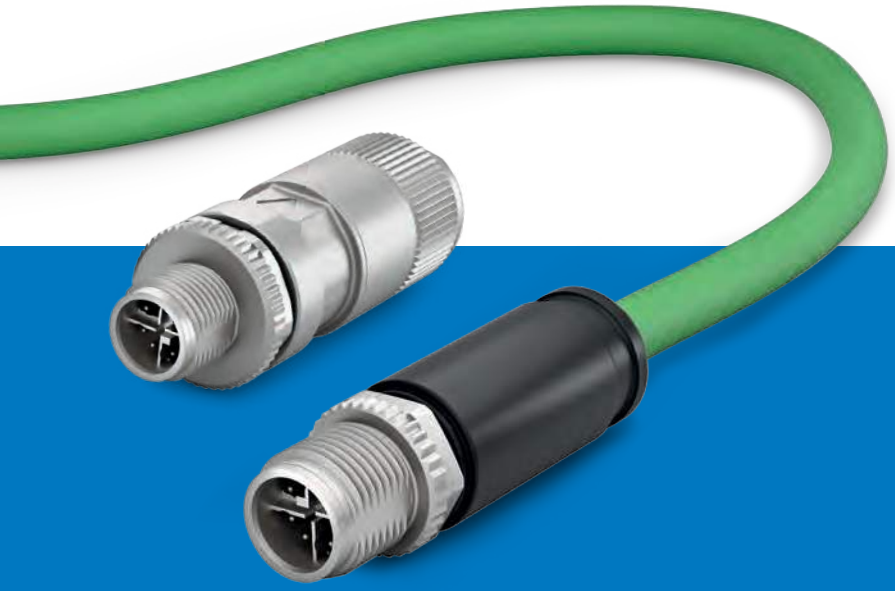
Telegärtner



**STX M12×1 IP67**

- Passenger Informaton Systems (PIS)
- Production Monitoring
- Monitoring in Railway Vehicles
- Security and Video Surveillance
- Baggage Inspection

# ROUND.
# SAFE.
# ROBUST.

Designed for Transmitting Maximum Data Rates
in Industrial Applications:
the STX M12×1 Connector Series.

# HIGHEST DATA RATES.

Whether for baggage inspection at airports, passenger information systems (PIS) or automation systems in process monitoring, the STX M12×1 IP67 connector series is the ideal solution wherever continous cabling of industrial communication networks with the transmission of maximum data rates is required.

Passenger Information Systems (PIS)

Production Monitoring with High-Resolution Cameras

Monitoring in Railway Vehicles

Security and Video Surveillance (CCTV)

Baggage Inspection at Airports

# THE SOLUTION FOR INDUSTRIAL COMMUNICATION NETWORKS.

**Designed for transmitting maximum data rates in industrial applications**

- 4-pole D-coded connectors in Cat.5
- Designed for data rates up to 100 Mbit/s for PROFINET applications
- 8-pole X-coded connectors in Cat.$6_A$
- Designed for data rates up to 10 Gbit/s
- Additional power supply for connected terminating equipment possible (PoE, PoE+)

M12×1 cable plug

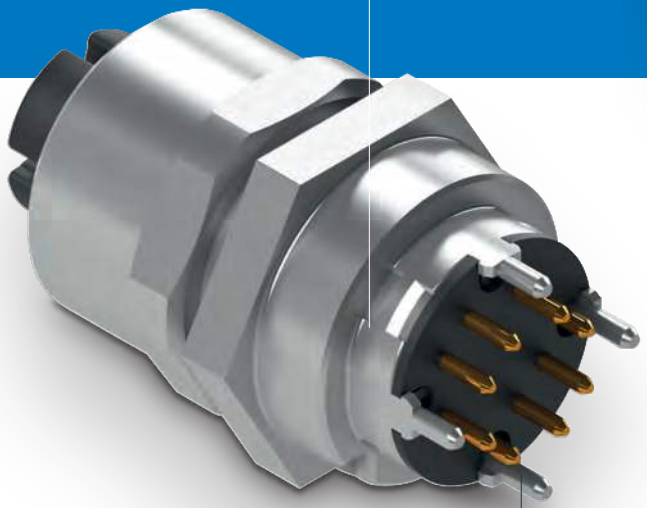
- M12 connectors meet the requirements of a continous cabling of industrial communication networks according to IEC 61918

- Extensive and versatile product portfolio
  - Field assembly connectors which are suitable for connecting to both solid and stranded wire cables
  - Circuit board bulkhead sockets for various mounting possibilities
  - Pre-assembled connecting cables in different configurations

# VERSATILE POSSIBILITIES.

fourfold
shield connection

one foot print for all
bulkhead socket designs



full metal shielding
between contact pairs


plug interface
IEC 61076-2-109

## M12×1 X-coded Bulkhead Sockets Cat.$6_A$

An important part of the STX M12×1 connector series are the bulkhead sockets in Cat.$6_A$. They are available as THR or SMD versions. Likewise, the bulkhead sockets are available with housings for front or back mounting and feature versatile mounting possibilities.

