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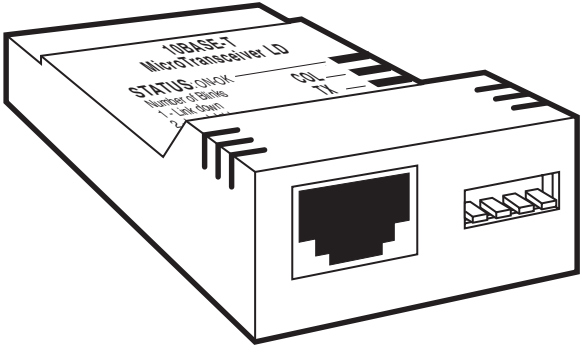
JANUARY 1998
LE2110A
LE2110A-R2

10BASE-T Micro Transceiver LD



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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 the Canadian Department of Communications.

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TRADEMARKS

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Contents

1. Specifications

Standards — IEEE 802.3 10BASE-T

Indicators — (4) LEDs: Transmit, Receive, Collision, and Status

Connectors — (1) AUI 15-pin male, (1) RJ-45 female

Power — 11.4–16.5 VDC, 75 mA (typical), 200 mA (maximum)

Size — 0.9"H x 1.7"W x 3.1"D (2.3 x 4.3 x 7.9 cm)

Weight — 0.2 lb. (0.1 kg)

2. Introduction

The 10BASE-T Micro Transceiver LD is a media access unit (MAU) that connects to the AUI port of any DTE, Repeater, or other network device directly or with an AUI cable. It is a one-port transceiver and complies with the IEEE 802.3 10BASE-T standard. The transceiver selectively implements fault reporting. This manual explains how to install the transceiver at your location and how to interpret the transceiver LEDs for operation, monitoring, and possible troubleshooting.

If you ordered the LE2110A-R2, you should have received cables with your 10BASE-T Micro Transceiver LD.

3. Installation

Follow these steps to install the 10BASE-T Micro Transceiver LD. Fig. 3-1 shows a typical installation.

1. Verify that the DIP switches are set correctly (see Table 3-1).
2. Connect the transceiver to the AUI cable, or directly to the AUI port of the DTE, Repeater, or other network device. Secure the connector latch.
3. Plug the twisted-pair cable into the transceiver's 10BASE-T (RJ-45) port. The Status LED illuminates without blinking once both ends of the twisted-pair cable are connected to active 10BASE-T ports. If the LED continues to blink, refer to **Section 3.2** for the LED blinking codes.
4. Refer to **Section 3.3** for information about the transceiver's special link fault detection feature.

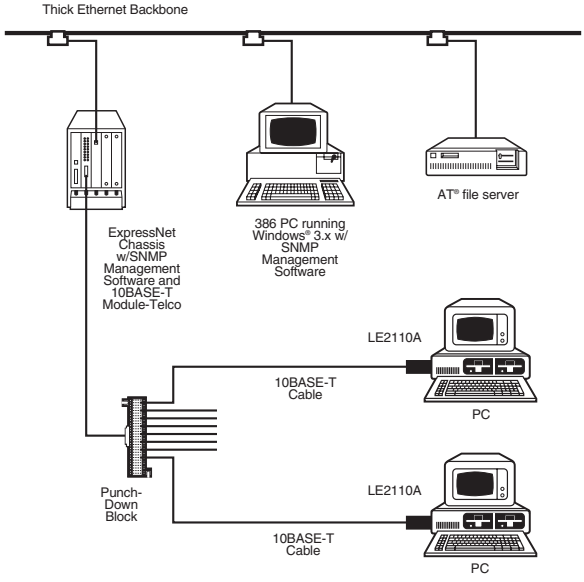

Fig. 3-1. Typical Installation.

3.1 Switches

The 10BASE-T Micro Transceiver LD has 4 switches located to the right of the 10BASE-T (RJ-45) connector. Switch 1 is closest to the connector. The UP positions enable the functions. The DOWN positions disable the functions. Table 3-1 describes the DIP-switch functions.

