M12 INDUSTRIAL ETHERNET CABLE ASSEMBLY CONNECTIVITY

TE Connectivity now offers M12 data cable assemblies that support Ethernet protocols as part of its package of Industrial Ethernet and Fieldbus solutions. This makes it the one-stop shop for M8/M12 cable assemblies for Industrial Network communications.

TE has enriched its already large offering in Fieldbus connectivity solutions (based on Profibus, DeviceNet, CanOpen and CC-link) with Industrial Ethernet protocols such as Profinet, EtherCAT, Ethernet/IP and SERCOS-III.

TE's new D-coded M12 cable assemblies offer multiple options for a variety of needs that makes TE a one-stop shop. They have 360-degree shielding against EMI for complete protection for data transmission, and are rated IP67 for resistance to dust and water. The assemblies are overmolded in either PVC or halogen-free polyurethane (PUR) cables, suitable for high flex and torsional stress, depending on customer performance requirements.

Ethernet is rapidly becoming the technology of choice for higher-level industrial control applications that call for real-time data. TE's M12 Ethernet cable assemblies deliver the speed, reliability and ruggedness that smart factories demand and they will play an important role in bringing the Industrial Internet of Things to life.

Assemblies are produced in various customer-specific plug-and-play configurations to enable design flexibility and quick installation in most industrial environments.

TE's Ethernet M12 cable assemblies are available as single-ended or double-ended, in straight and angled versions, all shielded variants. Various cable types are offered depending on the application requirements. The predefined offering in length of 0.5, to 30 meters covers a vast range of customer needs on the market, while customized cable assemblies in different lengths provide a solution for specific needs. All can be used in combination with TE's male/female connectors.

APPLICATIONS

- Industrial Communications
- Process control systems
- Industrial Machinery
- Industrial Automation
- Machine tools
- Robotics
- Material Handling

FEATURES

- Jacketing is in halogen-free flame-retardant thermoplastic polyurethane (PUR) or other FRNC (flame retardant, non-corrosive) materials.
- PVC provides a competitive and economic solution for occasional movement or vibration, but PUR is more suited to more demanding applications in for example, drag chains and harsh environments where operational reliability is crucial.
- Depending on the material, the assemblies withstand up to 1 million flexes, machine oils, abrasion and UV radiation.
- Category 5e cables can realize transmission rates of 100Mbps to meet network requirements in the field and at supervisory management levels.
- The new assemblies are available with several standard cable length options from 0.5m through to 30m.

MATERIALS

- Contact: Brass, Gold Plating 30um
- Nut & Shells: Brass, Nickel plating
- O-ring: Silicon rubber
- Over-molding: PUR/PVC
- Housing: PA
- Cable Jacket materials: PUR,PVC, FRNC

ELECTRICAL

- M12 D code 4 poles:30V/1.5A

MECHANICAL

- Durability: 100 cycles (up to 1M for drag chain cable)
- Degree of protection: IP67
- Temperature Ratings:
- Industrial Ethernet SERCOS III Type B PVC:
    - Operating temperature -40°C to +80°C (fixed)
      -20°C to +60°C (flexible)

- Industrial Ethernet Profinet Type B PVC:
    - Operating temperature -40°C to +80°C (fixed)
      -20°C to +60°C (flexible)

- Industrial Ethernet Profinet Type C PUR:
    - Operating temperature -30°C to +70°C (fixed)
      -20°C to +60°C (flexible)

- Industrial Ethernet Profinet Type B FRNC:
    - Operating temperature -25°C to +80°C (fixed)
      -25°C to +80°C (flexible)

SPECIFICATIONS

- UL1863
- IEC 61076-2-101: Detail specification for M12 connectors with screw-locking(but True Position 0.1mm requirement for male side is not required)
- IEC 60512: Electromechanical Components For Electronic Equipment; Basic Testing Procedure and Measuring Methods
- IEC-60529: Degree of Protection Provided by Enclosures(IP Code)
- ISO/IEC 11801 category 5e

M12 Industrial Ethernet Cable Assembly Connectivity

PRODUCT OFFERINGS - M12 ETHERNET CABLE ASSEMBLIES SINGLE ENDED TYPE C PUR

Part Number	Part Description	Application	Code	POS	Type	Cable Material	Shielded
TAD14145101-001	M12D4-MS-PUR TYPE C GREEN-0.5M	Profinet, EtherCAT , Ethernet/IP (up to 100Mbs)	D	4	Male Straight / Male R/A	CAT5E TYPE C, PUR, 22AWG, GREEN	Yes
TAD14245101-001	M12D4-MR-PUR TYPE C GREEN-0.5M						

PRODUCT OFFERINGS - M12 ETHERNET CABLE ASSEMBLIES DOUBLE ENDED TYPE C PUR

Part Number	Part Description	Application	Code	POS	Type	Cable Material	Shielded
TAD14745101-001	M12D4-MS-MS-PUR TYPE C GREEN-0.5M	Profinet, EtherCAT , Ethernet/IP (up to 100Mbs)	D	4	MS-MS / MS-MR	CAT5E TYPE C, PUR, 22AWG, GREEN	Yes
TAD14845101-001	M12D4-MS-MR-PUR TYPE C GREEN-0.5M						