### Characteristics of THR / SMD Products

#### Mechanical Characteristics

| | |
|---|---|
| Connectors | IEC 61076-2-109 |
| Insertion force | ≤ 30 N |
| Durability (mating cycles) | ≥ 100 |
| Material: housing | zinc diecast nickel plated / brass nickel plated |
| Material: contact body | PA |
| Material: contacts | CuSn |
| Material: contact finish | Au |
| Material: gaskets | FKM; NBR |

#### Environmental Requirements

| | |
|---|---|
| Shock | 50 g |
| Protection against particulate ingress | IP6X |
| Protection against water / immersion | IPX7 |
| Ambient temperature | -40 °C to +85 °C |

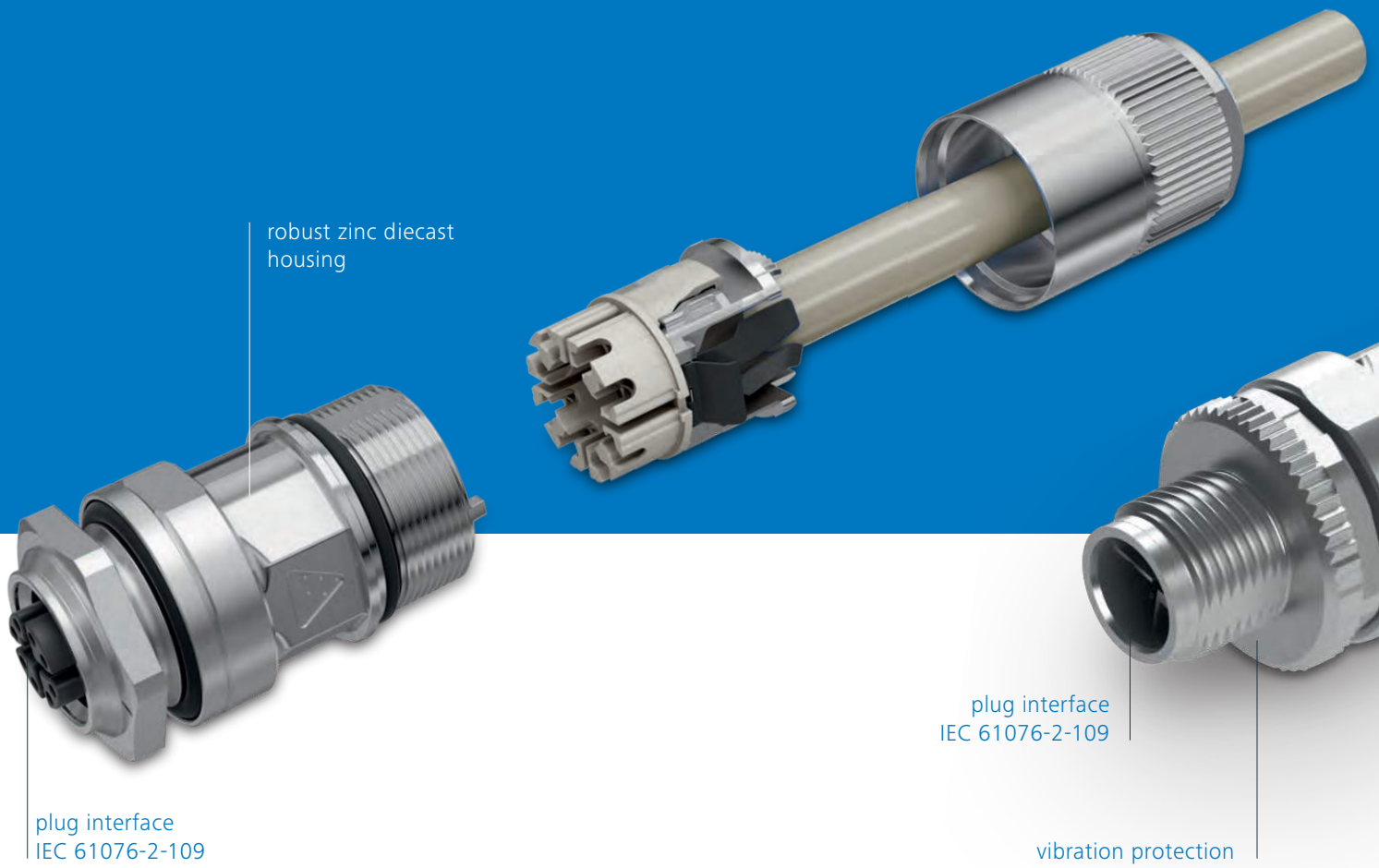
#### Electrical Characteristics

| | |
|---|---|
| Contact resistance | ≤ 5 mΩ |
| Insulation resistance | ≥ 100 MΩ |
| Voltage proof: contact-contact | ≥ 500 V, DC |
| Voltage proof: contact-shield | ≥ 500 V, DC |
| PoE+ acc. to IEEE 802.3at | Adequate for Power over Ethernet+ |

#### Transmission Characteristics

| | |
|---|---|
| 10 Gigabit Ethernet acc. to IEEE 802.3an | Adequate for 10 Gigabit Ethernet |
| Category $6_A$ | ISO/IEC 11801; DIN EN 50173-1 |
| Class $E_A$ | ISO/IEC 11801; DIN EN 50173-1 |

