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Connectors

ZH, ZS Series

Inter-car jumpers
to UIC 552

Catalogue F122.en



More information at:
schaltbau-gmbh.com

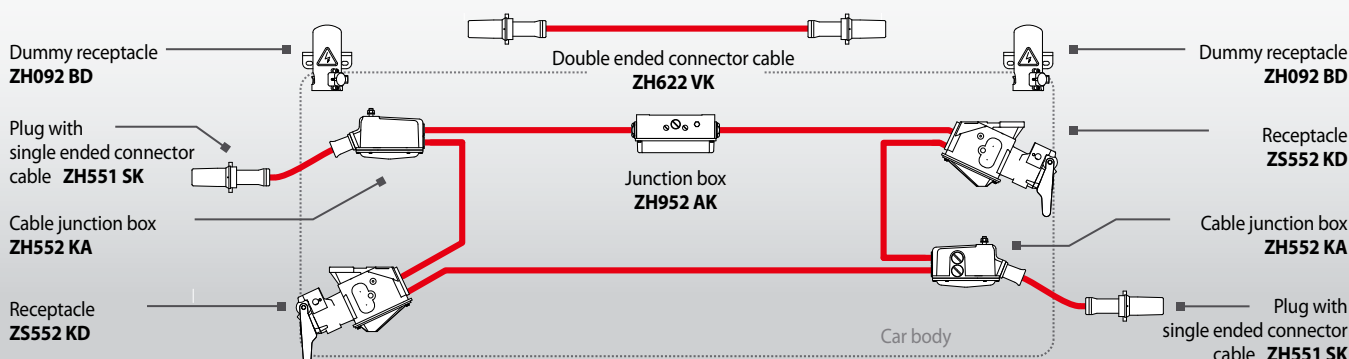
ZS, ZH Series Inter-car jumpers to UIC 552

Schaltbau inter-car jumpers to UIC standard – cost-effective, durable and highly reliable

Schaltbau ZH and ZS series connectors fully meet the requirements of UIC 552. With their long time proven design these jumpers have been the stock items of Schaltbau for the railway industry since decades.

All railway vehicles used in cross-border rail traffic, such as locomotives as well as electric and diesel multiple units that are equipped with a train line require these ZH and ZS Series jumpers.

Circuit diagram of energy transmission between cars equipped with a train line



Features

Series ZH, ZS

ZH Series plug with single or double ended connector cable:

- UIC 552 compliant
- Rugged, durable aluminium die cast housing
- Termination:
 - High-quality screw machined contact, continuous low contact resistance
 - Crimp connection, wire gauge 185 mm²
 - Earthing: sheathed cable, wire gauge 25 mm², connected to plug housing
- Assembly of plug: Single or double ended connector cable in different designs and lengths

ZS Series receptacle:

- UIC 552 compliant
- Rugged, durable aluminium die cast housing, metal handled lid
- Termination:
 - High-quality screw machined contact, continuous low contact resistance
 - Screw-type connection with M16 screw
 - Earthing: M10 screw connection at side of shell and mounting surface
- Metal latch locking of mated plug in receptacle
- Improved design:
 - Single symmetrical receptacle shell, can be mounted both to the left and the right of the vehicle body
 - Common terminal for connecting cables entering from the left, right or the rear
 - Easy mounting and maintenance
 - Seal and drainage of the lid have been improved
 - Powder coated shell surface, compliant with BN 918340
- Lock and key for mounting on the right or left
- Optional pilot contact for feedback signalling a plug being mated

ZH Series dummy receptacle:

- Rugged, durable aluminium die cast housing
- Designed to accommodate not mated ZH series plugs (parking position)
- Lock and key
- Earthing: mounting surface

ZH Series junction boxes:

- Rugged, durable aluminium die cast housing
- Termination:
 - Screw terminal or terminal block
 - Earthing: mounting surface or M12 screw terminal

