

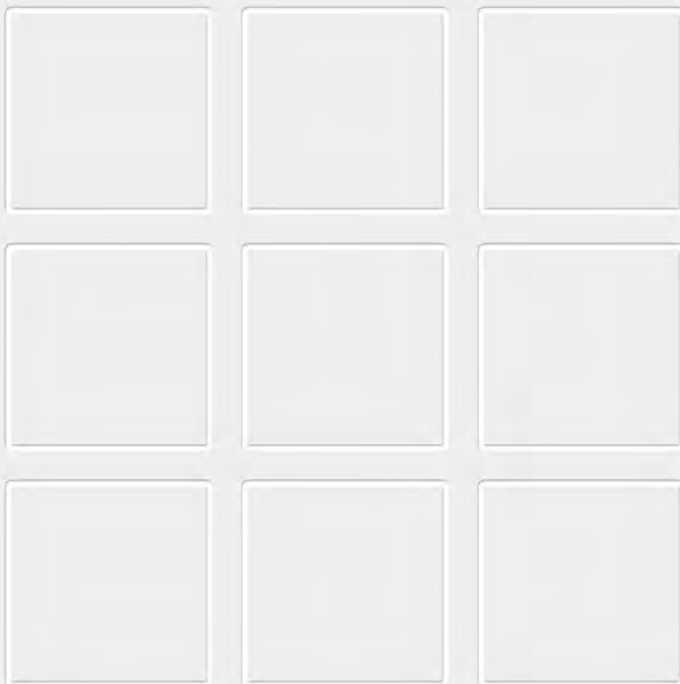
# 1

## Connectors

UIC-IT Series

Connectors for  
data communication  
in rail vehicles

Catalogue F118.en



## Series UIC-IT 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 data communication is what is required by today's rail vehicles. The new 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 an 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

### 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



### Common features with UIC 558 Series

- **Break-away connector:** Non-destructive disengagement of plug contacts from receptacle contacts when two electrically not decoupled vehicles move apart. In compliance with UIC 558.
- **Life:** Designed for frequent plugging >10,000 cycles
- **Preassembled cables:** Receptacles and plugs come with preassembled cables – cable lengths as required by the customer.
- **Ingress protection rating IP69K:** True for receptacle with closed lid and connector when mated as well as for cable entry of plug.
- **Keying:** Not intermateable with the 13, 18 or 22 pole versions of the UIC558 connector
- **Flammability:** Meets the requirements of UL94-V0 and the following fire-protection standards: EN 45545, NF F1610/2, NF F611030
- **Weather-proof and temperature resistant:** -50°C up to +85°C min. True for entire connector including cable gland
- **Mounting:** Suitable for use as jumpers in the passage between cars

### Contact inserts

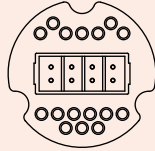
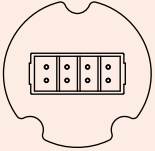
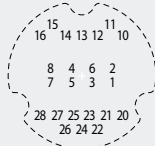

- **Gigabit Ethernet module:** 360° shielded module with 8 terminals for 4 data pairs for the transmission of 10 GbE in a permanent link with Cat5, Cat6 and Cat6a compliant data cables
- **Signal contacts:** 16 signal contacts for additional control tasks as required, for example, by DB AG for salvage and clearing operations

### Connector shells

- The shells of cable plug, receptacle and dummy receptacle are UIC558 compliant. The rugged proven shells are the same as the ones of other UIC connectors from Schaltbau.
- Receptacle/empty receptacle: aluminium die-cast: rugged and durable
- Cable plug: polyamide, fiberglass-reinforced: impact resistant, non halogen and UL compliant
- Improved corrosion resistance to chemicals, in particular to detergents containing acids and alkalis
- Quick and easy to install, seals can be replaced with no need of disassembling the contacts

