

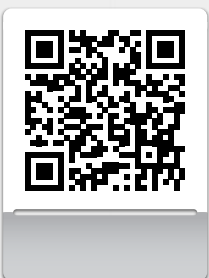
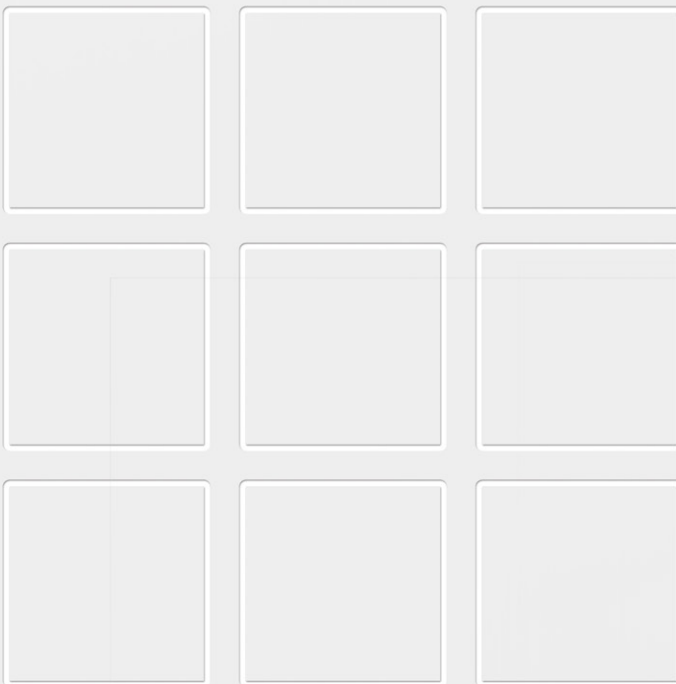
1

Connectors

UIC-IT Series

Connectors for data
communication in rail vehicles
qualified for GbE up to Cat 7

Catalogue F118.en



UIC-IT series Connectors for data communication in rail vehicles

Cost effective, fast and reliable data communication – with connectors from Schaltbau

Robust and state-of-the-art Ethernet solutions for fast data communication are required by today's rail vehicles. The UIC-IT series from Schaltbau meets those requirements providing a highly flexible, universal and reliable Ethernet connection option for the harsh railway environment with a design life that will last for decades.

The UIC-IT Series connector is fitted with up to two 8 pole Gigabit Ethernet (GbE) module and 16 optional signal contacts that allows for universal and compatible connections. It is designed for use with various types of rail vehicles, making it possible to combine rolling stock of different manufacturers and railway operators.

Universal solutions

Universal and compatible solutions for data communication benefit railway operators and manufacturers

Data transmission with high transmission rates via Gigabit Ethernet facilitated by a long-lasting heavy-duty connector is tantamount to high network availability. With its new UIC-IT series Schaltbau is likely to set a standard for data connections in rail vehicles.

Quality and reliability

UIC-IT series

Rail vehicles in good hands – with Schaltbau connectors

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.

Features

UIC-IT series

Hybrid- or single conductors with corrugated pipe, versions up to Cat 7

Cable gland

Backshell of plug

1 or 2 Gigabit Ethernet module (GbE)

Versions up to Cat 7

Contact finish: gold

Signal contacts, finish: silver contacts



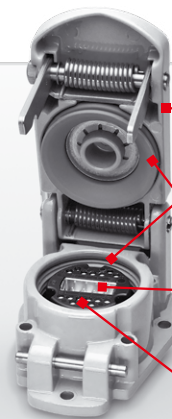
Receptacle sealing cover with break-away mechanism

Protection rating

1 or 2 GbE module, Versions up to Cat 7

Contact finish: gold

Signal contacts, finish: silver contacts



- **Variants:**
 - 2x 8-pole Gigabit Ethernet module, shell orange
 - 1x 8-pole Gigabit Ethernet module + 16 signal contacts, shell yellow
 - 1x 8-pole Gigabit Ethernet module, shell green
- **Shells:**

The shells of cable plug, receptacle and dummy receptacle are IRS 50558 compliant. The rugged proven shells are the same as the ones of other UIC 558 connectors from Schaltbau.

 - **Receptacle, dummy and empty receptacle:**

Aluminium die cast: rugged and durable
 - **Plug:**

Polyamide, glass fibre reinforced
- **Contact inserts**
 - **Gigabit Ethernet module:** 360° shielded module with 8 terminals for 4 data pairs for the transmission of 10 GbE in a permanent link with Cat 7 compliant data cables
 - **Signal contacts:** 16 signal contacts for additional control tasks as required, for example, by DB AG for salvage and clearing operations
- **Assembly:**
 - Suitable for gangway connections
 - Quick and easy to assemble
 - Seals can be replaced without disassembling the contacts

- **Break-away connector:**

Non-destructive disengagement of plug contacts from receptacle contacts when two electrically not decoupled vehicles move apart. In compliance with IRS 50558.
- **Design life:**

up to 10,000 mating cycles
- **Cable assembly:**

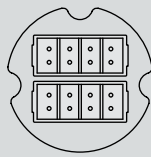
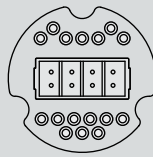
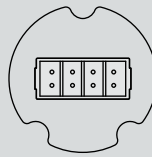

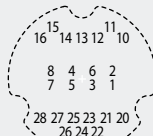




We supply on request receptacles and plugs assembled complete with cables or wires to suit the customer's specific requirements.
- **Seal:**

