

AXN1-N Pseudo-Wire Access Device™

Key Benefits and Features

- IETF PWE3-based Pseudo-Wire capabilities including T1/E1 Circuit Emulation Service (CES), FR, and HDLC
- Industry-leading CES including enhanced jitter management
- The industry's most robust RTP-based clock recovery (HPCR®)
- VLAN tagging and switching
- Advanced QoS mechanisms, including rate limiting on a per-port basis, DiffServ, and Ethernet VLAN 802.1Q/P
- Seamless interoperability with all existing CPEs, including PABXs, FRADs, IADs, switches, and routers
- Remote management capabilities through Axerra's CLI and AXNvision™ NMS



AXN1-N

Pseudo-Wire Emulation

A mechanism that emulates the essential attributes of a specific service such as T1/E1 leased line or Frame Relay over a Packet-Switched Network

For Voice and Data Integration over Packet-based Access Networks

Axerra Networks' AXN1-N is a flexible, compact, customer-located Pseudo-Wire access device designed to enable cost-effective voice and data integration over packet-based access networks, such as Carrier Ethernet, cable HFC, xDSL, EPON/GPON, WiMAX, and IP.

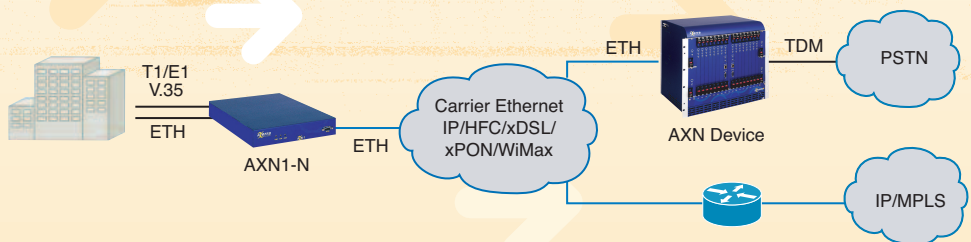
The AXN1-N allows service providers to open up new and immediate revenue opportunities by enabling profitable legacy voice and data services, such as T1/E1 private line, as well as advanced Ethernet capabilities over next-generation packet-based access networks using a single, standards-based, Pseudo-Wire access device.

By offering the full range of voice and data services over a single, unified, packet-based infrastructure, providers can cut costs, increase revenues, and expand their market while preserving business customers' investments in existing equipment, thereby ensuring a non-disruptive migration path to packet-based networks.

The AXN1-N Pseudo-Wire access device is available with one T1/E1 port or one serial port, as well as three Ethernet interfaces of which two are 10/100BaseT and one is 100 BaseFx (SFP). The AXN1-N is based on Axerra's field-proven Multiservice over Packet (MSoP) technology and is fully interoperable with the other members of the AXN family: AXN10, AXN100, AXN800 and AXN1600, delivering the industry's most scalable family of Pseudo-Wire gateways and access devices.

Key Applications

- GSM/UMTS and CDMAone/CDMA2000 backhaul over packet-based RAN
- T1/E1 circuit emulation for TDM leased-line replacement
- PBX-to-PSTN backhaul and PBX-to-PBX (tie-line) connectivity
- Frame Relay service delivery and interworking
- HDLC virtual leased lines for X.25/SNA/IPX/FR



AXN1-N PRODUCT SPECIFICATIONS

HARDWARE SPECIFICATIONS

Physical Interfaces

E1:

- Number of Ports: 1
- Bit Rate:
2.048 Mbps \pm 50 ppm
- Standards Compliance:
ITU G.703, G.704, G.706, G.732
- Framing
Unframed, FAS, FAS with CRC4,
MFAS with CAS, MFAS with CAS
and CRC4
- Line Code: AMI
- Zero Suppression: HDB3
- Signal Level
Receive:
LTU 0 to -43 dB
w/o LTU 0 to -12 dB
Transmit:
3.00V (\pm 10%) for 120 Ω
2.37V (\pm 10%) for 75 Ω
- Jitter and Wander Performance
ITU G.823, G.8261
- Connectors:
Balanced RJ-45, 120 Ω
Unbalanced BNC 75 Ω connectors
via an optional adapter cable

T1:

- Number of Ports: 1
- Bit Rate:
1.544 Mbps \pm 32 ppm
- Standards Compliance:
ANSI T1.403, Telcordia TR-62411
- Framing: Unframed, D4, ESF
- Line Code: AMI
- Zero Suppression: B8ZS
- Signal Level
Receive:
CSU 0 to -36 dB
DSU 0 to -15 dB
Transmit:
CSU: Software adjustable at
0 to -22.5 dB
DSU: Software adjustable at 0 to 655 ft.
- Jitter and Wander Performance
Telcordia TR-62411, ITU G.824, G.8261
- Connectors: Balanced RJ-45, 100 Ω

