

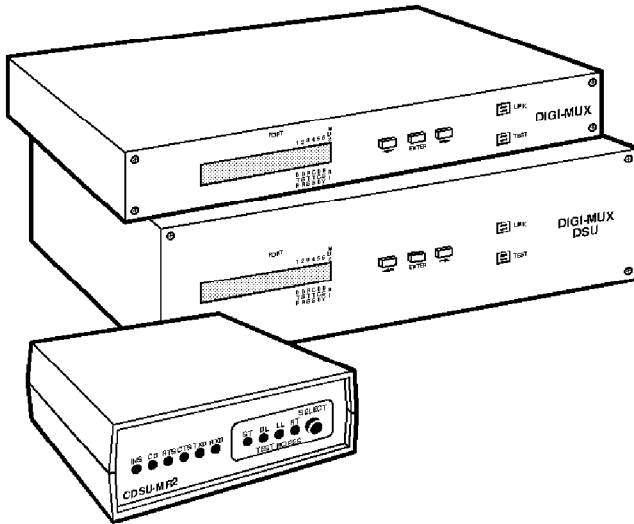


BLACK BOX[®]

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Black Box Corporation.

The Source for ConnectivitySM

Digi-Mux and Digi-Mux DSU



Reduce line and modem costs with our six-channel multiplexor, and its optional built-in CSU/DSU.

Key Features

- ▶ A full range of speeds—sync (Digi-Mux and Digi-Mux/DSU) or sync and async (CDSU-MR2).
- ▶ User-programmable subchannels for easy operation.
- ▶ Configure both local and remote Digi-Mux or Digi-Mux/DSU from one location.
- ▶ Digi-Mux/DSU with built-in CSU/DSU reduces equipment investment.
- ▶ Convenient operation and fault-isolation with front-panel display for data rate selection, configuration, and diagnostics.
- ▶ Efficient problem-isolation with per-channel local and remote diagnostics.

Overview

Save on line and modem costs with any of our three time-division multiplexors.

Choose the CDSU-MR2 (MD271A) if you want to start small but allow for future expansion. The CDSU-MR2 is the ideal CSU/DSU for standard DDS service if you have only one async minicomputer and one DDS line. Then, as demands on your network grow, use the CDSU-MR2 to split your single 56-Kbps DDS line into two independent subchannels, each offering you a full range of sync and async data-transmission speeds.

One subchannel connected to a multiplexor would allow you to link up to four workstations to your DDS line. (See Diagram 1.) So you don't put in a second DDS line until you need one—and that's real cost savings!

With the CDSU-MR2, you can send async data over both subchannels with an aggregate data rate of about 48 Kbps. A typical arrangement would be 38.4 Kbps on Channel 1 and 9.6 Kbps on Channel 2. The CDSU-MR2 uses a Motorola[®] chip—one for each channel—to encode the data. The remote CDSU-MR2 then converts the sync data back to async. Flexibility and reliability are built into the CDSU-MR2. You can send data, either sync or async, over your DDS line and know you're getting maximum performance and data integrity.

Built-in diagnostics allow you to check every link in your CDSU-MR2 connection: the unit itself, its connection to an on-site DTE, and the connections between local and remote units. Special circuitry automatically compensates for signal distortions.

Your initial investment in a Digi-Mux (MX008A) or Digi-Mux/DSU (MX009A), time-division multiplexors pays for itself again and again in a rapidly growing network. If you project your connectivity needs going quickly from a single minicomputer to a

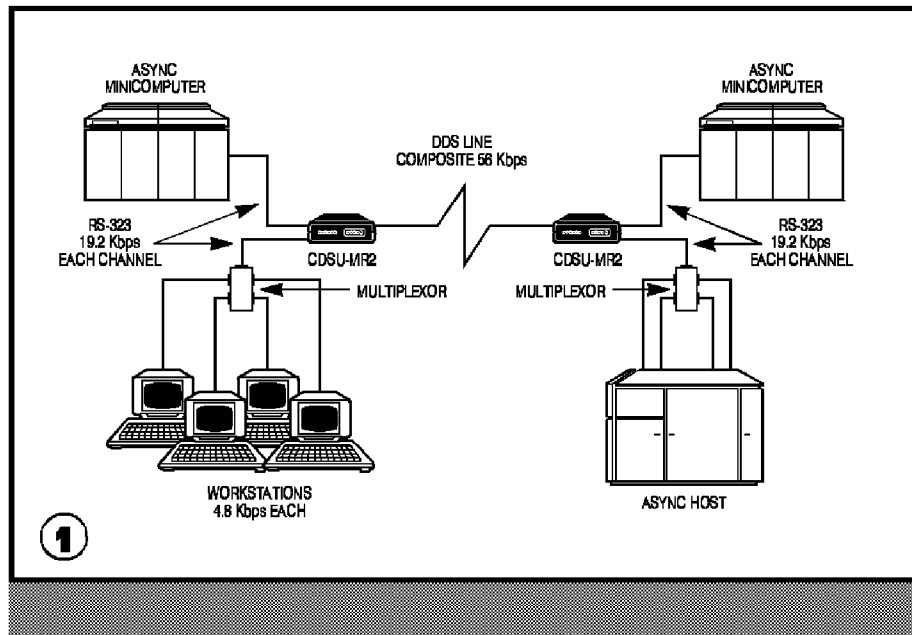
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Typical Applications

