



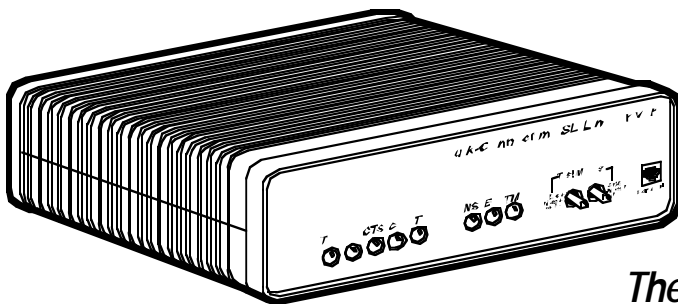
BLACK BOX[®]

NETWORK SERVICES

© 2003. All rights reserved.
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

HIGH-SPEED 2-WIRE SHORT-RANGE DSL LINE DRIVERS MODULAR DSL LINE DRIVERS



These hDSL and mDSL line drivers have multiple interface and power options!

Key Features

- ▶ **Super-fast DTE and line speeds.**
- ▶ **2B1Q or CAP line coding lessens crosstalk and boosts SNR ratios.**
- ▶ **QuikConnect technology enables you to swap a variety of interfaces.**
- ▶ **Full-duplex, sync operation.**
- ▶ **MicroRACK enables multiple configurations and network management options.**

Black Box has many hDSL and mDSL Line Drivers that provide high speeds and deployment flexibility to meet the connection requirements of your network.

High-Speed 2-Wire Short-Range hDSL Line Driver Rack Cards

With many network interfaces and data formats to support, managing a network can be frustrating. But Black Box makes things easier with these hDSL line driver rack cards.

Operating full-duplex, these cards achieve line data rates up to 1.168 Mbps and sync DTE rates up to 1.152 Mbps, at distances up to 2.8 miles (4.5 km) over 24 AWG. Conversely, you can select lower rates for longer distances—up to 4.6 miles (7.4 km).

The cards feature 2B1Q line coding, which lessens crosstalk between adjacent lines and improves signal-to-noise ratios.

All cards come with front and rear modules. Rear modules distinguish the cards from each other by interface and connector. All front modules are the same for each card, with an LED display providing extensive diagnostics.

QuikConnect™ technology enables you to hot-swap rear modules and switch interfaces. Choose from cards with V.35, X.21, or 10BASE-T interfaces.

High-Speed 2-Wire Short-Range mDSL Line Driver Rack Cards

They're like our hDSL line driver rack cards, except they're twice as fast and they drive data a little farther down the line.

The High-Speed 2-Wire Short-Range mDSL Line Driver Rack Cards provide full-duplex, sync operation. They achieve line data rates at speeds up to 2.32 Mbps and DTE rates up to 2.304 Mbps, at distances up to 3 miles (4.8 km)

over 24 AWG. If you need to send data beyond 3 miles, you can select a lower speed and transmit up to 5.8 miles (9.3 km).

Like their hDSL counterparts, these cards come with front and rear modules. Rear modules distinguish the cards from each other by interface and connector. You can swap out rear modules and switch interfaces in seconds. We have cards for G.703, X.21, and 10BASE-T interfaces.

The MicroRACK is the ideal rack for all these cards.

16-Port Managed MicroRACK

Place all your High-Speed 2-Wire Short-Range hDSL and mDSL Line Driver Rack Cards in the versatile 16-Port Managed MicroRACK.

The MicroRACK accepts one or two AC or DC power supplies in any combination. Each supply provides 100% of the rack's

power requirements. When two supplies are used, they operate in a dual redundant load-sharing operation. The load sharing makes them even more reliable. In the event one supply fails, the second unit immediately takes over. The rack also notifies the central site operator of the failure through the network management system.

For total network control, equip your 16-Port Managed MicroRACK with a Managed MicroRACK Control Module. It enables you to daisychain up to eight MicroRACKs, using a Control Module in each of the racks — that gives you total control of up to 120 2-Wire hDSL and mDSL Line Driver Rack Cards! Plus, you can manage the 120 remote modem/line drivers as well.

There are three possible configurations for the 16-Port Managed MicroRACK:

- Standard—16 cards plus 1 power supply;
- Redundant—14 cards plus 2 power supplies;
- Managed/Redundant—14 cards, 1 Managed MicroRACK Control Module, plus 2 power supplies.

Modular hDSL Line Driver

Of course, you might not need a rack. So to bring hDSL to your desktop, Black Box has a stand-alone high-speed 2-wire line driver for you.