## Specifications

Baureihe UIC-IT

| Series UIC-IT, Contact insert ►   | Standard                            | 8+16   | 8  |
|---|-------------------------------------|--|--|
| <b>Number of contacts</b>   | ---                                 | 8 pole GbE module + 16 signal contacts   | 8 pole GbE   |
| <b>Contact arrangement</b><br>Cable plug:<br>GbE module: socket contacts<br>Signal contacts: pin contacts<br>Receptacle:<br>GbE module: pin contacts<br>Signal contacts: socket contacts  |                                     |   |   |
| <b>Contact identification</b><br><br>Cable plug: rear view<br>Receptacle: front view<br><br>GbE module, contacts<br>Signal contacts   |                                     | <br><br>1 ... 8<br>10 ... 16 and 20 ... 28  | <br><br>1 ... 8   |
| <b>Gigabit Ethernet module (GbE)</b><br>Number of contacts<br>Category<br>Rated current of individual contact<br>Rated voltage<br>Rated impulse withstand voltage<br>Pollution degree<br>Contact type<br>Contact finish<br>Wire gauge | IEC 60038<br>IEC 60038<br>IEC 60512 | 8 (2x4) + shielding<br>Cat5 / Cat6 / Cat6a<br>1 A<br>50 V<br>0.8 kV<br>PD3<br>Crimp contacts, screw machine<br>Gold<br>AWG 28 ... 21 (0.08 ... 0.52 mm <sup>2</sup> )                        | 8 (2x4) + shielding<br>Cat5 / Cat6 / Cat6a<br>1 A<br>50 V<br>0.8 kV<br>PD3<br>Crimp contacts, screw machine<br>Gold<br>AWG 28 ... 21 (0.08 ... 0.52 mm <sup>2</sup> )                          |
| <b>Signal contacts</b><br>Number of contacts<br>Rated current of individual contact<br>Rated voltage<br>Rated impulse withstand voltage<br>Pollution degree<br>Contact type<br>Contact finish<br>Wire gauge                           | IEC 60038<br>IEC 60038<br>IEC 60512 | 16<br>1 A<br>80 V<br>0.8 kV<br>PD3<br>Crimp contacts, screw machine<br>Silver<br>AWG 20 ... 18 (0.75 ... 1.00 mm <sup>2</sup> )  | ---  |
| <b>Contact resistance</b>   | IEC 60512-2                         | ≤ 20 mΩ  |  |
| <b>Insulation resistance</b>  | IEC 60512-2                         | > 100 MΩ   |  |
| <b>Operating temperature**</b>  | EN 60068                            | -50° C ... +85° C  |  |
| <b>Ingress protection rating</b>  | IEC 60529                           | IP69K when mated or receptacle closed  |  |
| <b>Mechanical endurance</b>   | IEC 60512, test 9a                  | 10,000 mating cycles   |  |
| <b>Housing and contact material</b><br>Receptacle / Colour<br>Cable plug / Colour<br>Contact insert<br>Seals<br>Contacts  | UIC558<br>UIC558                    | Aluminium die-cast (GdAlSi 12) / Yellow<br>Polyamide 6 (PA 6 GF30 black) / Backshell: Yellow<br>Polyamide 6.6, non halogen (PA 6.6 GF30 black)<br>Silicon<br>Copper wrought alloy, crimpable | Aluminium die-cast (GdAlSi 12) / Green<br>Polyamide 6 (PA 6 GF30 black) / Colour coding: Green<br>Polyamide 6.6, non halogen (PA 6.6 GF30 black)<br>Silicon<br>Copper wrought alloy, crimpable |

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

## Ordering code

Series UIC-IT

Example: **UIC-IT VK 8S+16P K0 Lxxxx**

### Series

**UIC-IT** Connector with integrated GbE module and signal contacts  
UIC 558 compliant shell design (exclusive of contact insert)

### Cable plug / receptacle / dummy receptacle

|           |   |   |
|-----------|---|---|
| <b>SL</b> | Single ended cable with plug, preassembled          |   |
| <b>VK</b> | Double ended cable with plugs, preassembled         |   |
| <b>LD</b> | Empty receptacle, shell without socket insert       | } Single ended cable<br>with receptacle |
| <b>DL</b> | Single ended cable with socket insert, preassembled |   |
| <b>BD</b> | Dummy receptacle with socket insert, no contacts    |   |

