

Datasheet: DSX M12D and M12X adapters

Overview

与传统 IT 环境不同的是，工业环境下，传输大量数据的铜缆以太网连接和线缆需要经受机械冲击、振动、水和其他污染物侵入、剧烈的温度变化、电极电磁噪音及其他工业设备的考验。The Industrial Ethernet environment is covered by Telecommunications Industrial Association standard TIA-1005-A and ISO11801 standards

With today's industrial networks, it is more important than ever to validate or certify and document multiple media and connector types to ensure a properly executed installation that will endure harsh industrial environments.

The DSX CableAnalyzer™ provides the most comprehensive level of testing, certifying compliance of the installed cabling with the performance levels established in the TIA-568, TIA-1005 and ISO 11801 standards.

This datasheet describes adapters that allows the user to connect a DSX CableAnalyzer directly to Industrial Ethernet cabling systems that use the M12D 4-position connectors, **M12X** 8-position connectors and RJ45 connectors needed to test and validate the performance of Industrial Ethernet cables used with EtherNet/IP, PROFINET™, Modbus TCP™ and other industrial ethernet protocols used to with variable speed drives, programmable logic controllers, ethernet switches and other devices used in industrial automation.



TIA-1005-A MICE Standard

TIA-1005-A 提供了一种方法，以对布线系统接触环境的严重性进行分类。该标准包括机械和振动 (M)、进水 (I)、化学污染和温度 (C) 以及电磁噪声 (E)。第 1 级通常为办公室、学校、商业环境；第 3 级为工业环境位置。DSX 系列采用适当的适配器，可以测试和验证端到端的电缆链路以及单独跳线。

通过线缆连通性测试仪，可轻松检查线缆。但是，简单的连通性测试无法测试带宽，尽管其能够检查电磁干扰 (EMI) 或连接松动的情况，但是如果经过数月的振动及其他常见环境条件，则可能会失效。

	M	I	C	E	
	Mechanical Shock, Vibration	Ingress Water, Dust	Chemical / Climatic (Temperature, Humidity)	Electro-magnetic	
Heavy Industrial	Level 3 MICE				Increasing Environmental Severity
Light Industrial	Level 2 MICE				

Office	Level 1 MICE
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Cabling Validation

针对布线系统的多个测试级别，从验证核实连接的连通性，到根据适用的 TIA 或 ISO 标准验证安装的布线系统的合规性。合适或认证的优势在于，其能够保证布线提供工业网络运行所需的带宽和传输能力。换言之，布线系统满足传输要求，以可靠支持工业网络，减少布线相关的停机时间。在（机器制造商或工厂）安装网络设备和开始服务之前，有了这种保证，交换机以及网络中其他启用通信功能的设备的初始安装、故障排除和日常维护的过程中可以节省大量的工时，避免很多麻烦。而随着网络的业务关系特性提高，其价值也随之提高。

Fluke Networks 自从1993年起就提供布线认证测试工具。DSX CableAnalyzer™ Series系列代表了新款全面的物理层测试工具 – 它可以提供独特的故障排除和诊断功能，以在排除布线链路故障时识别和定位缺陷。

The M12 Adapter Advantage

DSX M12 信道适配器可与 DSX CableAnalyzer 系列共同用于 M12D（4 位）和 M12X（8 位）型号。使用这些适配器您可以测试和认证已安装的渠道链路，以在工业网络应用苛刻的 MICE 环境下，保证 Fast Ethernet (100BASE-TX) 能够可靠的传输。

配合使用时，DSX M12 适配器和 DSX CableAnalyzer 就能提供一个完全符合行业标准的完整解决方案。M12 连接器支持 TIA Cat 5e 或 ISO D 级的传输要求。通过 TIA Cat 5e 或 ISO D 级要求的布线链路完全支持长达 100 m（328 英尺）的以太网 (10/100/1000BASE-TX) 部署。M12X 适配器全面支持 TIA Cat 6 和 6A 或 ISO Class E 和 EA

Test Configurations

Channel (End to End) Test with M12 on Each End – With a pair of M12 Channel Adapter (D or X version) on the DSX CableAnalyzer and the Smart Remote, the DSX CableAnalyzer will accurately measure the performance of the entire cable and all intermediary connectors as illustrated in *Figure 1*. Note that the standards' definition of the cable channel specifically excludes the connections to the tester at each end.

Channel (End to End) Test with M12 on One End and an RJ45 on the Other End – With one M12 Channel Adapter (D or X version) on the DSX CableAnalyzer and an RJ45 the Smart Remote, the DSX CableAnalyzer will accurately measure the performance of the entire cable and all intermediary connectors as illustrated in *Figure 2*. Note that the standards' definition of the cable channel specifically excludes the connections to the tester at each end.

