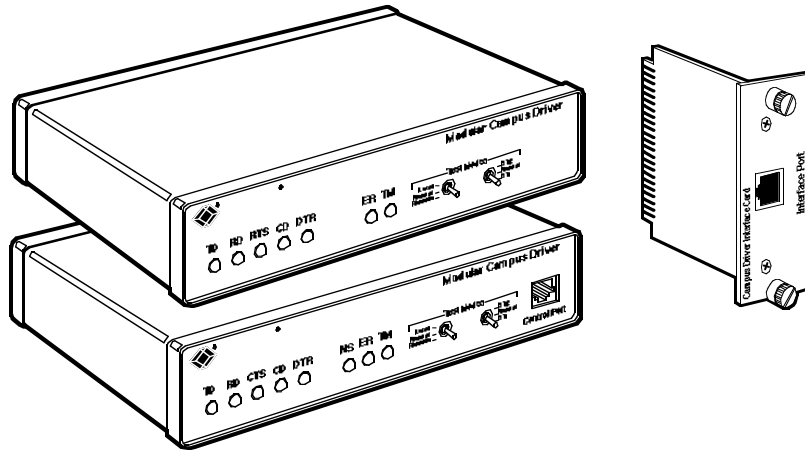# BLACK BOX®
NETWORK SERVICES

2- and 4-Wire Modular Campus Drivers

The perfect Line Driver for high-speed leased-line Internet links, LAN inter-connection, or campus networking.

Key Features

▶ *2-Wire model offers full-duplex operation over a single twisted pair; 4-wire gives you full or half-duplex operation over two twisted pairs.*

▶ *Replaceable interface cards for RS-232, V.35, RS-422/530, X.21, and G.703.*

▶ *ME480A offers synchronous data rates up to 160 Kbps; ME485 reaches data rates of up to 128 Kbps synchronous, 38.4 Kbps asynchronous.*

▶ *Power-supply options: 115 or 230 VAC, or 48 VDC.*

▶ *CE compliant.*

Overview

The Campus Driver supports point-to-point, synchronous or asynchronous (2-Wire Campus Driver only) communication over a single twisted pair (2 wires) or two twisted pairs (4 wires).

Offering a variety of switch-selectable synchronous data rates (and asynchronous data rates for the 2-Wire model), the Campus Driver is an excellent choice for connecting two bridges/routers, or for similar campus networking applications at distances up to 10 (for the 2-Wire models) or 11 miles (for the 4-Wire models).

The 2-Wire Campus Driver incorporates local analog and remote digital loopback test modes, as well as a V.52 BERT pattern generator. For extended distances, the Campus Driver uses automatic equalisation, gain control, and echo cancellation.

Data integrity is enhanced by transformer isolation and surge protection.

The 4-Wire Campus Driver boasts built-in V.54 loopback tests (which can be activated from the front panel or the terminal interface), a V.52 BERT pattern generator, and seven front-panel LEDs. Data integrity is enhanced by automatic equalisation and gain control. The 4-Wire Campus Driver also incorporates transformer isolation—for protection against ground loops—and Silicon Avalanche Diodes to guard data and connected equipment against transient surges.

For both models, synchronous clocking options include internal, external, and receive recovered clock. And configuration is made easier by externally accessible DIP switches.

One of the Campus Driver's unique features is the quick-change, plug-in Interface Card that allows connection to a variety of popular terminal interfaces: G.703, V.35, X.21, RS-530, and RS-232. For connecting twisted-pair line, the Campus Driver provides an RJ-45 jack. The internal power supply comes in either 115 VAC, 230 VAC, or 48 VDC.

With its support for high data rates, long distances, and multiple interfaces, the Campus Driver provides a wide array of point-to-point communication solutions. Whether your task is connecting two LANs over private campus or leased lines, extending a 64-Kbps G.703 link, performing G.703 extension and interface conversion, or doing high-speed data transfer, the Campus Driver is the one Line Driver that can do it all.

