arcutronix

@ccess the Ethernet

Catalogue **2011**

arcutronix GmbH
Deutschland

Dear Customer and Business Partner!

We would like to take this chance to thank you for your part in maintaining our excellent relationship and for the quality of feedback we have received regarding improvements and new products over the last year!

Is it worth producing a printed catalogue as well as an online catalogue in this rapid changing environment? We certainly think so!

Our solutions and products are bywords for reliability. This reliability encompasses functionality, product quality and durability over the whole lifecycle.

Your investment is secure for the long term!

New products and features can be found in our online catalogue on our homepage.

The new catalogue introduces our new ENX, a next generation Ethernet demarcation device. It builds on the experience of Chronos and EDX1000 family combined with solutions for new network needs.
Another new solution is Remote Management for our Transponder Family FCX4G and FCX10G. This enables full management control of your network!

Together with our optical CWDM Multiplexer card OSX, the FCX Family combines all you need for today's fully managed CWDM solution.

As you can see, the catalogue is actually a "Solution Book" so it's well worth printing it!

We hope you will find a lot to interest you in this latest printed catalogue and thank you for your input!

Juergen Schroeder

Andreas Zimmermann

About Us

arcutronix@ccess the Ethernet

With more than 20 years of experience und huge know-how in fibre optics, Ethernet and access technologies, we offer the best solution für your network

Independent of the network our solutions follow latest standards for quality, supervision, provisioning and performance monitoring allowing you to upgrade your network to new services and higher bandwidths.

All data services and interfaces from V.24 up to 10 G are supported with our optimized and modular solutions.

We listen to you and understand your network – we speak European!

Our company with its engineers and sales teams is located in Germany and its factory in Austria, guarantees high quality, cost efficiency, excellent support and short reaction times. We are in your neighborhood and visits can be done the next day. No issues with long travel times and visa's. Without long overseas transportation and customs delays, deliveries of your products are optimized in a time and cost effective way.

Solid technique and new ideas!

The start of a huge worldwide installed base 20 years ago, guarantees consistency and experience! With improvements on already established techniques and newest product developments upgrades or greenfield installations are always easy and cost efficient.

arcutronix – the bridge between you and your customers

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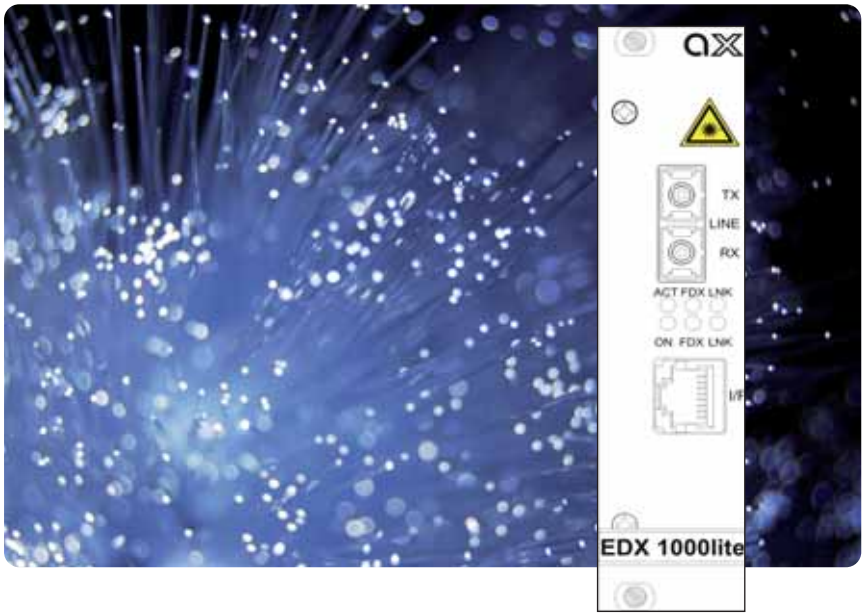
Carrier Ethernet

ETHERNET DEMARCATION AND CONNECTION

Low cost of ownership, high flexibility and multi-service capability are the drivers for modern network infrastructures. The world wide solution for these requirements is Ethernet based technology.

Without reservation of fixed paths or timeslots packetized techniques efficiently allow the use of one medium and platform for data and voice with best flexibility.



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ENX-F

SYNCHRONOUS ETHERNET NETWORK TERMINATION

Introduction

The ENX-F is a smart and versatile access network device for Ethernet access links and expanded services, such reducing operating expenses and improving margins. It offers SyncE and Precision Time Protocol (PTP; IEEE1588) support to expand provider's clock-domain till the end-customer. Its functions cover current and future access network requirements and it enables efficient solutions through easy configuration, test and monitoring interfaces.

ENX-F implements a fully managed demarcation function between customer network and service provider network. It monitors end-to-end connectivity and SLAs via its integrated test functionality.
ENX-F can derive SyncE from all ports and fulfils ITU requirements for jitter, wander and hold-over.

For IEEE1588 it can operate as Boundary Clock (BC) and Ordinary lock (OC). It provides accurate distribution of the PTP protocol across multi-port networks. As boundary clock it may be slaved to a master on one port and act as master on all other ports.

ENX-F offers independent interface and service control with integrated throughput test functions according to RFC 2544 (benchmark for network interconnect devices).
It incorporates Ethernet operations management according to Y.1731 (OAM functions), 802.1ag and 802.3ah (EFM), configuration management via HTML browser, via SNMP and SSH.

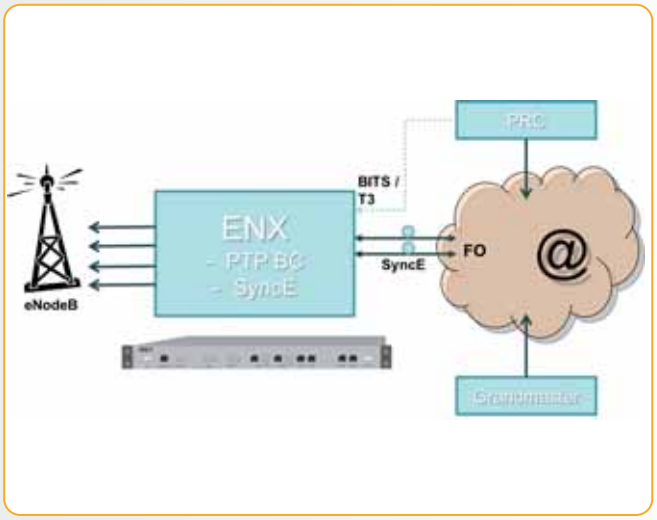
Features

- ENX-F brings synchronicity to the edge of provider's network
- ITU-T G.8261 etc., G.823
- IEEE 1588v2 (PTP)
- BITS (T3) input
- 1pps and T4 output for sync of slave devices
- Jumbo Frames (>10k) supported
- Functions cover current and future access network requirements
- Implements a fully managed demarcation function between customer network and service provider network
- Fibre and copper Ethernet ports
- Offers built-in independent interface and service supervision with integrated throughput test functions (acc. RFC 2544)
- Connectivity Fault Management
- Network management to monitor and manage
  - HTML based WEB-OPI,
  - Built-in SNMP-agent and
  - SSH (CLI)
- In-band management capability
- Fan less solution at Rack-montage and Desktop Units
- Compact design: 19"/1RU („Pizza Box")

Application Example

Realisation of mobile back-hauling for next generation of eNodeB (LTE).

The synchronous feature supports the extending demand for clock accuracy and phase alignment.



Specifications

Network I/F (WAN) / Service

- 2 x 1000BaseSX/LX/ZX/BX
  - Pluggable SFP types
  - Connector: SFP
  - Electrical (RJ45) SFP for GbE

Service I/F (LAN)

- 4 x 10/100/1000BT
  - IEEE 802.3
  - IEC 60870-5-104
  - Auto Negotiation, Auto MDIX
  - Connector: RJ45
  - 2x Combo-Port
    - 1x SFP and/or 1x RJ45

Timing Interfaces

- T3-input (BITS) acc. ITU-T G.703 (T12)
- T4-output acc. ITU-T G.703 (E12 or T12)
- 1pps (1 pulse-per-second)

Features

- ITU-T G.8261 - G.8264
- IEEE 1588v2 (PTP)
- QoS IEEE 802.1 p,Q
- Provider Tagging, IEEE 802.1ad
- RMON
- Jumbo frames supported (>10.000 Bytes)
- IPv6 supported

Management

- Network Management port (front access):
  - 10/100BaseTx (RJ45)
  - HTMLv2 based WEB-OPI
- SNMPv2e, SNMPv3
- SSH & CLI
- CFM Management
  - IEEE 802.1 ag
  - ITU-T Y.1731
- Link Layer Management
  - IEEE 802.3 ah

Environmental

- Operating: -25 to +55°C
- Storage: -3 to +70°C
- Humidity: < 100% (30°C), non-condensing

Power

- Consumption: < 20VA
- Input AC
  - Voltage: 230VAC (165…265 VAC)
  - Connector: IEC 60320-C14
- Input DC
  - 48...72 VDC
  - Connector: RIA (3 pin)

Physical

- Pizza-Box
  - Standalone: 44mm H x 448mm W x 306mm D
  - 19” version: 44mm H x 483mm W x 306mm D
  - Weight: 2,3 kg

CHX

ETHERNET NETWORK TERMINATION

Introduction

The CHX is a smart and versatile access network device for TDM and Ethernet access links and expanded services, such reducing operating expenses and improving margins.

Its functions covers current and future access network requirements of today and enable efficient solutions through easy configuration, test and monitoring interfaces.

CHX implements a fully managed demarcation function between customer network and service provider network. It monitors end-to-end connectivity and SLAs via its integrated test functionality.

CHX offers independent interface and service control with integrated throughput test functions according to RFC 2544 (benchmark for network interconnect devices).

It incorporates Ethernet operations management according to Y.1731 (OAM functions), 802.1ag and 802.3ah (Ethernet in the first mile), configuration management via HTML browser and via SNMP.

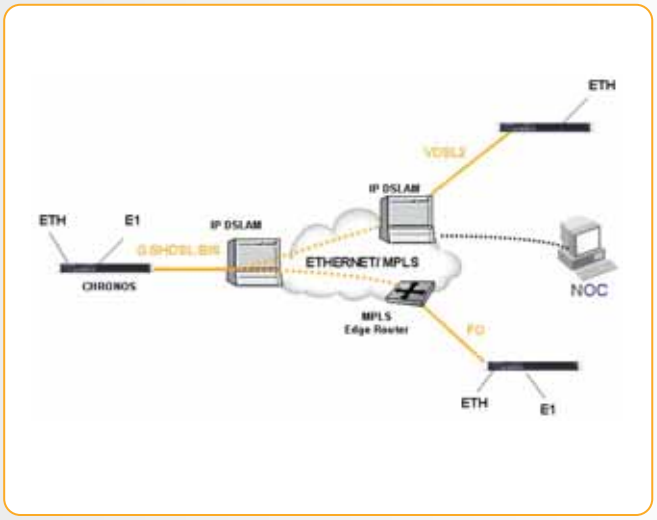
Features

- CHX adapts easily to evolving networks via its highly modular architecture and flexibility
- Functions cover current and future access network requirements today
- Implements a fully managed demarcation function between customer network and service provider network
- Fibre and copper access
- 2 copper variants available:
  – G.SHDSL.bis
  – VDSL2
- Jumbo Frames supported
- Offers built in independent interface and service control with integrated throughput test functions according to RFC 2544 for trouble shooting
- Connectivity Fault Management
- Network management: Built-in SNMP-agent, capable to monitor and manage, HTML based WEB-OPI
- Inband management capability
- Fan less solution at Desktop Units

Application Example

Realisation of logically separated client networks with various access technologies.

The integrated Ethernet OAM test functions monitors single hops or end-to-end connections.Transport of traditional leased line services and IP/Ethernet by using a single access link to a remote location.



Specifications

Network I/F (WAN)

- 1x DSL (Copper Long Haul)
  - G.SHDSL.bis
    Coding: TC-PAM 32
    Bandwidth: 22.4 Mbit/s
    Connectors: 4x RJ45 or
  - VDSL2 (G.993.2) or
  - ADSL2+ (G.992.5)
- 1x Pluggable SFP
  - 10/100/1000BT IEEE 802.3 compliant
  - 100Base FX (125 MHz operation)
  - 1000Base - X

Service I/F (LAN)

- 2x 10/100/1000BT
  - IEEE 802.3
  - IEC 60870-5-104
  - Auto Negotiation, Auto MDIX
  - Connector: RJ45

Features

- QoS 802.1 P,Q
- Provider Tagging, 802.1ad
- RMON
- Jumbo frames supported (MTU: 1632 Bytes)

Management

- Network Management port (front access):
  - 10/100BaseTx (RJ45)
  - HTML based WEB-OPI
- SNMPv2c, SNMPv3
- CFM Management
  - 802.1 ag
  - Y.1731
- Link Layer Management
  - 802.3 ah

Environmental

- Operating: 0 to +50°C
- Storage: -10 to +70°C
- Humidity: < 85% (30°C), non-condensing

Power

- Power Consumption: <20VA, overcurrent protected
- Input Voltage: 230VAC (165…265VAC)
  Protection class II

Physical

- Desktop
  - Dimension: 266 (W) x 44 (H) x 210 (D) mm
  - Weight: 1,3kg

EDX1000-Family

GIGABIT DEMARCATION

Introduction

The EDX1000 Family includes full managed compact Gigabit-Ethernet converters and repeaters, offering different number of Ethernet interfaces.

arcutronix technology is a powerful way to enable the delivery of high quality broadband services throughout the entire CSA (carrier servicing area). The EDX1000 Family members are designed as demarcation devices for provider's network to connect 10/100/1000BaseT to optical GigE-links or to extend optical GigE-links. Thus terminating the optical Metro Ethernet or EFM-network towards the customer's CPE. Due to VLAN tagging (acc. to 802.1Q) the EDX1000 Family is able to transparently interconnect networks of different customers and keep full privacy of data traffic.

The EDX1000 Family offers full local and remote management access to give carrier class performance monitoring and a wide range of SLA settings via SNMP, CLI or web-based management. Due to that the EDX1000 Family consists of devices, which can easily operate all over provider's network and offering full access and monitoring features.

EDX1000 Family can be housed in small footprint single-slot housings or 19" racks.

Features

- Carrier-class Gigabit-Ethernet conversion from 10/100/1000BaseT to 1000BaseFX or optical GbE extension
- Up to 2x GbE network ports for pluggable SFP
- Optional service interfaces: 1x 10/100/1000BaseT port (auto-neg./RJ45 conn.), 8x 10/100BaseT (auto-neg./RJ45), 6x 100BaseFX (pluggable SFP)
- SFP transceiver for short, long haul and WDM applications available
- Copper SFP (10/100/1000BaseT) supported
- No limitation for SFP usage
- Bandwidth Limitation per port
- Ethernet Automatic Protection Switching (EAPS) according to RFC3619 (for EDX1006e, EDX1008)
- Jumbo-Frames supported
- Performance monitoring on all ports
- Remote flash software update
- SNMP Agent onboard
- Secure configuration via SSHv2 (Secure Shell) terminal
- Permanent remote in-band management
- Compact 3RU design

EDX1000-Family Overview

The EDX1000 Family consist of 4 members, which cover the need of service- and inftrastructure – providers at its best. The usage of SFP-based Gigabit-Ethernet interfaces makes it very easy to fit the family into applications of the metro and access area. Long as well as short haul fibre range is covered as well as CDWM, DWDM and single-fibre optic lines can be installed. As all arcutronix products, there is no limitation in usage of pluggable SFP modules, as long as they confirm to the multi-supplier agreement (MSA).

Four members are defined as for today and will be depicted in more detail hereafter:

- EDX1000
- EDX1002
- EDX1008
- EDX1006e

EDX1000-Family: Gigabit Ethernet Demarcation

Service- & Line-Interfaces	EDX1000 0716-2001	EDX1002 0716-2101	EDX1008 0716-3200	EDX1006e 0716-4600
Gigabit-Ethernet				
optical	1x SFP pluggable, LC	2x SFP pluggable, LC	2x SFP pluggable, LC	2x SFP pluggable, LC
copper	1x 10/100/1000BaseT RJ45	TripleSpeed SFPs supported	TripleSpeed SFPs supported	TripleSpeed SFPs supported
FastEthernet				
	-	-	7x 10/100BaseT RJ45	-
Management-Interface (outband/local)				
	1x 10/100BaseT RJ45	1x 10/100BaseT RJ45	1x 10/100BaseT RJ45	1x 10/100BaseT RJ45
Remarks				
Autoneg. Supported	autoneg.	autoneg.	autoneg.	autoneg.
Triple speed SFP	yes	yes	yes	yes
Temperature	commercial	commercial	commercial	extend. Temp. Range

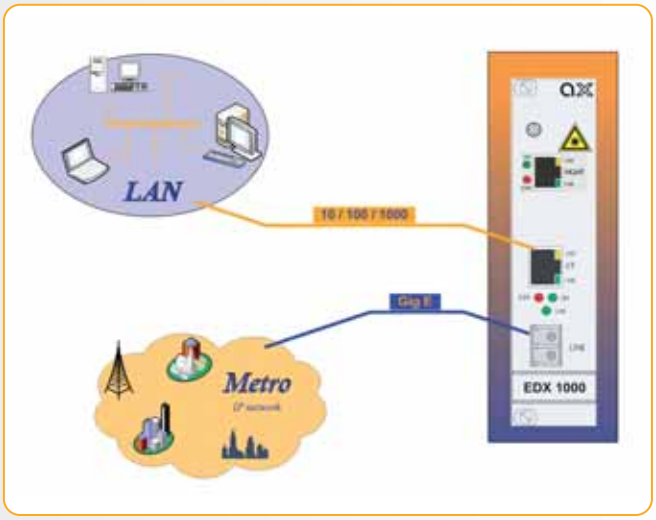
EDX1000-Family

EDX1000

Application Example

EDX1000 as Providerís demarcation point. EDX1000 converts long haul access to short haul interface. It builds the delivery point for provideris SLA.

Full management and bandwidth limitation features give the provider maintenance and SLA options to disburden metro-switches and edge routers.



Specifications

Network I/F (WAN)

- 1x 1000BaseSX/LX/ZX/BX
  - Pluggable SFP types
  - Connector: SFP
  - Electrical (RJ45) SFP for GbE

Service I/F (LAN)

- 1x 10/100/1000BaseT
  - IEEE 802.3
  - Auto Negotiation, Auto MDIX
  - Connector: RJ45

Management I/F

- 1x 10/100BaseT
  - IEEE 802.3
  - Auto Negotiation, Auto MDIX
  - Connector: RJ45

Features

- Traffic classification/priority based on TOS/DSCP/802.1P/802.1Q
- 4 priority queues for traffic management
- Low latency handling of VoIP/video services
- 802.1Q VLAN: forwarding, stacking (802.1Q-in-Q)
- 16 port based VLANs with tagging acc. IEEE802.1Q
- Remote Failure detection with LPT and RFD
- 8k MAC addresses supported
- Jumbo-Frames supported (MTU: 1632 Bytes)

Management

- CLI, HTTP/GUI and SNMPv1 and v2c
- Serial and Ethernet ports for local management
- SSH or Telnet support
- Software download via TFTP
- DHCP support

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
- Emission: EN55022 class

Power

- Supply Voltage: +5VDC via Backplane
- Power Consumption: < 10VA, over current protected
- Power supply via system rack SRX or housing SHX

Physical

- Weight: < 250g
- 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

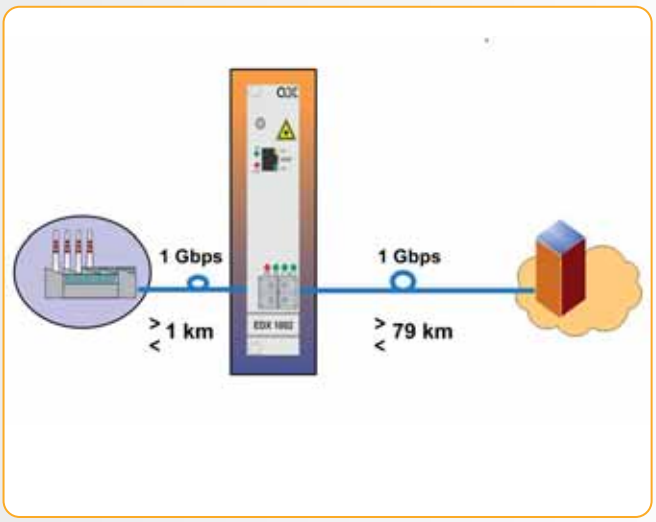
EDX1000-Family

EDX1002

Application Example

EDX 1002 as Providerís demarcation point for distant enterprise networks.

EDX 1002 offers to combine multimode and single mode fibre in flexible way via different types of pluggable SFP modules. Thus providers or carriers are able to interconnect regional enterprise networks via long haul SFPís in easy and cost effective way.



Specifications

Network I/F (WAN) / Service I/F (LAN)

- 2x 1000BaseSX/LX/ZX/BX
  - Pluggable SFP types
  - Connector: SFP
  - Electrical (RJ45) SFP for GbE

Management I/F

- 1x 10/100BaseT
  - IEEE 802.3
  - Auto Negotiation, Auto MDIX
  - Connector: RJ45

Features

- Traffic classification/priority based on TOS/DSCP/802.1P/802.1Q
- 4 priority queues for traffic management
- Low latency handling of VoIP/video services
- 802.1Q VLAN: forwarding, stacking (802.1Q-in-Q)
- 16 port based VLANs with tagging acc. IEEE802.1Q
- Remote Failure detection with LPT and RFD
- 8k MAC addresses supported
- Jumbo-Frames supported (MTU: 1632 Bytes)

Management

- CLI, HTTP/GUI and SNMPv1 and v2c
- Serial and Ethernet port for local management
- SSH or Telnet support
- Software download via TFTP
- DHCP support

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
- Emission: EN55022 class B

Power

- Supply Voltage: +5VDC via Backplane
- Power Consumption: < 10VA, over current protected
- Power supply via system rack SRX or housing SHX

Physical

- Weight: < 250g
- 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

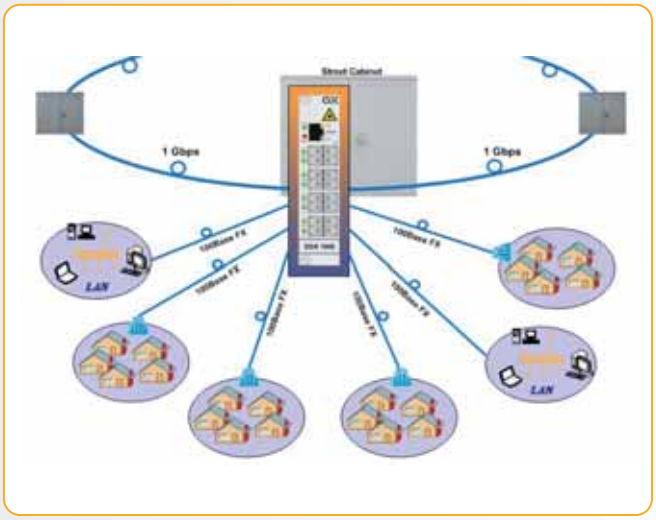
EDX1000-Family

EDX1006e

Application Example

EDX 1006e as Carriers optical distribution points in street cabinets with extended temperature range. EDX 1006e enables carriers to connect different locations via six 100Base FX ports providing FTTO and FTTH applications.

Both GbE ports are used for GbE ring functionality where the EAPS algorithm guaranties protection-switching time of less than 50ms.



Specifications

Network I/F (WAN)

- 2 x 1000BaseSX/LX/ZX/BX
  - Pluggable SFP types
  - Connector: SFP
  - Electrical (RJ45) SFP for GbE

Service I/F (LAN)

- 6 x 100BaseFX
  - Pluggable SFP types
  - Connector: SFP

Management I/F

- 1 x 10/100BaseT
  - IEEE 802.3
  - Auto Negotiation, Auto MDIX
  - Connector: RJ45

Features

- Traffic classification/priority based on TOS/DSCP/802.1P/802.1Q
- 4 priority queues for traffic management
- Low latency handling of VoIP/video services
- 802.1Q VLAN: forwarding, stacking (802.1Q-in-Q)
- 16 port based VLANs with tagging acc. IEEE802.1Q
- Remote Failure detection with LPT and RFD
- Support of STP and RSTP according to IEEE802.1
- Ethernet Automatic Protection Switching (EAPS) according to RFC3619
- 8k MAC addresses supported
- Jumbo-Frames supported (MTU: 1632 Bytes)

Management

- CLI, HTTP/GUI and SNMPv1 and v2c
- Serial and Ethernet ports for local management
- SSH or Telnet support
- Software download via TFTP
- DHCP support

Environmental (Extended temperature range)

- Operating: -25 to +70°C (ETS300019-1-3; class3.3)
- 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
- Emission: EN55022 class B

Power

- Supply Voltage: +5VDC via Backplane
- Power Consumption: < 10 VA, overcurrent protected
- Power supply via system rack SRX or housing SHX

Physical

- Weight: < 250g
- 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

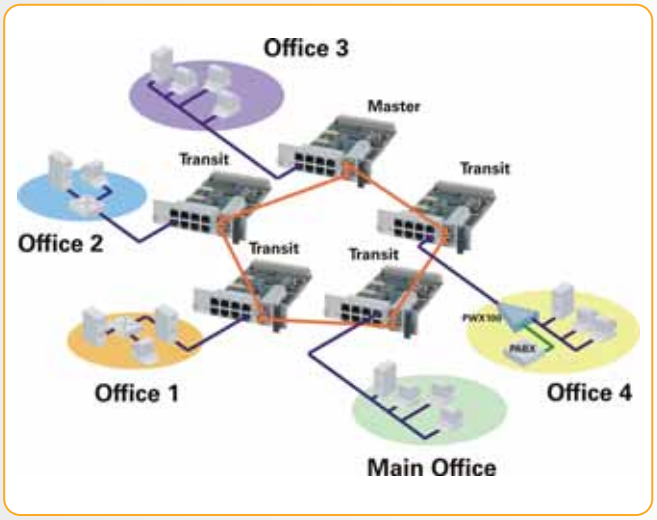
EDX1000-Family

EDX1008

Application Example

EDX1008 in GbE ring application. EDX1008 enables customer to interconnect different office locations in GbE ring structure.

