Neltron Industrial Co., Ltd.

M12 X-Code
Connector Introduction

M12 X-Code Connector Introduction

The M12 X-Code connector achieves excellent signal transmission by using a cross-shaped shield (X-Code) to isolate four signals. With its complete 360 ° shielding, it can achieve the best signal performance and meet CAT6A and CAT7 requirements. The M12 X-Code connector is ideal for 1GB to 10GB Ethernet applications. The M12 X-Code series complies with the IEC 61076-2-109 standard. The connector is vibration-proof and corrosion-resistant, and has an IP67 waterproof rating. These durable features make this series ideal for use in damp and harsh environments.

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M12 X Code Application Examples

Industrial

Screens

SMART Building System

Railway

M12 X Code Application Examples

Solar Energy

Renewable Energy

Wi-Fi

LED

M12 X Code Application Examples

Construction Machinery

Marine

Testing Equipment

UV Light
Water Filter System

M12 8P X-Code Specifications
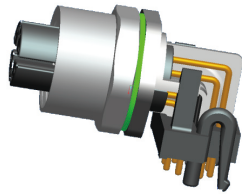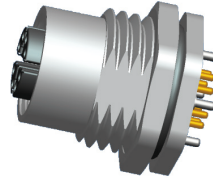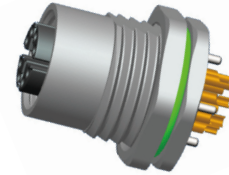
Panel Mount (Socket)

R/A Panel Mount Front Fastened PCB Dip
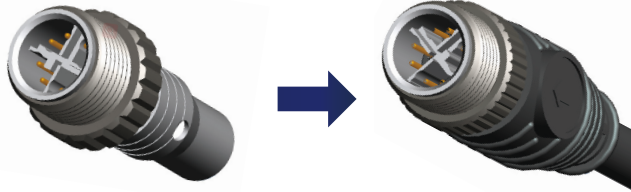120512R-08S-FX-PBS

Straight Panel Mount Front Fastened PCB Dip
120512-08S-FX-PBSX

Straight Panel Mount Front Fastened Solder
120512-08S-FX-PMSXXX

Solder (Plug)

Wire Soldering
120512-08P-X-MMS

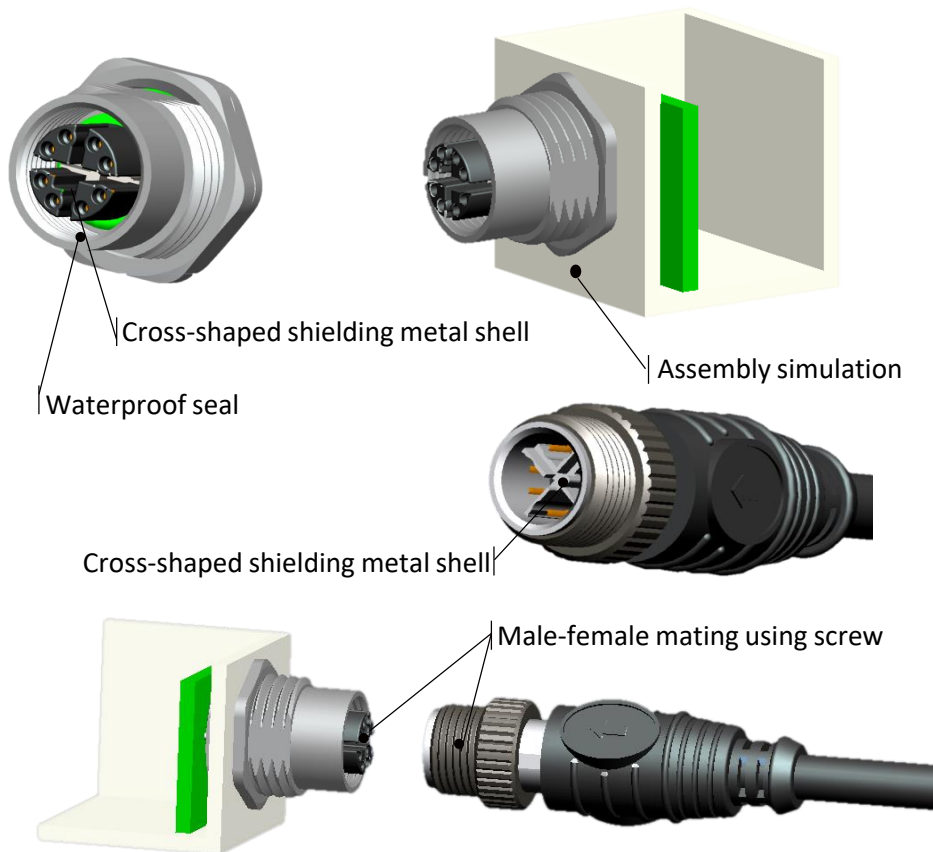| Technical Data	
Operation Standard	IEC 61076-2-109
Temperature	-25℃ ~ 90℃
Range	IP67 (Under tight lock condition)
Insulator	PA66 Black
Terminal	Brass/Gold Plated
Screw/ Screw Nut	Zinc Alloy/ Brass Nickel Plated
Seal	Silicon