Common features

- **Life:** Designed for frequent use up to 5,000 mating cycles
- **IP54 rated** Receptacle with closed lid and for mated connector, including cable entry
- **Temperature resistance:** -50° C min. up to +85° C max., valid for all materials used
- **Corrosion resistance:** Increased resistance against chemicals, in particular detergents alkaline or acidic
- **Flammability rating:**
 - UL94-V0 rated
 - Meets requirements for fire protection according to EN 45545

Specifications

Series ZH, ZS

Jumpers	ZS, ZH Series
Standard	UIC 552
Number of contacts	1
Rated voltage	3 kV AC / DC
Rated current (UIC 552)	800 A at -10 °C
Terminal type Pin Socket	Crimp connection M16 screw connection
Contact diameter	25 mm
Wire gauge	185 mm ²
Contact resistance, typ. (IEC 60512-2-2)	< 1 mΩ
Test voltage (DIN EN 50124-1)	3.2 kV (50 Hz) 60 sec
Contact forces Mating force Sliding force Unmating force	> 200 N > 100 N > 100 N
Pilot contact	optional in receptacle shell: 1 SPDT, 250 V AC: 15 A / 24 V DC: 6 A
IP rating (IEC 60529, IP code)	When mated: IP54 Receptacle with lid closed: IP54
Shock, Vibration (IEC 61373)	Category 1, Class B
Operating temperature	- 50 °C ... + 85 °C
Mechanical endurance (IEC 60512-9-1)	5,000 mating cycles
Materials Receptacle shell ZS Plug shell ZH Inserts Seals Contacts	Aluminium die cast Aluminium die cast Thermoplastic / Thermoset Thermoplastic elastomer (TME) / Neoprene Copper wrought alloy, crimpable



Quality and reliability

Rail vehicles in good hands – with Schaltbau jumpers

The development, manufacture and assembly of our products are subject to the quality management provisions of DIN EN ISO 9001 and IRIS (International Railway Industry Standard).

Continuous testing guarantees consistently high quality. Your benefit: Great performance at low operating costs. Maximum operating reliability and long lifetime of your rolling stock.

Ordering code

Series ZH, ZS

• ZH plug with cable

Example: **ZH551 SK-L3000**

Series	
ZH551 SK	Plug with single ended cable
ZH622 VK	Double ended cable with 2 plugs
Cable length	
Lxxxx	Cable length in mm, standard and lengths on request

• ZS Receptacle

Example: **ZS552 KD-DM-V1-S0-B-T1-K1-G1**

Series	
ZS552 KD	Receptacle
Handled lid	
DM	Standard
Lock and key	
V0	---
V1	Lock, mounted on the left
V2	Lock, mounted on the right
Pilot contact	
S0	---
S1	1x Pilot contact, on request
Colour	
B	Black, RAL 9005, powder coated
Holes for temperature sensor	
T0	---
T1	At the rear end
T2	On the left
T3	On the right
Cable exits	
K1	Horizontal, 2x at the rear
K2	Horizontal, 1x at the rear, 1x on the side
K3	Vertical, 2x at the rear
K4	Vertical, 2x on the side
Threads for cable glands	
M40	2x M40x1.5
M50	2x M50x1.5

• ZH junction box

Example: **ZH552 KA-B-P**

Series			
ZH552 KA	Cable junction box for ZH551 SK Lxxxx		
ZH952 AK	Junction box		
Colour			
B	Black, RAL 9005		
C	Concrete grey, RAL 7023		
Threads of cable glands			
P	Pg36 + Pg13.5	}	ZH552 KA only
M40	M40x1.5		
M50	M50x1.5		
P1	Pg36 + Pg29 + Pg13.5	}	ZH952 AK only
M1	M50x1.5 + M25x1.5 + M20x1.5		

• ZH dummy receptacle

Example: **ZH092 BD-V1-B**

Series	
ZH092 BD	Dummy receptacle
Lock and key	
V0	---
V1	Lock
Colour	
B	Black, RAL 9005
C	Concrete grey, RAL 7023



Note:

This catalogue shows only stock items. For some variants minimum quantities apply. Please ask for the conditions.

