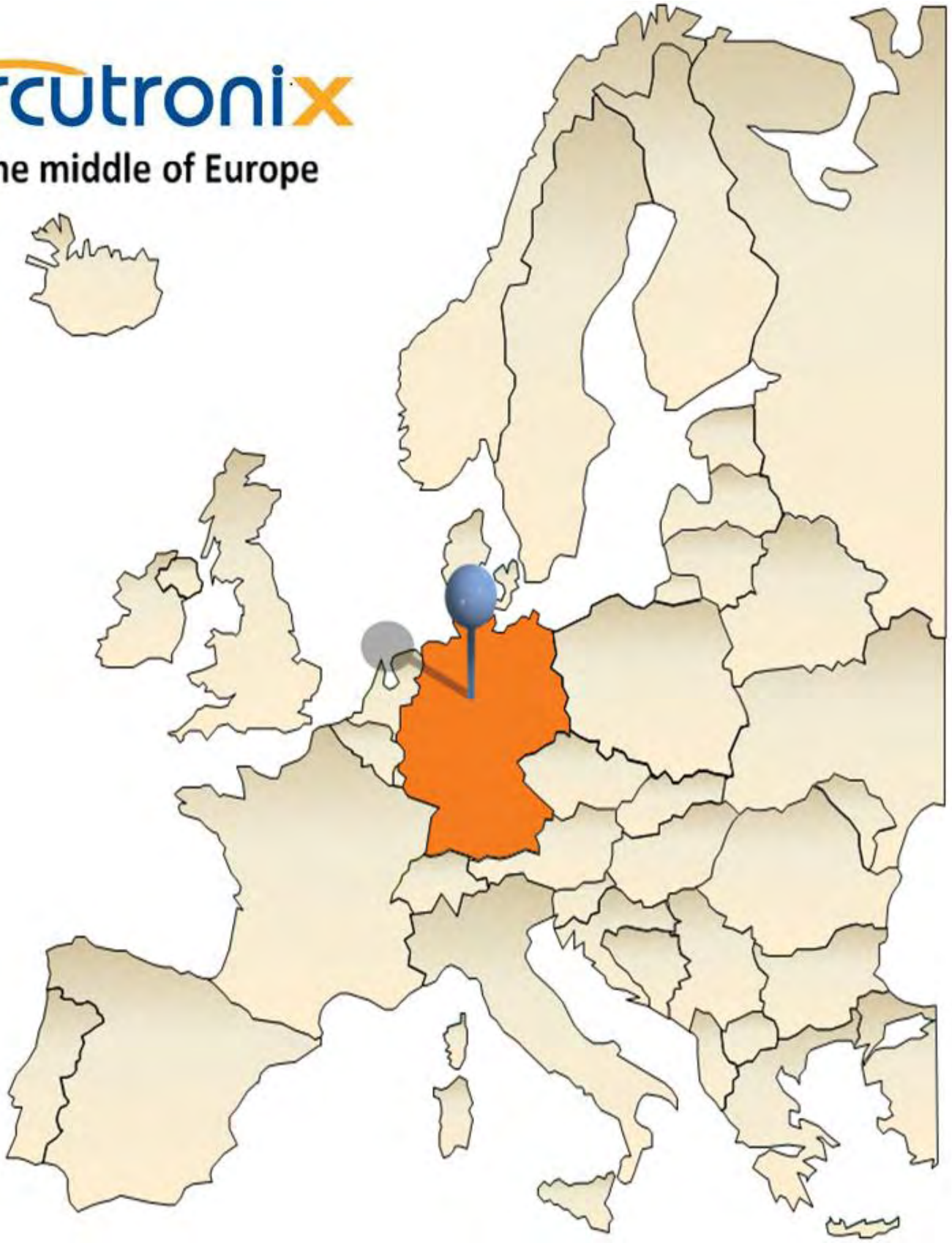
Catalogue 2016

Contact

arcutronix

In the middle of Europe



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About Us

Dear Customer and Business Partner

arcutronix is a leading supplier equipment for telecommunication infrastructure and security.

At our location in Hanover we are developing products and distribute them mainly in Europe but also to Asia and North Africa. The incumbent telco are also our customers, as smaller carriers.

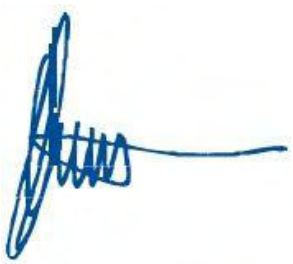
arcutronix is a fab-less company. We have very good access to the plant of our parent company in Austria, which is located in the South-West of Austria. There we do most of our production and shipment.

Established in year 2007, arcutronix can look back almost on 10 years of successful existence. We appreciate the trust of our customers and the many satisfied feedback signals during this time.

Our goal is to always put the needs of our customers and their satisfaction in the foreground. As a private enterprise, we can react quickly and flexibly to requests and needs.

Our experience in network technologies comprises the last 25 years that have brought many changes with it. Not everything that has been presented in recent years as innovation has become established and enforced. But for us it was important to support the ideas and changes and to draw our conclusions from it. So today we see that the need for synchronization in packet networks is becoming more and more important. Both frequency synchronization that we have estimated to ISDSN network, but also high-precision time synchronization will enable new business models and applications. We arcutronix have taken us this trend and have "synchronize the Ethernet" selected as our motto.

That leaves arcutronix, the bridge between you and your customers!



Andreas Zimmermann

Contents

Carrier Ethernet

Connectivity

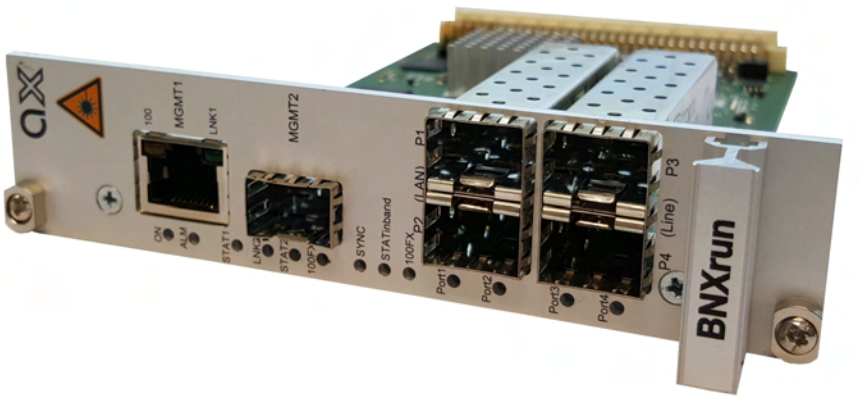
Security - Telemetry

Accessories

BNXrun

Broad Network Transport Device

- 4x Fibre Optic (SFP) Ethernet ports up to 1Gbps
- 1:3 or 2:2-scenarios can be configured
- Jumbo Frames (16k) supported
- L2 packet processing in wire-speed
- Fan less desktop unit with low power consumption <15W
- Flexible design due to Networking Processor



The BNXrun is a carrier-grade CPE device designed to match in a wide area of different applications. The BNXrun fits for the requirements of a Customer Premise Equipment (CPE) in a FTTH-scenario as well as a Network Interface Device (NID) for other FTTx-scenarios. The BNXrun is designed to enable Layer2 and Layer3 business services, including an outstanding support for clock distribution and time synchronisation to the provider's edge.