Serial:

- Number of Ports: 1
- Bit Rate:
n x 64 kbps up to 2.048 Mbps
- Connectors:
DB-25 female (DCE)
- Electrical Interfaces (software selectable):
EIA-530, V.35, X.21

Ethernet:

- Number of Ports: 3
2x 10/100BaseTx
1x 100BaseFx
- Standards Compliance:
802.3 (Fixed settings, autonegotiation)
802.1Q/P
- Connectors:
10/100BaseTx - RJ-45
100BaseFx - LC duplex (SFP)
SFP transceivers should be ordered
separately.

- Range:
Multimode - 2 km for 62.5 μ
Single mode - 15 km for 9 μ

Management Interface

- Type: RS-232
- Connector: DB-9, female

Indicators

- Power: Green - Active
- Alarm
Off - No alarms
Orange - Minor alarm
Red - Major alarm
- Ethernet
Link: Green - On
Activity: Amber - On
- T1/E1
LOS (Red)
RAI (Orange)

Power Options

- DC Power: \pm 18 to \pm 72 VDC
Nominal: \pm 24, \pm 48, \pm 60 VDC
- AC Power: 90 to 264 VAC
Nominal: 100 - 240 VAC

Power Consumption

- DC: 7W to 11W
- AC: 8W to 13W

Physical Dimensions

- Inches: 1 RU (h) x 9.1" (d) x 8.2" (1/2 19") (w)
- Cm: 4.45 (h) x 23 (d) x 20.8 (w)

SOFTWARE SPECIFICATIONS

Pseudo-Wire Services

TDM - CES:

- Framed (CESoPSN)
n x DS0 (1 \leq n \leq 31)
- Unframed (SAtOP)
- Jitter buffer - programmable
up to 256 msec

Frame Relay:

- One-to-One mode
- Port mode

HDLC/PPP:

- Port mode

IP Service Interworking

- HDLC IP Service Interworking
- Frame Relay IP Service Interworking
- PPP IP Service Interworking

Ethernet Services

- Bridging/Forwarding between Ethernet
interfaces
- Port-based VLAN tagging
- Rate limiting (per port):
Up to 1 Mbps - 512 kbps steps
1 Mbps up to 100 Mbps - 1 Mbps steps

OAM

Ethernet OAM

- Ethernet Link OAM (IEEE 802.3ah)
- Ethernet service OAM (IEEE 802.1ag /
ITU-T Y.1731)

Diagnostics

- Terminal (Local) loopback
- Facility (Remote) loopback
- FDL
- In band loopback
- Far end in band loopback

Performance Monitoring

- T1 / E1 (G.826)
5 x 24 hour interval
96 x 15 minute interval
ES, SES, UAS

Alarms

- T1
Alarm Indications Signal (AIS)
Remote Alarm Indication (RAI)
Loss of Signal (LOS)
Loss of Framing (LOF)
- E1
Alarm Indications Signal (AIS)
Remote Alarm Indication (RAI)
Loss of Signal (LOS)
Loss of Framing (LOF)
Loss of Multiframing (LOM)
Remote Loss of Frame Indication (RAIM)

GENERAL SPECIFICATIONS

Timing

- Adaptive Clock Recovery (ACR)
- High Precision Clock Recovery (HPCR[®]) -
ordering option
- Internal: \pm 25 ppm (non-HPCR)
- Loopback timing

QoS Management

- 4 Levels of Prioritized Queuing (SP)
- Layer 3 Marking - DiffServ
- Layer 2 Marking - VLAN 802.1Q/P

MANAGEMENT SPECIFICATIONS

- In-band or out-of-band
- SNMP
- Syslog
- Command Line Interface (RS-232 /
Telnet / SSH2)
- AXNvision NMS
- Remote software upgrade

Environmental Specifications

- Operating temp: 0 - 50°C/-32 - 122°F
- Humidity: Up to 90% non-condensing

Regulatory Specifications¹

- Safety: UL60950-1 CAN/CSA-C22.2,
EN60950-1
- EMC: FCC part 15-class B, EN55022
Class B, ETSI 300-386-2 Class B, VCCI
Class B



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¹Please contact Axerra Networks for current approval list

Note: This document is provided for informational purpose only and may be subject to change without notice.