Special variant:

If you need a special variant of the connector, please do not hesitate to contact us. Maybe the type of connector you are looking for is among our many special designs. If not, we can also supply customized designs. In this case, however, minimum order quantities apply.

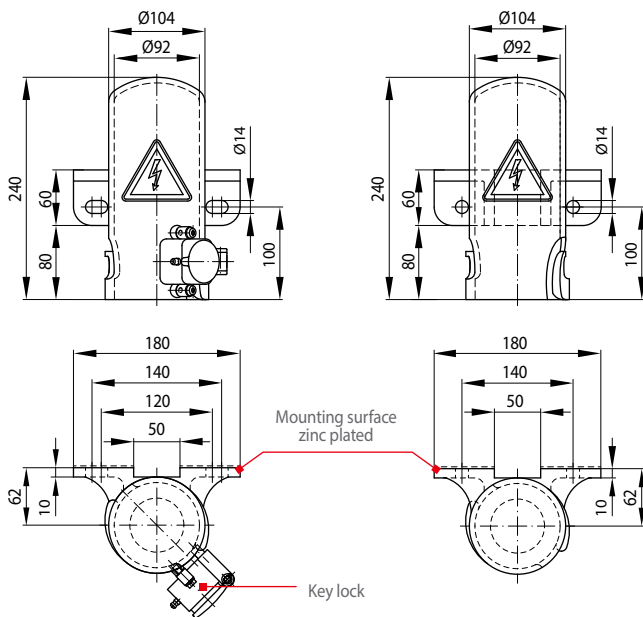
Dummy receptacle

Lock and key

Series ZH

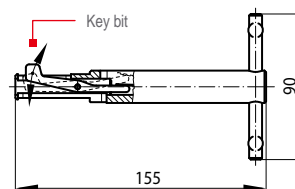
• With lock and key Dummy ZH092 BD-V1-x

• No lock and key Dummy ZH092 BD-V0-x



Key for locking receptacles and dummy receptacles (V1, V2).

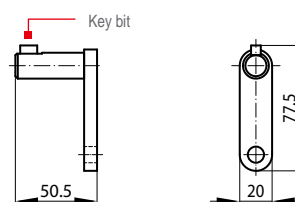
With movable bit Key ZH550 VS1



Features:

Key can be inserted and removed in any position.

• With fixed bit Key ZH550 VS2



Features:

Key can only be inserted and removed when locked.



Note:

Dummy receptacles are available in black (RAL9005) or concrete grey (RAL 7023), see also ordering code on page 3.



Note:

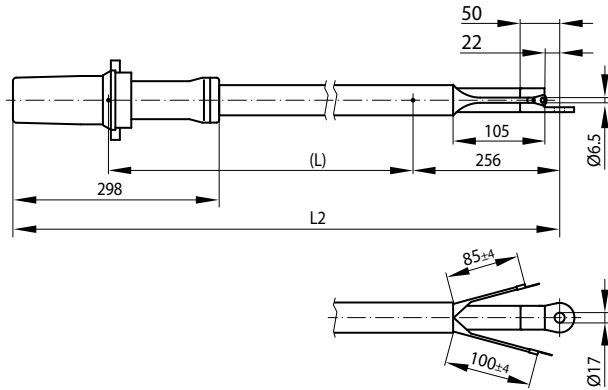
Lock and key are optional and not included in the delivery of receptacles and dummy receptacles. Please make sure to order them separately.