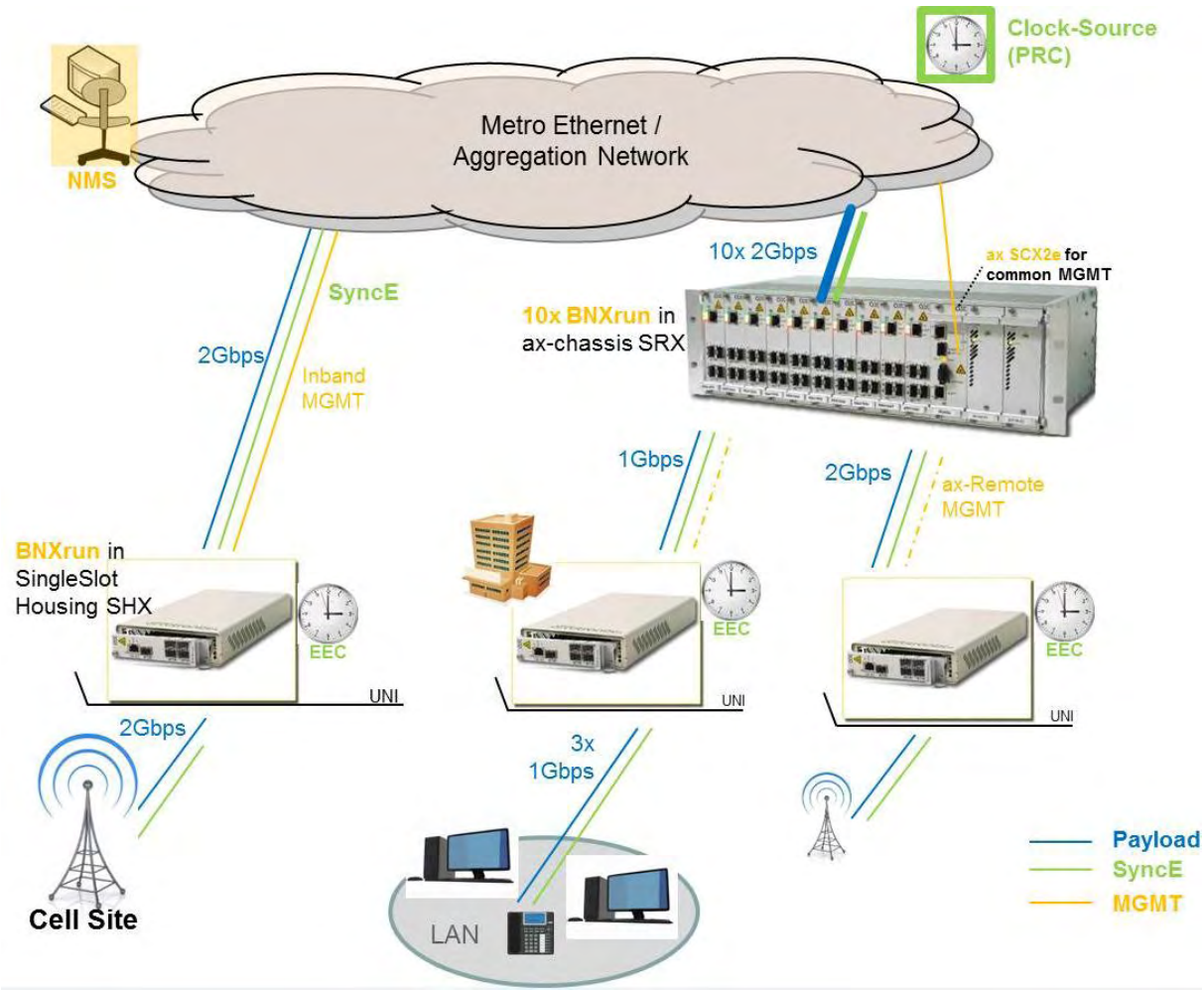
Introduction

The BNXrun assists network operators to reduce operating expenses, introducing new types of SLA and all together to improve the margin. It is designed to be operated as a UNI Type device.

The BNXrun offers independent interface and service control. It incorporates Ethernet operations management according to Y.1731 and IEEE802.1ag (OAM functions), IEEE802.3ah (EFM), configuration management via HTML browser, SNMP and SSH. Main focus is on the security of management application to assure safe and non-sniffed communication between the device and the NOC.

Features

- 2x Ethernet ports for local/remote management access
  - 1x 10/100BaseT
  - 1x 100FX
- Synchronicity to the edge of provider's network
  - ITU-T G.8261 etc.
- Implements a fully managed demarcation function between customer network and service provider network
- Offers built-in independent interface and service supervision
- Network management to monitor and manage
  - HTML based WEB–OPI,
  - Built-in SNMP-agent,
  - SSH (CLI)
  - In-band management capability
- Compact design



Application Example

The realisation of MEF2 functionality to versatile applications, e.g. mobile backhaul or service provisioning for companies and MTUs is very easy with the BNXrun.

The 4x 1GigE ports can be aggregated to achieve a full 2x2G demarcation device. This fits perfect to back-haul mobile antennas like eNode-B.

The BNXrun can also be configured to operate as real CPE device, using 1x GigE as uplink and 3x GigE into the customer's LAN.

The BNXrun can be placed in a single-slot housing, a 3-slot or a 10-slot chassis.

SyncE functionality is provided to allow end-to-end clock-provisioning for various applications. The BNXrun can be either managed via inband management directly, or via the central blade offering access to local as well as remote devices.

Technical Specifications

Ports

Network I/Fs (WAN) & Service I/Fs (LAN/Customer)

- 4x GigE Fibre Ports
  - 1000BaseSX/LX/ZX/BX (SFP)
  - All SFPs supported (SGMII, CWDM, BI-DI, TripleSpeed)
  - Digital Diagnostic Monitor
  - I/F #3 can be used as 3rd LAN-port or 2nd WAN-port
  - I/F #1 can be operated with 100FX mode
- 2x 2GigE bundles possible (LACP)

Management I/Fs

- 1x 10/100BaseT (RJ45)
  - Local MGMT
  - DHCP-server
  - Auto-negotiation
  - Auto-MDIO
- 1x 100Fx (SFP)
  - Remote MGMT
  - DHCP-client
- Console Port
  - RS-232 (DSUB9)
  - Available only with SHX3 Housing

Packet-Processing

- Wire speed, non-blocking
- L2-L3 packet processing
- Jumbo frames: 16kBytes
- L2CP tunneling/discard/peer
- IEEE 802.1D Mac Bridging
- IEEE 802.1 Q VLAN Bridging
- IEEE 802.1ax LACP (link aggregation)
- Flow Control
- Multicast/Broadcast storm protection
- 8k MAC-addresses
  - MAC aging enable/disable; aging time configurable
  - Static MAC entries possible
- 4096 active VLANs
  - single tag
  - add / remove / forward
- Granular rate limiting
  - CIR, CBS, EIR, EBS
- Bandwidth policing
  - RFC2697, RFC2698, RFC3290
  - Metering according to RFC 2697, 2698 with single or two rate three colour marking
  - MEF10.2
- LPT/RFD
- MIB2 RMON Performance Counter
- Port Isolation

SyncE

- ITU-T G.8261 – G.8264
- All Ports can be operated in either master or slave mode
  - Device operates completely in synchronous mode
- LED to show sync status
- ESMC messages
- Holdover
  - TCXO optional assembly

Management

Local Craft Terminal (LCT)

- RS232
  - Only available with SHX housing
- Command Line Interface

Local/Remote MGMT

- 2 extra ports
  - 10/100BaseT (RJ45)
  - 100FX (SFP)
- IPv4, IPv6
- SNMPv2c, SNMPv3
  - Get, set, bulk, traps
  - Up to 16 trap receiver
- SSHv2 & CLI
- TACACS+
- 16 different users possible:
  - 3 authorization levels
  - username / password or SSH-key protection for each account.
- Configuration save/recall (local and/or TFTP/SFTP)

Inband MGMT

- Inband Management via all WAN-Ports possible
- Separate VLAN used
- Same features as for Local/Remote MGMT

Rack & Remote MGMT

- Rack MGMT via SRX10 backplane
- SCX2e as common MGMT blade
- Remote BNXrun can be managed by local SCX2e
  - MGMT traffic is routed via local BNXrun in rack
  - Separate VLAN used

Indicators

- 14 LEDs to show operational status

Environmental

- Operation
  - ETS 300019-1-3, class 3.1
  - Temperature -5…+55°C
  - Humidity: 10…90%, non-condensing
- Transportation
  - ETS 300019-1-2, class 2.3
  - Temperature: -40 …+70°C
  - Humidity: 10…95%, non-condensing

Power

- Supply Voltage: +5 VDC (via backplane)
- Power Consumption: < 15 VA, overcurrent protected
  - Total power consumption depends on used SFPs
- Power supply via system rack SRX or housing SHX

Housing

- Weight: 350g
- Dimensions (h x w x d)
  - 130 x 30 x 190 mm
  - 45 x 145 x 260 mm (in SHX3)
- 19” rack available
  - 10 slots in 3HU rack
  - 3 slots in 1HU rack

BNX-CE

Broad Network Termination Device @ Customer Edge

- 6x Ethernet ports up to 1Gbps
- Different-scenarios can be configured (1:5; 2:4; 3:3)
- MEF-CE2.0 UNI compliant
- L2 and L3 packet processing in wire-speed
- Syncronous Device (Syncronous EThernet, IEEE 1588v2 (PTP)
- Fan less desktop unit with low power consumption
- Flexible SW-design due to Networking Processor

BNX-CE is a carrier-grade CPE device designed to match in a wide area of different applications. BNX-CE is very versatile offering a bunch of interfaces and protocols. Supporting IEEE 1588 (PTP) and offering different redundancy options (e.g. ERPS, EAPS and LTE Backup) BNX -CE can be used for mission critical applications where a reliable and secure transport of services is mandatory.
The device operates in conformance with MEF2.0 UNI specifications. BNX-CE is designed to enable Layer2 and Layer3 business services, including an outstanding support for clock distribution and time/frequency synchronisation to the customer's premise.

