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SENSOR CABLES AND CONNECTORS

MURR ELEKTRONIK

LÜTZE SYSTEMATIC TECHNOLOGY

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Circular Connection Cables

What are sensor cables and connectors?

Circular connection cables with connectors provided by AutomationDirect are high-quality pre-made cables specifically designed to provide interconnection between a sensor and a control or monitoring device. These cables are pre-terminated with connectors for a quick and secure connection ensuring reliable power source or data transmissions.

The connectors provide efficient and reliable connections for power and status signals to panel-mounted or field devices including sensors, actuators, solenoids, and more. These cables are available in a variety of connector configurations.

M8 and M12 Connector Differences

M8 and M12 connectors are the most commonly used type of connectors for today's industrial automation and controls applications. The M8 or M12 classification refers to the size of the connector. An M8 connector has an 8mm circular connector, while the M12 has a 12mm circular connector. Of course, to select the proper connector cable you must refer to the specific devices that will be connected together to make sure to match correctly each device's connector.

In addition, M8 and M12 connectors are available with either straight axial configuration for installations without obstructions, or a right-angle style that provides convenience for installations with tight space or obstructions.

Another version offers a connector on one end and an open leads pigtail on the other end, to allow users to install a preferred connector or connect the pigtail wires directly to a device's terminal connector.

Other features to consider with these cables include:

- **Male or Female Connectors:** Cables should match device connectors for proper installation. Cables are available with male to male, male to female, or female to female connectors; or with male to pigtail or female to pigtail configurations.
- Shielded or unshielded
- Various lengths, colors, and pole configurations
- Also available with a connector to RJ45 configuration
- Specific coding designs (see below)

Cables with Coded Connectors

Coded connectors provide important standardization for automation and industrial applications by ensuring compatibility between device connections and safety by preventing incorrect connections to power or data signals.

Coding for M8 and M12 connectors prevent the connection of two differently coded connectors. For example, coding can prevent a cable supplying 120V power to be mated with a cable supplying data transmissions.

Our current offering of coded cables include the following:

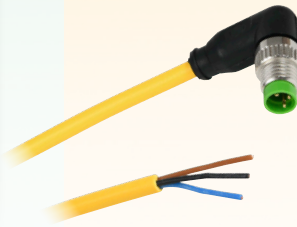| Coding	Description	Key
A-Coded	Most common connector key type. Typically used for sensors, actuators, and other industrial devices	
D-Coded	Typically used for Ethernet data type connections with transfers of up to 100Mb	
L-Coded	Used to supply power for devices such as motors, drives and others where higher voltages and current are required.	
X-Coded	Used to transmit large amounts of data at high speeds of up to 1 Gb	

Sensor/Signal Connection Cables

Pre-made cables for power, sensors and other signals provide quick and easy connections for field devices including sensors, actuators, solenoids, and more. These cables are available in various connector configurations to accommodate many panel and field wiring needs.

A-Coded Sensor/Signal Cables with M8/M12 Connectors to Pigtail

A-coded sensor and signal pre-made cables offer industry-standard M8/M12 straight axial or right-angle M8 connectors on one end and open leads pigtail on the other end.

- Available with PUR/PVC jacket for oily and drag chain applications; PUR/PP jacket for oily, direct sunlight, and robotic applications with low temperatures; or PVC/PVC jacket for general use
- Up to 5 poles (M8) or 12 poles (M12)
- Female or male connector options
- Gray, black or yellow outer jacket colors
- Lengths up to 10m (32.8 ft.)

A-Coded Sensor/Signal Cables with M8 Male to Female Connectors

A-coded sensor and signal pre-made cables offer industry-standard M8 straight axial or right-angle connectors configured for male to female connections.

- Available with PUR/PVC jacket for oily and drag chain applications; PUR/PP jacket for oily, direct sunlight, and robotic applications with low temperatures; or PVC/PVC jacket for general use
- 3-pole configuration
- Male to female connector options in either straight axial or right-angle connectors
- Gray or yellow outer jacket colors
- Lengths up to 3m (9.84 ft.)

A-Coded Shielded Sensor Cables with M12 Connectors to Pigtail

A-coded M12 shielded cables offer a braided shield within the jacket connected to the coupling nut. These pre-made cables have either an M12 straight axial or right-angle connector on one end, and open leads pigtail on the other end.

- Available with PUR/PVC jacket for oily and drag chain applications: or PUR jacket for oily, direct sunlight, and robotic applications
- Up to 8 poles depending on model
- Female connectors
- Gray outer jacket
- Lengths up to 10m (32.8 ft.)

Sensor Cables with LED and M12 Connectors

- PUR jacket for oily, direct sunlight, and robotic applications
- 4 pole connectors
- Right-angle female connectors on both ends
- Lengths up to 10m (32.8 ft.)
- Nominal voltage of 10-36 VDC with LED indication for PNP sensors only

M12 A-Coded Field Wireable Signal Connectors

Murrelektronik M12 A-coded field wireable signal connectors allow users to make custom connector terminations to best fit their signal application. These connectors are available with screw terminal connection or push-lock spring clamp connection.

