



New Product Release Summary for 3M Authorized Sales Reps and Distributors 3M™ Industrial M12 Wiremount Connectors, 3N104 and 3N304 Series

Issue Number: 838
Date: December 12, 2012

Product Description

The 3M Industrial M12 Wiremount Connectors are an expansion of 3M's extensive factory automation connector portfolio and are ideal for many different applications. The M12 Wiremount Connector's robust and reliable design makes them ideal for factory automation and other harsh environments. These connectors are IP68 rated and are designed to provide EMI protection in compliance with IEC 61076-2-101, and can be easily terminated to cables ranging from AWG 20 to AWG 24. The solder cup allows a quick and easy termination process, saving time and enabling custom cable assembly lengths.

3M's M12 Wiremount Connectors are currently available in two different codes: A and D. Each code has a different interface that can only be mated with the same type of code. See the table below for the available connectors and typical applications for each.

Configuration	Part Number	Code	Application
M12 Wiremount Male Connector 4P Solder Type	3N104-A000-S08 BF	A-Code	Sensor
M12 Wiremount Male Connector 4P Solder Type	3N104-D000-S08 BF	D-Code	Industrial Ethernet
M12 Wiremount Female Connector 4P Solder Type	3N304-A000-S08 BF	A-Code	Sensor
M12 Wiremount Female Connector 4P Solder Type	3N304-D000-S08 BF	D-Code	Industrial Ethernet

Market Segments/Customer Applications

The M12 Wiremount Connector is used in a wide range of applications within the factory automation/ industrial market. Target segments include heavy-duty environments including automobile manufacturing lines and steel plants. Material handling systems such as airport cargo conveyers and mail sorting machines use M12 Wiremount Connectors. Major applications include industrial sensor and Industrial Ethernet connectivity.

The A-code M12 Wiremount Connectors are used for industrial sensor connectivity. Main applications are opto-electronic sensors which are widely used in manufacturing and material conveying lines. Such sensors require high ingress protection connectivity. AWG24 cables are the major types of cables used in this segment.

The D-code M12 Wiremount Connectors are used for Industrial Ethernet connectivity. Major networks such as PROFINET, EtherCAT, and Ethernet/IP use 4-wire Cat5 cables to transmit information. Such cables mainly consist of 4 AWG 22 wires to ensure 100 Mbps transmission for 100m distance.



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Competitive Situation

Since the 3M Industrial M12 Wiremount Connector is an industrial standard connector, there are many competitors in the market: Phoenix Contacts, Harting, Weidmuller, Tyco AMP, Molex and OMRON. The M12 Wiremount Connector patch cords are also widely used for applications which require a fixed length cable harness. In such cases, end customers will usually purchase from cable manufacturers who can outsource the M12 Wiremount Connector harness assembly.

Selling 3M's Value Proposition

- Compact size; male connector: 45 mm / female connector: 40 mm
- Solder termination for AWG 20 to 24 wire cable compatibility
- IP68 protection
- Competitive price

Program Direction and Future New Products

Pin count and coding variations of wiremount connectors will be added based on market demands. Anticipated product development will include IDC termination M12 wiremount connectors, along with boardmount and panelmount connectors. M12 cable assemblies are also an anticipated future direction for customers consuming large volumes.

Sales Support Materials

Configuration	Part Number	Tech Sheet
M12 Wiremount Male Connector 4P Solder Type A-Code	3N104-A000-S08 BF	78-5100-2559-2
M12 Wiremount Male Connector 4P Solder Type D-Code	3N104-D000-S08 BF	78-5100-2557-6
M12 Wiremount Female Connector 4P Solder Type A-Code	3N304-A000-S08 BF	78-5100-2560-0
M12 Wiremount Female Connector 4P Solder Type D-Code	3N304-D000-S08 BF	78-5100-2558-4

Packaging/Labeling

Each connector will be individually packaged into a polybag. Fifty individual polybags will be placed in a larger polybag and packaged in box

Ordering Information/Lead Time

See the most recent revision of the customer drawing for available product options and part numbers. Lead times are available in the 3M price pages, on 3MXpress (secure login required), or by calling 3M Customer Service at 800-225-5373.

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Pricing and Samples

Pricing is available in the 3M price pages and samples are available in the 3M sample center.

