








## STX M12x1 IP67

-  Passenger Information 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 M12x1 Connector Series.

# HIGHEST DATA RATES.

Whether for baggage inspection at airports, passenger information systems (PIS) or automation systems in process monitoring, the STX M12x1 IP67 connector series is the ideal solution wherever continuous 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<sub>A</sub>
- Designed for data rates up to 10 Gbit/s
- Additional power supply for connected terminating equipment possible (PoE, PoE+)



M12x1 cable plug



- M12 connectors meet the requirements of a continuous 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

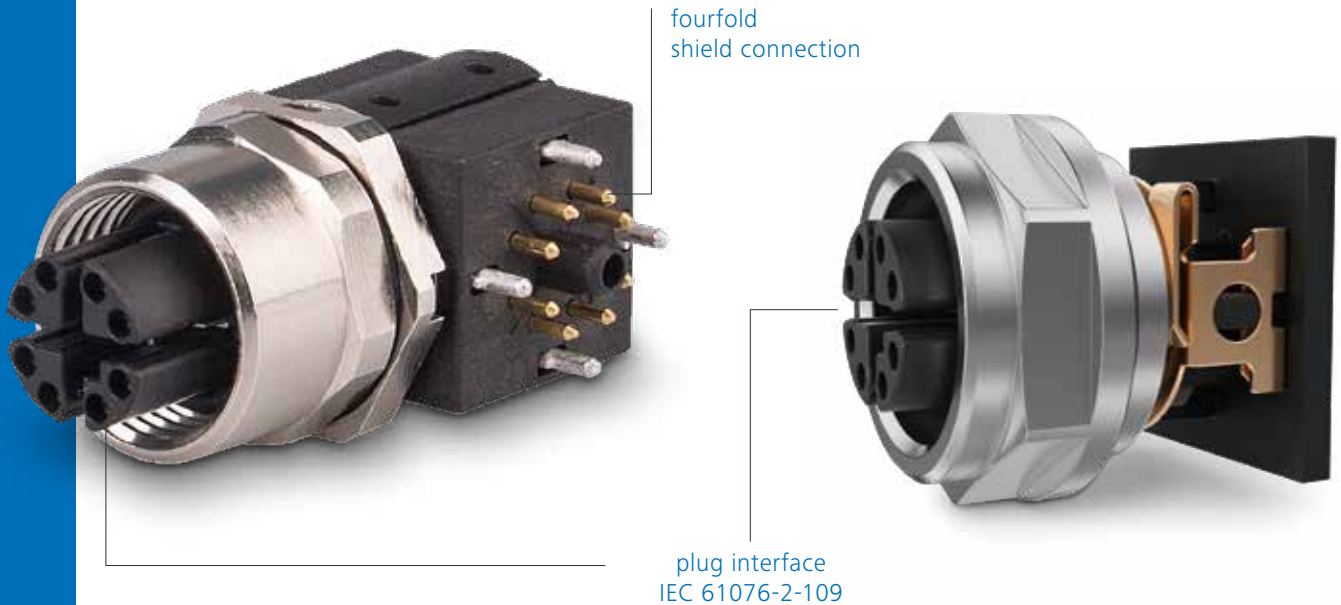
# VERSATILE POSSIBILITIES.

one foot print for all  
bulkhead socket designs

fourfold  
shield connection

full metal shielding  
between contact pairs





plug interface  
IEC 61076-2-109

### M12x1 X-coded Bulkhead Sockets Cat.6<sub>A</sub>

An important part of the STX M12x1 connector series are the bulkhead sockets in Cat.6<sub>A</sub>. 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