EAPS algorithm guaranties a protection-switching time of less than 50ms. EAPS is an IETF certified protocol for fast ring protection.



Specifications

Network I/F (WAN)

- 2x 1000BaseSX/LX/ZX/BX
  - Pluggable SFP types
  - Connector: SFP
  - Electrical (RJ45) SFP for GbE

Service I/F (LAN)

- 7x 10/100BaseT
  - IEEE 802.3
  - IEC 60870-5-104
  - Auto Negotiation, Auto MDIX
  - Connector: RJ45

Management I/F

- 1x 10/100BaseT
  - IEEE 802.3
  - Auto Negotiation, Auto MDIX
  - Connector: RJ45

Features

- Traffic classification/priority based on TOS/DSCP/802.1P/802.1Q
- 4 priority queues for traffic management
- Low latency handling of VoIP/video services
- 802.1Q VLAN: forwarding, stacking (802.1Q-in-Q)
- 16 port based VLANs with tagging acc. IEEE802.1Q
- Remote Failure detection with LPT and RFD
- Support of STP and RSTP according to IEEE802.1
- Ethernet Automatic Protection Switching (EAPS) according to RFC3619
- 8k MAC addresses supported
- Jumbo-Frames supported (MTU: 1632 Bytes)

Management

- CLI, HTTP/GUI and SNMPv1 and v2c
- Serial and Ethernet ports for local management
- SSH or Telnet support
- Software download via TFTP
- DHCP support

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
- Emission: EN55022 class B

Power

- Supply Voltage: +5VDC via Backplane
- Power Consumption: < 7VA, over current protected
  - Total power consumption depends on SFPs
- Power supply via system rack SRX or housing SHX

Physical

- Weight: < 250g
- 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

EDX1000lite

UNMANAGED GIGABIT ETHERNET CONVERTER

Introduction

The EDX1000lite is an unmanaged Gigabit Ethernet media converter, which offers an economical copper to fibre optic signal conversion.

As Ethernet has evolved into the most widely implemented physical and link layer protocol today, more and more services are delivered on Ethernet infrastructure. As bandwidth demand is growing, Gigabit Ethernet to the customer satisfies today needs for broadband access. fibre optic connections allow long-haul Ethernet-links to spread Gigabit Ethernet services into a wide area.

EDX1000lite is an easy to install and easy to operate device, which saves costs and energy. In case of signal loss of fibre optic port, an alarm-output is triggered for external use, so failures can easily be detected and problem-location is quickly done.

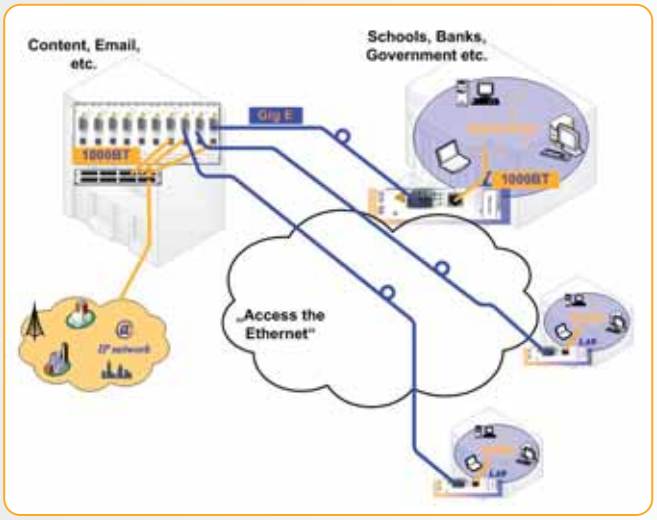
As part of arcutronix Multi Service Platform EDX1000lite can be housed in small footprint singleslot housing or 19'' rack to achieve high density on small footprint.

Features

- Gigabit Ethernet converter: 1000BaseT to 1000Base-LX
- Compact design
- Support of Jumbo-Frames
- Different FO options on demand
- Compact 3RU rack mount card
- Available together with SHX3 for Desktop version

Application Example

The EDX1000lite can be used to bridge long distances, thus enhancing copper Ethernet networks by using a fibre optic line between branch offices or to achieve GE-rollout for customers.



Specifications

Network I/F (WAN)

- 1x 1000Base-LX
  - IEEE 802.3
  - VLAN support
  - Connector: ST
- Different wavelength/connector available on demand

Service I/F (LAN)

- 1x 1000BaseT
  - IEEE 802.3
  - Auto Negotiation, Auto MDIX
  - Connector: RJ45

Features

- Plug-n-Play installation
- Low power consumption
- Support of Jumbo Frames
- Support of VLAN-tagged traffic
- LEDs on front to indicate status
- MTU: 8192 Bytes

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
- Emission: EN55022 class B

Power

- Supply Voltage: +5VDC (4,8 to 5,2 V) via Backplane
- Power Consumption: < 5VA, overcurrent protected
- 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

EDX100

FAST EHTERNET CONVERTER

Introduction

The Fast-Ethernet converter family EDX100 offers an economical copper to fibre optic signal conversion.

Fibre optic connections allow long-haul as well as short-haul distance Ethernet-links to spread connectivity into a wide area. Different optical variants are available to fit best in all scenarios. By using the single-fibre option (WDM-mode) a very cost-effective transport of Fast-Ethernet traffic can be achieved.

The Ethernet bridge – media converter EDX100 has Link Fault Pass-through (LFP) functionality, which allows easy tracing of network link failures.
In case of signal loss of fibre optic port, an alarm-output is triggered for external use.

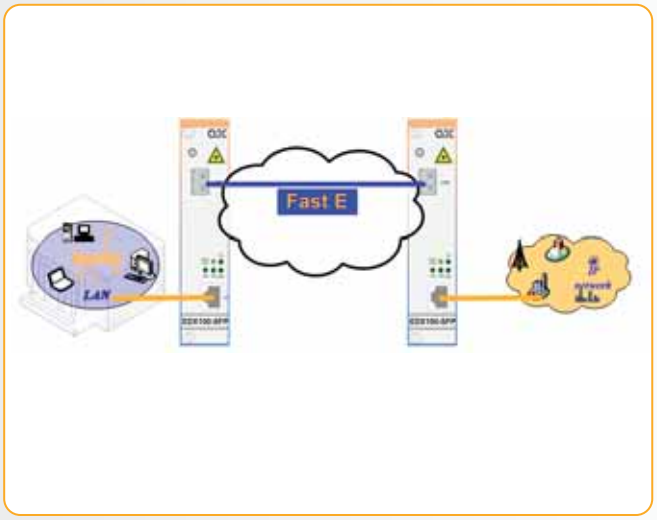
EDX100 can be housed in small footprint single-slot housing or 19” rack.

Features

- Fast Ethernet converter: 10/100BaseT to 100BaseFX
- Compact design
- Support of Jumbo-Frames
- Link Pass Through for failure detection
- Different FO options
- Version for pluggable SFP modules (line)
- Compact 3RU rack mount card
- Available together with SHX3 for Desktop version

Application Example

The EDX100 can be used to bridge long or short distances, thus enhancing copper Ethernet networks by using a fibre optic line between branch offices or to achieve FE-rollout for customers.



Specifications

Network I/F (WAN)

- 1x 100BaseFX, for all variants
- Different optical characters available:
- EDX100-SFP:
  - Pluggable SFP modules
  - Connector: SFP

Service I/F (LAN)

- 1x 10/100BaseT
  - IEC 60870-5-104
  - Auto Negotiation, Auto MDIX
  - Connector: RJ45

Features

- Link Pass Through Capability
- Easy Configuration via DIP-switches
- Plug-n-Play installation
- Low power consumption
- Support of Jumbo Frames MTU: 1600 Bytes
- Support of VLAN-tagged traffic
- LEDs on front to indicate status

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
- Emission: EN55022 class B

Power

- Supply Voltage: +5VDC (4,8 to 5,2 V) via Backplane
- Power Consumption: < 5VA, over current protected
- 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

iEDX100

INDUSTRIAL ETHERNET MODEM

Introduction

arcutronix iEDX100 is a 1-port media converter/ modem qualified for extended distance transmission under harsh environment. For the easy maintenance and time-saving, iEDX100 features remote Link Fault Pass Through technology which provides remote link down signal forwarding, acknowledging link events occurred on each end of iEDX100 to main server. To activate forwarding mode and LFP functions, simply adjust DIP switch then reset the converter, the reconfigurations will be applied.

Single-mode and Multi-mode fibre optical ports meet your needs for long distance transmission up to 100 Km. It can be easily wall mounted and be mounted directly on DIN rail. iEDX100 has two DC24V inputs with range from DC12V-48V. Dual power inputs and built-in reverse polarity protection are designed as the redundant power system to ensure your power on each end of iEDX100 to main server. With IP 30 rigid aluminum case, redundancy. CE/FCC regulatory approvals, and 3-year global warranty, iEDX100 series are your reliable choices for hazardous applications.

Features

- One port 10/100 TX to 100 FX media converter
- Fully compatible with IEC 60870-5-104
- Choice of SC, ST or LC connector for multimode and single mode
- Supports packet length up to 2046 bytes
- Supports 9K jumbo packets
- LFP (Link Fault Pass-through) far-end fault detection technology
- Power failure, port break alarm by relay output
- Power redundancy with wide range input, DC24V (12-48V)
- Reverse power polarity protection
- IP-30 grade protection case
- -40°C - 75°C wide operating temperature for hazardous environments
- RoHS Compliance

Application Example

The industry modem iEDX100 brings Ethernet into the rough environment: The iEDX100 allows high speed Ethernet in places where communication has been a problem before. Temperature-, Humidity-, and Voltage potential-problems are now a thing of the past. The hardened i-series with fibre optic transmission is the right solution for hazardous applications. Communication or video supervision can be done easily and safely for public transport companies (railway, subway, air traffic control…), energy suppliers (electricity station, gas plants, windmill powered plants…), highways, and including public buildings etc..

Specifications

Network I/F (optical)

- 100-FX SC/ST Full-/Half-Duplex
  MM 1310nm 2Km
- 100-FX SC Full-/Half-Duplex
  SM 1310nm 5/20/60/100Km
- 100-FX Bidi-SC Full-/Half-Duplex
  SM 1310nm/1555nm 20Km

Service I/F Ports

- 10/100 BaseT
- IEEE 802.3
- IEEE 802.3u 100 BaseT
- IEEE 802.3x Flow control and back pressure

Environmental

- Operating: -40°to +75°C
- Humidity: 5% to 95%
- EMI CISPR 22:A1:2000+A2:2002
  ICES-003: 2004,Class A
- EMC EN55022: Class A
  EN61000-3-2: 2000
  EN61 000-3-3: 1995+A1:2001
  EN55024
  IEC61000-4-2/3/4/5/6/8/11
- Shock IEC60068-2-27
- Freefall IEC60068-2-32
- Vibration IEC60068-2-6
- Case IP30 Protection
- MTBF 192000hr
- Warranty 3 Years

Power

- Consumption: < 3,5W
- Input Voltage:
  - 24 VDC (12…48 VDC)
- Dual power feed

Physical

- Standalone version:
  - Dimension: 29.8 (W) x 108 (H) x 98 (D) mm
  - Weight: < 0,5kg
- Installation: DIN Rail, Wall mount, Desktop

iEDX1000

INDUSTRIAL ETHERNET MODEM

Introduction

arcutronix iEDX1000 is a 1-port media converter/ modem qualified for extended distance transmission under harsh environment. For the easy maintenance and time-saving, iEDX1000 features remote Link Fault Pass Through technology which provides remote link down signal forwarding, acknowledging link events occurred on each end of iEDX1000 to main server. To activate forwarding mode and lFP functions, simply adjust DIP switch then reset the converter, the reconfigurations will be applied.

Single-mode and Multi-mode fibre optical ports meet your needs for long distance transmission up to 100 Km. iEDX1000 can be easily wall mounted and be mounted directly on DIN rail. iEDX1000 provides three DC24V inputs with range from DC 12V-48V. Dual power inputs and built-in reverse polarity protection are designed as the redundant power system to ensure your power on each end of iEDX1000 to main server. With IP30 rigid aluminum case, CE/FCC regulatory approvals, and 3-year global warranty, iEDX1000 series are your reliable choices for hazardous applications.

Features

- One port 1000 TX to 1000 FX media Converter/modem
- Choice of SC, Bidi or LC connector for multimode and singlemode
- lFP (Link Fault Pass-through) detection technology
- Power failure, port break alarm by relay output
- Power redundancy include Power A,
- Power B (Removable terminal block dual inputs) and DC jack with wide range input, DC24V(12-48V)
- Reverse power polarity protection
- IP30 grade protection case
- -40°C - 75°C wide operating temperature
- For hazardous environment applications
- RoHS Compliance

Application Example

The industry modem iEDX1000 brings Ethernet into the rough environment: The iEDX1000 allows Gigabit-Ethernet in places where communication has been a problem before. Temperature-, Humidity-, and Voltage potential-problems are now a thing of the past. The hardened i-series with fibre optic transmission is the right solution for hazardous applications. Communication or video supervision can be done easily and safely for public transport companies (railway, subway, air traffic control…), energy suppliers (electricity station, gas plants, windmill powered plants…), highways, and including public buildings etc.

Specifications

Network I/F (optical)

- 1000-FX SC/LC Full-/Half-Duplex
  MM 1310nm 2Km
- 1000-FX SC Full-/Half-Duplex
  SM 1310nm 20/60/100Km
- 1000-FX Bidi-SC Full-/Half-Duplex
  SM 1310nm/1550nm 20Km

Service I/F Ports

- 1000 BaseT
- IEEE 802.3z
- IEEE 802.3ab
- IEEE 802.3x Flow control and back pressure

Environmental

- Operating: -40°C to +75°C
- Humidity: 5% to 95%
- EMI CISPR 22:A1 :2000+A2:2002
  ICES-003:2004,Class A
- EMC EN55022:Class A
  EN61000-3-2 :2000
  EN61 000-3-3: 1995+A1:2001
  EN55024
  IEC61000-4-2/3/4/5/6/8/11
- Shock IEC60068-2-27
- Freefall IEC60068-2-32
- Vibration IEC60068-2-6
- Case IP30 Protection
- MTBF 192000hr
- Warranty 3 Years

Power

- Consumption: < 5VA
- Input Voltage:
  - 24VDC (12…48 VDC)
- Dual power feed

Physical

- Standalone version:
  - Dimension: 29.8 (W) x 108 (H) x 98 (D) mm
  - Weight: < 0,5kg
- Installation: DIN Rail, Wall mount, Desktop

SCX2e

SYSTEM CONTROLLER & SNMP AGENT

Introduction

The System Controller SCX2e is used to control, configure and monitor all types of arcutronix line-cards and system-racks (SRX). The System Controller provides access by using SNMP, Web-GUI and SSH.

The Web-GUI assists a user friendly field installation and configuration. For SNMP management, several standard and product specific MIB files (Management Information Base) are provided. SSH supports automatic configuration on secure remote access via unsecure networks. Remote SW-upload for SCX2e itself and all other component in the system rack is realized via TFTP or http. After copying SW updates to SCX2e Flash File System updated files are loaded into agent and plugged modules on administrator`s request. The in-band management capability, in combination with the System Controller SCX2e allows Carriers and ISPs to maintain and supervise all devices inside management system via single NMS access point. Trap signaling helps to detect errors in case of any failure or status change at the local or remote site

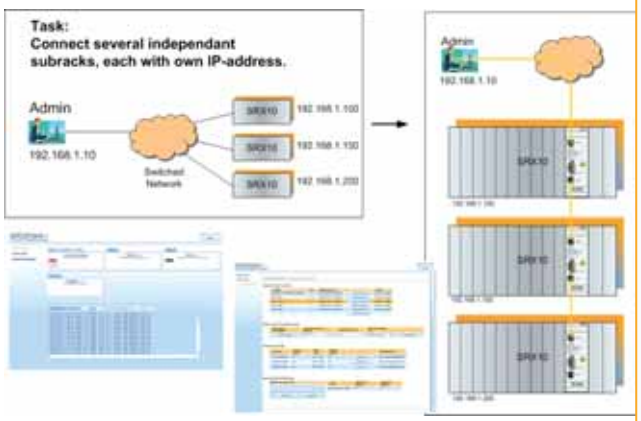
Features

- Central management access device for system racks (SRX family)
- 2 x IP access via copper and fibre optic Ethernet
- Remote SW-upload for each component in a system rack via TFTP or http.
- Flash File System, for saving new and old SW files of all plugged cards
- Various management access options: SNMPv2c, SNMPv3, Web-GUI, SSH
- Power and Fan control functionality
- SNMP trap-signalling in case of local or remote status changes
- Enhanced Alarm Management handling
- Configuration handling
- Auto-Discovery of plugged line-cards and system rack types
- Alarm relay – Enhanced alarm threshold selectable in addition to autonomous alarm function via alarm relay contact
- Power supply via system racks (SRX)
- Compact 3U rack card

Application Example

Web-GUI

Web-based graphical user interface is accessible from every standard web browser. Using Web-GUI, all components of local and remote site can be monitored and configured.
All signals and the card status in different racks are displayed graphically. When installing new devices, they will be automatically discovered and displayed.



Specifications

10/100 BaseTx port

- 1x RJ45
  - IEEE 802.3
  - IEC 60870-5-104
  - Auto Negotiation, Auto MDIX

Combo-Port (Copper and/or FO)

- 1x SFP and/or 1x RJ45
  - Auto-Media Detect (SFP has priority)
  - Ethernet according to IEEE802.3
  - Copper: 10/100/1000 BaseT
    - Auto Negotiation, Auto MDIX
  - Fibre: 100 BaseF or 1000 BaseF
    - Auto SFP Detect

Features

- SNMPv2c, v3
  - RFC1901, 1905, 1906; RFC3410 et sqq.
- Web-GUI (HTML4.01)
- SSH
  - RFC4250 et sqq.
- File Transfer for Up- and Download Purposes via TFTP or http.
- Flash File System for all SW download files
- Trap signalling in case of any local or remote failure
- Alarm Event Logging
- Alarm connector

Environmental

- Operating: +5 to +40°C
- Storage: -30 to +80°C
- Humidity: 5 to 95%, non-condensing

Power

- Input: 5VDC via Backplane
- Power Consumption: < 5VA*, overcurrent protected
- Voltage/Lightning Protection: acc. ITU-T K.20
- Power supply via system rack SRX

* depends on plugged SFPs

Physical

- Weight: < 180g
- Dimensions:
  - 130mm H x 43,18mm W (8,5HP) x 190mm D
- 19” rack: slot 11 in SRX10

Alarm-Contact

- 1x Alarm-Relay
- Connector: 3 pins

SHX3

SYSTEM HOUSING

Introduction

The SHX-Family offer a simple and flexible solutions to build a standalone unit using one of arcutronix 3RU rack mount cards. An integrated wide-range power supply gives the opportunity to feed the SHX either with 110/230VAC mains or 48VDC input.

Thus, the SHX offers the widest range of flexibility. The installed access unit can be locally managed via the present VT100 management port located on the rear side of the SHX. The SHX is designed for CPE and cabinet applications. The integrated alarm connector opens the opportunity to monitor the plugged unit and the operator is quick informed in case of any failure.

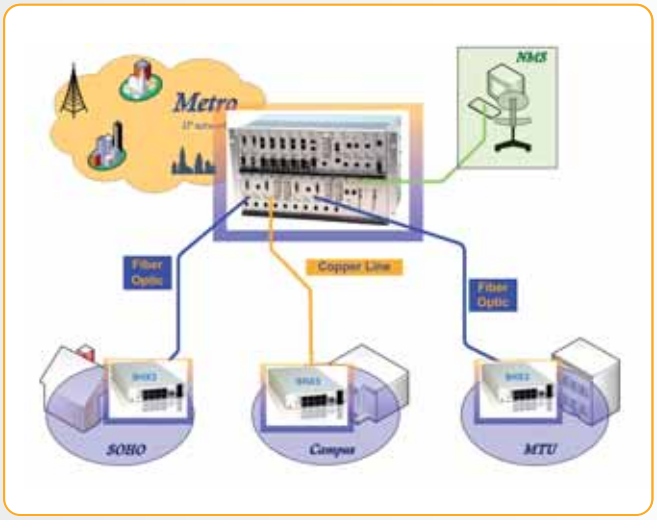
The SHX can be used as desk-top unit or as wall-mounted housing without any additional hardware required.

Features

- Cage for arcutronix 3RU rack mount cards
- VT100 management port via D-Sub9 connector
- Alarm contact
- Optional ventilation unit with fan
- Integrated wide range power supply: 48VDC …110/230 VAC
- Compact design
- Ready for Wall-mount installation

Application Example

SHX is the elemental remote housing for high density rack SRX. It is placed on the edge of access network to shelter arcutronix connectivity products as well as Ethernet demarcation devices. One housing for all applications, this makes the SHX so unique.



Specifications

Capacity

- SHX3-10W / SHX3-15W:
  - 1x 3RU Line Card
- SHX3+1:
  - 2x 3RU Line Card

Local Management I/F

- 1x VT100 (RS-232)
- Connector: D-Sub9
- Data-Rate: Depending on plugged Line Card

Alarm-Contact

- 1x Alarm-Relay
- Connector: 3 pins (RIA)

Environmental

- Operating: 0 to +40°C
- Storage: -25 to +70°C
- Humidity: 5 to 95%, non-condensing

Power

- Maximum power for Line Cards available:
  - SHX3-10W: 10VA
  - SHX3-15W: 15VA
  - SHX3+1: 15VA
- Input: AC or DC
  - -48V/ -60V (+/- 20%)
  - 110-230VAC
- Connector: IEC60320 - C14

Physical

- SHX3-10W / SHX3-15W:
  - Weight (unequipped): 1,0kg
  - Dimensions: 40mm H x 145mm W x 260mm D
- SHX3+1:
  - Weight (unequipped): 1,6kg
  - Dimensions: 40mm H x 278mm W x 267mm D

SRX3

TRIPLE-SLOT SYSTEM HOUSING 1RU

Introduction

The SRX3 is a triple-slot housing, which allows to plug all arcutronix rack mount cards. The SRX3 can be used in a 19íí-shelf or as desk-top application. A flexible front adaptor allows to use the SRX3 with lots of different product groups and families. Together with a multi voltage power supply unit, which allows AC and/or DC feeding, the SRX3 is the most flexible standalone chassis with 1RU in high.

Two variants of SRX3 are available which differ in the management capability. While the SRX3 offers serial access to all plugged Line Cards for basic configuration and supervision, the SRX3plus houses internally a complete management agent (SCX). Thus SRX3plus offers all capabilities of management access, including web-based, SNMP and IP-SSH. This making the SRX3plus to powerful system in 1RU size, completing arcutronix Multi Service Platfom (MSP).

The SRX3 offers a VT100 (RS232) serial interface, for configuration and local supervision of the installed Line Cards. The SRX3plus has an RJ45 connector TCP/IP access. The 10/100BaseT interface allows local and/or remote management access and integration into higher network systems. Both variants are equipped with alarm-output, which completes the unique feature-set of the SRX3.

The SRX3plus can be supplied with AC or DC power. For SRX3 AC power supply is available.

Features

- Cage for arcutronix 3RU rack mounted line cards
- Capacity: up to 3x line cards (LC)
- VT100 management port via D-Sub9 connector
- SRX3plus with integrated system controller (SCX) for Web-based, SNMP, IP-SSH management access via TCP/IP port (RJ45)
- AC (110/230V) or DC power supply available (SRX3 with AC power supply only)
- Alarm contact
- Fan cooled
- Compact design: EIA 19”/1RU (“Pizza Box”)

Application Example

SRX3 is the elemental housing for arcutronix MSP. It is placed on the edge of access network to shelter arcutronix connectivity products as well as Ethernet demarcation devices. One housing for all applications, this makes the SRX3 so unique.

Specifications

Capacity

- Common:
  - up to 3x Line Cards 3RU
  - 2x Fans integrated
- SRX3plus:
  - integrated System Controller (SCX)

Management I/F

- Common:
  - 1x VT100 management port
  - Connector: D-Sub9
- SRX3plus:
  - TCP/IP port
  - Data Rate: 10/100BaseT
  - Connector: RJ45
  - Integrated System Controller (SCX)

Alarm-Contact

- 1x Alarm-Relay
- Connector: RIA (3 pin)

Environmental

- Operating: 0 to +40°C
- Storage: -25 to +70°C
- Humidity: 5 to 95%, non-condensing

Power

- Maximum power consumption / slot:
  - 15VA (5VDC, 3A)
- Input: AC (SRX3/SRX3plus)
  - 110-230 VAC (+/- 10%)
  - Connector: IEC 60320-C14
- Input: DC (SRX3plus)
  - -48V / -60VDC (+/- 20%)
  - Connector: RIA (3 pin)

Physical

- Weight (unequipped):
  - SRX3: 4,0 kg
  - SRX3plus: 4,5 kg
- Dimensions:
  - Standalone: 44mm H x 448mm W x 306mm D
  - 19” version: 44mm H x 483mm W x 306mm D
- Form Factor: EIA 19”, 1RU
- Including kit for 19” rack mounting

SRX10

SYSTEM RACK 3RU HEIGHT

Introduction

The SRX10 offers a simple and flexible solution to build high density systems in a 19”- or ETSI-rack.