M12 Code Introduction

M12 X code 8pin connectors / cables are recommended for various complex fieldbus specifications, and according to the IEC 67610-2-109 standard IP67 protection level, it was initially used as a sensor and encoder in the connection automation technology. A-code is the most commonly used interface. Because industrial Ethernet integrates multiple types of sensors in the field, in order to prevent incorrect insertion and inconvenience of installation, inefficiency and damage to unnecessary components, B-code is one of the interfaces to distinguish; D-code connector can not only be used as an error-proof mating, but also has a high transmission speed and a protection level higher than RJ45. It has a unique advantage in the field of communication; the emergence of X coding has made a big leap in data transmission. 4 pairs of data transmission can reach 10Gbit / s under the plug-in state and also applies to IP67 protection. Excellent 360 ° shielding ensures efficient electromagnetic compatibility interference and safe and reliable connection for trouble-free data transmission. The PNO user organization has formally incorporated the X-coded M12 plug connector into its wiring manual.
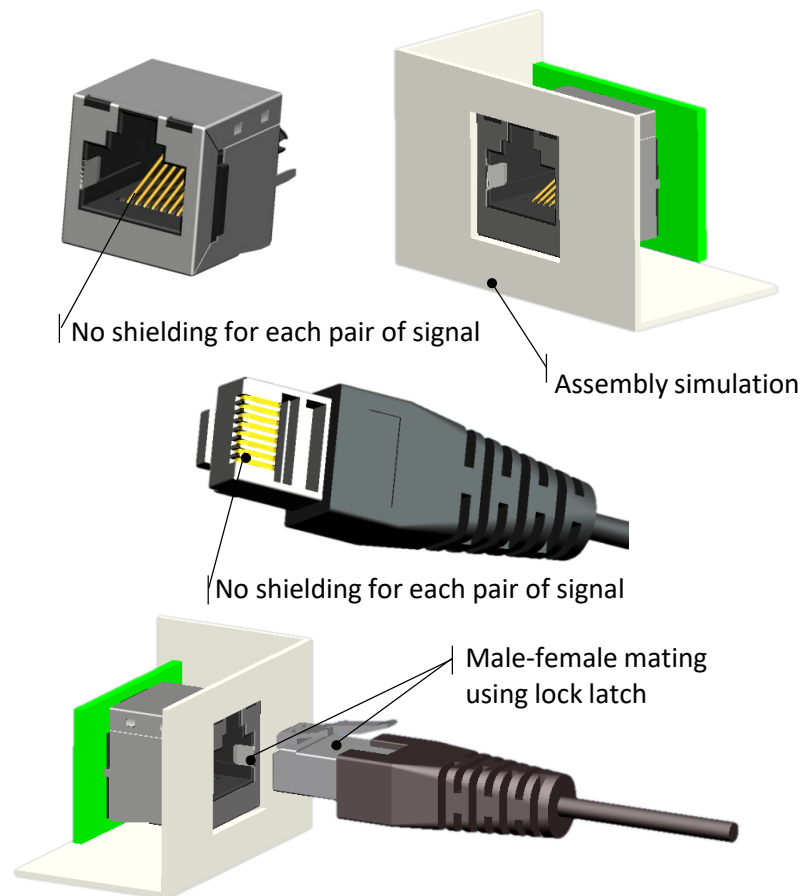
X Code		Plug			Socket		
Plug	Socket	A Code	B Code	D Code	A Code	B Code	D Code

