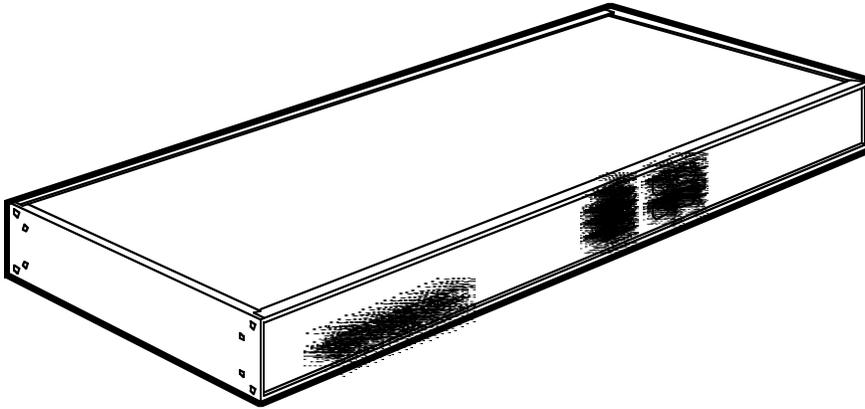


# BLACK BOX<sup>®</sup>

## NETWORK SERVICES

### SCSI Fibre Optic Bus Extender



*Extend a SCSI bus to 2 km and still support 40 mbps!*

#### Key Features

- ▶ *Extends your SCSI bus to 2 km (6560 ft.) while supporting a top SCSI data rate of 40 mbps!*
- ▶ *Single-ended and differential versions available. Operate the single-ended unit with a differential unit to convert one SCSI bus type to another.*
- ▶ *Each unit includes Narrow and Wide SCSI, fibre, RS-232, and coax interfaces.*
- ▶ *Fibre interface has SC connectors. Supports single-mode and multimode.*
- ▶ *SCSI-1, -2, and -3 and Ultra SCSI compatible.*
- ▶ *On-board diagnostics and loopback.*

**T**he SCSI Fibre Optic Bus Extender gives you access to remote peripheral devices—such as RAID arrays, tape libraries, optical jukeboxes, and CD-ROM towers—up to 2 km away!

Normal SCSI distance limits are 6 metres for single-ended SCSI and 25 metres for differential SCSI. However, with the SCSI Fibre Optic Bus Extender, you can extend your SCSI bus up to 2 kilometres over fibreoptic cable, while maintaining maximum SCSI bus speed of 40 mbps.

The extender even includes coax connectors, so you can use economical coax cable instead of fibreoptic cable for shorter distances of up to 100 ft. (30 m).

The SCSI Fibre Optic Bus Extender converts the SCSI signal into a proprietary high-speed 1.06-gbps serial data stream for transmission over fibreoptic (or coax) cable. Another SCSI Fibre Optic Bus Extender at the other end of the link converts the serial data stream back into a SCSI signal.

Fibreoptic open-loop protection automatically disconnects the SCSI bus if the fibreoptic link fails.

The SCSI Fibre Optic Bus Extender supports any combination of asynchronous and synchronous SCSI devices on the bus. And, because it doesn't occupy a SCSI bus ID, it's completely transparent to the rest of the system.

Although the extender runs without software, easy-to-use Windows software is included. Use the software to remotely operate and control selection of extender interfaces, report SCSI bus activity, gather performance statistics, and initiate on-board diagnostics.

You can also control the extender with simple ASCII commands sent by any standard modem software. Up to eight separate extenders can be controlled from one serial port via the internal RS-485 multidrop interface.

The rear panel of the SCSI Fibre Optic Bus Extender has both 68-pin and 50-pin SCSI connectors for easy connection to nearly any SCSI peripheral.

Internal bus termination can be disabled for system configuration requiring external configuration.

#### Typical Application

*Use SCSI Fibre Optic Bus Extenders connect users to remote tape libraries for centralized and secure backup operations.*

## Technically Speaking

**S**CSI (Small Computer System Interface, pronounced "suzziy") is a standard used to connect computers to such peripherals as CD-ROM drives, hard drives, scanners, and laser printers.

