP 2in + 2out
- ✓ Per MPP a diverter
- ✓ 10mm² + & - string terminals
- ✓ 16mm² PE terminal
- ✓ Other types available on request
- ✓ Customized lid printing possible (your logo)

Generator connection box type 1+2, 1100V DC

Item	Item no.	PU
with transparent lid		
GAK 1x2, T1+T2, 1MPP, 2 strings, each MPP 2 in 2 out, 200x200x132mm, cable glands, IP54	165621	1
GAK 2x2, T1+T2, 2MPP, 4 strings, each MPP 2 in 2 out, 300x200x132mm, cable glands, IP54	165620	1
GAK 3x2, T1+T2, 3MPP, 6 strings, each MPP 2 in 2 out, 400x300x132mm, cable glands, IP54	136113	1

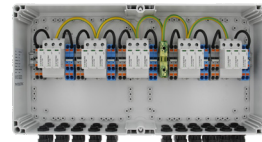


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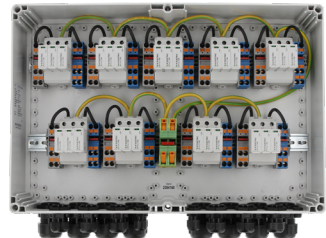


136113

Item	Item no.	PU
with the lid closed		
GAK 4x2, T1+T2, 4MPP, 8 strings, each MPP 2 in 2 out, 600x300x132mm, cable glands, IP54	136114	1
GAK 5x2, T1+T2, 5MPP, 10 strings, each MPP 2 in 2 out, 600x300x132mm, cable glands, IP54	136115	1
GAK 6x2, T1+T2, 6MPP, 12 strings, each MPP 2 in 2 out, 600x400x132mm, cable glands, IP54	136116	1
GAK 9x2, T1+T2, 9MPP, 18 strings, each MPP 2 in 2 out, 600x400x132mm, cable glands, IP54	136119	1
GAK 10x2, T1+T2, 10MPP, 20 strings, each MPP 2 in 2 out, 600x400x132mm, cable glands, IP54	136120	1



136115



136119

Generator connection box type 2, 1100V DC

Item	Item no.	PU
with transparent lid		
GAK 1x2, T2, 1MPP, 2 strings, each MPP 2 in 2 out, 200x200x132mm, cable glands, IP54	165639	1
GAK 2x2, T2, 2MPP, 4 strings, each MPP 2 in 2 out, 300x200x132mm, cable glands, IP54	165640	1
GAK 3x2, T2, 3MPP, 6 strings, each MPP 2 in 2 out, 400x300x132mm, cable glands, IP54	165641	1



165640

Accessories	Item no.	PU
MC4 Stäubli cable connector with crimp contact (1 set = 20 pieces)	310100	1
MC4 Stäubli cable socket with crimp contact (1 set = 20 pieces)	310101	1
MC4-Evo ready cable connector Stäubli (crimp-free) (1 set = 10 pieces)	310102	1
MC4-Evo ready cable socket Stäubli (crimp-free) (1 set = 10 pieces)	310103	1
Wall mounting for plastic enclosures (GAK from 4MPP) (1 set = 4 pieces)	136010	1



310100

310103



310102



136010

Caution: Only use original Stäubli connectors and sockets to connect the MC4 plugs and sockets.



Generator connection boxes, version 2

Selectable with pre-assembled cable gland or MC4 connection

- ✓ All versions also available with clamp cover
- ✓ Je MPP 2in + 1out / 1in + 1out
- ✓ 6mm² + & - string terminals
- ✓ 25 mm² PE terminal on the arrester
- ✓ Other types available on request, also with fuses and DC disconnect switches
- ✓ Customized lid printing possible (your logo)



Go directly to the generator connection boxes.

Generator connection box type 1+2, 1100V DC

Item	Item no.	PU
GAK 1x2, T1+T2, 1MPP, 2 strings, each MPP 2 in 1 out, 210x210x132mm, cable glands, IP54	134050	1
GAK 1x1, T1+T2, 1MPP, 1 string, each MPP 1 in 1 out, 210x210x132mm, cable glands, IP54	134051	1
GAK 1x2, T1+T2, 1MPP, 2 strings, each MPP 2 in 1 out, 210x210x132mm, MC4, IP54	134052	1
GAK 1x1, T1+T2, 1MPP, 1 string, each MPP 1 in 1 out, 210x210x132mm, MC4, IP54	134053	1
GAK 2x2, T1+T2, 2MPP, 4 strings, each MPP 2 in 1 out, 210x210x132mm, cable glands, IP54	134054	1
GAK 2x1, T1+T2, 2MPP, 2 strings, each MPP 1 in 1 out, 210x210x132mm, cable glands, IP54	134055	1
GAK2x2, T1+T2, 2MPP, 4 strings, each MPP 2 in 1 out, 210x210x132mm, MC4, IP54	134056	1
GAK 2x1, T1+T2, 2MPP, 2 strings, each MPP 1 in 1 out, 210x210x132mm, MC4, IP54	134057	1
GAK 3x1, T1+T2, 3MPP, 3 strings each MPP 1 in 1 out, 210x210x132mm, cable glands, IP54	134058	1
GAK 3x1, T1+T2, 3MPP, 3 strings, each MPP 1 in 1 out, 210x210x132mm, MC4, IP54	134059	1



134050



134055



134059

Generator connection box type 2, 1100V DC

Item	Item no.	PU
GAK 1x2, T2, 1MPP, 2 strings, each MPP 2 in 1 out, 210x210x132mm, cable glands, IP54	134000	1
GAK 1x1, T2, 1MPP, 1 string, each MPP 1 in 1 out, 210x210x132mm, cable glands, IP54	134001	1
GAK 1x2, T2, 1MPP, 2 strings, each MPP 2 in 1 out, 210x210x132mm, MC4, IP54	134002	1
GAK 1x1, T2, 1MPP, 1 string, each MPP 1 in 1 out, 210x210x132mm, MC4, IP54	134003	1
GAK 2x2, T2, 2MPP, 4 strings, each MPP 2 in 1 out, 210x210x132mm, cable glands, IP54	134004	1
GAK 2x1, T2, 2MPP, 2 strings, each MPP 1 in 1 out, 210x210x132mm, cable glands, IP54	134005	1
GAK2x2, T2, 2MPP, 4 strings, each MPP 2 in 1 out, 210x210x132mm, MC4, IP54	134006	1
GAK 2x1, T2, 2MPP, 2 strings, each MPP 1 in 1 out, 210x210x132mm, MC4, IP54	134007	1
GAK 3x1, T2, 3MPP, 3 strings each MPP 1 in 1 out, 210x210x132mm, cable glands, IP54	134009	1
GAK 3x1, T2, 3MPP, 3 strings, each MPP 1 in 1 out, 210x210x132mm, MC4, IP54	134010	1



134000



134005



134010

Accessories	Item no.	PU
MC4 Stäubli cable connector with crimp contact (1 set = 20 pieces)	310100	1
MC4 Stäubli cable socket with crimp contact (1 set = 20 pieces)	310101	1
MC4-Evo ready cable connector Stäubli (crimp-free) (1 set = 10 pieces)	310102	1
MC4-Evo ready cable socket Stäubli (crimp-free) (1 set = 10 pieces)	310103	1

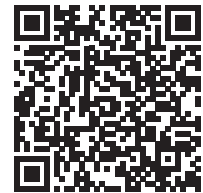


Caution: Only use original Stäubli connectors and sockets to connect the MC4 plugs and sockets.



Generator connection boxes, version 3

with polyester housing, closed lid,
cable gland or MC4 connection selectable

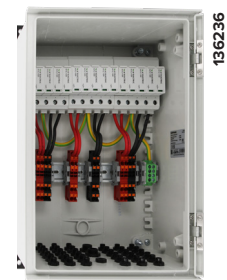


Go directly to the generator connection boxes.