IP67: receptacle, also empty and dummy receptacle, with closed lid, IP69K: connector when mated; cable entry of plug included
- **Flammability:**
 - UL94-V0 listed
 - Complies with fire protection standard EN 45545
- **Weatherproof and temperature resistant:**

–40° C up to +90° C for entire connector

Specifications

UIC-IT series

Series UIC-IT, Contact insert ▶	Standard	8/8	8+16	8
Connector for data communication	IRS 50558	---	●	●
Number of contacts	---	2x 8 pole GbE module	8 pole GbE module + 16 signal contacts	8 pole GbE
Colour code / shell colour		orange	yellow	green
Contact arrangement				
Cable plug: GbE module: socket contacts Signal contacts: pin contacts				
Receptacle: GbE module: pin contacts Signal contacts: socket contacts				
Contact identification				
Cable plug: rear view Receptacle: front view				
GbE module, module 1 GbE module, module 2 Signal contacts		1.1 ... 1.8 2.1 ... 2.8 ---	1 ... 8 --- 10 ... 16 und 20 ... 28	1 ... 8 --- ---
Gigabit Ethernet module (GbE)				
Number of contacts		2x 8 (2x4) + shielding	8 (2x4) + shielding	8 (2x4) + shielding
Category	EN 50173-1	≤ Cat 7 (class F)	≤ Cat 7 (class F)	≤ Cat 7 (class F)
Rated current of individual contact	IEC 60038	1 A	1 A	1 A
Rated voltage	IEC 60038	50 V	50 V	50 V
Rated impulse withstand voltage		0.9 kV	0.9 kV	0.9 kV
Contact type		Crimp contacts, screw machine	Crimp contacts, screw machine	Crimp contacts, screw machine
Contact finish		Gold	Gold	Gold
Wire gauge		AWG 28 ... 21 (0.08 ... 0.52 mm ²)	AWG 28 ... 21 (0.08 ... 0.52 mm ²)	AWG 28 ... 21 (0.08 ... 0.52 mm ²)
Signal contacts				
Number of contacts		---	16	---
Rated current of individual contact	IRS 50558	---	1 A	---
Rated voltage	IEC 60038	---	50 V	---
Contact type		---	Crimp contacts, screw machine	---
Contact diameter		---	1.58 mm	---
Contact finish		---	Silver / Gold	---
Wire gauge		---	AWG 20 (0,5 mm ²) / AWG 20 ... 18 (0,75 ... 1,00 mm ²) / AWG 16 (1,5 mm ²) / AWG 14 (2,5 mm ²)	---
Contact resistance (in new condition)	IRS 50558	Gigabit Ethernet module ≤ 10 mΩ	Gigabit Ethernet module ≤ 10 mΩ Signal contacts ≤ 4 mΩ	Gigabit Ethernet module ≤ 10 mΩ
Shock, Vibration	EN 61373	Category 1, Class B		
Operating temperature**	IRS 50558	-40° C ... +90° C		
Ingress protection rating	IEC 60529	IP69K: Plug connection when mated; cable entry of plug included IP67: receptacle, also empty and dummy receptacle, with closed lid		
Mechanical endurance	IRS 50558	10,000 mating cycles		
Housing and contact material				
Receptacle		Aluminium die-cast	Aluminium die-cast	Aluminium die-cast
Colour		Orange	Yellow	Green
Cable plug, backshell		Polyamide PA 6 GF30 / black,	Polyamide PA 6 GF30 / black,	Polyamide PA 6 GF30
Colour		Orange	Yellow	Black, colour coding: green
Contact insert		Polyamide non halogen PA 6.6 GF30	Polyamide non halogen PA 6.6 GF30	Polyamide non halogen PA 6.6 GF30
Colour		Black	Black	Black
Seals		Silicon	Silicon	Silicon
Contacts		Copper wrought alloy, crimpable	Copper wrought alloy, crimpable	Copper wrought alloy, crimpable
Approvals				



** Operating temperatures exceeding 25° C will lead to reduced current rating!

Subject to change

Ordering code

UIC-IT series

Example: **UIC-IT VK 8S/8S C7 M0 Lxxxx WR**

Series

UIC-IT Connector with integrated GbE module and signal contacts
IRS 50558 compliant shell design

Cable plug / empty receptacle / dummy receptacle

SL Single ended cable with plug, pre-assembled
VK Double ended cable with plugs, preassembled

LD Empty receptacle, shell without socket insert
DL Single ended cable with socket insert, preassembled } Single ended cable
with receptacle

BD Dummy receptacle with socket insert, contacts not implemented

Contact insert: Number of / type of contacts

8S/8S for cable plug: 2x 8 pole GbE module (socket)
8S+16P for cable plug: 8 pole GbE module (socket) + 16 signal contacts (plug)
8S for cable plug: 8 pole GbE module (socket)

8P/8P for socket insert: 2x 8 pole GbE module (plug)
8P+16S for socket insert: 8 pole GbE module (plug) + 16 signal contacts (socket)
8P for socket insert: 8 pole GbE module (plug)

00 for empty receptacle: no socket insert

0P/0P for dummy receptacle: insert, unfitted for 2x 8 pole GbE module
0P+0S for dummy receptacle: insert, unfitted for 8 pole GbE module + 16 signal contacts
0P for dummy receptacle: insert, unfitted for 8 pole GbE module

Data transfer rate

C7 Category Cat 7 / class F
C6 Category Cat 6 / class E
C5 Category Cat 5 / class D

