INDUSTRIAL ETHERNET

TTL network™

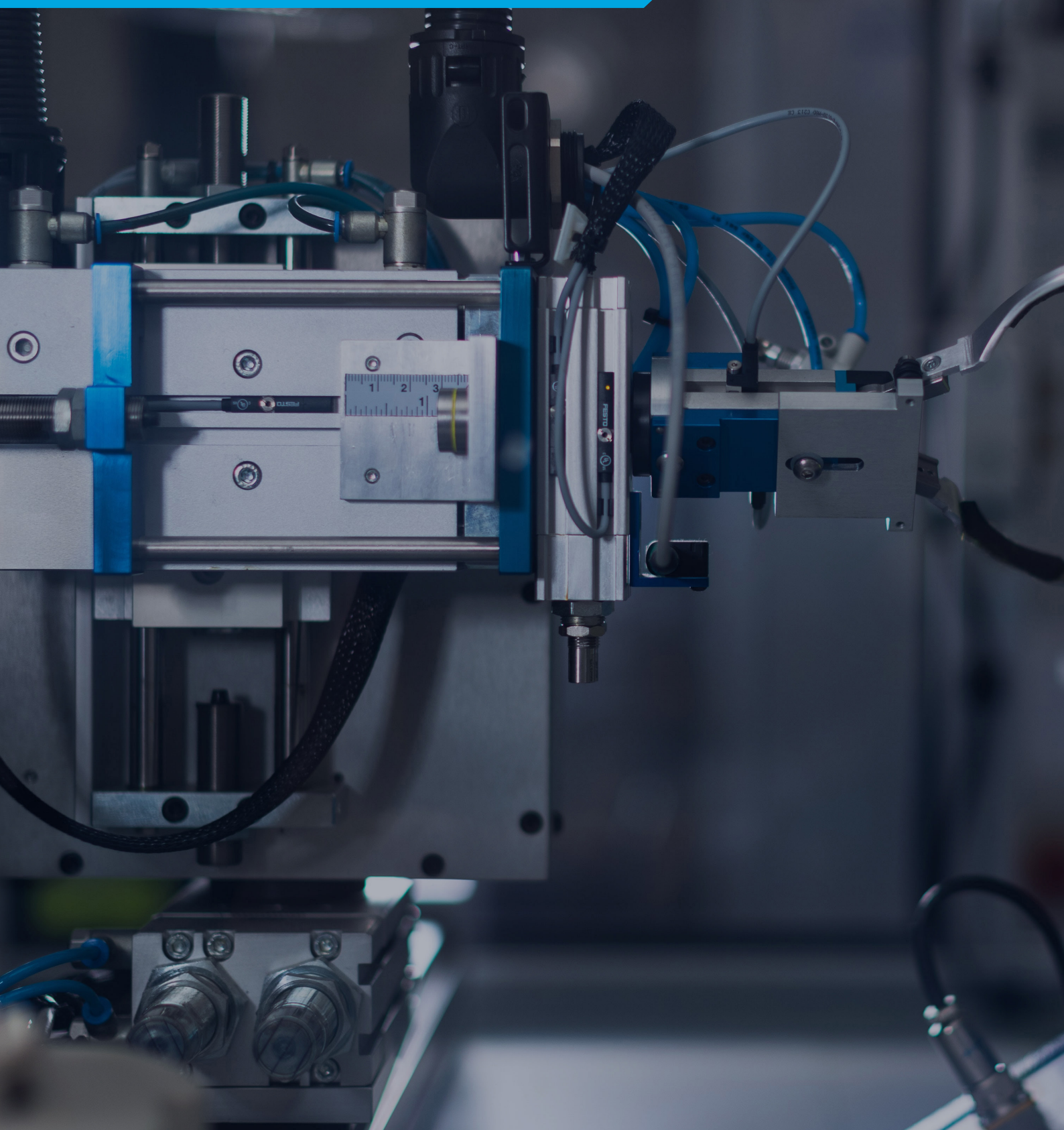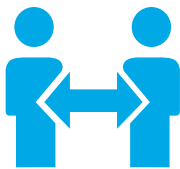stay in contact

FAMILY-RUN & MEDIUM-SIZED

We are fast and flexible in decision-making, personally available and see the business as a long-term partnership.

CUSTOMER-SPECIFIC

We fulfil wishes: With over 1000 tools for OEM and 10,000 technical sketches, we are able to offer solid customised solutions.

STRONG NETWORK

We have known our partners for a long time and value them. We have access to original connectors from all well-known manufacturers or, on request, low-priced compatible products with guaranteed stable quality.
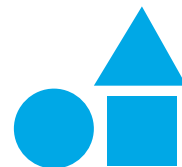
SOLUTION-ORIENTED

With established and structured processes and personal service we find the best technical and and economic solution for your request.

