



M12 X-CODE CORDSETS AND M12 X-CODE TO RJ45 CORDSETS

X-code connection technology is experiencing a significant increase in interest as more companies look for higher network speeds and more reliable, high-quality data transmissions.

The 8-pin M12 X-code design is the most recent evolution in the Industrial environment which can handle 10 Gbit/s Ethernet transmission speeds.

Category 6A (Cat6A) cables usually consist of standardized twisted pair cables for Ethernet and other network layers. These can handle data rates up to 10 Gbit/s. In order to withstand these high speeds and data output, Cat6A cables have significant shielding and cable twist requirements.

The M12 X-code connector is specially developed for these requirements, whereby the channel pairs are separated and the degree of shielding in the connector itself has been increased. The new M12 X-coded cordsets, which are UL certified and have an IP67 rating for dust-tight and waterproof applications ensure efficient, high-quality and reliable connectivity and high integrity signal transmission.

TE M12 overmolded X-code cordsets series contain male straight and right angle versions that transmit data rates up to 10 Gbit/s according to IEC 61076-2-109. Our Cat6A cable jackets vary between PVC, PUR and TPE which offer a unique solution toward satisfying the stringent needs of motion systems supporting both flexing and stationary industrial high speed Ethernet requirements.

TE's portfolio is further complemented with overmolded M12 X-code to RJ45 cable assemblies which are key components to an overall Industrial Ethernet application and designed for connection within control cabinets, machinery and outdoor applications. This further simplifies the concurrent use of both connector types (M12 & RJ45) within a single system.

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APPLICATIONS

- Vision systems and cameras
- Industrial communications
- Industrial machinery
- Robotics
- Material handling
- Test equipment
- I/O connectivity
- Data acquisition

BENEFITS

- Unit remains protected & fully operational in most industrial applications
- Secured signal connections and data transmission
- Ensure the application of cable assembly in flexible installation environment
- Ensure the application of cable assembly in Torsion application environment
- Oil-resistant for in oil industrial applications
- Application of UV-resistant environment

FEATURES

- Enclosure rating of IP67
- 360 degrees shielding
- PUR cables suitable for drag chain application (up to 3 million cycles)
- TPE cables suitable for drag chain (up to 1 million cycles) and torsion applications (up to 3 million cycles)
- Oil resistant for PUR/TPE cable
- UV resistant for PUR/TPE/PVC cable
- **Flame retardant:**
 - CM for PVC/TPE cable
 - FT2 for PUR cable

ELECTRICAL

- **Rated voltage:** 30V
- **Rated current:** 0.5A
- **Initial value contact resistance:** 15mΩ Max.
- **Rated impulse voltage:** 0.5KV"

MECHANICAL

- **Durability:** 100 cycles
- **Degree of protection:**
 - IP67 for M12 X-code (mated)
 - IP20 for RJ45 side
- **Mating and un-mating force:**
 - **Insertion:** 30N max.
 - **Withdraw:** 30N max.
- Sinusoidal vibration per IEC60512, test 6d
- Mechanical shock per IEC60512, test 6c

MATERIALS

- Nylon for HSG
- TPU for TPE/PUR cable overmolding
- PVC for PVC cable overmolding
- Zinc alloy for metal nuts and shielded shell, Nickel plated for metal nut, Tin plated for shielded shell
- Copper alloy for terminals, 30um gold plated
- **Temperature rating:**
 - X-code connector: -25...-85°C
 - RJ45 connector: -25...-60°C
 - **Cable:** -25...-80°C (MOVED)
-40...-80°C (FIXED)

STANDARDS

- UL1863
- UL444 for PVC/TPE cable
- UL758 for PUR cable

SPECIFICATIONS

- IEC 61076-2-109 for M12 X-code
- IEC60603-7 for RJ45

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M12 X-CODE SINGLE AND DOUBLE END CORDSETS - PRODUCT CODE

T A X S B X W Y O M N -XXX

T	TE Brand
A	M12 series
X	X-code

S	Application Type
3	Shielding Industrial Ethernet Cate 6A

B	Poles No.
8	8 Poles

X	Interface Type
1	Male straight
2	Male angled
7	Male straight to male straight
8	Male straight to male angled
B	Male angled to male angled

W	Wire Gauge
2	26 AWG

Y	Cable Jacket
1	PVC Moderate flexible
5	PUR High flex
A	TPE Extreme high flex

O	Cable Color
1	Green (for PVC & PUR)
2	Teal (only for TPE)