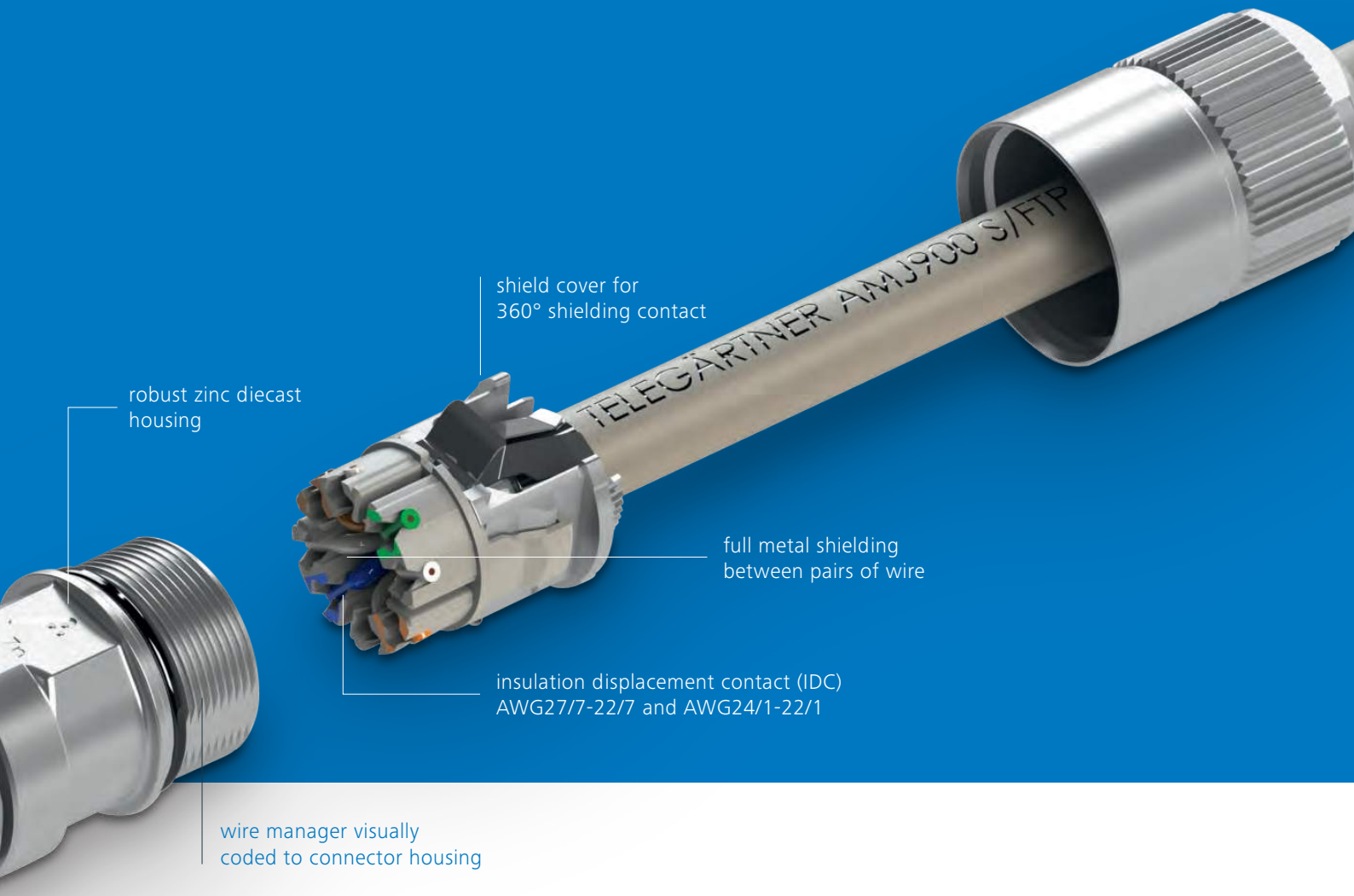
# FOR EXTREME REQUIREMENTS.




**STX M12×1 Cable Plug and Cable Socket X-coded IP67**

The basic structure of the Telegärtner connector with X-coding corresponds to the M12 system in worldwide use that has found its way into applications in many different branches with extreme conditions thanks to its compact design and industrial compatibility. The extremely robust M12×1 connector in Cat.$6_A$ from the STX programme can be fitted on site without any special tools. The STX M12×1 cable plug and cable socket feature 360° shielding and cover a wide range of wire diameters (0.9 – 1.6 mm) and cable diameters (5.5 – 9 mm).

**X-coded IP67**




## Mechanical Characteristics

| | |
|---|---|
| Connectors | **IEC 61076-2-109** |
| Insertion force | **≤ 30 N** |
| Durability (mating cycles) | **≥ 100** |
| Material: housing | **zinc diecast nickel plated / brass nickel plated** |
| Material: wire pair presorting | **PA UL94 V0** |
| Material: shield | **German silver** |
| Material: pressure screw | **brass nickel plated** |
| Material: contacts | **brass** |
| Material: contact finish | **Au over Ni** |
| Wire diameter | **0.9 – 1.6 mm** |
| Cu-Conductor diameter: stranded | **0.46 – 0.76 mm (AWG27 – 22/7)** |
| Cu-Conductor diameter: solid | **0.51 – 0.64 mm (AWG24 – 22/1)** |
| Cable diameter | **5.5 – 9.0 mm** |

## Environmental Requirements

| | |
|---|---|
| Shock | **50 g** |
| Protection against particulate ingress | **IP6X** |
| Protection against water / immersion | **IPX7** |
| Ambient temperature | **-40 °C to +85 °C** |

## Electrical Characteristics

| | |
|---|---|
| Contact resistance | **≤ 10 mΩ** |
| Insulation resistance | **≥ 100 MΩ** |
| Voltage proof: contact-contact | **≥ 500 V, DC** |
| Voltage proof: contact-shield | **≥ 500 V, DC** |
| PoE+ acc.to IEEE 802.3at | **Adequate for Power over Ethernet+** |

## Transmission Characteristics

| | |
|---|---|
| 10 GB Ethernet acc. to IEEE 802.3an | **Adequate for 10 Gigabit Ethernet** |
| Category $6_A$ | **ISO/IEC 11801; DIN EN 50173-1** |
| Class $E_A$ | **ISO/IEC 11801; DIN EN 50173-1** |

# TOTALLY ROBUST.


– Short and slim design
– High packing density

## STX M12×1 Connecting Cable X-coded

For the connection between machines or other terminating equipment as well as connection of the machine or terminating equipment to the control cabinet, Telegärtner also offers preassembled connecting cables in Cat.$6_A$. The connecting cables M12×1 with X-coding have a S/FTP 4×2×AWG26/7 structure, a PUR jacket and are suitable for an increased temperature range of -40 °C to +85 °C.

