BLACK BOX® NETWORK SERVICES

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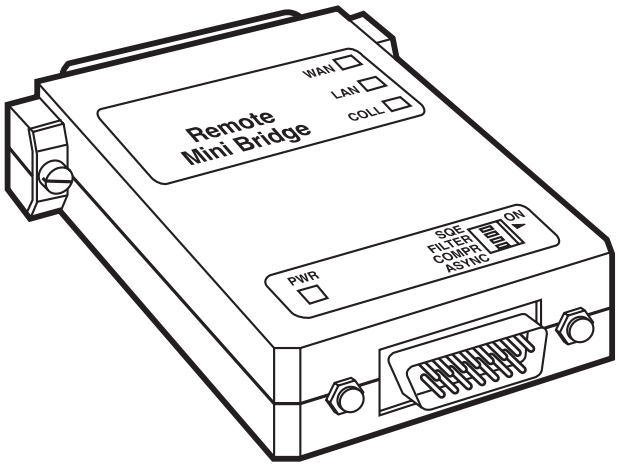
REMOTE MINIBRIDGE



Bridge network traffic for minimum cost using minimum space.

Key Features

- ***Pairs of compact units bridge Ethernet LANs.***
- ***Data rates to 20 Mbps on LAN side, 10 Mbps sync or 115.2 kbps async on WAN side.***
- ***Filters and forwards nearly 15,000 packets per second, and automatically updates its table of as many as 10,000 MAC addresses.***
- ***Available in 10BASE5 and 10BASE-T LAN versions, each with eight optional WAN interfaces.***
- ***Features an auto-sensing power supply.***

The Remote MiniBridge (RMB) is a high-performance, self-learning Ethernet bridge whose small size and low cost make it ideal for cost-sensitive bridging or LAN-extender/segmenter applications.

It automatically learns MAC addresses on the LAN to which it is connected and only forwards frames destined for another LAN. Its LAN table stores up to 10,000 addresses and is automatically updated.

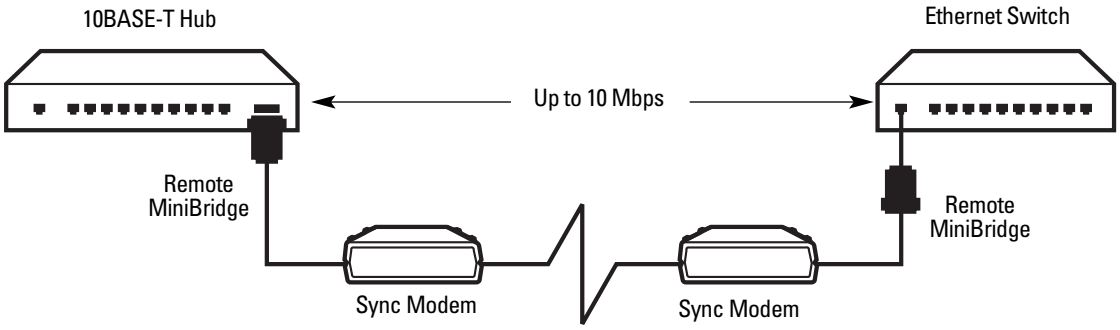
The RMB performs filtering and forwarding at 14,880 pps (packets per second), just shy of the maximum theoretical "wire-speed" rate of 15,000 pps. Its buffer can hold 256 frames with a throughput latency of 1 frame. Alternatively, you can disable filtering for extender or segmenter applications.

The Remote MiniBridge is available with either of two LAN interfaces, 10BASE5 AUI or 10BASE-T UTP. The 10BASE-T models can operate full duplex at 20 Mbps.

On the WAN side, the RMB comes with any of eight different interfaces: RS-232 (V.24), RS-422 (V.36), RS-530, V.35, X.21, multimode or single-mode fiber optic, or 4-wire twisted pair. The RMB can send and receive data synchronously across any of these interfaces at up to 10 Mbps. (Except for 4-wire, it can also communicate asynchronously across these interfaces at any of seven standard frequencies up to 115.2 kbps—or even at other custom frequencies derived from a high-speed external-clock signal—but be aware that async operation requires grounding certain pins on the WAN connector and is technically challenging.) For all its WAN communication, the RMB uses a variant of HDLC framing in accordance with RFC 1662.