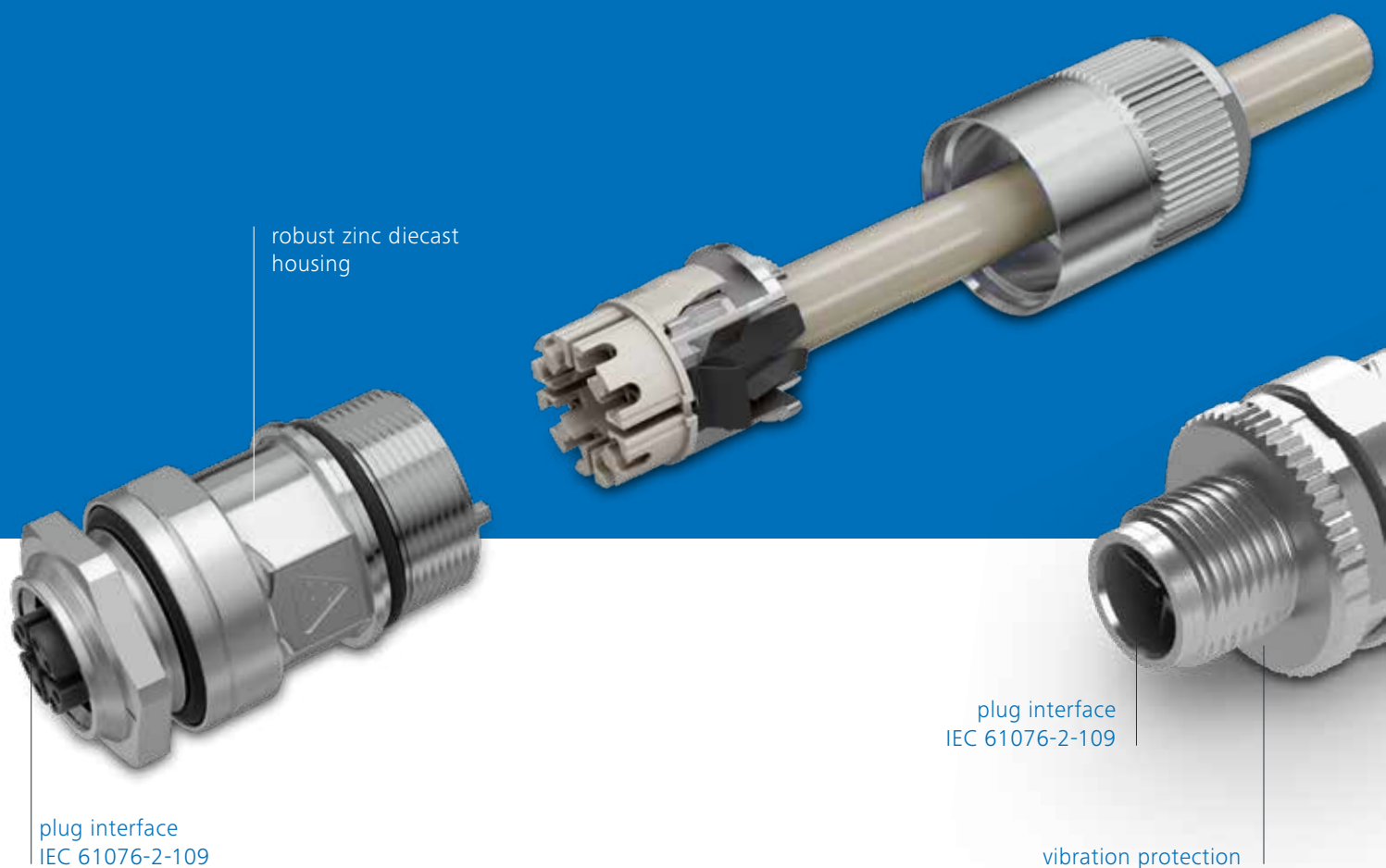
##### Electrical Characteristics

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 <sub>A</sub>	ISO/IEC 11801; DIN EN 50173-1
Class E <sub>A</sub>	ISO/IEC 11801; DIN EN 50173-1

