# BLACK BOX®

## NETWORK SERVICES

# 100BASE-TX, -FX TRANSCEIVERS
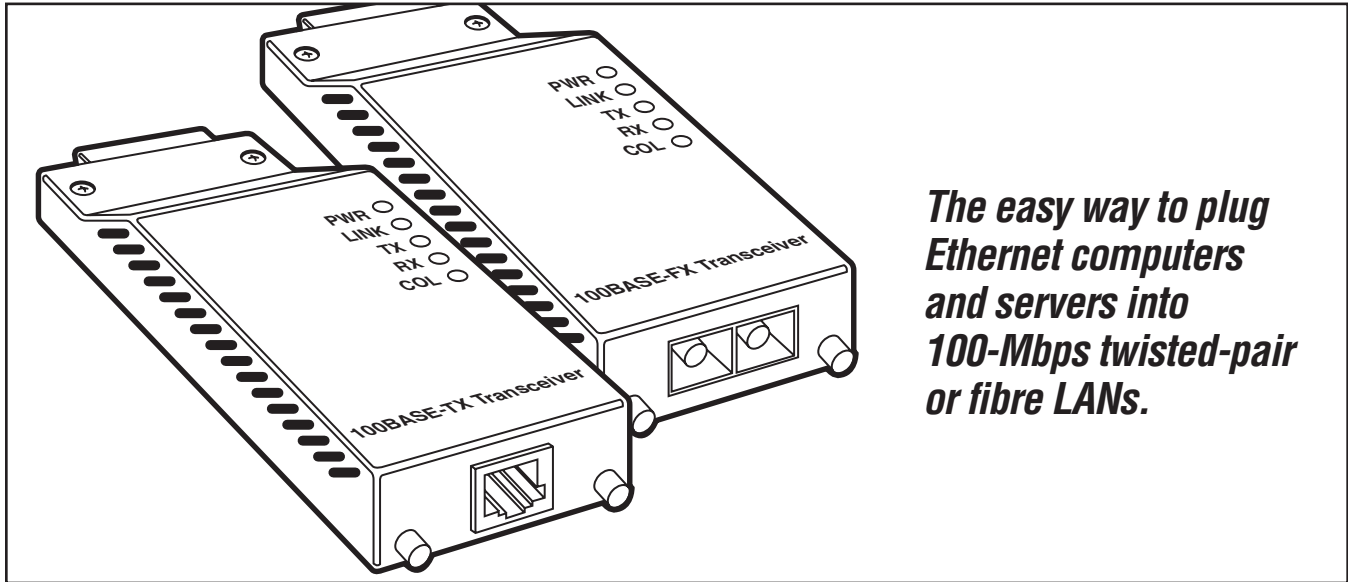


**The easy way to plug Ethernet computers and servers into 100-Mbps twisted-pair or fibre LANs.**

## Key Features

▶ **Connect copper or fibre to Fast Ethernet adapters.**

▶ **Plug directly into any MII port.**

## Overview

These 100BASE-T and 100BASE-FX Transceivers are a dependable way to incorporate servers, workstations, and other 802.3u-compliant devices with MII connectors into your 100-Mbps Fast Ethernet network.

The MII (Media-Independent Interface) connector adds versatility and cuts down on excessive cabling because it establishes a single interface for these 100BASE-T media specifications—100BASE-TX, 100BASE-T4, and 100BASE-FX. A computer with an MII port can connect to either copper or fibre—all you need is one of these Transceivers.

If you can't connect directly to an MII port, a short MII cable can be used to make the connection.

However, note that MII cables should not be more than 50 cm (19.6 in.) long.

Five LEDs—power, link, transmit, receive, and collision—make troubleshooting quick and easy. The indicators have been designed so you can read them even if the Transceiver is plugged directly into an Ethernet card in a desktop or tower computer.

### 100BASE-FX Fast Ethernet Transceiver

This Transceiver (LE1340A-R2) connects directly to a 100-Mbps Ethernet card and operates over 50/125-, 62.5/125-, and 100/140-μm multimode duplex fibre optic cabling with SC-type connectors.

In full-duplex mode, the Transceiver can send a signal up to 2 km (1.2 mi.). In half-duplex mode, the signal can travel up to

400 m (1312.3 ft.). Signal repeaters can extend these distances.