Mating Information

The 3M Industrial M12 Wiremount Connector will physically mate to most competitive products aligned with IEC 61076-2-101. However, performance such as IP68 protection relies on the total mated pair connector system and will vary when attached to competitive products. Therefore, performance of a total mated pair connector system can only be assumed when used with specified 3M products. If compatible products are used, customer must evaluate the mated pair connector system performance. The customer will need to determine whether the 3M products are suitable for their intended application.

Frequently Asked Questions

- 1. What is M12?** M12 is a connector standard defined by IEC 61076-2-101. The M12 Wiremount Connector has a round-shaped face and consists of a male and female connection.
- 2. What is the meaning of the codes?** M12 consists of three major codes; A, B and D. Each code is defined for different applications, namely A-code for sensor connectivity, B-code for field bus connectivity and D-code for industrial Ethernet connectivity. To prevent misuse, each code has a different interface shape which can only be mated with the same code.
- 3. What is IP68?** Ingress Protection (IP) ratings are developed by the European Committee for Electro Technical Standardization (NEMA IEC 60529 Degrees of Protection Provided by Enclosures - IP Code), specifying the environmental protection the enclosure provides.

The IP rating normally has two numbers:

1. Protection from solid objects or materials;
2. Protection from liquids (water)

First Digit: Solid particle protection

Level	Object size protected against	Effective against
0	—	No protection against contact and ingress of objects
1	>50 mm	Any large surface of the body, such as the back of a hand, but no protection against deliberate contact with a body part
2	>12.5 mm	Fingers or similar objects
3	>2.5 mm	Tools, thick wires, etc.
4	>1 mm	Most wires, screws, etc.
5	Dust protected	Ingress of dust is not entirely prevented, but it must not enter in sufficient quantity to interfere with the satisfactory operation of the equipment; complete protection against contact
6	Dust tight	No ingress of dust; complete protection against contact

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Second Digit: Liquid ingress protection

Level	Protected against	Testing for	Details
0	Not protected	—	—
1	Dripping water	Dripping water (vertically falling drops) shall have no harmful effect.	Test duration: 10 minutes Water equivalent to 1mm rainfall per minute
2	Dripping water when tilted up to 15°	Vertically dripping water shall have no harmful effect when the enclosure is tilted at an angle up to 15° from its normal position.	Test duration: 10 minutes Water equivalent to 3mm rainfall per minute
3	Spraying water	Water falling as a spray at any angle up to 60° from the vertical shall have no harmful effect.	Test duration: 5 minutes Water volume: 0.7 liters per minute Pressure: 80–100 kPa
4	Splashing water	Water splashing against the enclosure from any direction shall have no harmful effect.	Test duration: 5 minutes Water volume: 10 liters per minute Pressure: 80–100 kPa
5	Water jets	Water projected by a nozzle (6.3mm) against enclosure from any direction shall have no harmful effects.	Test duration: at least 3 minutes Water volume: 12.5 liters per minute Pressure: 30 kPa at distance of 3m
6	Powerful water jets	Water projected in powerful jets (12.5mm nozzle) against the enclosure from any direction shall have no harmful effects.	Test duration: at least 3 minutes Water volume: 100 liters per minute Pressure: 100 kPa at distance of 3m
7	Immersion up to 1 m	Ingress of water in harmful quantity shall not be possible when the enclosure is immersed in water under defined conditions of pressure and time (up to 1 m of submersion).	Test duration: 30 minutes Immersion at depth of 1m
8	Immersion beyond 1 m	The equipment is suitable for continuous immersion in water under conditions which shall be specified by the manufacturer. Normally, this will mean that the equipment is hermetically sealed. However, with certain types of equipment, it can mean that water can enter but only in such a manner that it produces no harmful effects.	Test duration: continuous immersion in water Depth specified by manufacturer

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Product Features/Advantages/Benefits

Features	Advantages	Benefits
Solder termination	Wide cable compatibility range	One connector can cover most customer requirements
Compact connector size; Male connector: approx. 45 mm Female connector: approx. 40 mm	Compact connectivity	Reliable connectivity can be achieved in small spaces
IP68 protection	High protection against harmful ingress of water	Reliable connectivity in immersion of water beyond 1 meter.

Contact Information

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