All arcutronix 3RU line-cards can be housed in the SRX10, offering 10 slots in a chassis of 3RU in height. Each SRX10 has in addition 2 slots for power supply to achieve carrier-class power redundancy. Both AC and DC power supplies are available. The System-Control Card (SCX), which is placed in a reserved slot, offers easy access to the system and provides management access from local or remote stations. The integrated SNMP-agent and Web-IF-server allow OAM with standard tools.

The universal system rack provides a smart solution to get convenient options and possibilities for the users. Due to its unique technical advantages and the high level of flexibility the SRX10 achieves optimum performance as well as maximum protection for user’s applications.

The SRX10 is designed for Central office and cabinet applications. The integrated alarm connectors and fan-unit opens the opportunity to monitor the system and the operator is quick informed in case of any failure.

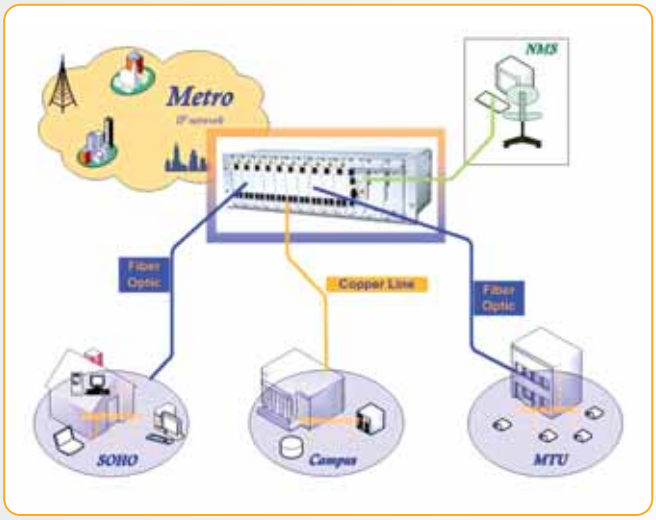
Features

- Cage for arcutronix 3RU rack mounted line-cards
- Capacity: up to 10 line-cards
- Low OPEX due to very high density of line interfaces
- Redundant power supply
- AC and DC power supply available
- System controller card for SNMP agent and Web-GUI.
- Local and remote management access via VT100 or telnet connection.
- Adjustable side frames for flexible installation depths (4 defined fixing positions)
- Alarm contact
- Optional ventilation unit with fan (necessary for FCX10G/FCX10G2 line cards)

Application Example

SRX10 installed on the edge of Metro networks is the root for a lot of applications in the access and First Mile area. Either copper or fibre optic installation can be served from the Central office or cabinet.

Full management capability for installed and remote connected line-cards offers the operator easy access and supervisory for the installed infra-structure.



Specifications

Capacity

- 10x LC (line cards) 3RU
- Common
  - 2x Power supply (PSX-family)
  - 1x Management (SCX-family)
- 1x Alarm/Fan (SAX-family)

Power

- 2 slots for redundant PS (PSX-module)
- AC and DC PS available
  - Mixed installation possible
- Connectors:
  - AC: 2x Inlet connector IEC 60320-C14
  - DC: 1x Phonix-contact (4-pin)

Environmental

- Operating: 0 to +40°C
- Storage: -25 to +70°C
- Humidity: 5 to 95%, non-condensing

Physical

- Weight (unequipped):
  - 3,0 kg
- Dimensions:
  - 133mm H x 480mm W x 242mm D
- 19” rack: 10 slots available in 3RU rack

Order Information

EDX: Ethernet Demarcation

EDX100: Fast Ethernet Demarcation

	EDX100-S	EDX100-L	EDX100-A	EDX100-B	EDX100-M	EDX100-SFP
Interfaces	0715-2001	0715-2101	0715-2003	0715-2004	0715-2002	0715-2200
FastEthernet						
optical	**1x Standard FO**	**1x Long Haul FO**	**1x Single FO**	**1x Single FO**	**1x Standard FO**	**1x SFP**
	1310, SM, ST	1550, SM, FC-PC	1310/1550, SM, ST	1550/1310, SM, ST	1310, MM, ST	pluggable, LC
copper	**1x 10/100BT**	**1x 10/100BT**	**1x 10/100BT**	**1x 10/100BT**	**1x 10/100BT**	**1x 10/100BT**
	RJ45	RJ45	RJ45	RJ45	RJ45	RJ45

EDX1000: Gigabit Ethernet Demarcation

	EDX1000lite-S	EDX1000	EDX1002	EDX1008	EDX1006e
Interfaces	0715-2501	0716-2001	0716-2101	0716-3200	0716-4600
Gigabit-Ethernet					
optical	**1x Standard FO**	**1x SFP**	**2x SFP**	**2x SFP**	**2x SFP**
	1310, SM, ST	pluggable, LC	pluggable, LC	pluggable, LC	pluggable, LC
copper	**1x 1000BT**	**1x 10/100/1000BT**	-	-	-
	RJ45	RJ45			
FastEthernet					
	-	-	-	**7x 10/100BT**	**6x 100FX**
				RJ45	pluggable, LC
Management					
	-	**1x 10/100BT**	**1x 10/100BT**	**1x 10/100BT**	**1x 10/100BT**
		RJ45	RJ45	RJ45	RJ45
Temperature	commercial	commercial	commercial	commercial	extend. Temp.

iEDX100 / iEDX1000: Industrial Ethernet Demarcation

	iEDX100 - SC	iEDX1000 - SC		
Interfaces	0715-3001	0715-3501	**Mounting:**	**Power Supply:**
Fast or Gigabit-Ethernet			All iEDX are prepared to be mounted on DIN rail or wall-mounting.	All iEDX have redundant DC-Power Supply (12-48VDC).
optical	**1x Standard FO**	**1x Standard FO**		
	1310, SM, SC	1310, SM, SC		
copper	**1x 10/100BT**	**1x 10/100/1000BT**		
	RJ45	RJ45		

CHX: Ethernet Network Termination

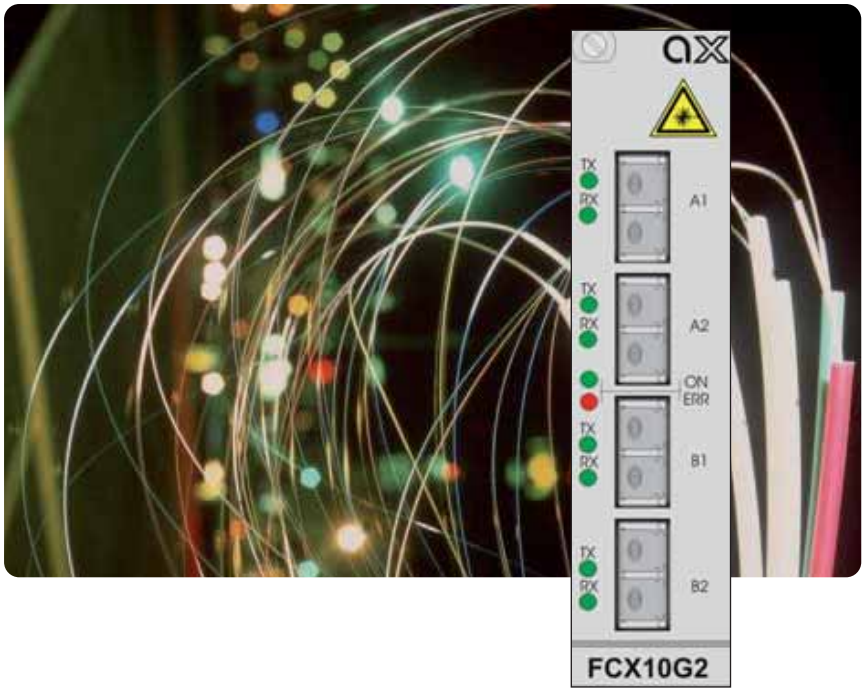
	CHX - V	CHX - S
Interfaces	0703-0801	0703-0901
xDSL		
copper	**1x VDSL2**	**4x G.SHDSL**
	ITUT-T G.993.2	ITU-T G991.2
Gigabit-Ethernet		
copper	**2x 10/100/1000BT**	**2x 10/100/1000BT**
	RJ45	RJ45
optical	**1x SFP**	**1x SFP**
	pluggable, LC	pluggable, LC
Management		
	1x 10/100BT	**1x 10/100BT**
	RJ45	RJ45

Additional accessories and pluggable XFP/SFP modules are listed in product register at the end of this caralogue.

Transmission

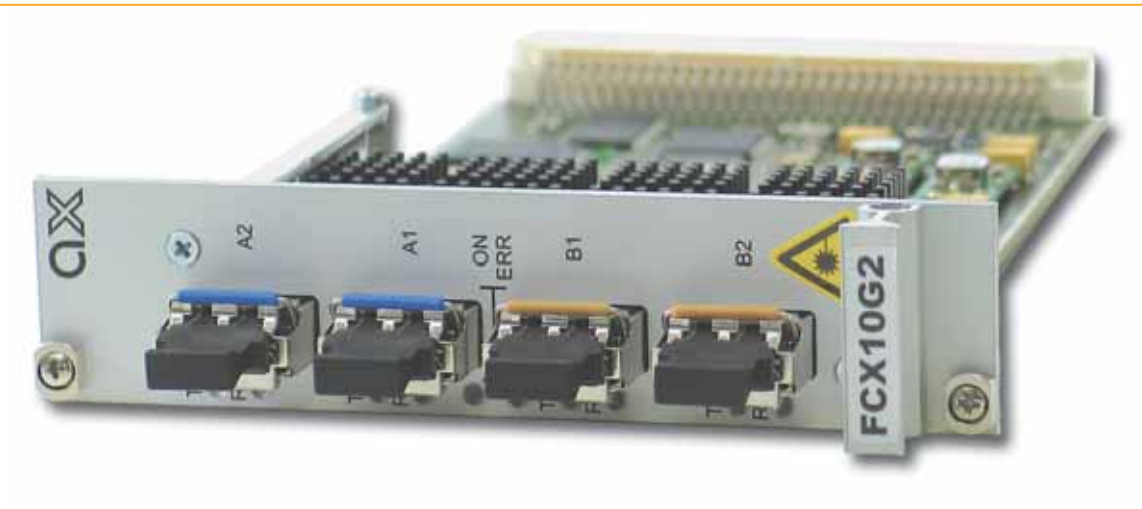
ETHERNET & MULTI-SERVICE

Greater efficiency with multiplexing. Higher Bandwidths with longer distances. General rules applicable to most traffic streams are usually true for data transmissions as well: Currently operation network components and structures should be utilized fully and efficiently to provide further cost reductions. Transponders with protocol transparency are the solution for pure data streams. For mixed services the multiplexing process is an excellent solution for the optimisation of the capacity parameters of fibre optic or existing SDH infrastructure and hence significant cost reductions.



FCX10G

FLEXIBLE 10G MULTIPROTOCOL TRANSPONDER



Introduction

The modular FCX10G is a flexible fibre optic converter and repeater with integrated management for broadband 10Gigabit-Transport. FCX10G has one or two independent channels, each supporting data rates of many 10G-applications including Ethernet, SDH/
Sonet and FibreChannel. Full 3R-Regeneration (reamplification, re-shaping, re-timing) for each channel in both directions making the FCX10G to an unique member of arcutronix Transmission family.

The option to plug on any port a free and individually selectable fibre optic XFP module makes the FCX10G suitable for use in a wide range of applications.

The integrated management facilitates fine-tuning of FCX10G features, performing loops, as well as monitoring the line quality via SNMP, SSH or Web-GUI, based on the XFP's Digital Diagnostic functions.

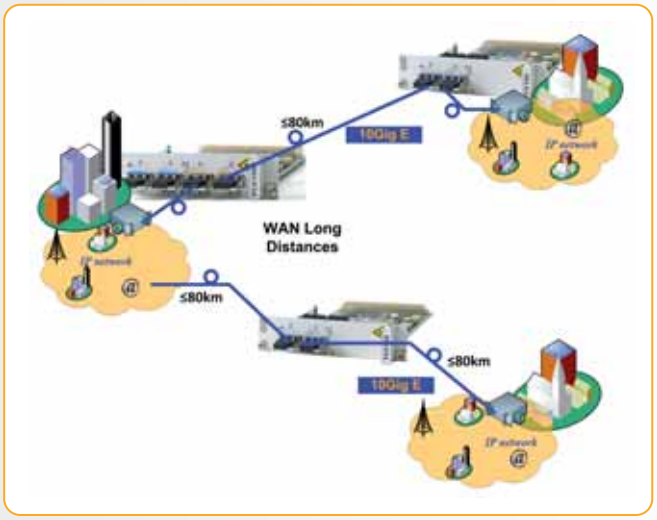
Access to management functions can be realized via One-slot housing (SHX3) or via system controller (SCX) in 19” racks (SRX).

Features

- Channel data rate: 9,95 Gbps - 11,36 Gbps
- Fully flexible “any-to-any” color/fibre/budget choice for each port on each channel
- Fibre optic 3R Repeater for Long distance Transmission
- Color generator for passive CWDM/DWDM Systems
- Managed 3R fibre Optic Converter/Repeater with two independent converter channels, each one provided as a XFP slot pair
- Selection of multi-mode, single-mode, WDM, CWDM or DWDM for each port individually
- Fully protocol transparent
- Integrated management via SNMP, SSH and CLI (VT100)
- Support of test loops via management
- Digital Diagnostic Monitoring (DDM) of the XFP modules

Application Example

The FCX10G works as a fibre Optic 3R Signal Regenerator for up to two bidirectional fibre optic lines to achieve longer reach (see picture).
Short distance to long distance power adaptation is easily realized to connect standard user's equipment to the central side (see picture).
FCX10G converts optical signals with standard wavelength (e.g. 1310nm SM) into CWDM/DWDM colours and vice versa. Together with a simple passive splitter a WDM solution is build up.



Specifications

Data Rates

- 3R Data Rates 9,95 Gbit/s up to 11,3 Gbit/s
  - 10GbE WAN PHY (9.953Gbps)
  - STM-64 / OC-192 (9953,28Mbps)
  - 10GbE LAN PHY (10.312Gbps)
  - 10GFC (10.518Gbps)
  - OTU2 acc. to G.709 (10709,23Mbps)
  - 10GbE LAN PHY FEC (11.049Gbps)
  - 10GbE OTU2 LAN PHY (11.095Gbps)
  - 10GFC FEC (11.317Gbps)

Fibre Optic Interfaces

- FCX10G2
  - 2x bidirectional transponder functionality
  - 4x XFP Module Slots
- FCX10G
  - 1x bidirectional transponder functionality
  - 2x XFP Module Slots
- Various pluggable XFP modules
  - No vendor limitation

Management

- SNMP Configuration and Monitoring*
- SSH console*
- Web-Based Management*
- VT100
- Software update

* via Rack 5Rx10 or SHX3-SC

Environmental

- Operating: 0 to +40°C
- Storage: -25 to +70°C
- Humidity: 5 to 95%, non-condensing

Power

- Input: 5VDC via Backplane
- Power Consumption: < 15VA*, overcurrent protected
- Voltage/Lightning Protection: acc. ITU-T K.20
- Power supply via system rack SRX or housing SHX

* depends on plugged XFPs

Physical

- Weight: < 250g
- 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

FCX4G

FLEXIBLE 3R FIBRE TRANSPONDER

Introduction

The modular FCX4G is a flexible fibre optic converter and repeater with integrated management for broadband datatransport. FCX4G has one or two independent channels, each supporting data rates for lots of applications including Ethernet, SDH and FibreChannel from 100 Mbps up to 4.25 Gbps. Full 3R-Regeneration (re-amplification, re-shaping, re-timing) for each channel in both directions making the FCX4G to an unique member of arcutronix Transmission family.

The option to plug on any port a free and individually selectable fibre optic SFP module makes the FCX4G suitable for use in a wide range of applications.

The integrated management facilitates fine-tuning of FCX4G features, performing loops, as well as monitoring the line quality via SNMP, SSH or Web-GUI, based on the SFP's Digital Diagnostic functions.

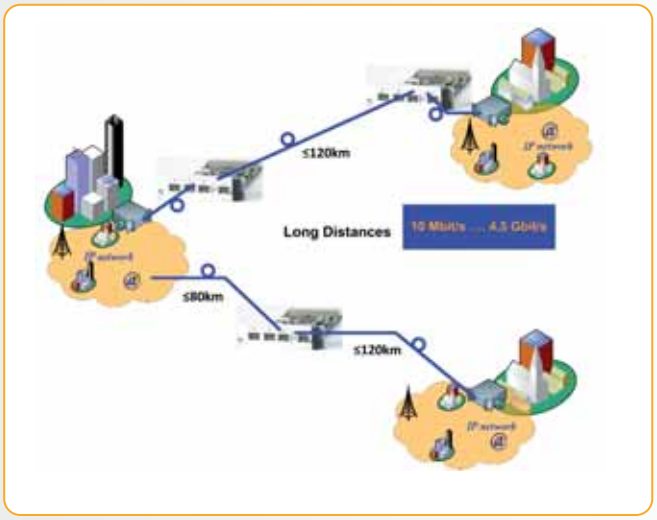
Access to management functions can be realized via One-slot housing (SHX3) or via system controller (SCX) in 19” racks (SRX).

Features

- Channel data rate 100 Mbps - 4.25 Gbps
- Fully flexible “any-to-any” color/fibre/budget choice for each port on each channel
- Fibre optic 3R Repeater for Long distance Transmission (up to 120km)
- Color generator for passive CWDM/DWDM Systems
- Managed 3R fibre Optic Converter/Repeater with two independent converter channels, each one provided as a SFP slot pair
- Selection of multi-mode, single-mode, WDM, CWDM or DWDM for each port individually
- Fully protocol transparent
- Special unit version (FCX4G-SEC) offers Broadcasting and Fibre Link Protection capabilities
- Integrated management via VT100-CLI, SNMP and SSH
- Support of test loops via management
- Digital Diagnostic Monitoring (DDM) of the SFP modules

Application Example

The FCX4G works as a fibre Optic 3R Signal Regenerator for up to two fibre optic lines.
It can converts also two independent applications each with 1310nm to CWDM/DWDM color scheme.



Specifications

Data Rates

- Thirteen fixed 3R Data Rates 100Mbit/s up to 4.25 Gbit/s
  - Fast Ethernet, FDDI, IEC 104
  - STM-1, OC-3 (STS-3)
  - ESCON
  - STM-4, OC-12 (STS-12)
  - Gigabit Ethernet
  - 1G, 2G and 4G fibre Channel
  - STM-16, OC-48 (STS-48)
  - STM-16, OC-48 (STS-48) + FEC
  - Transparent Mode (without 3R)

Fibre Optic Interfaces

- FCX4G:
  - 2x Slots for pluggable SFP modules
- FCX4G2:
  - 4x Slots for pluggable SFP modules
- FCX4G-SEC:
  - 3x Slots for pluggable SFP modules

Management

- SNMP Configuration and Monitoring*
- Telnet console*
- Web-Based Management*
- VT100
- Software update via TFTP

* via Rack

Environmental

- Operating: 0 to +40°C
- Storage: -25 to +70°C
- Humidity: 5 to 95%, non-condensing

Power

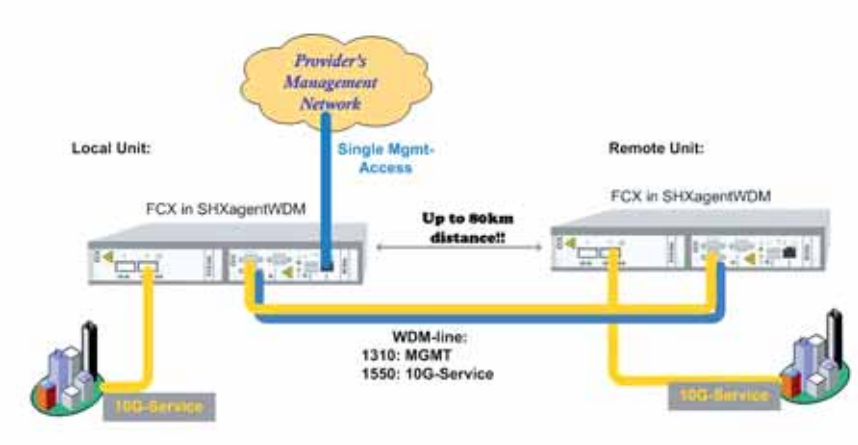
- Input: 5VDC via Backplane
- Power Consumption: < 10VA*, overcurrent protected
- Voltage/Lightning Protection: acc. ITU-T K.20
- Power supply via system rack SRX or housing SHX

* depends on plugged SFPs

Physical

- Weight: < 250g
- 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

Remote Managed FCX-Family



Introduction

The new system Housing SHX3agent with integrated System Controller SCX2e is made to offer easy local and remote management capability for the complete Multi-Protocol Transponder family FCX of arcutronix. The integrated SCX2e-WDM allows the administrator to control and monitor by using SNMP and Web-GUI.

The in-band management capability allows Carriers and ISPs to maintain and supervise all devices inside management system via single NMS access point. Trap signaling helps to detect errors in case of any failure or status change at the local or remote site.

The management traffic for the remote unit is simple added by WDM technique on top of the user's payload without any interruption of service or quality.
The installation of the system is easily done as desktop or wall-mounted solution. An integrated wide-range power supply gives the opportunity to feed the system either with 110/230VAC mains or 48VDC input. Thus, the SHX3agent offers the widest range of flexibility.

Features

- Cage for arcutronix FCX family with integrated SNMP-agent
- Alarm contact
- Integrated wide range power supply: 48VDC …110/230VAC
- Compact design
- Ready for Wall-mount installation
- Central management access device for Multi-Protocol Transponder
- Various management access options: SNMPv2c, SNMPv3, Web-GUI
- SNMP trap-signalling in case of local or remote status changes
- WDM overlay to user's traffic
- Flexible in wavelength by the usage of SFP and/or XFP

Application Example
Web-GUI

Web based graphical user interface is accessible from every standard web browser. Using Web-GUI, all components of local and remote FCX and Agent can be monitored and configured.
All signals and the card status are displayed graphically. When installing new devices, they will be automatically discovered and displayed.

Specifications

NMS: 10/100BaseTx port

- Connector: RJ45
- Ethernet according to IEEE 802.3
- IP Management for Web-GUI, SNMP

NMS-Features

- SNMPv2c and SNMPv3
- Web-GUI via standard browser
- File Transfer for Up- and Download Purposes via TFTP and http
- Flash File System for all SW download files
- IP-Forwarding to connect remote locations
- Trap signalling in case of any local or remote failure
- Alarm Event Logging

WDM: Performance

- Insertion Loss
  - 1550nm Port: <0.8 dB
  - 1310nm Port: <0.8 dB
- Isolation: > 40 dB (both Ports)
- Return Loss: > 45 dB
- PDL: < 0.2 dB
- Optical Power: 300mW

Housing: Capacity

- 1x 3RU Line Card

Alarm-Contact

- 1x Alarm-Relay
- Connector: 3 pins (RIA)

Environmental

- Operating: +5 to +40°C
- Storage: -30 to +80°C
- Humidity: 10 to 90%, non-condensing

Power

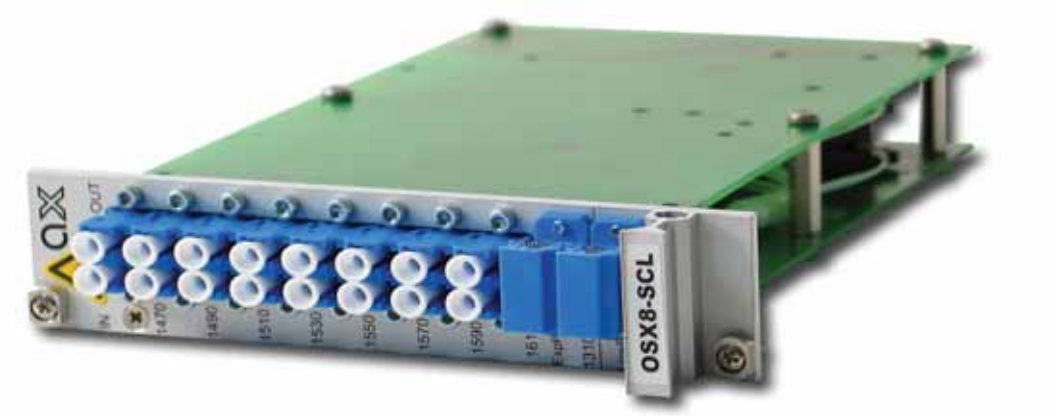
- Maximum power for Line Cards available:
  - SHX3agent: 14 W
- Input: AC or DC
  - 48VDC (+/- 10%)
  - 110-230VAC
- Connector: IEC320

Physical

- Weight (unequipped): 1,9kg
- Dimensions:40mm H x 278mm W x 267mm D

OSX8+1

EXTENDED 8-CH. CWDM MULTIPLEXER



Introduction

The OSX8+1 is a compact 8-channel optical CWDM multiplexer/demultiplexer plus(!) 1310nm express port. The OSX8+1 is the perfect extension of your existing fibre network. The standard wavelength of 1310nm can either be used for legacy traffic operating or for management channel. Together with the arcutronix transponder cards and the the multifunctional subrack SRX10 the OSX8+1 is the base of the arcutronix CWDM transport system. The OSX8+1 gives the possibility to transport eight additional services along the installed network including Ethernet, ATM, SDH/Sonet and FibreChannel. Low insertion loss and the highly integrated design make the OSX8+1 to a unique member of arcutronix Transmission family.

