



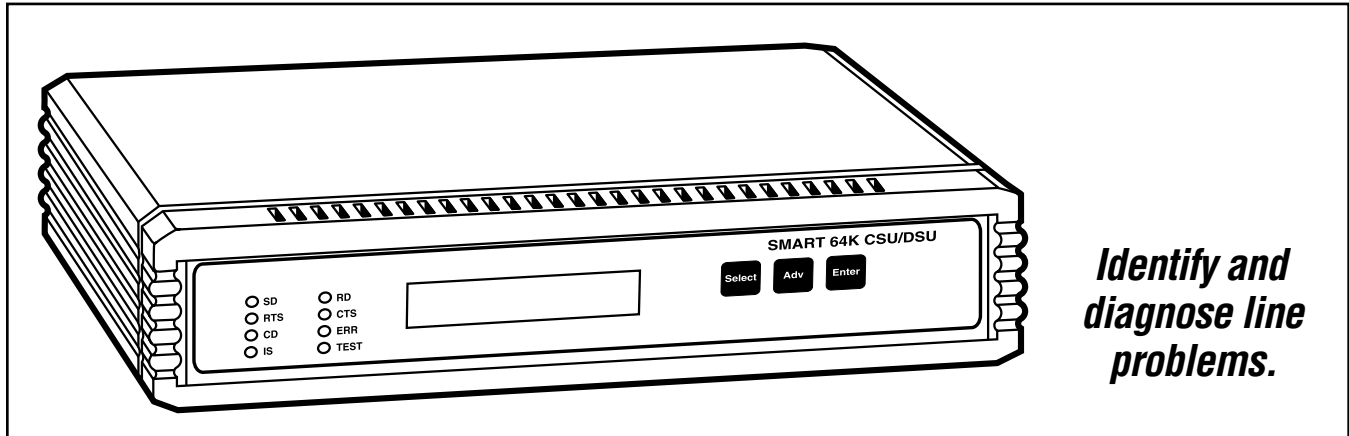
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Black Box Corporation.

# BLACK BOX<sup>®</sup>

## NETWORK SERVICES

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## SMART 64K CSU/DSUs



*Identify and  
diagnose line  
problems.*

### Key Features

- ▶ **Built-in test pattern generator quickly tests network faults with BERT functionality.**
- ▶ **Easy-to-read, front-panel LCD provides "plain English" readouts of line conditions.**
- ▶ **DDS and sync DTE data rates up to 64K! Async DTE data rates up to 57.6K!**
- ▶ **Test and report problems to your service provider ASAP.**
- ▶ **Error LEDs indicate line impairments.**
- ▶ **Three models available.**

The Smart 64K CSU/DSUs are advanced channel service units/data service units that use Digital Signal Processor technology. They're standalone units that connect two remote locations together to form a wide-area network (WAN). They operate in point-to-point or multipoint environments on Dataphone Digital Service (DDS) provided by common carriers.

These multirate-line digital termination units operate at all common speeds between 2400 bps and 64 kbps. The line speed and the DTE speed may be the same or different. The CSU/DSUs support both asynchronous and synchronous operation.

Their rear panels have one DB25 DTE connector for RS-232 devices (labeled Port 1), one M/34 DTE connector for V.35 devices (labeled V.35 Port 1), a power connection receptacle, and an RJ-48S female network connector. Limited Distance Modem

operation is also available; one unit is configured with a master clock setting. At 56 kbps, depending upon wire gauge, the units can operate error-free up to 10 miles (16.1 km) away.

The CSU/DSUs have three front-panel touchpad buttons (Select, Advance, and Enter) to help you easily manipulate the units through port and line settings, diagnostic testing, and selecting an operational display. An LCD display next to the buttons provides a visual interface into the CSU/DSUs' menu system as well as their operation. The LCD display is a single-line, 16-character position display.

All defined line speeds that have DTE port speeds less than or equal to the line speed will match each other. One exception exists for 57-kbps asynchronous operation, which is supported on a 56-kbps DDS facility. In addition, synchronous as well as asynchronous character formats

and timings are supported in both point-to-point and multipoint applications.

Electrical requirements are supplied by an external power transformer. For the MT190A, the power transformer accepts 120 VAC. For the MT190A-D48, the power-supply cable accepts 24 to 48 VDC. For the MT190A-D130, the power-supply cable accepts 130 VDC.

