Lobe Access Unit

TRADEMARKS USED IN THIS MANUAL

IBM is a registered trademark of IBM Corporation.

All applied-for and registered trademarks are the property of their respective owners.

DECLARATION OF CONFORMITY

The products listed in this manual conform to the following standard(s) or other normative document(s):

EMC: EN 55022 (1994): Limits and methods of measurement of radio disturbance characteristics of information technology equipment.

EN 50082-1 (1992): Electromagnetic compatibility—Generic immunity standard for residential, commercial, and light industry.

Supplementary Information: The products herewith comply with the requirements of the EMC Directive 89/336/EEC. The products were tested in a typical configuration.

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.

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.

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 connectado 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 lineas de energia.

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 objectos liquidos 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: Objectos 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.

1. Specifications

Operating Voltage — 4.5 ±0.7 volts

Operating Current — 1.0 mA @ 5 VDC

Resistance TX to RX — 4.8 ±0.2 kΩ

Insertion Time — 5 seconds

Removal Time — 50 to 200 msec

Insertion Loss (Maximum) —

	0.5–4 MHz	4–16 MHz	16–32 MHz
SUB TX to SUB RX	0.65 dB	1.3 dB	2.6 dB
MAIN RX to SUB RX	0.85 dB	1.8 dB	3.7 dB
SUB TX to MAIN TX	0.85 dB	1.8 dB	3.7 dB

Crosstalk (Maximum) —

	10 KHz	0.5–4 MHz	4–16 MHz
SUB TX to SUB RX	55 dB	43 dB	37 dB
SUB WRAP to MAIN	50 dB	40 dB	35 dB

Return Loss (Minimum) —

1–6 MHz	6–12 MHz	12–24 MHz
20 dB	14 dB	11 dB

Common Mode Rejection (Minimum) —

1–6 MHz	6–12 MHz	12–24 MHz
40 dB	28 dB	25 dB

Electrical Connectors — *LT0009A:* MAIN: (1) DB9 female; SUB-1 through -4: (1) DB9 male each; *LT0009A-UTP:* MAIN: (1) RJ-45 female; SUB-1 through -4: (1) RJ-45 female each

Indicators — (4) Red LEDs; lobe activity

MTBF — 98,398 hours

Certification — CE

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

Relative Humidity Tolerance — 10 to 90%, noncondensing

Size — 1.4"H x 4.4"W x 7.3"D (3.6 x 11.2 x 18.5 cm)

Weight — 0.8 lb. (0.4 kg)

2. Introduction

2.1 Description

The Lobe Access Units are lobe extenders that quadruple the lobe capacity of the standard Token Ring MAU. The Lobe Access Unit increases the flexibility of the Token Ring network by enabling its topology to be expanded in a more cost-effective way. It is especially designed to eliminate the need for an additional MAU in situations where extra lobes are needed. By using Lobe Access Units to add workstations to the ring in place of extra lobe cabling, overall design costs are reduced.

Connect four workstations to a single lobe with the Lobe Access Unit. Or, an internal switch enables the Lobe Access Unit to operate as a standalone access unit. (See Figure 2-1.)

The LT0009A has five ports, each using DB9 connectors. The MAIN port is female, and the four sub-ports are male. The LT0009A-UTP also has five ports, but these use RJ-45 connectors. All five ports are female.

To ensure proper operation, you'll need to use an initialization tool (our part number LT037) during the initial setup. This will need to be ordered separately.

The Lobe Access Unit is small, lightweight, and easy to install. No strapping adjustments or external power supply are required.
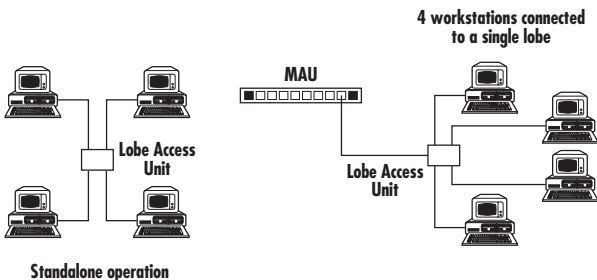

Figure 2-1. Use as a standalone unit or connect four workstations to a single lobe.

2.2 Features

- Allows a single lobe to accommodate four workstations.

- Operates at 4 or 16 Mbps.

- Compatible with IBM® Token Ring and complies with IEEE 802.5.

- LED indicators monitor active workstations.

- Easy installation, wall-mountable.

- No external power supply required.

- Can operate as a standalone unit.

2.3 Package Contents

When you receive your Lobe Access Unit, it should come with a user's guide and two clip-on wallmount brackets.

3. Installation

3.1 Set-Up Procedures

Before connecting the unit to the network, use the initialization tool (LT037, sold separately) as follows:

1. Connect the initialization tool to the port labeled SUB-1 for about 10 seconds.

2. The two LEDs on the initialization tool should light up and then fade. Up to two clicks should be heard.

3. After both LEDs on the initialization tool have faded completely (about 6 seconds), remove the initialization tool. Two clicks should be heard.

4. Repeat the procedure for ports SUB-2 through SUB-4. Note that for port SUB-4, only a single LED will light on the tool, and only one click will be heard.