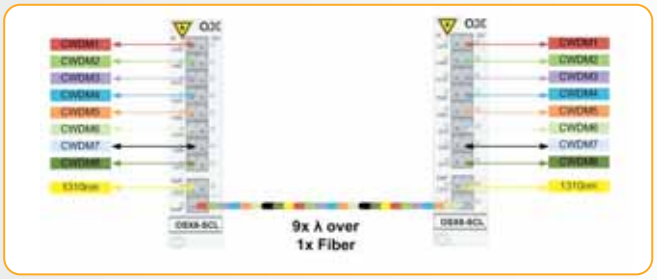
The OSX8+1 is easy to install in the arcutronix Multi service Platform and is suitable for a secure and unattended operation. It can be housed in the desktop/wall-mounted or 19” racks for high density. A mixture with other components of arcutronix Multi Service Platform makes it easy to upgrade your network.

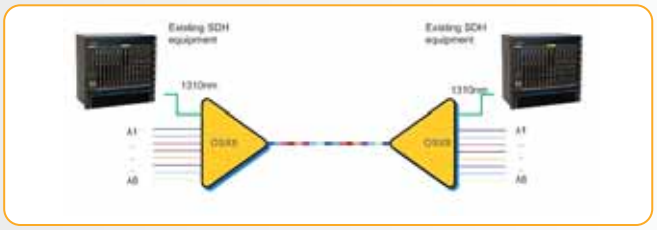
Features

- Passive optical splitter
- Multiple services over one line
- Highest flexibility due to combination of active arcutronix components and CWDM transmission technology
- 8x CWDM Channels
- Plus 1x 1310nm Express port
- CWDM grid accord to ITU-T G.694.2, spacing 20 nm
- Fully protocol transparent
- Low insertion loss
- No power supply necessary
- 3RU design
- Easy installation into all housings and racks of the arcutronix Multi Service Platform
- Fully interoperable with FCX- and EDX-Family

Application Example

The OSX8+1 builds an overlay fibre optic infra-structure over an existing network, which is operated with 1310nm standard wavelength. The existing MAN / WAN can be further used without any need of change. This making the upgrade of the existing network easy and safe. More bandwidth, more services and more protection can be offered on the existing infra-structure. Saving costs, invest and rack space with ax Multi service Platform.





Specifications

Interfaces

- OSX8-SCL
  - 1x Line Port, LC-connector
  - 1x Exp-Port, LC-connector
  - 8x CWDM-Ports, LC-connector

CDWM wavelengths

- OSX8-SCL
  - S-Band: 1471nm, 1491nm, 1511nm
  - C-Band: 1531nm, 1551nm
  - L-Band: 1571nm, 1591nm, 1611nm
  - Exp-Port: 1310nm (1260-1458nm)

Optical parameters

- Insertion Loss
  - SCL-Band: < 1.5dB
  - Exp-Port: < 1.0dB
- Isolation
  - SCL-Band: > 30/45dB (adjacent/non adj.)
  - Exp-Port: > 15dB
- Return Loss
  - Min. 45dB
- Optical Power
  - Max. 300mW

Management

- No management required.

Environmental

- Operating: 0 to +65°C
- Storage: -25 to +70°C
- Humidity: 5 to 95%, non-condensing

Power

- No power needed.

Physical

- Weight: < 250g
- 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

SMX622

SDH SERVICE MULTIPLEXER

Introduction

arcutronix SMX622, the next-generation SDH Access Device, enables true multi-service carrier grade access network solutions for tomorrow's converged networks. The cost-effective STM-1/4 Add-/Drop- multiplexer integrates voice, leased line and packet transport on a compact platform. The system is designed for customer premises access as well as metro aggregation networks, furthermore it is very well suited as a transport device in the wireless infrastructure. The SMX622 is optimized to provide unparalleled density and small size at low cost.

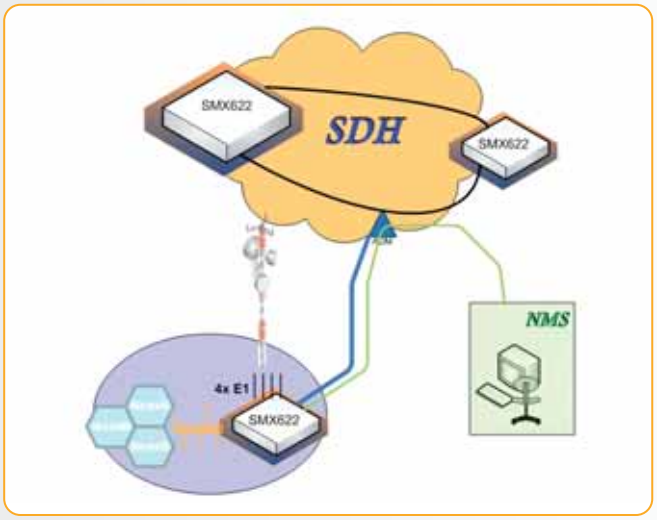
The SMX622 protects the investments made in the installed SDH network and improves the operator's TDM services and revenue through its higher integration and lower cost solution. In addition, the system supports effective Gigabit-Ethernet transport over the existing network without the need for costly deployment of an overlay network.
Management of the unit is easily integrated in an existing network management solution. The system provides an Ethernet management port for on-site craft maintenance. The SMX622 provides SNMP alarm traps as well as web-browser based provisioning.

Features

- SDH interfaces: STM-1/4 and STM-4 interfaces enabling SDH carrier class transport.
- Access interfaces: E1, E3 plus Gigabit- Ethernet
- 4x Hot-pluggable SFP module for flexible reach selection.
- Standards compliant Ethernet mapping via GFP, Virtual Concatenation and LCAS for Ethernet private line.
- Full-rate 1 Gbps end-to-end
- Intuitive web-browser based user interface.
- Compact design measuring only 1RU high, 19” wide.
- Low power and low cost
- Highly integrated architecture with all functions combined on a single low-cost box
- Optimal bandwidth utilization and flexibility is guaranteed by data mapping using GFP, Virtual Concatenation and LCAS.
- MTU: 5480 Bytes

Application Examples

SMX622 can be used as ADM in SDH network. It integrates well with SDH equipment of other vendors, due to its standard conform implementations.
With its broad interface capabilities, the SMX622 allows back-hauling of very different multi-service applications, e.g. of 2nd and 3rd generation of mobile telephony.



Specifications

Network I/F

- 2x STM-1 or STM-4 (auto-sensing via SFP) acc. ITU-T G.707, G.793, G.803
- Bit rate: 155,52 Mbit/s or 622,08 Mbit/s
- Pluggable SFP module

Service I/F (user)

- 2x STM-1 acc. ITU-T G.707, G.793, G.803
  - Bit rate: 155,52 Mbit/s or 622,08 Mbit/s
  - Pluggable SFP module
- 2x E3/DS3 (34,368Mbps / 44,736Mbps ± 20ppm)
  - ITU-T G.703
  - Line code: AMI or B3ZS
  - Impedance: 75ø unbalanced
  - Jitter: ITU-T G.742, G.823 compliant
  - Connector: Mini-Coax
- 4x E1 (2.048Mbps ± 50ppm)
  - ITU-T G.703
  - Line code: HDB3
  - Impedance: 75ø unbalanced / 120ø balanced
  - Jitter: ITU-T G.742, G.823 compliant
  - Connector: RJ45
- 2x 10/100/1000BaseT
- 2x 10/100BaseT
  - Auto negotiation
  - Auto MDIX
  - Connector: RJ45

Ethernet mapping

- GFP-F encapsulation
- Virtual Concatenation VC-4-xv (1..7), VC-3-xv (1..9) or VC-12-xv (1..63)
- LCAS

Management

- Ethernet 10/100BASE-T for local management access
- Console port (RS232)
- SNMP traps for alarming
- Web-browser based provisioning
- TCP/IP and PPP over dedicated VC12 for remote management
- OSPF routing for remote management access

Environmental

- Operating conditions: ETS 300 019, class3.1E
- Transport conditions: ETS 300 019, class2.3
- Storage conditions: ETS 300 019, class1.2
- Free convection cooling without the need for fans

Power

- Consumption: < 25VA
- Input:
  - 110-230VAC or
  - Redundant 48/60 VDC

Physical

- Standalone (19”):
  - Weight: 1,8kg
  - Dimensions: 440 (W) x 43.5 (H) x 180 (D) mm
  - Form Factor: EIA 19”, 1RU

SMX622lite

SDH SERVICE MULTIPLEXER

Introduction

arcutronix SMX622lite, the next-generation SDH Access Device, enables true multi-service carrier-grade access network solutions for tomorrow's converged networks. The cost-effective STM-1/4 Add-/Drop- multiplexer integrates voice, leased line and packet transport on a compact platform. The system is designed for customer premises access as well as metro aggregation networks, furthermore it is very well suited as a transport device in the wireless infrastructure. The SMX622lite is optimized to provide unparalleled density and small size at low cost.

The SMX622lite protects the investments made in the installed SDH network and improves the operator's TDM services and revenue through its higher integration and lower cost solution. In addition, the system supports effective Gigabit-Ethernet transport over the existing network without the need for costly deployment of an overlay network.

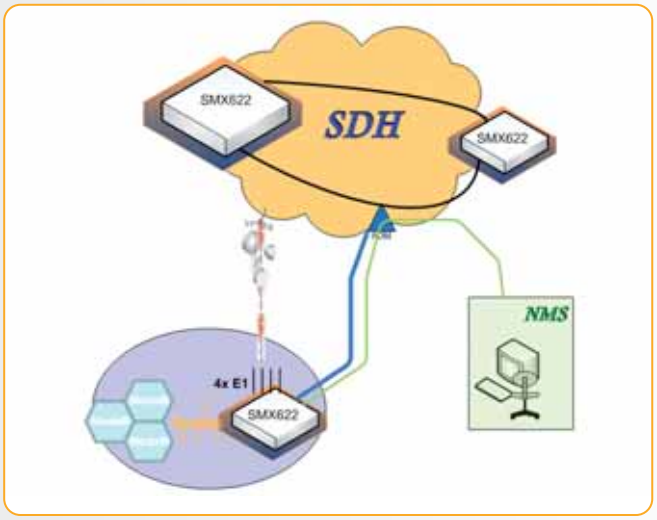
Management of the unit is easily integrated in an existing network management solution. The system provides an Ethernet management port for on-site craft maintenance. The SMX622lite provides SNMP alarm traps as well as web-browser based provisioning.

Features

- SDH interfaces: STM-1/4 interface enabling SDH carrier class transport.
- Access interfaces: E1 plus Gigabit- Ethernet
- 2x Hot-pluggable SFP module for flexible reach selection.
- Standards compliant Ethernet mapping via GFP, Virtual Concatenation and LCAS for Ethernet private line.
- Full-rate 1 Gbps end-to-end
- Intuitive web-browser based user interface.
- Compact design measuring only 1RU high, 19” wide.
- Low power and low cost.
- Highly integrated architecture with all functions combined on a single low-cost box
- Optimal bandwidth utilization and flexibility is guaranteed by data mapping using GFP, Virtual Concatenation and LCAS.
- MTU: 5480 Bytes

Application Examples

SMX622lite can be used as ADM in SDH network. It integrates well with SDH equipment of other vendors, due to its standard conform implementations.
With its broad interface capabilities, the SMX622lite allows back-hauling of very different multi-service applications, e.g. of 2nd and 3rd generation of mobile telephony.



Specifications

Network I/F

- 2x STM-1 or STM-4 (auto-sensing via SFP) acc. ITU-T G.707, G.793, G.803
- Bit rate: 155,52 Mbit/s or 622,08 Mbit/s
- Pluggable SFP module

Service I/F (user)

- 4x E1 (2.048Mbps ± 50ppm)
  - ITU-T G.703
  - Line code: HDB3
  - Impedance: 75ø unbalanced / 120ø balanced
  - Jitter: ITU-T G.742, G.823 compliant
  - Connector: RJ45
- 2x 10/100/1000BaseT (RJ45 connector)

Ethernet mapping

- GFP-F encapsulation
- Virtual Concatenation VC-4-xv (1..7), VC-3-xv (1..9) or VC-12-xv (1..63)
- LCAS

Management

- Ethernet 10/100BASE-T for local management access
- Console port (RS232)
- SNMP traps for alarming
- Web-browser based provisioning
- TCP/IP and PPP over dedicated VC12 for remote management access
- OSPF routing for remote management access

Environmental

- Operating conditions: ETS 300 019, class3.1E
- Transport conditions: ETS 300 019, class2.3
- Storage conditions: ETS 300 019, class1.2
- Free convection cooling without the need for fans

Power

- Consumption: <25VA
- Input:
  - 110-230 VAC or
  - Redundant 48/60 VDC

Physical

- Standalone (19”):
  - Weight: 1,8kg
  - Dimensions: 440 (W) x 43.5 (H) x 180 (D) mm
  - Form Factor: EIA 19”, 1RU

SMX155

SDH SERVICE MULTIPLEXER

Introduction

arcutronix SMX155, the next-generation SDH Access Device, enables true multi-service carrier-grade access network solutions for tomorrow's converged networks. The cost-effective STM-1 terminal multi¬plexer integrates voice, leased line and packet transport on a compact platform. The system is designed for customer premises access as well as metro aggregation networks, furthermore it is very well suited as a transport device in the wireless infrastruc¬ture. The SMX155 is optimized to provide unparalleled density and small size at low cost.

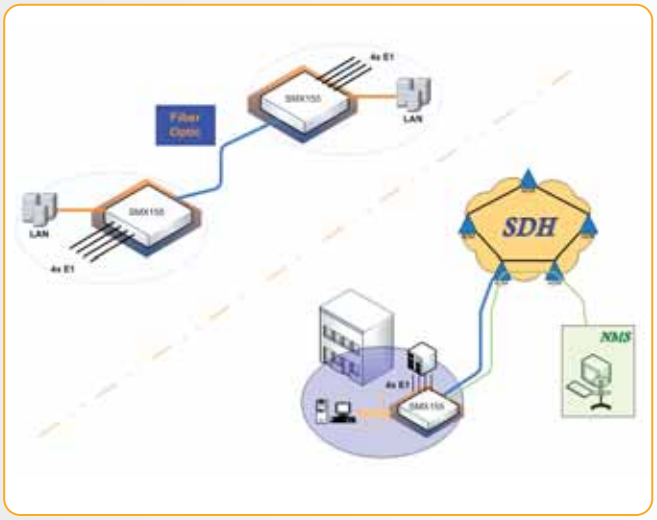
The SMX155 protects the investments made in the installed SDH network and improves the operator's TDM services and revenue through its higher integra¬tion and lower cost solution. In addition, the system supports effective Ethernet transport over the existing network without the need for costly deployment of an overlay network.
Management of the unit is easily integrated in an exist¬ing network management solution. The system provides an Ethernet management port for on-site craft maintenance. The SMX155 provides SNMP alarm traps as well as web-browser based provisioning.

Features

- SDH interfaces: STM-1 interface enabling SDH carrier class transport.
- Access interfaces: E1 and Fast Ethernet
- Hot-pluggable SFP module for flexible reach selection.
- Standards compliant Ethernet mapping via GFP, Virtual Concatenation and LCAS for Ethernet private line.
- Intuitive web-browser based user interface.
- Compact design measuring only 1RU high, 19” wide.
- Low power and low cost.
- Highly integrated architecture with all functions combined on a single low-cost box
- Optimal bandwidth utilization and flexibility is guaranteed by data mapping using GFP, Virtual Concatenation and LCAS.
- MTU: 5480 Bytes

Application Examples

SMX155 can be used in a pure P2P fibre optic scenario or as tributary unit in a SDH-network. Due to its standard conform mapping of payload, real ADM functionality is supported and the traffic can be transported herein.
SMX155 as standalone Fibre-Optic multiplexer offers easy installation for multi-service application.



Specifications

Network I/F

- 1 x STM-1 acc. ITU-T G.707, G.793, G.803
- Bit rate: 155,52 Mbit/s
- Pluggable SFP module
  - All STM-1 SFP modules supported
  - Copper SFP STM-1e available

Service I/F (user)

- 4x ITU-T G.703
  - Bit rate: 2.048Mbps ± 50ppm
  - Line code: HDB3
  - Impedance: 75ø unbalanced / 120ø balanced
  - Jitter: ITU-T G.742, G.823 compliant
  - Connector: RJ45
- 2x 10/100BaseT
  - Auto negotiation
  - Auto MDIX
  - Connector: RJ45
- Ethernet mapping
  - GFP-F encapsulation
  - Virtual Concatenation VC3-xv (1..2) or VC12-xv (1..46)
  - LCAS

Management

- Ethernet 10/100BaseT for local management access
- Console port (RS232)
- SNMP traps for alarming
- Web-browser based provisioning
- TCP/IP and PPP over dedicated VC12 for remote management access
- OSPF routing for remote management access

Environmental

- Operating conditions: ETS 300 019, class3.1E
- Transport conditions: ETS 300 019, class2.3
- Storage conditions: ETS 300 019, class1.2
- Free convection cooling without the need for fans

Power

- Consumption: <15VA
- Input:
  - 110-230VAC or
  - Redundant 48/60VDC

Physical

- Standalone (19”):
  - Weight: 1,5kg
  - Dimensions: 440 (W) x 43.5 (H) x 150 (D) mm
  - Form Factor: EIA 19”, 1RU

SCX2e

SYSTEM CONTROLLER & SNMP AGENT

Introduction

The System Controller SCX2e is used to control, configure and monitor all types of arcutronix line-cards and system-racks (SRX). The System Controller provides access by using SNMP, Web-GUI and SSH.

The Web-GUI assists a user friendly field installation and configuration. For SNMP management, several standard and product specific MIB files (Management Information Base) are provided. SSH supports automatic configuration on secure remote access via unsecure networks. Remote SW-upload for SCX2e itself and all other component in the system rack is realized via TFTP or http. After copying SW updates to SCX2e Flash File System updated files are loaded into agent and plugged modules on administrator`s request. The in-band management capability, in combination with the System Controller SCX2e allows Carriers and ISPs to maintain and supervise all devices inside management system via single NMS access point. Trap signaling helps to detect errors in case of any failure or status change at the local or remote site.

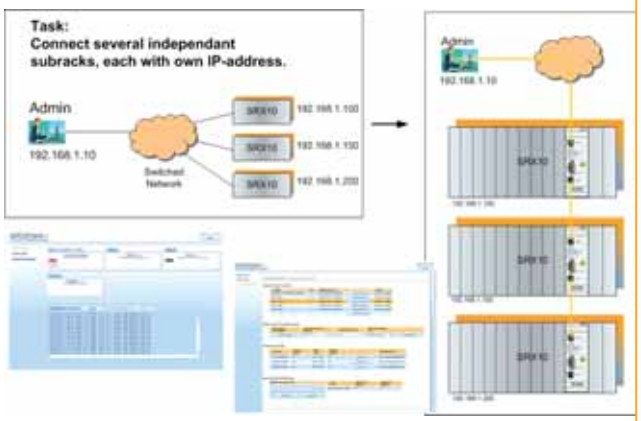
Features

- Central management access device for system racks (SRX family)
- 2 x IP access via copper and fibre optic Ethernet
- Remote SW-upload for each component in a system rack via TFTP or http.
- Flash File System, for saving new and old SW files of all plugged cards
- Various management access options: SNMPv2c, SNMPv3, Web-GUI, SSH
- Power and Fan control functionality
- SNMP trap-signalling in case of local or remote status changes
- Enhanced Alarm Management handling
- Configuration handling
- Auto-Discovery of plugged line-cards and system rack types
- Alarm relay – Enhanced alarm threshold selectable in addition to autonomous alarm function via alarm relay contact
- Power supply via system racks (SRX)
- Compact 3U rack card

Application Example

Web-GUI

Web-based graphical user interface is accessible from every standard web browser. Using Web-GUI, all components of local and remote site can be monitored and configured.
All signals and the card status in different racks are displayed graphically. When installing new devices, they will be automatically discovered and displayed.



Specifications

10/100 BaseTx port

- 1x RJ45
  - IEEE 802.3
  - IEC 60870-5-104
  - Auto Negotiation, Auto MDIX

Combo-Port (Copper and/or FO)

- 1x SFP and/or 1x RJ45
  - Auto-Media Detect (SFP has priority)
  - Ethernet according to IEEE802.3
  - Copper: 10/100/1000 BaseT
    - Auto Negotiation, Auto MDIX
  - Fibre: 100 BaseF or 1000 BaseF
    - Auto SFP Detect

Features

- SNMPv2c, v3
  - RFC1901, 1905, 1906; RFC3410 et sqq.
- Web-GUI (HTML4.01)
- SSH
  - RFC4250 et sqq.
- File Transfer for Up- and Download Purposes via TFTP or http.
- Flash File System for all SW download files
- Trap signalling in case of any local or remote failure
- Alarm Event Logging
- Alarm connector

Environmental

- Operating: +5 to +40°C
- Storage: -30 to +80°C
- Humidity: 5 to 95%, non-condensing

Power

- Input: 5VDC via Backplane
- Power Consumption: < 5VA*, overcurrent protected
- Voltage/Lightning Protection: acc. ITU-T K.20
- Power supply via system rack SRX

* depends on plugged SFPs

Physical

- Weight: < 180g
- Dimensions:
  - 130mm H x 43,18mm W (8,5HP) x 190mm D
- 19” rack: slot 11 in SRX10

Alarm-Contact

- 1x Alarm-Relay
- Connector: 3 pins

SHX3

SYSTEM HOUSING

Introduction

The SHX-Family offer a simple and flexible solutions to build a standalone unit using one of arcutronix 3RU rack mount cards. An integrated wide-range power supply gives the opportunity to feed the SHX either with 110/230VAC mains or 48VDC input.

Thus, the SHX offers the widest range of flexibility. The installed access unit can be locally managed via the present VT100 management port located on the rear side of the SHX. The SHX is designed for CPE and cabinet applications. The integrated alarm connector opens the opportunity to monitor the plugged unit and the operator is quick informed in case of any failure.

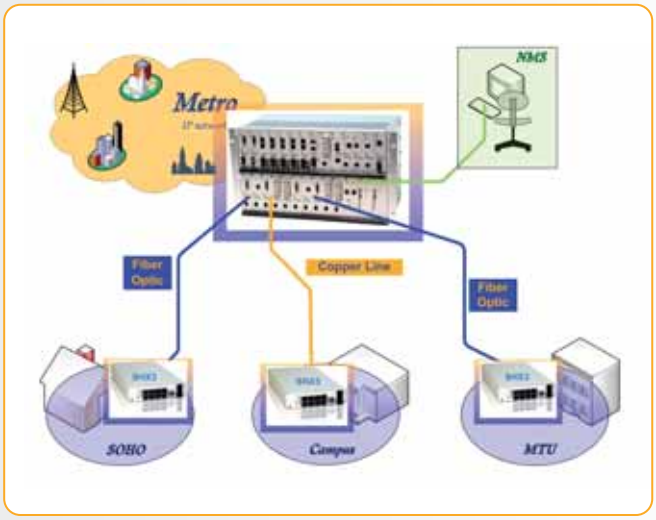
The SHX can be used as desk-top unit or as wall-mounted housing without any additional hardware required.

Features

- Cage for arcutronix 3RU rack mount cards
- VT100 management port via D-Sub9 connector
- Alarm contact
- Optional ventilation unit with fan
- Integrated wide range power supply: 48VDC …110/230 VAC
- Compact design
- Ready for Wall-mount installation

Application Example

SHX is the elemental remote housing for high density rack SRX. It is placed on the edge of access network to shelter arcutronix connectivity products as well as Ethernet demarcation devices. One housing for all applications, this makes the SHX so unique.



Specifications

Capacity

- SHX3-10W / SHX3-15W:
  - 1x 3RU Line Card
- SHX3+1:
  - 2x 3RU Line Card

Local Management I/F

- 1x VT100 (RS-232)
- Connector: D-Sub9
- Data-Rate: Depending on plugged Line Card

Alarm-Contact

- 1x Alarm-Relay
- Connector: 3 pins (RIA)

Environmental

- Operating: 0 to +40°C
- Storage: -25 to +70°C
- Humidity: 5 to 95%, non-condensing

Power

- Maximum power for Line Cards available:
  - SHX3-10W: 10VA
  - SHX3-15W: 15VA
  - SHX3+1: 15VA
- Input: AC or DC
  - -48V/ -60V (+/- 20%)
  - 110-230VAC
- Connector: IEC60320 - C14

Physical

- SHX3-10W / SHX3-15W:
  - Weight (unequipped): 1,0kg
  - Dimensions: 40mm H x 145mm W x 260mm D
- SHX3+1:
  - Weight (unequipped): 1,6kg
  - Dimensions: 40mm H x 278mm W x 267mm D

SRX3

TRIPLE-SLOT SYSTEM HOUSING 1RU

Introduction

The SRX3 is a triple-slot housing, which allows to plug all arcutronix rack mount cards. The SRX3 can be used in a 19íí-shelf or as desk-top application. A flexible front adaptor allows to use the SRX3 with lots of different product groups and families. Together with a multi voltage power supply unit, which allows AC and/or DC feeding, the SRX3 is the most flexible standalone chassis with 1RU in high.