- ✓ Per MPP 2in + 1out
- ✓ 6mm² + & - string terminals
- ✓ 2x16² PE terminal
- ✓ Wall mounting included
- ✓ Other types available on request

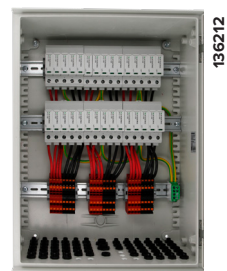
Generator connection box type 1+2, 1100V DC

Item	Item no.	PU
GAK 6x2, T1+T2, 6MPP, 2 strings, each MPP 2in 1out, 300x400x200mm, cable glands, IP54	136236	1
GAK 6x2, T1+T2, 6MPP, 2 strings, each MPP 2in 1out, 300x400x200mm, MC4, IP54	136246	1
GAK 8x2, T1+T2, 8MPP, 2 strings, each MPP 2in 1out, 400x500x200mm, cable glands, IP54	136238	1
GAK 8x2, T1+T2, 8MPP, 2 strings, each MPP 2in 1out, 400x500x200mm, MC4, IP54	136248	1
GAK 10x2, T1+T2, 10MPP, 2 strings, each MPP 2in 1out, 400x500x200mm, cable glands, IP54	136240	1
GAK 10x2, T1+T2, 10MPP, 2 strings, each MPP 2in 1out, 400x500x200mm, MC4, IP54	136250	1
GAK 12x2, T1+T2, 12MPP, 2 strings, each MPP 2in 1out, 400x500x200mm, cable glands, IP54	136242	1
GAK 12x2, T1+T2, 12MPP, 2 strings, each MPP 2in 1out, 400x500x200mm, MC4, IP54	136252	1



Generator connection box type 2, 1100V DC

Item	Item no.	PU
GAK 6x2, T2, 6MPP, 2 strings, each MPP 2in 1out, 300x400x200mm, cable glands, IP54	136206	1
GAK 6x2, T2, 6MPP, 2 strings, each MPP 2in 1out, 300x400x200mm, MC4, IP54	136216	1
GAK 8x2, T2, 8MPP, 2 strings, each MPP 2in 1out, 400x500x200mm, cable glands, IP54	136208	1
GAK 8x2, T1+T2, 8MPP, 2 strings, each MPP 2in 1out, 400x500x200mm, MC4, IP54	136218	1
GAK 10x2, T2, 10MPP, 2 strings, each MPP 2in 1out, 400x500x200mm, cable glands, IP54	136210	1
GAK 10x2, T2, 10MPP, 2 strings, each MPP 2in 1out, 400x500x200mm, MC4, IP54	136220	1
GAK 12x2, T2, 12MPP, 2 strings, each MPP 2in 1out, 400x500x200mm, cable glands, IP54	136212	1
GAK 12x2, T2, 12MPP, 2 strings, each MPP 2in 1out, 400x500x200mm, MC4, IP54	136222	1



Accessories	Item no.	PU
MC4 Stäubli cable connector with crimp contact (1 set = 20 pieces)	310100	1
MC4 Stäubli cable socket with crimp contact (1 set = 20 pieces)	310101	1
MC4-Evo ready cable connector Stäubli (crimp-free) (1 set = 10 pieces)	310102	1
MC4-Evo ready cable socket Stäubli (crimp-free) (1 set = 10 pieces)	310103	1
Wall mounting for polyester enclosures (1 set = 4 pieces)	136029	1



Caution: Only use original Stäubli connectors and sockets to connect the MC4 plugs and sockets.



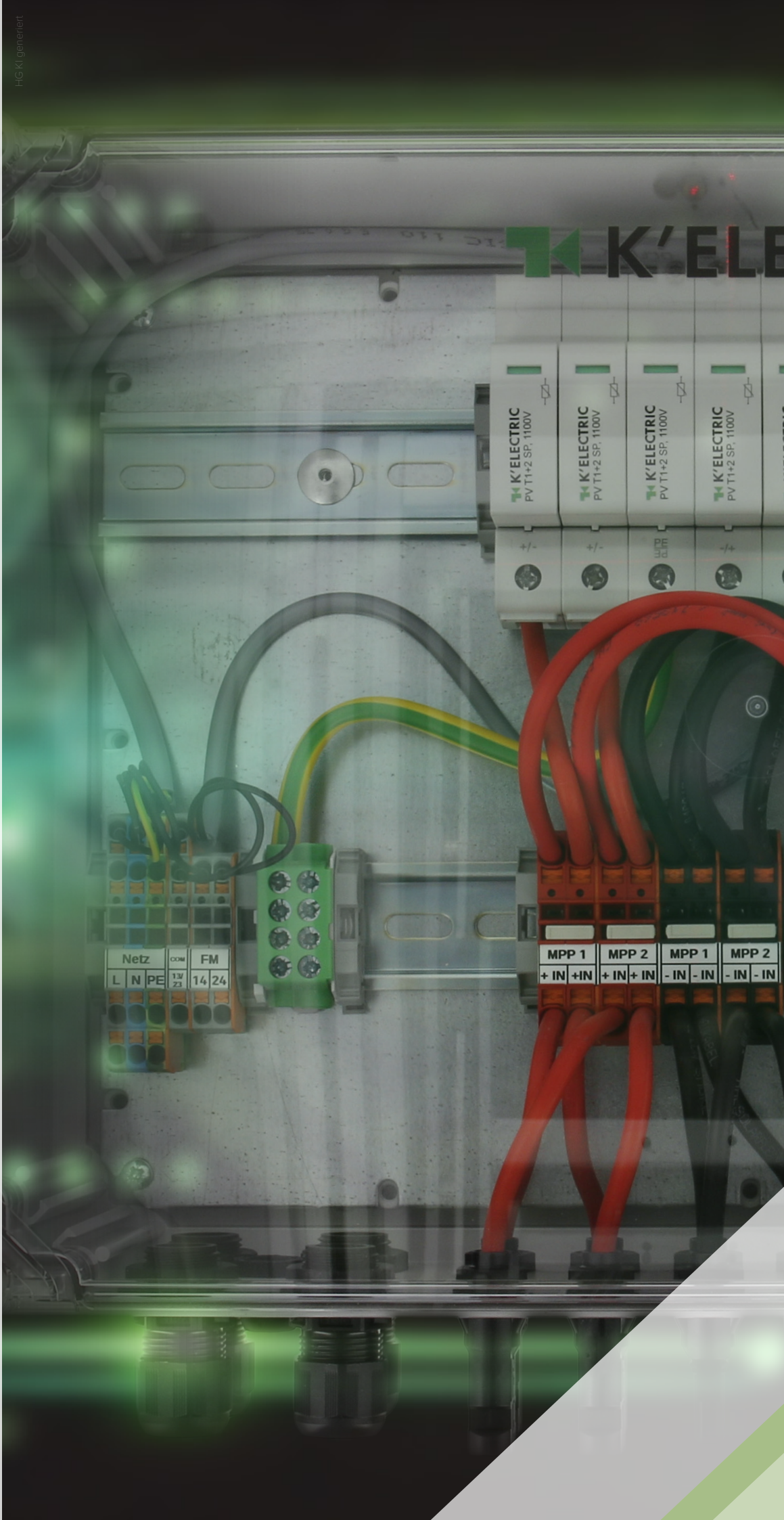


Go directly to the generator connection boxes.



GAK
SPECIAL VERSIONS
AVAILABLE AT SHORT NOTICE ..

3.2 SAFETY SOLAR SWITCH

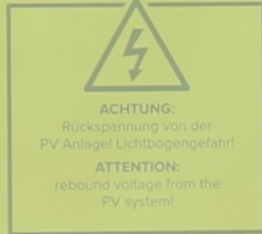


ELECTRIC

K'ELECTRIC
PV/T1+2 SP, 1100V

ACHTUNG: Auch nach einer Trennung vom Wechselrichter können aktive Bauteile weiterhin unter gefährlicher Gleichspannung stehen! Nur von Fachpersonal zu öffnen! Sicherungen und steckbare Bauelemente nicht unter Last trennen!

ATTENTION: After disconnection from the PV inverter, there could be still dangerous DC voltage in all active parts! Opening by qualified personal only! Do not disconnect fuses and pluggable components under load!



ACHTUNG:
Rückspannung von der
PV Anlage! Lichtbogengefahr!

ATTENTION:
rebound voltage from the
PV system!

K'ELECTRIC

K'ELECTRIC GmbH
Carl-Benz-Str. 2, 95448 Bayreuth
+49 921/51 26 78-0
office@k-electric-gmbh.de



Safety solar switches with surge protection

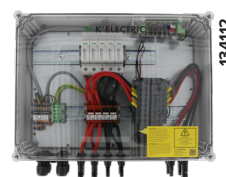
- ✓ Available as 2, 3, 4 and 6MPP versions with transparent cover
- ✓ Available as 8, 10, and 12MPP versions with polyester housing
- ✓ 2in 1out per MPP until 6MPP, 2in 2out per MPP from 8MPP
- ✓ Cable glands or MC4 selectable
- ✓ Integrated DC combined arrester type 1+2 with remote signaling contact
- ✓ Motorized switching on and off
(No reset in the enclosure required for recommissioning)
- ✓ Activation via external PV-OFF Schalter
- ✓ Optional signaling unit available



Go directly to the safety solar switches.

