



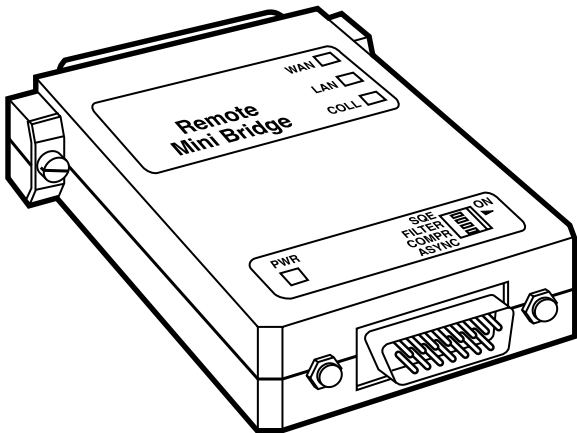
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LB0010A-A24-R2 LB0010A-A36-R2 LB0010A-A21-R2 LB0010A-AMST-R2
LB0010A-U24-R2 LB0010A-U36-R2 LB0010A-U21-R2 LB0010A-UMST-R2
LB0010A-A35-R2 LB0010A-A530-R2 LB0010A-A4W-R2 LB0010A-ASST-R2
LB0010A-U35-R2 LB0010A-U530-R2 LB0010A-U4W-R2 LB0010A-USST-R2

Remote MiniBridge



CUSTOMER SUPPORT INFORMATION

Order toll-free in the U.S.: Call 877-877-BBOX (outside U.S. call 724-746-5500)
FREE technical support 24 hours a day, 7 days a week: Call 724-746-5500 or fax 724-746-0746
Mailing address: **Black Box Corporation**, 1000 Park Drive, Lawrence, PA 15055-1018
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**FEDERAL COMMUNICATIONS COMMISSION
AND
INDUSTRY CANADA
RADIO-FREQUENCY INTERFERENCE STATEMENTS**

This equipment generates, uses, and can radiate radio frequency energy and if not installed and used properly, that is, in strict accordance with the manufacturer's instructions, may cause interference to radio communication. It has been tested and found to comply with the limits for a Class A computing device in accordance with the specifications in Subpart J of Part 15 of FCC rules, which are designed to provide reasonable protection against such interference when the equipment is operated in a commercial environment. Operation of this equipment in a residential area is likely to cause interference, in which case the user at his own expense will be required to take whatever measures may be necessary to correct the interference.

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

This digital apparatus does not exceed the Class A limits for radio noise emission from digital apparatus set out in the Radio Interference Regulation of Industry Canada.

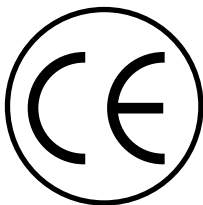
Le présent appareil numérique n'émet pas de bruits radioélectriques dépassant les limites applicables aux appareils numériques de classe A prescrites dans le Règlement sur le brouillage radioélectrique publié par Industrie Canada.

EUROPEAN UNION DECLARATION OF CONFORMITY

The manufacturer declares that the Remote Minibridge conforms to the following standards:

- EN55022 (1994): Limits and methods of measurement of radio disturbance characteristics of information technology equipment.
- EN50082-1 (1992): Electromagnetic compatibility: Generic immunity standard for residential, commercial, and light industry.

The Remote MiniBridge herewith complies with the requirements of the EMC Directive 89/336/EEC. The product was tested in a typical configuration.