-40°C
TO
+85°C

**X-coded**

**Connecting Cable S/FTP Cat.7 PUR**

### Mechanical Characteristics

| | |
|---|---|
| Durability (mating cycles) M12 | ≥ 100 |
| Durability (mating cycles) RJ45 | ≥ 750 |
| Cable structure | LI02YSC11Y PUR 4×2×AWG 26/7 PiMF |
| Stranded wire | AWG 26 (7 × 0.16 mm) |
| Wire insulation | Foam PE, Ø 1.04 mm |
| Pair shielding | Al-foil, outside conducting |
| Overall shielding | tin plated copper braid |
| **Outer jacket** | Ø 6.2 ±0.2 mm |
| **Colour** | RAL 6018 |

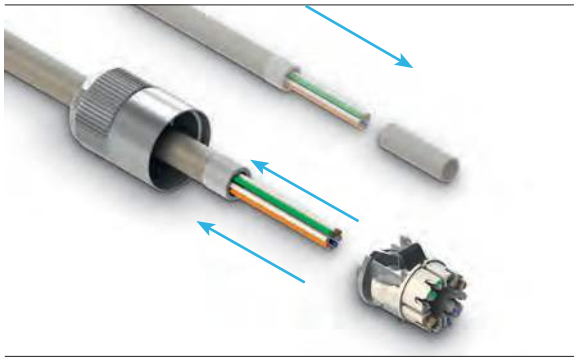
### Thermal and Climatic Characteristics

| | |
|---|---|
| UL | E344985 |
| Flame-retardant test | IEC 60332-1 |
| Operating temperature in °C | -40 °C to 85 °C |

# SIMPLE.
# RELIABLE.

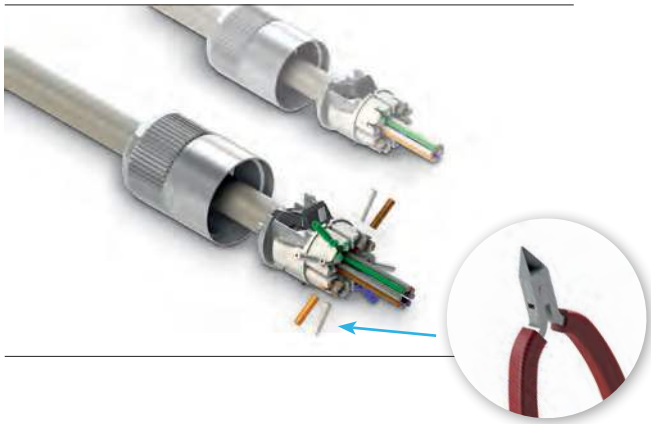
## Fast, easy and without special tools: Assembly of the STX M12×1

01



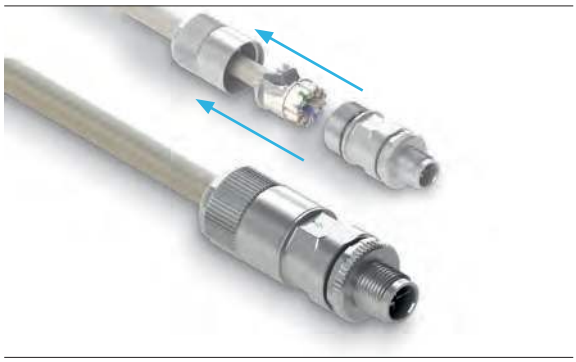
Prepare cables
- Slide over cable gland and seal at least 40 mm
- Remove outer jacket, fold braid shield backwards
- Pre-sort pairs of wire

02



Insert cables
- Insert pairs of wire into the wire manager
- Actuate the shield spring
- Untwist pairs of wire, insert the individual wires into the wire manager
- Cut off protruding wire flush


# 03

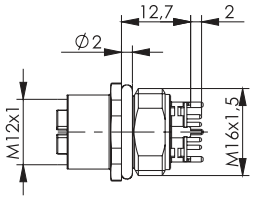


Screw on connector
- Insert wire manager into plug body (pay attention to position)
- Tighten the cable gland with an open-ended wrench
- Use an additional seal for cable diameters between 5.5 and 7.5 mm

Thanks to an intelligent wire management and a simple screw connection system, the individual components of the STX M12×1 cable plug can be assembled quickly and easily on site completely without the use of special tools.

# ALWAYS THE OPTIMAL INSTALLATION POSSIBILITY.

## Front mounting

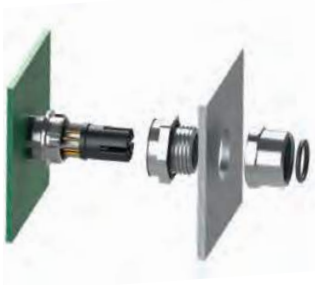


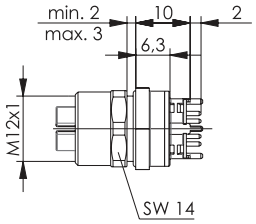

- M12 bulkhead socket
- X-coded
- 1 piece design

- Distance from PCB to housing 12.7 mm

Order no.: J80020A0122

## Back mounting

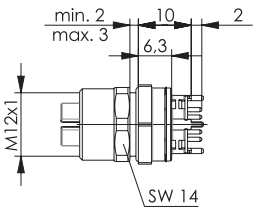





- M12 bulkhead socket
- X-coded
- 2 piece design

- Distance from PCB to housing 10 mm

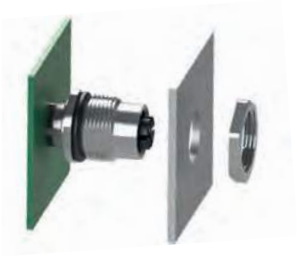
Order no.: J80120A0120

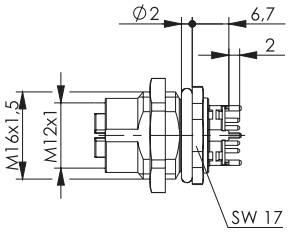



- M12 bulkhead socket
- X-coded
- 1 piece design

- Distance from PCB to housing 10 mm

Order no.: J80020A0120

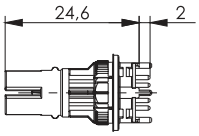





- M12 bulkhead socket
- X-coded
- 1 piece design

- Distance from PCB to housing 6.7 mm

Order no.: J80020A0121




- M12 bulkhead socket
- X-coded
- Without housing

- Distance from PCB customer specific

Order no.: J80220A0120

Front or back mounting: Telegärtner always offers component manufacturers the right solution for integration into their products.