# FOR EXTREME REQUIREMENTS.

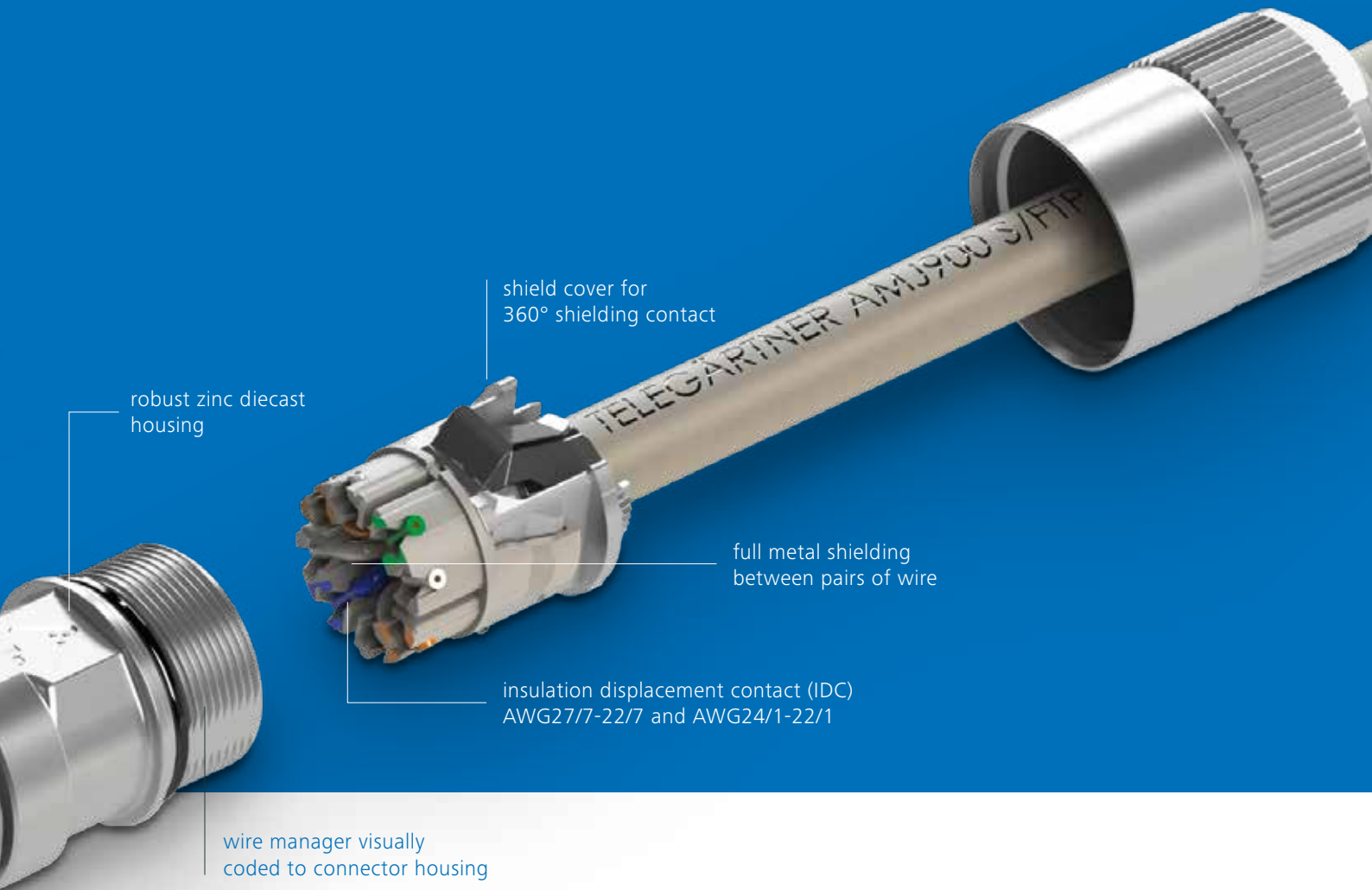


## STX M12x1 Cable Plug and Cable Socket X-coded IP67

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 M12x1 connector in Cat.6<sub>A</sub> from the STX programme can be fitted on site without any special tools. The STX M12x1 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 <sub>A</sub>	ISO/IEC 11801; DIN EN 50173-1
Class E <sub>A</sub>	ISO/IEC 11801; DIN EN 50173-1

