

CFX2 - Family Fibre Optic Modem



Introduction

The CFX2 is a fully-managed fibre optic modem that provides a secure and long-range data link for standard data communication interfaces over fibre optic lines. The units support E1 (G.703/G.704), X.21, V.24, ISDN BRI (I.430) and Ethernet Bridge interfaces. The payload data rate can be set in steps of $n \times 64$ kbps ($n = 1 \dots 32$) via SNMP, Web-GUI, SSH and VT100 management.

When equipped with a 10/100BaseTx user interface, CFX2 is able to connect remote LANs in a bridging mode. It supports auto negotiation, full- and half-duplex mode, flow control and transmission of VLANs and frame sizes up to 1535 Bytes.

The CFX2 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 (IP forwarding).

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

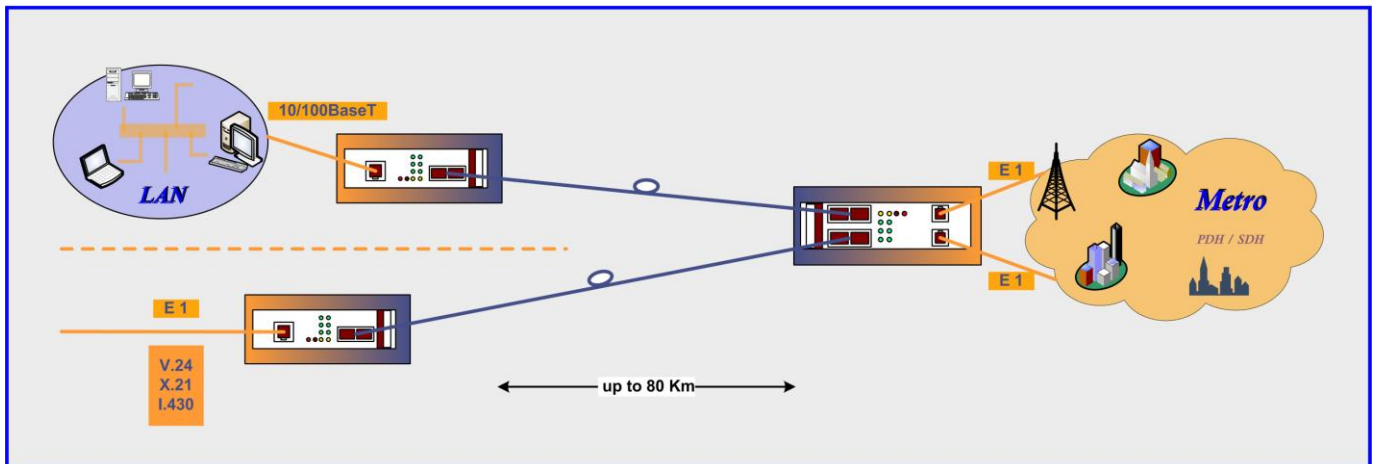
Features

- ▶ Operate with several grades of fibre optic cable
- ▶ Available optical interfaces:
 - 850 nm/1300 nm Multimode
 - 1300 nm/1550 nm Single Mode
 - WDM option supported
- ▶ Interface data rate adjustable in steps of $n \times 64$ kbps up to 2048 kbps
- ▶ Selectable user interfaces:
 - E1 (ITU-T G.703/G.704)
 - 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

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Fibre Optic Modem

Application Example



Specifications

Fibre Optic Line Interface

- Standard: 1 TR222
- Line Payload Rate: n x 64 kbps, up to 2048 kbps
- Line Code: modified CMI
- Connector: SC, FC-PC, ST
- Round Trip Delay: 0,5 msec (through 2x CFX2)

Fibre Optic port options:

850 nm Multimode Economic

- Link Budget: 10 dB
- Connector: ST

1300 nm Multimode Economic

- Link Budget: 12 dB
- Connector: ST

1300 nm Single Mode Standard

- Link Budget: 19 dB
- Connector: SC, FC-PC

1300 nm Single Mode Long Haul

- Link Budget: 31 dB
- Connector: SC, FC-PC

Single Fibre Tx1310/Rx1550nm Single Mode

Single Fibre Tx1550/Rx1310nm Single Mode

- Link Budget: 19 dB
- Optical Isolation min.: 30 dB
- Cross Talk max.: -33 dB
- Connector: FC-PC

Management

- Remote in-band management
- 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 FO, E1 and Ethernet ports

Environmental

- Operating: +5 to +45°C (ETS300019-1-3; class3.1)
- Transport: -25 to +70°C (ETS300019-1-2; class2.2)
- Storage: -10 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: < 5VA, overcurrent protected
- Voltage/Lightning Protection: acc. 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)

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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



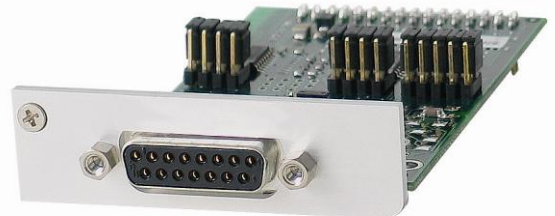
X.21 User Interface

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: $n \times 64$ 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: $N \times 64k$ ($N=1\dots3$)
 - asynchronous: up to 230kBaudps
- Connector: D-Sub25 (female)
- DTE / DCE mode settings per jumper



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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.

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