Colour of shell

M0 Cable plug, 8S/8S: backshell: orange / contact insert, cable gland: black
K0 Cable plug, 8S+16P: backshell: yellow / contact insert, cable gland: black
EH Cable plug, 8S: backshell: black / colour code: green / contact insert, cable gland: black

M0 Empty/dummy receptacle, 8P/8P: shell: orange
K0 Empty/dummy receptacle, 8P+16S: shell: yellow
H0 Empty/dummy receptacle, 8P: shell: green

00 None, only with DL (Single-ended cable with socket insert, preassembled)

Cable length (only for SL and VK: single/double ended cables with plug/s)

Lxxxx Length in millimeter as you require for contact insert 8S/8S, 8S+16P, 8P+16S
Lxxxx WR Ditto length double ended cable with corrugated pipe
Lxxxx WRxxxx Ditto length single ended cable with plug and length corrugated pipe



Note:

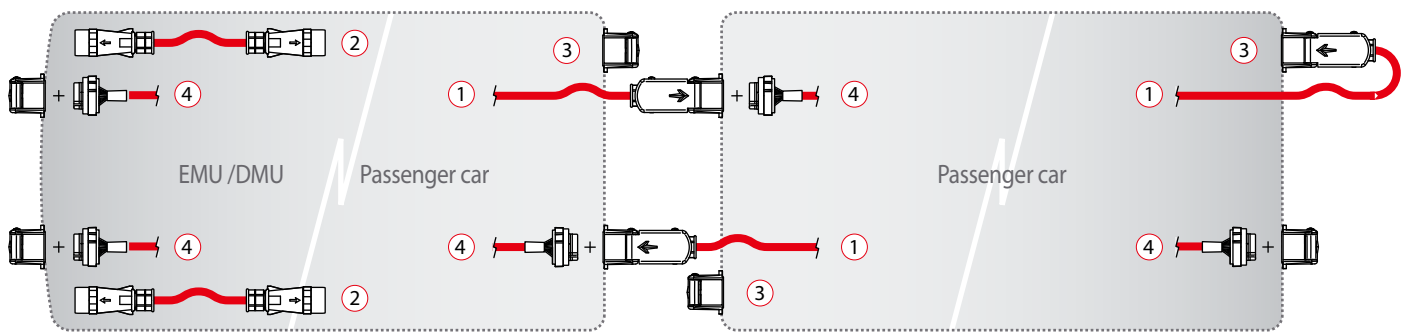
This catalogue shows only stock items. For some variants minimum quantities apply. Please ask for the conditions.

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 ordering quantities apply.

Data communication for EMUs, DMUs and passenger cars

UIC-IT series

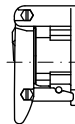

Configurations:

- **Orange:** 2x 8 pole GbE
- **Yellow:** 8 pole GbE + 16 signal contacts
- **Green:** 8 pole GbE

- ① **Single ended cable:** Single ended cable with plug, pre-assembled
- ② **Double ended cable:** Double ended cable with plug, pre-assembled
- ③ **Dummy receptacle:** For storing unplugged connecting cables
- ④ **Empty receptacle + socket insert,** pre-assembled with cable

Configuration example: Communication with 2x 8 pole GbE module, orange
1. UIC-IT SL 8S/8S C7 M0 Lxxxx WRxxxx Single ended cable

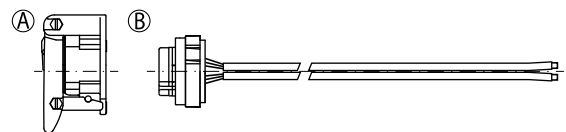

UIC-IT	Series
SL	Single ended cable
8S/8S	2x 8 pole GbE module (socket)
C7	Category Cat 7 (class F)
M0	Colour backshell: Orange
Lxxxx	Cable length in millimeter as you require
WRxxxx	Corrugated pipe length in millimeter as you require

3. UIC-IT BD 0P/0P M0 Dummy receptacle


UIC-IT	Series
BD	Dummy receptacle
0P/0P	Socket insert, no contacts
M0	Colour shell: Orange

2. UIC-IT VK 8S/8S C7 M0 Lxxxx WR Double ended cable


UIC-IT	Series
VK	Double ended cable
8S/8S	2x 8 pole GbE module (socket)
C7	Category Cat 7 (class F)
M0	Colour backshell: Orange
Lxxxx WR	Cable length in millimeter as you require

4. Empty receptacle + socket insert and single ended cable

Ⓐ UIC-IT LD 00 M0 Empty receptacle

UIC-IT	Series
LD	Empty receptacle
00	No socket insert, no contacts
M0	Colour shell: Orange

Ⓑ UIC-IT DL 8P/8P 00 Lxxxx Single ended cable with socket insert, preassembled

UIC-IT	Series
DL	Single ended cable with socket insert, preassembled
8P/8P	2x 8 pole GbE module (pin)
C7	Category Cat 7 (class F)
00	Colour/Coding: ---
Lxxxx	Cable length in millimeter as you require


Note:

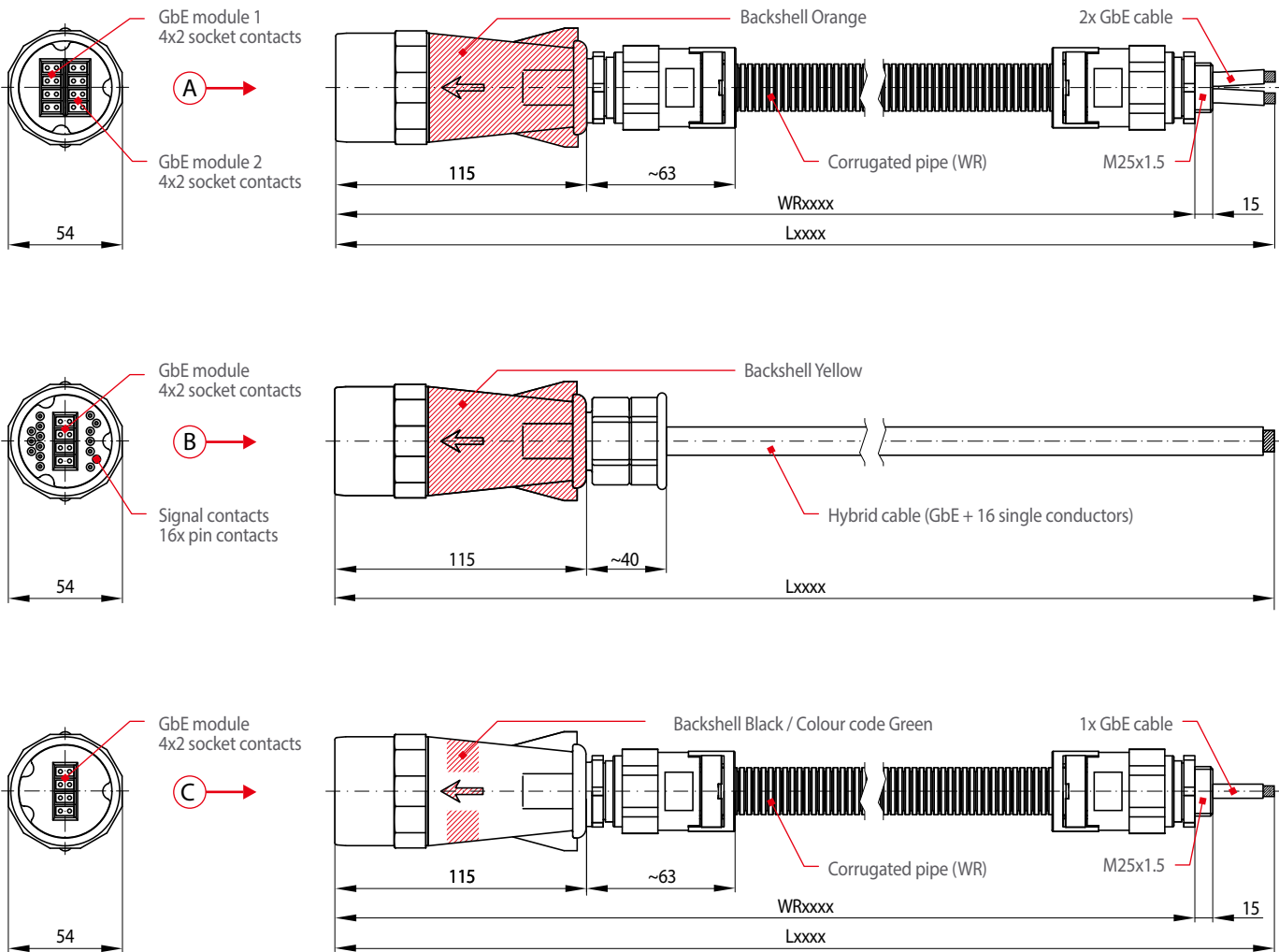
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Single ended cable With plug, pre-assembled