100% QUALITY-TESTED

All our cable assemblies are 100% electrically tested before delivery and the production facilities can be audited at any time.

ALWAYS FLEXIBLE

Flexibility from small to large series through production facilities in Asia and Eastern Europe.

ndustrial Ethernet is a special variant of Ethernet networking used in industrial environments. Unlike traditional Ethernet, which is typically used in office and home networks, Industrial Ethernet is designed to meet the harsh requirements and environmental conditions of factories, manufacturing plants and other industrial environments. It enables the networking of machines, control systems, sensors and other devices in such environments Industrial Ethernet interconnect cables and connectors are critical to ensuring reliable communication and control. The most important features that an I.E. connection cable and connector must possess are extremely high robustness and resistance, reliability and protection against moisture and temperature fluctuations.

In some industrial applications, such as robotics or production process control, real-time communication is also crucial. Industrial Ethernet protocols such as PROFINET and EtherCAT are designed to provide low latency and deterministic communication. The security of data and devices is also crucial. Industrial Ethernet networks can use security mechanisms such as VLANs and firewalls to control access to critical systems.

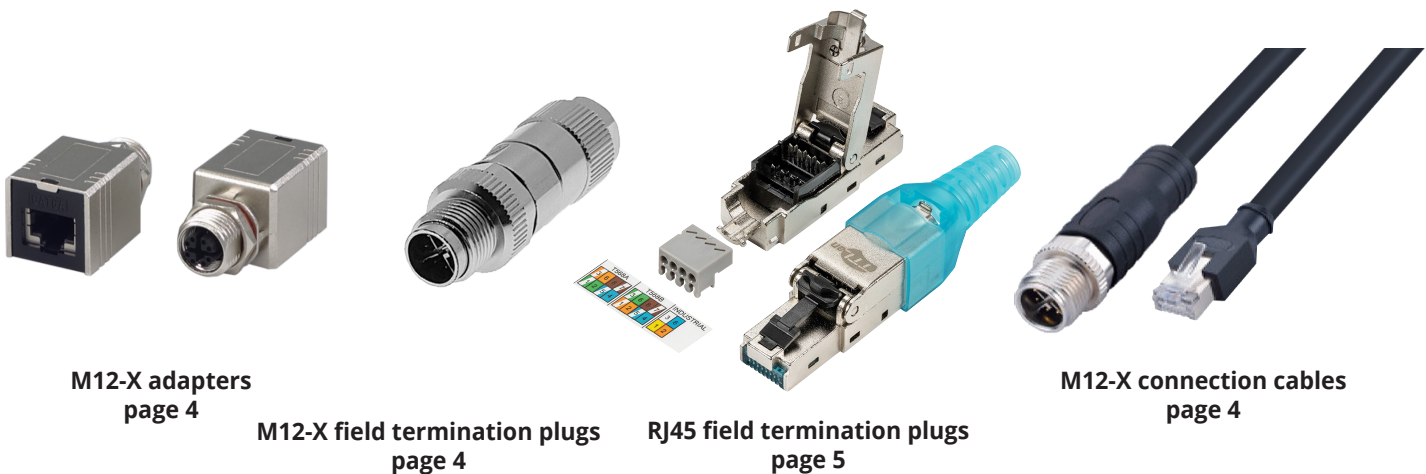## Our services and products

We offer a range of products specifically designed for industrial applications to ensure reliable and trouble-free operation at all times, even in harsh environments.

Available are M12 X-coded connectors and adapters, robust Cat.6A field assembly connectors and assembled connection cables of various configurations.

We adapt to the individual product requirements of our customers through customised OEM production.

We support a resilient supply chain for our customers by stocking customised products on the basis of framework agreements.

On the following pages we have compiled a selection of interesting Industrial Ethernet-compatible connection cables and components that are available from stock or can be ordered from us.

**M12-X adapters
page 4**

**M12-X field termination plugs
page 4**

**RJ45 field termination plugs
page 5**

**M12-X connection cables
page 4**

M12 ADAPTER X-CODED (F/F)
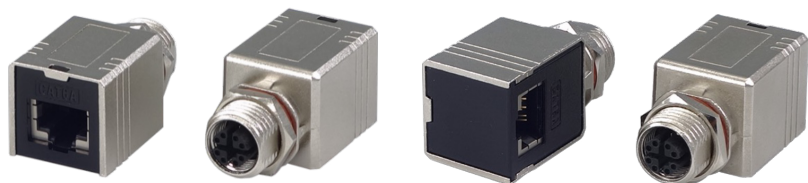
	Advantages
	Easy conversion from M12 X-code to RJ45
	Higher performance than ISO 11801 class EA
	360° shielding / protection against moisture
	Optional M12 dust cap

