

FCD-IPL



E1 or Fractional E1 Access Unit with IP Router



FEATURES

- E1 or fractional E1 access device with integrated IP router
- 10/100BaseT user port
- PPP WAN protocol
- Regular and transparent IP routing
- QoS for user traffic prioritization
- Bi-directional fault propagation
- Powerful management capabilities, including:
 - Inband and out-of-band access
 - Remote software download
 - Statistics collection
- Comprehensive diagnostic tools, including alarms, physical E1 loopbacks, ping and trace route utilities

DESCRIPTION

- FCD-IPL is an E1 access unit with an integrated IP router for full or fractional E1 services.
- The integrated IP router supports static routes as well as RIP I, II routing protocols.
- In transparent mode, the router forwards all packets from the WAN to the LAN and vice versa, except for management traffic, which is sent to the FCD-IPL host IP address.
- The FCD-IPL WAN protocol is standard PPP with LCP and IPCP support.
- The bi-directional fault propagation mechanism constantly monitors the status of both the network and user connections. If a failure is detected on one of the interfaces, FCD-IPL automatically shuts down the other port. When the failed connection is re-established, FCD-IPL restores the inactive link.

- QoS is assured by prioritizing the LAN traffic. FCD-IPL employs traffic classification to define what data is delivered and what data is dropped if the LAN traffic exceeds the E1 line capacity. Classification is performed using IP precedence or DSCP. The user traffic is assigned to five priority queues: one strict priority and four weighted fair queues (WFQs).

The strict priority queue traffic is forwarded to the E1 line before traffic from any other WFQ. All WFQs have the same priority, but each queue receives a minimum guaranteed rate.

Note: Standard FCD-IPL units have the QoS functionality masked. Refer to the Ordering section for the information on how to order a unit with QoS or how to order a license to enable the QoS functionality in a standard FCD-IPL.

- FCD-IPL can be managed using different ports and applications:
 - Local out-of-band management via an ASCII terminal connected to the RS-232 port
 - Remote inband management via the user or network ports, using Telnet, SNMP or ConfiguRAD, RAD's Web-based application.
- Comprehensive diagnostic capabilities include:
 - Real-time alarms to alert users on fault conditions
 - E1 and Ethernet statistics collection
 - Local and remote loopbacks on the E1 link
 - Ping tool for checking IP connectivity
 - Trace route utility for mapping hop nodes from FCD-IPL to a destination host.

FCD-IPL

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SPECIFICATIONS

E1 INTERFACE

- **Framing**
 - G732N (no MF, CCS)
 - G732N (no MF, CCS) CRC-4
 - G732S (TS16 MF, CAS)
 - G732S (TS16 MF, CAS) CRC-4
- **Bit Rate**
2048 kbps
- **Line Code**
AMI
- **Zero Suppression**
HDB3
- **Line Impedance**
120Ω, balanced
- **Signal Levels**
Receive: 0 to -30 dB (with LTU)
0 to -12 dB (without LTU)
Transmit: 3V ±10% (balanced)
- **Jitter Performance**
As per ITU-T Rec. G.823
- **Compliance**
ITU G.703, G.704, G.706, G.732
- **Connector**
RJ-45, 8-pin

ETHERNET INTERFACE

- **Type**
10/100BaseT
- **Operation Mode**
Full or half duplex,
autonegotiation, no flow control
- **Compliance**
IEEE 802.3, 802.3u
- **Connector**
RJ-45, 8-pin

IP ROUTER

- **Routing Types**
Static, RIP I and II
- **WAN Protocol**
PPP

GENERAL

- **Management**
 - Out-of-band: via dedicated terminal port; V.24/RS-232 DCE; 9.6, 19.2, 115.2 kbps; DB-9 female connector
 - Inband: via E1 or LAN port
- **Indicators**
PWR (green) – Power status
TST (yellow) – Diagnostic test status
ALM (red) – Alarm status
SYNC LOSS LOC (red) – Local loss of E1 synchronization
SYNC LOSS REM (red) – Remote loss of E1 synchronization
LINK (green) – Ethernet link status
ACT (yellow) – Ethernet activity status
- **Power**
AC/DC: 100–240 VAC or
-48 to -60 VDC
- **Power Consumption**
5W max
- **Physical**
Height: 43.7 mm / 1.7 in
Width: 240 mm / 9.4 in
Depth: 170 mm / 6.7 in
Weight 0.5 kg / 1.1 lb
- **Environment**
Temperature: 0–50°C/32–122°F
Humidity: Up to 90%,
non-condensing

ORDERING

FCD-IPL/E1/U/*

E1 or fractional E1 access unit with IP router

FCD-IPL/SW/*

Software upgrade for FCD-IPL

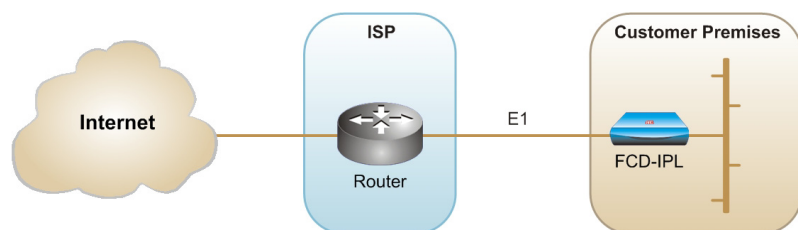
Note: When a software upgrade is ordered, RAD sends a code used for activating a required feature.

- * Specify **Pack 1** for enabling QoS functionality

OPTIONAL ACCESSORIES

- RM-33-2
Hardware kit for mounting one or two FCD-IPL units into a 19-inch rack
- CBL-DB9F-DB9M-STR
Control port cable

APPLICATION

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