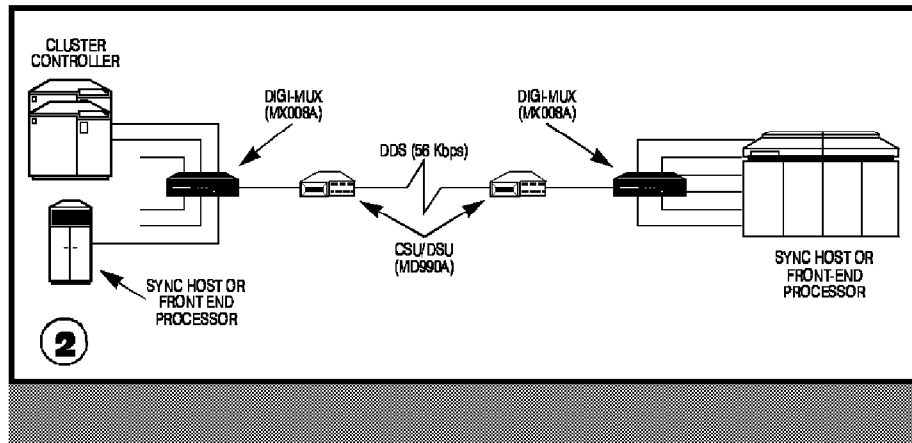
Get 2 subchannels on one DDS line with the CDSU-MR2 or up to 6 subchannels with the Digi-Mux and the Digi-Mux/DSU.

Use the CDSU-MR2 as a CSU/DSU at 56 Kbps.

Tailor your datacomm connections with two channels running different speeds or two channels running the same speeds.



Increase connectivity options six ways with Digi-Mux or Digi-Mux/DSU.



overview (continued)

cluster controller and sync host or front-end processor, you need the subchannel options of the Digi-Mux or Digi-Mux/DSU. (See Diagram 2.)

Providing an efficient use of DDS wide-area network services, private or leased lines, and T1 channels, the Digi-Mux and the Digi-Mux/DSU operate full-duplex in point-to-point applications

(over DDS) or four-wire twisted-pair private lines (via external modems).

Both the Digi-Mux and the Digi-Mux/DSU allow a single DDS line to be split into six channels. Each unit links up to six sync devices to the DDS line. The Digi-Mux/DSU also features a built-in CSU/DSU.

Both units provide synchronous port speeds of 2.4 Kbps to 19.2 Kbps. The

wide range of speeds assures a perfect match to your equipment. And you can use these units with satellite transmission as well as DDS lines.

Technically Speaking

- ◆ Digital Data Service (DDS) is a wide-bandwidth, private leased line that transmits data in digital, rather than analog, format. DDS lines are 4-wire circuits (Transmit pair, Receive pair) linked by special repeaters and separated from conventional analog lines. They can provide a higher data-transmission rate and maintain a higher level of data integrity than analog transmission service.
- ◆ DDS is a nationwide service of AT&T that allows interconnection and transport of data for the Regional Bell

CDSU-MR2

- ◆ The CDSU-MR2 is a CSU/DSU that splits a 56-Kbps DDS data stream into two independent subchannels. This unit is a time-division multiplexer for DDS lines, and you can use it in your point-to-point and multipoint applications. It provides a variety of data speeds for both subchannels and can transmit sync or async data. (Point-to-point operation is

available in split-channel mode only.)

- ◆ The CDSU-MR2 provides fully compatible CCITT V.35 operation for a single 56-Kbps DDS line, but can then split the 56-Kbps line into two independent RS-232-compliant subchannels. This feature allows you to send two different data signals across one DDS line.
- ◆ The CDSU-MR2 has two operational modes that you

configure to your particular application: one channel (V.35 interface) with one speed (56 Kbps); two channels (RS-232 interface) with different or matching speeds per channel (1200, 2400, 4800, 9600 bps, 19.2, 38.4 Kbps).

- ◆ An ISU (Integrated Service Unit) replaces the modem in a network. A combination of the CSU (Channel Service Unit) and the DSU (Data Service Unit), it is commonly called a CSU/DSU.
- ◆ Self-Test, Digital Loop, Local Loop, and Remote Loop are built-in test functions in the CDSU-MR2. Other features: internal test-pattern generator, clock buffering, and data synchronization.
- ◆ The CDSU-MR2 has an adaptive distance-compensation circuitry that automatically analyzes the DDS link and compensates for signal distortion. The unit performs all Bell-compatible encoding and decoding functions, system timing, and the proper interfacing for your DDS hookup.