# TOTALLY ROBUST.



- Short and slim design
- High packing density

## STX M12x1 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<sub>A</sub>. The connecting cables M12x1 with X-coding have a S/FTP 4x2xAWG26/7 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 4x2xAWG 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

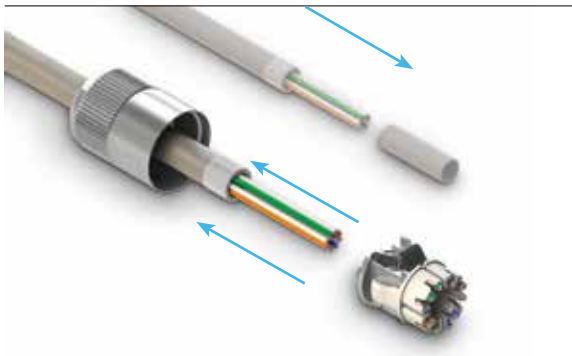
### Thermal and Climatic Characteristics

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

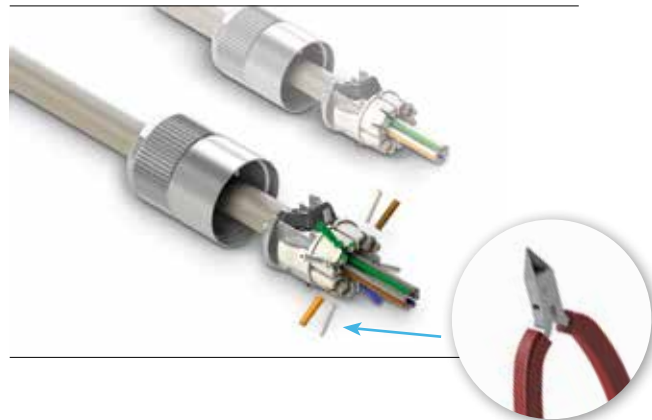
## 01



### 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.

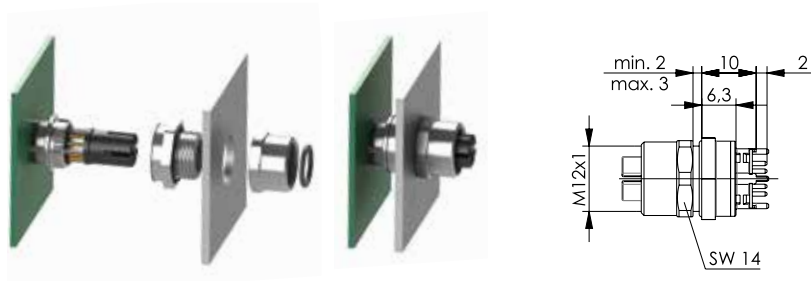
## Front mounting



- M12 bulkhead socket
- X-coded
- 1 piece design
- Distance from PCB to housing 12.7 mm

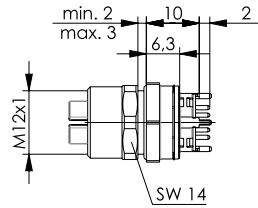
Order no.: J80020A0122

## Back mounting



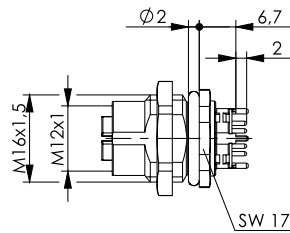
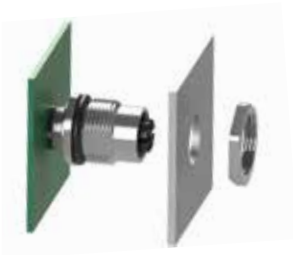
- M12 bulkhead socket
- X-coded
- 2 piece design
- Distance from PCB to housing 10 mm

Order no.: J80120A0120



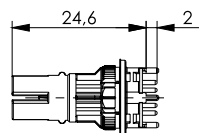
- M12 bulkhead socket
- X-coded
- 1 piece design
- Distance from PCB to housing 10 mm

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.

