Datasheet: DSX M12 Channel Adapters

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For many years, Ethernet has been the dominant networking technology in the IT (Information Technology) domain; however, the application of Ethernet continues to expand in related networking environments such as industrial automation. With today's industrial networks, it is more important than ever to certify and document multiple media and connector types to ensure a properly executed installation.

The DSX-5000 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 or ISO 11801 standard.

This datasheet describes a tester interface that allows the user to connect a DSX-5000 CableAnalyzer directly to Ethernet cabling systems that use the M12 4-position connectors and to certify the performance of those cabling links.

Cabling Certification

There are many levels of testing for cabling systems, from verifying the continuity of the connection to certifying compliance of an installed cabling system with the applicable TIA or ISO standard. Certification offers the advantage that it represents an assurance or guarantee that the cabling provides the desired bandwidth and transmission capabilities required for the operation of the network. In other words, you know that the cabling system meets the transmission requirements to reliably support the signaling and communication of the network devices. This assurance, in advance of installing the network devices and turning up the service, can save numerous labor hours and headaches during the initial installation, troubleshooting and ongoing maintenance of the switches and other communications-enabled devices in the network. And its value increases as the mission-critical nature of the network increases.

Fluke Networks has offered cabling certification test tools since 1993. The DSX-5000 CableAnalyzer™ represents the most recent and comprehensive certification test tools – offering unique troubleshooting and diagnostics to identify and locate the defect in a failing cabling link.

The M12 Channel Adapter Advantage

The DSX-CHA021S is a set of two M12 channel adapters for use with the DSX-5000. These adapters allow you to test and certify installed channel links to ensure reliable transmission of Fast Ethernet (100BASE-TX) in the demanding MICE environment of industrial networking applications.

When used together, the DSX M12 Channel Adapters and DSX-5000 CableAnalyzer™ provide a complete solution that is fully compliant with industry standards. The M12 connectors support the transmission requirements for TIA Cat 5e or ISO Class D. A cabling link that passes the TIA Cat 5e or ISO Class-D requirements fully supports the deployment of Fast Ethernet (100BASE-TX) over a distance up to 100 m (328 ft). The M12 channel adapters also allow you to test and certify installed channel links directly to the 100BASE-TX link transmission performance requirements specified in IEEE Std 802.3-2012 clause 25.4.9.

Test Configurations

Channel: With the DSX-CHA021 M12 Channel Adapter at each end of the Link Under Test, the DSX-5000 CableAnalyzer will accurately measure the performance of the cabling channel as illustrated in Figure 1. Note that the standards' definition of the cabling channel specifically excludes the connections to the tester at each end.

Patch Cord: Uniquely, the DSX-CHA021 M12 Channel Adapter also allows 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. This allows certification of patch cords prior to their installation in the work area. Additionally, when used with a DSX-PC5E Patch Cord Test Adapter, the DSX-5000 CableAnalyzer can certify hybrid patch cords where one end is terminated with an M12 connector and the opposite end is terminated with an 8-pin modular RJ45 plug.

General Specifications		
Weight, each adapter	Dimensions, each adapter	Connector type
74 g (0.16 lb)	7.5 x 5.4 x 3.0 cm (3.0 x 2.1 x 1.2 in)	M12 -4, “D” coded (IEC 61076-2-101)

The DSX-5000 Main and Remote must have version 4.0 or greater for M12 channel adapters performance. Software updates are available at **www.flukenetworks.com**

Figure: 1. Example Channel Test Configuration

Ordering Information		
Model Number	Name	Description
DSX-CHA021S	M12 Channel Adapters (set of 2)	M12 channel adapters – set of two M12 -4 “D” coded
M12PC-IE	M12 / M12 Patch Cord	Two-meter M12 plug / M12 plug patch cord
M12PCJ-IE	M12 / RJ45 Patch Cord	Two-meter M12 socket / RJ45 plug patch cord
M12PCP-IE	M12 / RJ45 Patch Cord	Two-meter M12 plug / RJ45 plug patch cord

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