Two variants of SRX3 are available which differ in the management capability. While the SRX3 offers serial access to all plugged Line Cards for basic configuration and supervision, the SRX3plus houses internally a complete management agent (SCX). Thus SRX3plus offers all capabilities of management access, including web-based, SNMP and IP-SSH. This making the SRX3plus to powerful system in 1RU size, completing arcutronix Multi Service Platfom (MSP).

The SRX3 offers a VT100 (RS232) serial interface, for configuration and local supervision of the installed Line Cards. The SRX3plus has an RJ45 connector TCP/IP access. The 10/100BaseT interface allows local and/or remote management access and integration into higher network systems. Both variants are equipped with alarm-output, which completes the unique feature-set of the SRX3.

The SRX3plus can be supplied with AC or DC power. For SRX3 AC power supply is available.

Features

- Cage for arcutronix 3RU rack mounted line cards
- Capacity: up to 3x line cards (LC)
- VT100 management port via D-Sub9 connector
- SRX3plus with integrated system controller (SCX) for Web-based, SNMP, IP-SSH management access via TCP/IP port (RJ45)
- AC (110/230V) or DC power supply available (SRX3 with AC power supply only)
- Alarm contact
- Fan cooled
- Compact design: EIA 19”/1RU (“Pizza Box”)

Application Example

SRX3 is the elemental housing for arcutronix MSP. It is placed on the edge of access network to shelter arcutronix connectivity products as well as Ethernet demarcation devices. One housing for all applications, this makes the SRX3 so unique.

Specifications

Capacity

- Common:
  - up to 3x Line Cards 3RU
  - 2x Fans integrated
- SRX3plus:
  - integrated System Controller (SCX)

Management I/F

- Common:
  - 1x VT100 management port
  - Connector: D-Sub9
- SRX3plus:
  - TCP/IP port
  - Data Rate: 10/100BaseT
  - Connector: RJ45
  - Integrated System Controller (SCX)

Alarm-Contact

- 1x Alarm-Relay
- Connector: RIA (3 pin)

Environmental

- Operating: 0 to +40°C
- Storage: -25 to +70°C
- Humidity: 5 to 95%, non-condensing

Power

- Maximum power consumption / slot:
  - 15VA (5VDC, 3A)
- Input: AC (SRX3/SRX3plus)
  - 110-230VAC (+/- 10%)
  - Connector: IEC 60320-C14
- Input: DC (SRX3plus)
  - -48V / -60 VDC (+/- 20%)
  - Connector: RIA (3 pin)

Physical

- Weight (unequipped):
  - SRX3: 4,0kg
  - SRX3plus: 4,5kg
- Dimensions:
  - Standalone: 44mm H x 448mm W x 306mm D
  - 19” version: 44mm H x 483mm W x 306mm D
- Form Factor: EIA 19”, 1RU
- Including kit for 19” rack mounting

SRX10

SYSTEM RACK 3RU HEIGHT

Introduction

The SRX10 offers a simple and flexible solution to build high density systems in a 19”- or ETSI-rack.

All arcutronix 3RU line-cards can be housed in the SRX10, offering 10 slots in a chassis of 3RU in height. Each SRX10 has in addition 2 slots for power supply to achieve carrier-class power redundancy. Both AC and DC power supplies are available. The System-Control Card (SCX), which is placed in a reserved slot, offers easy access to the system and provides management access from local or remote stations. The integrated SNMP-agent and Web-IF-server allow OAM with standard tools.

The universal system rack provides a smart solution to get convenient options and possibilities for the users. Due to its unique technical advantages and the high level of flexibility the SRX10 achieves optimum performance as well as maximum protection for user’s applications.

The SRX10 is designed for Central office and cabinet applications. The integrated alarm connectors and fan-unit opens the opportunity to monitor the system and the operator is quick informed in case of any failure.

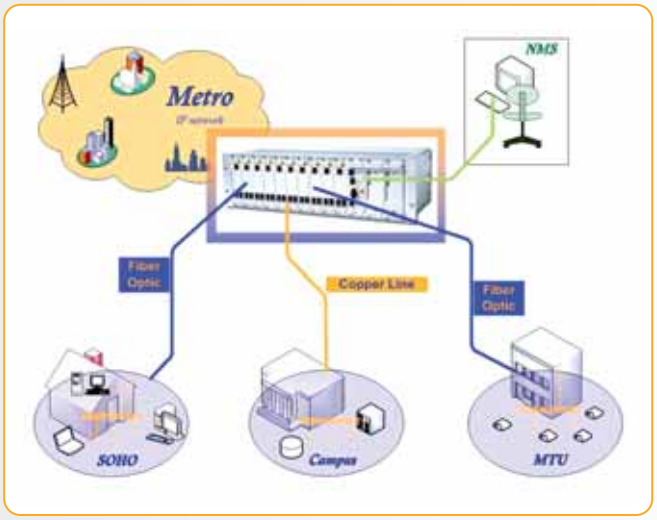
Features

- Cage for arcutronix 3RU rack mounted line-cards
- Capacity: up to 10 line-cards
- Low OPEX due to very high density of line interfaces
- Redundant power supply
- AC and DC power supply available
- System controller card for SNMP agent and Web-GUI.
- Local and remote management access via VT100 or telnet connection.
- Adjustable side frames for flexible installation depths (4 defined fixing positions)
- Alarm contact
- Optional ventilation unit with fan (necessary for FCX10G/FCX10G2 line cards)

Application Example

SRX10 installed on the edge of Metro networks is the root for a lot of applications in the access and First Mile area. Either copper or fibre optic installation can be served from the Central office or cabinet.

Full management capability for installed and remote connected line-cards offers the operator easy access and supervisory for the installed infra-structure.



Specifications

Capacity

- 10x LC (line cards) 3RU
- Common
  - 2x Power supply (PSX-family)
  - 1x Management (SCX-family)
- 1x Alarm/Fan (SAX-family)

Power

- 2 slots for redundant PS (PSX-module)
- AC and DC PS available
  - Mixed installation possible
- Connectors:
  - AC: 2x Inlet connector IEC 60320-C14
  - DC: 1x Phonix-contact (4-pin)

Environmental

- Operating: 0 to +40°C
- Storage: -25 to +70°C
- Humidity: 5 to 95%, non-condensing

Physical

- Weight (unequipped):
  - 3,0kg
- Dimensions:
  - 133mm H x 480mm W x 242mm D
- 19” rack: 10 slots available in 3RU rack

Order Information

SMX: SDH Multiplexer

Line-I/F	2x STM-1/4	2x STM-1/4	1x STM-1
	pluggable SFP modules	pluggable SFP modules	pluggable SFP module
User-Port	LC connector	LC connector	LC connector
	SMX622 0806-2800	**SMX622lite** 0806-2500	**SMX155** 0806-2100
Ethernet			
10/100/1000BT RJ45	**2x**	**2x**	-
10/100 BT RJ45	**2x**	-	**2x**
SDH			
STM-1 pluggable SFP	**2x**	-	-
PDH			
E3/DS3 Mini Coax	**2x**	-	-
E1 RJ45	**4x**	**4x**	**4x**
Others			
Ref.-Clk Input (RJ45)	x	x	x
LAN (10/100BT) (RJ45)	x	x	x
Serial (DB9)	x	x	x
Alarm (DB9)	x	x	x

FCX: Fiber Optic Transponder / Repeater

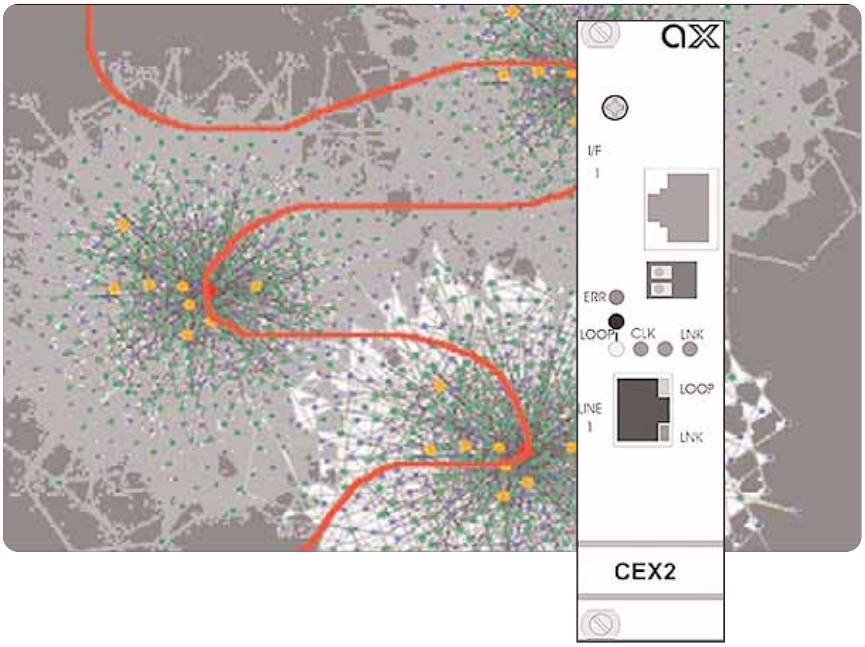
9.95 to 11.31 Gbps pluggable XFP modules (LC connector)		10Mbps...4.5Gbps pluggable SFP modules (LC connector)		
Dual 2x 10Gbps	2x 10Gbps	Dual 2x 4Gbps	2x 4Gbps	Line redundanz
FCX10G2 0809-2102	**FCX10G** 0809-2101	**FCX4G2** 0809-3200	**FCX4G** 0809-3100	**FCX4G-SEC** 0809-3300

Additional accessories and pluggable XFP/SFP modules are listed in product register at the end of this caralogue.

Connectivity

ETHERNET & MULTI-SERVICE OVER COPPER, FIBRE AND PDH

Optimizing connections over any existing infrastructure. In the access area homogenous solutions for heterogeneous infrastructure are requested. A wide band of services over existing infrastructure like copper, fibre or PDH based on small space and low maintenance costs are the first choice.



AMX32FE

MODULAR OPTICAL MULTIPLEXER

Introduction

arcutronix AMX32FE is designed with a line capacity of 155Mbps to transmit 16xE1 plus 1x100Mbps full speed Ethernet. The equipment also provides various interface modules, such as E1 interface cards (4x G.703 ports, 75Ω/120Ω optional), V.35 interface cards (2-4x V.35 ports), FXO/FXS voice channel interface cards (4-8x loop interfaces) and data interface cards for 4-8x RS232 or RS485 data channels (They are used to transmit asynchronous data. Self-adaptation of speed can be up to 115.2K).

AMX32FE is a suitable and cost-effective choice to provide voice, data and video services for cities and industrial districts. Its optional interfaces support overall business transmission of large customers and customer groups such as medium-and-small-scale enterprises, governmental organizations, schools and intellectualized villages. Open standard interfaces are employed to guarantee prompt interlinking of various equipments.
The enhanced network management function and more friendly management GUI will make you feel comfortable to operation.

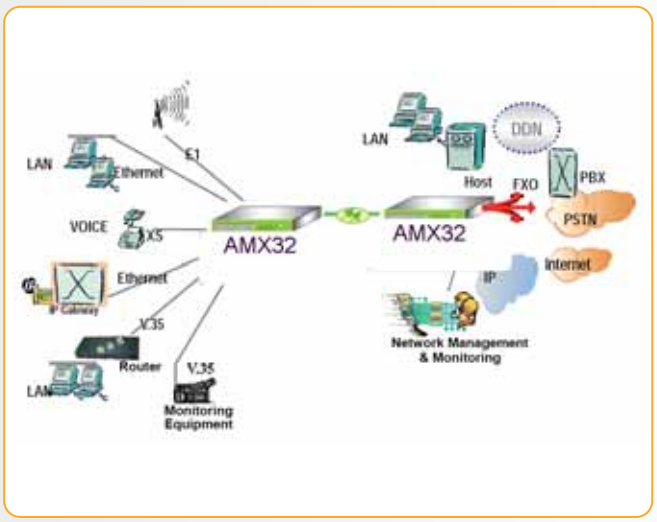
The AMX32FE is available in a 19”/1RU housing with capability for FO and power supply redundancy.

Features

- Optical path backup: With the option of 1+1 Optical Redundancy (Protection Switching), in which the transmission automatically switches to a STANDBY optical link in the event of a failure of the PRIMARY optical link. Error-rate (10E-3 or 10E-6) switch or mandatory switch of optical path can be configured to meet requirements of network of high reliability.
- Fixed User Ports: 2x 10/100BaseT
  - MTU: 1916 Bytes
- Various function modules:
  - 4 slots for free choice of usage
  - User interface modules: E1, V.35, FXO/FXS, RS232/RS485.
- Order wire channel for end to end installation and maintenance
- Network management:
  - RS232 and 10/100BaseT interface.
  - Build-in SNMP-agent, capable to monitor and manage.
  - Inband management capability to remote site.
- Provides visible and audible alarm indication
- Low power consumption
- Power redundancy: AC or/and DC
- Compact design: EIA 19”/1RU (“Pizza Box”)

Application Example

AMX32FE multiplexes various TDM, serial and Ethernet interfaces onto one (!) fibre optic link with redundancy (hot standby). This making it to a real Multi-Service device over rare fibre optic cables. The AMX32FE fits well for access applications, campus installation and dark fibre providers.



Specifications

Network I/F (Standard SM FO)

- Capacity: 2 x optical link (1+1 protection)
- Bit rate: 155 Mbit/s
- Line code: 4B5B
- Optical source: LD
- Transmitter power: ≥ -9dBm (dual fibre)
- Receiver Type: PINFET
- Receiver sensitivity: ≤ -35dBm (BER≤10-11)
- Wavelength: 1310nm SM, 1550nm SM
- Optical connector: FC-PC conn.
- More detailed in “Backup FO Module”

Service I/F ports

- 2x 10/100BaseT (LAN)
  - IEEE 802.3
  - IEC 60870-5-104
  - Auto Negotiation
  - MTU (Maximum Transmission Unit): 1916 Bytes
  - Connector: RJ45
- Various User Interfaces (data on following pages)

Features

- 1+1 optical line protection
- Priority switching
- Mandatory switch of active/standby optical path
- Switching time of optical pass: ≤ 50 ms
- One active and one standby optical path
- ALS (Automatic Laser Shutdown function)
- Hot swappable optical interfaces and power supplies

Management

- Console port (front access):
  - RS232 (D-Sub9 female),
- Network Management port (front access):
  - 10/100BaseTx (RJ45)
- Alarm port (RJ45)
- Order wire module port

Environmental

- Operating: -5 to +40°C
- Storage: -25 to +55°C
- Humidity: < 85% (30°C), non-condensing

Power

- Consumption: < 40VA
- Input Voltage:
  - 230 VAC (165…265 VAC)
  - Connector: IEC 60320-C14
  - -48 VDC (-36…-72 VDC)
  - Connector: RIA (3 pin)
- Optional power redundancy

Physical

- Weight (full equipped):
  - < 7,0kg
- Dimensions:
  - Standalone: 44mm H x 448mm W x 306mm D
  - 19” version: 44mm H x 483mm W x 306mm D
- Form Factor: EIA 19”, 1RU
- Including kit for 19” rack mounting

AMX32FE

MODULAR OPTICAL MULTIPLEXER

4x G. 703 User Interface

Specification

- Standard: ITU-T G.703
  - Data Rate: 2048 kbps ± 50ppm
  - Line Code: HDB3
  - Input Impedance: 120 Ohm (RJ45) or 75 Ohm (BNC)
- Connector: D-Sub37 female
- User connection via 4x E1 Interface Adapters:

- Adapter DB37F-RJ45 (balanced 120 Ohm) or

- Adapter DB37F-8G (unbalanced 75 Ohm)

1x 10/100BaseTX (FE) User Interface

Specification

- Standard: IEEE 802.3 / 802.1D
- IEC 60870-5-104
- Interface Data Rate: 10/100 Mbps
  - Auto-Negotiation
- Payload rate: n x 64kbps, n= 1..32
- Connector: RJ45
- Cross-wired cable when connecting to PC
- Straight-wired cable when connecting to HUB

FXO/FXS User Interface

Specification

- Capacity: 4x FXO/FXS or 8x FXO/FXS
- Connector: 1x (2x) D-Sub9 female
- FXO interface card provides 4 (8)-channel FXO interface connected to switch
- FXS interface card provides 4 (8)-channel FXS interface connected to ordinary telephone sets

4x Datacom User Interface

Specification

- Standard: EIA-232 or EIA-485
- IEC 60870-5-101
- Data Rate: max. 115,2 kbps
- Capacity: 4x RS232 or EIA-485
- Connector: 4x RJ45
- Operation mode: Full Duplex (EIA-232)
  Full/ Half Duplex (EIA-485)

AMX32FE

MODULAR OPTICAL MULTIPLEXER

2x V.35 User Interface

Specification

- Standard: CCITT V.35
- Data Rate: 2048 kbps or
  n x 64kbps, n= 1..32
- Capacity: 2x V.35 or 4 x V.35
- Connector: 2x D-Sub25 female or
  2x D-Sub37 female
- Adapters: DB25M-DB34F or DB37M-2DM34F are available

Backup Fibre Optic Module

Specification

- Optical source: LD
- Transmitter power:
  - Standard dual SM FO: ≥-9dBm
  - Single Strand SM FO: ≥-10dBm
- Receiver Type: PINFET
- Receiver sensitivity: -35dBm (BER≤10-11)
- Distance: 10…100km
- Wavelength:
  - Standard FO: 1310nm SM, 1550nm SM
  - Single Strand FO: 1310nm/1550nm SM
- Optical connector: FC-PC conn.
- Other optical connectors and power budget versions available on request

Backup AC and DC Power Supply

Specification

- AC Module
  - Input Voltage: 230VAC
  - Operating capacity: 165…265VAC
  - Output Voltage: 5VDC
- DC Module
  - Input Voltage: -48VDC
  - Operating capacity: -36…-72VDC
  - Output Voltage: 5VDC

CSX4-Family

2/4 WIRE-G.SHDSL COPPER MODEM

Introduction

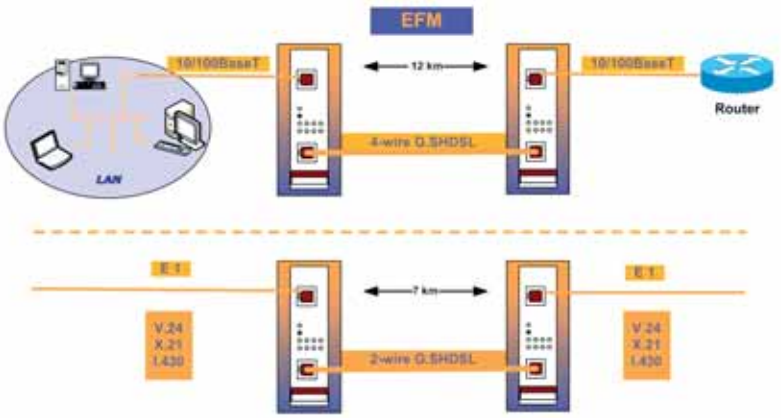
The CSX4 is a managed G.SHDSL modem for long distance transmission of voice and data services. It operates over 2-wire or 4-wire lines in any copper infrastructure. The CSX4 modems incorporate TC-PAM 16 technology for expanding E1, Ethernet, voice (ISDN BRI) or serial data (X.21, V.24) transmission range of up to 12 km. That offers carriers and enterprises a cost-effective solution for data transmission at high data rates over large distances in the First Mile. These devices offer variable data rates up to 2.3 Mbps over 2-wire and up to 4.6 Mbps over 4-wire. The number of operating line pairs, LTU/NTU mode and multiple data rates could be set via SNMP, Web-GUI, SSH and VT100 local management.

The CSX4 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 SCX2 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 wide bunch of easy service diagnostics in case of any problems in the network.

Features

- Enabling service in any copper infrastructure over 2/4-wire lines
- Operates at variable data rates between 64 kbps and 4608 kbps
- TC-PAM line coding extends operation range up to 12 km (64 kbps @ 2-wire, 24 AWG), w/o repeater
- Auto speed negotiation for line speed
- 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 interface ports
- Reliable performance over noisy line or poor line quality
- Plug-and-play installation because of automatic configuration
- Available as compact 3RU rack mount card or desktop version

Application Example



Specifications

G.SHDSL Line Interface

- Standard: G.SHDSL acc. to ITU-T 991.2, Annex B
- Line Code: TC-PAM 16
- Line rate per pair: 208 kbps to 2320 kbps
- Data Rate: n x 64 kbps
  - 2-wire: 64 kbps to 2304 kbps
  - 4-wire: 128 kbps to 4608 kbps
  - switchable via management
- Connector: RJ45
- Impedance: 135 Ohm
- Transmit level @ 135 Ohm: acc. to TS101524, e.g. 14,5 dBm ±0,5 dB @ 2048 kbps

User Interfaces

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

Typical Line Transmission Distance (24 AWG)

7,0	km	2-wire @ 256	kbps	4-wire @ 512	kbps
5	km	2-wire @ 768	kbps	4-wire @ 1536	kbps
3,7	km	2-wire @ 2304	kbps	4-wire @ 4608	kbps

- Line Transmission Distance depends on quality of used copper cable.

Management

- Remote in-band management via EOC channel of the G.SHDSL data stream
- 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 G.SHDSL, E1 and Ethernet

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: < 7VA, overcurrent protected
- Voltage/Lightning Protection: acc. ITU-T K.20/K.21
- 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)

CSX4-Family

2/4 WIRE-G.SHDSL COPPER MODEM

E1 User Interface

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: 3,00V (RJ45) or 2,37V (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

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 S_0-bus extension.

Specification

- Selectable Data Rate: 64, 128, 192 and 256 kbit/s
- Connector: RJ45 with S_0 pin out
- Selection of NT and TE mode
- Termination 100Ω/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

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

Ethernet Bridge User Interface

Ethernet bridge is able to connect two networks. It supports automatic negotiation of connection speed and also 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.

CFX2-Family

FIBRE OPTIC MODEM

Introduction

The CFX2 is a 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 x 64 kbps (n= 1…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.

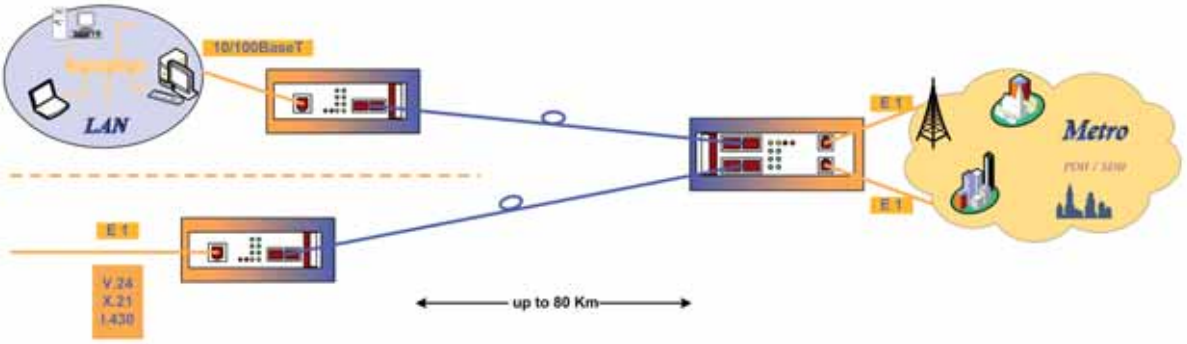
The CFX2 offers in-band management of the remote device, whereby the management data is transmitted together with the user data. The in-band management capability in combination with System Controller SCX2 allows Carriers and ISPs to maintain and supervise all devices inside management system via single 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 x 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

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)

CFX2-Family

FIBRE OPTIC SYSTEM MODEM

E1 User Interface

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: 3,00V (RJ45) or 2,37V (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 2048 kbps
- Connector: D-Sub15 (female)
- DTE / DCE mode settings per Jumper

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 S_0-bus extension.

Specification

- Selectable Data Rate: 64, 128, 192 and 256 kbit/s
- Connector: RJ45 with S_0 pin out
- Selection of NT and TE mode
- Termination 100Ω/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

V.24 User Interface

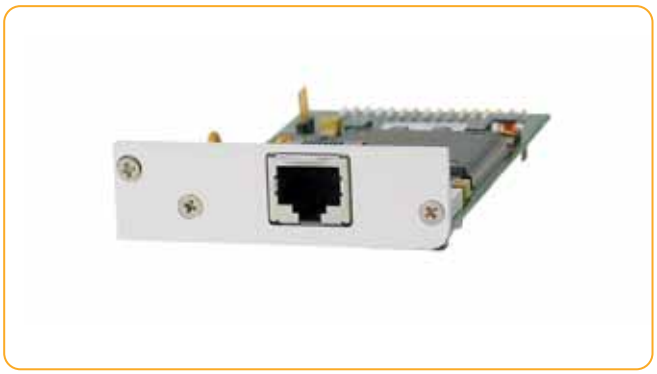
V.24 (RS-232-C interface or EIA-232) an ITU recommendation is used for serial data connection between DTE (Data terminal equipment) and DCE (Data Circuit-terminating Equipment). In RS-232, data is sent as a time-series of bits. Both synchronous and asynchronous transmissions are supported.

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

Ethernet Bridge User Interface

Ethernet bridge is able to connect two networks. It supports automatic negotiation of connection speed and also 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 2048 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.