You can also enable or disable "enhanced compression," a throughput-enhancing feature in which the RMB strips the padding bits from 64-byte frames.

All models feature an autosensing desktop power supply, so your RMBs are safe working with 115-VAC/60-Hz or 230-VAC/50-Hz lines. That versatility means these units can work anywhere in the world you have a network.



The Remote Mini-Bridge: It's quick, inexpensive, and reliable. Sometimes you can even plug it right into a device.

Specifications

Compliance: CE, FCC Part 15 Subpart J Class A, DOC Class/MDC classe A

Standards: LAN: IEEE 802.3 Ethernet v.2

Interfaces:
- LAN:
  - "-Axx" models: 10BASE5 AUI;
  - "-Uxx" models: 10BASE-T;
- WAN:
  - "-x24" models: TIA RS-232/ ITU-TSS V.24/V.28, DTE;
  - "-x35" models: ITU-TSS V.35;
  - "-x36" models: TIA RS-422/ ITU-TSS V.36;
  - "-x53" models: TIA RS-530;
  - "-x21" models: ITU-TSS X.21;
  - "-x4W" models: Proprietary 4-wire;
  - "-xMST" models: 850-nm multimode fiber optic;
  - "-xSST" models: 1300-nm single-mode fiber optic

Protocols: WAN: Synchronous or asynchronous, embedded in RFC 1662 variant of HDLC framing

LAN Table: 10,000 MAC addresses with five-minute automatic aging (updating)

Filtering and Forwarding: 14,880 packets (frames) per second

Buffer Size: 256 frames

Throughput Delay: 1 frame

Data Format: WAN: HDLC-like frames (in async mode, these are broken into 8-data-bit octets which are preceded by a start bit and followed by a stop bit)

Flow Control: None

Operation: LAN: AUI models: Half-duplex; 10BASE-T models: Half- or full duplex

Data Rate: LAN:
- Full-duplex 10BASE-T: 20 Mbps;
- AUI or regular 10BASE-T: 10 Mbps;
- WAN:
  - Synchronous: Up to 10 Mbps;
  - Asynchronous (all except 4-wire and fiber optic models): 115.2, 57.6, 38.4, 28.8, 19.2, 14.4, or 9.6 kbps (user-selectable)

Clock Source: WAN: External only

Maximum Distance:
- LAN:
  - AUI models: 50 m (164 ft.) to attached device;
  - 10BASE-T models: 100 m (328 ft.) to attached device;
- WAN:
  - "-x4W" models:
    - Category 5 cable or Category 3 STP:
      - At 10 Mbps: 500 m (1640.4 ft.);
      - At 5 Mbps: 700 m (2296.6 ft.)
    - Category 3 UTP:
      - At 10 Mbps: 400 m (1312.3 ft.);
      - At 5 Mbps: 600 m (1968.5 ft.)
  - "-xMST" models: Approx. 3 km (1.8 mi.) depending on fiber quality;
  - "-xSST" models: Approx. 20 km (12.4 mi.) depending on fiber quality;
  - All other models: Standard maximum distance for given interface

Fiber Specifications (Fiber Optic Models Only):
- Optical output power:
  - "-xMST" models: –18 dBm into 62.5/125 µm fiber;
  - "-xSST" models: –18 dBm into 9/125 µm fiber;
- Receiver sensitivity: –32.5 dBm;
- Dynamic Range: 20.5 dBm minimum

User Control: (1) Top-mounted 4-position DIP switch for filtering; compression; either SQE (AUI models) or full vs. half-duplex (10BASE-T models); and either 10 Mbps/normal distance vs. 5 Mbps/long distance (4-wire models) or sync/async (all other models)