NORMAS OFICIALES MEXICANAS (NOM) ELECTRICAL SAFETY STATEMENT

INSTRUCCIONES DE SEGURIDAD

1. Todas las instrucciones de seguridad y operación deberán ser leídas antes de que el aparato eléctrico sea operado.
2. Las instrucciones de seguridad y operación deberán ser guardadas para referencia futura.
3. Todas las advertencias en el aparato eléctrico y en sus instrucciones de operación deben ser respetadas.
4. Todas las instrucciones de operación y uso deben ser seguidas.
5. El aparato eléctrico no deberá ser usado cerca del agua—por ejemplo, cerca de la tina de baño, lavabo, sótano mojado o cerca de una alberca, etc..
6. El aparato eléctrico debe ser usado únicamente con carritos o pedestales que sean recomendados por el fabricante.
7. El aparato eléctrico debe ser montado a la pared o al techo sólo como sea recomendado por el fabricante.
8. Servicio—El usuario no debe intentar dar servicio al equipo eléctrico más allá a lo descrito en las instrucciones de operación. Todo otro servicio deberá ser referido a personal de servicio calificado.
9. El aparato eléctrico debe ser situado de tal manera que su posición no interfiera su uso. La colocación del aparato eléctrico sobre una cama, sofá, alfombra o superficie similar puede bloquea la ventilación, no se debe colocar en libreros o gabinetes que impidan el flujo de aire por los orificios de ventilación.

REMOTE MINIBRIDGE

10. El equipo eléctrico deber ser situado fuera del alcance de fuentes de calor como radiadores, registros de calor, estufas u otros aparatos (incluyendo amplificadores) que producen calor.
11. El aparato eléctrico deberá ser conectado a una fuente de poder sólo del tipo descrito en el instructivo de operación, o como se indique en el aparato.
12. Precaución debe ser tomada de tal manera que la tierra fisica y la polarización del equipo no sea eliminada.
13. Los cables de la fuente de poder deben ser guiados de tal manera que no sean pisados ni pellizcados por objetos colocados sobre o contra ellos, poniendo particular atención a los contactos y receptáculos donde salen del aparato.
14. El equipo eléctrico debe ser limpiado únicamente de acuerdo a las recomendaciones del fabricante.
15. En caso de existir, una antena externa deberá ser localizada lejos de las líneas de energía.
16. El cable de corriente deberá ser desconectado del cuando el equipo no sea usado por un largo periodo de tiempo.
17. Cuidado debe ser tomado de tal manera que objetos líquidos no sean derramados sobre la cubierta u orificios de ventilación.
18. Servicio por personal calificado deberá ser provisto cuando:
 - A: El cable de poder o el contacto ha sido dañado; u
 - B: Objetos han caído o líquido ha sido derramado dentro del aparato; o
 - C: El aparato ha sido expuesto a la lluvia; o
 - D: El aparato parece no operar normalmente o muestra un cambio en su desempeño; o
 - E: El aparato ha sido tirado o su cubierta ha sido dañada.

UL Listing Requirements

IMPORTANT SAFETY INSTRUCTIONS

For North American Users

The Remote MiniBridge is powered by an external power supply. To reduce the risk of shock, fire, and injury, use it only with a UL® listed and CSA Certified Class 2 power supply rated 12 VDC, 400 or more mA.

Exigences UL

INSTRUCTIONS IMPORTANTS DE SÉCURITÉ

Pour les utilisateurs Nord Américains

Le MiniBridge Remote est renforcé par un transformateur extérieur. Afin de réduire le risque d'électrocution, de feux ou de blessure, utiliser seulement avec le UL listé et le CSA Certifié classe 2 le transformateur de 12 VDC, 400 mA ou plus.

TÜV Certification Requirements

European Users

Electrical ratings: 12 VDC, 400 or more mA

CAUTION!

To reduce the risk of electric shock, fire, and injury, use only with a power supply which is approved for the latest version of EN 60950.

TÜV-Zertifizierungsanforderungen

Europäische Benutzer

Leistungsaufnahme: 12 VDC, 400 oder mehr mA

ACHTUNG!

Um das Risiko eines elektrischen Schlages oder Brandes so weit wie möglich zu vermeiden, verwenden Sie nur ein Stromversorgung das gemäß der neuesten Version des Standards EN 60950 zugelassen ist.