M12 8P X-Code

Cross-shaped shielding metal shell

Waterproof seal

Assembly simulation

Cross-shaped shielding metal shell

Male-female mating using screw

1. Waterproof level – IP67

2. Screw type locking – more firm, tight, stable and anti-vibration

3. Cross-shaped shielding metal shell decreases signal loss during transmission

RJ45 8P8C

No shielding for each pair of signal

Assembly simulation

No shielding for each pair of signal

Male-female mating using lock latch

1. No waterproof function

2. Latch type locking – risk of unstable contact during vibration

3. No shielding for each pair of signal

Neltron connectors **Neltron Industrial Co., Ltd.**

M12 X-Code Connector Introduction

M12 8P X-Code Advantages

1.Smaller, M12 08P X-Code connector dimension:
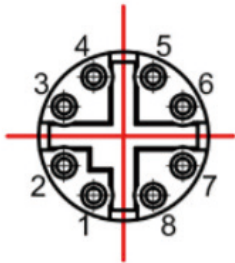

Socket

Socket

Plug
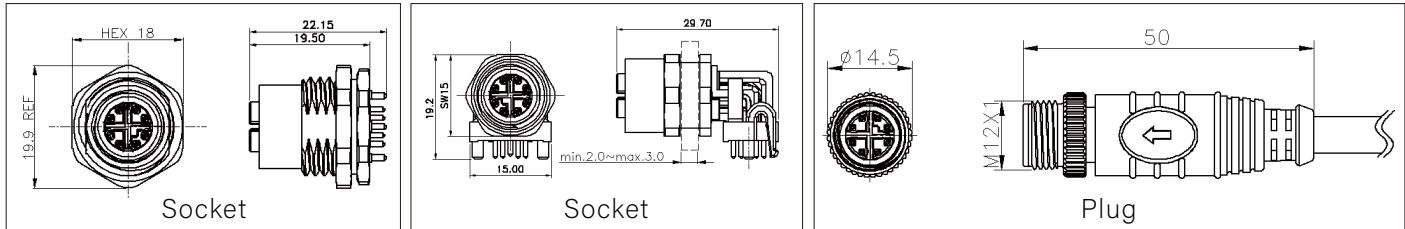
2.Tight locking mechanism through screw design, interlocking screw nut and body
3.Faster transmission speed
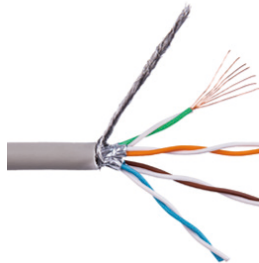   M12 D-Code transmission speed = 100Mbps
   HM12 08 X-Code transmission speed = 1Gbps-10Gbps
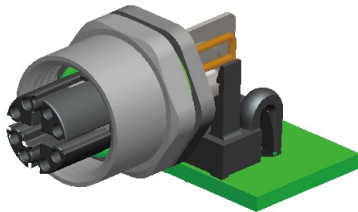
M12 X-Code 8P Pin Alignment