ME480A Distance Table

Data Rate	Wire Gauge (miles)			
(Kbps)	19	22	24	26
160	8.1	5.9	4.1	3
144	8.5	6.1	4.4	3.1
128	9	6.2	4.6	3.2
112	9.2	6.3	4.8	3.2
80	14.8	6.4	5.2	3.2
72	10.8	6.6	5.5	3.4
64	11	6.8	5.5	3.4
56	11.1	6.8	5.5	3.4
48	10.8	6.6	5.4	3.3

ME485A Distance Table

Data Rate	Wire Gauge (miles)			
(Kbps)	19	22	24	26
128	10.1	6.4	4.5	3.4
64	10.1	6.4	4.5	3.4
56	10.1	6.4	4.5	3.4
32	10.1	6.4	4.5	3.4
0 to 38.4	10.1	6.4	4.5	3.4

Additional equipment you may need:

• V.35 Interface cable

Specifications

Data Rates — ME480A: 48, 56, 64, 72, 80, 112, 128, 144, and 160 Kbps (switch-selectable); ME485A, ME485C: 32, 56, 64, 128 synchronous (switch-selectable), or 0 to 38.4 Kbps asynchronous

Diagnostics — ME480A: V.52-compliant bit-error-rate pattern (511/511E pattern) generator and detector with error injection mode; V.54 compliant—Local Analog Loopback and Remote Digital Loopback, activated by front-panel switch or via serial interface; ME485A, ME485C: Local analog loopback, remote digital loopback, V.52-compliant bit-error-rate pattern (511/511E pattern) generator and detector with error injection mode

DTE Interface — Depends on the interface card installed

Twisted-Pair Interface — RJ-45 jack

Transmission Format — ME480A: Sync; ME485A, ME485C: Async or sync

Transmission Line — Unconditioned twisted pair or Local Area Data Circuits (LADS), 19 to 26 AWG; DC continuity not required

Clocking — Internal, external, or receive loopback

Carrier Control — Constantly On or Controlled By RTS

Distance — ME480A: Up to 11 miles (19 AWG @ 56 Kbps); ME485A: Up to 10.1 miles; ME485C: Up to 10.8 miles

RTS/CTS Delay — No delay, Short delay (4 to 9 ms), or Long delay (33 to 71 ms)

Line Encoding — ME485A, ME485C: 2B1Q with Integrated Echo Cancellation

Indicators — ME480A: TD, RD, RTS, CD, DTR, ER, TM; ME485A, ME485C: TD, RD, CTS, CD, DTR, NS, ER, TM

Isolation — Minimum 3000V RMS via custom transformers

Surge Protection — 600W power dissipation at 1 ms

Operating Temperature — 0 to 45° C

Humidity — 5 to 95%, noncondensing

Altitude — Up to 4570 m

Power — :ME480AE, ME485AE: 230 VAC, 50 Hz; ME480A-D48, ME485A-D48: 48 VDC, 5 watts

Size — 18.5 x 16.8 x 4.1 cm; ME485C front card: 12.2 x 7.9 x 2.4 cm; ME485C rear card:8.4 x 7.1 x 2.4 cm

Weight — 1Kg; ME485C front card: 0.1 kg; ME485C rear card: 0.05 kg

Ordering Information

This information will help you place your order quickly.

PRODUCT NAME	ORDER CODE
4-Wire Modular Campus Driver	
115/230 -VAC	ME480A-R2
48-VDC	ME480A-D48
2-Wire Modular Campus Driver	
230-VAC	ME485AE
48-VDC	ME485A-D48
Rack Card (DB25/RJ-45)	ME485C-35/A
Rack Card (M/34/RJ-45)	ME485C-35/B
Campus Driver Interface Cards	
RS-232	ME481C-232
RS-422/530	ME481C-422
V.35	ME481C-35
X.21	ME481C-X21
G.703	ME481C-G703