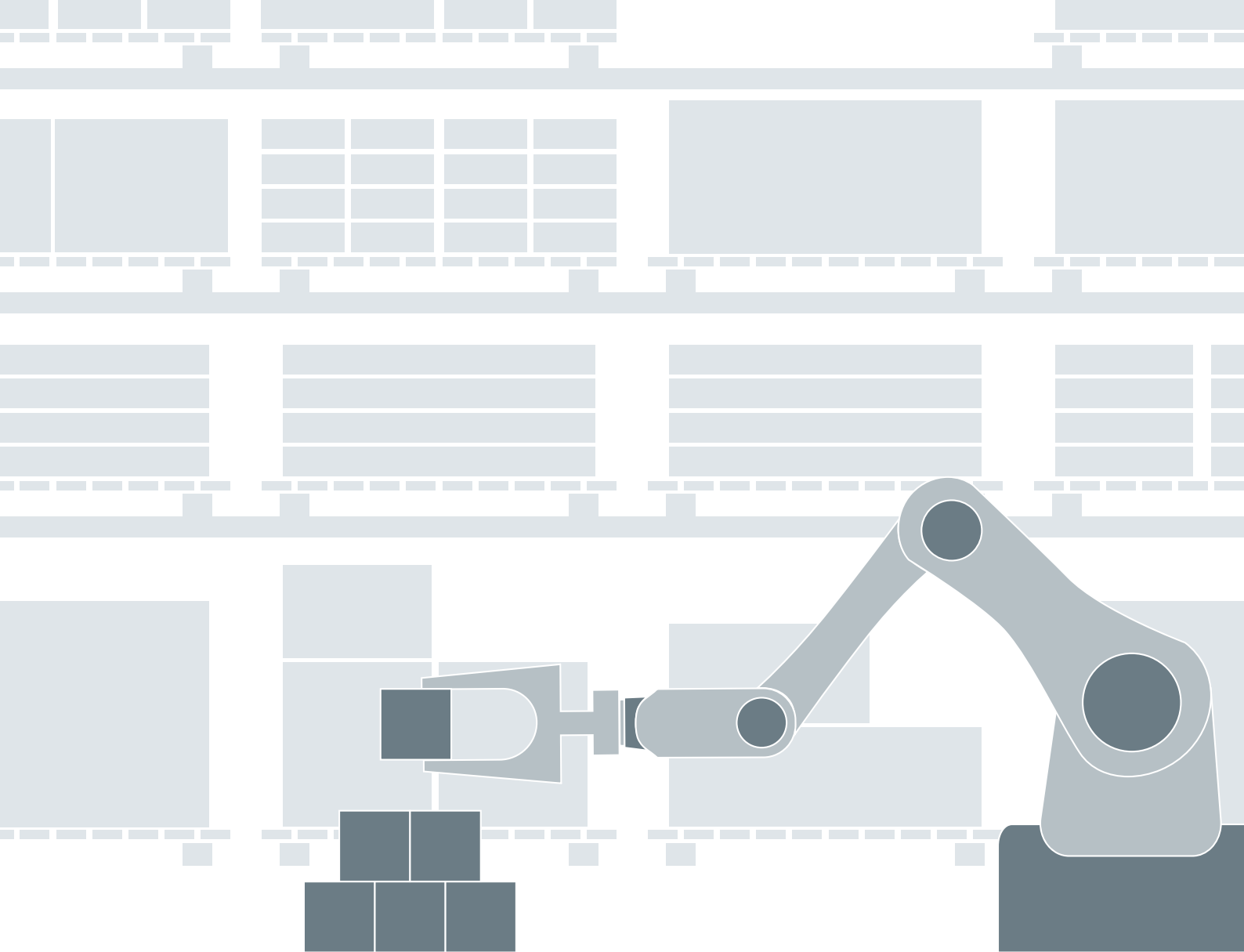
igus®CFBUS.LB.060



M12x1 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 7.5x 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.