### Contact insert: # and type of contacts

|               |   |
|---------------|---|
| <b>8S+16P</b> | for cable plug: 8 pole GbE module + 16 signal contacts                                |
| <b>8S</b>     | for cable plug: 8 pole GbE module   |
| <b>8P+16S</b> | for socket insert: 8 pole GbE module + 16 signal contacts                             |
| <b>8P</b>     | for socket insert: 8 pole GbE module  |
| <b>00</b>     | for empty receptacle: no socket insert  |
| <b>OP+0S</b>  | for dummy receptacle: insert: 8 pole GbE module + 16 signal contacts, not implemented |
| <b>OP</b>     | for dummy receptacle: insert: 8 pole GbE module, contacts not implemented             |

### Colour of shell / Colour code

|           |   |
|-----------|---|
| <b>K0</b> | Cable plug, 8S+16P: contact insert, cable gland: black / backshell: yellow<br>Empty/dummy receptacle, 8P+16S: shell: yellow |
| <b>EH</b> | Cable plug, 8S: backshell: black / colour code: green   |
| <b>H0</b> | Empty/dummy receptacle, 8P: shell: green  |
| <b>00</b> | None, only with DL (Single-ended cable with socket insert, preassembled)  |

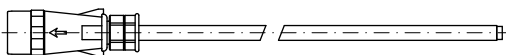
### Cable length (only for single/double ended cables)

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

## Configuration example 8 pole GbE module + 16 signal contacts, yellow

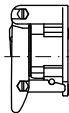
Series UIC-IT

### • UIC-IT SL 8S+16P EH Lxxxx Single ended cable



|               |   |
|---------------|---|
| <b>UIC-IT</b> | Series                                    |
| <b>SL</b>     | Single ended cable                        |
| <b>8S+16P</b> | 8 pole GbE module + 16 pin contacts       |
| <b>K0</b>     | Colour backshell: Yellow                  |
| <b>Lxxxx</b>  | Cable length in millimeter as you require |

### • UIC-IT BD OP+0S H0 Dummy receptacle



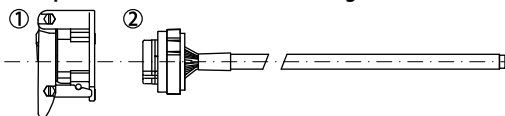
|               |                            |
|---------------|----------------------------|
| <b>UIC-IT</b> | Series                     |
| <b>BD</b>     | Dummy receptacle           |
| <b>OP+0S</b>  | Socket insert, no contacts |
| <b>K0</b>     | Colour: Yellow             |

### • UIC-IT VK 8S+16P EH Lxxxx Double ended cable



|               |   |
|---------------|---|
| <b>UIC-IT</b> | Series                                    |
| <b>VK</b>     | Double ended cable                        |
| <b>8S+16P</b> | 8 pole GbE module + 16 pin contacts       |
| <b>K0</b>     | Colour backshell: Yellow                  |
| <b>Lxxxx</b>  | Cable length in millimeter as you require |

### • Receptacle with socket insert and single ended cable



#### ① UIC-IT LD 00 H0 Empty receptacle

|               |                               |
|---------------|-------------------------------|
| <b>UIC-IT</b> | Series                        |
| <b>LD</b>     | Empty receptacle              |
| <b>00</b>     | No socket insert, no contacts |
| <b>K0</b>     | Colour: Yellow                |

#### ② UIC-IT DL 8P+16S 00 Lxxxx Single ended cable with socket insert

|               |   |
|---------------|---|
| <b>UIC-IT</b> | Series  |
| <b>DL</b>     | Single ended cable with socket insert, preassembled |
| <b>8P+16S</b> | 8pole GbE module + 16 socket contacts               |
| <b>00</b>     | Colour/Coding: ---                                  |
| <b>Lxxxx</b>  | Cable length in millimeter as you require           |