PRODUCT OFFERINGS - M12 ETHERNET CABLE ASSEMBLIES SINGLE ENDED TYPE B FRNC

Part Number	Part Description	Application	Code	POS	Type	Cable Material	Shielded
TAD14147101-001	M12D4-MS-FRNC TYPE B GREEN-0.5M	Profinet, EtherCAT , Ethernet/IP (up to 100Mbs)	D	4	Male Straight / Male R/A	CAT5E TYPE B, FRNC, 22AWG, GREEN	Yes
TAD14247101-001	M12D4-MR-FRNC TYPE B GREEN-0.5M						

PRODUCT OFFERINGS - M12 ETHERNET CABLE ASSEMBLIES DOUBLE ENDED TYPE B FRNC

Part Number	Part Description	Application	Code	POS	Type	Cable Material	Shielded
TAD14747101-001	M12D4-MS-MS-FRNC TYPE B GREEN-0.5M	Profinet, EtherCAT , Ethernet/IP (up to 100Mbs)	D	4	MS-MS / MS-MR	CAT5E TYPE B, FRNC, 22AWG, GREEN	Yes
TAD14847101-001	M12D4-MS-MR-FRNC TYPE B GREEN-0.5M						

PRODUCT OFFERINGS - M12 ETHERNET CABLE ASSEMBLIES SINGLE ENDED TYPE B PVC

Part Number	Part Description	Application	Code	POS	Type	Cable Material	Shielded
TAD14141111-001	M12D4-MS-PVC TYPE B-0.5M	Profinet, EtherCAT , Ethernet/IP (up to 100Mbs)	D	4	Male Straight / Male R/A	CAT5E TYPE B, PVC, 22AWG, GREEN	Yes
TAD14241111-001	M12D4-MR-PVC TYPE B-0.5M						

PRODUCT OFFERINGS - M12 ETHERNET CABLE ASSEMBLIES DOUBLE ENDED TYPE B PVC

Part Number	Part Description	Application	Code	POS	Type	Cable Material	Shielded
TAD14741111-001	M12D4-MS-MS-PVC TYPE B-0.5M	Profinet, EtherCAT , Ethernet/IP (up to 100Mbs)	D	4	MS-MS / MS-MR	CAT5E TYPE B, PVC, 22AWG, GREEN	Yes
TAD14841111-001	M12D4-MS-MR-PVC TYPE B-0.5M						

PRODUCT OFFERINGS - M12 ETHERNET CABLE ASSEMBLIES SINGLE ENDED TYPE B PVC RED

Part Number	Part Description	Application	Code	POS	Type	Cable Material	Shielded
TAD14141311-001	M12D4-MS-PVC TYPE B RED-0.5M	SERCOS-III (up to 100Mbs)	D	4	Male Straight	CAT5E TYPE B, PVC, 22AWG, RED	Yes
TAD14241311-001	M12D4-MR-PVC TYPE B RED-0.5M				Male R/A		

PRODUCT OFFERINGS - M12 ETHERNET CABLE ASSEMBLIES DOUBLE ENDED TYPE B PVC RED

Part Number	Part Description	Application	Code	POS	Type	Cable Material	Shielded
TAD14741311-001	M12D4-MS-MS-PVC TYPE B RED-0.5M	SERCOS-III (up to 100Mbs)	D	4	MS-MS	CAT5E TYPE B, PVC, 22AWG, RED	Yes
TAD14841311-001	M12D4-MS-MR-PVC TYPE B RED-0.5M				MS-MR		

00L	Cable Length
-001	0.5M
-002	1.0M
-020	2M
-040	4.0M
-060	5.0M
-080	8.0M
-007	10.0M
-150	15.0M
-200	20.0M
-250	25.0M
-300	30.0M

-XXX	Customized Cable Length
-XX0	XXM
-XX5	XX.5M

Application	Code	Pin Assignment	Male	Female	Shielding
Ethernet	D code	(For Profinet/EtherCAT): PIN 1 TD+ YELLOW PIN 3 TD- ORANGE PIN 2 RD+ WHITE PIN 4 RD- BLUE (For Ethernet/IP): PIN 1 TD+ WHITE-ORANGE PIN 3 TD- ORANGE PIN 2 RD+ WHITE-GREEN PIN 4 RD- GREEN			Optional on metal nut
CC-link	A code	PIN 1 DRAIN BARE PIN 2 DS WHITE PIN 3 DG YELLOW PIN 4 DA BLUE			On metal nut
Profibus	B code	PIN 2 DATA CORE A GREEN PIN 4 DATA CORE B RED			On metal nut
Devicenet/ Canopen	A code	PIN 4 CAN_H WHITE PIN 5 CAN_L BLUE PIN 1 DRAIN BARE PIN 3 V- BLACK PIN 2 V+ RED			On metal nut