# PRESCRIPTION ONLY.

## Fail-safe system cabling that can withstand the greatest loads and the most adverse operating conditions: igus® chainflex Profinet and Telegärtner M12.

Reliable automation of production and logistics is absolutely essential for efficient processes. For example, the mechanical stresses of moving applications, such as in a fully automated high-bay warehouse or an industrial robot, place tremendous demands on system cabling. If just one component fails, work and production disruptions can quickly result in considerable costs. A tailor-made solution "on prescription" counters this problem.

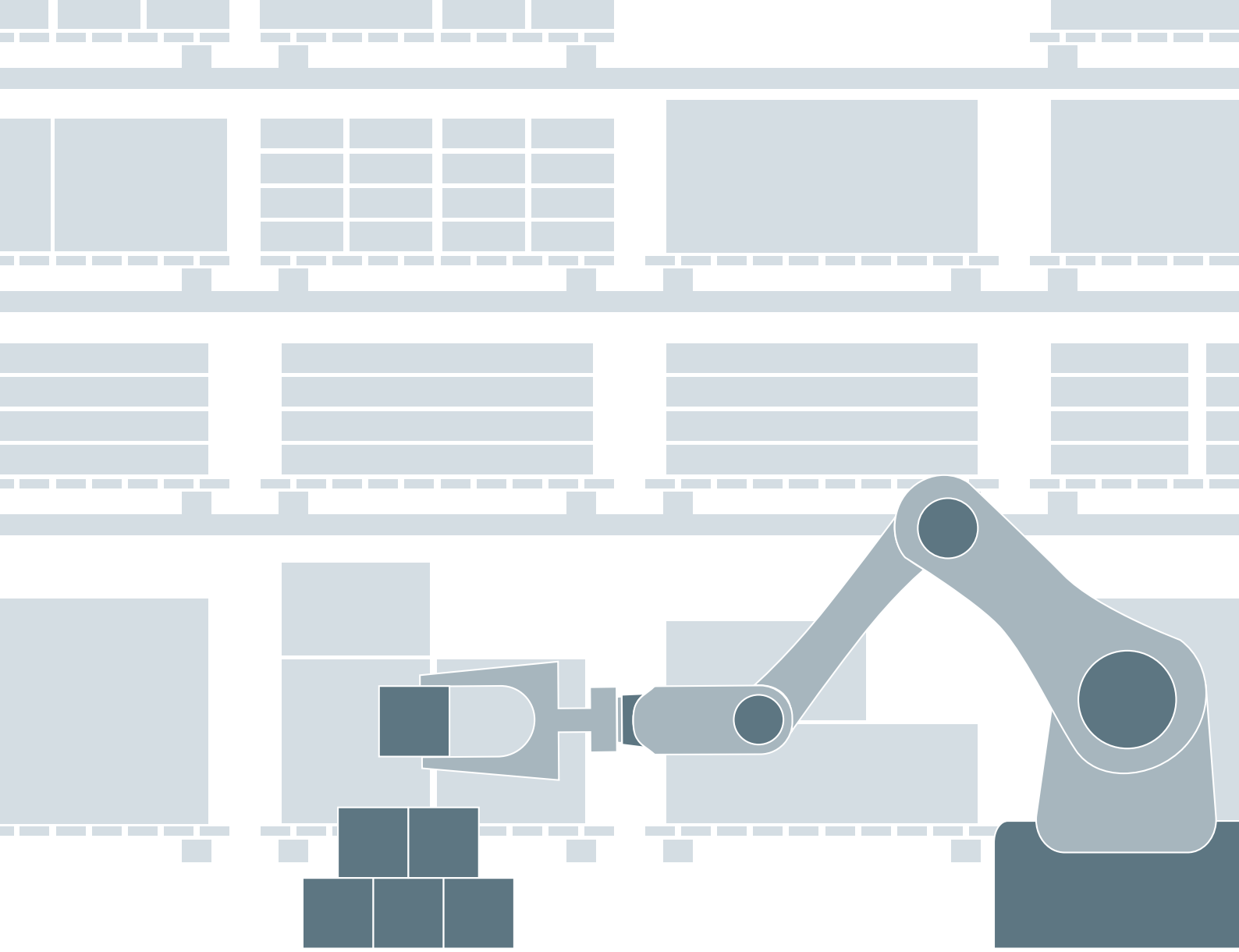
From practice.

**Background and symptoms**
The fully automated storage system of a large German pharmaceutical mail-order company kept failing. This resulted in huge costs due to:

- Time-consuming repairs
- Additional work
- Delivery delays
- Customer complaints

**The analysis conducted by the igus® and Telegärtner test laboratories revealed:**
- The installed cables could not cope with the mechanical stresses and were quick to fail.
- The insulation piercing terminals of the existing plugs were not optimised for the large wire diameter, which resulted in contact problems.