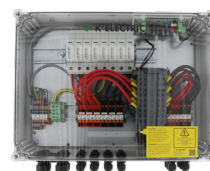
Safety solar switches with pre-assembled MC4 connections and cable glands in plastic housing

Item	Item no.	PU
FWS 2MPP, 2 strings, each MPP 2 in 1 out, 400x300x132mm, MC4, IP54	134112	1
FWS 2MPP, 2 strings, each MPP 2 in 1 out, 400x300x132mm, cable glands, IP54	134122	1



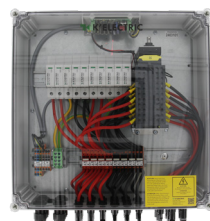
134112

Item	Item no.	PU
FWS 3MPP, 2 strings, each MPP 2 in 1 out, 400x300x132mm, MC4, IP54	134113	1
FWS 3MPP, 2 strings, each MPP 2 in 1 out, 400x300x132mm, cable glands, IP54	134123	1



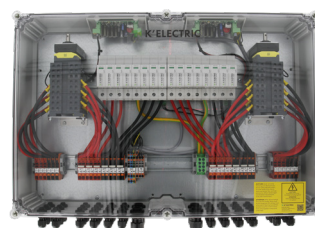
134113

Item	Item no.	PU
FWS 4MPP, 2 strings, each MPP 2 in 1 out, 400x400x132mm, MC4, IP54	134114	1
FWS 4MPP, 2 strings, each MPP 2 in 1 out, 400x400x132mm, cable glands, IP54	134124	1



134114

Item	Item no.	PU
FWS 6MPP, 2 strings, each MPP 2 in 1 out, 600x400x132mm, MC4, IP54	134116	1
FWS 6MPP, 2 strings, each MPP 2 in 1 out, 600x400x132mm, cable glands, IP54	134126	1



134116

Accessories	Item no.	PU
MC4 Stäubli cable connector with crimp contact (1 set = 20 pieces)	310100	1
MC4 Stäubli cable socket with crimp contact (1 set = 20 pieces)	310101	1
MC4-Evo ready cable connector Stäubli (crimp-free) (1 set = 10 pieces)	310102	1
MC4-Evo ready cable socket Stäubli (crimp-free) (1 set = 10 pieces)	310103	1
Wall mounting for plastic enclosures (FWS 2-6MPP) (1 set = 4 pieces)	136010	1
Wall mounting for polyester enclosures (FWS ab 8MPP) (1 set = 4 pieces)	136029	1



310100



136010



310103



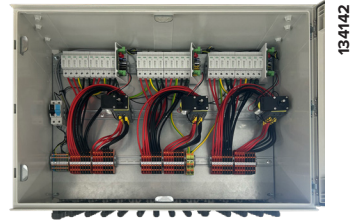
136029

Caution: Only use original Stäubli connectors and sockets to connect the MC4 plugs and sockets.



Safety solar switches with pre-assembled MC4 connections and cable glands in polyester housing, including wall mounting

Artikel	Artikel-Nr.	VE
FWS 8MPP, 2 strings, each MPP 2in 2out, 600x500x230mm, cable glands, IP54	134138	1
FWS 8MPP, 2 strings, each MPP 2in 2out, 600x500x230mm, MC4, IP54	134128	1
FWS 10MPP, 2 strings, each MPP 2in 2out, 600x800x300mm, cable glands, IP54	134140	1
FWS 10MPP, 2 strings, each MPP 2in 2out, 600x800x300mm, MC4, IP54	134130	1
FWS 12MPP, 2 strings, each MPP 2in 2out, 600x800x300mm, cable glands, IP54	134142	1
FWS 12MPP, 2 strings, each MPP 2in 2out, 600x800x300mm, MC4, IP54	134132	1



134142

Accessories for safety solar switches

- ✓ visual signaling: LED displays
- ✓ Green: normal operation
- ✓ Red: Triggering of the fire protection switch/overvoltage module
- ✓ Buzzer: Can be switched on for acoustic signaling in case of error
- ✓ Remote signal contact: Potential-free changeover contact

Item	Item no.	PU
Signalisation unit for 1 FWS	134201	1
Signalisation unit for 2 FWS	134202	1
Signalisation unit for 3 FWS	134203	1



134203

Item	Item no.	PU
PV OFF switch with protective collar in IP69K / IP65 housing: this may be reduced depending on the cable entry	134210	1
PV OFF switch 230V/AC 6A, 1 NO contact/1 NC contact, IP44	134211	1



134210

Similar image



134211

Accessories	Item no.	PU
MC4 Stäubli cable connector with crimp contact (1 set = 20 pieces)	310100	1
MC4 Stäubli cable socket with crimp contact (1 set = 20 pieces)	310101	1
MC4-Evo ready cable connector Stäubli (crimp-free) (1 set = 10 pieces)	310102	1
MC4-Evo ready cable socket Stäubli (crimp-free) (1 set = 10 pieces)	310103	1
Wall mounting for plastic enclosures (FWS 2-6MPP) (1 set = 4 pieces)	136010	1
Wall mounting for polyester enclosures (FWS ab 8MPP) (1 set = 4 pieces)	136029	1



310100

136010

310102

136029

Caution: Only use original Stäubli connectors and sockets to connect the MC4 plugs and sockets.



3.3 AC/DC SURGE PROTECTION DEVICES

HGS K'Electric

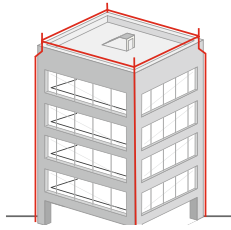




BUILDINGS

APPLICATION

Buildings with lightning protection class I and II



TYPE 1+2

INSTALLATION OF

Mains-side connection (NAR) or

		TT/TNS
	GT T1+2, 25kA, 3+1-300- FM	500200
	GT T1+2, 25kA, 3+1-275- FM , 4TE	500213
	GT T1+2, 25kA, 1+0-275- FM-SI	500220
		TNC
	GT T1+2, 25kA, 3+0-300- FM	500201
	GT T1+2, 25kA, 3+0-275- FM , 3TE	500214

Buildings with lightning protection class III and IV



TYPE 1+2

		TT/TNS
	40mm	TT/TNS
	GT40 TT/TNS-12,5kA- B	500103
	GT40 TT/TNS-12,5kA- S	500101
	GT40 TT/TNS-12,5kA- SI	500110
	GTN40 TT/TNS-12,5kA- B	500131
	GTN40 TT/TNS-12,5kA- SI	500133
		TNC
	40mm	TNC
	GT40 TNC-12,5kA- S	500107
	GTN40 TNC-12,5kA- B	500136
	60mm	TT/TNS
	GT60 TT/TNS-12,5kA, 3+1-300- FM	500161
	60mm	TNC
	GT60 TNC-12,5kA, 3+0-300- FM	500162

Buildings without external lightning protection



TYPE 1+2

		TT/TNS
	40mm	TT/TNS
	GT40 TT/TNS-7,5kA- B	500102
	GT40 TT/TNS-7,5kA- S	500100
	GT40 TT/TNS-7,5kA- SI	500109
	GTN40 TT/TNS-7,5kA- B	500130
	GTN40 TT/TNS-7,5kA- SI	500132
		TNC
	40mm	TNC
	GT40 TNC-7,5kA- SI	500111
	GT40 TNC-7,5kA- S	500106
	60mm	TT/TNS
	GT60 TT/TNS-12,5kA, 3+1-300- FM-L	500160
	60mm	TNC
	GT60 TNC-12,5kA, 3+0-300- FM	500162






THE MAIN DISTRIBUTION

INSTALLATION OF THE SUB-DISTRIBUTION



Connection on the system side (ARR)





at distance to main distribution > 10m

TYPE 1+2

	GT T1+2, 12,5kA, 4+0-300-FM	TNS	500231
	GT T1+2, 12,5kA, 4+0-300-FM-L		500250
	GT T1+2, 12,5kA, 3+1-300-FM	TT/TNS	500230
	GT T1+2, 12,5kA, 3+1-300-FM-L		500251
	GT T1+2, 12,5kA, 3+0-300-FM	TNC	500232
	GT T1+2, 12,5kA, 3+0-300-FM-L		500252
	60mm	TT/TNS	
	GT60 T1+2, 12,5kA, 3+1-300-FM-L		500160
	GT60 12,5kA, 3+1-300-FM		500161
	60mm	TNC	
	GT60 12,5kA, 3+0-300-FM		500162

TYPE 2

	GT T2, 3+1-300	TT/TNS	500302
	GT T2, 3+1-300-FM		500303
	GT T2, 3+0-300-FM	TNC	500305
	60mm	TT/TNS	
	GT60 T2, 3+1-300-FM		500163
	GT60 T2-SI, 3+1-300-FM with back-up fuse		500164
	60mm	TNC	
	GT60 T2, 3+0-300-FM		500165
	GT60 T2-SI, 3+0-300-FM with back-up fuse		500166

	GT T2, 4+0-300	TNS	500300
	GT T2, 4+0-300-FM		500301
		TT/TNS	
	GT T2, 3+1-300		500302
	GT T2, 3+1-300-FM		500303
	GT T2, 3+1-300-FM-SI		500320
	GT T2+3, 3+1-275		500306
	GT T2+3, 3+1-275-FM		500307
		TNC	
	GT T2, 3+0-300-FM		500305

	60mm	TT/TNS	
	GT60 T2, 3+1-300-FM		500163
	GT60 T2-SI, 3+1-300-FM with back-up fuse		500164
	60mm	TNC	
	GT60 T2, 3+0-300-FM		500165
	GT60 T2-SI, 3+0-300-FM with back-up fuse		500166

-SI = with fused voltage tap

-FM = with remote signal contact

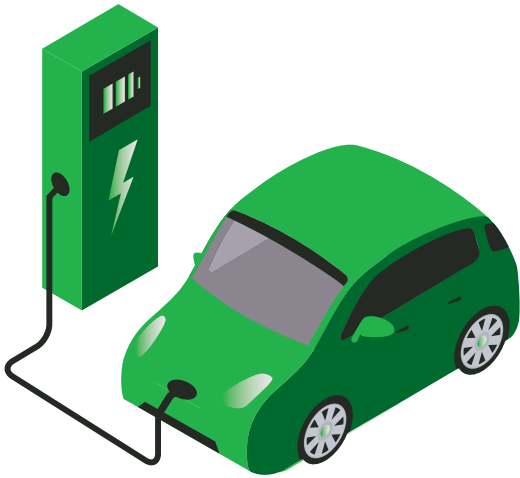
-S = with voltage tap

-L = leakage current

-B = basic



Wallbox > 10m T2



TYPE 2



TT / TNS

Item no.