### 100BASE-TX Fast Ethernet Transceiver

The 100BASE-TX Transceiver (LE1341A-R2) connects to a 100-Mbps Ethernet card and operates over Category 5 100-ohm unshielded twisted-pair cable. For links to 100BASE-TX networks, the unit has a shielded RJ-45 connector.

The unit can drive a data signal up to 100 m (328 ft.). To need to extend this distance, you can place a signal repeater on the line.

*Note: When hooking a 100BASE-TX port to a hub or switch, use a straight-through cable. To connect to a NIC, use a crossover cable.*

# Specifications

**Hardware Data Rate** — 100 Mbps

**LAN Type** — Ethernet

**Connectors** —
Both: (1) MII 40-pin M;
LE1340A-R2: (1) pair SC fibre
push-on connectors;
LE1341A-R2: (1) RJ-45 F

**Distance** — LE1340A-R2: Links up to
400 m (1312.3 ft.) in half-duplex,
2 km(1.2 mi. ) in full duplex;

LE1341A-R2: Links up to 328 ft.
(100 m)

**Indicators** — (5) LEDs: Power, link,
transmit, receive, collision

**Standards** —
LE1340A-R2: 100BASE-FX;
LE1341A-R2: 100BASE-TX

**Protocol** — Transparent

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

**Storage Temperature** —
-25 to +70° C (-13 to +158° F)

**Operating Humidity** —
5 to 95%, non-condensing

**Power** — 750 mA max. at
5 VDC (from DTE)

**Size** —2.3 x 4.8 x 9.7 cm
(0.9"H x 1.9"W x 3.8"D )

**Weight** — <0.5 kg (<1 lb.)

**Fido Protection** — 1 year

# Technically Speaking

These Transceivers can take you a long way toward integrating 100 Mbps equipment seamlessly into your network, but only if the they're configured properly. A critical part of this configuration is setting the unit's network operation mode and PHY address through the four-position DIP switch on the side of the unit.

The Transceiver is defaulted to a PHY address of "0," which means that it looks to the device (a hub, for instance) to program its boot register. In this case, the hub's MII port is considered "intelligent" because it communicates programming information to the Transceiver.

If the MII port does not communicate this programming information (a "dumb port"), you can solve this problem by setting the PHY address to "1."

When the PHY address is set to "1," the Transceiver looks to an internal register that already has the boot information programmed into it.

As a general guideline, you should set the PHY address to "0" if the MII port is intelligent. Use a PHY address of "1" if the MII port is dumb. Most MII ports expect the Transceiver to have a PHY address of "0."

And a note of caution. The Transceivers will not work properly if: (1) the PHY address is "0" and the MII port is dumb (no communication will occur); or (2) the PHY address is "1" and you have an intelligent MII port (the Transceiver receives information from both the hub and itself).

See the charts to the right for the switch settings to determine PHY addresses and operation modes for each of these transceivers.

## Switch Settings for LE1340A-R2

| SW1 | SW2 | SW3 | SW4 | Address |
|---|---|---|---|---|
| 0=half | 0 | 0 | 0 | PHY 0 |
| 1=full | 1 | 0 | 0 | PHY 1 |
|  | 0 | 1 | 0 | PHY 2 |
|  | 1 | 1 | 0 | PHY 3 |
|  | 0 | 0 | 1 | PHY 4 |
|  | 1 | 0 | 1 | PHY 5 |
|  | 0 | 1 | 1 | PHY 6 |
|  | 1 | 1 | 1 | PHY 7 |

## Switch Settings for LE1341A-R2

| SW1 | SW2 | SW3 | SW4 | Address |
|---|---|---|---|---|
| 0=10/100 Mbps | 0=half | 0 | 0 | PHY 0 |
| 1=100 Mbps | 1=full | 0 | 1 | PHY 1 |
|  |  | 1 | 0 | PHY 2 |
|  |  | 1 | 1 | PHY 3 |

# ▼ *Ordering Information*

| ITEM | CODE |
|---|---|
| 100BASE-TX Transceiver | LE1341A-R2 |
| 100BASE-FX Transceiver | LE1340A-R2 |