Dimensions in mm / Subject to change

Single and double ended connector cables Pre-assembled cable sets

Series ZH

• ZH551 SK Lxxxx Single ended cable with plug



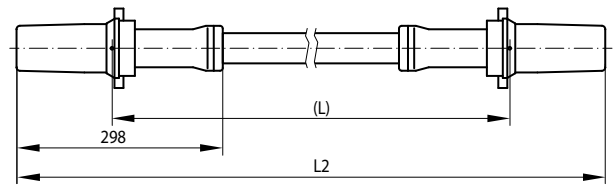
Stock items

Ordering code	Length (L)	Total length L2
ZH551 SK L1420	1420 mm ± 10	1814 mm ± 10
ZH551 SK L1800	1800 mm ± 10	2094 mm ± 10
ZH551 SK L3300	3300 mm ± 10	3954 mm ± 10



Note:
Other lengths on request

• ZH622 VK Lxxxx Double ended cable with two plugs



Stock items

Ordering code	Length (L)	Total length L2
ZH622 VK L1200	1200 mm ± 10	1476 mm ± 10
ZH622 VK L1460	1460 mm ± 10	1736 mm ± 10
ZH622 VK L3400	3400 mm ± 10	3672 mm ± 10

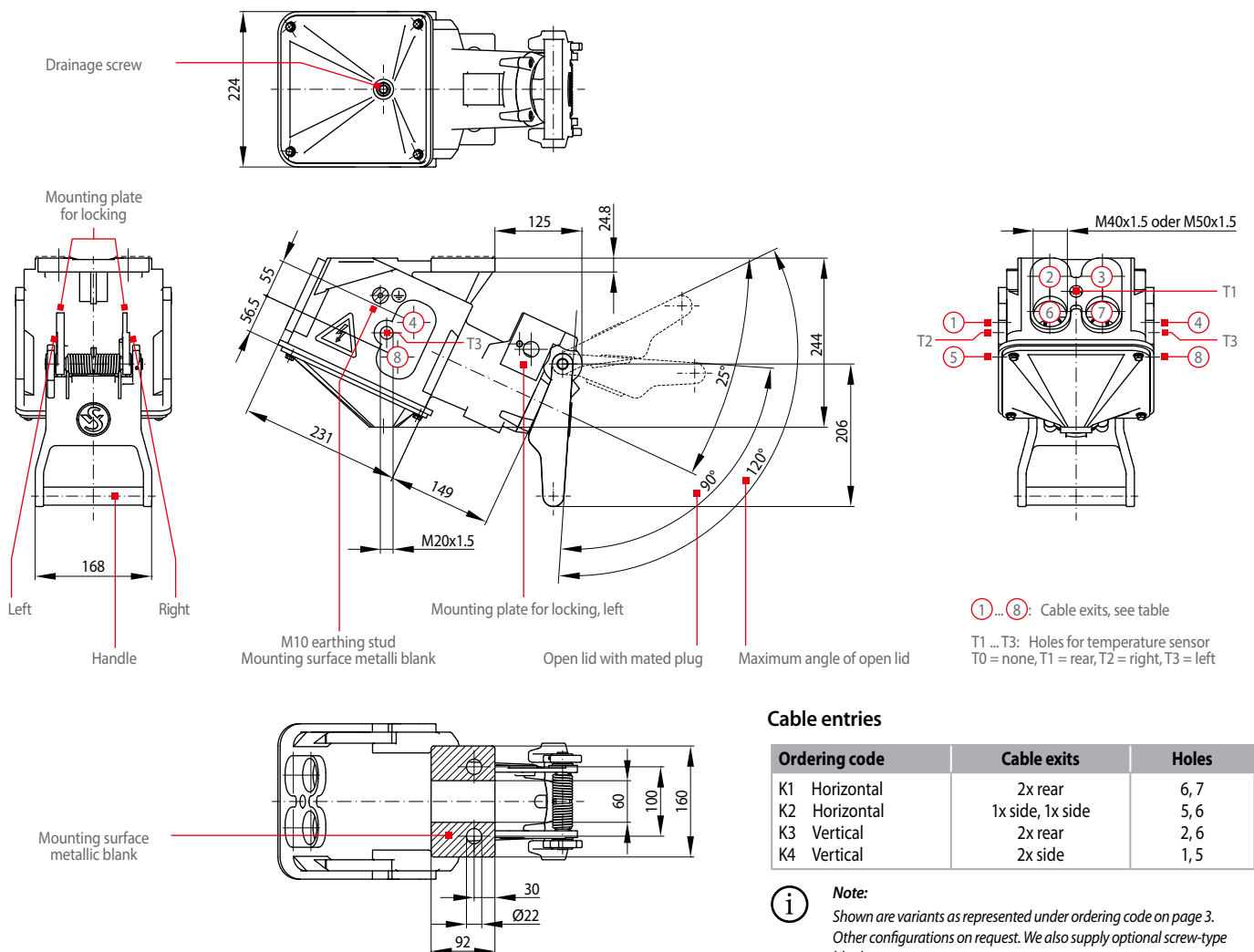


Note:
Other lengths on request.

Receptacle

Series ZS

• ZS552 KD-DM-V1-S0-B-K1-M40 Receptacle



Cable entries

Ordering code	Cable exits	Holes
K1 Horizontal	2x rear	6, 7
K2 Horizontal	1x side, 1x side	5, 6
K3 Vertical	2x rear	2, 6
K4 Vertical	2x side	1, 5



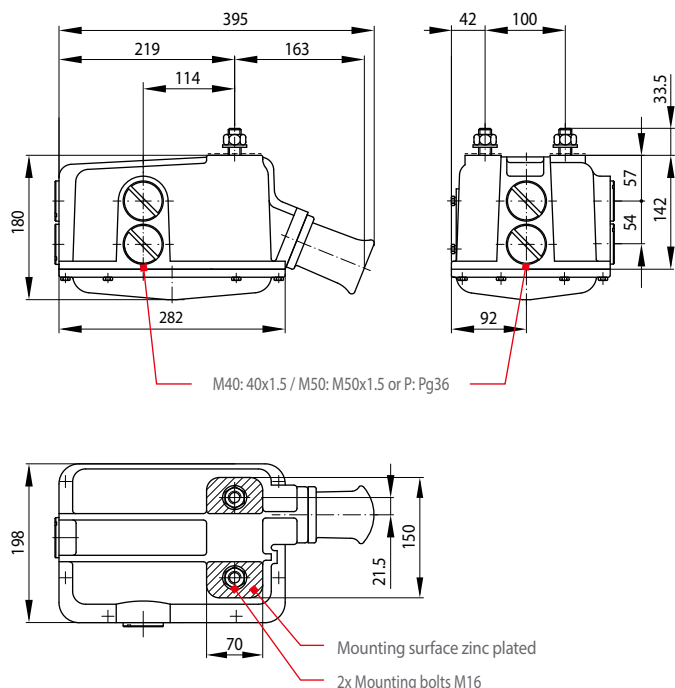
Note:
Shown are variants as represented under ordering code on page 3.
Other configurations on request. We also supply optional screw-type blank caps.

Cable junction box

Junction box

Series ZH

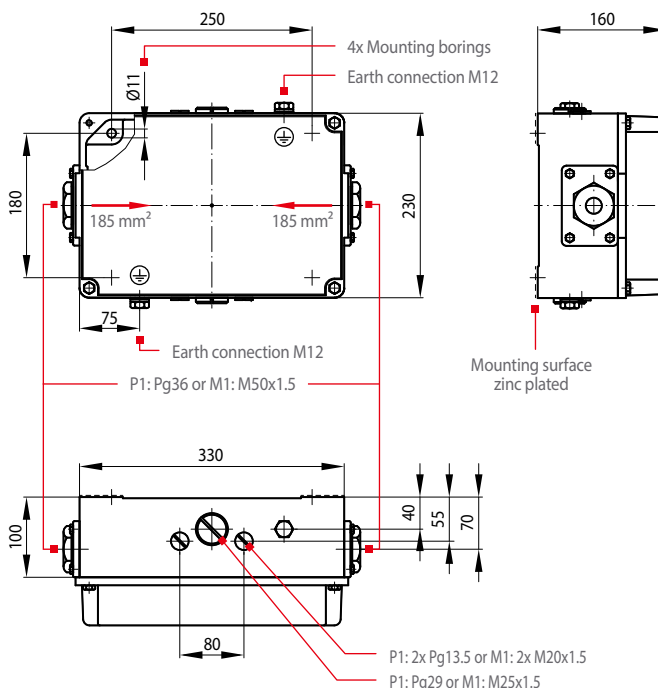
- Cable junction box ZH552 KA
for single ended connector cable ZH551 SK



