

AXX 11

Integrated Broadband Access Device with an excellent cost-benefit ratio

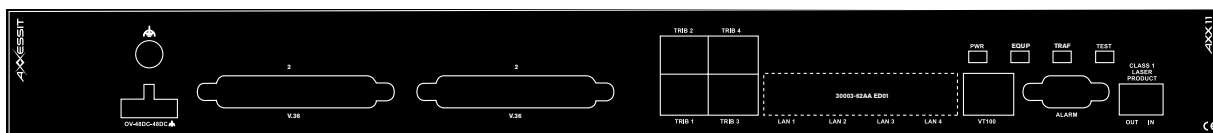
The AXX11 is an Integrated Access Device for use in fibre optic networks. AXX11 combines Ethernet/IP traffic, legacy data traffic and E1 traffic over SDH. The different kinds of traffic are mapped into VC-12 containers, and carried side by side in an STM-1 aggregate link. The device has two legacy data ports with V.36 physical interface. By external adapter cables, V.35 and X.21 interfaces are also supported.

The bandwidth of the IP-channel is configurable from 2Mbit/s to 100Mbit/s "wire-speed" in steps of 2Mbit/s, the carrier gets the flexibility to serve customers' needs, while transporting only the number of VC-12s actually containing traffic and being allocated to the customer.

Each E1 interface, up to 4, is mapped into a VC-12 container while the Ethernet traffic is mapped into a configurable number of VC-12 containers.

The two data ports support line-rates from 64 kbps to 2 Mbps in step of 64 kbps ($N \times 64 \text{ kbit/s}$ with N equal to all integer values from 1 to 32). It is possible to individually set the line-rate for the two data ports.

AXX11 is used in conjunction with AXXEDGE or AXX155A, and is not a standalone SDH network element (NE). It provides an overall low cost connection of end users. The AXX11 is managed remotely, via AXXEDGE or AXX155A, by a management system that supervises both the IP- and TDM-parts of the unit. However, the AXX11 is provided with a RS232 interface for local supervision.



Interface view

Main benefits

Price/performance:

AXX11 is a compact and flexible IAD and together with AXXEDGE or AXX155A, it provides a powerful and low cost concept for end user connections.

Flexibility:

AXX11 offers great flexibility by combining Ethernet/IP, E1s and data ports. All customer interfaces are based on open standards. Existing infrastructure is utilized optimally by the flexible VC-12 allocation. AXX11 will aid the process to obtain a simple, powerful and cost-efficient network.

Granularity:

Provisioning of IP bandwidth is obtained by using a number of VC-12 containers (1 to 50) in an inverse multiplexing scheme.

Density:

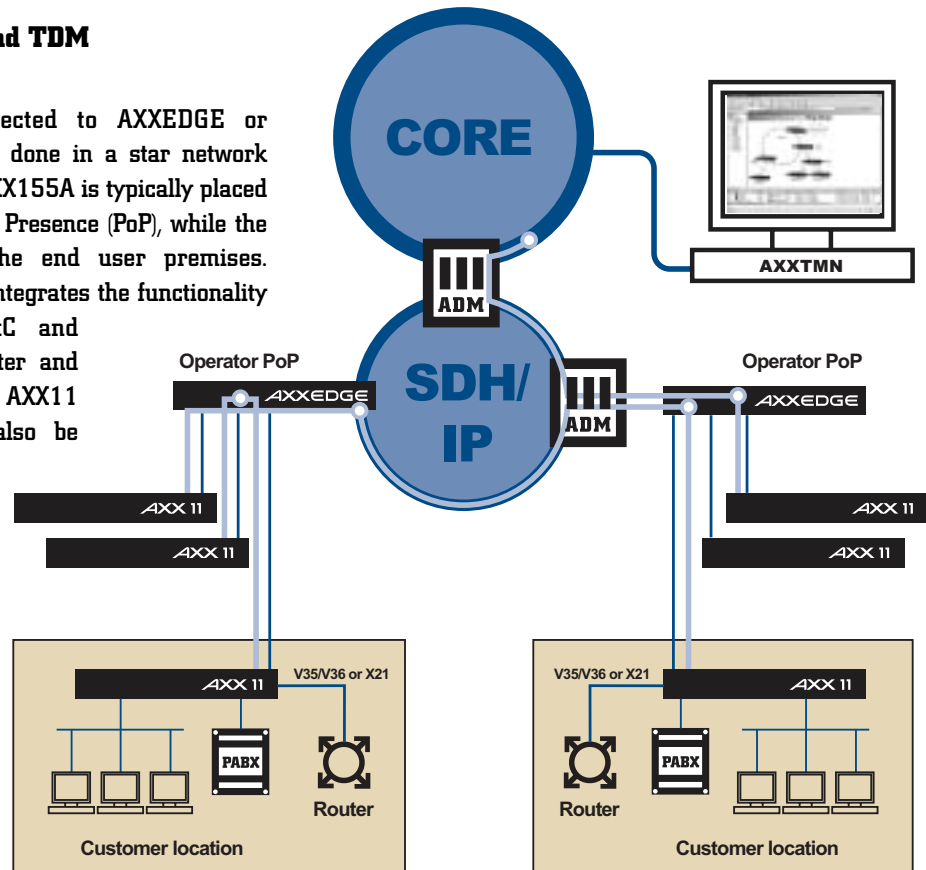
AXX11 is a compact device, providing high port density per unit, which means four times Fast Ethernet, four times E1 and two times V.35, V.36 or X.21. All this in 1RU.