#### Note:

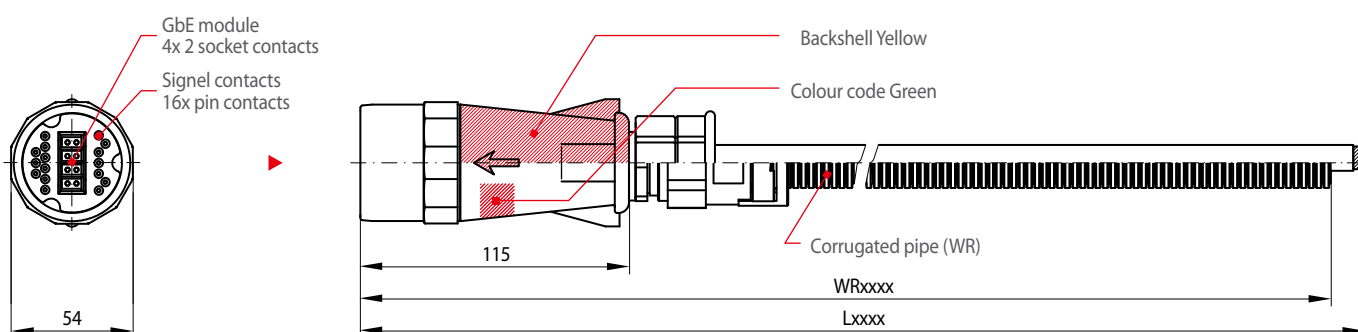
This catalogue shows only stock items. For some variants minimum quantities apply. Please ask for the conditions..

#### SpecialVariant:

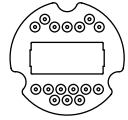
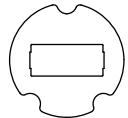
If you need a special variant of the connector, please do not hesitate to contact us. Maybe the type of connector you are looking for is among our many special designs. If not, we can also supply customized designs. In this case, however, minimum ordering quantities apply.

## Single ended cable with plug

Series UIC-IT



### Single ended cable with preassembled plug

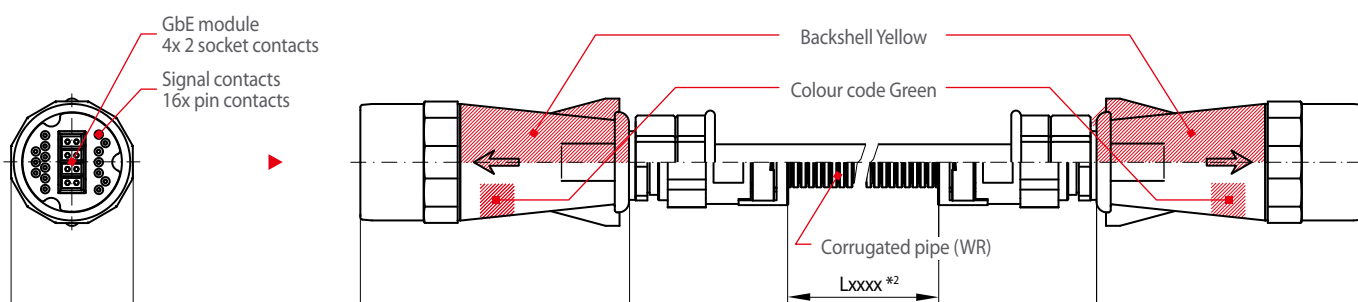
| Contact layout  | Ordering code                | Colour            | # of contacts | Length   |
|---|------------------------------|-------------------|---------------|--|
|  | UIC-IT SL 8S+16P K0 Lxxxx    | Backshell Yellow  | 8S + 16P      | Cable length Lxxxx in millimeter                                   |
|  | UIC-IT SL 8S EH Lxxxx WRxxxx | Colour code Green | 8S            | Cable length Lxxxx and corrugated pipe length WRxxxx in millimeter |

#### Delivery includes:

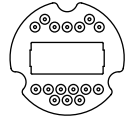
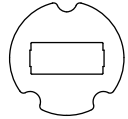
Single ended cable with preassembled plug  
and cable length as you require

