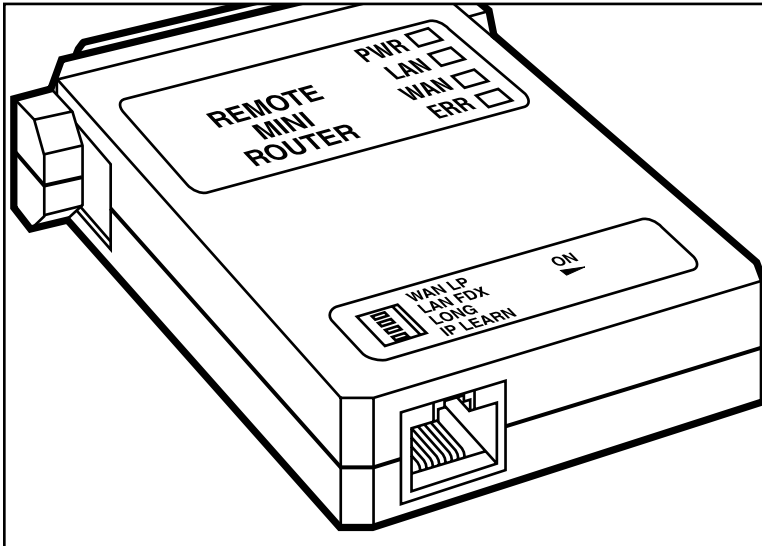




# BLACK BOX<sup>®</sup>

## NETWORK SERVICES

### REMOTE MINI ROUTER



*This inexpensive mini router uses a unique IP router chip.*

#### Key Features

- ▶ **High-performance IP router.**
- ▶ **Fully compatible with IEEE 802.3/Ethernet v2.**
- ▶ **Supports full and half-duplex Ethernet applications.**
- ▶ **Uses V.24, V.35, V.36, RS-530, X.21 link interfaces.**
- ▶ **Includes internal fiber optic modem and internal 4-wire modem.**
- ▶ **WAN link rate up to 10 Mbps sync.**
- ▶ **35,000 fps forwarding; 30,000 fps filtering.**

The Remote Mini Router is a high performance, miniature IP router. It's based on a unique IP router chip and operates with minimal software. Since the Router is small and inexpensive, it's ideal for cost-sensitive routing applications. You need to configure only one software parameter for plug-and-play operation.

The Router works by taking each Ethernet frame from the LAN and determining whether the IP packet is destined for the IP net on the Ethernet LAN. If not, the Remote Mini Router forwards the packet to the WAN link. IP packets received from the WAN are automatically forwarded to the LAN if the IP net matches.

Included are hardware filters that handle all filtering operations at wire speed from both LAN-to-

WAN and WAN-to-LAN, without dropping a single packet. Filtering and forwarding are performed at the maximum rate of 30,000 and 35,000 frames per second (wire speed), respectively. The buffer can hold 256 frames of maximum size of 1534 bytes and a delay of one frame.

Along with a 10BASE-T (UTP) interface, the Router is fully IEEE 802.3/Ethernet v2 compliant, and can also operate in full-duplex Ethernet applications.

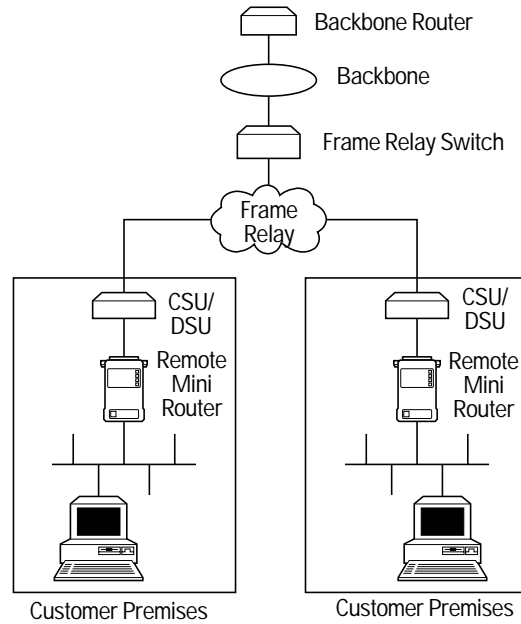
A choice of WAN interfaces is available, including V.24, V.35, V.36, X.21, RS-530, or a built-in fiber optic or 4-wire modem.