GT T2-EM, 3+1-300-FM

500315



Kabelset für GT T2-EM, 3+1-300-FM

500316

for data connection



Item no.

FM Dat Net Cat6 Combination Surge Protector

500502

Protection for other applications

Telephone connection, router, home theater, heat pump, blinds...



Compact combined arrester

for data/telecommunications systems, sun protection systems and fine protection

Telecommunications | Telephone | Network | EIB/KNX Bus | Blinds

Combined arrester for telecommunications systems – Type 1+2

Item	Item no.	PU
FM TEL20	500501	1



500501

Combined arrester for Ethernet – Type 1+2

for the protection of data networks and network devices, such as hubs, switches, servers, etc.

Item	Item no.	PU
FM Dat Net Cat6	500502	1



500502

End device protection – Type 3

Socket installation

Item	Item no.	PU
GT3 mini	500503	1



500503

KNX surge protection

Item	Item no.	PU
FM Dat KNX	500504	1



500504

Surge arrester – Type 2

Blind drives

Item	Item no.	PU
GT-AS-T2/3-275	500505	1



500505

Surge arrester – Type 3

Blind drives

Item	Item no.	PU
GT T3, 24V FM	500510	1



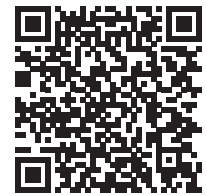
500510

Meter cupboard Multipole, compact lightning current arrester, version 1

for the 40mm busbar system | Type 1+2+3

- ✓ Status display green / not green
- ✓ Installation in the pre-metering area
- ✓ Fuse-free up to 315A

S = voltage tap for APZ field
 SI = fused voltage tap for APZ field
 B = basic (without voltage tap)



Go directly to the 40 mm system.

GT 40 | Construction width 47mm

For TT-/TNS systems | 7.5kA

Item	Item no.	PU
GT 40 TT/TNS-7.5kA-S	500100	1
GT 40 TT/TNS-7.5kA-B	500102	1
GT 40 TT/TNS-7.5kA-SI	500109	1



For TT-/TNS systems | 12.5kA

Item	Item no.	PU
GT 40 TT/TNS-12.5kA-S	500101	1
GT 40 TT/TNS-12.5kA-B	500103	1
GT 40 TT/TNS-12.5kA-SI	500110	1



For TNC systems | 7.5kA and 12.5kA

Item	Item no.	PU
GT 40 TNC-7.5kA-S	500106	1
GT 40 TNC-12.5kA-S	500107	1
GT 40 TNC-7.5kA-SI	500111	1

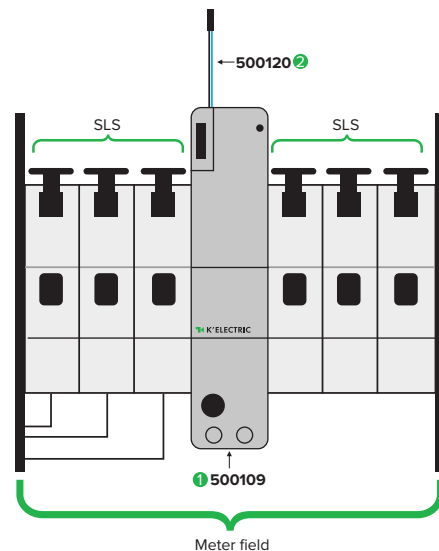


Accessories GTN 40

Item	Item no.	PU
Cable set for the GT 40 arrester with fused voltage tap	500120	1
GTN 40 E single adapter, max. cross-section 25mm ²	500135	1
APZ connection set 1x Cat. 6A patch cable 6Kv, 1.5m 2x Cat. 6A RJ45 coupling with screw protection flaps for REG mounting	500139	1



GT 40 TT/TNS-7,5kA-SI



Meter cupboard **Multipole, compact lightning current arrester, version 2**

for the 40mm busbar system | Type 1+2+3

- ✓ Status display green / not green
- ✓ Installation in the pre-metering area
- ✓ Fuse-free up to 160A

SI = Secured voltage tap for APZ field
B = Basic (without voltage tap)



Go directly to the 40 mm system.

GTN 40 | Construction width 36mm

For TT-/TNS systems | 7.5kA

Item	Item no.	PU
GTN 40 TT/TNS-7.5kA-B	500130	1
GTN 40 TT/TNS-7.5kA-SI	500132	1



500130

For TT-/TNS systems | 12.5kA

Item	Item no.	PU
GTN 40 TT/TNS-12.5kA-B	500131	1
GTN 40 TT/TNS-12.5kA-SI	500133	1



500133

Accessories GTN 40

Item	Item no.	PU
GTN 40 cable set for the arrester with fused voltage tap2 Connection cable (6kV cable) with BLF 5.08 plug - Modem connection cable with 80cm - Gateway connection cable with 115cm	500134	1
GTN 40 E single adapter, max. cross-section 25mm ²	500135	1
APZ connection set 1x Cat. 6A patch cable 6Kv, 1.5m 2x Cat. 6A RJ45 coupling with screw protection flaps for REG mounting	500139	1



500135

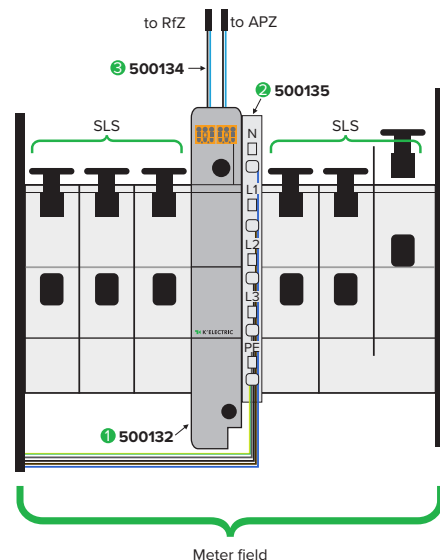


500134



500139

GTN 40 TT/TNS-7,5kA-SI



RfZ: Space for additional devices, APZ: Termination point meter location, SLS: Selective miniature circuit breaker



Multipole, pluggable AC lightning current combination arrestors Type 1+2

L = Leakage current (Use in the recourt area)



Go directly to the Combination arrestors.

For the TT-/TNS system | Lightning protection class I and II | 25kA, with integrated fuse

Artikel	Artikel-Nr.	VE
GT T1+2, 25kA, 1+0-275-FM-SI, 2 units	500220	1
GT T1+2, N-PE spark gap 100kA, 0+1, 1 units	500222	1
Wiring rail 6 units, folk, 16mm ²	500223	1
Wiring rail 7 units, folk, 16mm ²	500224	1
GT T1+2, 25kA, 3+1-275-FM-SI, 8 units	500221	1



For the TT-/TNS system | Lightning protection class I and II | 25kA

Item	Item no.	PU
GT T1+2, 25kA, 3+1-300-FM, 8 units	500200	1
GT T1+2, 25kA, 3+1-275-FM, 4 units	500213	1



For the TNC system | Lightning protection class I and II | 25kA

Item	Item no.	PU
GT T1+2, 25kA, 3+0-300-FM, 6 units	500201	1
GT T1+2, 25kA, 3+0-275-FM, 3 units	500214	1



For 1-phase TN systems | Lightning protection class I and II | 25kA

Item	Item no.	PU
GT T1+2, 25kA, 1+1-275-FM	500215	1



For the TNS system | Lightning protection class III and IV | 12.5kA

Item	Item no.	PU
GT T1+2, 12.5kA, 4+0-300-FM	500231	1
GT T1+2, 12.5kA, 4+0-300-FM-L	500250	1



For the TT-/TNS system | Lightning protection class III and IV | 12.5kA

Item	Item no.	PU
GT T1+2, 12.5kA, 3+1-300-FM	500230	1
GT T1+2, 12.5kA, 3+1-300-FM-L	500251	1



For the TNC system | Lightning protection class III and IV | 12.5kA

Item	Item no.	PU
GT T1+2, 12.5kA, 3+0-300-FM	500232	1
GT T1+2, 12.5kA, 3+0-300-FM-L	500252	1



For the TT-/TNS system with spark gap technology | 12.5kA

Item	Item no.	PU
GT FS T1+2, 12.5kA, 3+1-255, not pluggable	500233	1
GT FS T1+2, 12.5kA, 1+1-255, not pluggable	500234	1



For the TT-/TNS system with spark gap technology | 7.5kA

Item	Item no.	PU
GT FS T1+2, 7.5kA, 3+1-255, not pluggable	500263	1



25kA

12,5kA

7,5kA



Multipole, pluggable AC surge arresters Type 2

SI = with fused voltage gap
FM = with remote signal contact



Go directly to the
Type 2+3 surge protection.