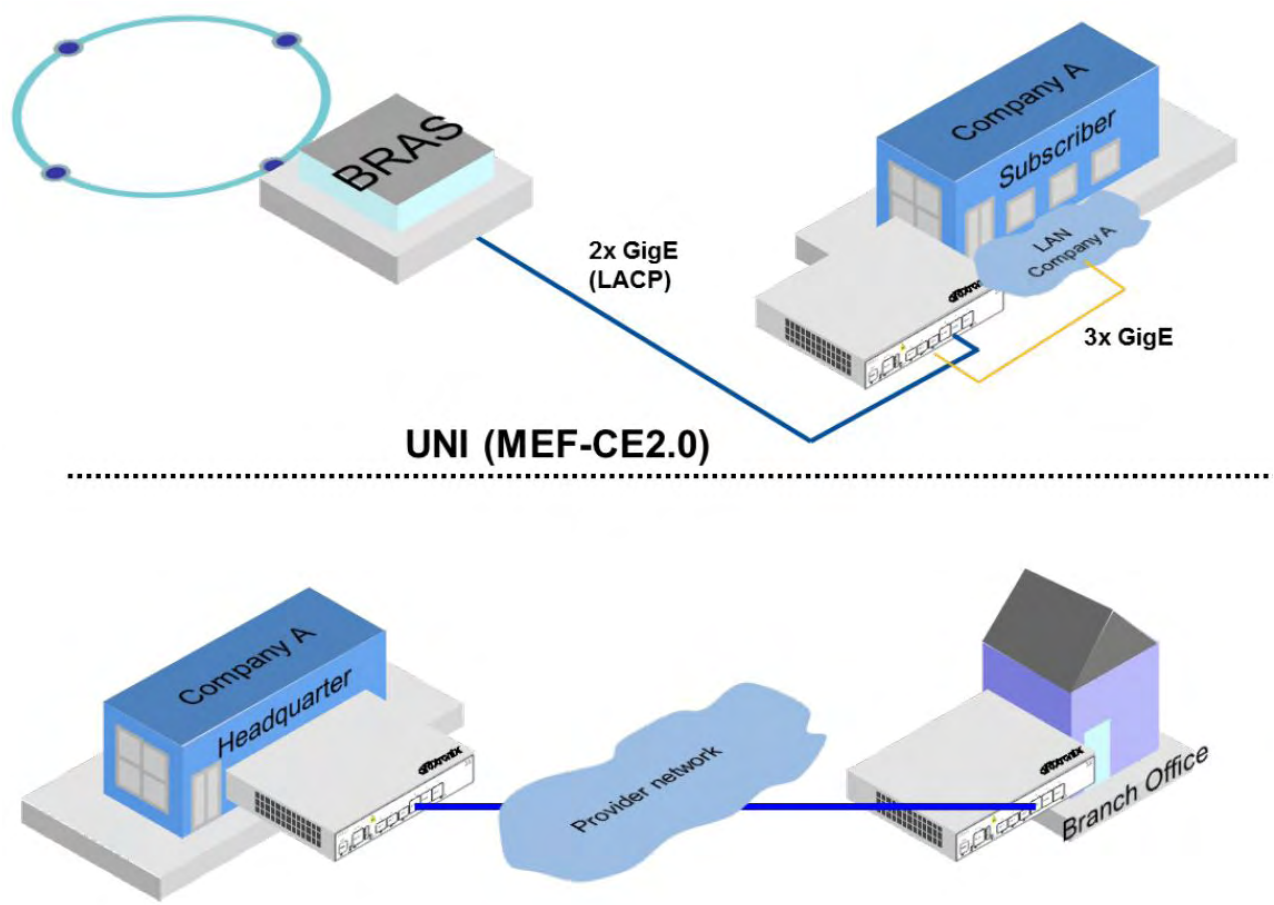
Introduction

The BNX-CE assists network operators to reduce operating expenses, introducing new types of SLA and all together to improve the margin. It is designed to be operated as a MEF-compliant UNI Type2 device.

The BNX-CE offers independent interface and service control. It incorporates Ethernet services as defined by MEF for E-LAN, E-Line and E-Tree. The operations and supervision of device and services can be done by management according to Y.1731 and IEEE802.1ag (OAM functions), IEEE802.3ah (EFM). Configuration management via HTML browser, SNMP and SSH are supported to do local config by end-user as well as remote management by operator. Main focus is on the security of management application to assure safe and non-sniffed communication between the device and the NOC.

Features

- 1x Ethernet port for local management access
  - 1x 10/100BaseT
- Synchronicity to the edge of provider's network
  - ITU-T G.8261 etc.
  - ITU-T G.8271 etc.
  - IEEE 1588-2008
- Implements a fully managed demarcation function between customer network and service provider network (MEF-CE2.0 UNI)
- Redundancy/protection by link bundling (LACP, ELPS) and ring protection (EAPS, ERPS)
- Network management to monitor and manage
  - http(s), SNMPv2c / v3, SSHv2
- Several assembly options
- USB-port for WLAN stick or mobile backup
- Compact design, low power, no fan, ext. PSU



Application Examples

The BNX-CE as CPE device with MEF Carrier Ethernet 2.0 UNI can be used as remote device connected to any B-RAS or BNG. The LACP capability is used for redandancy (MEF compliance) or link aggregation to achieve higher bandwidth towards the customer.

Several user interfaces are available to connect different LANs and departments to seperated ports. Cascading of BNX-CE is possible to increase the number of available LAN-ports or to setup a daisy-chain on a campus.

One of the copper ports can be equipped with PoE (PSE) option to feed an external device e.g. CCTV or IP-phone.

MEF services can be setup to do E-LAN and E-Line for enterprise connections. The BNX-CE is the device to offer these services at the customer's premise.

SyncE and PTP capability brings clock and time/-phase information to the customer and making the last mile carrier grade not only for transport but also for clocking. A LTE base station, placed on top of the branch can be connected or other synchronous devices and PTP-clocks.

Technical Specifications

Ports

Network I/Fs (WAN) & Service I/Fs (LAN/Customer)

- 3x GigE Fibre Ports
  - 1000BaseSX/LX/ZX/BX (SFP)
  - All SFPs supported (SGMII, CWDM, BI-DI, TripleSpeed)
  - Digital Diagnostic Monitor
  - I/F #3 can be operated with 100FX mode
- 3x GigE Copper Ports
  - 10/100/1000BaseT
  - Auto-Neg and MDIO
- I/Fs can be freely configured a sLAN-port, WAN-port, or Cascade
- 2x bundles possible (LACP)
- I/F #6 can be equipped with PoE (IEEE 802.3af) or PoE+ (IEEE 802.3at)
  - Assembly options
  - Device acts as PSE

USB I/F

- 1x USB2.0 Host (Type A)
  - Memory Stick
  - WLAN stick
  - LTE stick (LINE backup)

Serial I/F (Assembly option)

- 1x RS232 (DB-9)
  - Circuit Emulation Service
  - up to 230kbps
  - DCE/DTE mode supported
  - DCE pinning

Management I/F

- 1x 10/100BaseT (RJ45)
  - Local MGMT
  - DHCP-server
  - Auto-negotiation
  - Auto-MDIO

Inband MGMT

- Inband Management via all WAN-Ports possible
- Separate VLAN used

Management

- IPv4, IPv6
- SNMPv2c, SNMPv3
  - Get, set, bulk, traps
  - Up to 16 trap receiver
- SSHv2 & CLI
- TACACS+
- 16 different users possible:
  - 3 authorization levels
  - username / password or SSH-key protection for each account.
- Configuration save/recall (local and/or TFTP/SFTP)

Security

- IEEE 802.1X-2010 (Port based network access control)
- TACACS+ supported
- MAC White Lists
- IEEE 802.1AE (MACSec)
- All management options secured by username/password

Packet-Processing

- Wire speed, non-blocking
- L2-L3 packet processing
- Jumbo frames: 16kBytes
- L2CP tunneling/discard/peer
- IEEE 802.1D Mac Bridging
- IEEE 802.1 Q VLAN Bridging
- IEEE 802.1ax LACP (link aggregation)
- Flow Control
- Multicast/Broadcast storm protection
- 8k MAC-addresses
  - MAC aging enable/disable; aging time configurable
  - Static MAC entries possible
- 4096 active VLANs
  - single tag
  - add / remove / forward
- Granular rate limiting
  - CIR, CBS, EIR, EBS
- Bandwidth policing
  - RFC2697, RFC2698, RFC3290
  - Metering according to RFC 2697, 2698 with single or two rate three colour marking
  - MEF10.2
- LPT/RFD
- MIB2 RMON Performance Counter
- Port Isolation

SyncE

- ITU-T G.8261 – G.8264
- All Ports can be operated in either master or slave mode
  - Device operates completely in synchronous mode
- ESMC messages
- Holdover
  - TCXO optional assembly

PTP / IEEE1588-2008

- Frequency and Time/Phase delivery
  - ITU-T G.8265.1 (Telecom Profile)
  - ITU-T G.8275.1 (Telecom Profile)
- Operation as OC, BC and TC supported

MEF

- Ethernet Service:E-LAN, E-Line (MEF6.1)
- Ethernet Service Attributes (MEF10.2)
- UNI Type1 (MEF 13) and UNI Type 2 (MEF20)
- Service OAM (MEF17, MEF25)
- E-LMI (MEF 16)
- Mobile Backhaul (MEF 22.1)

Indicators

- 17 LEDs to show operational status

Environmental

- Operation
  - ETS 300019-1-3, class 3.2
  - Temperature -5…+70°C
  - Humidity: 10…90%, non-condensing
- enhanced Operation (option)
  - ETS 300019-1-3, class 3.3
  - Temperature -25…+70°C
  - Humidity: 10…100%, condensing
- Transportation
  - ETS 300019-1-2, class 2.3
  - Temperature: -40 …+70°C
  - Humidity: 10…95%, non-condensing

Power

- Supply Voltage: 48 VDC (via ext. PSU)
- Power Consumption: < 20 W, overcurrent protected
  - Total power consumption depends on number and type of used SFPs
- DyingGasp supported