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 SCX2 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

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: < 5VA, 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

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 2048 kbps
- Connector: D-Sub15 (female)
- DTE / DCE mode settings per Jumper

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 S_0-bus extension.

Specification

- Selectable Data Rate: 64, 128, 192 and 256 kbit/s
- Connector: RJ45 with S_0 pin out
- Selection of NT and TE mode
- Termination 100Ω/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

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

Ethernet Bridge User Interface

Ethernet bridge is able to connect two networks. It supports automatic negotiation of connection speed and also 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 2048 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.

ISX

ISDN-SNIFFER

Introduction

The ISDN-Sniffer ISX is an unmanaged device, which detects and signals activity on an ISDN S0-bus. It is designed to signal incoming, outgoing and missed calls, to allow remote control of ISDN-phones.

Optical as well as acoustic indicators are build-in. A remote ringer can be connected to allow a control unit even far away from the S0-bus.
ISX is an easy to install and easy to operate device, which needs almost no configuration.

As part of arcutronix Multi Service Platform (axMSP) the ISX can be housed in small footprint single-slot housing or 19'' rack to achieve high density on small footprint.

Features

- Unmanaged "plug'n'play" unit for ISDN Digital Leased Line
- Interfaces for S0 (in and out)
- Interface for remote ringer (ISX-Bell)
- Built-in optical and acoustic indicators
- Push-buttons to reset buzzers in ISX and ISX-Bell
- Configuration via Jumper settings
- Compact 3RU rack mount card
- For installation in single-slot housing (SHX) or system rack (SRX)
- Available external remote ringer: ISX-Bell

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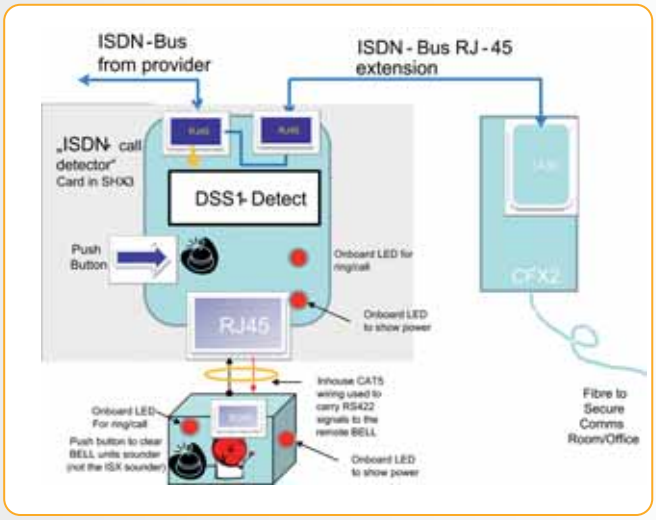
Application Example

The ISX is used at control tool on an S0-bus. Together with CFX2-I.430 it builds a unit to transport the calls to a special place, still having the chance to check outside for activity.



Specifications

ISDN S0 I/F

- 2x I.430
- Signaling DSS1
- Termination 100Ω/open
- Connector: 2x RJ-45

Service I/F (Ext. Ringer)

- 1x proprietary
- Connector: RJ-45

Features

- ISDN-Sniffer
- Easy Configuration via DIP-switches
- Plug-n-Play installation
- Low power consumption
- S0 cut through for easy installation
- Support Remote Ringer ISX-Bell
- LEDs on front to indicate status

ISX-Bell

- External remote ringer
- 1x proprietary service interface
- Connector: RJ45
- Distance: max. 600m from ISDN-Sniffer (ISX) via in-house Cat5 wiring

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 (4,8 to 5,2 V) from BP
- Power Consumption: < 5VA, over current 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)

SCX2e

SYSTEM CONTROLLER & SNMP AGENT

Introduction

The System Controller SCX2e is used to control, configure and monitor all types of arcutronix line-cards and system-racks (SRX). The System Controller provides access by using SNMP, Web-GUI and SSH.

The Web-GUI assists a user friendly field installation and configuration. For SNMP management, several standard and product specific MIB files (Management Information Base) are provided. SSH supports automatic configuration on secure remote access via unsecure networks. Remote SW-upload for SCX2e itself and all other component in the system rack is realized via TFTP or http. After copying SW updates to SCX2e Flash File System updated files are loaded into agent and plugged modules on administrator`s request. The in-band management capability, in combination with the System Controller SCX2e allows Carriers and ISPs to maintain and supervise all devices inside management system via single NMS access point. Trap signaling helps to detect errors in case of any failure or status change at the local or remote site.

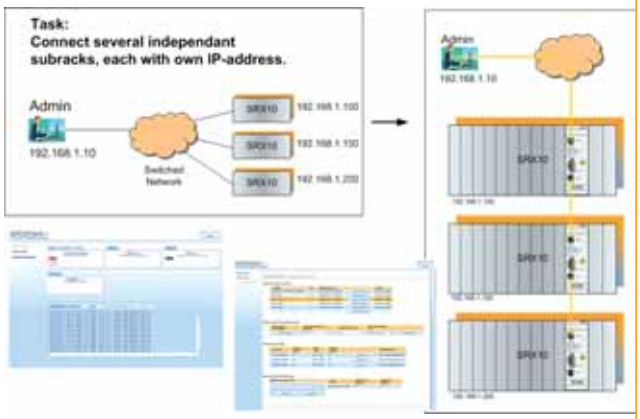
Features

- Central management access device for system racks (SRX family)
- 2x IP access via copper and fibre optic Ethernet
- Remote SW-upload for each component in a system rack via TFTP or http.
- Flash File System, for saving new and old SW files of all plugged cards
- Various management access options: SNMPv2c, SNMPv3, Web-GUI, SSH
- Power and Fan control functionality
- SNMP trap-signalling in case of local or remote status changes
- Enhanced Alarm Management handling
- Configuration handling
- Auto-Discovery of plugged line-cards and system rack types
- Alarm relay – Enhanced alarm threshold selectable in addition to autonomous alarm function via alarm relay contact
- Power supply via system racks (SRX)
- Compact 3U rack card

Application Example

Web-GUI

Web-based graphical user interface is accessible from every standard web browser. Using Web-GUI, all components of local and remote site can be monitored and configured.
All signals and the card status in different racks are displayed graphically. When installing new devices, they will be automatically discovered and displayed.



Specifications

10/100 BaseTx port

- 1x RJ45
  - IEEE 802.3
  - IEC 60870-5-104
  - Auto Negotiation, Auto MDIX

Combo-Port (Copper and/or FO)

- 1x SFP and/or 1x RJ45
  - Auto-Media Detect (SFP has priority)
  - Ethernet according to IEEE802.3
  - Copper: 10/100/1000 BaseT
    - Auto Negotiation, Auto MDIX
  - Fibre: 100 BaseF or 1000 BaseF
    - Auto SFP Detect

Features

- SNMPv2c, v3
  - RFC1901, 1905, 1906; RFC3410 et sqq.
- Web-GUI (HTML4.01)
- SSH
  - RFC4250 et sqq.
- File Transfer for Up- and Download Purposes via TFTP or http.
- Flash File System for all SW download files
- Trap signalling in case of any local or remote failure
- Alarm Event Logging
- Alarm connector

Environmental

- Operating: +5 to +40°C
- Storage: -30 to +80°C
- Humidity: 5 to 95%, non-condensing

Power

- Input: 5VDC via Backplane
- Power Consumption: < 5VA*, overcurrent protected
- Voltage/Lightning Protection: acc. ITU-T K.20
- Power supply via system rack SRX

* depends on plugged SFPs

Physical

- Weight: < 180g
- Dimensions:
  - 130mm H x 43,18mm W (8,5HP) x 190mm D
- 19” rack: slot 11 in SRX10

Alarm-Contact

- 1x Alarm-Relay
- Connector: 3 pins

SHX3

SYSTEM HOUSING

Introduction

The SHX-Family offer a simple and flexible solutions to build a standalone unit using one of arcutronix 3RU rack mount cards. An integrated wide-range power supply gives the opportunity to feed the SHX either with 110/230VAC mains or 48VDC input.

Thus, the SHX offers the widest range of flexibility. The installed access unit can be locally managed via the present VT100 management port located on the rear side of the SHX. The SHX is designed for CPE and cabinet applications. The integrated alarm connector opens the opportunity to monitor the plugged unit and the operator is quick informed in case of any failure.

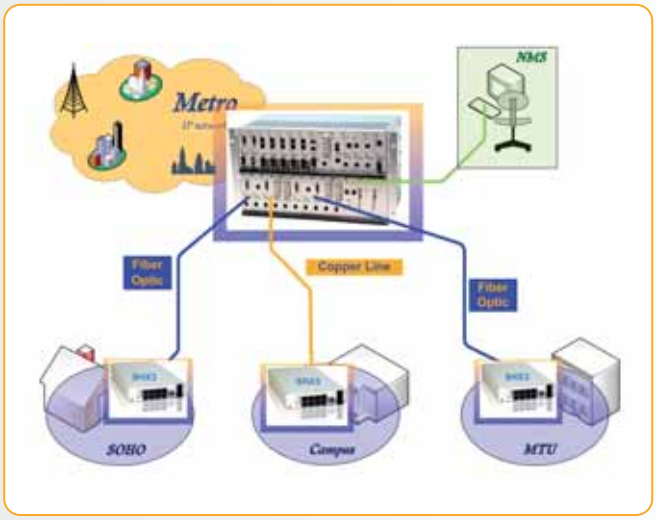
The SHX can be used as desk-top unit or as wall-mounted housing without any additional hardware required.

Features

- Cage for arcutronix 3RU rack mount cards
- VT100 management port via D-Sub9 connector
- Alarm contact
- Optional ventilation unit with fan
- Integrated wide range power supply: 48VDC …110/230 VAC
- Compact design
- Ready for Wall-mount installation

Application Example

SHX is the elemental remote housing for high density rack SRX. It is placed on the edge of access network to shelter arcutronix connectivity products as well as Ethernet demarcation devices. One housing for all applications, this makes the SHX so unique.



Specifications

Capacity

- SHX3-10W / SHX3-15W:
  - 1x 3RU Line Card
- SHX3+1:
  - 2x 3RU Line Card

Local Management I/F

- 1x VT100 (RS-232)
- Connector: D-Sub9
- Data-Rate: Depending on plugged Line Card

Alarm-Contact

- 1x Alarm-Relay
- Connector: 3 pins (RIA)

Environmental

- Operating: 0 to +40°C
- Storage: -25 to +70°C
- Humidity: 5 to 95%, non-condensing

Power

- Maximum power for Line Cards available:
  - SHX3-10W: 10VA
  - SHX3-15W: 15VA
  - SHX3+1: 15VA
- Input: AC or DC
  - -48V/ -60V (+/- 20%)
  - 110-230VAC
- Connector: IEC60320 - C14

Physical

- SHX3-10W / SHX3-15W:
  - Weight (unequipped): 1,0kg
  - Dimensions: 40mm H x 145mm W x 260mm D
- SHX3+1:
  - Weight (unequipped): 1,6kg
  - Dimensions: 40mm H x 278mm W x 267mm D

SRX3

TRIPLE-SLOT SYSTEM HOUSING 1RU

Introduction

The SRX3 is a triple-slot housing, which allows to plug all arcutronix rack mount cards. The SRX3 can be used in a 19íí-shelf or as desk-top application. A flexible front adaptor allows to use the SRX3 with lots of different product groups and families. Together with a multi voltage power supply unit, which allows AC and/or DC feeding, the SRX3 is the most flexible standalone chassis with 1RU in high.

Two variants of SRX3 are available which differ in the management capability. While the SRX3 offers serial access to all plugged Line Cards for basic configuration and supervision, the SRX3plus houses internally a complete management agent (SCX). Thus SRX3plus offers all capabilities of management access, including web-based, SNMP and IP-SSH. This making the SRX3plus to powerful system in 1RU size, completing arcutronix Multi Service Platfom (MSP).

The SRX3 offers a VT100 (RS232) serial interface, for configuration and local supervision of the installed Line Cards. The SRX3plus has an RJ45 connector TCP/IP access. The 10/100BaseT interface allows local and/or remote management access and integration into higher network systems. Both variants are equipped with alarm-output, which completes the unique feature-set of the SRX3.

The SRX3plus can be supplied with AC or DC power. For SRX3 AC power supply is available.

Features

- Cage for arcutronix 3RU rack mounted line cards
- Capacity: up to 3x line cards (LC)
- VT100 management port via D-Sub9 connector
- SRX3plus with integrated system controller (SCX) for Web-based, SNMP, IP-SSH management access via TCP/IP port (RJ45)
- AC (110/230V) or DC power supply available (SRX3 with AC power supply only)
- Alarm contact
- Fan cooled
- Compact design: EIA 19”/1RU (“Pizza Box”)

Application Example

SRX3 is the elemental housing for arcutronix MSP. It is placed on the edge of access network to shelter arcutronix connectivity products as well as Ethernet demarcation devices. One housing for all applications, this makes the SRX3 so unique.

Specifications

Capacity

- Common:
  - up to 3x Line Cards 3RU
  - 2x Fans integrated
- SRX3plus:
  - integrated System Controller (SCX)

Management I/F

- Common:
  - 1x VT100 management port
  - Connector: D-Sub9
- SRX3plus:
  - TCP/IP port
  - Data Rate: 10/100BaseT
  - Connector: RJ45
  - Integrated System Controller (SCX)

Alarm-Contact

- 1x Alarm-Relay
- Connector: RIA (3 pin)

Environmental

- Operating: 0 to +40°C
- Storage: -25 to +70°C
- Humidity: 5 to 95%, non-condensing

Power

- Maximum power consumption / slot:
  - 15VA (5VDC, 3A)
- Input: AC (SRX3/SRX3plus)
  - 110-230VAC (+/- 10%)
  - Connector: IEC 60320-C14
- Input: DC (SRX3plus)
  - -48V / -60VDC (+/- 20%)
  - Connector: RIA (3 pin)

Physical

- Weight (unequipped):
  - SRX3: 4,0kg
  - SRX3plus: 4,5kg
- Dimensions:
  - Standalone: 44mm H x 448mm W x 306mm D
  - 19” version: 44mm H x 483mm W x 306mm D
- Form Factor: EIA 19”, 1RU
- Including kit for 19” rack mounting

SRX10

SYSTEM RACK 3RU HEIGHT

Introduction

The SRX10 offers a simple and flexible solution to build high density systems in a 19”- or ETSI-rack.

All arcutronix 3RU line-cards can be housed in the SRX10, offering 10 slots in a chassis of 3RU in height. Each SRX10 has in addition 2 slots for power supply to achieve carrier-class power redundancy. Both AC and DC power supplies are available. The System-Control Card (SCX), which is placed in a reserved slot, offers easy access to the system and provides management access from local or remote stations. The integrated SNMP-agent and Web-IF-server allow OAM with standard tools.

The universal system rack provides a smart solution to get convenient options and possibilities for the users. Due to its unique technical advantages and the high level of flexibility the SRX10 achieves optimum performance as well as maximum protection for user’s applications.

The SRX10 is designed for Central office and cabinet applications. The integrated alarm connectors and fan-unit opens the opportunity to monitor the system and the operator is quick informed in case of any failure.

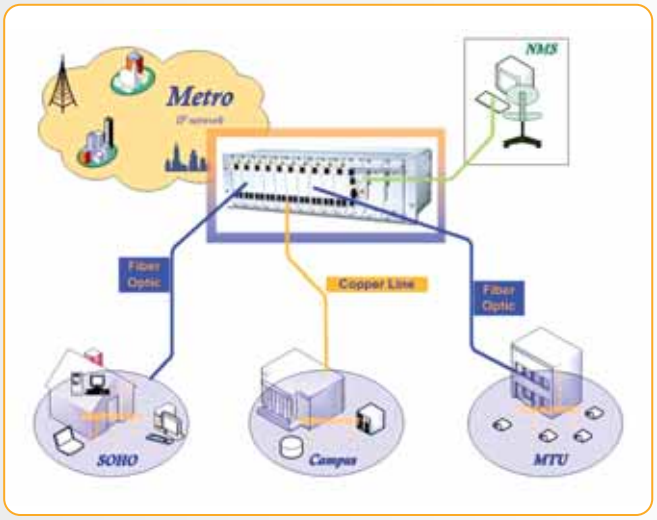
Features

- Cage for arcutronix 3RU rack mounted line-cards
- Capacity: up to 10 line-cards
- Low OPEX due to very high density of line interfaces
- Redundant power supply
- AC and DC power supply available
- System controller card for SNMP agent and Web-GUI.
- Local and remote management access via VT100 or telnet connection.
- Adjustable side frames for flexible installation depths (4 defined fixing positions)
- Alarm contact
- Optional ventilation unit with fan (necessary for FCX10G/FCX10G2 line cards)

Application Example

SRX10 installed on the edge of Metro networks is the root for a lot of applications in the access and First Mile area. Either copper or fibre optic installation can be served from the Central office or cabinet.

Full management capability for installed and remote connected line-cards offers the operator easy access and supervisory for the installed infra-structure.



Specifications

Capacity

- 10x LC (line cards) 3RU
- Common
  - 2x Power supply (PSX-family)
  - 1x Management (SCX-family)
- 1x Alarm/Fan (SAX-family)

Power

- 2 slots for redundant PS (PSX-module)
- AC and DC PS available
  - Mixed installation possible
- Connectors:
  - AC: 2x Inlet connector IEC 60320-C14
  - DC: 1x Phonix-contact (4-pin)

Environmental

- Operating: 0 to +40°C
- Storage: -25 to +70°C
- Humidity: 5 to 95%, non-condensing

Physical

- Weight (unequipped):
  - 3,0kg
- Dimensions:
  - 133mm H x 480mm W x 242mm D
- 19” rack: 10 slots available in 3RU rack

CEX/CFX/CSX: Modems and Converter for Copper and Fiber Transport

Line-I/F	1x Fiber Optic I/F				1x Copper I/F	
	Standard FO	Single FO	Single FO	Standard FO	ITU-T G.SHDSL	ITU-T G.703/G.704
User-Port	1310, SM, FC-PC	1310/1550, SM, FC-PC	1550/1310, SM, FC-PC	850, MM, ST	RJ45	RJ45
E1						
1x E1/G.703 1x RJ45	**CFX2-E1R-S** 0803-4A00	-	-	**CFX2-E1R-MB** 0803-4E00	**CSX4-E1R** 0803-E3100	-
1x E1/G.703 2x BNC	**CFX2-E1B-S 0803-4L00**	-	-	-	-	-
Serial						
1x V.24 1x D-Sub25	**CFX2-V.24-S** 0803-4020	**CFX2-V.24-SF13** 0803-4320	**CFX2-V.24-SF15** 0803-4320	-	**CSX4-V.24** 0803-3220	**CEX2-V.24** 0803-2220
1x X.21 1x D-Sub15	**CFX2-X.21-S** 0803-4021	**CFX2-X.21-SF13** 0803-4221	**CFX2-X.21-SF15** 0803-4321	-	**CSX4-X.21** 0803-3221	**CEX2-X.21** 0803-2221
Telephone						
1x I.430 (ISDN) 1x RJ45	**CFX2-I.430-S** 0803-4040	-	-	-	**CSX4-I.430** 0803-3240	**CEX2-I.430** 0803-2240
Ethernet						
1x 10/100BaseT Bridge 1x RJ45	**CFX2-FE-S** 0803-4080	**CFX2-FE-SF13** 0803-4280	**CFX2-FE-SF15** 0803-4380	-	**CSX4-FE** 0803-3280	**CEX2-FE** 0803-2280

AMX32FE: Access Multiplexer up to 32Mbps TDM plus 2x FE capacity

Base System: 1x FO-Line; 2x FE plus 4x TDM-ports; 1x AC or DC power supply

Line-I/F	1x Fiber Optic I/F				1x Copper I/F	
	Standard FO	Single FO	Single FO	Standard FO	ITU-T G.SHDSL	ITU-T G.703/G.704
User-Port	1310, SM, FC-PC	1310/1550, SM, FC-PC	1550/1310, SM, FC-PC	850, MM, ST	RJ45	RJ45
2x FE fix mounted. 4 slots for user-ports are availble. See table below for features and order-info.	**AMX32FE-S-basic device-AC** 0808-3200	**AMX32FE-SF13-basic device-AC** 0808-xxx	**AMX32FE-SF15-basic device-AC** 0808-xxx	-	-	-
	AMX32FE-S-basic device-DC 0808-xxx	**AMX32FE-SF13-basic device-DC** 0808-xxx	**AMX32FE-SF15-basic device-DC** 0808-xxx	-	-	-

User-Port modules: up to 4 different types pluggable per AMX32FE unit

E1						
4x E1/G.703 1x D-Sub37	**Module-4xG.703-R** 0808-3800	Adapter 4x bal. 120 Ohm D-Sub37 to 8x RJ45	**Adapt.-DB37F-RJ45** 0808-3802	-	-	-
	Module-4xG.703-B 080-3803	Adapter 4x unbal. 75 Ohm D-Sub37 to 8x BNC	**Adapt.-DB37F-8G** 0808-3801	-	-	-
Serial						
4x RS422/485 4x RJ45	**Module-4xRS422/485** 0808-3810	4x RS232 4x RJ45 conn.	**Module-4xRS232** 0808-3820	-	-	-
2x V.35 2x D-Sub25	**Module-2xV.35** 0808-3830	Adapter V.35 1x D-Sub25 to D-Sub34	**Adapter-DB25M-DB34F** 0808-3835	-	-	-
4x V.35 2x D-Sub37	**4xV.35** 0808-3831	Adapter V.35 1x D-Sub37 to 2x D-Sub34	**Adapter-DB37M-2DB34F** 0808-3836	-	-	-
Telephone						
4x FXO 1x D-Sub9	**Module-4xFXO** 0808-3840	8x FXO 2x D-Sub9	**Module-8xFXO** 0808-3845	-	-	-
4x FXS 1x D-Sub9	**Module-4xFXS** 0808-3841	8x FXS 2x D-Sub9	**Module-8xFXS** 0808-3846	-	-	-
Ethernet						
1x 10/100BaseT Bridge 1x RJ45	**Module-FE** 0808-3880			-	-	-

Backup modules: Fiber Optics and Power Supply

FO	AMX32FE-...				
Standard FO:	backup Standard FO 1310, SM, FC-PC	**backupFO-S** 0808-3600			
WDM-FO:	backup Single FO 1310/1550, SM, FC-PC	**backupFO-SF13** 0808-3620	WDM-FO:	backup Single FO 1550/1310, SM, FC-PC	**backupFO-SF15** 0808-3630
PS					
AC:	backup AC power supply 115-230V AC	**backupPS-AC** 0808-3500	DC:	backup DC power supply -48...-60V DC	**backupPS-DC** 0808-3501

Accessories

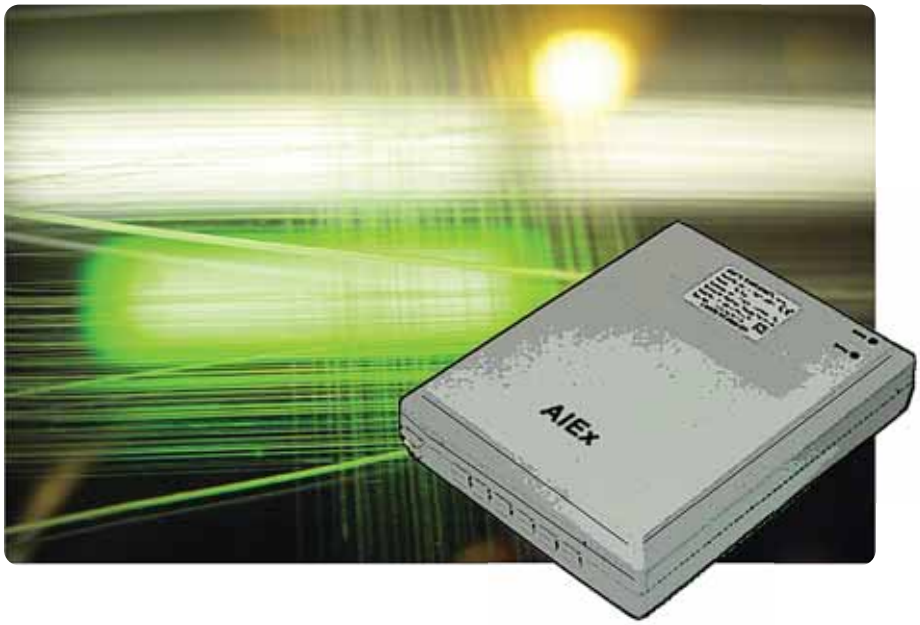
Duty Phone	**Dutyphone** 0808-3900

Additional accessories and pluggable XFP/SFP modules are listed in product register at the end of this caralogue.

Alarm + Telemetry

ALARM + TELEMETRY CONTROLLER

The reliable collection and secure transmission of operational data from telecom network devices becomes more important. Operator face rapid technology changes to their network infrastructure, creating challenges for their operational support systems (OSS) to keep up. Individual and flexible data collection solutions guarantee the optimal use of new transmission technology to link to remote telecom equipment and sites.



About Alarm + Telemetry

The reliable collection and secure transmission of operational data from telecom network devices becomes more important. Operators face rapid technology changes to their network infrastructure, creating challenges for their operational support systems (OSS) to keep up. Individual and flexible data collection solutions guarantee the optimal use of new transmission technology to link to remote telecom equipment and sites.
Keytronix/arcutronix develops flexible systems that collect and transport device control, status and alarm data to and from network operation centres.
The Alarm + Telemetry Controller product family offers optimized solutions for your monitoring and control applications.