SYSTEM ARCHITECTURE

Application

Provisioning of IP- and TDM traffic for end users

AXX11 must be connected to AXXEDGE or AXX155A. Connection is done in a star network topology. AXXEDGE or AXX155A is typically placed in the operator's Point of Presence (PoP), while the AXX11 is placed at the end user premises. AXXEDGE or AXX155A integrates the functionality of an SDH-ADM, -DxC and Ethernet/IP switch/ router and can consolidate up to 24 AXX11 units. AXXEDGE may also be used as a drop-shelf that is connected to an external ADM. Some examples of traffic connectivity are indicated by light blue lines in the figure.



Interfaces

Aggregate	TDM	IP	Data Ports	Miscellaneous
<p>One optical STM-1 interface</p> <p>Short haul two fiber</p> <p>G.826 performance monitoring at RS, MS, VC-4 and VC-12 level</p>	<p>4x2Mbit/s interfaces</p> <p>G.703 Transparent leased line or ISDN PRA mode supported</p> <p>Two test loops provided (towards customer or towards network)</p>	<p>4x10/100BaseTX Ethernet interfaces</p> <p>Both 10Mbit/s and 100Mbit/s are supported with auto-negotiation</p> <p>COS based on IEEE 802.1p priority and DiffServ TOS bits</p> <p>Rate limiting</p> <p>Auto crossover</p> <p>Support of up to 1024 MAC addresses</p>	<p>2x nx64kbit/s interfaces</p> <p>Interfaces can be individually set to support either V35, V.36 or X.21. The physical connectors are according to V.36. V.35 and X.21 are supported by use of a standard adaptor cable.</p> <p>Line rates are supported in steps of 64kbit/s, Nx64kbit/s, where N = 1 to 32.</p> <p>The data traffic is mapped into a G.703 based E1 signal before it is mapped into a VC-12 container for the 2 Mbit/s line-rate.</p> <p>Two test loops provided (towards customer or towards network)</p>	<p>4xAuxiliary alarm inputs - configurable alarm activation, open- or closed contact</p> <p>4xLED - Power, customer, operator, test and LAN indicators</p>

TECHNICAL SPECIFICATIONS

Electrical interfaces

2 Mbit/s G.703 and ISDN PRA
-Bitrate 2048kbit/s \pm 50ppm
-Line code HDB3
-Impedance 120 Ω balanced, 75 Ω by external balun
-Input jitter Acc. to ITU-T G.823
-Output jitter Acc. to ITU-T G.783
-Connector RJ45
nx64kbit/s V36, V35 or X.21
- Connector 37 pin DSUB
Ethernet/LAN 10/100 BaseT acc. to IEEE 802.3
-Connector RJ45

Optical interface

Source type Laser diode
Wavelength 1270-1335nm
Modulation 155 520kbit/s
Launched power (min.) -15dBm
Min. overload 0dBm
Sensitivity -28dBm
Attenuation range 0 - 12dB
Dispersion 280ps/nm
Connector LC

Power

DC -36VDC to -72VDC
AC Obtained by external AC power-supply adapter
Dissipation < 16W

EMC/safety/Temperature

EMC EN 55022 ClassB and EN 50082-1
Safety EN 60950 and EN 60825
Operating temp. -5oC to + 45oC acc. to ETS 300 019-2-3, class 3.1, class 3.1E and 3.2

Mechanics

Dimensions (HxWxD) 40x440x160mm
Weight < 2kg

MTBF

MTBF > 30 years



AXXESSIT develops, produces and markets integrated access devices and versatile consolidation units for next generation access and metro networks. Combined with AXXESSIT's powerful NG-OSSs (New Generation Operations Support Systems), the equipment is ideally suited for establishing traditional and new services, based on PDH, SDH, NG-SDH and Ethernet – for greenfield applications or as a complement to existing networks. With more than 25 years of experience in telecommunications, AXXESSIT provides customers with high quality and cost-effective broadband solutions. AXXESSIT employs 170 people and is located in Oslo, Bergen, Halden, Frankfurt and Warsaw.

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