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1. Specifications

Compliance — CE; FCC Class A, IC Class/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 fiberoptic;

“-xSST” models: 1300-nm single-mode fiberoptic

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 fiberoptic models): 115.2, 57.6, 38.4, 28.8, 19.2, 14.4, or 9.6 Kbps (user-selectable, but see **Section 2.2**)

Clock Source — WAN: External only

Fiber Specifications (Fiber optic Models Only) —

Optical output power:

“-xMST” models: -18 dBm into 62.5/125 μ m fiber;

“-xSST” models: -18 dBm into 9/125 μ m fiber;

Receiver sensitivity: -32.5 dBm;

Dynamic Range: 20.5 dBm minimum;

Maximum Distance —

LAN:

AUI models: 50 m (164 ft.) to attached device;

10BASE-T models: 100 m (328.1 ft.) to attached device;

WAN:

“-x4W” models: 700 m (2296 ft.) over Category 5 or screened/shielded Category 3 cable at 5 Mbps (see **Sections 3.1** and **3.3.4**);

“-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

User Controls — (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)

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), and
- PWR (lights green while unit is powered)

Connectors —

LAN:

- Models with “-Axx” product-code suffix: DB15 male;
- Models with “-Uxx” product-code suffix: Shielded RJ-45 female;

WAN:

- “-x24” models: DB25 female;
- “-x35” models: DB25 female, proprietarily pinned for V.35 (patch cable to M/34 included);
- “-x36” models: DB25 female, pinned for TIA RS-530 (patch cable to DB37 included);
- “-x53” models: DB25 female;
- “-x21” models: DB25 female, pinned for TIA RS-530 (patch cable to DB15 included);
- “-x4W” models: 5-screw terminal block;
- “-xxST” models: (2) ST[®] female;

CAUTION!

Although the Remote MiniBridge can operate on any regulated 12-VDC power supply that provides at least 400 mA of current, using a different power supply from the one the unit came with will void CE compliance for the 4-wire and fiberoptic models.

MTBF — 506,000 hours

Temperature Tolerance — 32 to 122°F (0 to 50°C)

Humidity Tolerance — Up to 90% noncondensing

Power —

From desktop autosensing power supply:

Input: 100 to 250 VAC, 50 to 60 Hz;

Output: 12 VDC, at least 400 mA;

Consumption:

Fiberoptic models: 300 mA (3.6 watts) typical,
400 mA (4.8 watts) maximum;

All other models: 200 mA (2.4 watts) typical,
400 mA (4.8 watts) maximum

Size —

Fiberoptic models:

0.7"H x 2.1"W x 3"D (1.8 x 5.3 x 7.6 cm);

All other models:

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

Weight —

Fiberoptic models: 1.6 oz. (50 g);

All other models: 1 oz. (30 g)

2. Introduction

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

The RMB 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.

Filtering and forwarding is performed at 14,880 pps (packets per second), just shy of the maximum theoretical wire-speed rate of 15,000 pps. The RMB's buffer can hold 256 frames with a throughput latency of 1 frame. Alternatively, filtering can be disabled for extender or segmenter applications.

2.1 LAN-Interface Overview

The Remote MiniBridge comes in either of two LAN interfaces: 10BASE-T or 10BASE5 (AUI) Ethernet. 10BASE-T models can operate in full-duplex Ethernet (20 Mbps). AUI models can't do this, but they can draw power directly from the AUI interface, so you might not need to use an external power source. However, if you want to drive AUI signals any distance, or if the AUI port to which the RMB is attached doesn't provide an adequate amount of power, use the included external power supply to override the AUI supply. On all models, you can disable the Ethernet SQE test for hub or repeater connections.

2.2 WAN-Interface Overview

The Remote MiniBridge is also available with any of eight WAN interfaces—TIA RS-232 (ITU-TSS V.24/V.28), ITU-TSS V.35, TIA RS-422/449 (ITU-TSS V.36), TIA RS-530, ITU-TSS X.21, proprietary 4-wire, multimode fiberoptic, or single-mode fiberoptic.