Note:

Cable glands and blank caps as depicted are included in delivery.
Cable junction boxes are available in black (RAL9005) or concrete grey (RAL 7023),
see also ordering code on page 4.

- Junction box ZH952 AK

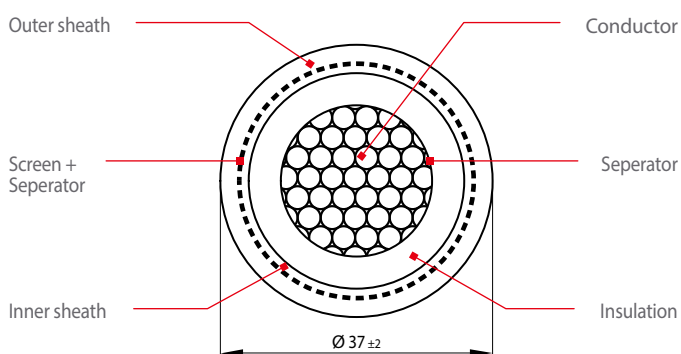


Note:

Cable glands and blank caps as depicted are included in delivery.
Junction boxes are available in black (RAL9005) or concrete grey (RAL 7023),
see also ordering code on page 4.

Cable Single pole sheathed connector cable, single or double ended

Series ZH



You can order the connector cable according to DIN EN 45545
by the metre.

Ordering code: NSHXAFCMOE 185QMM

- Non-halogen sheathed power supply line for rail vehicles
- Following DIN VDE 0250-606 and DIN EN 50624
- Min. bending radius: 10 x diameter (cable freely movable)
- Wire gauge: 185 mm²
- Nominal voltage: $U_0 = 3.6 \text{ kV}$, $U = 6 \text{ kV}$
- Temperature range: $-40^\circ \text{C} \dots +90^\circ \text{C}$

Installation and safety instructions

Baureihe ZH, ZS

The UIC Series inter-car jumpers dealt with in this catalogue are intended for use with high-voltage systems and special installations. They are designed and tested in compliance with the generally recog-

nised state of the art. However, the improper use, operation, handling, maintenance of or tampering with electric equipment can cause serious or fatal injury to the user or others, and the appliance or other property can be damaged.



Due to our continuous improvement programme, the design of our products can be modified at any time. So some features may differ from the descriptions, specifications and drawings in the catalogue.

You can download the latest update of the catalogue at schaltbau.info/download1en. The updated catalogue renders the previous issue invalid.



Electrical hazards: Any exposure to the connector's live parts. Risk of electrical shock!

Observe all applicable national provisions, all safety, accident prevention and environmental regulations as well as the recognized technical rules for safe and proper working.

