

# RICi-E1, RICi-T1

## Fast Ethernet over E1/T1 Intelligent Converters



- Wire-speed packet forwarding
- 4 levels of QoS, based on four VLAN priority queues in accordance with 802.1p and IP Precedence
- Inband and out-of-band management access via ASCII terminal, Web browser, Telnet, or SNMP
- Plug-and-play using DHCP client
- VLAN stacking and tagging, keeping Ethernet user traffic completely separate from management data, while maintaining user VLAN settings intact

RICi-E1 and RICi-T1 are intelligent converters connecting Fast Ethernet LANs over full or fractional E1 or T1 circuits. They enable service providers and ISPs to supply transparent Ethernet services, without interfering with user traffic.

### MARKET SEGMENTS AND APPLICATIONS

RICi-E1 and RICi-T1 can be used to provide services and carrier backhaul applications over low and high-speed SDH/SONET and PDH circuits, from fractional and full E1/T1 or E3/T3 over STM-1/STM-4 to Gigabit Ethernet.

### ETHERNET

RICi-E1 and RICi-T1 are equipped with one E1/T1 port and one 10/100BaseTx port. Packets are forwarded from the Ethernet network to the TDM network at wire-speed, fully utilizing the expensive TDM circuit bandwidth.

The VLAN Priority bits (802.1p) and IP Precedence priority schemes enable users to define four different QoS levels, according to the application requirements.

The Fast Ethernet bridge handles 1800-byte frames, supporting VLAN applications and other protocols requiring large frame sizes. In filter mode, the bridge learns MAC addresses and filters local traffic, and in transparent mode it forwards any received packet.

VLAN stacking is used to tag direct user and management traffic to different VLANs, thus preserving the user LAN settings, fully separating user traffic from management data.

The DHCP client automatically obtains the IP address, the IP mask and the default gateway, minimizing installation time.

### RESILIENCY

The units feature fault propagation. When a TDM link failure is detected, RICi-E1 and RICi-T1 close the user port.

# RICi-E1, RICi-T1

## Fast Ethernet over E1/T1 Intelligent Converters

### MANAGEMENT AND SECURITY

The device is managed inband via the Fast Ethernet user ports or remotely via the TDM port. The device may be accessed via Telnet, a Web browser, or SNMP (for RADview-Lite). Management traffic and user Ethernet traffic transmit in the same Ethernet flow, separated by different VLANs. Local out-of band management is provided via an ASCII terminal.

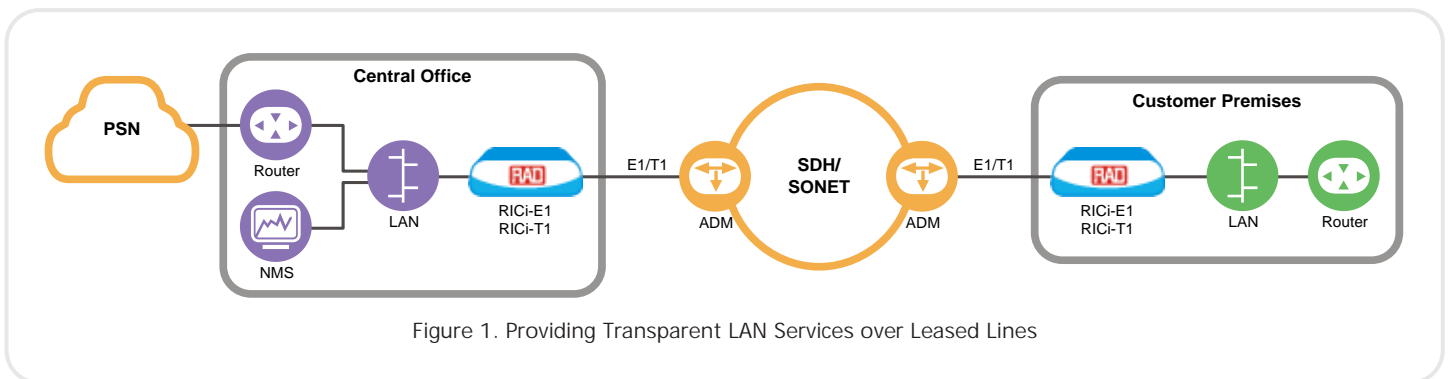
### MONITORING AND DIAGNOSTICS

Remote loopbacks are used for troubleshooting on the physical layer.

A built-in ping utility checks IP connectivity by pinging remote IP hosts.