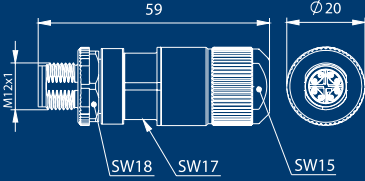

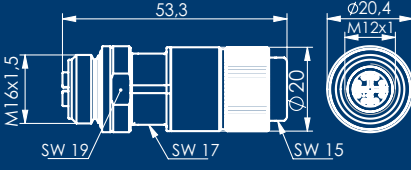

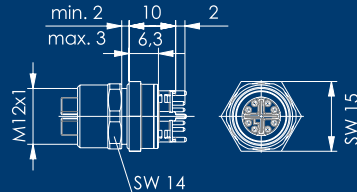

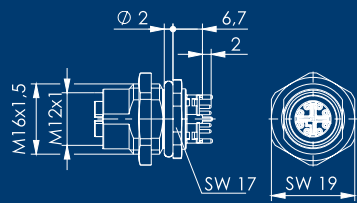

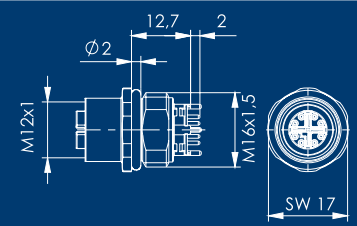

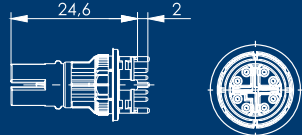

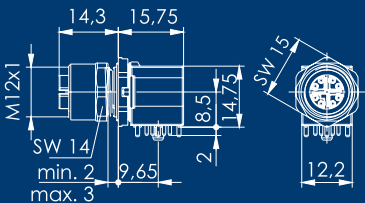
## Connecting Cables

M12×1 D-coded	2× M12×1 Cable Plug black overmoulded IP67	M12×1 Cable Plug black overmoulded IP67 to RJ45 Plug Crimp IP20	M12×1 Cable Plug black overmoulded IP67 to free cable end	M12×1 Cable Socket black overmoulded IP67 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

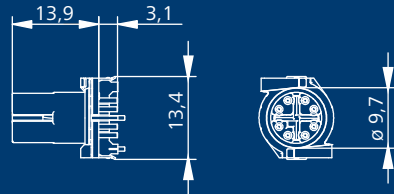
M12×1 X-coded	2× M12×1 Cable Plug black overmoulded IP67	M12×1 Cable Plug black overmoulded IP67 to RJ45 Plug Crimp IP20	M12×1 Cable Plug black overmoulded IP67 to free cable end	M12×1 Cable Plug black overmoulded IP67 to M12×1 Cable Socket black overmoulded IP67
				
Length 0.5 m	L80000A0000	L80100A0000	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 X-coded	M12×1 Cable Socket IP20 to RJ45 Plug Crimp IP20	M12×1 Cable Socket black overmoulded IP67 to free cable end	M12×1 Cable Plug black overmoulded IP67 to M12×1 Cable Plug 90° black overmoulded IP67	M12×1 Cable Plug 90° black overmoulded IP67 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