UIC-IT series



Single ended cable with preassembled plug

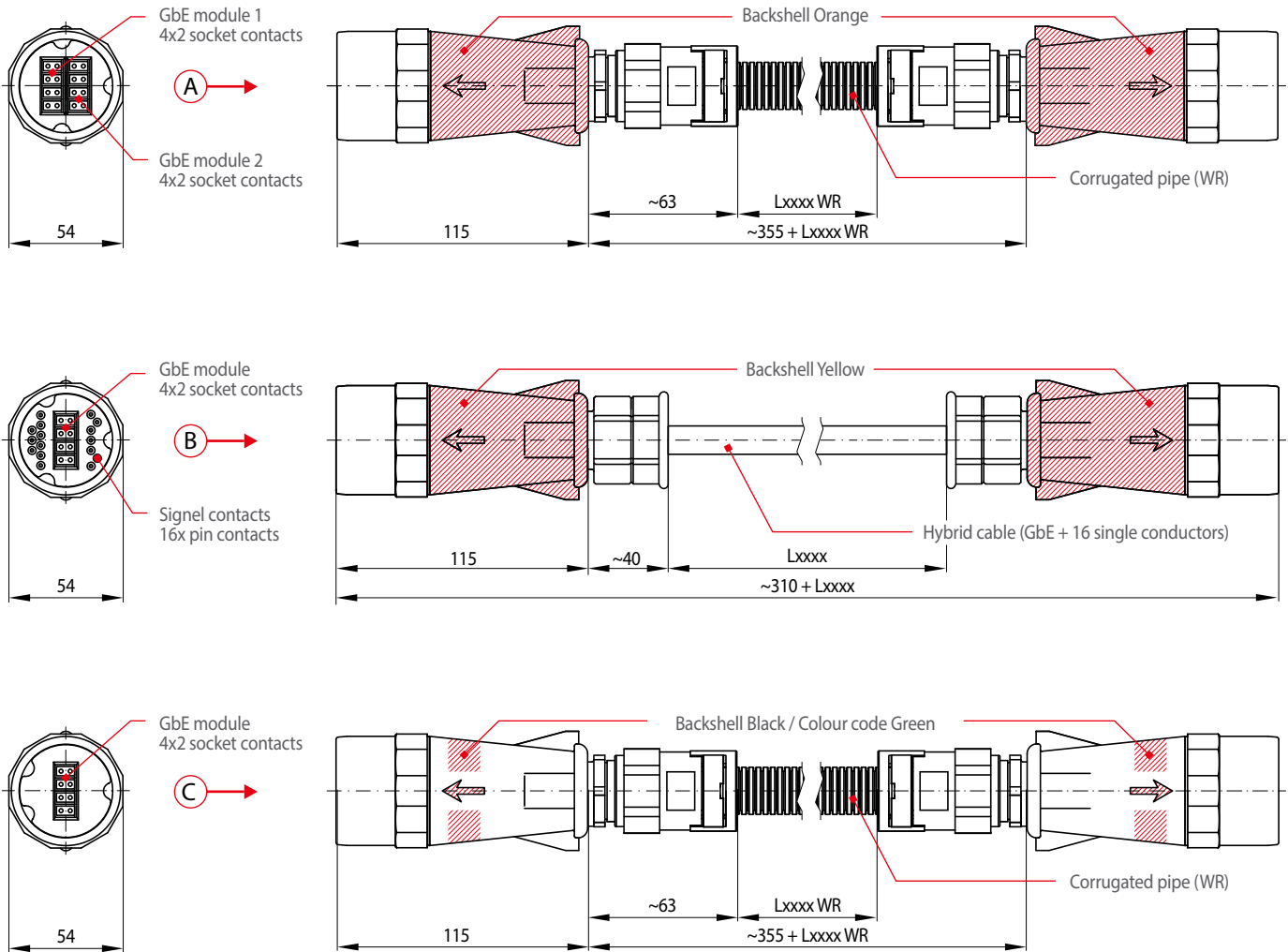
Contact layout	Figure / Ordering code	Colour	# of contacts	Length
	A → UIC-IT SL 8S/8S C7 M0 Lxxxx	Backshell Orange	8S/8S	Cable length Lxxxx* in millimeter
	B → UIC-IT SL 8S+16P C5 K0 Lxxxx	Backshell Yellow	8S + 16P	Cable length Lxxxx* in millimeter
	C → UIC-IT SL 8S C7 EH Lxxxx WRxxxx	Backshell Black Colour code Green	8S	Cable length Lxxxx* in millimeter

i **Delivery includes:**
Single ended cable with preassembled plugs
and cable length as you require

* Cable length Lxxxx	Tolerance
≤ 2,000 mm	± 20 mm
> 2,000 mm, ≤ 4,000 mm	± 30 mm
> 4,000 mm, ≤ 10,000 mm	± 60 mm
> 10,000 mm	± 80 mm

Double ended cable With plugs, pre-assembled

UIC-IT series



Double ended cable with preassembled plugs on both ends

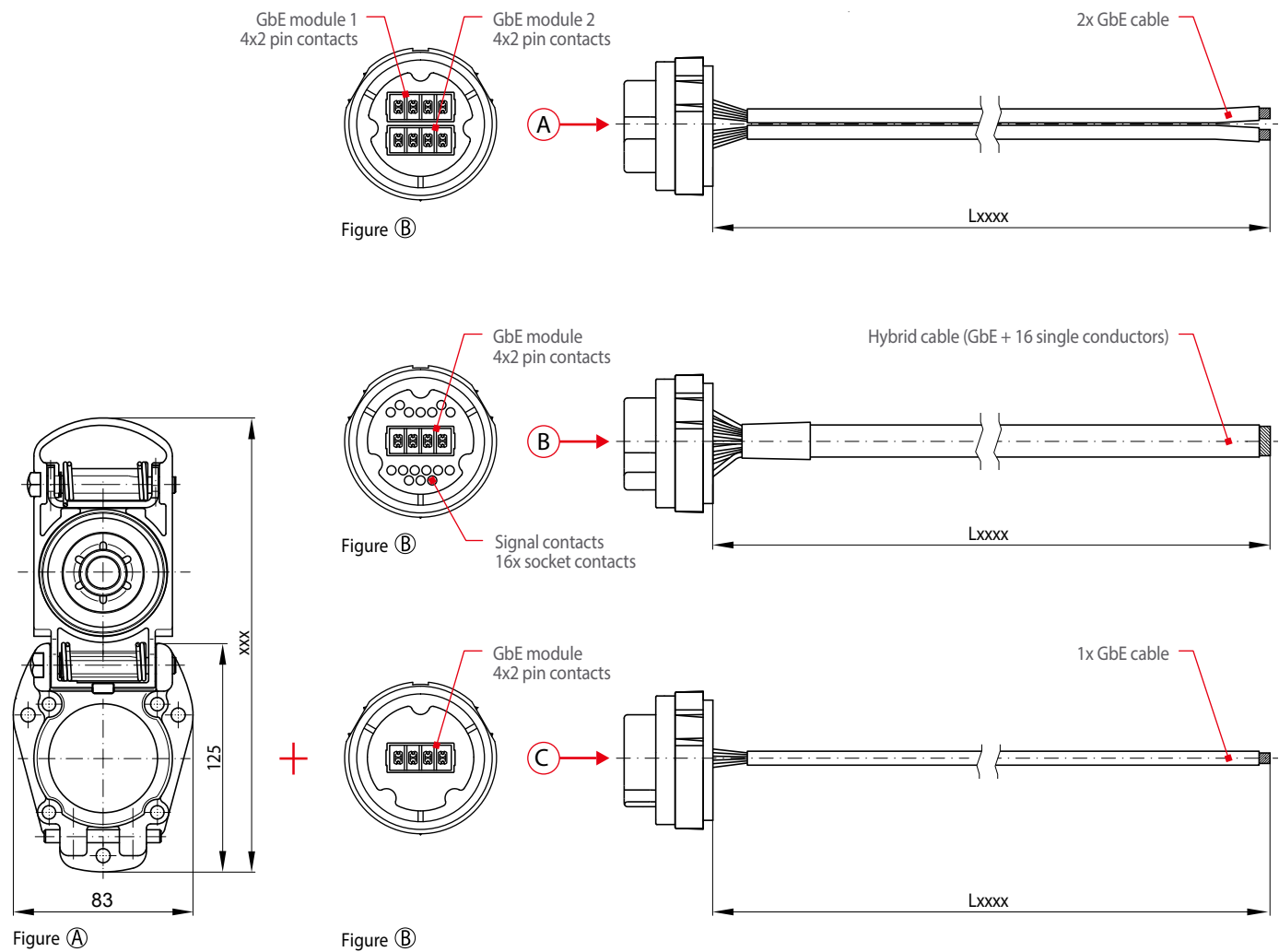
Contact layout	Figure / Ordering code	Colour	# of contacts	Length
	A → UIC-IT VK 8S/8S C7 M0 Lxxxx	Backshell Orange	8S/8S	Cable length Lxxxx* in millimeter
	B → UIC-IT VK 8S+16P C5 K0 Lxxxx	Backshell Yellow	8S + 16P	Cable length Lxxxx* in millimeter
	C → UIC-IT VK 8S C7 EH Lxxxx WRxxxx	Backshell Black Colour code Green	8S	Cable length Lxxxx* in millimeter