SCSI devices are linked together to form a SCSI chain. Slower SCSI types such as SCSI-1 or narrow SCSI should be connected last on the SCSI bus—if they were connected first on the bus, they would slow down the faster SCSI interfaces.

A SCSI chain can contain up to seven devices plus the computer. Each device, including the computer, has its own unique SCSI ID number from 0 through 7, with the computer usually being number 7. (Note, however, that SCSI-3's ID can be from 0 to 15.) All SCSI devices in a chain must have a different number—if more than one device has the same number, your system will crash.

It's important to be sure of the SCSI ID number of all SCSI devices whenever you add a new device. Usually,

you can change the SCSI ID with a small dial or DIP switches on the back of the unit.

The original SCSI standard—now known as SCSI-1—was approved in 1986. It supports transfer rates of up to 5 Mbps and 7 SCSI devices on an 8-bit bus. The most common connector for SCSI-1 is the Centronics® 50 or Telco 50. A Micro Ribbon 60 connector may also be used.

Approved in 1994, SCSI-2 introduced optional 16- and 32-bit buses called "Wide SCSI." The transfer rate, normally 10 Mbps, can go up to 40 Mbps when combined with Fast-Wide SCSI. SCSI-2 usually uses a MicroD 50-pin connector with thumbclips. It's also known as Mini 50 or Micro DB50. A Micro Ribbon 60 connector may also be used.

SCSI-3 (or Ultra SCSI) is found in many high-end systems. It has transfer rates of 20 Mbps (Narrow SCSI-3) or 40 Mbps (Wide SCSI-3).

SCSI-3 commonly uses a MicroD 68-pin connector with thumbscrews. It's also known as Mini 68.

The most common bus width for SCSI-3 is 16-bit with transfer rates at 20 Mbps. Serial-bus and fiber-channel protocols are in development.

SCSI-5, a new type of connector interface, is also called VHDCI (Very High-Density Connector Interface) or a 0.8-mm connector. It's similar to the SCSI-3 MD68 connector in that it has 68 pins and a much smaller footprint.

SCSI-5 is designed for next-generation SCSI connections where high performance is a key requirement.

Manufacturers such as IBM® and Hewlett-Packard® are integrating this new 0.8-mm connector design in their controller cards. It's the connector of choice for advanced SCSI multiport applications, such as Ultra SCSI Fast-20 and the new Low-Voltage Differential Signal (LVDS) technology.

Because of SCSI-5's special offset cable exit, up to four channels can be accommodated in one card slot. Connections are also easier where space is limited.



**SCSI-1**  
50-Pin Centronics



**SCSI-3**  
68-Pin High Density



**SCSI-2**  
50-Pin High Density



**SCSI-5**  
VHDCI

### Specifications

#### Speed —

Narrow SCSI: 20 mbps;  
Wide SCSI: 40 mbps

**Protocol** — Synchronous or asynchronous

#### Connectors — IC500A:

Single-ended interface;  
IC501A: Differential interface;

Both: (1) RS-232 DB9M,  
(1) Coax DB9M,  
(2) Fibre SC,  
(1) SCSI 50-pin Narrow,  
(1) SCSI 68-pin Wide

#### Max. Cable Length —

IC500A: SCSI: 19.7 ft.;  
IC5201A: SCSI: 82 ft.; Both models: Fiber:

1804 ft. with  
62.5/125 µm multimode,  
6560 ft) with  
8/125 µm single-mode;  
Coax: 98 ft;  
RS-232: 49 ft.

**CE Approval** — All items listed are approved

**Temperature** — 0 to 55° C

**Humidity** — Up to 90% RH

**Power** — 90 to 260 VAC,  
48–65 Hz, 15 watts,  
autosensing

**Size** — 37.3 x 20.6 x 4.3 cm

**Weight** — 1.4 kg

### Additional equipment you may need:

Terminated Fibre Optic  
Cable, SC-SC (EFN4025)

SCSI-3 Male to SCSI-3  
Male Cable, 3-ft. or 6-ft.  
(EVNSC07)

### For these and other components...

Call our expert Technical Support Staff for all your SCSI 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
SCSI Fibre Optic Bus Extenders	
Single-Ended.....	IC500A
Differential.....	IC501A