The electrical connection is free from any dangerous voltages on the PC board itself. UL<sup>®</sup> and CSA approvals exist for the power transformer only.

The Smart 64K CSU/DSUs are DCE devices and only require straight-through cables for all DTE equipment.

# Technical Glossary

**CSU (Channel Service Unit):** A device that functions as a digital modem. It transmits and receives digital signals, as well as shapes and filters signals.

**DDS (Dataphone Digital Service):** DDS is a private line

digital service, offered by AT&T® and the Bell operating companies.

**DSU (Data Service Unit):** A device used in conjunction with a CSU to ensure proper signal shaping and encoding.

**DTU (Digital Termination Unit):** Combines a Channel Service Unit (CSU) and a Data Service Unit (DSU) in a single package.

**I.Q.:** Short for Intelligent Quantitative Parametric Testing. I.Q. is also commonly used to

connote a level of intelligence.

**Mark:** A condition in which the telco line is transmitting or receiving an all-ones signal.

**Space:** A condition in which the telco line is transmitting or receiving an all-zeros signal.

## Why Buy From Black Box? Exceptional Value. Exceptional Tech Support. Period.

### Recognize any of these situations?

- You wait more than 30 minutes to get through to a vendor's tech support.
- The so-called "tech" can't help you or gives you the wrong answer.
- You don't have a purchase order number and the tech refuses to help you.

- It's 9 p.m. and you need help, but your vendor's tech support line is closed.

According to a survey by Data Communications magazine, 90% of network managers surveyed say that getting the technical support they need is extremely important when choosing a vendor. But even though network

managers pay anywhere from 10 to 20% of their overall purchase price for a basic service and support contract, the technical support and service they receive falls short of their expectations—and certainly isn't worth what they paid.

At Black Box, we guarantee the best value and the best

support. You can even consult our Technical Support Experts before you buy if you need help selecting just the right component for your application.

Don't waste time and money—call Black Box today.

## Specifications

**Approvals:** FCC Class A, FCC Part 68 (1U5USA-74399-DE-N); UL®; CSA

**DDS Data Rates:** 2400, 4800, and 9600 bps; 19.2, 56, and 64 kbps

**Diagnostics:** Operational line testing: In spec/out of spec; Parametric testing (± 0.5 dBm): Line attenuation, background noise, impulse noise

**DTE Data Rates:**  
 Async: 1200, 2400, 4800, and 9600 bps; 19.2, 38.4, 56, and 57.6 kbps;  
 Sync: 300, 600, 1200, 2400, 4800, and 9600 bps; 19.2, 38.4, 56, and 64 kbps

**Line Type:** DDS

**Loopback:** Digital loop, local loop, remote loop, CSU, DSU

**Protocol:** Sync or async

**Receiver Sensitivity:** 0 to -60 dB for 56- and 64-kbps operation

**Connectors:** Line: (1) 4-wire RJ-48S; Data ports: (1) DB25 F (DCE), (1) M/34 F (DCE)

**Indicators:** (6) simulated LED indicators on the front-panel LCD

display: In Svc, Car Det, Req Send, Clr Send, Send Data, and Recv Data ([2] vertical columns of LEDs provide the same operational information whether or not the LCD display is currently displaying such information)

**Operating Environment:**  
 Temperature: 32 to 104°F (0 to 40°C);  
 Humidity: Up to 95% noncondensing

**Altitude Tolerance (Maximum):** 10,000 ft. (3048 m)

**Power:** MT190A: 120-VAC, 60-Hz, 30W external transformer; MT190A-D48: 24-48-VDC external transformer; MT190A-D130: 130-HVDC external transformer

**Size:** 1.8"H x 8.6"W x 8.4"D (4.6 x 21.8 x 21.3 cm)

**Weight:** 2.6 lb. (1.2 kg)

## What the Package Includes

- (1) Smart 64K CSU/DSU.
- (1) Straight-through RJ-48S male/male network interface connection cable.
- (1) Power supply.
- Users' manual.

## Ordering Information

ITEM	CODE
Smart 64K CSU/DSUs	
120-VAC .....	MT190A
24-48-VDC.....	MT190A-D48
130-HVDC .....	MT190A-D130
<i>For optimum performance and a 20% savings, order...</i>	
RS-232 Cable, 10-ft. (3-m), Male/Female.....	ECM25C-0010-MF
V.35 Interface Cable, 10-ft. (3-m), Male/Female .....	EYN450-0010-MF