The RMB transmits and receives data synchronously at up to 10 Mbps. Alternatively, all RMBs except for the 4-wire and fiberoptic models can communicate

asynchronously at up to 115.2 Kbps if you tie some of the unit's DB25 pins to ground (see Table 2-1 below). The RMB can internally generate seven standard asynchronous frequencies (9.6, 14.4, 19.2, 28.8, 38.4, 57.6, and 115.2 Kbps), or it can derive a different asynchronous data rate by dividing by sixteen the frequency of a sync signal on Pin 15. For example, if you want the RMB to communicate asynchronously at 4800 bps, the device attached to its WAN side has to provide a sync signal at $4800 \times 16 (= 76,800)$ bps on Pin 15.

Table 2-1. Grounding for asynchronous control.

Data Rate or Feature	DB25 Pin 6 Grounded?	DB25 Pin 8 Grounded?	DB25 Pin 17 Grounded?	DB25 Pin 22 Grounded?
Follow ext. clock (sync on Pin 15)	Yes	Yes	Yes	N/A
115.2 Kbps	Yes	Yes	No	N/A
57.6 Kbps	Yes	No	Yes	N/A
38.4 Kbps	Yes	No	No	N/A
28.8 Kbps	No	Yes	Yes	N/A
19.2 Kbps	No	Yes	No	N/A
14.4 Kbps	No	No	Yes	N/A
9.6 Kbps (default)	No	No	No	N/A
ACCM enabled (default)	N/A	N/A	N/A	No
ACCM disabled	N/A	N/A	N/A	Yes

The Remote MiniBridge uses a variant of HDLC framing for WAN communication, in accordance with RFC 1662. In asynchronous mode, the RMB breaks up the frames into 8-data-bit octets which are preceded by a start bit and followed by a stop bit. To make this process transparent (to achieve “frame transparency”), it normally uses “octet stuffing”—it replaces any flag sequence (0x7E), control-escape octet (0x7D), or other single octet in its Async Control-Character Map (ACCM) with two octets: the control-escape octet followed by the original octet XORed with 0x20. The ACCM consists of the first 32 characters in the ASCII character set (those with octet values up to 0x20). You can disable ACCM octet stuffing by tying Pin 22 of the RMB’s DB25 connector to ground (refer to **Table 2-1** on the previous page).

If you want to, you can also enable enhanced compression, which increases data throughput by stripping the padding bits from the 64-byte frames. (When compression is disabled, frames are transmitted as is.) See **Table 3-1** on page 22.

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The RMB's comprehensive LED display indicates LAN and WAN activity, link integrity (on 10BASE-T models), and power (see **Chapter 4**). The unit has four conveniently located DIP switches for easy configuration (see **Section 3.1**).

A typical application for the Remote MiniBridge is shown in Figure 2-1 below.

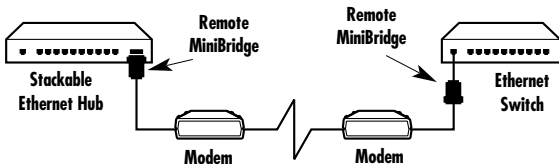


Figure 2-1. A Remote MiniBridge application.

3. Installation

3.1 Switch Setting

Refer to Table 3-1 on the next page as you set the Remote MiniBridge's top-mounted DIP switches.

3.2 LAN Interface

If your Remote MiniBridge is an AUI model, either plug it directly into the DTE's AUI port or attach it to the DTE's AUI port with a standard AUI cable.

If your Remote MiniBridge is a 10BASE-T model, use either a straight-through-pinned or cross-pinned cable to attach the unit to a device's 10BASE-T port:

- Run straight-through cable to connect the RMB to a hub or similar device.
- Run cross-pinned cable to connect the RMB to a NIC, workstation, or similar device.