M12×1 cable plug



## Holistic approach leads to combined solution

The combination of the igus® Profinet cable CFBUS.LB.060 and the Telegärtner M12×1 D-coded connector, which can be assembled in the field, will ensure improved operational reliability in future.

### The igus® CFBUS.LB.060 Profinet cable

- Guaranteed stable electrical readings, even with constant movement
- Minimum bending radius of 7.5 x diameter (d) of the e-chain
- The pressure-extruded inner sheath ensures maximum dynamic range
- Extremely bend-resistant braided shield with around 90 % optical coverage

### The Telegärtner M12 connector

- Optimal design. Sufficient assembly space protects against short circuits
- The IDC insulation piercing terminals are not only designed for one- and seven-wire conductors, as is customary, but also for fine-wire 19-strand conductors
- Universal wire manager for wire diameters of 0.9 to 1.6 millimetres to ensure the safe connection of a wide variety of wire and cable types

Reliability and durability are essential for critical applications within companies. And they are often the number one priority for system builders and users.

**The prescription for safeguarding against failure for the pharmaceutical wholesale trade: Optimally compatible, high-quality components, such as the high-performance and linkable chainflex cables from igus®, in combination with the D-coded M12 connectors from Telegärtner.**

igus®

Telegärtner

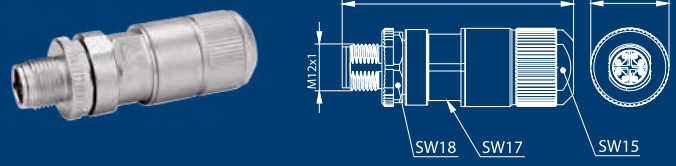
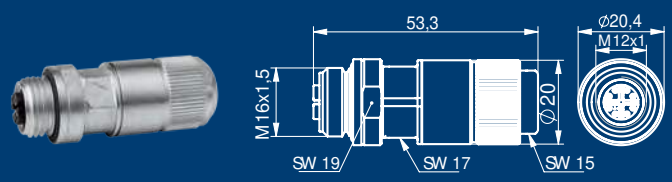
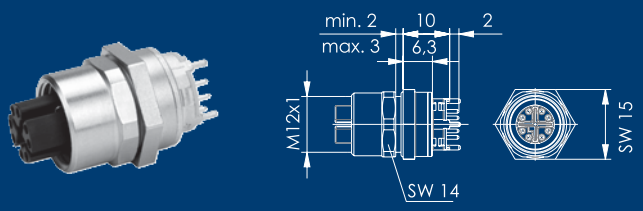
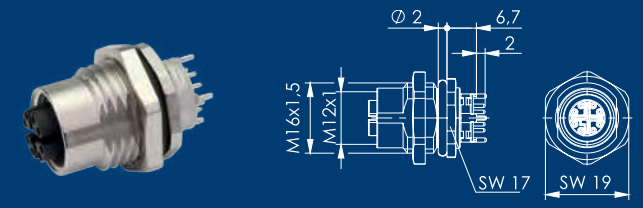
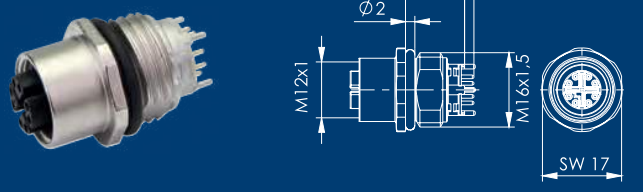
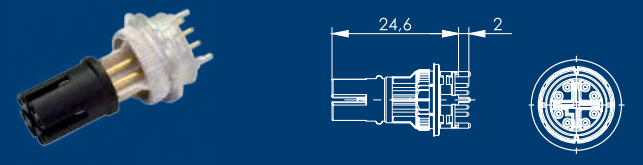
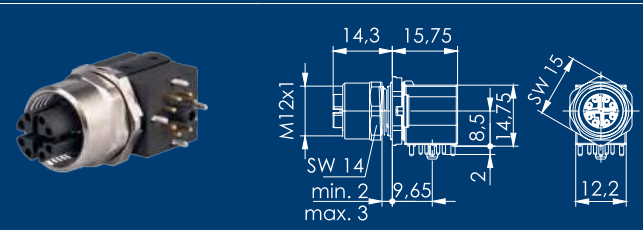
# Connecting Cables

