CEX2 - Family
Serial Interface Converter for E1

Introduction

The CEX2 serial interface converters offer conversion between E1 (G.703/G.704) and standard data communication and voice interfaces. The units convert X.21, V.24, ISDN BRI (I.430) and Ethernet Bridge to E1 (2.048 Mbps) interface (ITU-T G.703) where interface data rate can be set in steps of n x 64 kbps (n= 1...32) via SNMP, Web-GUI, SSH and VT100 management.
When equipped with a 10/100BaseTx user interface, CEX2 is able to connect remote LANs in a bridging mode. It supports auto negotiation, full- and half-duplex mode, flow control, transmission of VLANs and frame sizes up to 1535 Bytes.

The CEX2 offers in-band management of the remote device, whereby the management data is transmitted together with the user data. The in-band management capability in combination with System Controller SCX2e allows Carriers and ISPs to maintain and supervise all devices inside management system via single NMS access point.

Additional features like performance monitoring and several test loops at line and user interface ports give operators a wide bunch of easy service diagnostics in case of any problems in the network.

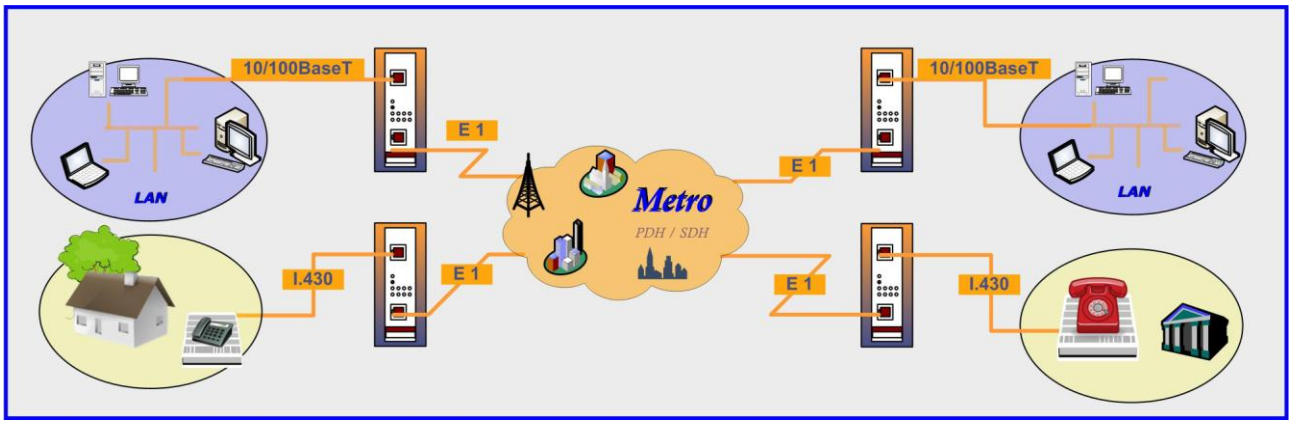
Features

- Data transmission via PDH line port up to 1200 m
- Interface data rate adjustable in steps of n x 64 kbps up to 2048 kbps
- Selectable user interfaces:
  - X.21 (D-Sub15)
  - V.24 (D-Sub25)
  - I.430 ISDN Basic Rate Interface
  - 10/100BaseTx (RJ45)
- ISDN Digital Leased Line
- Ethernet Bridge with auto negotiation and VLAN support (IEEE 802.1Q)
- Remote in-band management
- SNMPv2c, SNMPv3, Web-GUI (http),SSH and VT100 management options
- Performance monitoring on Line – and User-ports
- Extensive diagnostics, including several test loops at line and user ports
- Plug-and-play installation because of automatic configuration
- Available as compact 3RU rack mount card or desktop version

arcutronix GmbH • Garbsener Landstrasse 10 • D-30419 Hannover • Germany
+49/511/2772700 • sales@arcutronix.com • www.arcutronix.com

CEX2 - Family
Serial Interface Converter for E1

Application Example



Specifications

PDH Line Interface

- Connector: RJ45 or BNC
- Standard: ITU-T G.703
  - Data Rate: 2048 kbps
  - Line Code: HDB3
  - Impedance: 120 Ohm (RJ45) or 75 Ohm (BNC)
- Framing: ITU-T G.704, unframed CRC4 selectable
- Jitter: ITU-T G.823
- Distance (max): up to 2 km
  (valid for AWG24 - distances depending on cable diameter)

User Interface ports

- According to data sheet of User Interface (see following pages)

Features

- Performance Monitoring: Line Quality Supervision for G.703/G.704 ports
- Test options: BERT, self-test, loop mode
- Loop-Back: Terminal and Facility Loop per port
- Clock Sources: internal, external, remote
- Clock Systems: single, dual
- Transmission Round Trip Delay: 0,5 msec (through 2x CEX2)