M12x1 Cable Plug	Order no.	Description	Coding
 	J80026A0100	<b>STX M12x1 CP Cat.6<sub>A</sub></b> 8 pole, straight, plug set, 360° shielding, IDC, length of connector: 59 mm, field assembly	X-coded
 	J80029A0500	<b>STX M12x1 CS Cat.6<sub>A</sub></b> 8 pole, straight, socket set, 360° shielding, IDC, length of connector: 53 mm, field assembly	X-coded
 	J80020A0120	<b>STX M12x1 BS Cat.6<sub>A</sub></b> 8 pole, straight, 1 pc. (J80020A0120) resp. 2 pc. (J80120A0120) design, screen connection quad, solder connection THR, gap to PCB 10 mm, back mounting	X-coded
 	J80020A0121	<b>STX M12x1 BS Cat.6<sub>A</sub></b> 8 pole, straight, 1 pc. design, screen connection quad, solder connection THR, gap to PCB 6.7 mm, back mounting	X-coded
 	J80020A0122	<b>STX M12x1 BS Cat.6<sub>A</sub></b> 8 pole, straight, 1 pc. design, screen connection quad, solder connection THR, gap to PCB 12.7 mm, front mounting	X-coded
 	J80220A0120	<b>STX M12x1 BS Cat.6<sub>A</sub></b> 8 pole, straight, without housing, screen connection quad, solder connection THR, gap to PCB customized, back mounting	X-coded
 	J80320A0120 J80420A0120 J80520A0120	<b>STX M12x1 BS Cat.6<sub>A</sub></b> 8 pole, angled, with and without housing, screen connection quad, solder connection THR, gap to PCB 8.5 mm, back mounting	X-coded

M12x1 Bulkhead Socket

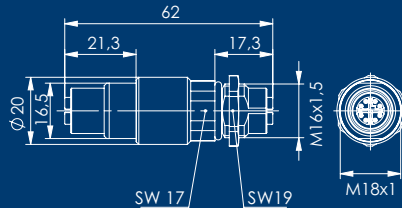


Order no.  
J80020A0124

Description  
STX M12x1 BS Cat.6<sub>A</sub>  
8 pole,  
straight, without housing,  
screen connection quad,  
solder connection SMD,  
gap to PCB 13 mm

Coding  
X-coded

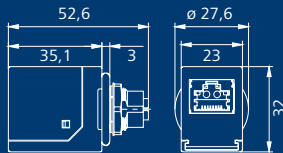
M12x1 Coupler



J80029A0100

Description  
STX M12x1-STX M12x1 CO  
Cat.6<sub>A</sub>  
mating face 1: 8 pole,  
straight;  
mating face 2: 8 pole,  
straight; Cat.6<sub>A</sub>

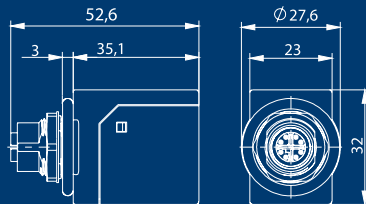
X-coded



J80029A0200

Description  
STX M12x1-RJ45 CO Cat.6<sub>A</sub>  
mating face 1: 8 pole,  
straight;  
mating face 2: RJ45,  
straight; Cat.6<sub>A</sub>

X-coded

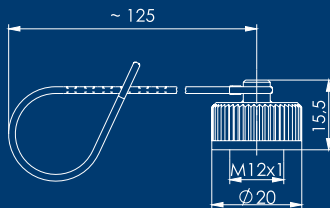


J80629A0200

Description  
STX M12x1-RJ45 CO Cat.6<sub>A</sub>  
mating face 1: 8 pole,  
straight;  
mating face 2: RJ45,  
angled; Cat.6<sub>A</sub>

X-coded

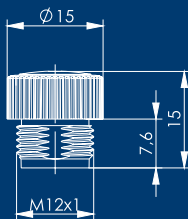
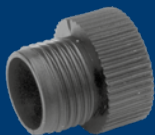
M12x1 Accessories