Connectors:
- LAN:
  - "-Axx" models: (1) DB15 M;
  - "-Uxx"models: (1) shielded RJ-45;
- WAN:
  - "-x24" models: (1) DB25 F;
  - "-x35" models: (1) DB25 F, proprietarily pinned for V.35 (patch cable to M/34 included);
  - "-x36" models: (1) DB25 F, pinned for TIA RS-422 patch cable to DB37 included);
  - "-x53" models: (1) DB25 F;
  - "-x21" models: (1) DB25 F, pinned for TIA RS-530 (patch cable to DB15 included);
  - "-x4W" models: (1) 5-screw terminal block;
  - "-xxST" models: (1) pair ST®

Indicators: (4) Top-mounted LEDs:
- WAN (lights yellow in response to WAN data activity);
- LAN (all models: lights yellow in response to LAN data activity; 10BASE-T models: lights green to show link integrity);
- COLL (lights red in response to LAN collision);
- PWR (lights green while unit is powered)

MTBF: 506,000 hours

Temperature Tolerance: 32 to 122˚F (0 to 50˚C)

Humidity Tolerance: Up to 90% noncondensing

Power: From autosensing desktop power supply:
- Input: 100–250 VAC, 50–60 Hz;
- Output: 12 VDC, at least 400 mA;
- Consumption:
  - Fiber optic models: 300 mA (3.6 watts) typical, 400 mA (4.8 watts) max.;
  - All other models: 200 mA (2.4 watts) typical, 400 mA (4.8 watts) max.

CAUTION!

Although the Remote Mini-Bridge can operate on any regulated 12-VDC power supply that provides at least 400 mA of current, using a different power supply than the one the unit comes with will void CE compliance for the 4-wire and fiber optic models.

Size: 0.7"H x 2.1"W x 2.7"D (1.8 x 5.3 x 6.9 cm)

Weight: 0.1 lb. (<0.1 kg)

Typical Application

Connect the 10BASE-T network in your underfunded and overcrowded crosstown research lab to the rest of your campus Ethernet network with a pair of V.35 Remote MiniBridges, a pair of CSU/DSUs, and a high-speed dedicated line.

The Complete Package

- Remote MiniBridge. *(Note: The Remote MiniBridge must be used in pairs.)*
- Autosensing power supply.
- Users' manual.
- *V.35, RS-422 (V.36), and X.21 models:* Adapter cables that patch the MiniBridge's DB25 WAN connector to the interface's native connector.

You May Also Need . . .

- 10BASE-T or AUI cable.
- WAN interface cable.
- Ethernet hubs, switches, repeaters, etc.
- Data testers.
- WAN driver devices such as modems, CSU/DSUs, FRADs, or ISDN terminal adapters.
- Power- and data-line surge protectors.

Black Box offers the best warranty program in the industry—Fido Protection®. For more information, request **FaxBack 22512**.

Ordering Information

ITEM	CODE
10BASE5 AUI Remote MiniBridge	
RS-232	LB0010A-A24-R2
V.35	LB0010A-A35-R2
RS-422	LB0010A-A36-R2
RS-530	LB0010A-A53-R2
X.21	LB0010A-A21-R2
4-Wire	LB0010A-A4W-R2
Multimode ST®	LB0010A-AMST-R2
Single-Mode ST	LB0010A-ASST-R2
10BASE-T UTP Remote MiniBridge	
RS-232	LB0010A-U24-R2
V.35	LB0010A-U35-R2
RS-422	LB0010A-U36-R2
RS-530	LB0010A-U53-R2
X.21	LB0010A-U21-R2
4-Wire	LB0010A-U4W-R2
Multimode ST	LB0010A-UMST-R2
Single-Mode ST	LB0010A-USST-R2
You may also want to order…	
Ethernet Transceiver Office Cable, PVC, 10-ft. (3-m)	LCN210-0010
Category 5 Patch Cable, 100-MHz, 4-Pair, Straight-Pinned, PVC, Beige, 10-ft. (3-m)	EVMSL05-0010
Terminated Duplex Fiber Optic Cable, PVC, ST-ST, 1-m (3.2-ft.)	EFN062-001M-CC
Single-Mode Duplex Fiber Optic Cable, PVC, ST-ST, 1-m (3.2-ft.)	EFN5009-001M

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 far 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.

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