



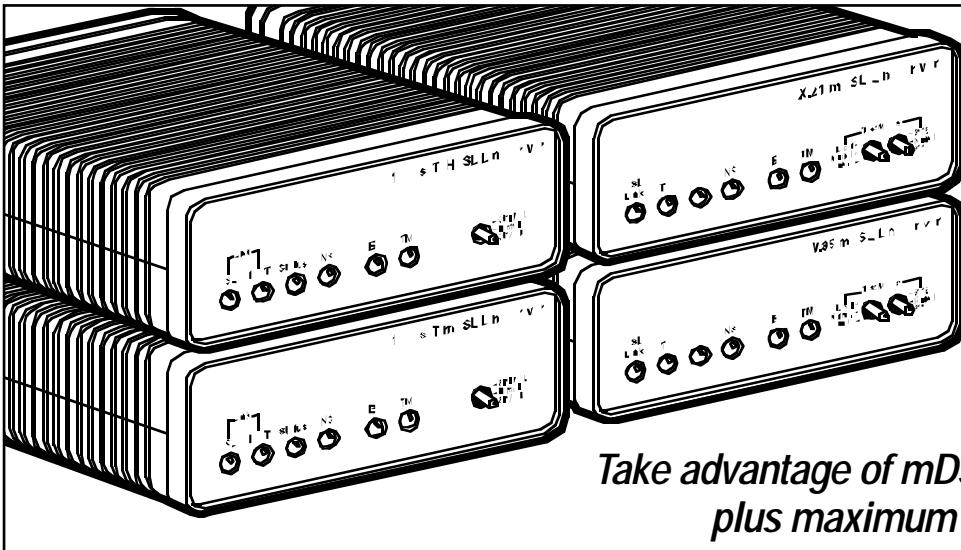
# BLACK BOX<sup>®</sup>

## NETWORK SERVICES

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Black Box Corporation.

Black Box Network Services • 464 Basingstoke Road • Reading, Berkshire, RG2 0BG • Tech Support: 0118 965 6000 • www.blackbox.co.uk • e-mail: techhelp@blackbox.co.uk

## 2-WIRE SHORT-RANGE DSL LINE DRIVERS



*Take advantage of mDSL and hDSL speeds plus maximum functionality.*

### Key Features

- ▶ **mDSL Line Drivers provide 2.304-Mbps rates over two wires, connecting devices up to 6.2 miles apart.**
- ▶ **hDSL Line Drivers enable 1.152-Mbps rates over two wires, connecting devices up to 4.6 miles apart.**
- ▶ **Fixed-interface models available for V.35, X.21, and 10BASE-T.**
- ▶ **Perfect for Internet connectivity plus ATM, Frame Relay, and campus networks.**

Choose a BLACK BOX<sup>®</sup> 2-Wire Short-Haul DSL Line Driver for fast DSL connections to the Internet as well as ATM, Frame Relay, and campus networks. With multiple interface options, we have a driver that's right for you!

#### mDSL Line Drivers

Providing symmetric Multirate DSL connectivity at rates up to 2.304 Mbps over two wires, these line drivers connect routers, switches, or other access devices up to 6.2 miles (10 km) apart!

The mDSL Line Drivers are available in four fixed-interface versions. We have models for V.35, X.21, and 10BASE-T Ethernet networks.

All mDSL Line Drivers feature user-selectable DTE data rates, from 64 kbps to 2.3 Mbps, in increments of 64 kbps. In addition, Carrier Amplitude and Phase (CAP) modulation provides top-notch line coding for all units.

The 10BASE-T Ethernet model (ME0005A-10BT) offers 10BASE-T bridging with PPP support. This feature enables you to extend a router's serial interface and connect to a remote 10BASE-T Ethernet LAN.

#### hDSL Line Drivers

For High-Speed DSL, these line drivers provide DTE rates up to 1.152 Mbps over two wires and connect access devices up to 4.6 miles (7.4 km) apart.