M	Over-Molding
0	Black TPU Over-molding for TPE/PUR cable
1	Black PVC Over-molding for PVC cable

N	Other
2	Zinc alloy screw nut with nickel plated Maching terinal 30u" AU plated

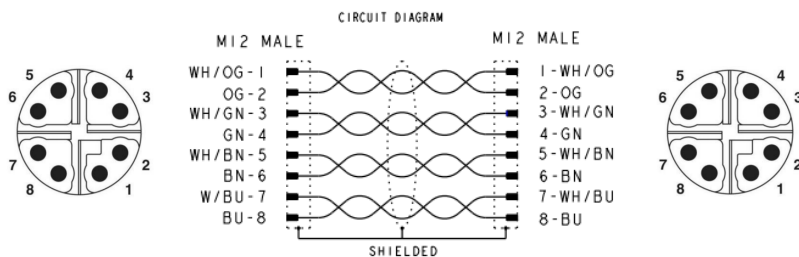
-00L	Cable Length
-001	0.5M
-002	1.0M
-003	1.5M
-020	2.0M
-004	3.0M
-005	5.0M
-006	7.0M
-007	10.0M
-150	15.0M

-XXX	Customized Cable Length
-XX0	XX.0M
-XX5	XX.5M
-99X	(<1M) 0.XM
-993	0.3M
-155	15.5M

M12 X-CODE CORDSET - WIRING SCHEMA

Wiring Diagram - M12 PUR/TPE Cordset Shielded, Double Ended		
From Pin	8 Poles	To Pin
1	White/Orange	1
2	Orange	2
3	White/Green	3
4	Green	4
5	White/Brown	5
6	Brown	6
7	White/Blue	7
8	Blue	8
Shielded	Metal nut	Shielded

Wiring Diagram - M12 PVC Cordset Shielded, Double Ended		
From Pin	8 Poles	To Pin
1	White	1
2	Orange	2
3	White	3
4	Green	4
5	White	5
6	Brown	6
7	White	7
8	Blue	8
Shielded	Metal Nut	Shielded



M12 X-code Cordsets and M12 X-code to RJ45 Cordsets

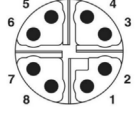

M12 X-CODE TO RJ45 CORDSETS - PRODUCT CODE

T C X S B X W Y O M N -XXX

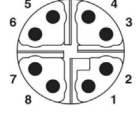

T	TE Brand	Y	Cable Jacket	-00L	Cable Length
C	M12 TO RJ45	1	PVC Moderate flexible	-001	0.5M
X	X-code	5	PUR High flex	-002	1.0M
		A	TPE Extreme high flex	-003	1.5M
S	Application Type			-020	2.0M
3	Shielding industrial ethernet Cate 6A	O	Cable Color	-004	3.0M
		1	Green (for PVC & PUR)	-005	5.0M
B	Poles No.	2	Teal (only for TPE)	-006	7.0M
8	8 Poles			-007	10.0M
		M	Over-Molding	-150	15.0M
X	Interface Type	0	Black TPU Over-molding for TPE/PUR cable	-XXX	Customized Cable Length
7	Male straight to RJ45 Male straight	1	Black PVC Over-molding for PVC cable	-XX0	XX.0M
8	Male angled TO RJ45 Male straight			-XX5	XX.5M
		N	Other	-99X	(<1M) 0.XM
W	Wire Gauge	2	Zinc alloy screw nut with nickel plated Maching terinal 30u" AU plated	-993	0.3M
2	26 AWG			-155	15.5M

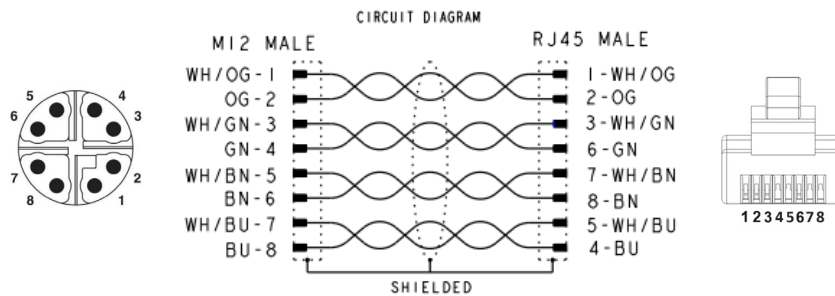
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M12 X-CODE MALE TO RJ45 MALE CORDSETS - WIRING SCHEMA FOR TPE & PUR