For the TNS system

Item	Item no.	PU
GT T2, 4+0-300	500300	1
GT T2, 4+0-300-FM	500301	1



500301

For the TT-/TNS system

Item	Item no.	PU
GT T2, 3+1-300	500302	1
GT T2, 3+1-300-FM	500303	1
GT T2, 3+1-300-FM-SI	500320	1



500320

With integrated back-up fuse!

For the TNC system

Item	Item no.	PU
GT T2, 3+0-300-FM	500305	1



500305

For 1-phasesystem

Item	Item no.	PU
GT T2, 1+1-300-FM	500310	1



500310

Type 2+3 Arrester narrow design

For the TT-/TNS system

Item	Item no.	PU
GT T2+3, 3+1-275, 2 units	500306	1
GT T2+3, 3+1-275-FM, 2 units	500307	1



500306

For 1-phase TN systems

Item	Item no.	PU
GT T2+3, 1+1-275, 1 unit	500308	1



500308

Electromobility – Type 2

Item	Item no.	PU
GT T2-EM, 3+1-300-FM	500315	1
Cable set for GT T2-EM, 3+1-300-FM	500316	1

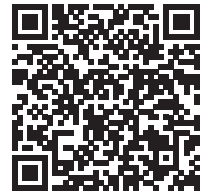


500315



Multipole, compact lightning current arrester

for the 60mm system | Type 1+2 L = Leakage current



Go directly to the compact lightning current arrester

For the TT-/TNS system – T1+2

Item	Item no.	PU
GT 60 T1+2, 12,5kA, 3+1-300-FM-L	500160	1
GT 60 T1+2, 12,5kA, 3+1-300-FM	500161	1
GTX 60 T1+2, 12,5kA, 3+1-300-FM-L, Rittal RiLineX	500170	1
GTX 60 T1+2, 12,5kA, 3+1-300-FM, Rittal RiLineX	500171	1



For the TT-/TNS system – T2

Item	Item no.	PU
GT 60 T2, 3+1-300-FM	500163	1
GT 60 T2-SI, 3+1-300-FM	500164	1
GTX 60 T2, 3+1-300-FM, Rittal RiLineX	500173	1
GTX 60 T2-SI, 3+1-300-FM, Rittal RiLineX	500174	1



For the TNC system – T1+2

Item	Item no.	PU
GT 60 T1+2, 12,5kA, 3+0-300-FM	500162	1
GTX 60 T1+2, 12,5kA, 3+0-300-FM, Rittal RiLineX	500172	1



For the TNC system – T2

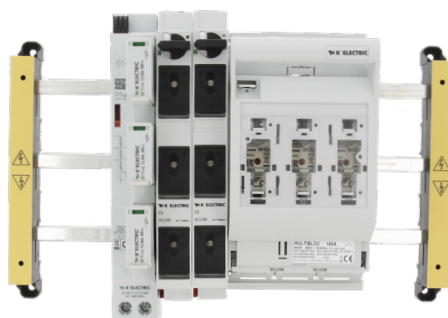
Item	Item no.	PU
GT 60 T2, 3+0-300-FM	500165	1
GT 60 T2-SI, 3+0-300-FM	500166	1
GTX 60 T2, 3+0-300-FM, Rittal RiLineX	500175	1
GTX 60 T2-SI, 3+0-300-FM, Rittal RiLineX	500176	1

Mit integrierter Versicherung



Accessories

Item	Item no.	PU
GTX 60 Abdeckung plombierbar, Rittal RiLineX	500179	1



Protection of PV roof systems

When is a type 1 or a type 2 SPD used?

No external lightning protection system available

AC side: Type 1 or also Type 2
DC side: Type 2

An external lightning protection system is in place and the **separation distance** to the frame of the PV system is **maintained**

AC side: Type 1
DC side: Type 2

An external lightning protection system is in place and the **separation distance** to the frame of the PV system is **not maintained**

AC side: Type 1
DC side: Type 1

Recommendation according to DIN VDE 0100-534: If the power length of an SPD exceeds > 10m, an additional SPD should be installed as close as possible to the terminal device to be protected.

Multipole, pluggable arresters for photovoltaic applications

Type 1+2 | Type 2



Go directly to the surge protection for PV

Combined arrester type 1+2, 1100V DC

Item	Item no.	PU
PV T1+2, 3 units 1100V-FM	500400	1
PV T1+2, 3 units 1100V	500401	1
PV T1+2, 5 units 1100V	500425	1



500401

Surge arrester type 2, 1100V DC

Item	Item no.	PU
PV T2, 3 units 1100V	500420	1
PV T2, 3 units 1100V-FM	500421	1
PV T2, 5 units 1100V	500424	1



500424

Combined arrester type 1+2, 1500V DC

Item	Item no.	PU
PV T1+2, 1500V-FM	500402	1
PV T1+2, 1500V	500403	1



500403

Surge arrester type 2, 1500V DC

Item	Item no.	PU
PV T2, 1500V	500422	1
PV T2, 1500V-FM	500423	1



500420

3.4 DIVERTER SWITCH & REPAIR SWITCH



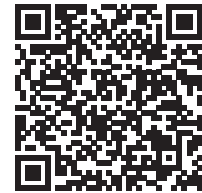


Not

N

N

DIVERTER SWITCH (LUS)



Go directly to the diverter switches.

Floor fixing 4-pole

Item 4-pole	Thermal rated current I_{th}	Rated power at 3x400V (AC3)	Rated power at 3x400V (AC23)	Connection cross section	Item no.	PU
LUS, 4-pole	180 A	75 kW	90 kW	185 mm ²	353161	1
LUS, 4-pole	250 A	110 kW	132 kW	185 mm ²	353251	1
LUS, 4-pole	400 A	110 kW	132 kW	185 mm ²	353065	1

DIN norm distribution (Netz-O-Not) 4-pole

Item 4-pole	Thermal rated current I_{th}	Rated power at 3x400V (AC3)	Rated power at 3x400V (AC23)	Connection cross section	Item no.	PU
LUS, 4-pole	25 A	7.5 kW	9 kW	25 mm ²	353026	1
LUS, 4-pole	40 A	11 kW	20 kW	25 mm ²	353040	1
LUS, 4-pole	63 A	18.5 kW	22.5 kW	25 mm ²	353063	1
LUS, 4-pole	80 A	22 kW	30 kW	35 mm ²	353080	1
LUS, 4-pole	125 A	37 kW	45 kW	50 mm ²	353125	1
LUS, 4-pole	180 A	75 kW	90 kW	185 mm ²	353160	1



353040

Encapsulated 4-pole

Item 4-pole	Thermal rated current I_{th}	Rated power at 3x400V (AC3)	Rated power at 3x400V (AC23)	Connection cross section	Item no.	PU
LUS, 4-pole	40 A	11 kW	20 kW	25 mm ²	356040	1
LUS, 4-pole	63 A	18.5 kW	22 kW	16 mm ²	356063	1
LUS, 4-pole	80 A	22 kW	30 kW	35 mm ²	356080	1
LUS, 4-pole	125 A	37 kW	45 kW	50 mm ²	356125	1
LUS, 4-pole	180 A	75 kW	90 kW	185 mm ²	356180	1
LUS, 4-pole	250 A	110 kW	132 kW	185 mm ²	356250	1



356040

4-hole fixing (Netz-O-Not) 4-pole

Item 4-pole	Thermal rated current I_{th}	Rated power at 3x400V (AC3)	Rated power at 3x400V (AC23)	Connection cross section	Item no.	PU
LUS, 4-pole	25 A	7,5 kW	9,5 kW	25 mm ²	353025	1
LUS, 4-pole	63 A	18,5 kW	22 kW	25 mm ²	353066	1
LUS, 4-pole	250 A	110 kW	132 kW	185 mm ²	353250	1



353025

REPAIR SWITCH (RS)



Go directly to the repair switches.

3-pole

Item 3-pole	Thermal rated current I_{th}	Connection cross section	Item no.	PU
RS, 3-pole, encapsulated	16 A	16 mm ²	354016	1
RS, 3-pole, encapsulated	25 A	16 mm ²	354025	1
RS, 3-pole, encapsulated	32 A	16 mm ²	354032	1
RS, 3-pole, encapsulated	40 A	16 mm ²	354040	1
RS, 3-pole, encapsulated	63 A	16 mm ²	354063	1
RS, 3-pole, encapsulated	80 A	35 mm ²	354080	1
RS, 3-pole, encapsulated	100 A	50 mm ²	354010	1
RS, 3-pole, encapsulated	125 A	50 mm ²	354012	1
RS, 3-pole, encapsulated	180 A	185 mm ²	354018	1
RS, 3-pole, encapsulated	250 A	185 mm ²	354027	1



354063

4-pole

Item 4-pole	Thermal rated current I_{th}	Connection cross section	Item no.	PU
RS, 4-pole, encapsulated	16 A	16 mm ²	354017	1
RS, 4-pole, encapsulated	25 A	16 mm ²	354026	1
RS, 4-pole, encapsulated	32 A	16 mm ²	354033	1
RS, 4-pole, encapsulated	40 A	16 mm ²	354041	1
RS, 4-pole, encapsulated	63 A	16 mm ²	354064	1
RS, 4-pole, encapsulated	80 A	35 mm ²	354081	1
RS, 4-pole, encapsulated	100 A	50 mm ²	354011	1
RS, 4-pole, encapsulated	125 A	50 mm ²	354013	1
RS, 4-pole, encapsulated	180 A	185 mm ²	354019	1
RS, 4-pole, encapsulated	250 A	185 mm ²	354028	1



354064

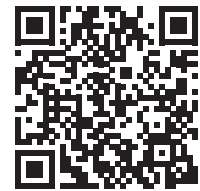
3.5 PLUG-IN METER TERMINALS

H&K | generalist





ADOCK® plug-in meter & meter connection terminals



Go directly to the plug-in meter terminals.