## Double ended cable with plugs

Series UIC-IT



### Double ended cable with preassembled plugs on both ends

| Contact layout  | Ordering code             | Colour            | # of contacts | Length                              |
|---|---------------------------|-------------------|---------------|-------------------------------------|
|  | UIC-IT VK 8S+16P K0 Lxxxx | Backshell Yellow  | 8S + 16P      | Cable length Lxxxx *1 in millimeter |
|  | UIC-IT VK 8S EH Lxxxx WR  | Colour code Green | 8S            | Cable length Lxxxx *2 in millimeter |

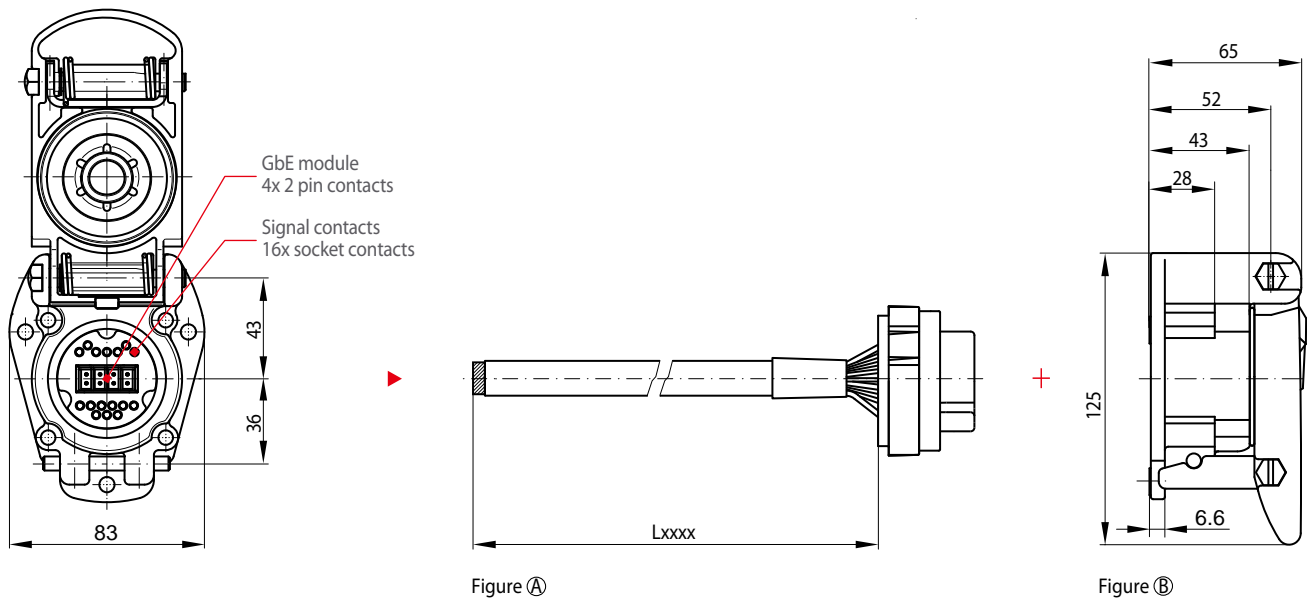
#### Delivery includes:

Double ended cable with preassembled plugs  
and cable length as you require

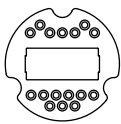
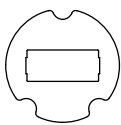
Single ended cable with cable receptacle

Single ended cable with socket insert + empty receptacle

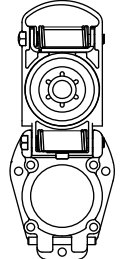
Series UIC-IT



Single ended cable with socket insert (Figure A)

| Layout  | Ordering code             | # of contacts | Length                                 |
|---|---------------------------|---------------|--|
|   | UIC-IT DL 8P+16S 00 Lxxxx | 8P + 16S      | Cable length<br>Lxxxx<br>in millimeter |
|  | UIC-IT DL 8P 00 Lxxxx     | 8P            |  |