Alarm + Telemetry Controller – what is it?
It is a system that gathers alarms/events and control data of remote devices to a central management system in a network operations center (NOC).

Figure 1: Alarm controller system overview

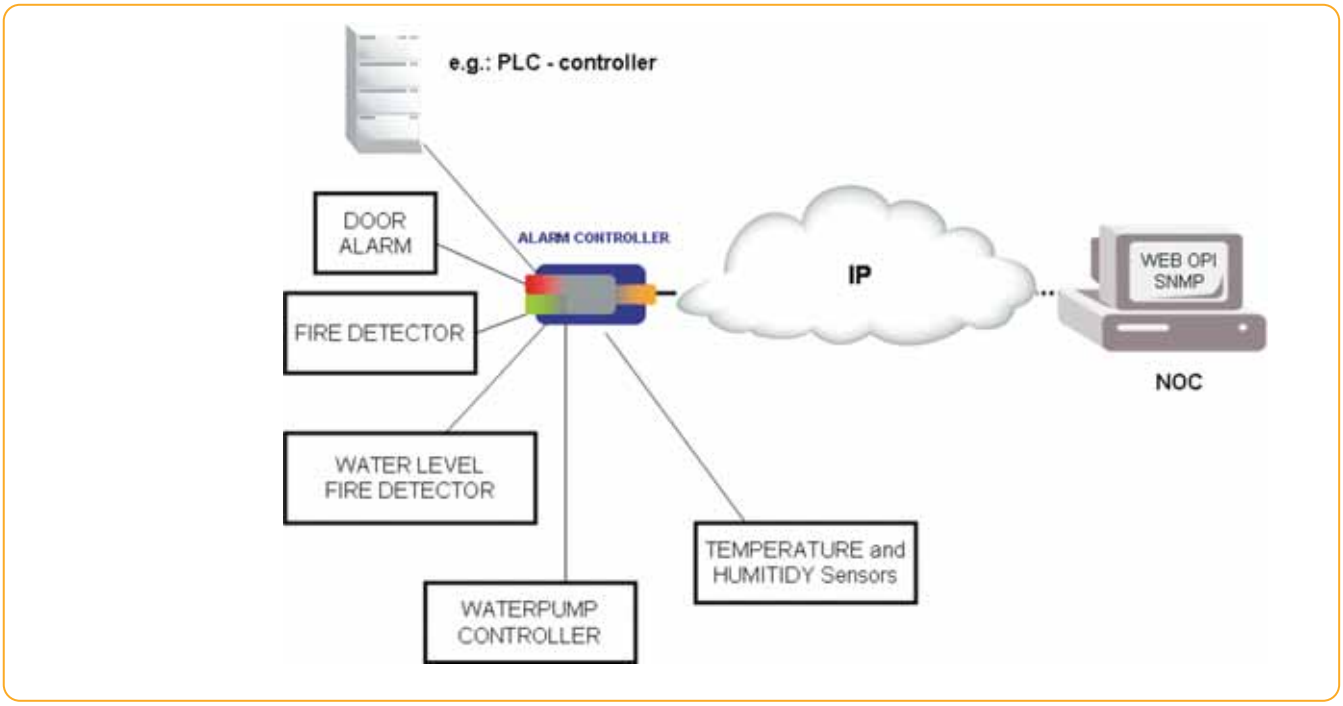


Figure 2: Alarm controller environment

The alarm/telemetry controller detects alarms and events and transmits them to the NOC systems. It also passes telemetry data and operational control inputs from central management systems to various equipment and devices installed at the remote site.

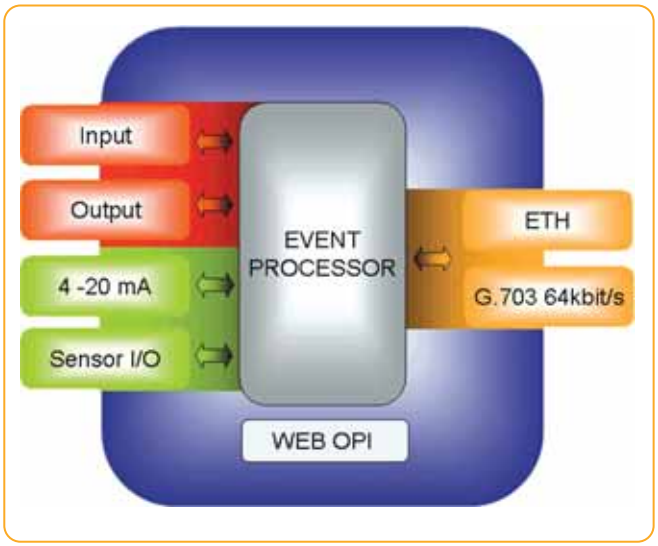


Figure 3: Alarm controller functional architecture

The controller offers a variety of interfaces and connections to suit a wide range of devices.
It integrates easily into various environments through its electrical, mechanical and functional connections. This makes it an ideal choice for remote operation monitoring and remote control of mission critical applications.

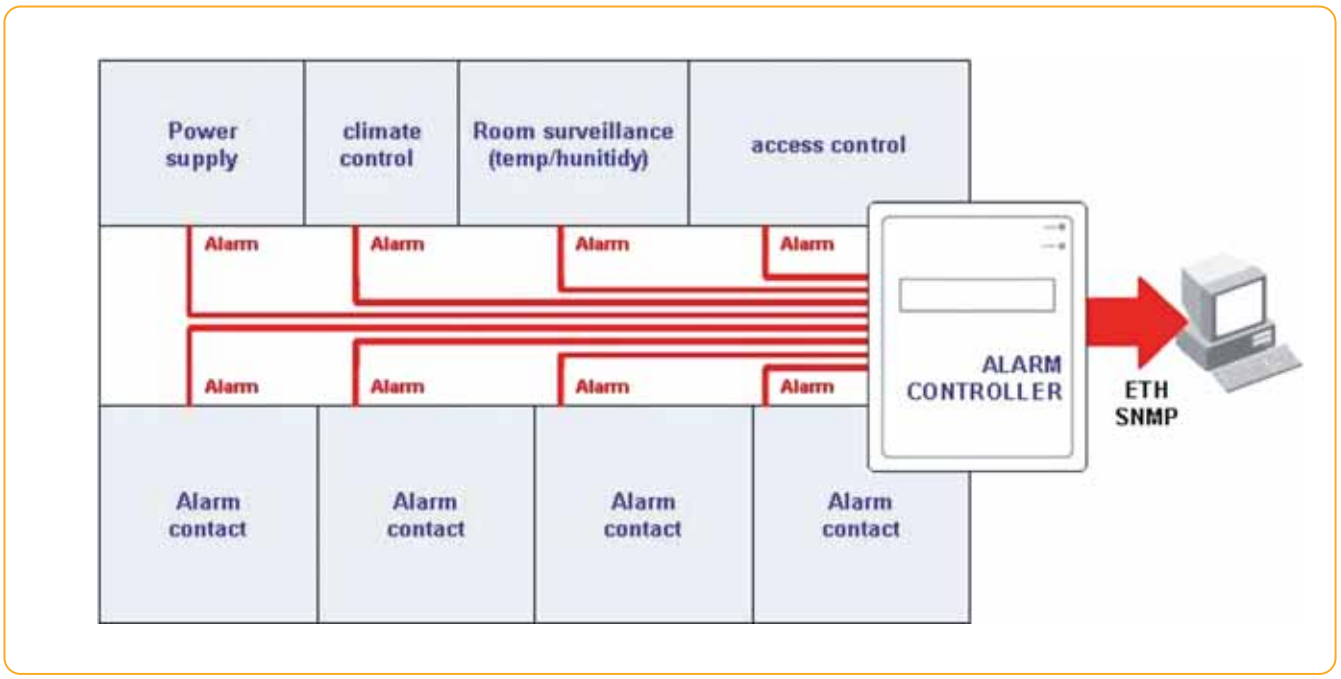


Figure 4: Remote site configuration

Typical Application:
Remote monitoring and controlling of systems located in an unmanned telecom site (POP).
This includes site security access systems, room surveillance systems, facility control systems (e.g. climate control, power supply) and telecoms equipment (e.g. fiber transmission systems, routers, switches, servers and media gateways).
These systems are connected to the alarm + telemetry controller that transmits events and data bidirectional to the provider NOC.The controller integrates into existing network management systems and trouble ticketing systems via the SNMP protocol.

I-SAD 19” & I-SAD 19”-S

MODULAR IP SECURITY ACCESS DEVICE

Introduction

The I-SAD 19“-family is a modular telecontrol system that transmits alarm signals, switching operations and telemetry data to a dedicated central network management center via copper or fibre optic lines. The IP network connection can be realized either via Ethernet ports or alternatively via a GPRS (GSM) wireless link.
With its integrated Ethernet switching functionality the I-SAD 19”-S provides VLAN functionality (64 VLAN entries) for more security and better traffic handling.

Several different I/F-modules enable customer to connect various alarm systems, fire detection systems, other sensors or similar devices over parallel inputs and to indicate signalling on parallel outputs. In addition a Temperature and Humidity Sensor (THS) can be ordered.
The built-in RS232 interface of the I-SAD19”-family offers asynchronous access to remote equipment of third-party vendors. The RS232-I/F is accessible via Telnet, which allows real remote access to any installed legacy equipment.

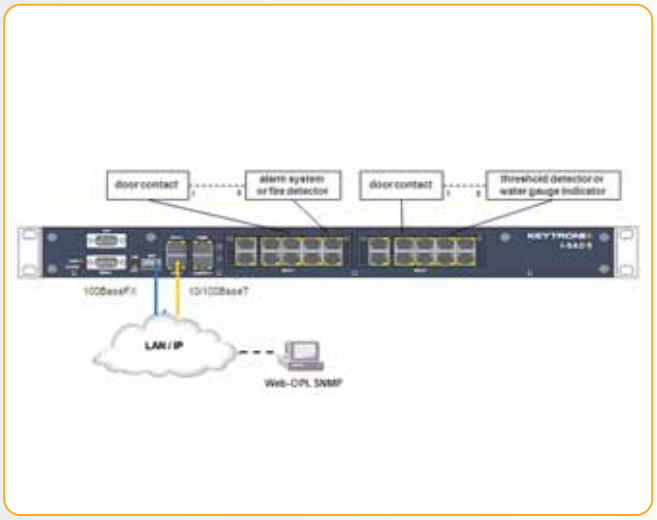
The management of the I-SAD 19”-family is realized by SNMP, integrated WEB Server, Telnet and local CLI (VT100).
The I/O modules offer the opportunity to increase the number of I/O ports. Therefore an Alarm Extender device (AlEx) can be connected to the integrated PDH port (G.703/64k) on the I/O module.

Features

- 10/100BaseT and 100BaseFX (pluggable SFP) network interfaces
- Line redundancy via optional GSM/GPRS transmission (when MGSM module equipped)
- I-SAD 19“-S: integrated Ethernet switch and VLAN support
- 2 slots for different interface modules
- Up to 16 parallel I/O ports (with 2 modules I-SAD MI/O)
- Enables Telnet access to third party equipment via asynchronous RS232 port
- Management options: SNMP, DHCP client, Web-GUI, Telnet, local CLI/OPI (VT100)
- Up to 3x destination addresses for SNMP Traps are settable
- Free editable READ/WRITE communities
- Integrated wide range power supply (48VDC… 230VAC)
- Form factor: EIA 19“, 1RU
- Temperature Sensor and Humidity Sensor (THS) available
- To increase number of I/O ports connecting Alarm Extender (AlEx) to PDH port of I/O module (Integrated line and device monitoring local I-SAD 19” and remote AlEx)

Application Example

I-SAD 19”-family enables a remote control center to manage and supervise different sensors, contacts and switches.



Specifications

Network I/F (LAN)

- I-SAD 19”:
  - 2x 10/100BaseTx
  - Connector: RJ45
- I-SAD 19”-S:
  - 2x 10/100BaseTx (RJ45)
  - 1x 100BaseFX:
    - Line code: 4B/5B
    - Pluggable SFP types
    - Connector: SFP
  - Ethernet Switch:
    - Up to 1024 MAC addresses
    - MTU: 1522 bytes
    - VLAN according to 802.1p/q
    - Max. 64 different VLAN entries
    - VLAN-ID: 0 - 4095

Service I/F

- Temperature I/F (for specific equipment)
  - top and bottom threshold settable; analog indication (temp. range: -20…+80°C)
  - Connector: RJ45
- Humidity I/F (for specific equipment)
  - top and bottom threshold settable; analog indication
  - Connector: RJ45

Other Service Modules according to the following overview (page 3 and 4)

Management

- SNMP, integrated WEB OPI, Telnet
- Settable up to 3x destination addresses for SNMP Traps
- Free editable READ/WRITE communities (Trap names)
- DHCP client
- CLI/OPI (local management I/F)
  - Asynchronous RS232
  - Transfer rate: 115k2/8/N/1 (default)
  - Connector: D-Sub9 (female)
- RS232 I/F (connecting third-party system)
  - Asynchronous RS232
  - Transfer rate: 9,6...115,2 kbps, parity and stop bit (default: 9k6/8/N/1)
  - Connector: D-Sub9 (female)
  - Port specific IP address settable
  - Access to third-party systems via Telnet

Environmental

- Operation: -20°C to + 70°C
- Storage: -20°C to + 70°C
- Humidity: max. 80%, non-condensing

Power

- 48VDC - 230VAC (wide range)
- Protection class I

Physical

- Weight: 2,0kg
- Dimensions: 440 (W) x 45 (H) x 205 (D) mm
- Form factor: EIA 19”, 1RU

I-SAD 19” & I-SAD 19”-S

MODULAR IP SECURITY ACCESS DEVICE

I-SAD MI/O – Specification

- I/O ports
  - 8x parallel loop controlled Inputs (non-potential-free)
  - 8x parallel bistable Output (potential-free)
  - Allow switching of extra low voltage circuit signals only (accord. to EN 60950: SELV circuit)
  - Connector: 8x RJ45 (Pin 1,2-Input; Pin 6,7,8-Output)
- Alarm contact
  - 2x parallel Outputs (potential-free)
  - Connector: 1x RJ45 (Pin 1,2-local alarm, Pin 7,8-remote alarm)
- 1x PDH port
  - Standard: ITU-T G.703
  - Data rate: 64 kbps, codirectional
  - Impedance: 120 Ohm
  - Connector: 1x RJ45

I-SAD MI/O D-Sub – Specification

- I/O ports
  - 8x parallel loop controlled Inputs (non-potential-free)
  - 4x parallel bistable Output (potential-free)
  - Allow switching of extra low voltage circuit signals only (accord. to EN 60950: SELV circuit)
- Alarm contacts
  - 2x parallel Outputs (potential-free)
- PDH port
  - Standard: ITU-T G.703
  - Data rate: 64 kbps, codirectional
  - Impedance: 120 Ohm
- 24V Output for peripherals (max. 40mA)
- Common Connector: D-Sub37 (female)

I-SAD MCC (Cabinet Control) – Specification

- 2x door lock sensor ports
  - 24V (100mA) for door lock sensors
  - “Unlock-duration” and “Unlock-timeout” are settable
- 2x entry sensor ports (position of door opener - open/closed)
- Connector: 4x RJ45
- For vendor specific peripherals only!

External peripherals can be connected via RJ12 connectors

I-SAD Temperature Sensor (TS) – Specification

- Temperature range: -20°C … +70°C
- Resistance value: 10 kOhm (25°C ± 3 %)
- Connecting cable length: max. 2 metres
- Cable type: 1:1 patch cable RJ45
- For usage on I-SAD “TEMP” port only
- Connector: 4x RJ45
- Environmental
  - Operation: -20°C … +70°C
  - Storage: -20°C … +70°C
  - Humidity: max. 80%, non-condensing
- Dimensions: 55,2(W) x 25,1(H) x 30,0(D) mm

I-SAD Humidity Sensor (HS) – Specification

- Humidity range: 10% … 90% (20°C ± 5 %)
- Connecting cable length: max. 2 metres
- Cable type: 1:1 patch cable RJ45
- For usage on I-SAD “HUMIDITY” port only
- Connector: 4x RJ45
- Environmental
  - Operation: -20°C … +70°C
  - Storage: -20°C … +70°C
  - Humidity: max. 80%, non-condensing
- Dimensions: 55,2(W) x 25,1(H) x 30,0(D) mm

AlEx

ALARM EXTENDER

Introduction

The AlEx (Alarm Extender) device is a telecontrol system that transmits local alarm signals via its G.703 64kbit/s interface to a remote alarm controller unit, which outputs the alarm via relay contacts. It enables to manage and supervise alarm systems, fire detection systems or similar devices via parallel I/O ports.

The AlEx offers 8 alarm inputs and 8 output contacts and an integrated transmission link monitoring function.

Additional two NOC‘s (normal open contact) are able to signalize state of G.703/64k line, local and remote device.

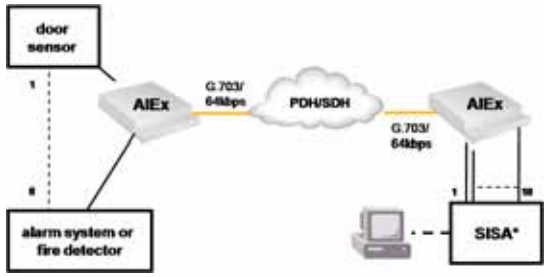
The AlEx can also be used to expand number of I/O ports of a modular IP Security Access Device (I-SAD 19”-family).

Features

- Alarms are transmitted via G.703/64k leased line
- Up to 8 parallel I/O ports
- 8x potential-free Inputs
- 8x bi-stable Outputs
- Integrated line and device monitoring (local and remote)
- Integrated wide range power supply (48VDC … 230VAC)
- Form factor: Desktop housing with wall mounting capability

Application Examples

Transmission of up to 8x various alarm signals/ switching operations to a Supervisory and Information System for local and remote Area (SISA).
The integrated alarm relays additional enable to monitor local device and line/remote device status.



Specifications

PDH I/F

- Standard: ITU-T G.703
- Data rate: 64 kbps, codirectional
- Impedance: 120 Ohm
- Level (“mark”): 1V (peek)
- Range: approx. 6 dB
- Connector: RJ45

Alarm I/F

- 8x parallel I/O ports
  - 8x galvanically isolated Inputs
  - 8x bistable Outputs
  - Allow switching of extra low voltage circuit signals only (accord. to EN 60950: SELV circuit)
- Connector: WAGO type (Wire Wrap)

Alarm relay

- 2x alarm relays
- 2x monostable outputs for line and local/remote device monitoring
- Connector: WAGO type (Wire Wrap)

Environmental

- Operation: -20°C to + 70°C
- Storage conditions: -20°C to + 70°C
- Humidity: max. 80%, non-condensing

Power

- 48VDC - 230VAC, Protection class II
- Power input: max. 180mA

Physical

- Weight: 0,6kg
- Dimensions: 170 (W) x 53(W) x 210 (D) mm
- Form factor: Desktop housing with wall mounting capability

I-SAD: Integrated Security & Alarm Device / AIEx: Alarm Extender

Line-I/F	1x Fiber Optic I/F		Copper I/F		
	pluggable SFP module		1x 10/100 BaseT	2x 10/100BaseT	ITU-T G703 / 64k
User-Port	LC connector		RJ45	RJ45	RJ45
8x I/O port WAGO connector	-		-	-	**AIEx** 0711-1001
2 slots for various modules. See table below for features and order-info.	**I-SAD 19"-S** 0708-3101		**I-SAD 19"** 0708-3001	**I-SAD 19"-S** 0708-3101	-

I-SAD Modules

	Alarm I/O		Cabinet Control	GSM
# of I/O	8x I/O	16x I/O	4x I/O	1x GSM
Connector	feeding	feeding		
RJ45	**I-SAD M I/O** 0708-5001	**I-SAD MI-16 RJ** 0708-5200	**I-SAD MCC** 0708-4001	**I-SAD M GSM** 0708-6001
D-SUB25	**I-SAD M I/O D-SUB** 0708-5101	**I-SAD MI-16 DSUB** 0708-5210		

Additional accessories and pluggable XFP/SFP modules are listed in product register at the end of this caralogue.

Product Register

Product Line	Part No.	Part Name	Description
Carrier Ethernet			
Synchronous Ethernet Network Termination			
ENX see Page 8 ff	1102-1001	ENX-F	Synchronous Ethernet NT: 2x GbE (1000BaseSX/LX/ZX/BX), pluggable SFP modules (no modules included); 2x 10/100/1000BT Combo-port (1x SFP and/or 1x RJ45), 2x 10/100/1000BT (RJ45); 3x Clock interfaces (1x T3-input(BITS)/ 1x T4-output/ 1x 1pps); MGMT via 1x 10/100BaseTx (RJ45), 1x RS232 (D-Sub9); Jumbo frames (>10000Bytes); 19" chassis, 1RU; AC (230V) and DC (-48V);
CHX see Page 10 ff	0703-0801	CHX-V	Ethernet Network Termination: 1x VDSL2 (G.993.2/998), RJ45 conn.; 1x GbE (1000BaseLX/SX), pluggable SFP module (no module included); 2x GbE (10/100/1000BaseTx), RJ45 conn.; management via 10/100BaseT (RJ45); desktop-housing; mains supply: 230V AC.
	0703-0901	CHX-S	Ethernet Network Termination: 4x SHDSL (G.SHDSL), RJ45 conn.; 1x GbE (1000BaseLX/SX), pluggable SFP module (no module included); 2x GbE (10/100/1000BaseTx), RJ45 conn.; management via 10/100BaseT (RJ45); desktop-housing; mains supply: 230V AC.
Ethernet Demarcation			
EDX1000 see Page 12 ff	0716-2001	EDX 1000	Broadband Ethernet Demarcation: 1x GbE (1000BaseLX/SX/T), pluggable SFP module (no module included); 1x GbE (10/100/1000BaseTx), RJ45 conn., IEC 60870-5-104; MGMT-port: 1x FE (10/100BaseT), RJ45 conn.; 3RU rack mount card.
	0716-2101	EDX 1002	Broadband Ethernet Demarcation: 2x GbE (1000BaseLX/SX/T), pluggable SFP modules (no modules included); MGMT-port: 1x FE (10/100BaseT), RJ45 conn.; 3RU rack mount card.
	0716-4600	EDX 1006e	Broadband Ethernet Demarcation for extended temperature range: 2x GbE (1000BaseLX/SX/T), pluggable SFP modules (no modules included); 6x 100BaseFX, pluggable SFP modules (no modules included), IEC 60870-5-104; MGMT-port: 1x FE (10/100BaseT), RJ45 conn.; 3RU rack mount card.
	0716-3200	EDX 1008	Broadband Ethernet Demarcation: 2x GbE (1000BaseLX/SX/T), pluggable SFP modules (no modules included); 8x 10/100BaseTx (RJ45), IEC 60870-5-104; 3RU rack mount card.
EDX1000lite see Page 18 ff	0715-2501	EDX1000lite-S	Ethernet Converter. 1x 1000BaseFX (1310nm SM standard FO, ST conn.); 1x 1000BaseT (RJ45 conn.), IEC 60870-5-104; Alarm Relay Control; 3RU rack mount card.
EDX100 see Page 20 ff	0715-2200	EDX100-SFP	Ethernet Converter. 1x 100BaseFX, pluggable SFP module (no module included); 1x 10/100BaseT (RJ45 conn.), IEC 60870-5-104; Alarm Relay Control; LPT; 3RU rack mount card.
iEDX100 see Page 22 ff	0715-3001	iEDX100 - SC	Industrial Ethernet Converter. 1x 100BaseFX, (1310nm SM standard FO, ST conn.); 1x 10/100BaseT (RJ45 conn.); Redundant Power Supply; Alarm Relay; LPT; DIN Rail and Wall Mounting.
iEDX1000 see Page 24 ff	0715-3501	iEDX1000 - SC	Industrial Ethernet Converter. 1x 1000BaseFX, (1310nm SM standard FO, ST conn.); 1x 1000BaseT (RJ45 conn.); Redundant Power Supply; Alarm Relay; LPT; DIN Rail and Wall Mounting.
Transmission			
Multiprotocol Transponder			
FCX see Page 36 ff	0809-2101	FCX10G	Managed Multi-protocol Transponder: 2x 10Gbps ports, pluggable XFP modules (no modules included); Data rates 9.95-11.31Gbps, OC-192/STM-64, 10GbE WAN PHY, 10GbE LAN PHY, 10GFC, OTU2/G.709, 10GbE LAN PHY+FEC, OTU2 10GbE LAN PHY, 10GFC+FEC; 3R Functionality; 3RU rack mount card.
	0809-2102	FCX10G2	Managed Dual Multi-protocoll Transponder: 4x 10Gbps ports, pluggable XFP modules (no modules included); Data rates 9.95-11.31Gbps, OC-192/STM-64, 10GbE WAN PHY, 10GbE LAN PHY, 10GFC, OTU2/G.709, 10GbE LAN PHY+FEC, OTU2 10GbE LAN PHY, 10GFC+FEC; 3R Functionality; 3RU rack mount card.
	0809-3100	FCX4G	Managed Broadband Multi-protocol Transponder: 2x 4.25Gbps ports, pluggable SFP modules (no modules included); Data rates 100-4500Mbps: IEEE (FE, GigE), SONET (OC-3, OC-12, OC-48), SDH (STM-1, STM-4, STM16), FC (1G, 2G, 4GFC); 3R Functionality; 3RU rack mount card.