For the quick and safe replacement of electronic electricity meters.

- ✓ For electricity meters to DIN 43857 with 3-point mounting
- ✓ Powerless meter installation with time savings of up to 80%
- ✓ Uninterrupted meter replacement for high flexibility and customer satisfaction
- ✓ Simple locking function and sealing
- ✓ Counter pins in the magazine as a mounting aid for quick and contactless mounting
- ✓ Compact design with universal screws for easy installation
- ✓ Optional TRE connection terminals for ripple control receivers
- ✓ Universal terminal screws for Phillips, slotted and Torx bit inserts

Accessories:

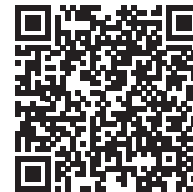
- ✓ ADOCK system pins: highly conductive E-alloy, silver-plated in the magazine
- ✓ ADOCK bracket: for effortless and uninterrupted meter replacement
- ✓ ADOCK cover: for securely covering and sealing the terminal

Plug-in meter terminal 63A

Item	Item no.	PU
Plug-in meter terminal 63A	101021	1
Plug-in meter terminal 63A with TRE connection terminals	101022	1
Plug-in meter terminal 63A in set with system pins (40mm) in magazine	101021-M	1
Plug-in meter terminal 63A with TRE connection terminals in set with system pins (40mm) in magazine	101022-M	1
AC plug-in meter terminal	101002	1



Productvideo



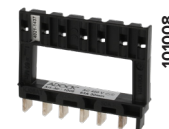
Accessories – Plug-in meter terminal 63A

System pins	Item no.	PU
System pins 40mm in magazine	101011	1
System pins 44mm in magazine	101011-44	1



Bracket	Item no.	PU
Three-phase ADOCK bracket, 4-pole (3P+N), 400V AC	101008	1

Delivery only to energy suppliers/ municipal and public utilities/ metering point operators.



Cover	Item no.	PU
Cover for three-phase plug-in meter terminal	101025	2



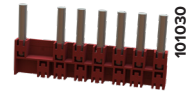
Meter connection terminal 100A

Item	Item no.	PU
Meter connection terminal 100A in a set with system pins in a magazine	101026-M	1
Meter connection terminal 100A with TRE connection terminals in a set with system pins in the magazine	101027-M	1
Meter connection terminal 100A incl. mounted system pins	101026-S	n.a.
Meter connection terminal 100A with TRE connection terminals incl. mounted system pins	101027-S	n.a.



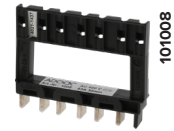
Accessories – Meter connection terminal 100A

System pins	Item no.	PU
System pins 40mm in magazine (D=6.2mm)	101030	1



Bracket	Item no.	PU
Three-phase ADOCK bracket, 4-pole (3P+N), 400V AC	101008	1

Delivery only to energy suppliers/ municipal and public utilities/ metering point operators.



Cover	Item no.	PU
Cover for three-phase meter connection terminal	101014	2

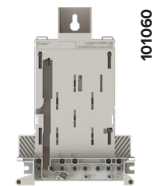


ADOCK® BKE adapter and additional space

For fast and safe replacement of electronic electricity meters.

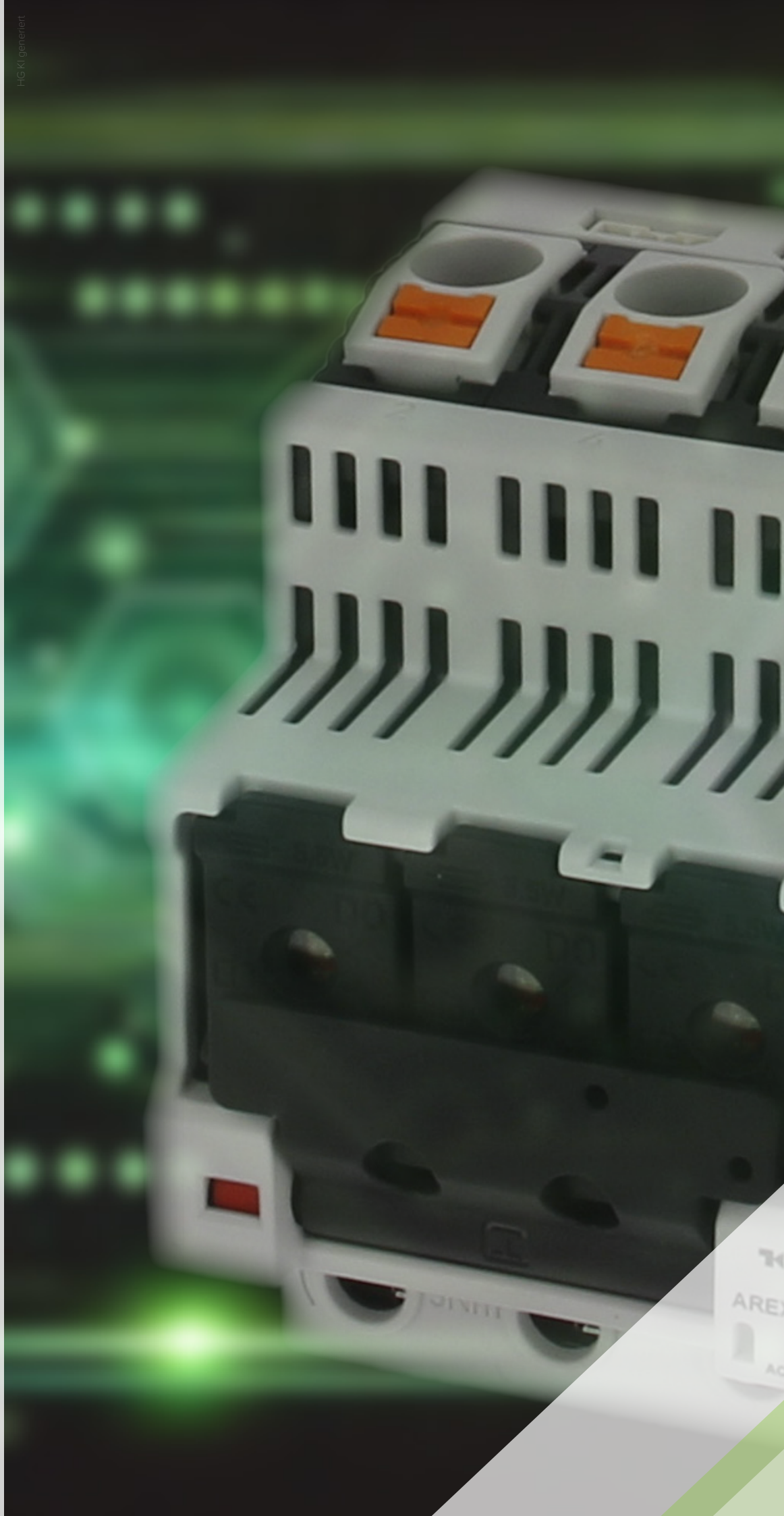
- ✓ For electronic household meters (eHZ)
- ✓ Uninterrupted meter replacement for high flexibility and customer satisfaction
- ✓ Additional space for DIN rail devices (13 mod.) can be retrofitted

Item	Item no.	PU
ADOCK BKE adapter (BKE-A)	101060	1
ADOCK clamp cover	101061	1
ADOCK BKE-AZ additional room set (RfZ) without BKE adapter	101062	1
ADOCK BKE-AZ additional room set (RfZ) with BKE adapter	101063	1
ADOCK OKK probe	101064	1



3.6 AREX® TQ

HGS K | generiert





K' ELECTRIC
K TO

2 4 6 N
1 3 5 N

AREX® TQ

D0 switch-disconnector with integrated measurement and ESÜ
(electronic fuse monitoring)



Go directly to AREX TQ.