A trace-route application quickly traces a route from RICi-E1 or RICi-T1 to any other network device.

## Applications



## Specifications

### WAN PROTOCOL

GFP (G.8040, G.7041/Y.1303)

RAD proprietary HDLC compatible with  
RAD products  
Industry-standard HDLC

### ETHERNET INTERFACE

**Number of Learned MAC Addresses**

Up to 512

**Type**

10/100 Mbps autonegotiation, full/half duplex

**Compliance**

Conforms to the relevant sections of IEEE 802.3 and 802.3u

**Connector**

RJ-45

### E1 INTERFACE

**Number of Ports**

1

**Compliance**

G.703  
G.704

**Data Rate**

2.048 Mbps

**Line Code**

HDB3, AMI

**Framing**

Unframed  
Framed: G.732N

**Max Frame Size**

1800 bytes

**Line Impedance**

120W, balanced  
75W, unbalanced

**System Clock**

Internal or loopback

**Diagnostics**

Remote loopback

**Connector**

RJ-45

### T1 INTERFACE

**Number of Ports**

1

**Compliance**

ANSI T1.403

**Data Rate**

1.544 Mbps

**Line Code**

B8ZS, AMI

**Framing**

Unframed  
Framed: D4 or ESF

**Max Frame Size**

1800 bytes

**Line Impedance**

100W, balanced

**System Clock**

Internal or loopback

**Diagnostics**

Remote and FDL loopbacks

**Connector**

RJ-45

### MANAGEMENT

SNMPv1

### GENERAL

**Indicators**

PWR (green) – Power status  
TST (yellow) – Test status  
ALM (red) – Alarm status  
LOS (red) – Loss of signal  
ETH LINK (green) – Ethernet link status

**Power**

Wide-range power supply:  
AC/DC: 100 to 240 VAC  
or 48/60 VDC (40 to 72 VDC)

DC: 24 VDC (available only with temperature-hardened metal enclosure)

**Power Consumption**

5W

**Physical**

Plastic enclosure:

Height: 43.7 mm (1.7 in)

Width: 220 mm (8.6 in)

Depth: 170 mm (6.7 in)

Weight: 0.5 kg (1.1 lb)

Metal enclosure:

Height: 43.7 mm (1.7 in)

Width: 215.5 mm (8.5 in)

Depth: 152.5 mm (6.0 in)

Weight: 0.58 kg (1.28 lb)

**Environment**

Temperature:

Regular unit:

0° to 50°C (32° to 122°F)

Temperature-hardened version:

-22° to 70°C (-7.6° to 158°F)

Humidity: Up to 90%, non-condensing

# RICi-E1, RICi-T1

## Fast Ethernet over E1/T1 Intelligent Converters

### Ordering

#### RECOMMENDED CONFIGURATIONS

##### RICi-E1

Fast Ethernet converter over balanced E1 interface

##### RICi-E1/U

Fast Ethernet converter over unbalanced E1 interface

##### RICi-T1/H

Fast Ethernet converter over T1 interface, temperature-hardened plastic enclosure

#### SPECIAL CONFIGURATIONS

Please contact your local RAD partner for additional configuration options

#### SUPPLIED ACCESSORIES

AC power cord

DC adapter plug

##### CBL-RJ45/2BNC/E1

Interface adapter for converting a balanced E1 RJ-45 connector to a pair of BNC unbalanced coaxial connectors

**Note:** The CBL-RJ45/2BNC/E1 cable is supplied with the unbalanced E1 option.

#### OPTIONAL ACCESSORIES

##### CBL-DB9F-DB9M-STR

Control port cable

##### RM-33-2

Hardware kit for mounting one or two units in a 19-inch rack, for units with plastic enclosures

##### RM-35/@

Hardware kit for mounting one or two units in a 19-inch rack, for units with metal enclosures

@ Rack mounting kit type:

**P1** Kit for mounting one unit

**P2** Kit for mounting two units

##### WM-35

Hardware kit for mounting one unit on a wall, for units with metal enclosures

#### International Headquarters

24 Raoul Wallenberg Street  
Tel Aviv 69719, Israel  
Tel. 972-3-6458181  
Fax 972-3-6498250, 6474436  
E-mail market@rad.com

#### North America Headquarters

900 Corporate Drive  
Mahwah, NJ 07430, USA  
Tel. 201-5291100  
Toll free 1-800-4447234  
Fax 201-5295777  
E-mail market@radusa.com

[www.rad.com](http://www.rad.com)

Order this publication by Catalog No. 803522



Your Network's Edge