Product Register

Product Line	Part No.	Part Name	Description
	0809-3200	FCX4G2	Managed Dual Broadband Multi-protocol Transponder: 4x 4.25Gbps ports, pluggable SFP modules (no modules included); Data rates 100-4500Mbps: IEEE (10FX, 100FX, 1000FX), SONET (OC-3, OC-12, OC-48), SDH (STM-1, STM-4, STM16), FC (1G, 2G, 4GFC); 3R Functionality; 3RU rack mount card.
Passive Optical Splitter			
OSX see Page 42 ff	0912-2100	OSX8-SCL	Passive Optical CWDM Splitter: 1x Line port (1260nm-1610nm SM, LC conn.), 8x CWDM ports (1470nm-1610nm SM, LC conn.), 1x Express port (1310nm SM, LC conn.); CWDM acc. to ITU-T G.694.2; no management required; 3RU rack mount card.
SDH Multiplexer			
SMX see Page 44	0806-2800	SMX622	SDH ADM Multiplexer: 2x STM-1/4 (SFP); 2x STM-1 (SFP); pluggable SFP modules (no modules included); 2x 10/100/1000BaseTx (RJ45); 2x 10/100BaseTx (RJ45); 4x E1 (G.703, RJ45); 2x E3/DS3 (G.703, mini coax); Management via RS232 (D-Sub9) and 10/100BaseTx (RJ45); 19" chassis, 1RU; mains supply: 230 V AC or redund. 48/60 V DC.
	0806-2500	SMX622lite	SDH ADM Multiplexer: 2x STM-1/4 ports, pluggable SFP modules (no modules included); 4x E1 (G.703, RJ45); 2x 10/100/1000BaseTx (RJ45); management via RS232 (D-Sub9), 10/100BaseTx (RJ45); 19" chassis, 1RU; mains supply: 230 V AC or redund. 48/60 V DC.
	0806-2100	SMX155	SDH Terminal Multiplexer: 1x STM-1 port, pluggable SFP module (no module included); 4x E1 (G.703, RJ45); 2x 10/100BaseTx (RJ45); management via RS232 (D-Sub9), 10/100BaseTx (RJ45); 19" chassis, 1RU; mains supply: 110/230 V AC or redund. 48/60 V DC.
Connectivity			
Access Multiplexer			
AMX see Page 60 ff	0808-3200	AMX32FE-S-basic-AC	Modular Optical Multiplexer: Capacity of 16xE1+FE; 1x FO line module (1310nm SM standard FO, FC-PC conn.); 2x 10/100BaseT ports (RJ45); 4x slots for various modules; capability for FO and power redundancy; SNMP agent on board NMS, CLI and Alarm relay ports; 19" chassis, 1RU; 1x mains supply: 230 V AC, prepared for backup FO module and backup PS (AC or DC).
	0808-3201	AMX32FE-S-basic-DC	Modular Optical Multiplexer: Capacity of 16xE1+FE; 1x FO line module (1310nm SM standard FO, FC-PC conn.); 2x 10/100BaseT ports (RJ45); 4x slots for various modules; capability for FO and power redundancy; SNMP agent on board NMS, CLI and Alarm relay ports; 19" chassis, 1RU; 1x mains supply: 48 V DC, , prepared for backup FO module and backup PS (AC or DC).
	0808-3220	AMX32FE-SF13-basic-AC	Modular Optical Multiplexer: Capacity of 16xE1+FE; 1x single FO line module (Tx 1310nm/Rx 1550nm SM FO, FC-PC conn.); 2x 10/100BaseT ports (RJ45); 4x slots for various modules; capability for FO and power redundancy; SNMP agent on board NMS, CLI and Alarm relay ports; 19" chassis, 1RU; 1x mains supply: 230 V AC, , prepared for backup FO module and backup PS (AC or DC).
	0808-3230	AMX32FE-SF15-basic-AC	Modular Optical Multiplexer: Capacity of 16xE1+FE; 1x single FO line module (Tx 1550nm/Rx 1310nm SM FO, FC-PC conn.); 2x 10/100BaseT ports (RJ45); 4x slots for various modules; capability for FO and power redundancy; SNMP agent on board NMS, CLI and Alarm relay ports; 19" chassis, 1RU; 1x mains supply: 230 V AC, , prepared for backup FO module and backup PS (AC or DC).
	0808-3221	AMX32FE-SF13-basic-DC	Modular Optical Multiplexer: Capacity of 16xE1+FE; 1x single FO line module (Tx 1310nm/Rx 1550nm SM FO, FC-PC conn.); 2x 10/100BaseT ports (RJ45); 4x slots for various modules; capability for FO and power redundancy; SNMP agent on board NMS, CLI and Alarm relay ports; 19" chassis, 1RU; 1x mains supply: 48 V DC, prepared for backup FO module and backup PS (AC or DC).
	0808-3231	AMX32FE-SF15-basic-DC	Modular Optical Multiplexer: Capacity of 16xE1+FE; 1x single FO line module (Tx 1550nm/Rx 1310nm SM FO, FC-PC conn.); 2x 10/100BaseT ports (RJ45); 4x slots for various modules; capability for FO and power redundancy; SNMP agent on board NMS, CLI and Alarm relay ports; 19" chassis, 1RU; 1x mains supply: 48 V DC, prepared for backup FO module and backup PS (AC or DC).

Product Register

Product Line	Part No.	Part Name	Description
	0808-3800	AMX32FE-Mod-4xG.703-R	AMX32 Module: 4x E1 (G.703), 120 Ohm balanced, 1xD-Sub37 connector; connection provided via RJ45 adapter.
	0808-3801	AMX32FE-Plug-DB37F-8G	AMX32 Module: 4xE1 interface adapter, D-Sub37 female to 8x BNC conn., unbalanced 75 Ohm.
	0808-3802	AMX32FE-Plug-DB37F-RJ45	AMX32 Module: 4xE1 interface adapter, D-Sub37 female to 4xRJ45 conn., balanced 120 Ohm.
	0808-3803	AMX32FE-Mod-4xG.703-B	AMX32 Module: 4x E1 (G.703), 75 Ohm unbalanced, 1xD-Sub37 connector; connection provided via BNC adapter.
	0808-3810	AMX32FE-Mod-4xRS422/485	AMX32 Module: 4x RS422/RS485 (110- 115,2kbps), 4xRJ45 connectors, full/half duplex.
	0808-3820	AMX32FE-Mod-4xRS232	AMX32 Module: 4xRS232 (110- 115,2kbps), 4xRJ45 connectors, full duplex, IEC 60870-5-101.
	0808-3830	AMX32FE-Mod-2xV.35	AMX32 Module: 2xV.35, 2x D-Sub25 connectors.
	0808-3835	AMX32FE-Plug-DB25M-DB34F	AMX32 Adapter: D-Sub25 male to D-Sub34 female connectors.
	0808-3831	AMX32FE-Mod-4xV35	AMX32 Module: 4xV.35, 2x D-Sub37 connectors, connection provided by D-Sub37 to 2x V.35 adapter .
	0808-3836	AMX32FE-Plug-DB37M-2DB34F	AMX32 Adapter: D-Sub37 male to 2x D-Sub34 female connectors.
	0808-3840	AMX32FE-Mod-4xFXO	AMX32 Module: 4x FXO, 1x D-Sub9 connector.
	0808-3841	AMX32FE-Mod-4xFXS	AMX32 Module: 4x FXS, 1x D-Sub9 connector.
	0808-3845	AMX32FE-Mod-8xFXO	AMX32 Module: 8x FXO, 2x D-Sub9 connectors.
	0808-3846	AMX32FE-Mod-8xFXS	AMX32 Module: 8x FXS, 2x D-Sub9 connectors.
	0808-3880	AMX32FE-Mod-FE	AMX32 Module: 1x 10/100BaseTx Bridge module, RJ45 connector, with speed auto-negotiation, IEC 60870-5-104.
	0808-3600	AMX32FE-backupFO-S	AMX32 Module: 1x FO line module for 1:1 FO Protection (1310nm SM standard FO, FC-PC conn.).
	0808-3620	AMX32FE-backupFO-SF13	AMX32 Module: 1x single FO line module for 1:1 FO Protection (Tx1310nm/Rx 1550nm SM FO, FC-PC conn.).
	0808-3630	AMX32FE-backupFO-SF15	AMX32 Module: 1x single FO line module for 1:1 FO Protection (Tx1550nm/Rx 1310nm SM FO, FC-PC conn.).
	0808-3500	AMX32FE-backupPS-AC	AMX32 Module: Power Supply, mains supply: 230 V AC.
	0808-3501	AMX32FE-backupPS-DC	AMX32 Module: Power Supply, mains supply: -48 V DC.
	0808-3900	AMX32FE-Dutyphone	AMX32 Duty Phone: 1x Telephone.
	0808-9901	AMXview7.2	AMXview 7.2: CD with Management Software V7.2.
G.SHDSL Modem			
CSX4 see Page 64 ff	0803-3100	CSX4-E1R	G.SHDSL Copper Modem: 2- or 4-wire mode supported; up to 2048kbps; nx64kbps; 1x G.SHDSL (RJ45); 1x E1 (G.703, RJ45) port; 3RU rack mount card.
	0803-3220	CSX4-V.24	G.SHDSL Copper Modem: 2- or 4-wire mode supported; up to 230kbps; nx64kbps; 1x G.SHDSL (RJ45); 1x V.24 (D-Sub25) port; synchronous and asynchronous mode supported, IEC 60870-5-101; 3RU rack mount card.
	0803-3221	CSX4-X.21	G.SHDSL Copper Modem: 2- or 4-wire mode supported; up to 4.608kbps; nx64kbps; 1x G.SHDSL (RJ45); 1x X.21 (D-Sub15) port; 3RU rack mount card.
	0803-3240	CSX4-I.430	G.SHDSL Copper Modem; 2- or 4-wire mode supported; up to 256kbps; nx64kbps; 1x G.SHDSL (RJ45); 1 x BRI (I.430, RJ45) port; 3RU rack mount card.
	0803-3280	CSX4-FE	G.SHDSL Copper Modem: 2- or 4-wire mode supported; up to 4.608kbps; nx64kbps; 1x G.SHDSL (RJ45); 1x 10/100BaseTx (RJ45) Bridge-Module with speed auto-negotiation and VLAN support (802.1q), IEC 60870-5-104; 3RU rack mount card.
Fibre Optic Modem			
CFX2 see Page 68 ff	0803-4020	CFX2-V.24-S	FO Modem: up to 230kbps; nx64kbps; 1x FO (1310nm SM std. FO, FC-PC conn.); 1x V.24 (D-Sub25) port; synchronous and asynchronous mode supported, IEC 60870-5-101; 3RU rack mount card.
	0803-4021	CFX2-X.21-S	FO Modem: up to 2.048kbps; nx64kbps; 1x FO (1310nm SM std. FO , FC-PC conn.); 1x X.21 (D-Sub15) port; 3RU rack mount card.
	0803-4040	CFX2-I.430-S	FO Modem: up to 256kbps; nx64kbps; 1x FO (1310nm SM std. FO, FC-PC conn.); 1x BRI (I.430, RJ45) port; 3RU rack mount card.
	0803-4080	CFX2-FE-S	FO Modem: up to 2.048kbps; nx64kbps; 1x FO (1310nm SM std. FO, FC-PC conn.); 1x 10/100BaseTx (RJ45) Bridge-Module with speed auto-negotiation and VLAN support (802.1q), IEC 60870-5-104; 3RU rack mount card.

Product Register

Product Line	Part No.	Part Name	Description
	0803-4220	CFX2-V.24-SF13	FO Modem: up to 2.048kbps; nx64kbps; 1x SM FO (WDM 1310nm SM std. FO TX + 1550nm SM RX, FC-PC conn.); 1x V.24 (D-Sub25) port; synchronous and asynchronous mode supported, IEC 60870-5-101; 3RU rack mount card.
	0803-4221	CFX2-X.21-SF13	FO Modem: up to 2.048kbps; nx64kbps; 1x SM FO (WDM 1310nm SM std. FO TX + 1550nm SM RX, FC-PC conn.); 1x X.21 (D-Sub15) port; 3U rack mount card.
	0803-4280	CFX2-FE-SF13	FO Modem: up to 2.048kbps; nx64kbps; 1x SM FO (WDM 1310nm SM std. FO TX + 1550nm SM RX, FC-PC conn.); 1x 10/100BaseTx (RJ45) Bridge-Module with speed auto-negotiation and VLAN support (802.1q); IEC 60870-5-104; 3RU rack mount card.
	0803-4320	CFX2-V.24-SF15	FO Modem: up to 230kbps; nx64kbps; 1x SM FO (WDM 1550nm SM Economic FO TX + 1310nm SM RX, FC-PC conn.); 1x V.24 (D-Sub25) port; synchronous and asynchronous mode supported; IEC 60870-5-101; 3U rack mount card.
	0803-4321	CFX2-X.21-SF15	FO Modem: up to 2.048kbps; nx64kbps; 1x SM FO (WDM 1550nm SM Economic FO TX + 1310nm SM RX, FC-PC conn.); 1x X.21 (D-Sub15) port; 3U rack mount card.
	0803-4380	CFX2-FE-SF15	FO Modem: up to 2.048kbps; nx64kbps; 1x SM FO (WDM 1550nm SM Economic FO TX + 1310nm SM RX, FC-PC conn.); 1x 10/100BaseTx (RJ45) Bridge-Module with speed auto-negotiation and VLAN support (802.1q), IEC 60870-5-104; 3RU rack mount card.
	0803-4A00	CFX2-E1R-S	FO Modem: up to 2.048kbps; nx64kbps; 1x FO (1310nm SM std. FO, FC-PC conn.); 1x E1 (G.703, RJ45) port; 3RU rack mount card.
	0803-4E00	CFX2-E1R-M8	FO Modem: up to 2.048kbps; nx64kbps; 1x FO (850nm MM std. FO, ST conn.); 1x E1 (G.703, RJ45) port; 3RU rack mount card.
	0803-4L00	CFX2-E1B-S	FO Modem: up to 2.048kbps; nx64kbps; 1x FO (1310nm SM std. FO, FC-PC conn.); 1x E1 (G.703, BNC) port; 3RU rack mount card.
Serial Interface Converter			
CEX2 see Page 72 ff	0803-2220	CEX2-V.24	Serial Interface Converter: up to 230kbps; nx64kbps; 1x G.703/G.704 (RJ45); 1x V.24 (D-Sub25) port; synchronous and asynchronous mode supported, IEC 60870-5-101; 3RU rack mount card.
	0803-2221	CEX2-X.21	Serial Interface Converter: up to 2.048kbps; nx64kbps; 1x G.703/G.704 (RJ45); 1x X.21 (D-Sub15) port; 3RU rack mount card.
	0803-2240	CEX2-I.430	Serial Interface Converter: up to 256kbps; nx64kbps; 1x G.703/G.704 (RJ45); 1x BRI (I.430, RJ45) port; 3RU rack mount card.
	0803-2280	CEX2-FE	Serial Interface Converter: up to 2.048kbps; nx64kbps; 1x G.703/G.704 (RJ45); 1x 10/100BaseTx (RJ45) Bridge-Module with speed auto-negotiation and VLAN support (802.1q), IEC 60870-5-104; 3RU rack mount card.
ISDN Sniffer			
D-Spy see Page 76 ff	0803-5000	ISX	ISDN-Sniffer: for D-Kanal Analysis; 3RU rack mount card.
	0803-5100	ISX-Bell	ISDN-Sniffer: External Bell.
Alarm & Telemetry			
IP Security Access Device			
I-SAD 19Zoll see Page 90 ff	0708-3001	I-SAD 19Zoll	I-SAD 19" basic device: 1x 10/100BaseT (RJ45); 2x slots for various modules; 1x Temperature port (vendor specific), RJ45 conn.; 1x Humidity sensor port (vendor specific), RJ45 conn.; 1x RS232 ext. port (D-Sub9 female); 1x RS232 management port/OPI (D-Sub9 female); 19" chassis, 1RU; mains supply: -48V DC...230V AC.
	0708-3101	I-SAD 19Zoll S	I-SAD 19" basic device: 1x 100BaseFX, pluggable SFP module (no module included); Integrated Ethernet switch and VLAN support; 2x 10/100BaseT (RJ45); 2x slots for various modules; 1x Temperature port (vendor specific), RJ45 conn.; 1x Humidity sensor port (vendor specific), RJ45 conn.; 1x RS232 ext. port (D-Sub9 female); 1x RS232 management port/OPI (D-Sub9 female); 19" chassis, 1RU; mains supply: -48V DC...230V AC.
	0708-4001	I-SAD MCC	Cabinet Control Module: 2x Door Lock port (vendor specific), RJ45 conn.; 2x Door sensor port (vendor specific), RJ45 conn.; pluggable module for I-SAD 19Zoll (-S).

Product Register

Product Line	Part No.	Part Name	Description
	0708-5001	I-SAD MI/O	I/O Module: 8x I/O ports, RJ45 conn.; 1x Alarm contact (2x parallel Outputs), RJ45 conn.; 1x E1 extension port (G.703/64kbps, co-directional), RJ45 conn.; pluggable module for I-SAD 19Zoll (-S).
	0708-5101	I-SAD MI/O D-Sub	I/O Module: 8x Input, 4x Output, 1x G.703, 1x Output 24V DC (max. 40mA), D-Sub37 conn.; pluggable module for I-SAD 19Zoll (-S).
	0708-6001	I-SAD MGSM	GSM Module: Module for wireless GPRS transmission; slot for SIM card; connector for external antenna.
	0708-6101	I-SAD TS	I-SAD Temperatur Sensor, RJ45 conn.; Temp. Range: -20 to +70°C.
	0708-6201	I-SAD HS	I-SAD Humidity Sensor, RJ45 conn.; Humidity Range: 10 to 90 %.
Alarm Extender			
AIEx see Page 94 ff	0711-1001	AIEx	Alarm Extender: 1x E1 port (G.703/64kbps, co-directional), RJ45 conn.; 8x I//O ports, WAGO conn. (Wire-wrap); 2x Alarm contacts, WAGO conn. (Wire-wrap); desktop housing (wall mounting kid); mains supply: -48V DC ... 230V AC (wide range).
Accessories			
Management & Rack Control			
SCX	0903-3000	SCX2e	System Controller for ax-system devices: SNMP, web-GUI, Telnet, Terminal Management; 3RU rack mount card.
Housing & Chassis			
SHX	0717-9401	SHX3-10W	Standalone housing: 1x slot for 3RU line card; max. 10W power consumption; VT100 Management port (D-Sub9); with alarm contacts, grounding bolt, no ventilation, integrated wide range power supply; mains supply: -48VDC...110/230VAC; power jack included.
	0717-9101	SHX3-15W	Standalone housing: 1x slot for 3RU line card; max. 15W power consumption; VT100 Management port (D-Sub9); with alarm contacts, grounding bolt, ventilation, integrated wide range power supply; mains supply: -48VDC...110/230VAC; power jack included.
	0717-9201	SHX6-15W	Standalone housing: 1x slot for 6RU line card; max. 15W power consumption; VT100 Management port (RJ45); with alarm contacts, grounding bolt, ventilation, integrated wide range power supply; mains supply: -48VDC...110/230VAC; power jack included.
SRX	0805-9000	SRX10	Rack mount shelf: 19" chassis; High: 3RU; 10x slots for line cards; 1x slot for management; 2x slots for modular AC (115/230V) and/or DC (-48V) power supplies; with adjustable side fixing plates.
	0805-9010	SRX3	Rack mount standalone housing: 19" chassis; High: 1RU; 3x slots for line cards; VT100 Management port (D-Sub9); with alarm contacts, ventilation; mains supply: AC (115/230V).
	0805-9110	SRX3plus	Rack mount housing with agent-functionality: 19" chassis; High: 1RU; 3x slots for line cards; integrated management card SCX2; VT100 Management port (D-Sub9); TCP/IP port (RJ45); with alarm contacts, ventilation; mains supply: AC (115/230V) and/or DC (-48V) power supplies.
SPX	0805-5000	SPX100-AC	Power Supply for chassis type SXR: redundancy-capable (int); 8 HP panel; single voltage 5 V DC, 20 A; mains supply: 115/230 V AC; 3RU rack mount card.
	0805-5500	SPX100-DC	Power Supply for 19" chassis type SXR: redundancy-capable (int); 8 HP panel; single voltage 5 V DC, 20 A; mains supply: -48 V DC; 3RU rack mount card.
SAX	0805-6010	SAX24	19" chassis Fan module with integrated alarm card for chassis type SXR: 2x Fan, 4x Alarm connector, LEDs, Coverplate.
BPX	0805-6110	BPX36s	Blind-plate for ax-shelfs: 3HU, 6WU, usage at LC-slots; for standard usage.
	0805-6200	BPX38	Blind-plate for ax-shelves: 3RU, 8WU, usage at PS-slots; for standard usage.
	0805-6210	BPX385	Blind-plate for ax-shelves: 3RU, 8,5WU, usage at SCX2e Management-slots; for standard usage.
APX	0805-6800	APX3FOT	Fibre Optic Tray for ax-shelves: Fold-away tray to deposit and secure fiber-optic cables in front of shelves.
Cables			
Digital Cable	9500-0101	DCX-DB9M-DB9F	Digital Cable: D-Sub9 male to D-Sub9 female; used for VT100-Management via an RS232 (D-Sub9 conn.) interface.

Product Register

Product Line	Part No.	Part Name	Description
	9500-0100	DCX-RJ45-DB9F	Digital Cable: RJ45 to D-Sub9 female; used for VT100-Management via an RS232 (RJ45 conn.) interface
Power Cord	9500-0001	PCX-AC-E	AC power cord; european plug
XFP/SFP pluggable Modules			
XFP		XFP-11.3G-S15-40	Optical XFP module: 1550nm EML SM FO; 9,95 up to 11,3Gbps multirate transceiver, OC-192/SDH STM-64, 10GBASE-EW/ER, 10GBASE-EW/ER+FEC, 10GFC, ITU-T G.709, 11.3G; pluggable XFP footprint; LC connector; digital diagnostics; 40km.
		XFP-11.3G-S13-10	Optical XFP module: 1310nm DFB SM FO; 9,95 up to 11,3Gbps multirate transceiver, OC-192/SDH STM-64, 10GBASE-LW/LR, 10GBASE-LW/LR+FEC, 10GFC, OTU2/G.709, 11.3G; pluggable XFP footprint; LC connector; digital diagnostics; 10km.
		XFP-10G-S13-10	Optical XFP module: 1310nm DFB SM FO; 9,95 up to 10,52Gbps transceiver, 10GBASE-LW/LR, 10GFC, 10.5G; pluggable XFP footprint; LC connector; digital diagnostics; 10km.
SFP		SFP-2.67G-S15-40	Optical SFP module: 1550nm DFB SM FO; 125Mbps up to 2.67 Gbps multirate transceiver, STM-1/4/16, 1x/2xFC, GbE, 2.67G; pluggable SFP footprint; 3,3V; LC connector; digital diagnostics; 40km.
		SFP-2.67G-S13-40	Optical SFP module: 1310nm DFB SM; 125Mbps up to 2.67 Gbps multirate transceiver, STM-1/4/16, 1x/2xFC, GbE, 2.67G; pluggable SFP footprint; 3,3V; LC connector; digital diagnostics; 40km
		SFP-2.67G-S13-15	Optical SFP module: 1310nm DFB SM FO; 125Mbps up to 2.67 Gbps multirate transceiver, STM-1/4/16, 1x/2xFC, GbE, 2.67G; pluggable SFP footprint; 3,3V; LC connector; digital diagnostics; 15km.
		SFP-1.25G-S13-40	Optical SFP module: 1310nm DFB SM FO; 1.25 Gbps transceiver, 1x FC, GbE; pluggable SFP footprint; 3,3V; LC connector; digital diagnostics; 40km.
		SFP-1.25G-S13-10	Optical SFP Interface Module: 1310nm SM FO; 1xFC, 1.25 Gbps transceiver; pluggable SFP footprint; LC connector; digital diagnostics; 10km.
		SFP-622M-S13-40	Optical SFP Interface Module: 1310nm DFB SM FO; 622 Mbps transceiver; pluggable SFP footprint; LC connector; digital diagnostics; 40km.
		SFP-622M-S13-15	Optical SFP module: 1310nm SM FO; up to 622 Mbps multirate transceiver, STM-1, STM-4; pluggable SFP footprint; 3,3V; LC connector; digital diagnostics; 15km.
		SFP-155M-S13-40	Optical SFP module: 1310nm SM; 125/155 Mbps transceiver, FastE, STM-1; pluggable SFP footprint; LC connector; 3,3V; digital diagnostics;
		SFP-155M-S13-10	Optical SFP Interface Module: 1310nm SM FO; 125/155 Mbps transceiver, FastE, STM-1; pluggable SFP footprint; LC connector; 10km
SFPe		SFP-1.25e	Electrical SFP Interface Module: Pluggable SFP module, for data rates of 1.25Gb/s bi-directional data links. - 1000BASE-T Copper port, RJ45 connector - compatible with the Gigabit Ethernet and 1000BASE-T standards as specified in IEEE 802.3 - digital diagnostic supported. - Remark: 10/100/1000 BASE-T operation only in EDX1000-family.
		SFP-155e	Electrical SFP module: full duplex STM-1 (155 Mbps); mini coax conn. (75 Ohm); pluggable SFP module according to SFP MSA (SFF INF-8074i); CMI input and output compliant with ITU-T G.703 (ES1) and

The product register contains the most common types of products and pluggable XFP/SFP modules.
For other product or SFP/XFP versions/options, please contact us at **www.arcutronix.com**.

Product pictures in the catalogue may vary from real product design.

Specifications 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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