- ✓ Kommunikation via Modbus RTU
- ✓ Construction width of 72mm, only 4 units
- ✓ 16mm² spring clamp terminal on the output
- ✓ Double terminal on the input up to 35mm²
- ✓ Fuse plug
- ✓ Visual fuse monitoring via flashing indicator
- ✓ Messages via Modbus:
 - Fuse failure per phase
 - Temperature alarm per phase
 - Switching position
- ✓ Can be switched simultaneously on all poles
- ✓ Fuse monitoring per phase
- ✓ Temperature monitoring per phase near the fuse carrier
- ✓ Overtemperature alarm per phase, adjustable
- ✓ Overvoltage alarm per phase, adjustable
- ✓ Undervoltage alarm per phase, adjustable
- ✓ Overcurrent alarm per phase, adjustable
- ✓ THD per Phase
- ✓ Measurement of imported and exported energy per phase and total

Item	Item no.	PU
AREX TQ 3 polig + N (N vor/nacheilend)	101861	1



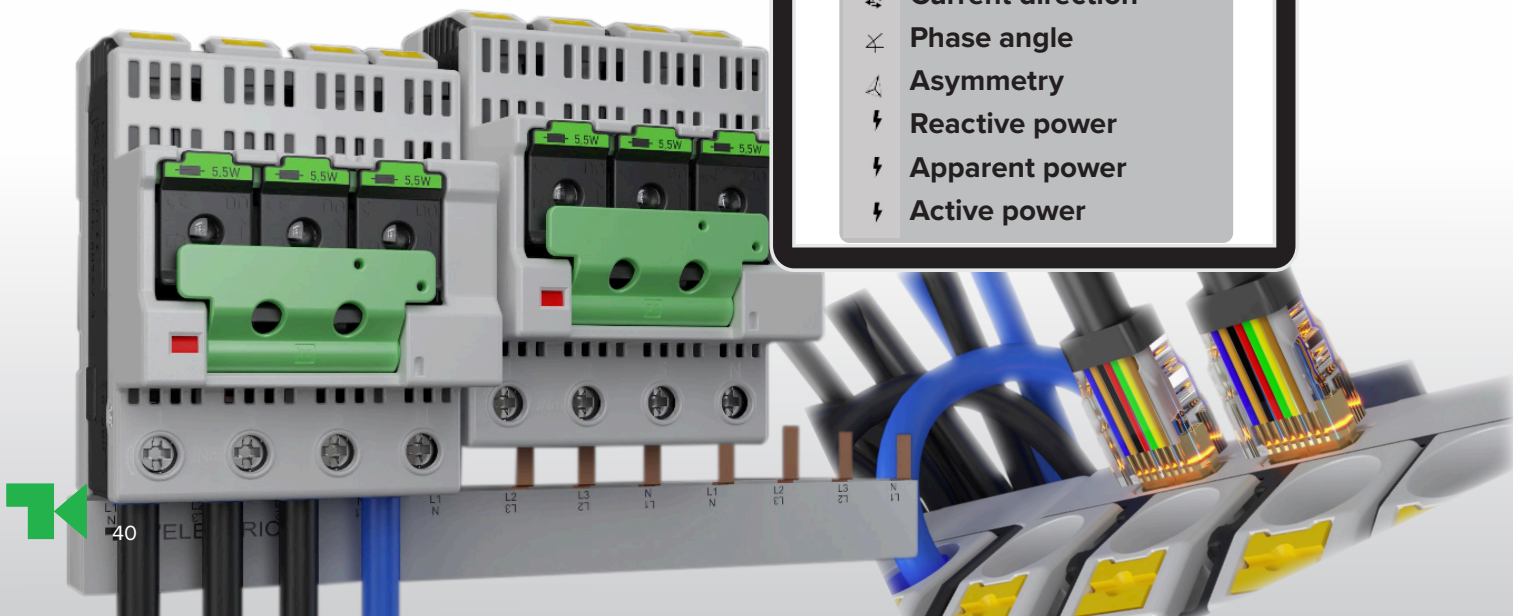
Productvideo



AREX TQ

Modbus-System

- Temperature**
- Fuse failure**
- Switch position**
- Self-diagnosis**
- Voltage**
- Current**
- Current direction**
- Phase angle**
- Asymmetry**
- Reactive power**
- Apparent power**
- Active power**



Accessories for the AREX® TQ

- ✓ Detailed fuse monitoring for up to 28 devices via Modbus RTU interface
- ✓ Monitoring of individual temperatures and switch positions
- ✓ Provides power to the bus and connects to the Modbus RTU interface

Item	Item no.	PU
Modbus Connector	101830	1
Modbus Gateway	101831	1



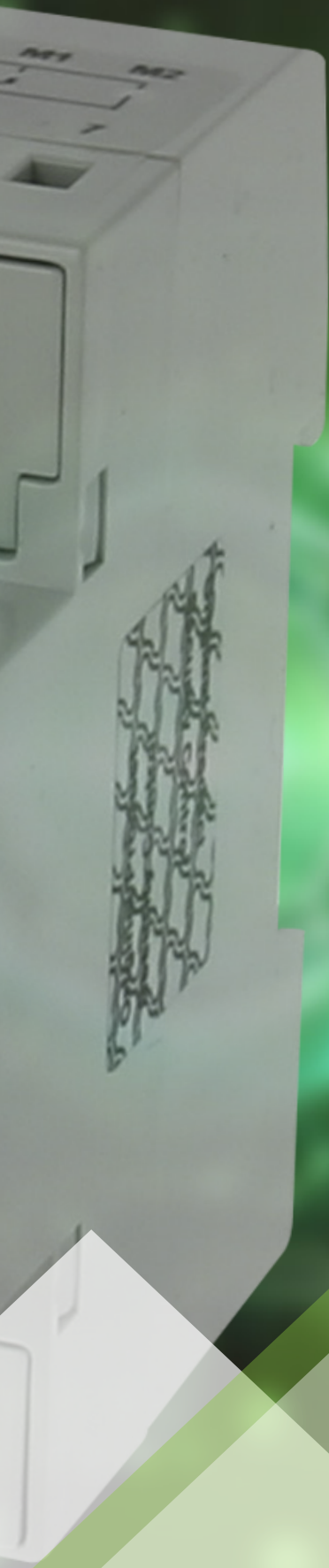
Power supply for the AREX® TQ

- ✓ Low installation depth
- ✓ Ideal for installation in distribution boards
- ✓ Screw terminal connections
- ✓ Wide range input voltage
- ✓ Function
 - Green LED (DC OK) = Operation (output voltage > 20V)
 - Red LED (DC LO) = DC output low

Item	Item no.	PU
Power supply, 230 VAC / 24V DC, 10W	103700	1
Power supply, 230 VAC / 24V DC, 30W	103701	1
Power supply, 230 VAC / 5V DC, 7,5W	103705	1



Item	Item no.	PU
Terminating resistor, plug, PTSM 0.5/4-P-2.5 WH for AREX TQ plug, 120Ω	101838	1
Terminating resistor, connector, RJ10, 120Ω	101839	1



P-series electricity meter

with MID certification

- ✓ Digital single-phase alternating current meter up to 40A direct measurement in 1 unit
- ✓ Digital three-phase meter up to 80A Direct measurement in 4 units
- ✓ Digital three-phase meter up to 125A Direct measurement in 6 units
- ✓ Digital three-phase current transformer meter for 5 A / 1 A in 4 units
- ✓ Display: Active and reactive energy, instantaneous active and reactive power (consumption and supply)
- ✓ Possible display of all relevant measurement data (UI / II/ PF / F / THD in %) of the individual phases
- ✓ With adjustable transformer ratio (can be changed indefinitely)
- ✓ Double tariff meter HT / NT (T1 / T2) with tariff switching input
- ✓ SO output for active and reactive energy
- ✓ Optional extension through communication modules: KNX, M-Bus, MOD-Bus, LAN, eVision
- ✓ Accuracy: active energy B (class 1)
- ✓ Made in EU: with EU-wide MID-certification



Go directly to the electricity meters.

Alternating current meter

Item	Item no.	PU
KE-P40 MID S0	195851	1
KE-P40 MID with M-BUS	195852	1
KE-P40 MID with Modbus	195853	1



Direct current meter

Item	Item no.	PU
KE-P80 MID S0	195831	1
KE-P80 MID M-BUS	195832	1
KE-P80 MID MOD-BUS	195833	1
KE-N125 MID, 6 units construction width	195552	1



Transformer meter

Item	Item no.	PU
KE-P/5 MID S0	195841	1
KE-P/5 MID M-BUS	195842	1
KE-P/5 MID MOD-BUS	195843	1



Communication modules

Item	Item no.	PU
M-Bus module	195580	1
MOD-Bus module	195581	1
LAN module	195582	1
KNX module	195583	1
eVision module with embedded web app	195586	1





**OUR
PRODUCTS
IN USE...**

3.8 CYLINDER LOCKING SYSTEMS



HG K'Electric



Cylinder fuse holder

for fuses: **10x38mm / 14x51mm / 22x58mm / 10x85mm (PV)**

✓ IEC 60947-1 ✓ UL 4248-1 ✓ UL 4248-4 ✓ UL 486E



Go directly to the cylinder locking systems.