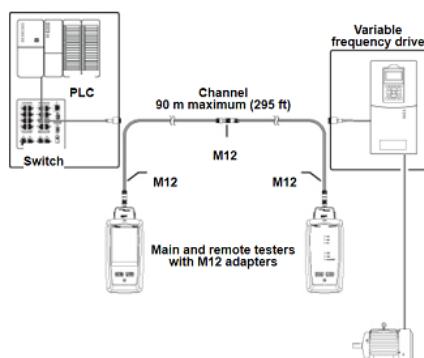


Figure 1 – M12 connectors on each end of cable.

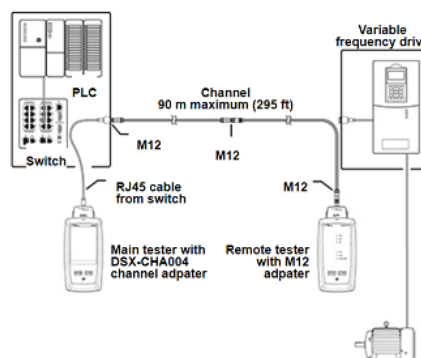


Figure 2 – M12 and RJ45 connectors.

Factory Terminated Patch Cord – Uniquely, the DSX-CHA021 (M12D) or DSX-CHA-M12-X-S (M12X) adapters also allows factory terminated patch cords to be tested as individual components. When testing patch cords, the DSX-5000 automatically adjusts the measurement reference planes to include the effect of the mated connections to the tester at each end of the patch cord, in accordance with standards' requirements. 这样可以在将跳线安装到工作区之前对其进行认证。此外，配合用于 CAT5e 或更小电缆的 DSX-PC5E（通过 DSX-PC6S 用于 CAT6 电缆）跳线测试适配器，DSX 系列 CableAnalyzer 可以认证一端连着 M12 连接器而另一端连着 8 针模块化 RJ45 插头的混合跳线。

针对 M12 信道适配器的性能，必须 6.1 或以上版本才可使用 DSX 系列的主要和远程功能。Software updates are available at www.flukenetworks.com

General Specifications				
Model Number	Description	Weight, each adapter	Dimensions, each adapter	
DSX-CHA021S	DSX M12D (4 Positions) FEMALE ADAPTER SET OF 2 (Included with DSX2-5-IE-K1, Industrial Ethernet DSX Kit 1)	74 g (0.16 lb)	7.5 x 5.4 x 3.0 cm (3.0 x 2.1 x 1.2 in)	
DSX-CHA-M12-X-S	DSX M12X (8 Positions) FEMALE ADAPTER SET OF 2 (Included with DSX2-5-IE-K1, Industrial Ethernet DSX Kit 1)	74 g (0.16 lb)	7.5 x 5.4 x 3.0 cm (3.0 x 2.1 x 1.2 in)	
DSX-CHA004S	DSX CAT 6A/CLASS EA Channel Adapters Set (Included with DSX2-5-IE-K1, Industrial Ethernet DSX Kit 1)	74 g (0.16 lb)	7.5 x 5.4 x 3.0 cm (3.0 x 2.1 x 1.2 in)	
DSX-PC5ES	DSX Patch Cord Test Adapter Set for Category 5e patch cords	74 g (0.16 lb)	7.5 x 5.4 x 3.0 cm (3.0 x 2.1 x 1.2 in)	
DSX-PC6S	DSX Patch Cord Test Adapter Set for Category 6 patch cords	74 g (0.16 lb)	7.5 x 5.4 x 3.0 cm (3.0 x 2.1 x 1.2 in)	
DSX-PC6AS	DSX Patch Cord Test Adapter Set for Category 6A patch cords	74 g (0.16 lb)	7.5 x 5.4 x 3.0 cm (3.0 x 2.1 x 1.2 in)	

About Fluke Networks

Fluke Networks is the worldwide leader in certification, troubleshooting, and installation tools for professionals who install and maintain critical network cabling infrastructure. From installing the most advanced data centers to restoring service in the worst weather, our combination of legendary reliability and unmatched performance ensure jobs are done efficiently. The company's flagship products include the innovative LinkWare™ Live, the world's leading cloud-connected cable certification solution with over fourteen million results uploaded to date.

1-800-283-5853 (US & Canada)

1-425-446-5500 (International)

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Descriptions, information, and viability of the information contained in this document are subject to change without notice.

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