Digi-Mux and Digi-Mux/DSU

- ◆ The Digi-Mux units provide operator access and control from the front-panel LCD and control switches. The control panel consists of a 16-character LCD panel and three control and entry switches. The LCD panel is used in conjunction with the control switches to provide port and network monitoring, unit setup procedures, and diagnostics.
- ◆ The devices attached to the Digi-Mux or Digi-Mux/DSU user ports must be synchronous, DTE-type devices. They are attached to the unit with standard

RS-232C cables and DB-25 male connectors. The attached devices must be set to respond to an EXTERNAL clock. The Digi-Mux will supply the clock for the attached devices on Pin 15.

- ◆ The Digi-Mux/DSU is connected to the DDS or leased-line link via the telco/spade lug cable, which is included with the unit.
- ◆ Two sets of LEDs on the front panel of the Digi-Mux units indicate LINK and TEST status (*see below*).
- ◆ The top set of LEDs reports on the status of the LINK between the local and remote Digi-Mux/DSUs.

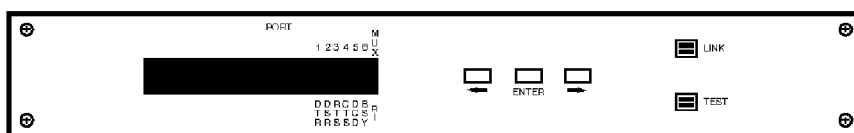
Green means the LINK is established between the local and remote units, and the Digi-Mux/DSU is actively transmitting and receiving data. Red, in general, is an indication that the LINK between the local and remote units is down or does not have end-to-end coordination. This condition may be the result of a functional error such as a loss of synchronization, initiation of a test procedure, or lack of carrier detection.

- ◆ The TEST LEDs indicate which ports (network interface, red; user channels, yellow) are

affected by a test procedure.

- ◆ The MONITOR mode on the Digi-Mux is used to report the operational status of the unit's channel ports and the composite interface port. Press either arrow button until the MONITOR screen displays on the control monitor to view the monitor display.
- ◆ The Digi-Mux units provide a means for testing the channel ports and the composite port. They are not self-testing devices. An external test set is necessary for obtaining the results of any test procedure. The test set is attached to the appropriate user port and the test procedure is initiated using the front-panel control buttons.
- ◆ The Digi-Mux/DSU provides three levels of diagnostics procedures: Level one, channel loopback and network interface loopback testing modes; Level two, self-testing; Level three, DDS-initiated line and digital loopback.

Front Panel of the Digi-Mux



Specifications

Digi-Mux

Multiplexor Technique — Time-division

User Channels — 6

Speed — Channel: 2.4, 4.8, 9.6, 19.2 Kbps;
Composite: 56 Kbps

Interface — Channel: RS-232 sync; Composite: V.35

Connectors — Channel: (6) DB25 female; Composite: 34-pin M-block female

Power — 115-125 VAC, 60 Hz

Size — 1.8"H x 16.8"W x 14"D (4.6 x 42.7 x 35.6 cm)

Weight — 7.8 lb. (3.5 kg)

Digi-Mux/DSU

Multiplexor Technique — Time-division

User Channels — 6

Speed — Channel: 2.4, 4.8, 9.6, 19.2 Kbps;
Composite: 56 Kbps

Interface — Channel: RS-232 sync; Composite: DDS direct-connect

Connectors — Channel: (6) DB25 female; Composite: RJ-48 female

Power — 115-125 VAC, 60 Hz

Size — 3.8"H x 16.8"W x 14"D (9.7 x 42.7 x 35.6 cm)

Weight — 10.3 lb. (4.7 kg)

CDSU-MR2

Multiplexor Technique — Time-division

User Channels — 2

Speed — 1.2, 2.4, 4.8, 9.6, 19.2, 38.4 Kbps

Interface — Channel: RS-232, V.35; Composite: DDS direct-connect

Power — 115 +/- 10% VAC, 60 Hz, 12 watts

Size — 2.5"H x 8"W x 6.3"D (6.3 x 20.3 x 16 cm)

Weight — 3.5 lb. (1.6 kg) with wallmount power supply

Connectors — Channel: (2) DB25 female, (1) 34-pin M-block female;
Composite: (1) RJ-48S

The Complete Package

What you get when you order a Digi-Mux (MX008A), Digi-Mux/DSU (MX009A), or CDSU-MR2 (MD271A).

- ◆ Digi-Mux with AC power cord, or
- ◆ Digi-Mux/DSU with AC power cord and RJ-48 to spade lug cable, or
- ◆ CDSU-MR2 with power supply
- ◆ User's Manual

For these and other components...

Call our expert Technical Support Staff for all your LAN needs. They'll help you find the best equipment for your application.

Ordering Information

This information will help you place your order quickly.

PRODUCT NAME	ORDER CODE
Digi-Mux	MX008A
Digi-Mux/DSU	MX009A
CDSU-MR2	MD271A

NOTE: The Digi-Mux (MX008A), Digi-Mux/DSU (MX009A), or CDSU-MR2 (MD271A) must be used in pairs.