Hardware-based traffic throughput control at rates of 64 kbps, 128 kbps, 512 kbps, 1 Mbps, or 10 Mbps are provided by the Router.

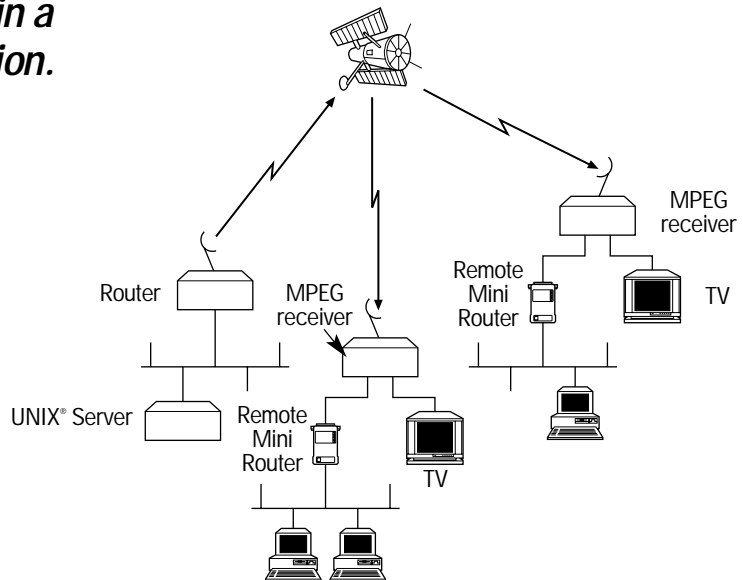
You can use the Remote Mini Router as a Frame Relay Access Device (FRAD) with an integral IP router. RFC 1490 is supported for a single DLCI on the WAN link. Discovery of the DLCI and the maintenance protocol is performed automatically. This allows the Remote Mini Router to be used as the termination unit of IP services over Frame Relay at the customer premises, opposite a Frame Relay switch in the backbone.

Alternatively, Point-to-Point Protocol (PPP) can be run on the WAN link with automatic negotiation on power-up, as well as support for PAP and CHAP authentication. With this feature, the Remote Mini Router can operate opposite any PPP-compliant access server or backbone router.

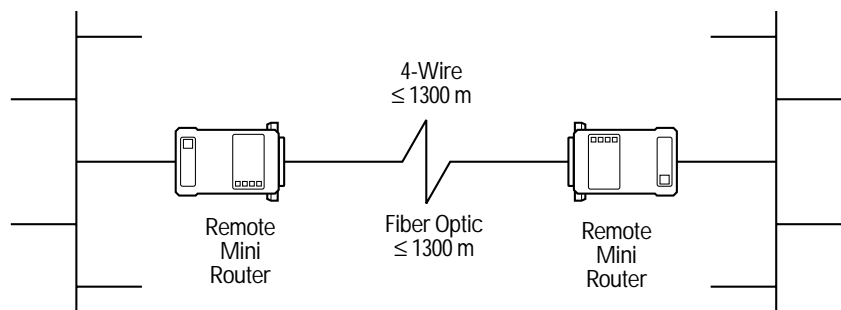
**Remote Mini Router acts as an IP service termination unit at the customer's premises.**



