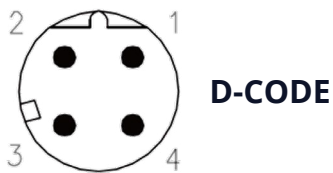**molex**

M12 Data Connectors and Cable Assemblies ❯

Engineered for longevity and rugged reliability, M12 Data Connectors and Cable Assemblies support Ethernet for fast and consistent connections between field devices. Compact IP67-rated connectors and cables are optimized to provide high signal integrity and minimize data errors, improving dependability in harsh conditions and demanding applications.

ADVANTAGES AND FEATURES

D-CODE

Coding	D-code
IEC Specification	61076-2-101
Current	Up to 1.5A
Voltage	Up to 30V
Poles	4
Ingress Protection Rating	IP67 (M12) or IP20 (RJ45)
Data Rate (max.)	100Mbps
Operating Temperatures	-25 to +85°C (with exceptions)

Enables fast and reliable Ethernet connectivity
M12 D-code connectors deliver up to 100Mbps data rates and limit data loss, supporting efficient and stable Fast Ethernet functionality for connecting field devices in industrial networks such as EtherNet/IP and PROFINET systems.

Delivers robust reliability in harsh environments
Connectors and cables are engineered with durable materials to withstand challenging industrial environments, ensuring longevity while reducing maintenance costs and system downtime.

Withstands dust and water ingress
M12 D-code connectors are rated IP67 for ingress protection, providing resistance to dust and water for maintaining consistent performance in challenging conditions.
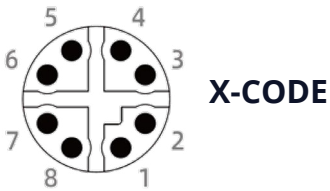
Simplifies installation
The quick-connect design minimizes installation time and effort, facilitating rapid deployment.

Maximizes space efficiency
The compact circular form factor integrates easily into existing setups and enhances functionality in limited spaces.

M12 Data Connectors and Cable Assemblies ❯

X-CODE

Coding	X-code
IEC Specification	61076-2-109
Current	Up to 0.5A
Voltage	42 to 57V
Poles	8
Ingress Protection Rating	IP67 (M12) or IP20 (RJ45)
Data Rate (max.)	10Gbps
Operating Temperatures	-25 to +85°C (with exceptions)

Delivers high-speed performance for modern industrial networks
M12 X-code connectors support data speeds up to 10Gbps, enabling fast and efficient data transfer in time-sensitive and high-data-volume applications.

Improves system reliability
Robust and reliable components are built to endure mechanical stress and environmental challenges, delivering consistent performance.

Enhances EMI/RFI protection
Superior shielding ensures high signal integrity and helps minimize data errors in electronically noisy environments.

Streamlines upgrades and network expansion
The standard M12 form factor maintains compatibility with existing infrastructure and enables space savings. A versatile selection of connectors and adapters improves design flexibility while supporting seamless upgrades.

Ensures consistent performance in harsh conditions
IP67-rated sealed connectors protect against dust and water ingress, enhancing reliability in industrial environments.

CHT

Coding	CHT
IEC Specification	61076-2-101
Current	Up to 6.0A (power), up to 0.5A (signal)
Voltage	Up to 30V
Poles	8
Ingress Protection Rating	IP67
Data Rate (max.)	1Gbps
Operating Temperatures	-25 to +75°C (with exceptions)

Simplifies cabling and system design
M12 CHT connectors combine Ethernet and power into a single connector, reducing cabling system complexity and clutter while improving installation efficiency.

Maintains consistent connectivity
Engineered to withstand mechanical stress, vibration and extreme temperatures, M12 CHT connectors improve reliability, minimizing downtime and reducing maintenance costs.

Withstands dust and water ingress
Superior IP67-rated environmental sealing supports use in demanding industrial environments.

Optimizes space efficiency
Using a single, compact M12 connector for both power and Ethernet connections improves system design flexibility and reduces space usage without compromising on power or data transmission performance.

Reduces installation and maintenance requirements
By combining multiple connectors, total cost of ownership is reduced through lower material costs, faster installation and simplified maintenance.

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M12 Data Connectors and Cable Assemblies ❯

MARKETS AND APPLICATIONS

Industrial Automation
Assembly lines
Automated production facilities
Automated warehouses
Manufacturing facilities
Robotics

Automotive
Automotive manufacturing plants
Industrial Ethernet switches
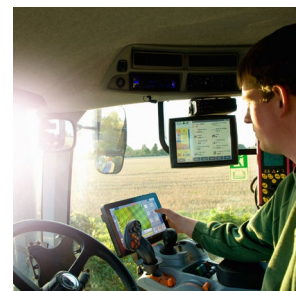Routers
Smart warehouses

Agricultural Machinery
Construction vehicles
Forestry equipment
Heavy machinery
Mining equipment
Onboard vehicle networking

Robotics

Automotive Manufacturing Plants

Onboard Vehicle Networking

SPECIFICATIONS

Reference Information
Packaging: Dependent on component
Designed in: Millimeters
RoHS: Compliant by exemption
Halogen Free: Varies by component
Mates With: M12 cordsets, receptacles
  and message-passing interfaces (MPI) I/O
  blocks (dependent on coding), RJ45 jacks
IEC Specification: 61076-2-101
UL File: E218123 (CHT)

Electrical
Voltage (max.): 30V (D-code, CHT) or 57V (X-code)
Current (max.): 1.5A (D-code) or 0.5A (X-code, CHT)
Data Rate (max.): 100Mbps (D-code), 10Gbps
  (X-code) or 1Gbps (CHT)

Mechanical
Coding: D-code, X-code, CHT
  (other coding options available
  for power and signal applications)
Poles: 4 (D-code), 8 (X-code, CHT)
CAT5e Data Lines: 4-pin array with wrap-around
  metal tube shielding
Ingress Protection Rating: IP67 (M12) or IP20 (RJ45)
Durability (min.): 100 mating cycles

Physical
Coupling Nut: Brass, nickel-plated brass
  (dependent on coding)
Insert: Plastic, PUR (dependent on coding)
Overmold: Plastic, TPU (dependent on coding)
Contact: Copper alloy
Contact Plating: Gold over nickel
Operating Temperatures: -25 to +85°C
  (D-code, X-code) or -25 to +75°C (CHT)
  (each with exceptions)

www.molex.com