Table 3-1. Switch Settings

Name (Default Setting)	Description
<p>FDX (OFF) (on 10BASE-T models)</p> <p>or</p> <p>SQE (OFF) (on AUI models)</p>	<p>Set to ON for full-duplex Ethernet. Set to OFF for half-duplex Ethernet.</p> <p>NOTE: This setting has <i>no effect</i> on WAN communication, which can always be simplex, half-duplex, or full-duplex (the RMB transparently auto-adjusts).</p> <p>Set to ON to have the RMB transmit an SQE test signal at the end of each frame. Set to OFF to disable SQE so that RMB does not transmit it. Set SQE OFF when you connect the RMB to a hub or repeater.</p>
<p>FILTER (ON)</p>	<p>Set to ON to have the RMB transmit across the WAN only those frames destined for another LAN, and filter out all other frames. Set to OFF to have the RMB transmit all frames that it receives across the WAN. Disable filtering for LAN-extender or segmenter applications.</p>
<p>COMPR (ON)</p>	<p>Set to ON on the RMBs at both ends of a WAN link to activate compression: The RMBs strip the padding bits from frames they transmit across the link in order to improve throughput. Set to OFF to disable compression. Set COMPR OFF when you have a Remote MiniBridge on one end of a WAN link and some other device at the other end.</p>
<p>ASYNC (OFF) (on most models, but has no effect on fiberoptic models)</p> <p>or</p> <p>LONG (OFF) (on 4-wire models; see Section 3.3.4)</p>	<p>Set to ON to have the RMB transmit asynchronously across the WAN link (see Section 2.2). Set to OFF to have the RMB transmit synchronously across the WAN link.</p> <p>Set to ON to have the RMB transmit across the WAN link at 5 Mbps in order to reach up to 700 m. Set to OFF to have the RMB transmit across the WAN link at 10 Mbps as far as 500 m.</p>

3.3 WAN Interface

3.3.1 RS-232 OR RS-530 MODELS

If you are attaching the Remote MiniBridgE to:

- A *DCE* device with a *DB25 male* serial port: Securely plug the RMB's DB25 female WAN connector directly into the device's serial port.
- A *DCE* device with a *DB25 female* serial port: Securely plug a M/M gender changer into the device's serial port, then plug the RMB's DB25 female WAN connector directly into the gender changer.
- A *DTE* device: You will need a special cable that
 - (a) has a DB25 male connector on the RMB end,
 - (b) has a connector that can mate with the DTE's serial-port connector on the DTE end, and
 - (c) is cross-pinned like a null-modem cable but carries any necessary clock signal from the DTE (call for technical support if you need such a cable). Securely attach this cable to the RMB's WAN connector and to the DTE's serial port.

Refer to the **Appendix** for the pinout of the RMB's WAN connector. Remember that for async WAN communication, you might have to tie some of the pins on the DB25 connector to ground; refer to **Section 2.2**.

3.3.2 V.35, RS-449/V.36, OR X.21 MODELS

If you are attaching the Remote MiniBridge to:

- A *DCE* device: Securely plug the DB25 end of the included adapter cable into the RMB's DB25 female WAN connector. Plug the other end of the cable into the device's serial port. (If the genders of the cable and device connectors are the same, you'll need to install a gender changer between them.)
- A *DTE* device: You will either need to run both the included adapter cable and a special cross-pinned cable (see the "DTE device" paragraph on the previous page) between RMB and the device's serial port, or you will need a special adapter cable that performs both of these functions. Call Black Box for technical support.

Refer to the **Appendix** for the pinouts of the RMB's WAN connector and of the included adapter cable. Remember that for async WAN communication, you might have to tie some of the pins on the DB25 connector to ground; refer to **Section 2.2**.

3.3.3 FIBEROPTIC MODELS

Run duplex fiber cabling of the appropriate type (62.5/125 for multimode or 9/125 for single-mode) between your Remote MiniBridges. (Save the protective caps for the RMBs' fiberoptic connectors in case you need to store or relocate the RMBs later.) Make sure that the TX connector on each RMB is attached to the RX connector on the other RMB.

3.3.4 FOUR-WIRE MODELS

Run 4-wire twisted-pair cabling between your Remote MiniBridges. Keep these distance/data rates in mind:

- If you set the RMB's top-panel LONG switch to OFF: The RMB will transmit across the WAN link at 10 Mbps, and you can run CAT5 or shielded/screened CAT3 cable as far as 500 m (1640 ft.), CAT3 UTP as far as 400 m (1312 ft.).
- If you set the LONG switch to ON: The RMB will transmit across the WAN link at 5 Mbps, and you can run CAT5 or shielded/screened CAT3 cable as far as 700 m (2296 ft.), CAT3 UTP as far as 600 m (1968 ft.).