i **Delivery includes:**
Double ended cable with preassembled plugs and cable length as you require

* Cable length Lxxxx	Tolerance
≤ 2,000 mm	± 20 mm
> 2,000 mm, ≤ 4,000 mm	± 30 mm
> 4,000 mm, ≤ 10,000 mm	± 60 mm
> 10,000 mm	± 80 mm

Single ended cable With socket insert, pre-assembled + empty receptacle

UIC-IT series



Empty receptacle – (Figure A)

Single ended cable with socket insert, pre-assembled – (Figure B)

Plan view	Ordering code	Colour
	UIC-IT LD 00 M0	Shell Orange
	UIC-IT LD 00 K0	Shell Gelb
	UIC-IT LD 00 H0	Shell Grün

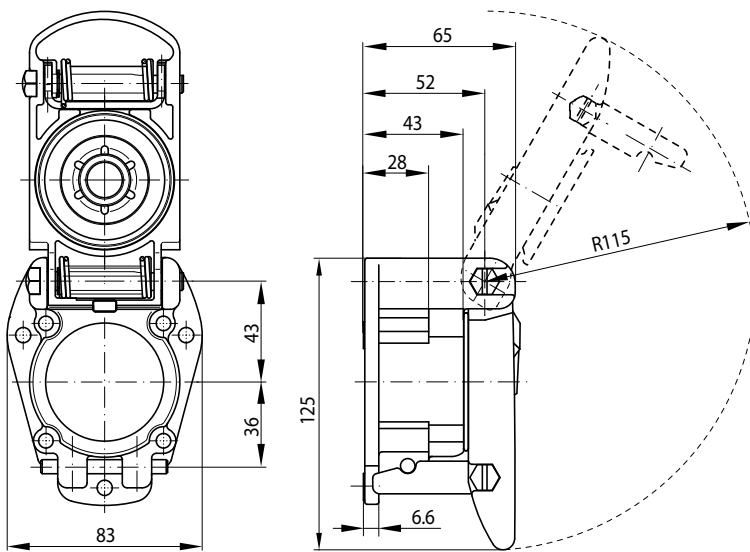
Layout	Ordering code	# of contacts	Length
	A → UIC-IT DL 8P/8P C7 00 Lxxxx	8P / 8P	Cable length Lxxxx* in millimeter
	B → UIC-IT DL 8P+16S C5 00 Lxxxx	8P + 16S	Cable length Lxxxx* in millimeter
	C → UIC-IT DL 8P C7 00 Lxxxx	8P	Cable length Lxxxx* in millimeter

i **Delivery includes:**
Kit comprising empty receptacle, seal and contact insert with preassembled single ended cable of required length. All parts are packed separately.

* Cable length Lxxxx	Tolerance
≤ 2,000 mm	± 20 mm
> 2,000 mm, ≤ 4,000 mm	± 30 mm
> 4,000 mm, ≤ 10,000 mm	± 60 mm
> 10,000 mm	± 80 mm