Installation and safety instructions

- Only authorized and trained personnel are allowed to plan and carry out all mechanical and electrical installations, transport, commissioning, as well as maintenance and repair work.
- This applies to the observation of the general installation and safety regulations for high-voltage systems as well as the proper use of tools approved for this purpose. Electric equipment requires protection from moisture and dust during installation, operation and storage.
- Carry out regular inspections of all protection and safety devices to see if they work properly.
- Work on electric equipment may only be performed by a qualified electrician or trained personnel working under the direction and supervision of a qualified electrician according to the applicable rules of electrical engineering.
- The connectors supply power. They are intended for plug-in and detachable connections of components, devices and systems only.
- In order to comply with IEC 61984 make sure that always the live side of the connector – no matter whether plug or receptacle – is fitted with socket contacts.
- Make sure that there is no undue strain, pressure, flexing and torsion on the cable connection.
- According to IEC 61984 connectors used as intended must not be engaged or disengaged when live or under load.
- When disengaging a connector, pull the plug and never the cable.
- A connector that does not engage easily requires special attention: Check for the correct orientation, pollution or if contacts got bent. Remedy the cause without delay. Never use force! The connector should always engage easily.
- In order to meet the requirements of the protection class and to protect the connectors against the entry of dirt or moisture, make sure that, when not mated,
 - the plug is always inserted into a dummy receptacle
 - the hinged lid of receptacles is closed, according to its intended use
- Dirt, moisture, snow and ice in the interior of ZH092 series dummy receptacles contaminate the plug. The coupling of a contaminated plug to the receptacle may lead to a life-threatening electric shock. Always check if the interior of the receptacles is free from dirt, moisture, snow and ice before inserting a plug into a receptacle or a dummy receptacle.
- Use the connector only according to its intended use. Replace or repair damaged parts exclusively with original parts. Any other usage of or tampering with the connector is considered contrary to its intended use. No liability is assumed for damages and accidents caused due to non-compliance with the instructions or improper use of the connector.
- The connectors are constructed for specific ambient conditions. Operate the connectors only under the ambient conditions, like temperature ranges and IP protection classes as defined in our catalogue on page 3 "Specifications".

Installation and maintenance manual



For a detailed list of all safety, installation and maintenance instructions, download our manual
[➔ F122-M.en!](#)

Visual inspections

Be sure to make visual inspections regularly. Improper handling of the connector, e.g. when hitting the floor with some impact, can result in breakage, visible cracks and deformation.



Defective and/or leaky parts must be replaced instantaneously!

Schaltbau GmbH

Ausführliche Informationen zu unseren Produkten und Services finden Sie auf unserer Website – oder rufen Sie uns einfach an!

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überreicht durch:



Die Schaltbau GmbH
fertigt RoHS-konform



Seit 2008 sind die
Produktionsstandorte
der Schaltbau GmbH
IRIS zertifiziert.



Zertifiziert nach
DIN EN ISO 14001 seit
2002. Das aktuelle
Zertifikat finden Sie auf
unserer Webseite.



Zertifiziert nach
DIN EN ISO 9001 seit
1994. Das aktuelle
Zertifikat finden Sie auf
unserer Webseite.

Elektrische Komponenten und Geräte für Bahn- und Industrieanwendungen

Steckverbinder

- Steckverbinder nach Industrie-Normen
- Steckverbinder nach besonderen Vorschriften für die Nachrichtentechnik (MIL-Steckverbinder)
- Ladesteckvorrichtungen für batteriebetriebene Maschinen und Systeme
- Steckverbinder für Bahnverkehrstechnik, einschließlich UIC-Steckverbinder
- Spezialsteckverbinder nach Kundenanforderung

Schnappschalter

- Schnappschalter mit Zwangsöffnung
- Schnappschalter mit selbstreinigenden Kontakten
- Zustimmungsschalter
- Spezialschalter nach Kundenanforderung

Schütze

- Ein- und mehrpolige Gleichstromschütze
- Hochspannungsschütze AC/DC
- Schütze für Batteriefahrzeuge und Stromversorgungen
- Schütze für Bahnanwendungen
- Einzelklemmen und Sicherungshalter
- Notabschalter für Gleichstromanwendungen
- Spezialgeräte nach Kundenanforderung

Bahngeräte

- Führerstands-ausrüstungen
- Fahrgast-ausrüstungen
- Hochspannungsschaltanlagen
- Hochspannungsheizungen
- Hochspannungsdach-ausrüstungen
- Elektrische Brems-ausrüstungen
- Projektierungen und Spezialgeräte nach Kundenanforderung

Änderungen vorbehalten!

Aktuelle Informationen zu unseren Produkten unter www.schaltbau-gmbh.de.
Stand 09-2016