To connect a cable to either RMB, take these steps, referring to Figure 3-1 below:

CAUTION!

Do *not* apply power to the Remote MiniBridge until you finish this procedure. The RMB could be damaged and you could suffer a dangerous electrical shock.

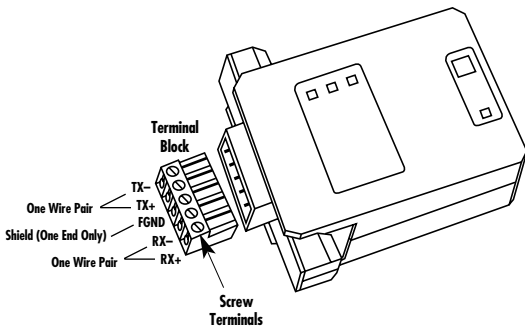


Figure 3-1. Attaching the cable to a 4-wire RMB.

1. Slip the included protective strain-relief boot over the end of the wire, skinny end first, and slide it a few inches up the wire.

- Strip off the last inch and a half or so of the cable's outer jacket, then strip the last quarter of an inch or so of the component wires' insulation.
- Disconnect the RMB from any electrical power source, including the LAN interface. Detach the RMB's 5-screw terminal block from the rest of the RMB's chassis.
- Unwinding the wires as little as necessary, insert the bare ends of one pair of the cable's wires in the terminal block's TX- and TX+ (left-hand) terminals and screw them down securely. Fasten the other pair to the RX- and RX+ (right-hand) terminals the same way. Make sure that TX- and TX+ on each RMB are connected to RX- and RX+ respectively on the other RMB.

If the cable is shielded, you can connect the shield to the FGND (center) terminal *of one RMB only*. (Do *not* attach the shield to the FGND terminals of both RMBs—this could cause potentially hazardous electrical “ground loops.”)
- Verify that all wires are attached securely, then carefully reattach the terminal block to the RMB.
- Slide the strain-relief boot back to the end of the cable and gently ease it over the terminal block.

3.4 Power

Once you've connected the LAN and WAN cables to the Remote MiniBridge, plug the output cable of the unit's power supply into its power jack. (If your RMB is an AUI model, you might not need to use the external power supply; see **Section 2.1.**) Then plug the power supply's input cable into the utility (mains) outlet. If the RMB's PWR LED lights as it should, the unit is ready for continuous operation.

4. Operation

The Remote MiniBridge operates completely automatically. It gets its power from its external power supply or (optionally, if it's an AUI model) from the AUI interface. During normal operation, the unit's PWR LED is continuously lit.

On 10BASE-T models, the green LAN LED should be continuously lit if the 10BASE-T link between the RMB and the attached device is OK. The RMB's yellow WAN and LAN LEDs may blink occasionally or be continuously lit, depending on the amount of data traffic. The COLL LED should blink occasionally.

If you ever need to change the settings of the RMB, move its top-mounted four-position configuration DIP switch as necessary (refer to **Table 3-1** on page 22).

5. Troubleshooting

5.1 Calling Black Box

If your Remote MiniBridge seems to be malfunctioning, *do not attempt to alter or repair the unit*. It contains no user-serviceable parts. Call Black Box Technical Support at 724-746-5500; the problem might be solvable over the phone.

Before you call, make a record of the history of the problem. We will be able to provide more efficient and accurate assistance if you have a complete description, including:

- the nature and duration of the problem;
- when the problem occurs;
- the components involved in the problem;
- any particular application that, when used, appears to create the problem or make it worse; and
- the results of any tests you might have already performed.

5.2 Shipping and Packaging

If you need to transport or ship your Remote MiniBridge:

- Package it carefully. We recommend that you use the original container.
- If the shipping is return- or repair-related, pack the RMB, its power supply, and this manual together. Contact Black Box to get a Return Materials Authorization (RMA) number.