The Modular hDSL Line Driver (ME0007A-HDSL) provides full-

duplex sync DTE speeds up to 2.304 Mbps and line speeds up to 2.32 Mbps, at distances up to 3 miles (4.8 km) over 24 AWG. Conversely, you can transmit up to 5.8 miles (9.3 km) at lower speeds.

The hDSL driver features CAP or 2B1Q line coding. Manage it locally via the front-panel control port or VT100™ ASCII. When used as a remote unit, it's manageable via SNMP.

Interface modules connect the line driver to 10BASE-T, G.703, V.35, X.21, RS-232, or RS-422/RS-530; choose one module per line driver. The Modular hDSL Line Driver comes with a 90–260-VAC universal wallmount power supply.

Modular mDSL Line Driver

For the most options in mDSL desktop connectivity, choose this modular line driver.

The ME0008A-MCAMP provides full-duplex sync operation. At its highest speed, it transmits up to 3 miles (4.8 km) over 24 AWG. At lower speeds, it transmits data up to 5.8 miles (9.3 km).

The Modular mDSL Line Driver features CAP line coding. For local management, use the front-panel control port or VT100 ASCII. When used as a remote unit, the driver is manageable via SNMP.

Interface modules connect the line driver to 10BASE-T, G.703, V.35, X.21, RS-232, or RS-422/RS-530; choose one module per line driver. The Modular hDSL Line Driver comes with a 90–260-VAC universal wallmount power supply.

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 DSL), 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**.

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

Clocking: Internal, external, or receive recover

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

Distance (Maximum):
 ME0003C units, ME0007A-HDSL:
 Over 26 AWG: Up to 3.9 mi. (6.3 km);
 Over 24 AWG: Up to 4.6 mi. (7.4 km);
 ME0004C units,
 ME0008A-MCAMP:
 Over 26 AWG: Up to 4 mi. (6.4 km);
 Over 24 AWG: Up to 5.8 mi. (9.3 km)

Line Coding:
 ME0003C units: 2B1Q;
 ME0004C units,
 ME0008A-MCAMP: CAP;
 ME0007A-HDSL: 2B1Q, CAP

Management:
 Local management:
 ME0003C–ME0004C units:
 Via DIP switches;
 ME0007A-HDSL,
 ME0008A-MCAMP:
 Via DIP switches or
 VT100™ emulation

Operation: Full-duplex

Protocol: Synchronous

Speed:
 ME0003C units, ME0007A-HDSL:
 DTE: 64 kbps to 1.152 Mbps in
 user-defined increments;
 Line: 144 kbps to 1.168 Mbps;
 ME0004C units:
 DTE: 64 kbps to 2.304 Mbps in
 user-defined increments;
 Line: 144 kbps to 2.32 Mbps;
 ME0008A-MCAMP:
 DTE: 128 kbps to 2.304 Mbps in
 user-defined increments;
 Line: 144 kbps to 2.32 Mbps

CE Approval: Yes

Interface:
 ME0003C units: V.35, X.21, or
 10BASE-T;
 ME0004C units: G.703, X.21, or
 10BASE-T;
 ME0007A-HDSL,
 ME0008A-MCAMP: 10BASE-T,
 G.703, V.35, X.21, RS-232, or
 RS-422/RS-530

Indicators: LEDs for CD, CTS, DTR,
 ER, NS, RD, TD, TM

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

Power: ME0003C–ME0004C units:
 From rack:
 ME0007A-HDSL: Internal power
 supply with universal 90–
 260-VAC, 50–60-Hz input;
 ME0008A-MCAMP:
 Internal power supply with
 universal 90–260-VAC,
 50–60-Hz input or 48-VDC
 supply

Ordering Information

ITEM	CODE
------	------

High-Speed 2-Wire Short-Range DSL Line Driver
 Rack Cards

ITEM	CODE
hDSL	
V.35 (M/34 F)	ME0003C-V35
X.21 (DB15 F)	ME0003C-X21
10BASE-T (RJ-45)	ME0003C-10BT
mDSL	
G.703 (RJ-45)	ME0004C-G703
X.21 (DB15 F)	ME0004C-X21
10BASE-T (RJ-45)	ME0004C-10BT

To rackmount your line driver cards, order...

16-Port Managed MicroRACK	RM260
Managed MicroRACK Control Module	RM262C
Autosensing 90–260-VAC Power Supply	PS466A
-48-VDC Power Supply	PS466A-DC

Modular DSL Line Drivers

hDSL	ME0007A-HDSL
mDSL	ME0008A-MCAMP

*Select one Interface Card for each Modular DSL
 Line Driver...*

10BASE-T	ME530A
G.703	ME481C-G703
V.35	ME481C-35
X.21	ME481C-X21
RS-232	ME481C-232
RS-422/RS-530	ME481C-422