Empty receptacle Shell only

UIC-IT series



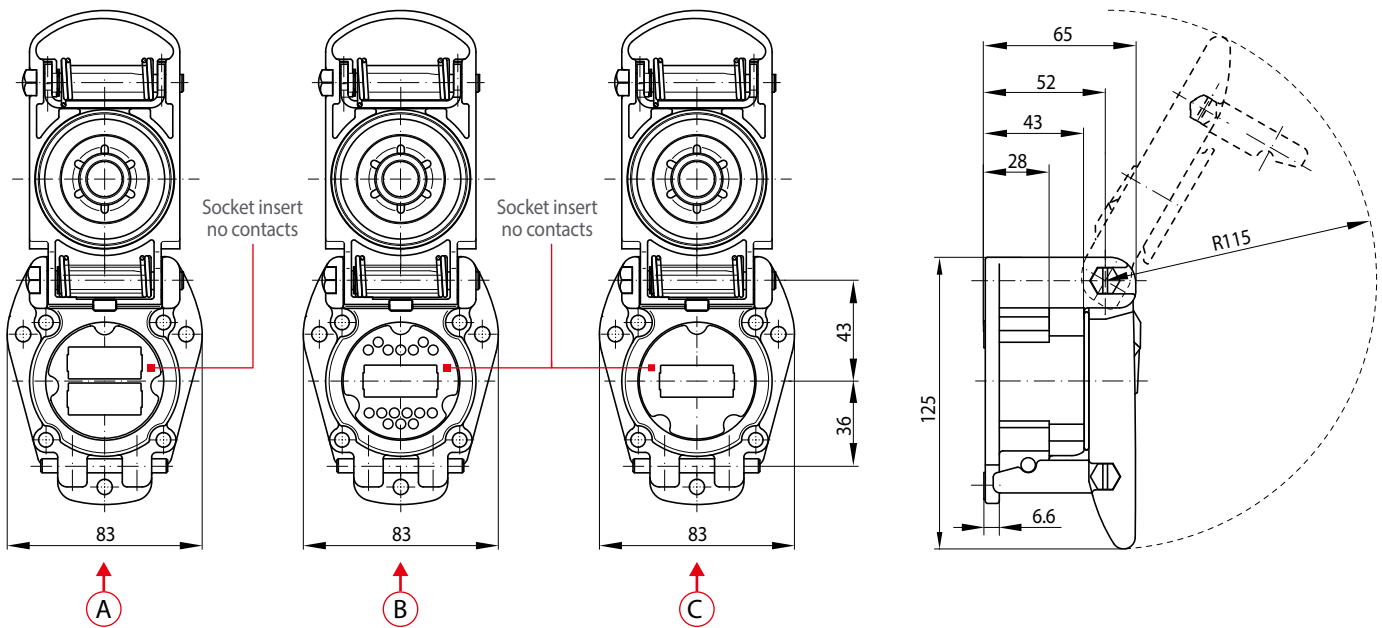
Empty receptacle

Ordering code	Colour	Contact insert
UIC-IT LD 00 M0	Shell Orange	(w/o)
UIC-IT LD 00 K0	Shell Yellow	(w/o)
UIC-IT LD 00 H0	Shell Green	(w/o)

i Delivery includes:
Empty receptacle and seal. All parts packed loose in bags.

Dummy receptacle With socket insert, no contacts, for retention of cable plug

UIC-IT series



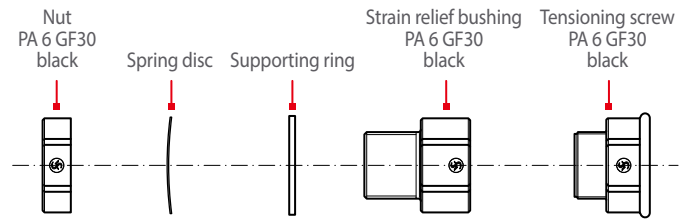
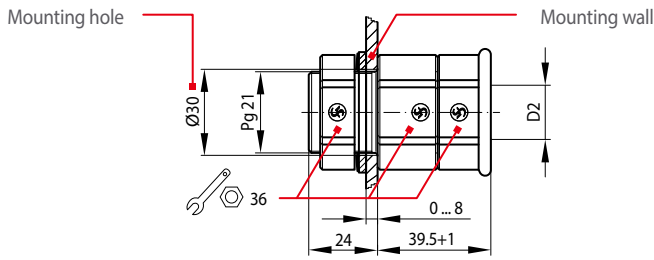
Dummy receptacle

Figure	Ordering code	Colour	Contact insert
A →	UIC-IT BD 0P/0P M0	Shell Orange	8P/8P (empty cavities)
B →	UIC-IT BD 0P+0S K0	Shell Yellow	8P + 16S (empty cavities)
C →	UIC-IT BD 0P H0	Shell Green	8P (empty cavities)

i Delivery includes:
Kit comprising dummy receptacle, seal and contact insert without contacts. All parts packed loose in bags.

Wall-mount Cable gland for single ended cable UIC-IT SL 8S+16P C5 K0 Lxxxx

UIC-IT series



Ordering code	Description
UIC KK D2	Cable gland with thread Pg21 and anti-kink sleeve for cable diameter 17.5 ±0.5 mm

Note:
Cable gland only for single ended hybrid cable with preassembled plug UIC-IT SL 8S+16P C7 K0 Lxxxx, see page 6.

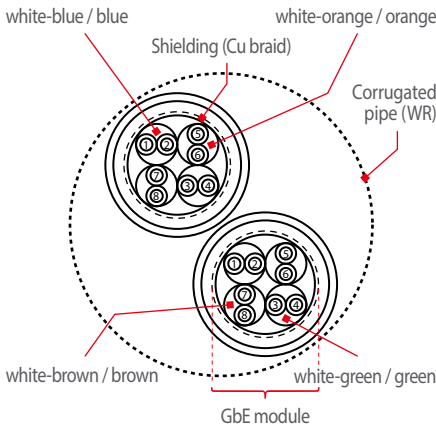
Delivery includes:
Kit comprising the parts mentioned above.
All parts packed loose in bags.