Appendix: WAN Pinouts

The DB25 WAN connector that most of the Remote MiniBridge models have is pinned out differently on different models of the RMB, depending on which WAN interface the model uses. RS-232 models use the normal TIA RS-232-C pinout shown in the “RS-232” column of Table A-1 on pages 34 and 35. RS-530 models use the normal TIA RS-530 pinout shown in the “RS-530” column. The RS-449 (V.36) and X.21 models also use this pinout for the DB25 connector, but they include adapter cables that patch the leads/signals shown in the “RS-530” column to the matching leads/signals on DB37 and DB15 connectors, respectively; these are the pins listed in the same row in the “RS-449” and “X.21” columns. The V.35 models use the proprietary pinout shown in the “V.35 (DB25)” column, but they include an adapter cable that patches this to an M/34 connector, pinned out for standard V.35 as shown in the “V.35 (M/34)” column.

NOTE: The “signals” named BAUD2, BAUD1, BAUD0, and ACCM in Table A-1—on DB25 Pins 6, 8, 17, and 22 respectively—are leads you can use in async mode to control the data rate and the octet-stuffing

function. (See **Section 2.2.**) Be aware that the X.21 and V.35 adapter cables do not patch through all of these leads, so some of them—the ones marked “N/A” instead of “*n* BAUDX” or “*n* ACCM” in the table’s X.21 and V.35 (M/34) columns—aren’t available on the adapter cable’s native X.21 and V.35 connectors. This means that, if you need to run at certain data rates or turn off the Async Control-Character Map, you might have to build a cable directly to the RMB’s DB25 connector in order to ground these leads.

Table A-1. WAN Pinouts

ITU-T, V.24 CIRC.	RS-232	RS-530	RS-449	X.21	V.35 (DB25)	V.35 (M/34)
101	1 SHIELD	1 SHIELD	1 SHIELD	1 SHIELD	1 SHIELD	A
102	7 SGND	7 SGND	19 SG	8 G	7 SGND	B
103	2 TD (out) N/A	2 TDA (out) 14 TDA (out)	4 SDA (out) 22 SDB (out)	2 TA (out) 9 TB (out)	2 SDA (out) 14 SDB (out)	P S
104	3 RD (in) N/A	3 RDA (in) 16 RDB (in)	6 RDA (in) 24 RDB (in)	4 RA (in) 11 RB (in)	3 RDA (in) 16 RDB (in)	R T
105	4 RTS (out) N/A	4 RTSA (out) 19 RTSB (out)	7 RSA (out) 25 RSB (out)	3 CA (out) 10 CB (out)	4 RTS (out) N/A	C
106	5 CTS (in) N/A	5 CTSA (in) 13 CTSB (in)	9 CSA (in) 27 CSB (in)	N/A N/A	5 CTS (in) N/A	D
[N/A]	6 BAUD2	6 BAUD2	11 BAUD2	N/A	6 BAUD2	E
[N/A]	8 BAUD1	8 BAUD1	13 BAUD1	5 BAUD1	8 BAUD1	F
114	15 TCLK (in) N/A	15 TCLK A (in) 12 TCLK B (in)	5 TT A (in) 23 TT B (in)	6 SA (in) 13 SB (in)	15 SCA (in) 12 SCT B (in)	Y AA

Table A-1. WAN Pinouts (continued)

ITU-T. V.24 CIRC.	RS-232	RS-530	RS-449	X.21	V.35 (DB25)	V.35 (M/34)
115 [sync]	17 RCLK (in) N/A	17 RCLK A (in) 9 RCLK B (in)	8 RT A (in) 26 RT B (in)	N/A N/A	17 SCR A (in) 9 SCR B (in)	V X
[asy.]	17 BAUD0	17 BAUD0	8 BAUD0	N/A	17 BAUD0	V
[N/A]	22 ACCM	22 ACCM	29 ACCM	N/A	22 ACCM	N/A

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