

Local Repeaters/Remote Fiber Optic Repeaters

Break your Ethernet network's standard distance barrier—without compromising data integrity or network performance.



FEATURES

- » Supports standard Ethernet media types.
- » Models for both mixed-media and homogeneous networks.
- » Automatic partitioning and reconnection.
- » Remote Fiber Optic Repeaters comply with 10BASE-FL and FOIRL standards.
- » Diagnostic LEDs make troubleshooting easy.
- » Internal autosensing power supplies.
- » Small design, durable construction.

OVERVIEW

Our [Local and Remote Repeaters](#) regenerate and retime data packets so you can extend the distance of your Ethernet network.

They're ideal when you need to go beyond standard distance limits, or where you need to bring two different media together in one Ethernet link.

Best of all, you'll never worry about data integrity or network performance with these repeaters.

Each repeater includes port connections, so you can connect two Ethernet segments—each segment conforming to IEEE 802.3 specifications for length and number of nodes.

They perform:

- **Repeater functions.** Each port operates in conjunction with the controller functions of the base unit as a fully compliant Ethernet repeater. The whole local or remote repeater counts as a single network repeater.
- **Collision handling.** When a collision is detected on either port of the repeater, a jam pattern is generated according to IEEE 802.3 repeater rules and propagated out of both repeater ports.
- **Partitioning and reconnection.** The repeater automatically "partitions" (disconnects) any port if 64 consecutive collisions occur on the segment attached to it, or after 6.5 ms of continuous transmission. It also checks network integrity every 800 ms, and segments are reconnected after a 512-bit packet is transmitted on the network without error.

We offer repeaters for various Ethernet media types, including standard (10BASE5) or Thin Ethernet (10BASE2), 10BASE-T, or fiber optic cabling. Choose from six Local Repeater models and nine Remote Fiber Optic Repeater models.

The [Local Repeaters](#) enable you to connect—or mix and match—copper-based Ethernet segments.

The [Remote Fiber Optic Repeaters](#) link two Ethernet segments via fiber optic cable. With these 10BASE-FL-compliant devices, your long-distance connections can be up to 2 km (1.2 mi.) long with the multimode versions and up to 10 km (6.2 mi.) long with the single-mode models. But they're fully backward compliant with older 1-km FOIRL specifications, too, so you can easily integrate the repeaters into your existing Ethernet network.

[Local Repeater and Remote Fiber Optic Repeater](#) models with BNC ports feature an internal termination switch, which eliminates the need for a T-connector on the end of a segment application.

The twisted-pair models include a MDI-X crossover switch so the repeater can support a user segment or an uplink segment—without the need for a crossover cable. Connecting the repeater to another Ethernet repeater or hub is easy.

And although models with 10BASE-T ports feature shielded RJ-45 connectors to minimize emissions, you can connect these units to either unshielded twisted-pair (UTP) or shielded twisted-pair (STP) segments of new or existing 10BASE-T networks.

The AUI models feature a slide-lock that ensures secure cable connections.

On all repeater models, you use front-panel LEDs to monitor network and network-segment activity at a glance. Each port has at least two LEDs: PART (Partition) and RX (Receive). PART flashes yellow to indicate that the segment has been partitioned. (The repeater partitions a segment automatically when there is jabber on that segment.) RX flashes green intermittently when the repeater is receiving data.

Each repeater unit also has a PWR (Power) LED that shows when power is present; a COL (Collision) indicator that lights when the repeater detects a collision on any port; and a JAB (Jabber) LED that informs you when an illegal packet-length fault condition occurs.

In addition, models with 10BASE-T and fiber ports have a LINK LED that lights steadily to show that the cable running from the port to the device at the other end is properly connected and the segment is ready.

Easy to install, each repeater model includes its own internal autosensing power supply. To simplify connections, each port is accessible from the front of the repeater. You never need access to the rear of the repeater except to attach its AC power cord.

Just plug in the repeater, and the power supply automatically adjusts to any power source, with AC voltage from 90 to 260 VAC and power input frequencies between 63 and 47 Hz.