Cable

UIC-IT series

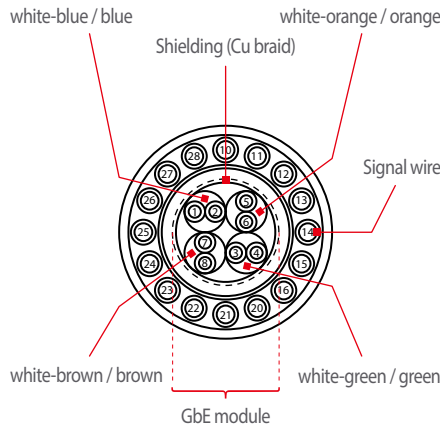
**Gigabit ethernet cable:
2x 8 pole GbE module:**

- Gigabit Ethernet:
Data line 4 x 2 x 24/19 AWG
- Signal line: ---
- Category: up to Cat 7, dependent on cable



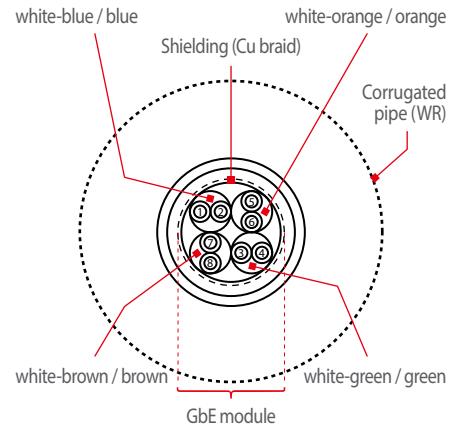
**Hybrid cable:
8 pole GbE module + 16 signal contacts:**

- Gigabit Ethernet:
Data line 4 x 2 x 24/19 AWG
- Signal line: Single strand 16 x 1.0 mm
- Category: Cat 5



**Gigabit ethernet cable:
8 pole GbE module:**

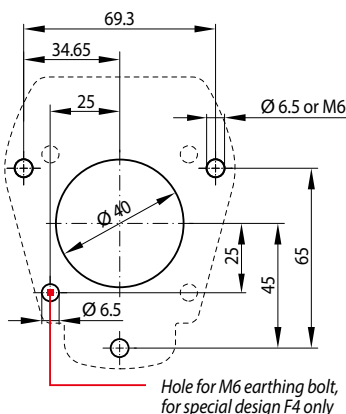
- Gigabit Ethernet:
Data line 4 x 2 x 24/19 AWG
- Signal line: ---
- Category: up to Cat 7, dependent on cable



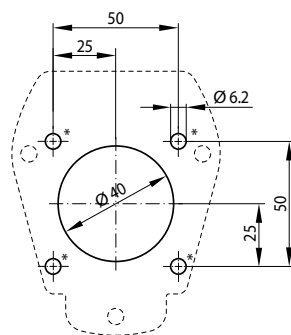
Mounting Mounting holes, Mounting position

UIC-IT series

Schaltbau Standard: »3 hole mounting«



»4 hole mounting«



* Diameter for all mounting and fixing elements, such as screw heads: 12.5 mm max.

How to mount

In compliance with UIC 558, the break-away mechanism guarantees the non-destructive disengagement of plug contacts from receptacle contacts when two electrically not decoupled vehicles move apart. To ensure the effective functioning of the break-away connector always mount the receptacle upright on the front of the vehicle, so that the receptacle lid will open upwards.

Installation and safety instructions

UIC-IT series

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

- 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 low-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.
- Electrical hazards: Any exposure to the connector's live parts. Risk of electrical shock!
- 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.
- Observe all applicable national provisions, all safety, accident prevention and environmental regulations as well as the recognized technical rules for safe and proper working.
- Carry out regular inspections of all protection and safety devices to see if they work properly.
- The connectors supply power and signals. 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. Crimp connections have to be manufactured according to IEC 60352-2 – Solderless Connections.
- Make sure that there is no undue strain, pressure, flexing and torsion on the cable connection.
- For optimum protection of the cable connection make sure the connector is supplied with a strain relief.
- According to IEC 61984 connectors used as intended must not be engaged or disengaged when live or under load.
- Crimp connections have to be manufactured according to IEC 60352-2 – Solderless Connections.
- 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
- 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
➔ [F118-M.en!](https://schaltbau.info/download1en)

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

For detailed information on our products and services visit our website – or give us a call!

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with compliments:



The production facilities of Schaltbau GmbH have been IRIS certified since 2008.



Certified to DIN EN ISO 14001 since 2002. For the most recent certificate visit our website.



Certified to DIN EN ISO 9001 since 1994. For the most recent certificate visit our website.

Electrical Components and Systems for Railway Engineering and Industrial Applications

Connectors

- Connectors manufactured to industry standards
- Connectors to suit the special requirements of communications engineering (MIL connectors)
- Charging connectors for battery-powered machines and systems
- Connectors for railway engineering, including UIC connectors
- Special connectors to suit customer requirements

Snap-action switches

- Snap-action switches with positive opening operation
- Snap-action switches with self-cleaning contacts
- Enabling switches
- Special switches to suit customer requirements

Contactors

- Single and multi-pole DC contactors
- High-voltage AC/DC contactors
- Contactors for battery powered vehicles and power supplies
- Contactors for railway applications
- Terminal bolts and fuse holders
- DC emergency disconnect switches
- Special contactors to suit customer requirements

Electrics for rolling stock

- Equipment for driver's cab
- Equipment for passenger use
- High-voltage switchgear
- High-voltage heaters
- High-voltage roof equipment
- Equipment for electric brakes
- Design and engineering of train electrics to customer requirements