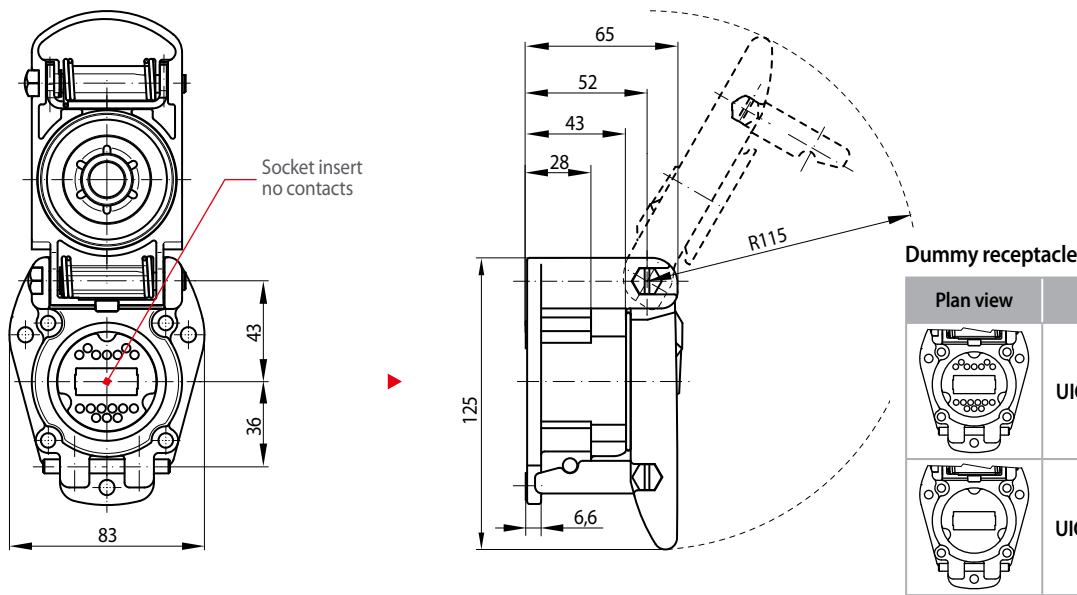
Empty receptacle (Figure B)

| Plan view   | Ordering code   | Colour          |
|---|-----------------|-----------------|
|  | UIC-IT LD 00 K0 | Shell<br>Yellow |
|   | UIC-IT LD 00 H0 | Shell<br>Green  |

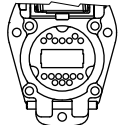
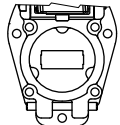
**Delivery includes:**  
Kit comprising empty receptacle, seal and contact insert with preassembled single ended cable of required length. All parts packed loose in bags.

Dummy receptacle For retention of cable plug

Series UIC-IT



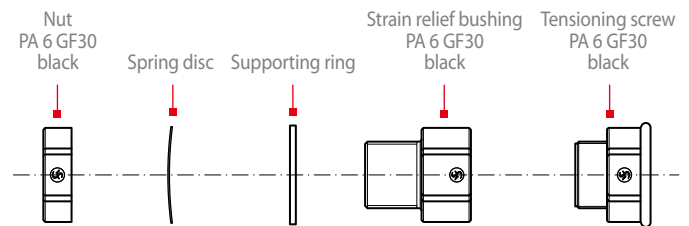
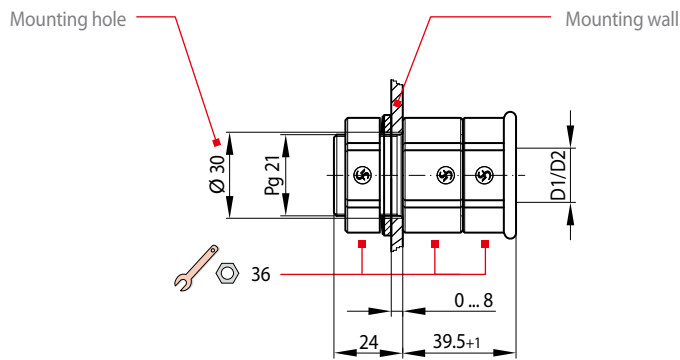
Dummy receptacle

| Plan view  | Ordering code      | Colour          |
|--|--------------------|-----------------|
|  | UIC-IT BD 0P+0S K0 | Shell<br>Yellow |
|  | UIC-IT BD 0P+0S H0 | Shell<br>Green  |