3.2 The Standalone Option

The Lobe Access Unit can work as a standalone unit if you set a switch inside the unit. Open the unit by pressing the marked places on both sides. The switch is located to the right of the MAIN connector. If you

want the unit to work in a standalone environment, change the switch to the TAU position; otherwise, leave it in the LAU position (which is the factory default).
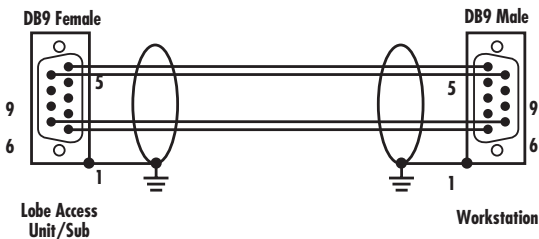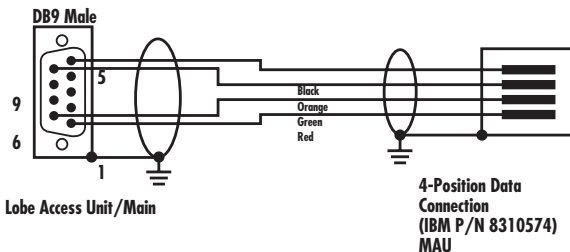
3.3 Electrical Installation

The Lobe Access Unit does not require any external power; only data cables should be connected to the unit. LT0009A uses Type 1 cables, and LT0009A-UTP uses Type 3 cables. Use the steps below to install the unit in the token ring.

1. Connect the unit's MAIN port to your MAU's LOBE port. Note that if you're using the Lobe Access Unit in a standalone mode, this step is not necessary since the MAIN port is unused.

2. Attach the workstations' token-ring cards to the SUB-1 through SUB-4 ports. Some ports can be left unused if you have fewer than four workstations.

3. Load the drivers for the token-ring card in the workstation. The workstation should insert into the ring. The LED on the corresponding sub-port of the Lobe Access Unit will light, and a clicking should be heard.
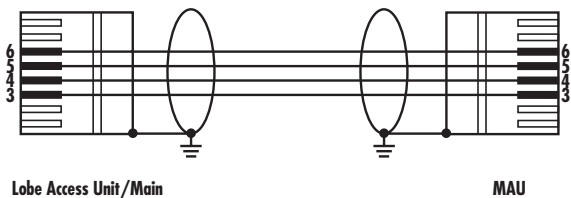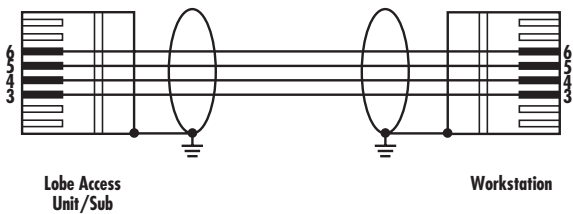
Cable distances will vary depending on existing ring

size or manufacturer "estimates." In most cases, Type 1 should not exceed 269 feet (82 m), and Type 3 should not exceed 98.4 feet (30 m) at 4 MB (MAU to MAIN port).

3.4 Cable Pinouts

DB9 Male

5

9

6

1

Lobe Access Unit/Main

Black
Orange
Green
Red

4-Position Data
Connection
(IBM P/N 8310574)
MAU

DB9 Female

5

9

6

1

Lobe Access
Unit/Sub

DB9 Male

5

9

6

1

Workstation

Lobe Access
Unit/Sub

Workstation

Lobe Access Unit/Main

MAU

4. Operation

When all required connections are made (as described in **Chapter 3**), the unit's operation becomes completely automatic and unattended. Upon request of the token-ring adapter card, the Lobe Access Unit inserts the corresponding workstation into the network ring, lighting the LED adjacent to the connector. When a workstation removes itself from the active ring, the corresponding LED turns off.

5. Troubleshooting

5.1 Fault Isolation and Troubleshooting

NOTE

It's assumed in this section that the workstation is active (that is, requests to be inserted into the ring).

SYMPTOM	ACTION
Corresponding LED is ON. Workstation remains out of the ring (network).	1. Check the switch for proper position (see **Section 3.2**).
	2. If the problem still exists, disconnect all cables from the unit and repeat set-up procedures 1 through 4, as described in **Section 3.1**. Check all cables for proper wiring; then reconnect all cables back to the unit and resume operation.
Corresponding LED is OFF.	1. Check the cable attached to the port for proper wiring and connections.
	2. If the problem still exists, disconnect all cables from the unit and repeat set-up procedures 1 through 4, as described in **Section 3.1**.

SYMPTOM	**ACTION**
LED is flashing; repeating clicks are heard from the unit.	1. Check if the 4-position data connector is connected to the MAU.
	2. If the problem still exists, check the cable running from the Lobe Access Unit's MAIN to the MAU for a possible short circuit. If a short circuit is found, replace the cable.

If any of these problems still exist after trying the recommended action, call Black Box.

5.2 Calling Black Box

If you determine that your Lobe Access Unit is malfunctioning, do not attempt to alter or repair the unit. It contains no user-serviceable parts. Contact Black Box at 724-746-5500.

Before you do, make a record of the history of the problem. Black Box 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.

5.3 Shipping and Packaging

If you need to transport or ship your Lobe Access Unit:

- Package it carefully. We recommend that you use the original container.
- If you are shipping the Lobe Access Unit for repair, make sure you include everything that came in the original package. Before you ship, contact Black Box to get a Return Materials Authorization (RMA) number.

BLACK BOX
NETWORK SERVICES