M8/M12 IDC Field Wireable Connectors

These unshielded A-coded M8/M12 IDC field wireable connectors work similarly to the RJ45 IDC connectors.
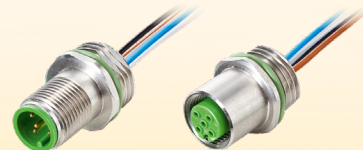
M8/M12 T-Couplers

T-couplers provide an easy way to split power to multiple devices or to bring multiple device signals into a wiring block. T-couplers are available in a variety of sizes and pole configurations.

M8/M12 Bulkhead Connectors

Standard M8/M12 bulkhead connectors are field-wireable receptacles that provide a mating point for cables, for applications such as custom patch cables or wiring through a panel. Connectors with lead wires are available in various lengths and a variety of pole configurations.

Low-Cost Connection Cables,

In Stock and Ready to Ship

Data Connection Cables

Industrial Ethernet data cables are used to transmit up to 10 Gigabit Ethernet signals (depending on cable type) in industrial environments. These cables are available in various connector configurations to suit your specific applications.

M12 D-Coded Shielded Industrial Ethernet Cables

Murrelektronik M12 D-coded industrial shielded cables provide easy connection to devices supporting data communications. The D-coded configuration is usually designated for connectors used for Ethernet or ProfiNet network systems.

- High flex industrial Ethernet Cat5e shielded cable
- Up to 15m / 49.2ft lengths
- Up to 100Mbps full duplex communication
- TPE (thermoplastic elastomer) jacket
- Flame retardant and resistant to welding sparks and chemicals
- Connector types include M12 straight or right-angle, and RJ45

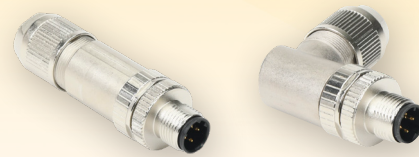### M12 D-Coded to Pigtail Shielded Industrial Ethernet Cables

Murrelektronik M12 D-coded connector to pigtail industrial shielded cables offer one unterminated end to allow the user to install their choice of connector. A choice of Murrelektronik field wireable connectors are available to complete your termination.

- High flex industrial Ethernet Cat5e shielded cable
- Up to 15m / 49.2ft lengths
- Up to 100Mbps full dulpex communication
- TPE (thermoplastic elastomer) jacket
- Flame retardant and resistant to welding sparks and chemicals
- M12 connector to pigtail

M12 Wireable Connectors

Murrelektronik M12 field wireable connectors allow users to make custom connector terminations to best fit their data application.

- 4- or 5-pin M12 male or female, axial or 90-degree
- A- or D-coded
- Push-lock spring clamp, IDC, or screw terminal connection, depending on model

M12 X-Coded Cat6a Shielded Industrial Ethernet Cables

Murreletronik M12 X-coded Cat6a industrial Ethernet shielded cables include an M12 X-coded connection on one end and an RJ45 connection on the other end. The X-coded configuration is usually used for industrial vision systems.

- High flex industrial Ethernet Cat6a shielded cable
- Up to 5m / 16.4ft lengths
- Up to 10Gbps full duplex communication
- TPE (thermoplastic elastomer) jacket
- Flame retardant, chemical resistant
- M12 to RJ45 connectors

Cat5e Shielded Industrial Ethernet Cables with RJ45 Connectors

Murrelektronik Cat5e industrial Ethernet shielded cables offer RJ45 connectors on both ends for easy connection to field devices that support Ethernet in industrial installations.

- High flex industrial Ethernet Cat5e shielded cable
- Up to 15m / 49.2ft lengths
- Up to 100Mbps full duplex communication
- TPE (thermoplastic elastomer) jacket
- Flame retardant and resistant to welding sparks and chemicals
- RJ45 to RJ45 connectors

Power Connection Cables

Power cables that supply power to compatible devices use M12 L-coded connectors or mini 7/8 in - 16 UN2 connectors on both ends, or a pigtail termination on one end. These cables are ideal for harsh environments where oil resistance and extended service life are required.

M12 L-Coded Industrial Power Cables

Murrelektronik M12 L-coded configuration industrial cables provide easy power connection to field devices. The L-coded configuration is typically designated for power connectors that have a 30 to 40% smaller design while being capable of providing 80% more power. The small design provides space savings, improved power transmission, and increased flexibility when designing your application.

- Up to 15m / 49.2ft lengths
- 16 AWG and 14 AWG wire sizes
- 12A and 16A ratings
- TPE (thermoplastic elastomer) jacket
- Flame retardant and resistant to welding sparks and chemicals

M12 L-Coded Power Adapter Cable and T-Coupler

The adapter cable and T-coupler provide an easy way to expand power cable applications. The adapter cable connects to a 7/8-16 straight connector and converts it to an M12 L-coded female straight connector. The T-coupler provides an M12 male straight connector to two female straight connectors.