Management

- Remote in-band management via one timeslot or Sa-Bits
- SNMPv2c, SNMPv3, SSH and Web-GUI via SCX2 system controller
- VT100 in SHX3 system housing (desktop)
- Remote flash update via http, TFTP or VT100
- Performance monitoring for E1 and Ethernet ports
- User Access levels: 4

Environmental

- Operating: +5 to +40°C (ETS300019-1-3; class3.1)
- Transport: -25 to +70°C (ETS300019-1-2; class2.2)
- Storage: -25 to +55°C (ETS300019-1-1; class1.2)
- Humidity: 10 to 90%, non-condensing
- Safety-Norm: acc. to EN60950
- EMC
  - Emission: EN55022 class B
  - Immunity: EN61000-4-3 10V/m

Power

- Supply Voltage: +5VDC via Backplane
- Power Consumption: < 5 VA, overcurrent protected
- Voltage/Lightning Protection: ITU-T K.20
- Power supply via system rack SRX or housing SHX

Physical

- Weight: < 200g
- Dimensions:
  - 130mm H x 30mm W x 190mm D
  - 45mm H x 145mm W x 260mm D (in SHX3)
- 19” rack: 10 slots available in 3RU rack (SRX10)

CEX2 - Family
Serial Interface Converter for E1

E1 User Interface

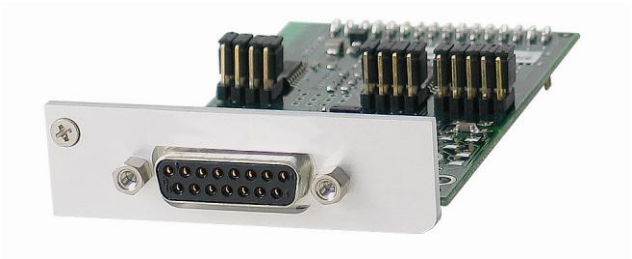
An E1 link operates over two separate sets of wires. The line data rate is 2.048 Mbit/s (full duplex) which is split into 32 timeslots.

Specification

- Connector: RJ-45 or BNC
- Standard: ITU-T G.703
  - Data Rate: 2048 kbps
  - Line Code: HDB3
  - Input Impedance: 120 Ohm (RJ45) or 75 Ohm (BNC)
  - Transmit Amplitude: 3,00 V (RJ45) or 2,37 V (BNC)
- Framing: ITU-T G.704, unframed CRC4 selectable
- Jitter: ITU-T G.823

X.21 User Interface

X.21 is a digital signaling interface recommended by ITU-T that includes specifications for DTE/DCE physical interface elements, alignment of call control characters and error checking, elements of the call control phase for circuit switching services, data transfer and test loops.
The physical and electrical characteristics of this interface are now specified in ITU-T recommendation V.11.



Specification

- Standard: ITU-T V.11
- Data Rate: n x 64 kbps, up to 4608 kbps
- Connector: D-Sub15 (female)
- DTE / DCE mode settings per Jumper

V.24 User Interface

V.24 (RS-232-C interface or EIA-232) an ITU recommendation is used for serial data connection between DTE (Data terminal equipment) and DCE (Data Circuit-terminating Equipment). In RS-232, data is sent as a time-series of bits. Both synchronous and asynchronous transmissions are supported.

Specification

- Standard: ITU-T V.11, IEC 60870-5-101
- Data Rate:
  - synchronous: Nx 64k (N=1…3)
  - asynchronous: up to 230kBaudps
- Connector: D-Sub25 (female)
- DTE / DCE mode settings per jumper

CEX2 - Family
Serial Interface Converter for E1

Ethernet Bridge User Interface

Ethernet bridge is able to connect two networks. supports automatic negotiation of connection speed and so the transmission of VLAN frames.

Specification

- Standard: IEEE 802.3 / 802.1d, IEC 60870-5-104
- Interface Data Rate: 10/100 Mbps (auto negotiation or fix configuration),
- Payload rate: n x 64kbps, up to 4608 kbps
- Bridge Table Size: 10k MAC addresses
- Packet Size: 64 to 1522 bytes (VLAN support acc. to IEEE802.1 q)
- Connector: RJ45
- Automatic MDI-MDIX selection in auto negotiation mode only.

I.430 ISDN Basic Rate Interface

The I.430 ISDN BRI is used to offer Digital Leased Circuits (DLC) over PDH networks. Thus legacy equipment can be connected at low bandwidth via S0-bus extension.

Specification

- Selectable Data Rate: 64, 128, 192 and 256 kbit/s
- Connector: RJ45 with S0 pin out
- Selection of NT and TE mode
- Termination 100 Ohm/open
- 4 types of DLC are supported:
  - D64S: 1x 64Kbps
  - D64S2: 2x 64kbps
  - S01/TS01: 1x B-Channel, 1x D-Channel
  - S02/TS02: 2x B-Channel, 1x D-Channel

Specification may change without prior notice. Please refer to www.arcutronix.com for latest data-sheets.

For more information please contact arcutronix GmbH or visit us at www.arcutronix.com.