1.White orange
2.Orange
3.White green
4.Green
5.White brown
6.Brown
7.White blue
8.Blue

Four pairs of twisted wires reduce interference and return loss.
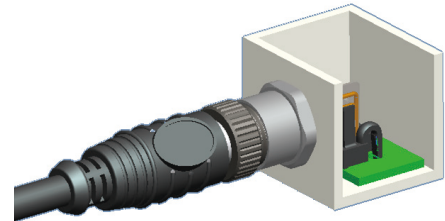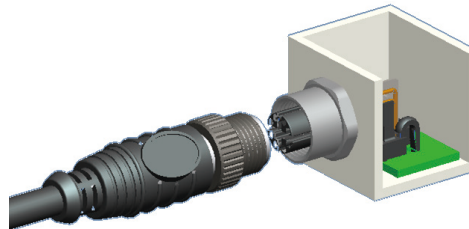Transmission speed up to 10Gbps.

R/A Panel Mount Front Fastened PCB socket & Straight Molding plug cable application simulation

M12 R/X Socket PCB Type
120512R-08S-FX-PBS
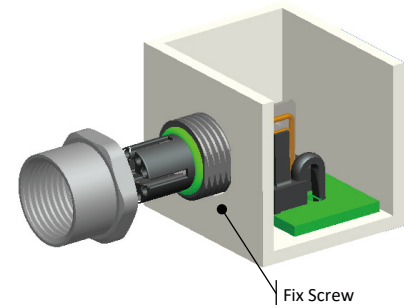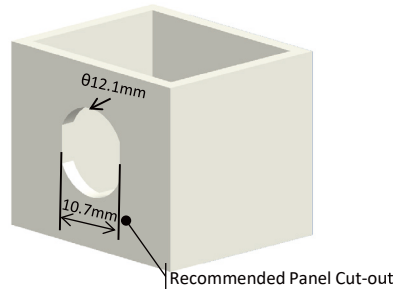
θ12.1mm