**Remote Mini Router is shown in a high-speed broadcast application.**



**Use the Remote Mini Router in a campus environment in a 4-wire or fiber optic application.**



# Specifications

## Router

**LAN IP Net:** Up to 256 hosts on LAN IP net

**Filtering and Forwarding:** 30,000 fps filtering; 35,000 fps forwarding

**Buffer:** 256 frames (maximum size 1534 bytes)

**Delay:** 1 frame

## LAN

**Standard:** Conforms to IEEE 802.3/Ethernet

**Data Rate:** 10 Mbps (20 Mbps 10BASE-T in full-duplex topology)

**Connectors:** Shielded RJ-45

## WAN

**Protocols:** PPP (PAP/CHAP), Frame Relay (RFC 1490), HDLC

**Data Rate:** Up to 10 Mbps synchronous

**Connectors:** V.24/RS-232 with DB25 female; V.35 with 34-pin\* connector; V.36/RS-422 with DB37\*; RS-530 with DB25 female; X.21 with DB15\*; 4-wire with 5-pin terminal block; ST\* single-mode or multimode connector; FC single-mode or multimode connector, SC laser connector

\*male or female connector on adapter cable

## Optical and 4-Wire Interface

**Optical Typical Output Power:** -18 dBm into 62.5/125- $\mu$  fiber multimode; -18 dBm into 9/125- $\mu$  fiber single-mode

**Receiver Sensitivity:** -32.5 dBm for multimode or single-mode

**Wavelength:** 850 nm multimode; 1300 nm single mode

**Dynamic Range:** 20.5 dB minimum

**Fiber Optic Connector:** ST, FC, SC

**Operating Range (Optical Interface):** (depending on fiber specifications, see the table below)

- Approximately 3 km (1.9 miles) over multimode
- Approximately 20 km (12.4 miles) over single-mode LED

• Approximately 36 km (22.4 miles) over single-mode laser

## General

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

**Humidity:** Up to 90%, noncondensing

**Current Consumption:** 0.2 amps @ 12 VDC

**Power:** External 12 VDC/0.8 amp regulated adapter

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

**Weight:** 1 oz. (28.4 g)

Operating Range (4-Wire Interface):		
10 Mbps	Cat. 3 UTP	400 m (1312.3 ft.)
	Screened UTP (Cat. 3)	500 m (1640.4 ft.)
	Level 5 UTP	500 m (1640.4 ft.)
	IBM® Type 1	750 m (2460.6 ft.)
5 Mbps	Cat. 3 UTP	600 m (1968.5 ft.)
	Screened UTP (Cat. 3)	650 m (2132.5 ft.)
	Level 5 UTP	650 m (2132.5 ft.)
	IBM Type 1	1300 m (4265.1 ft.)
	Telephone Cable	Nominally 150 m (492.1 ft.)



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

# Ordering Information

## ITEM

## CODE

Remote Mini Router

10BASE-T and V.35 Interface with Male V.35 Cable .....	LR0019A-V35M
10BASE-T and V.35 Interface with Female V.35 Cable .....	LR0019A-V35F
10BASE-T and V.24 Interface .....	LR0019A-V24
10BASE-T and RS-530 Interface .....	LR0019A-530
10BASE-T and X.21 Interface with Male X.21 Cable .....	LR0019A-X21M
10BASE-T and X.21 Interface with Female X.21 Cable .....	LR0019A-X21F
10BASE-T and 4-Wire Interface .....	LR0019A-4U
10BASE-T and 850-nm ST Multimode Fiber Interface .....	LR0019A-MMST
10BASE-T and 1300-nm ST Single-Mode Fiber Interface .....	LR0019A-SMST
10BASE-T and 1300-nm SC Single-Mode Fiber Interface .....	LR0019A-SMSC

*You might also want to order cables...*

CAT5 Solid-Conductor Cable, 100-MHz, 24 AWG, RJ-45, 4-Pair, T568-B, PVC, Straight-Pinned, 10-ft. (3-m) .....	EYN737MS-0010
Bulk Fiber Optic Cable, Custom Lengths .....	EFN062
Single-Mode Duplex Fiber Optic Cables, 9 $\mu$ m/125 $\mu$ m	
ST-ST, PVC, Custom Lengths .....	EFN5009
SC-SC, PVC, Custom Lengths .....	EFN5010