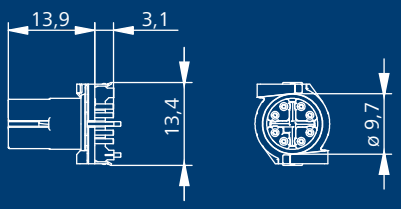
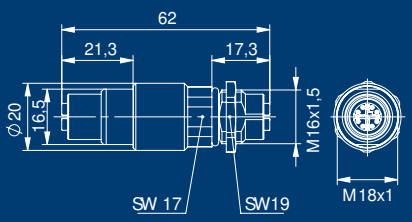
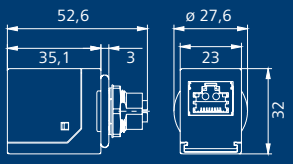
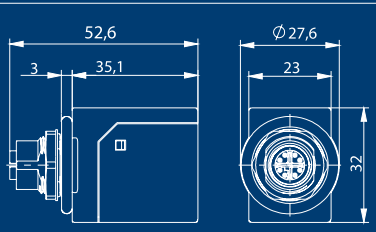
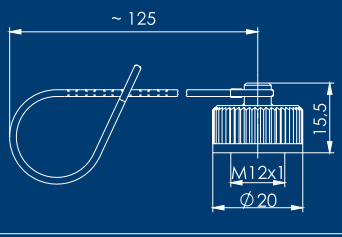
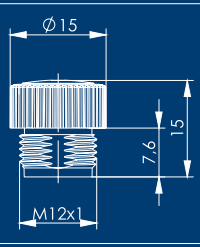
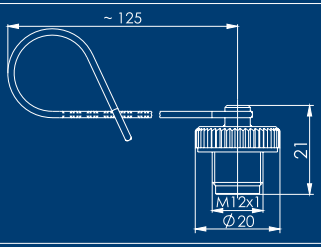
| M12×1<br>D-coded | **2× M12×1 Cable Plug**<br>black overmoulded IP67 | **M12×1 Cable Plug**<br>black overmoulded IP67<br>to **RJ45 Plug**<br>**Crimp** IP20 | **M12×1 Cable Plug**<br>black overmoulded IP67<br>to free cable end | **M12×1 Cable Socket**<br>black overmoulded IP67<br>to free cable end |
|---|---|---|---|---|
| |  |  |  |  |
| **Length 0.5 m** | L80210A0000 | L80310A0003 | L83610A0000 | L84610A0000 |
| **Length 1.0 m** | L80210A0001 | L80310A0004 | L83610A0001 | L84610A0001 |
| **Length 2.0 m** | L80211A0000 | L80311A0001 | L83611A0000 | L84611A0000 |
| **Length 3.0 m** | L80212A0000 | L80312A0001 | L83612A0000 | L84612A0000 |
| **Length 5.0 m** | L80213A0000 | L80313A0001 | L83613A0000 | L84613A0000 |
| **Length 7.5 m** | L80214A0000 | L80314A0001 | L83614A0000 | L84614A0000 |
| **Length 10.0 m** | L80215A0000 | L80315A0001 | L83615A0000 | L84615A0000 |

| M12×1<br>X-coded | **2× M12×1 Cable Plug**<br>black overmoulded IP67 | **M12×1 Cable Plug**<br>black overmoulded IP67<br>to **RJ45 Plug**<br>**Crimp** IP20 | **M12×1 Cable Plug**<br>black overmoulded IP67<br>to free cable end | **M12×1 Cable Plug**<br>black overmoulded IP67<br>to **M12×1 Cable Socket**<br>black overmoulded IP67 |
|---|---|---|---|---|
| |  |  |  |  |
| **Length 0.5 m** | L80000A0000 | L80100A0000 | L83500A0000 | L82000A0000 |
| **Length 1.0 m** | L80000A0001 | L80100A0001 | L83500A0001 | L82000A0001 |
| **Length 2.0 m** | L80001A0000 | L80101A0000 | L83501A0000 | L82001A0000 |
| **Length 3.0 m** | L80002A0000 | L80102A0000 | L83502A0000 | L82002A0000 |
| **Length 5.0 m** | L80003A0000 | L80103A0000 | L83503A0000 | L82003A0000 |
| **Length 7.5 m** | L80004A0000 | L80104A0000 | L83504A0000 | L82004A0000 |
| **Length 10.0 m** | L80005A0000 | L80105A0000 | L83505A0000 | L82005A0000 |

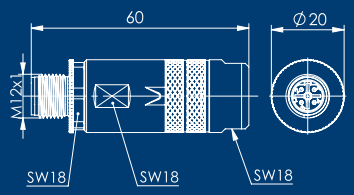
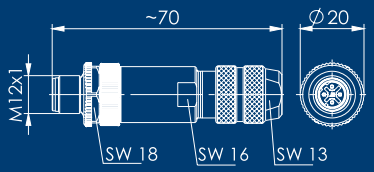
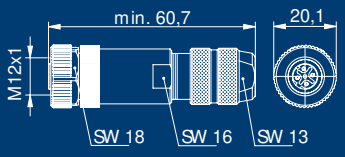
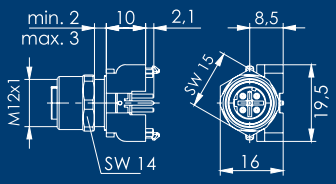
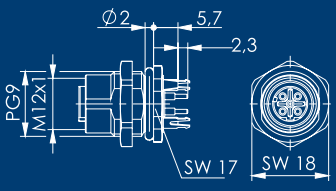
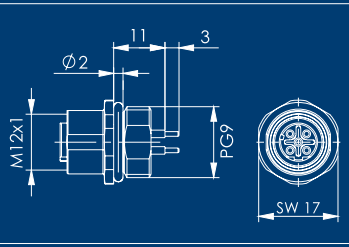
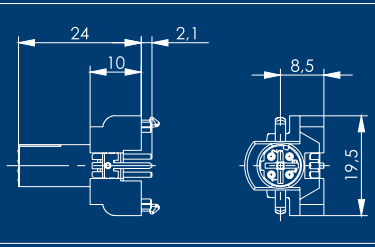
| M12×1<br>X-coded | **M12×1 Cable Socket**<br>IP20 to **RJ45 Plug**<br>**Crimp** IP20 | **M12×1 Cable Socket**<br>black overmoulded IP67<br>to free cable end | **M12×1 Cable Plug**<br>black overmoulded IP67<br>to **M12×1 Cable Plug 90°**<br>black overmoulded IP67 | **M12×1 Cable Plug 90°**<br>black overmoulded IP67<br>to free cable end |
|---|---|---|---|---|
| |  |  |  |  |
| **Length 0.5 m** | L82100A0000 | L84500A0000 | L80000A0100 | L83500A0003 |
| **Length 1.0 m** | L82100A0001 | L84500A0001 | L80000A0101 | L83500A0004 |
| **Length 2.0 m** | L82101A0000 | L84501A0000 | L80001A0027 | L83501A0002 |
| **Length 3.0 m** | L82102A0000 | L84502A0000 | L80002A0006 | L83502A0001 |
| **Length 5.0 m** | L82103A0000 | L84503A0000 | L80003A0009 | L83503A0002 |
| **Length 7.5 m** | | L84504A0000 | L80004A0005 | L83504A0002 |
| **Length 10.0 m** | | L84505A0000 | L80005A0004 | L83505A0004 |