M12 L-Coded Field Wireable Power Connectors

Murrelektronik M12 L-coded field wireable power connectors allow users to make custom connector terminations to best fit their power application. Available with screw terminal connection or push-lock spring clamp connection.

RJ45 IDC Field Wireable Connectors

RJ45 IDC field wireable connectors allow users to design their own cable by adding the best connector to each end and make connector terminations that meet their application needs. The IDC designation (insulation displacement connector), also known as IPC (insulation piercing connector), refers to the connector design, which includes sharp blades that when crimped, are forced into the insulated cable, creating a tight connection. No need to strip conductors, and installation is very reliable.

LUTZE Shielded RJ45 IDC Field Wireable Connectors
- 8-pole configurations
- Connection types: RJ45 male axial and RJ45 male 90-degree with Cat6a (Gigabit) connectors

LUTZE DIN Rail Holder for Shielded RJ45 IDC Field Wireable Connectors
- 8-pole configurations
- Connection types: RJ45 female with Cat6a connectors

LUTZE Shielded RJ45 to RJ45 Bulkhead Adapter
- 8-pole configurations
- Connection types: RJ45 female to RJ45 female with Cat5e or Cat56a connectors

Murrelektronik Shielded RJ45 IDC Field Wireable Connectors
- 4-pole and 8-pole configurations
- Connection types: Profinet/Ethernet, Gigabit, Cat5, Cat5e, and Cat6a
- Connector types include male straight, 45 and 90 degree angled; M12 to RJ45

Harsh Duty/Food and Beverage Cables

FDA Compliant IP69K-Rated Cables

FDA compliant cables are IP69K-rated and designed mainly for food and beverage applications and any other applications requiring harsh cleaning conditions.

M8 Harsh Duty/Food and Beverage Connection Cables

- Industry standard M8 axial and right-angle connectors with pigtail at opposite end
- Up to 10m cable lengths
- 316L stainless steel coupling
- PVC jacket for food and beverage applications
- EPDM O-ring

M8 Harsh Duty/Food and Beverage Patch Connection Cables

- Industry standard M8 connectors
- One male and one female connector
- Models available in various axial and right-angle combinations
- Up to 5m cable lengths
- 316L stainless steel coupling
- PVC jacket for food and beverage applications
- EPDM O-ring

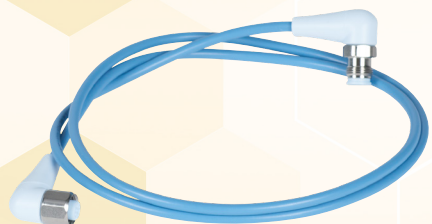### M12 A-Coded Harsh Duty/Food and Beverage Connection Cables

FDA compliant cable with A-coded connectors are used for sensors, actuators, motors, and other devices. The A-coded designation refers to the shape of the connector key.

- Industry standard M12 or 1/2" micro axial and right-angle connectors with pigtail at opposite end
- Up to 10m cable lengths
- 316L stainless steel coupling
- PVC jacket for food and beverage applications
- EPDM O-ring

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M12 A-Coded Harsh Duty/Food and Beverage Patch Cables

- Industry standard M12 or 1/2" micro connectors
- One male and one female connector
- Models available in various axial and right-angle combinations
- Up to 5m cable lengths
- 316L stainless steel coupling
- PVC jacket for food and beverage applications
- EPDM O-ring

Easy to Organize Connections

Multi-Port Distribution Blocks

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Keep your connections organized with distribution blocks that provide a very convenient method for terminating multiple sensor and actuator cables to one single connection point. The distribution blocks are Ideal for applications with many I/O points, such as sensors or solenoid-operated valves. With distribution blocks, cables are consolidated in one location and all signals are sent via one main homerun cable back to a main control cabinet.
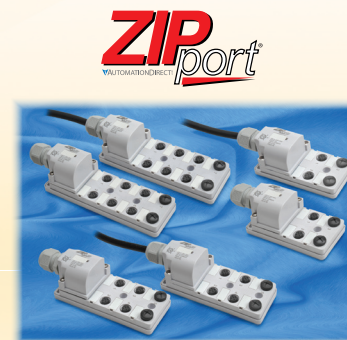
M8 and M12 Passive Distribution Blocks

Murrelektronik's passive distribution blocks provide an easy and convenient method to connect sensors and actuators to control cabinets, resulting in optimum, cost-effective, and reliable space-saving installations for industrial applications.

ZIPport

Multi-Port Interconnection Junction Blocks

ZIPport multi-port interconnection junction blocks provide a simple and effective way to organize machine wiring for a variety of control systems, such as packaging equipment and conveying systems, which typically have many sensor or solenoid-operated valve I/O points.

- M12 sockets in 4-, 6- and 8-port configurations
- Choice of one or two I/O per port
- LED indicators on select models
- Integrated cable or cable clamp for field wiring
- Marking tags included
- IP67 protection rating

Circular Connection Cable Accessories

Distribution Block Protective Caps

M12 protective caps provide protection for unused ports on ZIPport multi-port interconnection junction blocks.