Wiring Diagram - M12 PUR/TPE Cordset Shielded, Double Ended		
From X-code Pin	8 Poles	To RJ45 Pin
		
1	White/Orange	1
2	Orange	2
3	White/Green	3
4	Green	4
5	White/Brown	5
6	Brown	6
7	White/Blue	7
8	Blue	8
Shielded	Metal nut	Shielded

M12 X-CODE MALE TO RJ45 MALE CORDSET - WIRING SCHEMA FOR PVC

Wiring Diagram - M12 PVC Cordset Shielded, Double Ended		
From X-code Pin	8 Poles	To RJ45 Pin
		
1	White	1
2	Orange	2
3	White	3
4	Green	6
5	White	7
6	Brown	8
7	White	5
8	Blue	4
Shielded	Metal Nut	Shielded





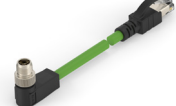




M12 X-code Cordsets and M12 X-code to RJ45 Cordsets



PART NUMBER LIST

Part Number	Part Description	Application	Code	POS	Type	Cable Material	Shielded
TAX3812A202-002	M12X-MS-8CON-TPE-1.0SH	Ethernet up to 10 Gb/s data transmission	X-code	8	Male Straight (MS)	TPE	Yes
TAX3822A202-002	M12X-MR-8CON-TPE-1.0SH				Male Right Angle (MR)		
TAX3872A202-002	M12X-8MS-1.0SH-M12X-8MS-TPE				MS - MS		
TAX38B2A202-002	M12X-8MR-1.0SH-M12X-8MR-TPE				MR - MR		
TAX3882A202-002	M12X-8MS-1.0SH-M12X-8MR-TPE				MS - MR		
TCX3882A202-002	M12X-8MR-1.0SH-RJ45-8MS-TPE				MR - Straight RJ45		
TCX3872A202-002	M12X-8MS-1.0SH-RJ45-8MS-TPE				MS - Straight RJ45		

M12 X-code Cordsets and M12 X-code to RJ45 Cordsets

Part Number	Part Description	Application	Code	POS	Type	Cable Material	Shielded
TAX38125102-002	M12X-MS-8CON-PUR-1.0SH	Ethernet up to 10 Gb/s data transmission	X-code	8	Male Straight (MS)	PUR	Yes
TAX38121112-002	M12X-MS-8CON-PVC-1.0SH					PVC	
TAX38225102-002	M12X-MR-8CON-PUR-1.0SH				Male Right Angle (MR)	PUR	
TAX38221112-002	M12X-MR-8CON-PVC-1.0SH					PVC	
TAX38725102-002	M12X-8MS-1.0SH-M12X-8MS-PUR				MS - MS	PUR	
TAX38721112-002	M12X-8MS-1.0SH-M12X-8MS-PVC					PVC	
TAX38825102-002	M12X-8MS-1.0SH-M12X-8MR-PUR				MS - MS	PUR	
TAX38821112-002	M12X-8MS-1.0SH-M12X-8MR-PVC					PVC	
TCX38825102-002	M12X-8MR-1.0SH-RJ45-8MS-PUR				MR - MS	PUR	
TCX38821112-002	M12X-8MR-1.0SH-RJ45-8MS-PVC					PVC	
TCX38725102-002	M12X-8MS-1.0SH-RJ45-8MS-PUR				MS - Straight RJ45	PUR	
TCX38721112-002	M12X-8MS-1.0SH-RJ45-8MS-PVC					PVC	
TAX38B25102-002	M12X-8MR-1.0SH-M12X-8MR-PUR				MR - MR	PUR	
TAX38B21112-002	M12X-8MR-1.0SH-M12X-8MR-PVC						

CABLE MATERIAL

PUR	PVC
	
	

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-00L	Cable Length
-001	0.5M
-002	1.0M
-003	1.5M
-020	2.0M
-004	3.0M
-005	5.0M
-006	7.0M
-007	10.0M
-150	15.0M
-XXX	Customized Cable Length
-XX0	XX.0M
-XX5	XX.5M
-99X	(<1M) 0.XM
-993	0.3M
-155	15.5M

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