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

## Wall-mount cable gland UIC KK D2

Series UIC-IT



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

### Delivery includes:

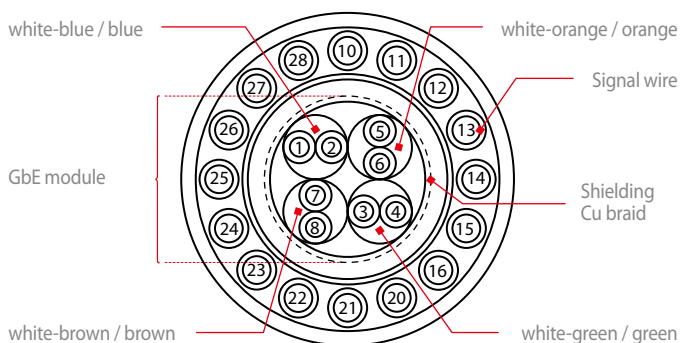
Kit comprising the parts mentioned above.  
All parts packed loose in bags.

## Cable Relative contact allocation

Series UIC-IT

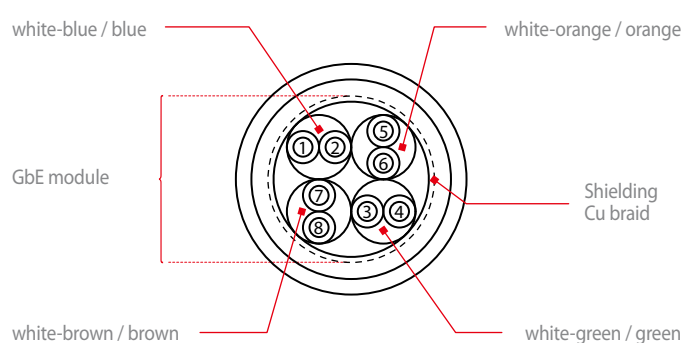
### 8 pole GbE module + 16 signal contacts:

- Gigabit Ethernet: Data line 4 x 2 x 24/19 AWG
- Signal line: Single strand 16 x 1.0 mm
- Category: Cat5



### 8 pole GbE module:

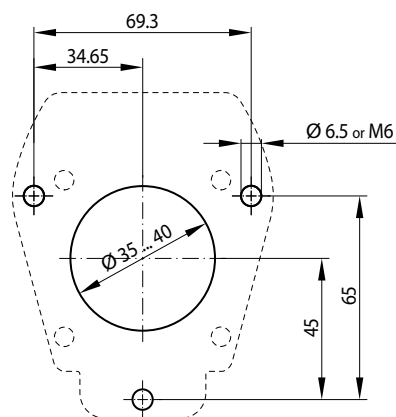
- Gigabit Ethernet: Data line 4 x 2 x 24/19 AWG
- Signal line: ---
- Category: up to Cat6a, dependent on cable



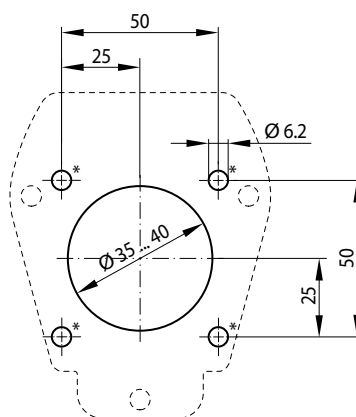
## Mounting, Mounting holes, Mounting position

Series UIC-IT

### Schaltbau Standard: »3 hole mounting«



### »4 hole mounting«



### 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.

### Note:

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



# Schaltbau GmbH

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

Schaltbau GmbH  
Hollerithstrasse 5  
81829 Munich  
Germany



Phone +49 89 9 30 05-0  
Fax +49 89 9 30 05-350  
Internet [www.schaltbau-gmbh.de](http://www.schaltbau-gmbh.de)  
e-Mail [contact@schaltbau.de](mailto:contact@schaltbau.de)

with compliments:



Schaltbau GmbH manufactures in compliance with RoHS.



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