Enclosed in high-strength steel, the repeater is small, so it stays out of your way. You can also wallmount it (brackets and screws are included) or mount it in a rack—optional rackmount ears are available by special request. Or just place the repeater on your desktop. Rubber feet keep the repeater's case from scratching your desk's finish. You can even stack multiple repeaters. The cases are strong enough to support a stack many units high. This is especially useful in a cramped wiring closet.

NOTE: Remote Fiber Optic Repeaters are also available with SMA connectors. For more information, contact Black Box Tech Support.

TECH SPECS



LE604A-R4

Approvals — FCC Part 15, Class A; UL® 1950; CSA; CE; cUL
Cable Required — For AUI ports: AUI transceiver (drop or patch);
 For BNC ports: RG58 coaxial;
 For 10BASE-T ports: Straight-through-pinned shielded or unshielded twisted-pair;
 For Fiber ST® ports: Multimode versions: 62.5-µm core, 125-µm cladding multimode fiber;
 Single-mode versions: 9-µm core, 125-µm cladding single-mode fiber
Distance (Maximum) on Segment Length — Segments attached to:
AUI ports — 500 m (1640.4 ft.) of Standard (“Thick”) Ethernet (10BASE5) backbone cable (but not more than 50 m [164 ft.] of AUI cable from the repeater to the backbone);
BNC ports — 185 m (607 ft.) of Thin Ethernet (10BASE2) cable;
10BASE-T ports — 100 m (328.1 ft.) of twisted-pair cable;
Fiber ST ports — Multimode versions: 2 km (1.2 mi.) of multimode fiber cable;
 Single-mode versions: 10 km (6.2 mi.) of single-mode fiber cable
MTBF — 40,000 hours
Performance — Partitioning: Enforced after 32 consecutive collisions;
 Reconnect: After 512 bits of error-free transmission
Speed — 10 Mbps
Standards — Depending on the unit: Ethernet Ver. 2, IEEE 802.3, 10BASE5, 10BASE2, 10BASE-T, 10BASE-FL, FOIRL
Connectors — Fiber optic: (1) ST pair; ThinNet (10BASE2): (1) BNC F; 10BASE-T — (1) RJ-45;
Standard Ethernet (10BASE5) — (1) DB15 F
Indicators — All models: (4) LEDs: PWR (Power), RX (Receive), JAB (Jabber), COL (Collision);
 On each port (all types): (2) LEDs: PART (Partitioned), RX (Receive);
 On each 10BASE-T or fiber ST port: (1) LINK LED
User Controls — On each BNC port: (1) slide switch to enable and disable internal termination;
On each 10BASE-T port — (1) slide switch to enable and disable straight-through interrepeater cabling
Temperature Tolerance —
 Operating: 32 to 122°F (0 to 50°C);
 Storage: -4 to +140°F (-20 to +60°C)
Humidity Tolerance — 10 to 95% noncondensing
Power — Internal 90–260 VAC, 47–63 Hz, autosensing;
 Consumption: 15 watts (maximum)
Size — 1.8”H x 8.5”W x 5.4”D (4.6 x 21.6 x 13.7 cm)
Weight — 2.5 lb. (1.1 kg)

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.

Don’t waste time and money—call Black Box today.

Item	Code
Local Repeaters	
AUI/AUI	LE601A-R3
BNC/BNC	LE602A-R3
AUI/BNC	LE605A-R3
BNC/10BASE-T	LE620A
AUI/10BASE-T	LE622A
10BASE-T/10BASE-T	LE624A
Remote Multimode Fiber Optic Repeaters	
AUI/Multimode ST®	LE603A-R5
BNC/Multimode ST	LE604A-R4
10BASE-T/Multimode ST	LE626A
Multimode ST /Multimode ST	LE628A
Remote Single-Mode Fiber Optic Repeaters	
BNC/Single-Mode ST	LE630A
10BASE-T/Single-Mode ST	LE631A
Single-Mode ST/Single-Mode ST	LE633A