# Order Information

| M12×1 Cable Plug | Order no. | Description | Coding |
|---|---|---|---|
|  | J80026A0100 | **STX M12×1 CP Cat.6$_A$**<br>8 pole,<br>straight, plug set,<br>360° shielding, IDC,<br>length of connector: 59 mm,<br>field assembly | **X-coded** |
| **M12×1 Cable Socket** | | | |
|  | J80029A0500 | **STX M12×1 CS Cat.6$_A$**<br>8 pole,<br>straight, socket set,<br>360° shielding, IDC,<br>length of connector: 53 mm,<br>field assembly | **X-coded** |
| **M12×1 Bulkhead Socket** | | | |
|  | J80020A0120 | **STX M12×1 BS Cat.6$_A$**<br>8 pole,<br>straight, 1 pc. (J80020A0120)<br>resp. 2 pc. (J80120A0120) design,<br>screen connection quad,<br>solder connection THR,<br>gap to PCB 10 mm,<br>back mounting | **X-coded** |
|  | J80020A0121 | **STX M12×1 BS Cat.6$_A$**<br>8 pole,<br>straight, 1 pc. design,<br>screen connection quad,<br>solder connection THR,<br>gap to PCB 6.7 mm,<br>back mounting | **X-coded** |
|  | J80020A0122 | **STX M12×1 BS Cat.6$_A$**<br>8 pole,<br>straight, 1 pc. design,<br>screen connection quad,<br>solder connection THR,<br>gap to PCB 12.7 mm,<br>front mounting | **X-coded** |
|  | J80220A0120 | **STX M12×1 BS Cat.6$_A$**<br>8 pole,<br>straight, without housing,<br>screen connection quad,<br>solder connection THR,<br>gap to PCB customized,<br>back mounting | **X-coded** |
|  | J80320A0120<br>J80420A0120<br>J80520A0120 | **STX M12×1 BS Cat.6$_A$**<br>8 pole,<br>angled,<br>with and without housing,<br>screen connection quad,<br>solder connection THR,<br>gap to PCB 8.5 mm,<br>back mounting | **X-coded** |

| M12×1 Bulkhead Socket | | Order no. | Description | Coding |
|---|---|---|---|---|
|  |  | J80020A0124 | **STX M12×1 BS Cat.6$_A$**<br>8 pole,<br>straight, without housing,<br>screen connection quad,<br>solder connection SMD,<br>gap to PCB 13 mm | **X-coded** |
| **M12×1 Coupler** | | | | |
|  |  | J80029A0100 | **STX M12×1-STX M12×1 CO Cat.6$_A$**<br>mating face 1: 8 pole,<br>straight;<br>mating face 2: 8 pole,<br>straight; Cat.6$_A$ | **X-coded** |
|  |  | J80029A0200 | **STX M12×1-RJ45 CO Cat.6$_A$**<br>mating face 1: 8 pole,<br>straight;<br>mating face 2: RJ45,<br>straight; Cat.6$_A$ | **X-coded** |
|  |  | J80629A0200 | **STX M12×1-RJ45 CO Cat.6$_A$**<br>mating face 1: 8 pole,<br>straight;<br>mating face 2: RJ45,<br>angled; Cat.6$_A$ | **X-coded** |
| **M12×1 Accessories** | | | | |
|  |  | H80030A0008 | **STX M12×1**<br>plug protective cap<br>with wrist strap | **D- and X-coded** |
|  |  | H80030A0009 | **STX M12×1**<br>socket protective cap | **D- and X-coded** |
|  |  | H80030A0010 | **STX M12×1**<br>socket protective cap<br>with wrist strap | **D- and X-coded** |

# Order Information

| M12×1 Cable Plug | | Order no. | Description | Coding |
|---|---|---|---|---|
|  |  | J80026A0201 | **STX M12×1 CP Cat.5**<br>4 pole,<br>straight, plug set,<br>360° shielding, IDC,<br>length of connector: 60 mm,<br>field assembly | **D-coded** |
|  |  | J80026A0200 | **STX M12×1 CP Cat.5**<br>4 pole,<br>straight, plug set,<br>360° shielding,<br>screw termination,<br>length of connector: 70 mm,<br>field assembly | **D-coded** |
| **M12×1 Cable Socket** | | | | |
|  |  | J80029A0310 | **STX M12×1 CS Cat.5**<br>4 pole,<br>straight, socket set,<br>360° shielding,<br>screw termination,<br>length of connector: 61 mm,<br>field assembly | **D-coded** |
| **M12×1 Bulkhead Socket** | | | | |
|  |  | J80120A0220 | **STX M12×1 BS Cat.5**<br>4 pole,<br>straight, 2 pc. design,<br>screen connection single,<br>solder connection THR,<br>gap to PCB 10 mm,<br>back mounting | **D-coded** |
|  |  | J80020A0221 | **STX M12×1 BS Cat.5**<br>4 pole,<br>straight, 1 pc. design,<br>screen connection quad,<br>solder connection THR,<br>gap to PCB 5.7 mm,<br>back mounting | **D-coded** |
|  |  | J80020A0222 | **STX M12×1 BS Cat.5**<br>4 pole,<br>straight, 1 pc. design,<br>screen connection 360°,<br>solder connection THR,<br>gap to PCB 11 mm,<br>front mounting | **D-coded** |
|  |  | J80220A0220 | **STX M12×1 BS Cat.5**<br>4 pole,<br>straight, without housing,<br>screen connection single,<br>solder connection THR,<br>back mounting | **D-coded** |

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