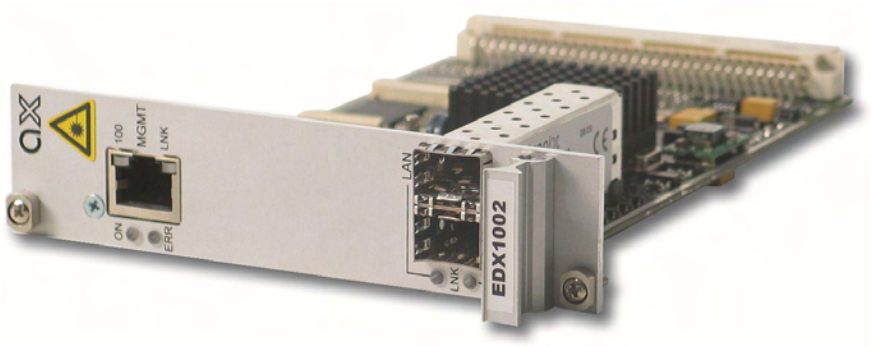
Housing

- Weight: 1 kg
- Dimensions (h x w x d)
  - 45 x 220 x 180 mm

EDX1002sync

Gigabit Ethernet Demarcation

- Hardened version
- Remote flash software update
- SNMP Agent onboard
- Secure configuration via SSHv2 (Secure Shell) terminal
- Permanent remote in-band management
- Compact 3RU design



The EDX1002sync is a fully managed compact Gigabit-Ethernet demarcation device for Synchronous Ethernet applications. arcutronix technology is a powerful way to enable the delivery of high quality broadband services throughout the entire CSA (carrier servicing area). The EDX1002sync offers full local and remote management access to give carrier class performance monitoring and a wide range of SLA settings via SNMP, CLI and web-based management.

Introduction

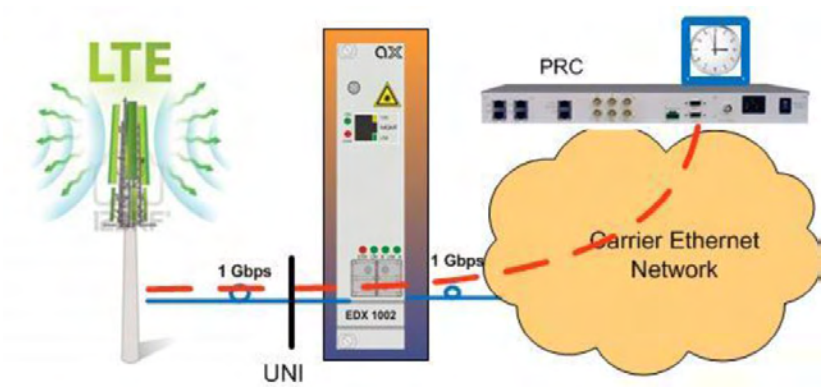
The EDX1002sync is designed as synchronous media converter in provider's network and edge. A wide bunch of different optical interfaces are supported on LAN and WAN side of the unit. All types of GigE-SFPs are supported and so an universal synchronous converter/repeater for wavelength, fibre-mode and distance can be setup. The clocking information provided on the WAN-link can be derived on the EDX1002sync and forwarded to the user port. When acting on the provider's edge the EDX1002sync is terminating the optical Metro Ethernet or EFM-network towards the customer's CPE. Provider's VLAN tagging (acc. to 802.1ad) makes it possible to transparently interconnect networks of different customers and keep full privacy of data traffic. EDX1002sync can be housed in small footprint single-slot housings as well as 19'' racks with central management access.

Features

- Carrier-class Gigabit-Ethernet conversion and optical GbE extension
- 2x GbE network ports for pluggable SFP
- SyncE supported
  - Derive clock from GigE-port
  - Provide clock towards downlink
  - Support ESMC messages
  - Switchover to internal oscillator in case of LOS or bad SSM-level
- SFP transceiver for short, long haul and WDM applications are supported
  - Copper SFP (10/100/1000BaseT) supported
  - No limitation for SFP usage
- Provider Bridge with QinQ support
- Bandwidth Limitation per port
- Performance monitoring on all ports

Application Example

EDX1002sync as Provider's demarcation point to serve a 4G LTE eNodeB. The provider's network is terminated at the UNI and the clock-information is transparently forwarded to the antenna. The media conversion function of the EDX1002sync can be used to adopt the distance to a short-length on the antenna side and a long distance towards the network.



Technical Specifications

Network I/F (WAN)

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

Service I/F (LAN)

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

Features

- Synchronous Ethernet
  - LAN port is synchronous to WAN port
  - No packet loss due to frequency mismatch
  - Mobile backhaul support
- 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 (>1518Byte) supported

Management

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

Environmental

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

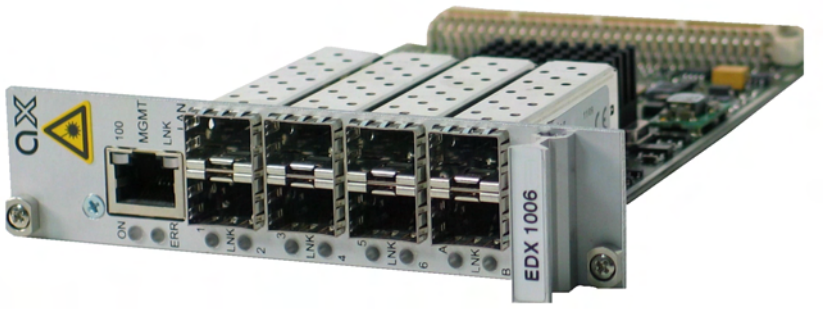
Physical

- 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

EDX1006sync

Gigabit Ethernet Demarcation

- Provider Bridge with QinQ support
- Bandwidth Limitation per port
- Performance monitoring on all ports
- Hardened version
- Remote flash software update
- SNMP Agent onboard
- Secure configuration via SSHv2 (Secure Shell) terminal
- Permanent remote in-band management



The EDX1006sync is designed as synchronous media converter and aggregation devices in provider's network and edge. A wide bunch of different optical interfaces are supported on LAN and WAN side of the unit. All types of SFPs are supported and so an universal synchronous converter/repeater for wavelength, fibre-mode, distance and speed can be setup. The clocking information provided on one WAN-link can be derived on the EDX1006sync and forwarded to all the other ports.

Introduction

The EDX1006sync is a fully managed compact Gigabit-Ethernet demarcation and aggregation device for Synchronous Ethernet applications. arcutronix technology is a powerful way to enable the delivery of high quality broadband services throughout the entire CSA (carrier servicing area). When acting on the provider's edge the EDX1006sync is terminating the optical Metro Ethernet or EFM-network towards the customer's CPE. Provider's VLAN tagging (acc. to 802.1ad) makes it possible to transparently interconnect networks of different customers and keep full privacy of data traffic.

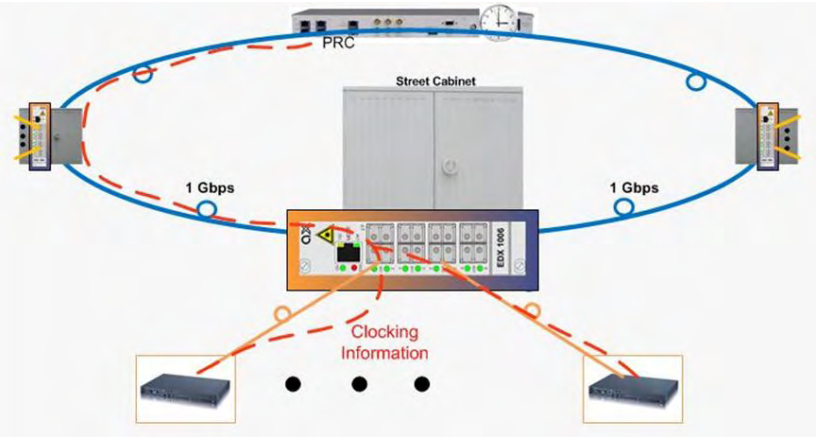
The EDX1006sync offers full local and remote management access to give carrier class performance monitoring and a wide range of SLA settings via SNMP, CLI and web-based management. EDX1006sync can be housed in small footprint single-slot housings as well as 19" racks with central management access.

Features

- Carrier-class Gigabit-Ethernet conversion from
  - 10/100/1000BaseT to 1000Base-X or
  - 100BaseFX to 1000Base-X or
  - optical GigE extension or
  - optical GigE media conversion
- 2x GbE network ports for pluggable SFP
- 6x FastE network ports for pluggable SFP
- SyncE supported
  - Derive clock from GigE-port
  - Provide clock towards downlinks
  - Support ESMC messages
  - Switchover to internal oscillator in case of LOS or bad SSM-level
- SFP transceiver for short, long haul and WDM applications are supported
  - Copper SFP (10/100/1000BaseT) supported
  - No limitation for SFP usage
- Compact 3RU design

Application Example

EDX1006sync as part of a synchronous ring. The device extracts the clock information and distributes it towards its clients, e.g. remote MSAN. The provider's network is fully synchronous and the clock-information is transparently forwarded to the clients. The media conversion function of the EDX1006sync can be used to adopt the distance and fibre-mode on all interfaces.