Table 3-1. DIP-Switch Settings

Switch	Function
1	SQE Test: Controls the SQE test function. Disable this function when you connect the Transceiver to IEEE 802.3-compliant repeaters. Enable this function when connecting to other devices. The default setting is Enabled (UP).
2	Link Fault Detection: Enables the special Link Fault Detection function. With the switch down, the transceiver implements the standard Link Integrity Test. See **Section 3.3** for information about using this feature. The default setting is Enabled (UP).
3	Polarity Correction: Corrects for a receive pair with reversed polarity. In both switch positions, reversed polarity is indicated by 5 Status LED blinks. (See **Section 3.2**, LED Indicators.) The default setting is Enabled (UP).
4	Extended Distance: Increases receiver sensitivity and allows operation with high-loss cables or data-grade cables longer than 100 meters. Do not use this feature unless necessary, since it makes the transceiver more susceptible to plant noise and crosstalk. The default setting is Disabled (DOWN).

3.2 LED Indicators

The 10BASE-T Micro Transceiver LD has 3 Activity LEDs and 1 Status LED, which Table 3-2 describes.

Table 3-2. LED Indicators

Indicator	Function
TX	Transmit Activity (AUI to Twisted-Pair Cable)
RX	Receive Activity (Twisted-Pair Cable to AUI)
COL	Local Collision
STAT	Power/Link Status

The Status indicator is encoded to show multiple types of local and remote diagnostics. If there are no faults, the indicator is solid ON.

A solid OFF Status LED indicates no power. If there is a fault or a warning, the Status indicator displays a repeating sequence that consists of a number of blinks followed by a pause. The number of blinks between pauses indicates the type of fault or warning. Table 3-3 describes the Status LED codes.

Table 3-3. Status LED Codes

Code	Indication
Solid ON	Status OK
1 Blink	Local Link Down: No data packet or link-integrity pulse received from the network twisted-pair connection.
2 Blinks	Local Jabber: AUI packet too long.
5 Blinks	Polarity Reversed: Receive pair has the wrong polarity. The transceiver automatically corrects this condition if Switch 3 is UP. This warning will continue until you correct the wiring.
OFF	Power OFF

3.3 Link Detect (LD)

To enable the special Link Detect feature, place Switch 2 in the UP position. Link Detect is an innovative signaling scheme allowing the Transceivers to inform hubs that a fault has occurred on the link from the hub to the transceiver (downlink). With Link Detect, the hub will report downlink faults, allowing managed hubs to trigger an alarm at the management station. Without Link Detect, only the end-node transceiver will report downlink faults. Link Detect works with all 10BASE-T compliant hubs.

To further understand the Link Detect feature, consider the end-node link illustrated in Fig. 3-2. Without Link Detect, you can only observe the failure at the end-node transceiver, not at the hub.

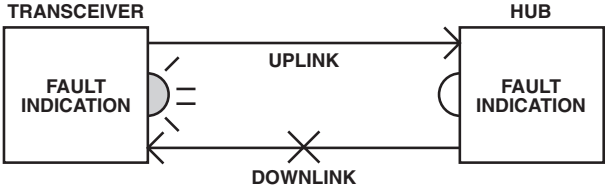

Fig. 3-2. Downlink Failure Without the Link Detect Feature.

Without Link Detect, the hub indicates no failure. The network manager only learns of this type of failure by periodically inspecting the end nodes, which is very time-consuming, or through complaints by users who have no network services.

Introducing the Link Detect feature to this situation enables the transceiver to signal the downlink failure to the hub, which reports the failure. See Fig. 3-3.

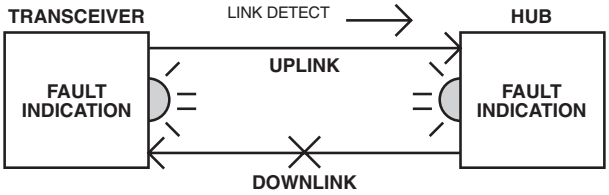

Fig. 3-3. Downlink Failure with the Link Fault Detection Feature.

With Link Detect, the network manager can detect failure from the wiring closet where the hubs are centrally monitored (visually or via an automated system), so it's easier to provide continuous network service to the users.

NOTE

When you use the 10BASE-T Micro Transceiver LDs at both ends of a link, you must disable Link Detect at one end. For DTE-to-Hub links, disable Link Detect at the hub end. For Hub-to-Hub links, disable Link Detect at the end at which you would like to report link failures.

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