BLACK BOX®
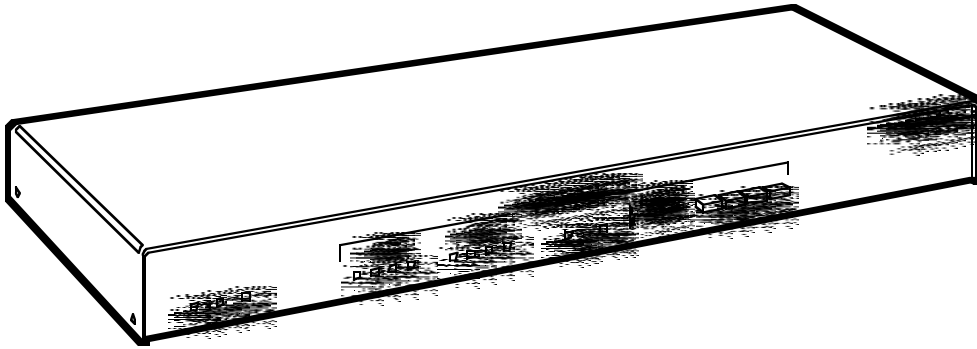## NETWORK SERVICES

X.21 LS Buffers

Get bidirectional buffers on each port and make your network more efficient.

So you want a cost-effective way to expand your existing leased-line polled network without adding computers or communication links?

Sure, others offer high-speed modem and port-sharing tools, but they probably don't support bidirectional buffering on *each* port. To get that, you might have to buy additional tail-circuit buffers. Do you really want that many boxes in your data stream?

The simple, affordable solution is the X.21 LS Buffer from Black Box.

Up to four DTE or DCE devices can share the same port, in any combination, using the contention and control protocols normally found in host hardware and software. The ports are DTE/DCE selectable and meet the ITU X.21 Standard, so you can be assured of synchronous operation in the network by both data terminal and data circuit equipment.

Once installed, the buffer boosts the efficiency of your system and network by drawing upon the host processor's power and reducing the idle time associated with many host-terminal traffic sessions.

The buffer temporarily stores information sent and received between multiple devices with different data-handling speeds and abilities. It then releases the data at slower speeds.

Ideal for synchronous network environments, the X.21 LS is protocol-transparent at data rates up to 1.024 mbps. Data arrives at the master port and is continually broadcast to all subchannels.

The buffer also clocks data between different network carriers, synchronizing the transmission of data and control characters. The 512-bit model reclocks data when the clock rate is at the same rate, but it won't lock onto the frequency of the different network carriers, so no external tail-circuit buffers are needed. The elastic tail-circuit buffer compensates for different clock sources. Clocking may be accomplished from any port of the unit, and two modes are available for fallback clocking.

In applications where both the master port and the selected port provide their own clocks, data is clocked into the buffer at the receive rate of the active port and clocked out using the master port transmit clock.

What's more, the 4-port buffers feature a Channel 4-only mode, which forces Port 4 as the active port to the master port. Data and clock are then rebroadcast out to Ports 1–3 after passing through the master port.

And, unlike most other sharing devices, the buffer can be adjusted as your network changes. Using Field-Programmable Gate Array (FPGA) technology, you're able to reprogram the buffer when sharing devices are added, so the X.21 LS can, therefore, grow with your network without needing new hardware. Your investment is protected.

The X.21 LS is housed in a sturdy rackmount metal enclosure and equipped with a 110/220 VAC switch-selectable linear power supply.

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Typical Application

The 512-bit buffer's adjustable capacity and data clocking make it an ideal choice for VSAT or land-line applications.

Technically speaking

The X.21 LS Buffer also features the following functions:

Automatic Removal— The buffer contains circuitry that, when enabled, will automatically remove a streaming DCE or DTE from service.

Each channel has a green and yellow LED to indicate subchannel activity. If a terminal goes into the streaming condition (Control continually high), the DTE will automatically be removed from service until you correct the DTE fault. All other DTEs will continue to be serviced.

Upon installation, you can set or fine-tune the timer to your network requirements.

Internal Clock Selection—The device also provides circuitry that allows you to select internal clocks. Though the X.21 LS is externally timed by the telco provider, the internal clock rates are very useful for testing and diagnostic purposes.

Subchannel Scanning— This allows equal access to the communications link for all connected DCE or DTE devices. The subchannels are scanned in sequence, and the attached subchannel that raises Control (C) or Indicate (I) will have access to the communications link. After the subchannel drops (C) or (I), the buffer will continue scanning in sequential order.

Additional equipment you may need:

•DB15 Cable with EMI/RFI Protection.

For these and other components...

Call our expert Technical Support Staff for all your enterprise networking needs. They'll help you find the best equipment for your application.

Specifications

CE Approval — All items listed are approved

Capacity — TL572A, TL574A: One to four ITU X.21 devices; TL573A, TL575A: One to two ITU X.21 devices

Interface — ITU X.21, V.11 using DB15 female connectors

Data Rate — Up to 1.024 Mbps

Data Format — Transparent at all data rates

Anti-Streaming — Automatic, selectable timeout intervals; Disable, selectable via DIP switch

Clock Source — From composite (master) port or subchannel Port 1

Memory — TL572A, TL573A: Buffer up to 512 bits, First-In, First-Out (FIFO) principle with automatic re-centering; TL574A, TL575A: Buffer up to 8 bits, FIFO principle with automatic re-centering

User Controls — Switches to enable/disable each channel

Indicators — Front panel: Power, Send/Receive Data, Channel Active, Channel Stream

Connectors — Subchannel ports: TL572A, TL574A: (4) DB15 female; TL573A, TL575A: (2) DB15 female Master ports: (1) DB15 female

Power — 100–120 to 200–220 VAC, 50/60 Hz

Maximum Altitude — 3,048 m

Temperature — Operating: 0 to 50° C

Humidity — 5 to 95% relative (noncondensing)

Size — 4-port models: 4.6 x 43.2 x 22.9 cm; 2-port models: 4.4 x 22.9 x 22.9 cm

Weight — 4-port models: 2 kg; 2-port models: 1.4 kg

Ordering Information

This information will help you place your order quickly.

PRODUCT NAME		ORDER CODE
X.21 LS		
512-Bit Buffer	4-Port	TL572A
	2-Port	TL573A
8-Bit Buffer	4-Port	TL574A
	2-Port	TL575A

ACCESSORY	ORDER CODE
DB15 Cable with EMI/RFI Protection, Male to Male	
6-ft (1.8-m)	EGM16E-0006-MM
10-ft. (3.0-m)	EGM16E-0010-MM
20-ft. (6.0-m)	EGM16E-0020-MM