Technical Specifications

Network I/F (WAN)

- 1(2) x 1000Base-X
  - Pluggable SFP types

Service I/Fs (LAN)

- 1 x 1000Base-X
  - Pluggable SFP types
- Connector: SFP 6 x 100BaseFX
  - Pluggable SFP types

Features

- Synchronous Ethernet
  - LAN ports synchronous to WAN port
  - No packet loss due to frequency mismatch
  - Mobile backhaul support
- 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

Management

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

Environmental

- 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: +5 VDC via Backplane
- Power consumption: < 10 VA, 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

ENX-F

Synchronous Ethernet Network Device

- ENX-F brings synchronicity to the edge of provider's network
- ITU-T G.8261 etc., G.8271 etc., G.823
- IEEE 1588v2 (PTP)
- BITS (T3) input
- 1pps and BITS (T4) output for sync of slave devices
- Jumbo Frames (>10k) supported
- Functions cover current and future access network requirements

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.

Introduction

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 Clock (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.

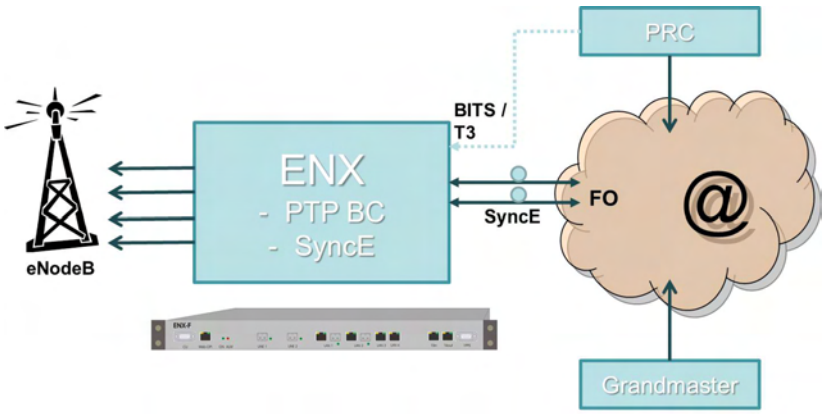
It incorporates Ethernet operations management according to Y.1731 (OAM functions), 802.1ag and 802.3ah (EFM), configuration management via HTML browser, via SNMP and SSH.

Features

- 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
- 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
- Redundant AC (110/230V) and DC power supply
- 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.



Technical Specifications

Network I/F (WAN)

- 1-2 x GigE Combo-Ports
  - 1000BaseSX/LX/ZX/BX (SFP types)
  - 10/100/1000 BaseT (RJ45)
  - Auto Negotiation, Auto MDIX
  - SyncE-Slave
  - PTP Hardware Time-stamps

Service I/F (LAN/Customer)

- 4-5 x GigE Combo-Ports
  - 1000BaseSX/LX/ZX/BX (SFP types)
  - 10/100/1000 BaseT (RJ45)
  - Auto Negotiation, Auto MDIX
  - SyncE-Master
  - PTP Hardware Time-stamps

Timing Interfaces

- T3-input (BITS) acc. ITU-T G.703 (T12)
- T4-output acc. ITU-T G.703 (E12 or T12)
- T4-output in E12-mode: Multiframe acc. ITU-T G.704
- 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: -40 to +70°C
- Storage: -35 to +55°C
- Humidity: < 100% (30°C), non-condensing

Power

- Consumption: < 20 VA
- Input AC
  - Voltage: 110-230 VAC (+/- 10%)
  - Connector: IEC 60320-C14
- Input DC
  - Voltage: -48V / -60 VDC (+/- 20%)
  - 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

CSX family

G.SHDSL.bis and EFM Copper modems: 1, 2 or 4 wire-pairs

- Ethernet Bridge with auto negotiation and VLAN support (IEEE 802.1Q)
- Supports data rates from 192 kbps up to 20 Mbps
- Reliable performance even on noisy transmission lines with poor quality
- Plug-and-play installation
- Compact 3RU rack mount card and desktop version

The CSX product family provides symmetrical high speed transmission on copper lines, based on G.SHDSL. It offers cost-efficient, flexible and reliable services for SME and SOHO customers as well as in campus applications. The CSX family is fully-managed and can be operated in a chassis as well as in a desktop housing. G.SHDSL is the best solution to quickly provide cost-effective, high-speed network service for users who need symmetrical connections.

Introduction

Several different user interfaces can be ordered to provide solution from Internet access (Ethernet/ EFM) to legacy services as machine-to-machine applications (V.24). The DSL side of the CSX-family is using standard telephone lines for transmission. Up to 4 wire-pairs can be bundled to achieve data rates of up to 20Mbps across several kilometers. A regenerator is available to extend the operating distances massively.

Inband management of remote units makes supervision and configuration very easy and comfortable. Together with the management of the chassis, web-GUI, SNMP and ssh/telnet is available to integrate the devices into the NOC.

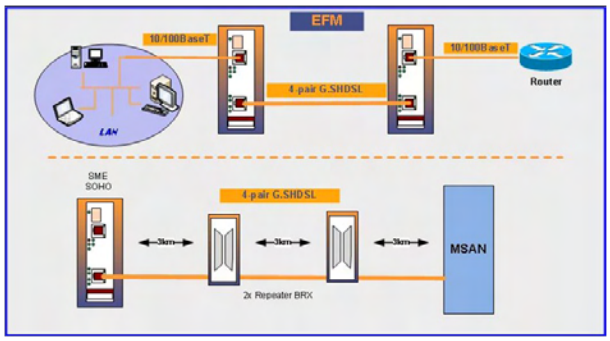
By utilizing the existing telephony infrastructure, the installation is simple and cost-efficient. With up to 20 Mbps full duplex speed IP telephony, web hosting and various broadband services can be easily provisioned.

Features

- Enabling Internet or legacy service in any telephone infrastructure over 1/2/4 wire-pairs
- TC-PAM16 or PAM32 line coding
- Typical transmission range on AWG26 (0.4mm) cable with 13.5dBm line power is 4km @2,304kbps, noise free environment
- SHDSL regenerator available
- Selectable user interfaces:
  - IEEE 802.3 10/100BaseT (ComboPort)
  - V.24 (D-Sub25)
- Remote in-band management
- SNMPv2c, SNMPv3, Web-GUI (http),SSH VT100 management options
- Performance monitoring
- Diagnostics, like test loops and integrated BERT

Application Example

Extended distances to interconnect IP-services. Either in modem/campus scenarios (above) or in a telecom installation with MSAN as line termination (below). The optional usage of regenerators allows very long distance transmission. The combo Ethernet port offers media conversion from fibre (local) to copper (long haul), which is useful in hash environments.



Technical Specifications

Management

- Remote in-band management via EOC channel of SDSL data stream
- SNMPv2c, SNMPv3, SSH and Web-GUI via SCX2e system controller
- VT100 in SHX3 system housing (desktop)
- Remote flash update
- Performance monitoring for all interfaces

Supervision

- Performance monitoring for all interfaces
- Internal BERT and loops for quick diagnostic and failure location

Environmental

- Operating: -33 to +70°C (ETS300 019-1-4; class4.1)
- Transport: -40 to +70°C (ETS300 019-2-1; class2.3)
- Storage: -25 to +55°C (ETS300 019-2-2; class1.2)
- Humidity: 10 to 90%, non-condensing
- Safety-Norm: according to EN60950

EMC

- Emission: EN55022 class B
- Immunity: EN61000-4-3 10V/m

Physical

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

G.SHDSL line interface

- EFM acc. IEEE 802.3 and ITU-T G.998.2
- G.SHDSLbis acc. to ITU-T G.991.2, Annex F/G
- SDSL acc. to ETSI TS 101 524 V1.2.1 and V1.2.2
- Line Code: TC-PAM 16/32
- Data rate per pair: up to 5.7Mbps
- 1, 2 or 4 wire-pair variants available
- Automatic channel bundling (2 and 4 pair variant)
- Connector: RJ45; Impedance: 135 Ohm
- Synchronous and plesiochronous mode supported
- Modes: STU-C and STU-R (configuration via management)
- Typical transmission range on 26 AWG (0.4mm):
  - 4,0km (no noise)
  - 2,8km (Telekom noise)

User interfaces

- Ethernet: IEEE 802.3 10/100BaseT and 100BaseFx
  - Ethernet Bridge IEEE 802.1d
  - VLAN support IEEE 802.1Q
  - Auto-Cross-Over on RJ45 port
- Datacom: V.24 (DCE and DTE mode)

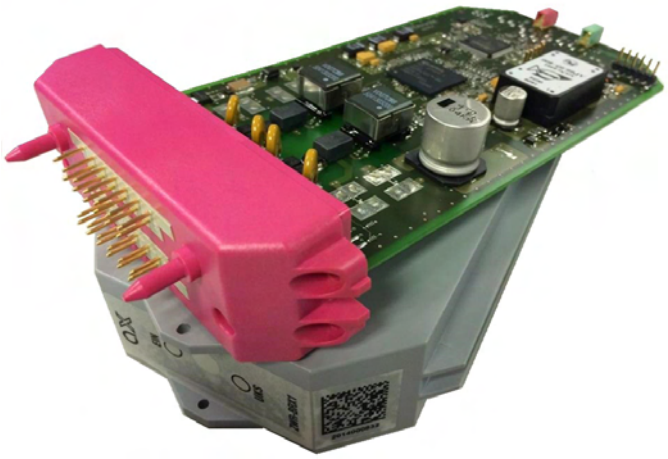
Power

- Supply Voltage: +5 VDC via Backplane
- Power Consumption: < 5 VA, overcurrent protected
- Voltage/Lightning Protection: acc. ITU-T K.20/K.21
- Power supply via system rack SRX or housing SHX

BRX1

2-wire SHDSL EFM regenerator

- Ethernet First Mile (EFM) regenerator
- Data rate from 192 kbps up to 5696 kbps
- Line bundling capable
- Can be used in SyncE and IEEE1588
- Vendor independent - operates with any trans-misson device
- Full support of standard EOC commands



The BRX1 is a fully-managed and easy to install and operate SHDSL EFM regenerator. The BRX1 is used for extending the reach of SHDSL lines for Ethernet First Mile (EFM) transmission. Due to its multivendor-capability the regenerator can operate with any transmission device at LT and NT side.