The hDSL Line Drivers are available in two fixed-interface versions for X.21 and 10BASE-T Ethernet networks.

Each line driver supports 2B1Q modulation, which lessens crosstalk between adjacent lines and improves signal-to-noise ratios.

Like its mDSL counterpart, the ME0006A-10BT provides 10BASE-T bridging with PPP support—extend a router's serial interface and connect to a remote 10BASE-T Ethernet LAN!

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

## Recognise 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.

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.

## Technically Speaking

DSL (digital subscriber line) is the root of all xDSL services. In fact, DSL is the root physical layer for ISDN BRI service—two 64-kbps bearer (B) channels and one 16-kbps data (D) channel (2B+D). These channels are bundled together to provide a functional 128-kbps pipeline that can transmit voice, data, fax, or video signals simultaneously.

Here's how DSL (and by extension, xDSL) works: Telephone lines carry frequencies up to 1 MHz. But analog telephone service only requires a maximum frequency of 3.3 kHz, leaving a large amount of unused bandwidth. DSL makes use of this wasted space by piggybacking high-speed data traffic onto the unused bandwidth.

By filtering the frequencies at each end of this range (4 kHz to 2.2 MHz) and isolating them from the voice channels, the local telco can transport both traditional telephone signals and high-speed DSL over the same line that already links your home or business to its central office (CO).

DSL service supports high-speed data transmission over a local loop. As with most xDSL services, speeds increase near the CO and taper off with distance. One other important thing to consider when discussing xDSL is that top speeds and distances are almost always expressed as theoretical maximums, assuming ideal line conditions.

Factors such as crosstalk, wire gauge, line condition, and the presence of load coils or bridge taps on the loop may all limit the effectiveness of, or even preclude the use of, xDSL services.

xDSL encompasses a broad range of digital service options: aDSL (Asymmetric DSL), hDSL (High-Speed Digital Subscriber Line), iDSL (ISDN DSL), mDSL (Multirate DSL), raDSL (Rate-Adaptive Asymmetric DSL), sDSL (Symmetric DSL), and vDSL (Very High-Speed DSL). For more information on these digital line services, call the Black Box Technical Support experts at **724-746-5500**.

## Specifications

**Clocking:** Internal, external, or receive recover

**Diagnostics:** V.54 loops (LLB, RDL); V.52-compliant BER pattern generator and detector (511/511E)

**Distance (Maximum):**  
ME0005A units: Up to 6.2 mi. (10 km);  
ME0006A units: Up to 4.6 mi. (7.4 km)

**Modulation:** ME0005A units: CAP;  
ME0006A units: 2B1Q

**Operating Temperature:**  
32 to 122°F (0 to 50°C)

**Operation:** Full-duplex

**Protocol:** Synchronous

**Speed:** ME0005A units:  
DTE: 64 kbps to 2.3 Mbps in user-defined increments;  
Line: 144, 272, 400, 528, 784 kbps; 1.04, 1.552, 2.064, 2.320 Mbps;  
ME0006A units:  
DTE: 64 kbps to 1.152 Mbps;  
Line: 144, 272, 400, 528 kbps; 784, 1.168 Mbps

**CE Approval:** Yes

**Interface:** ME0005A units: V.35, X.21, 10BASE-T, or G.703/G.704;  
ME0006A units: X.21 or 10BASE-T

**Power:** External wallmount power supply with universal 90–260-VAC, 50–60-Hz input

## Ordering Information

ITEM	CODE
2-Wire Short-Range DSL Line Drivers	
mDSL, 90–260 VAC	
V.35 (M/34 F) .....	ME0005A-V35
X.21 (DB15 F) .....	ME0005A-X21
10BASE-T (RJ-45).....	ME0005A-10BT
hDSL, 90–260 VAC	
X.21 (DB15 F) .....	ME0006A-X21
10BASE-T (RJ-45).....	ME0006A-10BT