



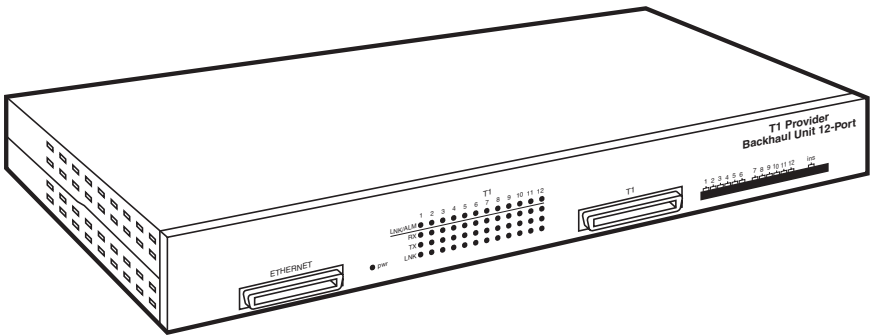
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1000 Park Drive • Lawrence, PA 15055-1018 • 724-746-5500 • Fax 724-746-0746



# T1 Provider Backhaul Unit, 12-Port



**CUSTOMER  
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INFORMATION**

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**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 la 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 conectado 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 física 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 líneas de energía.
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 objetos líquidos 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: Objetos 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.

### TRADEMARKS USED IN THIS MANUAL

*Any trademarks mentioned in this manual are acknowledged to be the property of the trademark owners.*

# 1. Introduction

These instructions provide basic installation procedures for the T1 Provider Backhaul Unit, 12-Port. Two models are available:

- T1 Provider Backhaul Unit, 12-Port (LRA1215A-12)
- T1 Provider Backhaul Unit, 12-Port, DC (LRA1215A-12-DC)

## CAUTION

**Excess static electricity can damage your unit. Use proper static-protection handling techniques when installing and handling this equipment.**



## 2. Installation

1. Unpack the T1 Provider Backhaul Unit, 12-Port and power cord (included with AC model only). Attach the included rubber feet for stackable installations, or attach the rackmount brackets and mount in an equipment rack. When mounting the unit in an equipment rack, follow these guidelines:
  - a. The maximum recommended ambient temperature is 86°F (30°C). Consider internal rack temperatures for continued safe operation.
  - b. Do not block the power-supply vents or otherwise restrict airflow when installing the unit in the rack.
  - c. Consider mechanical loading of the rack so that the rack remains stable and unlikely to tip over.
  - d. Consider the overall loading of the branch circuit before installing any equipment in a rack environment.
  - e. Maintain a reliable grounding path in the rack system. This unit is intended for a grounded connection.
2. For AC units, plug the power cord into both the power source and the back of the unit. It does not matter which order. For DC units, attach the DC power leads and ground connection to the appropriate terminals indicated on the back of the unit, and supply power to the unit. Verify that the Power LED is lit. Until the T1 link is established, the LNK, Tx, and Rx LEDs will also be lit on each port. When the T1 link has been established, the Tx and Rx LEDs will function normally, indicating activity on the Ethernet segment.
3. Verify that the switches on the front of the unit are in the appropriate position for each port (see Table 2-1).

**Table 2-1. Switch Configuration (Per Port)**

<b>Switch #1</b>	<b>Switch #2</b>	<b>Timeslots</b>	<b>Bandwidth</b>
DOWN	DOWN	1–24	1.536 Mbps*
UP	DOWN	1–18	1.152 Mbps
DOWN	UP	1–12	768 kbps
UP	UP	1–6	384 kbps

\*Default setting.

In addition, a third switch bank, entitled LINE, is provided to select the following for *all* of the T1 lines.

**Table 2-2. LINE Switch Bank Settings**

<b>Switch</b>	<b>DOWN</b>	<b>UP</b>
1 (Framing) 2 (Line Coding) 5 (Timing) 6 (Not used)	Extender Super Frame* B8ZS* Local*	Super Frame AMI Loop

\*Default settings.

<b>Switch</b>	<b>0 dB*</b>	<b>-7.5 dB</b>	<b>-15 dB</b>	<b>-22.5 dB</b>
3 (Line Buildout) 4 (Line Buildout)	DOWN DOWN	UP DOWN	DOWN UP	UP UP

\*Default settings.

4. Attach the RJ-21 connector/cable to the T1 connector on the unit. This connection is typically made to a punchdown block for copper wire cross connects in a telco office/room, or with an RJ-21 to RJ-45 breakout cable.
5. Verify the T1 connection via the T1 LED on the front of the unit. A steadily pulsing green LED (once per second) indicates that the T1 connection is established and operational.
6. Connect the local RJ-21 Ethernet connector/cable to network equipment (such as an Ethernet switch) and verify the physical link by the LNK LED on the front of the unit.

**NOTE**

**The Provider Units do NOT present Ethernet link (LNK) to the Ethernet network equipment if the T1 connection is not present. This feature allows for remote monitoring of the T1 line by simply monitoring the Ethernet port for link status.**

## T1 PROVIDER BACKHAUL UNIT, 12-PORT

Once the units have established both T1 and Ethernet links on both sides of the connection, normal data communication will flow through the units. This will provide a very long Ethernet connection at T1 speeds.

### Other Information

Table 2-3. T1 RJ-21 Port Pinout

Port	Pin		Pin	
1	26	RxT	39	TxT
	1	RxR	14	TxR
2	27	RxT	40	TxT
	2	RxR	15	TxR
3	28	RxT	41	TxT
	3	RxR	16	TxR
4	29	RxT	42	TxT
	4	RxR	17	TxR
5	30	RxT	43	TxT
	5	RxR	18	TxR
6	31	RxT	44	TxT
	6	RxR	19	TxR
7	32	RxT	45	TxT
	7	RxR	20	TxR
8	33	RxT	46	TxT
	8	RxR	21	TxR
9	34	RxT	47	TxT
	9	RxR	22	TxR
10	35	RxT	48	TxT
	10	RxR	23	TxR
11	36	RxT	49	TxT
	11	RxR	24	TxR
12	37	RxT	50	TxT
	12	RxR	25	TxR