Introduction

The BRX1 will be installed between a LT, mostly a Multi Service Access Node (MSAN) at an exchange location or a curb, and the SHDSL CPE (Customer Premises Equipment) at NT side (Network Termination). For the extension of lines several regenerators can be installed in each line. The BRX1 is a hardened device and can be used in non climate controlled locations. In case of EFM line bundling several BRX1 can be used (# BRX = # line bundling).

The BRX1 can be fully integrated into the management of MSAN devices of different vendors via standard EOC channel information.

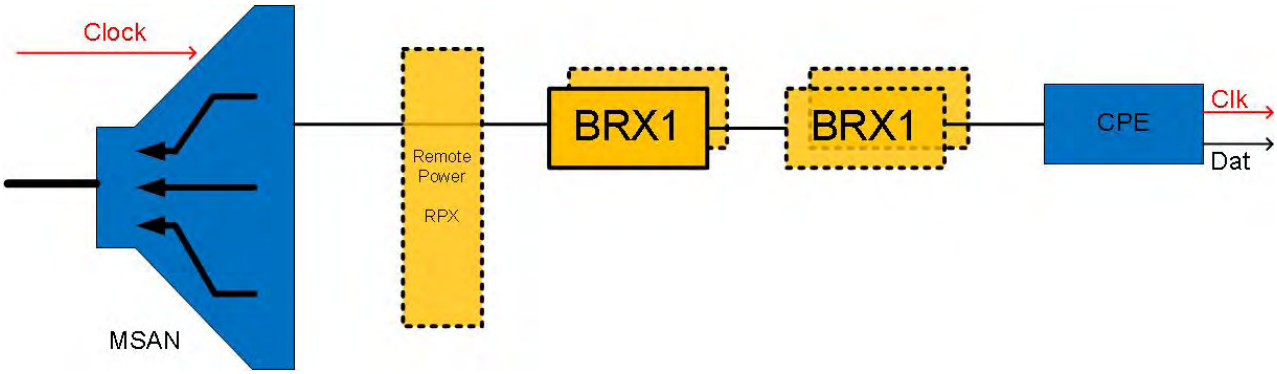
A remote software download to the BRX can easily be done via EOC channel either via MSAN or the arcutronix download device BRX-DL.

The BRX1 can be fed locally or remotely from the MSAN location.

The RPX16 powering device by arcutronix can be connected between MSAN and BRX to feed up to two BRX remotely per line. The first BRX in the line will fully automatically forward the power feeding to the second BRX if enough power is available. Other devices than regenerators will not be fed (automatic regenerator detection). No setting via jumper is needed.

Features

- Multi repeater use
- Local (-48/-60V) and remote power feeding (115V) support
- Automatic power forwarding in case of remote power feeding
- Extended climatic conditions
- Fits into standard regenerator slots
- Software upgrade via standard EOC channel



Application Example

BRX1 used as line extension from MSAN to EFM CPE. Remote power of BRX, line bundling and doubled extension with two regenerators is possible.

Technical Specifications

SHDSL line

- 2-wire SHDSL interface
- Line code: 16 TCPAM; 32 TCPAM; auto-detect
- Number of interfaces: 2 (MSAN site and CPE site)
- Data rate: from 192 kbps up to 5696 kbps
- Line impedance: 135 Ohms
- ITU-T G.991.2 / ETSI TS 101524

Display functions

- 1 green LED for system, operating and error status
- 1 red LED for activation, status and error

Product safety

- Electrical security: EN 60950
- Sound emission: none
- CE confirmity

Environmental

- Operation:
  ETS 300019-1-4, class 4.1
  Temperature: -40 …+70°C
  Humidity: 10 … 100%, non-condensing
- Transportation:
  ETS 300019-1-2, class 2.3
  Temperature: -40 … +70°C
  Humidity: 10 … 95%, non-condensing

Power

- Local power: -40V … -72V
- Remote Power: 55V … 115V
- <1.8W@Remote Power
- <2.2W@Local Power

Physical

- H x W x D: 34 mm x 110 mm x 215 mm
- Weight 300 g

RPX16

Remote Power Feeding Unit 16 lines

The RPX16 is a fully managed device! Several protocols can be used for configuration and monitoring. A Web-based GUI allows a user-friendly interface and SSH-CLI can be used for more automatic processes. Via SNMP the integration in other management systems can be done easily!

Introduction

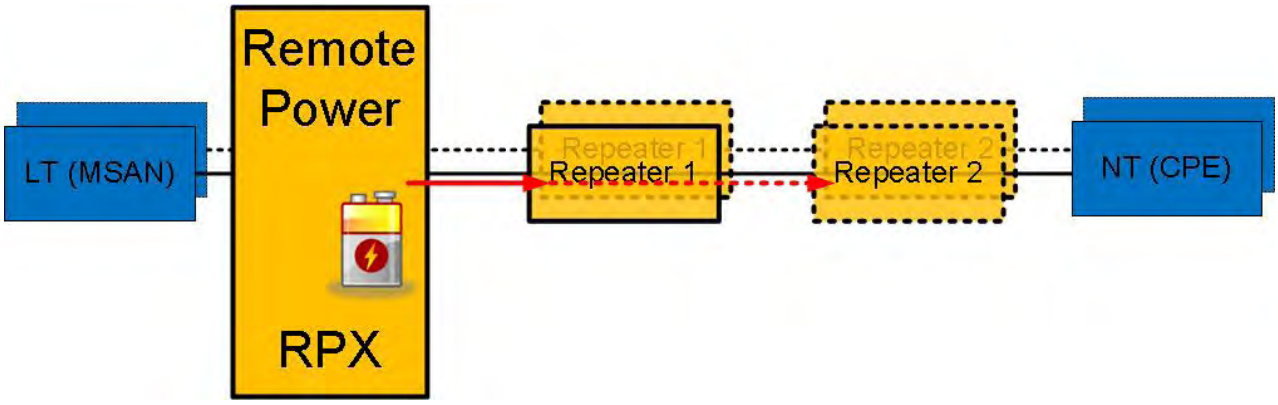
The Remote Power Feeding Unit RPX16 is an easy to install device for feeding remote DSL repeaters over up to 16 twisted pairs. The RPX16 is placed between Central Office equipment (eg Multiservice Access Node MSAN) and the repeater(s) in the field. The application could easily extend (by software upgrade) to other applications as well (e.g. feeding of CPE, Fibre optic locations…)

Each of the 16 remote feeding lines offers a capability of 115VDC and up to 60mA which is round about 7W per line.

Each line is individually supervised and monitored if controlling voltage and current is within the given limits. Short circuit and over voltage are also monitored. In case of detected errors, the line is automatically shut-down to prevent dangerous situations and damages.

Features

- Remote Power Feeding of 16 independent DSL lines
- 7 W feeding power per line
- 1 HE for installation in standard ETSI and 19 inch racks
- Management via local Web GUI, SSH-CLI and SMP
- Remote Power Feeding of other applications prepared



Application Example

Feeding of up to 16 (32) repeaters with Remote Power Feeding Unit RPX16.

Technical Specifications

SHDSL Feeding Line

- 16 x 2-wire SHDSLin and 16 x 2-wire SHDSLout interfaces
- Feeding voltage: 115V
- Feeding current up to 60 mA (short term 70 mA)
- Very small insertion loss for DSL signals
- Current and Voltage supervison
- Security Shutdown < 10ms

Management Interfaces

- Local Management: 10/100 BaseT
- Remote Management: 10/100 BaseT
- Cascading Interface: 10/100 BaseT
- IEEE 802.3 (full- and half-duplex, Autonegotiation)

Management Protocols

- WebGUI (http, https)
- SNMPv2c, SNMPv3 (get, set, bulk, trap)
- SSHv2 for console port
- NTPv3, NTPv4
- TACACS+
- IPv4, IPv6
- 16 different users possible:
  - 3 authorization levels
  - username / password or SSH-key protection

Product safety

- Electrical safety: EN60950
- Sound emission: none (no fans)
- CE confirm

Environmental

- Operation: ETS 300019-1-3, class 3.1
  - Temperature -5…+55°C
  - Humidity: 10…90%, non-cond.
- Transportation: ETS 300019-1-2, class 2.3
  - Temperature: -40 …+70°C
  - Humidity: 10…95%, non-cond.

Power

- Voltage: -40…-72 VDC
- Current: <4,0 A

Physical

- H x W x D: 44mm x 433 mm x 210 mm
- Weight 2,7 kg
- Mounting angles for ETSI and 19” racks
- All front connections

AIEx

Alarm Extender

The AIEx (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.

Introduction

The AIEx 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.