For fuses: 10x38mm

up to a maximum of 32A / 690V (IEC) / AC22B / 600V (UL)

Item	Item no.	PU
Cylinder fuse holder for 10x38 1-pole IEC/UL	281051	12
Cylinder fuse holder for 10x38 2-pole IEC/UL	281052	6
Cylinder fuse holder for 10x38 3-pole. IEC/UL	281053	4



Item	Item no.	PU
Cylinder fuse holder for 10x38 1-pole IEC/UL with LED	281061	12
Cylinder fuse holder for 10x38 2-pole IEC/UL with LED	281062	6
Cylinder fuse holder for 10x38 3-pole IEC/UL with LED	281063	4



PV fuse holder

PV cylinder fuse holder 10x38 mm 1000V DC

Item	Item no.	PU
PV fuse holder for 10x38 1000V DC	251055	1



PV cylinder fuse holder 10x85 mm 1500V DC

Item	Item no.	PU
PV fuse holder for 10x85 1500V DC	302181	1



Cylindrical fuse links

"gG" without indicator

IEC / DIN / EN 60269-1 / 10x38 / 400V AC; 100kA

Item	Item no.	PU
Cylindrical fuse, 10x38, 1A, gL/gG	250601	10
Cylindrical fuse, 10x38, 2A, gL/gG	250602	10
Cylindrical fuse, 10x38, 4A, gL/gG	250604	10
Cylindrical fuse, 10x38, 0,5A, gL/gG	250605	10
Cylindrical fuse, 10x38, 6A, gL/gG	250606	10
Cylindrical fuse, 10x38, 8A, gL/gG	250608	10
Cylindrical fuse, 10x38, 10A, gL/gG	250610	10
Cylindrical fuse, 10x38, 12A, gL/gG	250612	10
Cylindrical fuse, 10x38, 16A, gL/gG	250616	10
Cylindrical fuse, 10x38, 20A, gL/gG	250620	10
Cylindrical fuse, 10x38, 25A, gL/gG	250625	10
Cylindrical fuse, 10x38, 32A, gL/gG	250632	10



Cylindrical fuse links

"gG" without indicator

14x51 / 500V AC; 80kA

Item	Item no.	PU
Cylindrical fuse, 14x51, 2A, gL/gG	251602	10
Cylindrical fuse, 14x51, 4A, gL/gG	251604	10
Cylindrical fuse, 14x51, 6A, gL/gG	251606	10
Cylindrical fuse, 14x51, 8A, gL/gG	251608	10
Cylindrical fuse, 14x51, 10A, gL/gG	251610	10
Cylindrical fuse, 14x51, 16A, gL/gG	251616	10
Cylindrical fuse, 14x51, 20A, gL/gG	251620	10
Cylindrical fuse, 14x51, 25A, gL/gG	251625	10
Cylindrical fuse, 14x51, 32A, gL/gG	251632	10
Cylindrical fuse, 14x51, 40A, gL/gG	251640	10
Cylindrical fuse, 14x51, 50A, gL/gG	251650	10



Go directly to the cylinder locking systems



Cylindrical fuse links

for photovoltaics

10x38

Item	Item no.	PU
PV Cylindrical fuse, 10x38, 1000V/DC, 1A	291001	10
PV Cylindrical fuse, 10x38, 1000V/DC, 2A	291002	10
PV Cylindrical fuse, 10x38, 1000V/DC, 3A	291003	10
PV Cylindrical fuse, 10x38, 1000V/DC, 4A	291004	10
PV Cylindrical fuse, 10x38, 1000V/DC, 5A	291005	10
PV Cylindrical fuse, 10x38, 1000V/DC, 6A	291006	10
PV Cylindrical fuse, 10x38, 1000V/DC, 8A	291008	10
PV Cylindrical fuse, 10x38, 1000V/DC, 10A	291010	10
PV Cylindrical fuse, 10x38, 1000V/DC, 12A	291012	10
PV Cylindrical fuse, 10x38, 1000V/DC, 16A	291016	10
PV Cylindrical fuse, 10x38, 1000V/DC, 20A	291020	10
PV Cylindrical fuse, 10x38, 1000V/DC, 25A	291025	10



10x85

Item	Item no.	PU
PV Cylindrical fuse, 10x85, 1500V/DC, 2A	291102	10
PV Cylindrical fuse, 10x85, 1500V/DC, 4A	291104	10
PV Cylindrical fuse, 10x85, 1500V/DC, 5A	291105	10
PV Cylindrical fuse, 10x85, 1500V/DC, 6A	291106	10
PV Cylindrical fuse, 10x85, 1500V/DC, 8A	291108	10
PV Cylindrical fuse, 10x85, 1500V/DC, 10A	291110	10
PV Cylindrical fuse, 10x85, 1500V/DC, 12A	291112	10
PV Cylindrical fuse, 10x85, 1500V/DC, 15A	291115	10
PV Cylindrical fuse, 10x85, 1500V/DC, 16A	291116	10
PV Cylindrical fuse, 10x85, 1500V/DC, 20A	291120	10
PV Cylindrical fuse, 10x85, 1500V/DC, 25A	291125	10
PV Cylindrical fuse, 10x85, 1500V/DC, 30A	291130	10

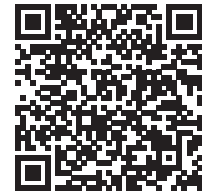


3.9 NH FUSE SWITCH DISCONNECTOR 800V





Fuse switch disconnectors 800 V



Go directly to the fuse switch disconnectors.

NH 00 VSD00-PV/185mm, 3-pole, 80A/800V AC

Item	Item no.	PU
NH 00 VSD-PV, 160A, 3-pole, clip terminal clamps 4-70mm ² / screw M8	208080-800	1
NH 00 VSD-PV, 160A, 3-pole, V terminal	208081-800	1



208081-800

Accessories

Item	Item no.	PU
NH 00 clip terminal clamps Cu 4-70 mm ² (Set = 3 pieces)	208051	1
Terminals AL/Cu 1.5-70 mm ² (1 set = 3 pieces)	148053	1
Compensating cover for VSD00/100 to size 1/2/3	208061	1
Extension / terminal cover (transparent) for VSD NH 00	208062	1
Double adapter for VSD00/185 (Item no.: 208086 + 208087) to 185mm system	208065	1
Single adapter for VSD00/100 to 185mm system	208066	1
Double adapter for VSD00/100 to 185mm system	208067	1



208067



148053

NH 2 VSD2-PV, 3 pole, 200A/800V AC

Item	Item no.	PU
NH2 VSD2-PV, 200A, 3-pole, connection screw M12	208250-800	1
NH2 VSD2-PV, 200A, 3-pole, V terminals	208290-800	1



208250-800

NH 3 VSD3-PV, 3 pole, 400A/800V AC

Item	Item no.	PU
NH 3 VSD3-PV, 400A, 3-pole, connection screw M12	208350-800	1
NH 3 VSD3-PV, 400A, 3-pole, V terminals	208390-800	1



208350-800



OUR PRODUCTS IN USE...

3.10 FUSES 800 V

HGS K'Electric





NH fuse links 800V AC

with live grip tabs



Go directly to the fuse links.

Size NH00 | gG | 800V AC | 30kA

Item	Item no.	PU
NH fuse size 00, 10A	140610/800	3
NH fuse size 00, 16A	140616/800	3
NH fuse size 00, 20A	140620/800	3
NH fuse size 00, 25A	140625/800	3
NH fuse size 00, 35A	140635/800	3
NH fuse size 00, 40A	140640/800	3
NH fuse size 00, 50A	140650/800	3
NH fuse size 00, 63A	140663/800	3



Image similar

Size NH00 | gS | 800V AC | 30kA

Item	Item no.	PU
NH fuse size 00, 80A	140680/800.GS	3
NH fuse size 00, 100A	140690/800.GS	3
NH fuse size 00, 125A	140691/800.GS	3

Size NH1 | gG | 800V AC | 120kA

Item	Item no.	PU
NH fuse size 1, 35A	141635/800	3
NH fuse size 1, 50A	141650/800	3
NH fuse size 1, 63A	141663/800	3
NH fuse size 1, 80A	141680/800	3
NH fuse size 1, 100A	141690/800	3



Image similar

Size NH1 | gS | 800V AC | 120kA

Item	Item no.	PU
NH fuse size 1, 160A	141692/800.GS	3
NH fuse size 1, 200A	141693/800.GS	3
NH fuse size 1, 250A	141694/800.GS	3

Size NH2 | gS | 800V AC | 120kA

Item	Item no.	PU
NH fuse size 2, 200A	142693/800.GS	3
NH fuse size 2, 250A	142694/800.GS	3
NH fuse size 2, 315A	142696/800.GS	3



Size 3 | gG | 800V AC | 120kA

Item	Item no.	PU
NH fuse size 3, 160A	143691/800	3
NH fuse size 3, 200A	143692/800	3
NH fuse size 3, 250A	143694/800	3
NH fuse size 3, 315A	143696/800	3



Size 3 | gS | 800V AC | 120kA

Item	Item no.	PU
NH fuse size 3, 400A	143698/800.GS	3







WE CONNECT TO PROTECT

IMPRINT

K'ELECTRIC GmbH | Carl-Benz-Straße 7 | 95448 Bayreuth | Germany

Contact

Phone: +49 921 151 26 78-0

Fax: +49 921 151 26 78-20

E-mail: office@k-electric-gmbh.de

support@k-electric-gmbh.de

Web: www.k-electric-gmbh.de

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