H80030A0008

Description  
STX M12x1  
plug protective cap  
with wrist strap

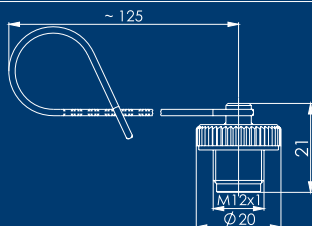
D- and  
X-coded



H80030A0009

Description  
STX M12x1  
socket protective cap

D- and  
X-coded


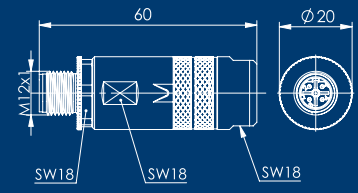

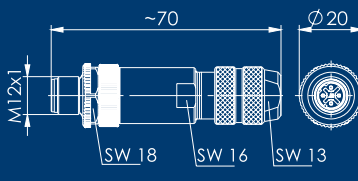

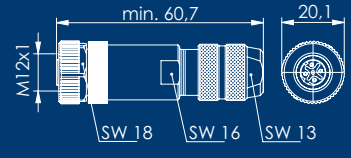

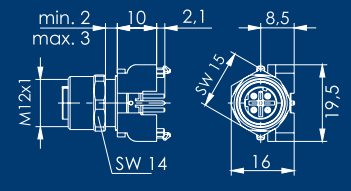

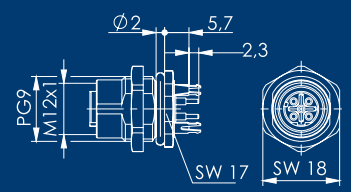

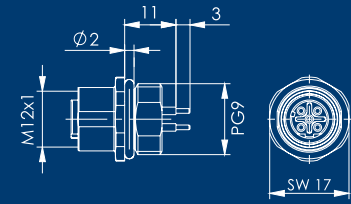

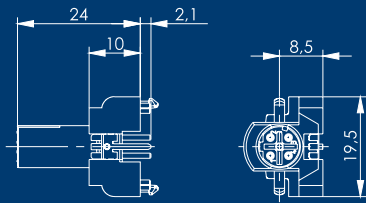


H80030A0010

Description  
STX M12x1  
socket protective cap  
with wrist strap

D- and  
X-coded

# Order Information

M12x1 Cable Plug	Order no.	Description	Coding
 	J80026A0201	<b>STX M12x1 CP Cat.5</b> 4 pole, straight, plug set, 360° shielding, IDC, length of connector: 60 mm, field assembly	<b>D-coded</b>
 	J80026A0200	<b>STX M12x1 CP Cat.5</b> 4 pole, straight, plug set, 360° shielding, screw termination, length of connector: 70 mm, field assembly	<b>D-coded</b>
M12x1 Cable Socket	Order no.	Description	Coding
 	J80029A0310	<b>STX M12x1 CS Cat.5</b> 4 pole, straight, socket set, 360° shielding, screw termination, length of connector: 61 mm, field assembly	<b>D-coded</b>
M12x1 Bulkhead Socket	Order no.	Description	Coding
 	J80120A0220	<b>STX M12x1 BS Cat.5</b> 4 pole, straight, 2 pc. design, screen connection single, solder connection THR, gap to PCB 10 mm, back mounting	<b>D-coded</b>
 	J80020A0221	<b>STX M12x1 BS Cat.5</b> 4 pole, straight, 1 pc. design, screen connection quad, solder connection THR, gap to PCB 5.7 mm, back mounting	<b>D-coded</b>
 	J80020A0222	<b>STX M12x1 BS Cat.5</b> 4 pole, straight, 1 pc. design, screen connection 360°, solder connection THR, gap to PCB 11 mm, front mounting	<b>D-coded</b>
 	J80220A0220	<b>STX M12x1 BS Cat.5</b> 4 pole, straight, without housing, screen connection single, solder connection THR, back mounting	<b>D-coded</b>



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