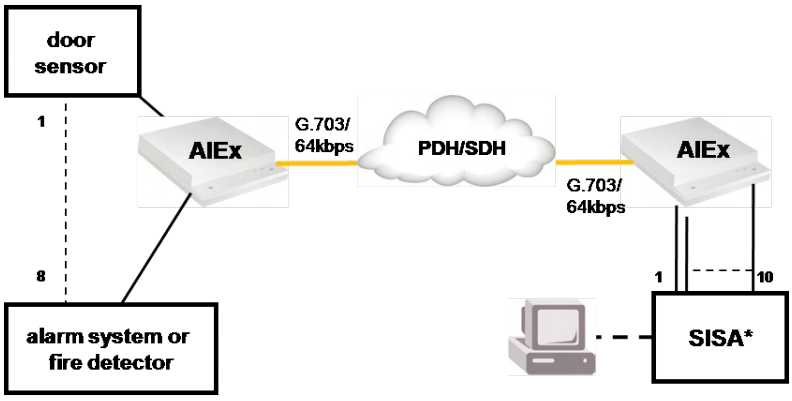
The AIEx can also be used to ex¬pand the number of I/O ports of a modular IP Security Access Device I-SAD 19”-family.

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 (48 VDC … 230 VAC)
- Form factor: Desktop housing with wall mounting capability

Application Example

Transmission of up to 8x various alarm signals/ switching opera¬tions 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.



Technical Specifications

PDH I/F

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

I/O I/F

- 8x parallel I/O ports
  - 8x galvanic isolated Inputs
  - 8x bi-stable 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 mono-stable 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

- 48 VDC – 230 VAC, 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 19" & I-SAD 19"-S

Modular IP Security Access Device

- Free editable READ/WRITE communities
- Connection of Temperature and/or humidity sensors
- Additional remote – switch on unit optional available
- Line redundancy via optional GSM/GPRS transmission (when MGSM module equiped)

The I-SAD 19" & I-SAD 19"-S enables a remote control center to manage and supervise various in- and output criterias from subsidiaries.

Introduction

The I–SAD 19″ & I-SAD 19"-S device are modular telecontrol systems that transmit alarm signals, and telemetry data to a dedicated central network management center. The transport is via copper or fiber optic lines. For redundancy, the network connection can also be realized via GPRS (GSM) wireless link.

Two slot for different interface modules are available for connection to various alarm systems, fire detection systems, sensors or other similar devices over parallel inputs and for signalling on parallel outputs. The integrated switch on the I-SAD 19"-S provides VLAN functionality.

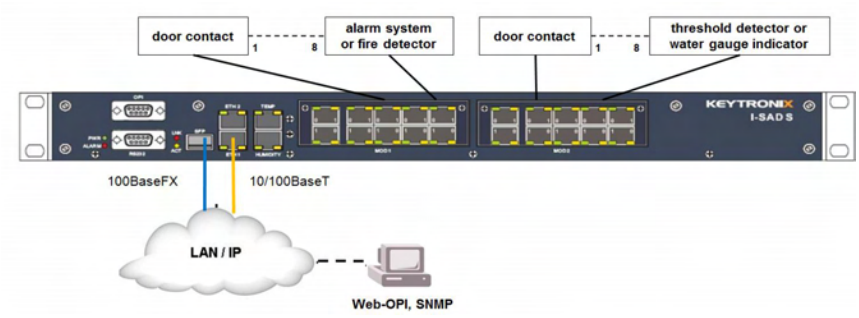
The built-in asynchronous RS-232 interface provides access to third party equipment. The management of the I–SAD 19″ devices is realized by SNMP, integrated WEB-server and WEB Operator Interface (WEB-OPI) or local CLI.

Features

- up to 2x 10/100 BT network interfaces
- 1x 100FX network interfaces (SFP)
- 2 slots for different interface modules
- Up to 16 parallel I/O ports per module
- Enables access to third party equipment via asynchronous RS232 port
- Management options: SNMP, DHCP client, WEB-GUI, local CLI
- Up to 3x destination addresses for SNMP-traps are settable
- Free editable READ/WRITE communities
- Integrated wide range power supply (48V DC … 230 V AC)
- Form factor: EIA19″, 1RU
- Number of I/O can be increased by using of external Alarm Extender (AlEx)

Application Example

I-SAD 19" & I-SAD 19"-S enables a remote control center to manage and spervise various in- and output criterias from subsidiaries.



Technical 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 specifi equipment)
  - top and bottom threshold settable; analog indication
  - Connector: RJ45

Other Service Modules according to the following overview

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)
  - Asynchromous RS232
  - Transfer rate: 115k2/8/N/1 (default)
  - Connector: D-SUB9 (female)
- RS232 I/F (connecting third-party-system)
  - Asynchromous RS232
  - Transfer rate: 115k2/8/N/1 (default)
  - Connector: D-Sub (female)
  - Port specific IP address settable
- Access to third-party systems via Telnet

Switch

- VLAN functionality
- 64 VLAN entries

Environmental

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

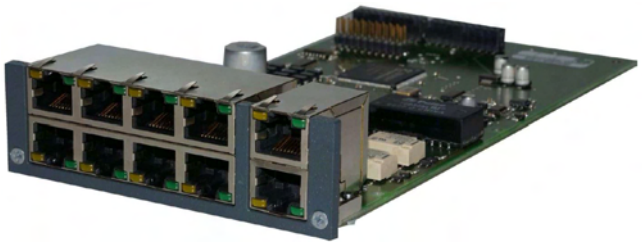
Power

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

Physical

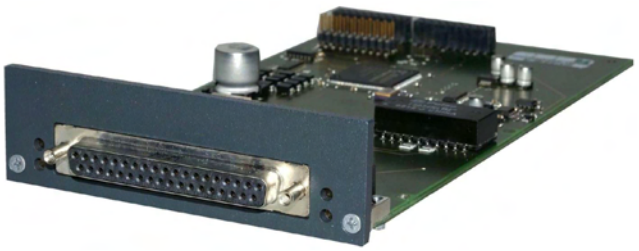
- Weight: 2.0kg
- Dimensions (H x W x D):
  - 45mm x 440mm x 205mm
- Form factor: EIA 19", 1RU

I-SAD MI/O Module - 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
  - Standart: ITU-T G.703
  - Data rate: 64 kbps, codirectional
  - Impedance: 120 Ohm
  - Connector: 1x RJ45

I-SAD MI 16 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 contact
  - 2x parallel Outputs (potential-free)
- PDH port
  - Standart: 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 entrysensor ports (position of door eopener - open/closed)
- Connector: 4x RJ45
- For vendor specific peripherals only!

External peripherals can be connected via RJ12 connectors

I-SAD M 8-SEN - Specification

- 8x Sensor Input (RJ45)
  - Connect to I-SAD TS
  - Connect to I-SAD HS
- Pluggable module for I-SAD 19"-S

I-SAD Humidity Sensor (HS) - Specification

- Humidity range: 10%...90% (20°C ± 5%)
- Connecting cable lenght: 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
- Dimension: 55,2(W) x 25,1(H) x 30,0(D) mm

I-SAD Temperature Sensor (TS) - Specification

- Temperature range: -20°C...+70°C
- Resistance value: 10 kOhm (25°C ± 3%)
- Connecting cable lenght: 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
  - Temperature: max. 80%, non-condensing
- Dimension: 55,2(W) x 25,1(H) x 30,0(D) mm

SPX100

AC and DC System Power Supply for 19" system rack

Introduction

All arcutronix rack mount cards inside the 19” system rack are supplied via rack backplane and system rack power management.

The intelligent SRX power management is a power share bus indicating the available power left to feed the rack mount cards. This allows protecting running services and an effective utilization of the power supply capabilities.

The SPX100 System Power Supplies are part of the arcutronix Multi Service Platform and designed for installation into arcutronix 19” system rack SRX.

Each system rack has 2 slots for redundant power supply. It can be equipped with AC or DC power supplies to fit into typical telecom as well as in other application scenarios. Redundancy (AC + AC, DC + DC or AC + DC) gives security and carrier class availability.

Technical Specifications

Electrical

- SPX100-AC:
  - Supply voltage: 110/240 VAC, 100 VA
  - Frequency: 50 Hz
  - Supply current: < 2.0 A
  - Inrush current: < 10 A
  - Output: 5 VDC / 20 A
  - Fuse, type: T2.5A; 250V
- SPX100-DC:
  - Supply voltage: 48…72 V DC, 100 W
  - Supply current: < 3.5 A
  - Inrush current: < 10 A
  - Output: 5 VDC / 20 A
  - Fuse, type: 4 A T

Features

- Redundancy-capable (int)
- Hot swappable
- Single voltage: 5 VDC, 20 A
- Mains supply: -48 V DC or 115/230 V DC
- 8HP panel
- 3RU rack mount card

Environmental

- Operating: +0 to +70°C
- Storage: -30 to +80°C
- Humidity: 10 to 90%, non-condensing

Physical

- Dimensions:
  - Height: 133,35 mm (3RU)
  - Width: 40,64 mm (8 HP)
  - Depth: 390,00 mm
- Weight: 0,6 kg

SHX3

System Housing

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.

Introduction

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.