10.7mm

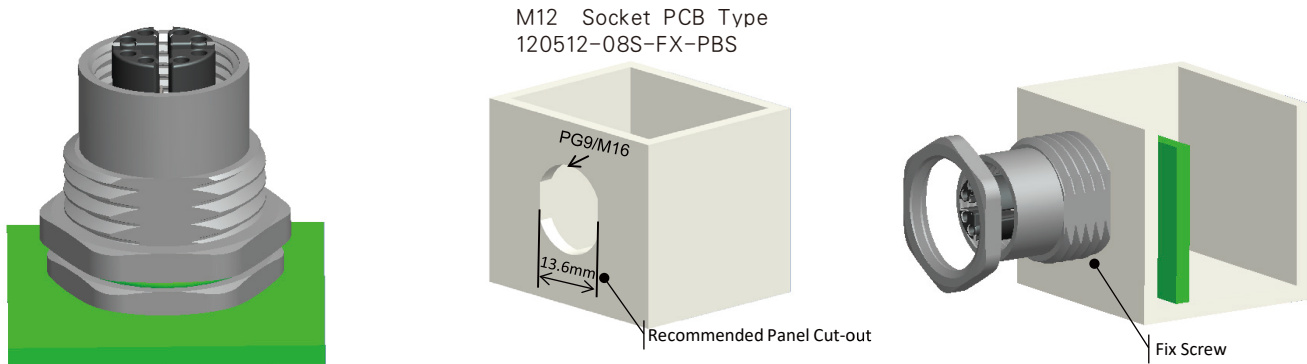Recommended Panel Cut-out

Fix Screw

M12 Socket Front Fastended

M12 Plug Solder Type
120512-08P-X-MMS
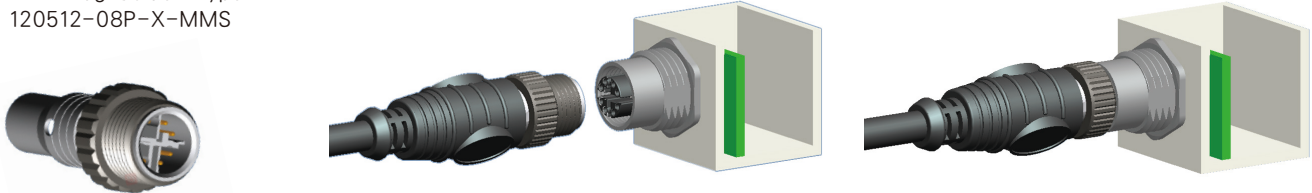

Mating View

Straight Panel Mount Front Fastened PCB socket & Straight Molding plug cable application simulation
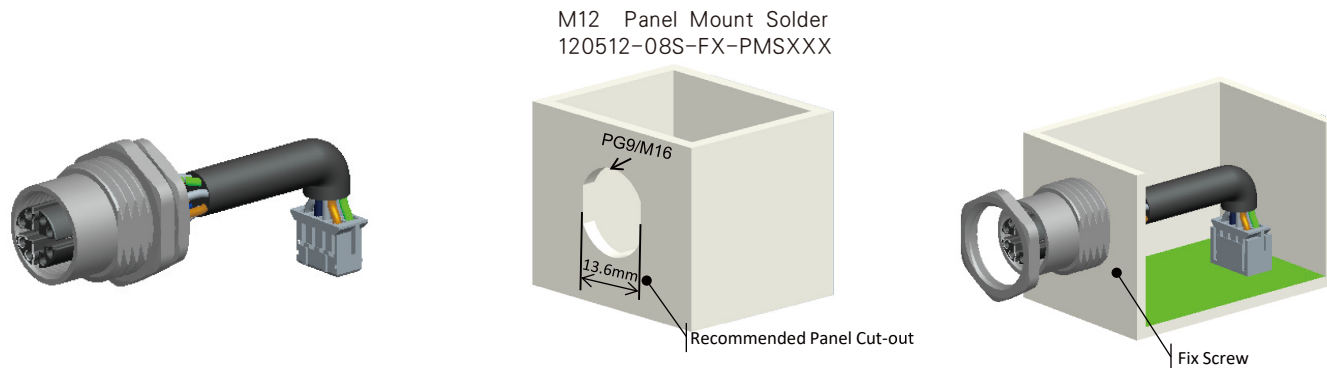

M12 Socket PCB Type
120512-08S-FX-PBS

PG9/M16

13.6mm

Recommended Panel Cut-out

Fix Screw

M12 Socket Front Fastended

M12 Plug Solder Type
120512-08P-X-MMS

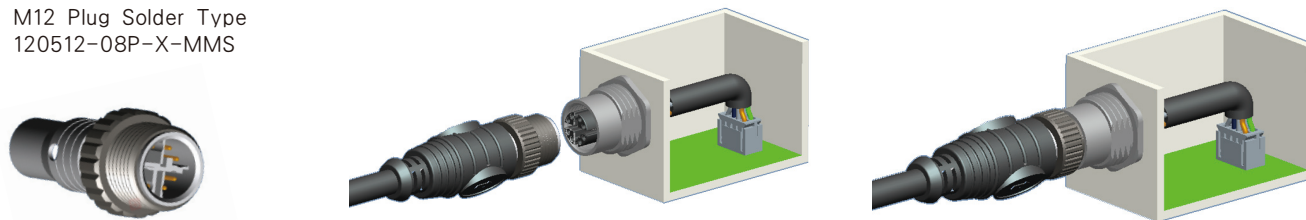## Mating View

Straight Panel Mount Front Fastened Soldering & Straight Molding plug cable application simulation

M12 Panel Mount Solder
120512-08S-FX-PMSXXX

PG9/M16

13.6mm

Recommended Panel Cut-out

Fix Screw

M12 Socket Front Fastended

M12 Plug Solder Type
120512-08P-X-MMS

Mating View

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