

E1 (CEPT) Rate and Interface Converter

FEATURES

- Connects E1 (CEPT) equipment to digital data services
- Connects two PABXs through digital data services
- Maintains fractional E1 (CEPT) integrity end-to-end
- Link interface: V.35 or X.21
- Front panel setup and control
- Complies with CCITT recommendations G.703, G.704 and G.732
- Selectable E1 framing format: two or sixteen frames per multiframe
- Downline loading of configuration to remote sites



DESCRIPTION

■ The FCD-20 is a rate and interface converter for connecting E1 (2.048 Mbps) equipment to a high speed public data service that provides V.35 or X.21 link at any n x 64 kbps data rate.

■ The FCD-20 connects equipment providing *fractional E1* (in which only some of the timeslots are being used) to data channels in which the data rate is lower than the E1 rate.

■ The FCD-20 keeps the fractional E1 data channelized (i.e., the exact placement of data into timeslots is maintained end-to-end). This unique feature allows connection of both multiplexers and single channel equipment to the data service.

■ Channelization integrity is maintained by allocating 8 kbps for synchronization between the two FCD-20s. The remaining 56 kbps in the synchronization timeslot can be used either for user data channel or

for downline loading of parameters to the remote unit. The channelized E1 interface is compatible with CCITT recommendations G.703, G.704 and G.732.

■ Two models are available: with V.35 link interface or with X.21 link interface. Both models provide setup and control from the front panel.

■ Data from the E1 multiplexer is decoded in one of two selectable methods: either as a bundle of several consecutive timeslots or in a free, user-defined timeslot allocation.

■ The E1 transmit clock is locked to the V.35 or X.21 trunk timing of the data service network. The E1 multiplexer should operate in loopback timing mode, or with its own timing, if it is accurate enough to prevent excessive frame slips and loss of data.

■ Maintenance and diagnostics capabilities include local and remote loopbacks at various points.

SPECIFICATIONS

DATA SERVICE LINK

Interface

V.35 or X.21 (see Ordering)

Connector

V.35: 34 pin, female
X.21: 15 pin D-type, female

Data Rate

n x 64 kbps, where n equals
2, 3, ... 31

Timing

From the synchronous network
Nominal n x 64 kbps, ± 100 ppm

Control Signals (V.35 model)

RTS and DTR: constantly ON

Control Signals (X.21 model)

C (Control): constantly ON

E1 (CEPT) CHANNEL

Framing

16 frames per multiframe or
2 frames per multiframe

Multiframe

Timeslot 16 is transferred
end to end, supported with 16
frames per multiframe

Data Rate

2.048 Mbps

Line Code

HDB3

Impedance

120 ohms, balanced
75 ohms, unbalanced

Signal Levels

Receive: 0 to -10 dB
Transmit: Balanced: $\pm 3V$, $\pm 10\%$
Unbalanced: $\pm 2.4V$, $\pm 10\%$

Jitter Performance

As per CCITT G.823

Connector

15-pin D-type, female, for balanced
Two BNC coaxial, for unbalanced

Transmit Timing

Locked to the data service
network timing

GENERAL

Timeslot Allocation

Sequential (Bundled) or
User-defined

Diagnostics

Loopback 1:
Towards the data service network
Loopback 2:
Towards the E1 multiplexer

Front Panel Control

LCD:
Two rows of 16 characters
Three push buttons:
Cursor, Scroll, Enter

Indicators

Local LOS	Data Service Interface
Remote LOS	Data Service Interface
Local LOS	E1 Interface
Remote LOS	E1 Interface
TD	Data Service Interface
RD	Data Service Interface
TEST	

Alarms

E1 loss of signal
BPV error
E1 driver failure
E1 frame slip
E1 Excessive BER
Alarm indicator signal (AIS)
Elastic buffer slip

Power

230 VAC ($\pm 10\%$)
47 to 63 Hz, 15 watts

Physical

Height: 43.2 mm / 1.7 in (1U)
Width: 267 mm / 10.5 in
Depth: 305 mm / 12.0 in
Weight: 1.3 kg / 2.9 lb

Environment

Temperature: 0-50°C/23-122°F
Humidity: Up to 90%,
non-condensing

ORDERING

FCD-20/+/#

E1 Rate and Interface Converter

+ Specify:

V35 for V.35 link interface
X21 for X.21 link interface

Specify:

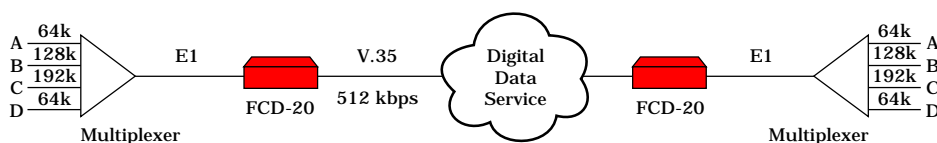
115 for 115 volts supply
230 for 230 volts supply
(Default is 230 volts supply)

RM-3

Hardware for mounting one unit onto
a 19" rack

* Specifications are subject to change without
notification

APPLICATION



RAD

data communications

U.S. EAST:

900 Corporate Drive
Mahwah, NJ 07430
Tel: (201) 529-1100
Fax: (201) 529-5777

U.S. WEST:

7711 Center Avenue #350
Huntington Beach, CA 92647
Tel: (714) 897-2448
Fax: (714) 891-1764

INTERNATIONAL HEADQUARTERS:

12 Hanechoset Street
Tel-Aviv 69710, Israel
Tel: (972) 3-6458181
Telex: 371263 RADCO IL
Fax: (972) 3-498250, 5447851