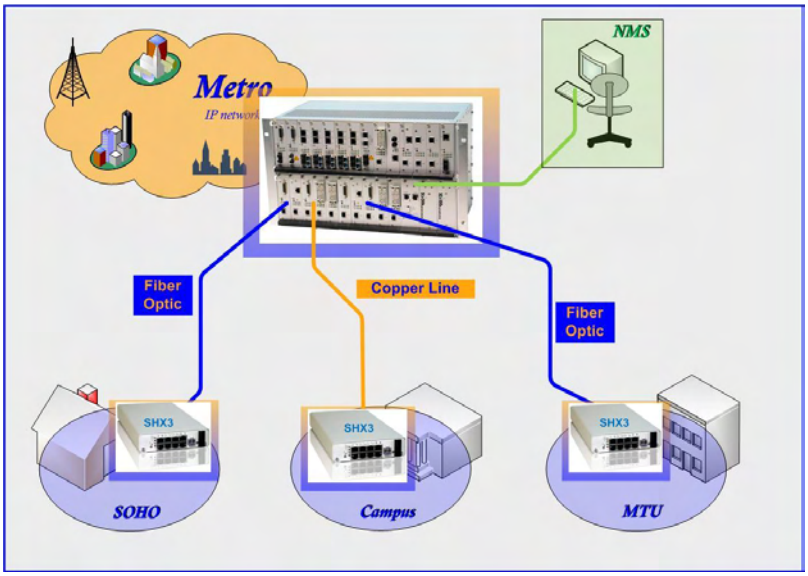
Features

- 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:

  48 VDC …110/230 VAC
- Outdoor operating temperature capability:
  - -20 … +70°C (some variants only up to +65°C)
- 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.



Technical Specifications

Capacity

- SHX3-10W / SHX3-15W
  - 1x 3RU line-card
- SHX3+1:
  - 2x 3RU line-card

Local Management I/F

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

Alarm-Contact

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

Environmental

- Operating: -20 to +70°C (some variants up to +60°C)
- Storage: -35 to +55°C
- Humidity: < 100% (30°C), non-condensing

Power

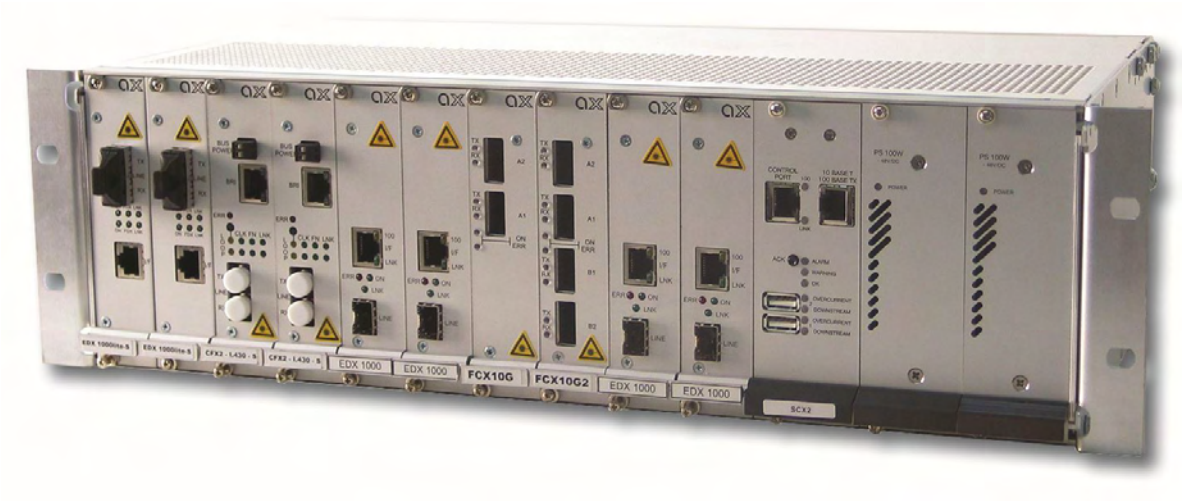
- Maximum power for line-cards available:
  - SHX3-10W: 10 VA
  - SHX3-15W: 15 VA
  - SHX3+1: 15 VA
- Input: AC or DC
  - -48 VDC/ -60 VDC (+/-10%)
  - 110-230 VAC
  - RF-variant: 190 VDC remote power
- Connector: IEC60320 - C14

Physical

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

SRX10

System Rack 3RU Height, ready for Remote Power Feeding



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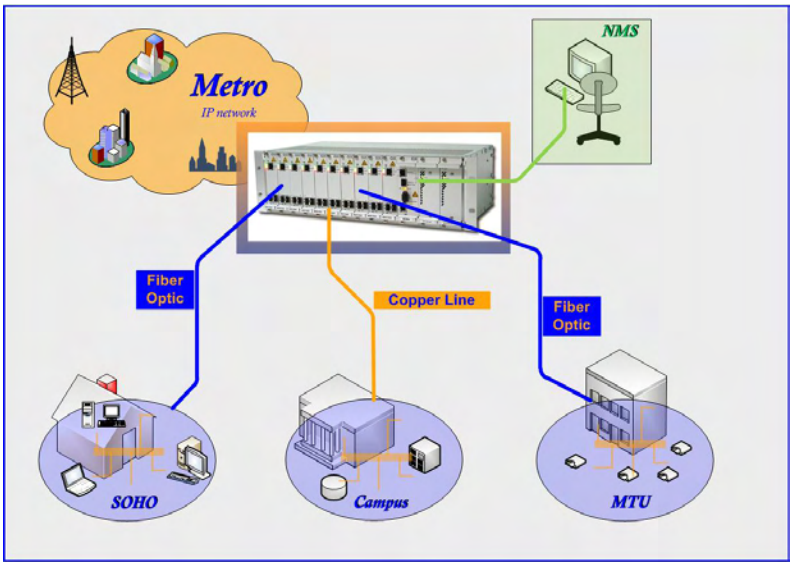

Technical Specifications

Capacity

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  - 1x 3RU line-card
- SHX3+1:
  - 2x 3RU line-card

Local Management I/F

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

Alarm-Contact

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

Environmental

- Operating: -20 to +70°C (some variants up to +60°C)
- Storage: -35 to +55°C
- Humidity: < 100% (30°C), non-condensing

Power

- Maximum power for line-cards available:
  - SHX3-10W: 10 VA
  - SHX3-15W: 15 VA
  - SHX3+1: 15 VA
- Input: AC or DC
  - -48 VDC/ -60 VDC (+/- 10%)
  - 110-230 VAC
  - RF-variant: 190 VDC remote power
- Connector: IEC60320 - C14

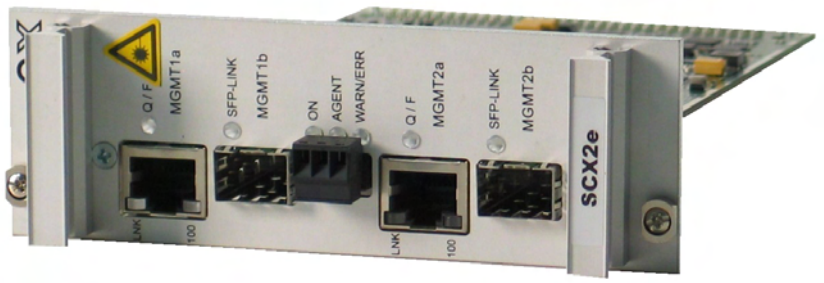
Physical

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

SCX2e

System Controller & SNMP Agent

- 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



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

Introduction

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

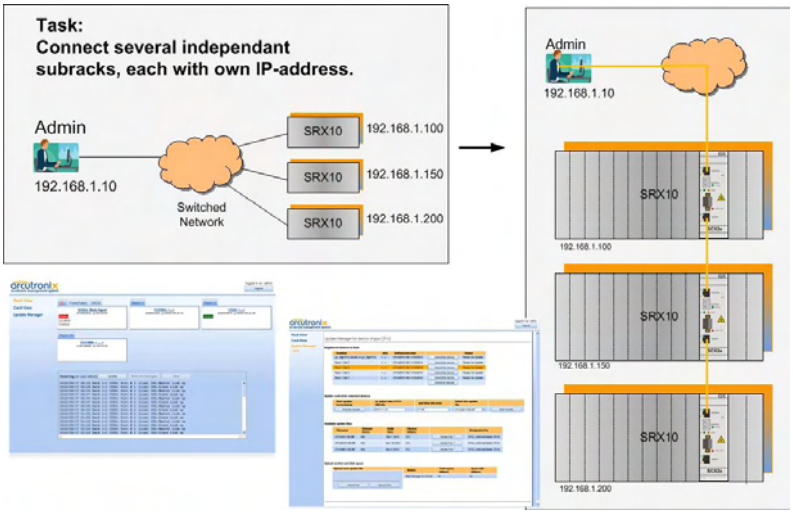
- Various management access options: SNMPv2c, SNMPv3, Web-GUI, SSH
- Power and Fan control functionality
- SNMP trap-signalling in case of local or remote status changes
- Enhanced Alarm Management handling
- Configuration handling
- Auto-Discovery of plugged line-card and system rack types
- Alarm relay – 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.



Technical Specifications

10/100BaseTx port

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

Combo-Port (Copper and/or FO)

- 1 x 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: 5 VDC 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

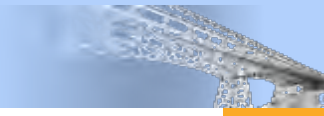
Physical

- 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

Our Partners



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