Specification		Type	Art. No.
Interface A:	M12 X-coded, 360° shielding, IP68 (mated)		
Interface B:	RJ45 female, IP20 (mated)		
Housing material:	Zinc die-cast	180°	M12X-RJ45-FF
IEC standards:	61076-2-109 / 60603-7-51	90°	M12X-RJ45A-FF
Order information:	OEM article / MOQ: 600 pieces		

M12 FIELD TERMINATION PLUGS X-CODED

1

2

	Advantages
	Secure locking with fixed screw
	High vibration and shock resistance
	Extremely robust
	Wire cutting function
	Designed for demanding environments

Specification		Art. No.
Connector 1:	M12 -X male, 2 parts, locking per fixed screw	
Suitable cables:	AWG26/1 - 26/7, Ø solid wire: 0.4 mm, Ø stranded wire: 0.48 mm, OD: 5-9 mm	
Transmission:	Up to 10 Gbps, PoE, PoE+, UPoE	
Temperature range:	-40°C up to +90°C	
Standards:	Category: 6_A X-Coding: IEC PAS 61076-2-109, Ethernet: IEEE 802.3an, IP67	8102
Connector 2:	M12 -X plug, Verriegelung:l ocking per fixed screw	
Suitable cables:	AWG20/1- 26/7, OD: 5.5-9 mm	
Order information:	OEM article / MOQ: 500 pieces	8102-1

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RJ45 FIELD TERMINATION PLUG ULTRA-COMPACT

TTLan

+ Advantages
Ultra-compact dimensions, space-saving
Extremely robust
Up to 5x reassemblable
Tool-free, easy assembly
UL-listed

Specification		Art. No.
Connector type:	RJ45 male, 50µ gold-plated contacts, Cat.6$_A$	
Suitable cables:	AWG26 - 22 (solid wiret), AWG27 - 22 (stranded wire), OD: 6-9 mm	
Pin-out:	EIA/TIA 568A/B and PNO	
Nominal power:	1.5A	
Mating cycles:	>750	
Temperature range:	-10°C up to +60°C	8134-1

RJ45 FIELD TERMINATION PLUGS

TTLan

1

2
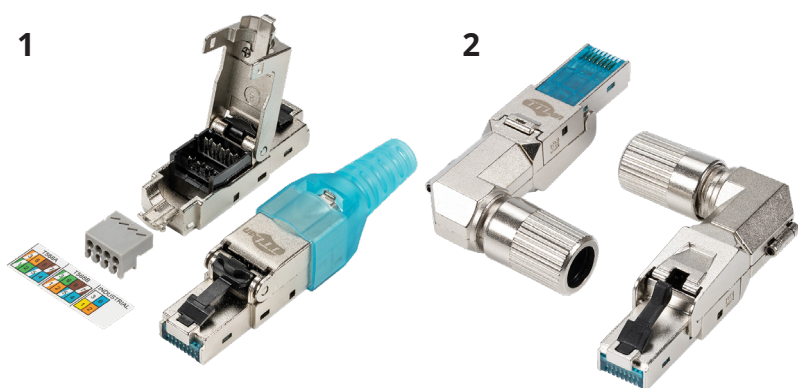
+ Advantages
Short design, space-saving
Extremely robust
Up to 5x reassemblable
Tool-free, easy assembly
UL-listed

Specification		Art. No.
Connector 1:	RJ45 male, 50µ gold-plated contacts, Cat.6$_A$	8134
Connector 2:	RJ45 male, 50µ gold-plated contacts, Cat.6A, cable outlet 360° adjustable	8135
Passende Kabel:	AWG26 - 22 (solid wire), AWG26 - 22 (stranded wire), OD: 6-9 mm	
Pin-out:	EIA/TIA 568A/B and PNO	
Nominal power:	1.5A	
Mating cycles:	>750	
Temperature range:	-10°C up to +60°C	

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M12 CONNECTION CABLES X-CODED

	Advantages
	High EMC protection
	Extremely robust
	Reliable screw locking
	Protection against moisture (IP68)

Specification		Type	Art. No.
Connector type:	M12 X-coded male / male		
Cable:	Copper, PVC jacket		
Shielded:	yes		
IP Class:	68 (in locked condition)	180°	M12X-M12X-MM-x,xM*
Order information:	OEM article / MOQ: 500 pieces	90°	M12XA-M12X-MM-x,xM*

*x,xM = Length 3.0M / 5.0M

M12 / RJ45 CONNECTION CABLES X-CODED

	Advantages
	High EMC protection
	Extremely robust
	Reliable screw locking
	Protection against moisture (M12 connector)

Specification		Type	Art. No.
Connector type:	M12 X-coded male / RJ45 male		
Cable:	Copper, PVC jacket		
Shielded:	yes		
IP Class M12:	68 (in locked condition)	180°	M12X-RJ45-MM-x,xM*
Order information:	OEM article / MOQ: 500 pieces	90°	M12XA-RJ45-MM-x,xM*

*x,xM = Length 3.0M / 5.0M

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