



Real World
Communications
Solutions

ASAP Pseudowire Access Platform TAG11



Telrad's TAG11 is a family of flexible, scalable, and compact access platforms that enable voice, video and data transport over Packet Switched Networks (PSN) including Ethernet, IP, and MPLS for deployment in cell-site or business environments

The TAG11 supports multiple communication generations (2G/3G/4G) and utilizes a wide range of Pseudowire emulations (ASAP – **A**ny **S**ervice **A**ny **P**ort) including: MEF18 Certified CESoPSN, SAToP, ATM-PW, N x E1/T1 ATM IMA and Ethernet-PW provides voice, video and data convergence over PSN.

The combination of multi service Pseudowire along with cutting edge Ethernet Demarcation Device (EDD) functionality with MEF 9 & 14 Certified Ethernet Services enables the provisioning of a wide Range of services over a single platform leads to increased revenue and OPEX savings.

TAG11 is equipped with a **High Quality Timing Module (HQTM)** that complies with the most stringent Jitter/Wander requirements (G.823/G.824 compliant). The HQTM manages up to 8 independent timing Domains and allocates a dedicated clock for each timing domain using a wide range of Timing/synchronization options including:

- BITS In and Out
- E1/T1 loopback timing
- IEEE 1588v2
- Synchronous Ethernet
- SSM support
- Adaptive timing synchronization over PSN

TAG11 is based on a high capacity network processor technology and offers full Ethernet SLA Verification functionality enabling a future proof solution via remote software upgrade to address Future market needs for long term investment protection.

The Ethernet SLA Verification includes OAM interworking between TDM and PSN networks, alarms, Performance monitoring of UNI/NNI demarcation points, packet classification, rate limiting, QoS enforcement and traffic management.



Real World Communications Solutions

Telrad's proven track record of end-to-end PWE Solutions (Any Service over Any Port) Include the TAG11 as CPE and TAG1120 As aggregator for deployment of Mobile backhaul or Business service delivery

Features

- Support multiple mobile communications generations (2G, 3G, and 4G)
- Multi-service Layer 2/3 switching of TDM, ATM, Ethernet and IP/MPLS traffic
- Multiple clock domain support
- Network processor based solution and remote software upgrade
- MEF18 PWE E1/T1 certified and High performance ACR
- MEF 9 & 14 Certified, Ethernet Demarcation unit
- True Ethernet Demarcation Device
- Standards-based interoperability
- Extended temperature range
- Carrier-grade functionality - facility protection and extended temperature range
- Branded and private labeling options available

Benefits

- Reduce CAPEX by using a single box
- Smooth single box migration from TDM/ATM to All-IP RAN
- Future-proof support for all radio and backhaul technologies
- Reduce CAPEX through preservation of existing infrastructure
- Support multiple mobile service providers in the same cell tower
- Long term investment protection to address future market needs
- Address performance requirements of E1/T1 over packet in extreme packet Network conditions
- Increase revenue and reduce OPEX by offering a wide range of services over a single platform
- Enhanced Traffic Management capabilities enabling Ethernet SLA Verification
- Interoperable with 3rd party solutions at the RNC/BSC and PoP aggregation sites
- Address environmental requirements for cell site deployment in mobile backhaul applications
- Robust and reliable solution
- Smooth and field proven OEM solutions

Specification:

Network Interfaces

- 10/100BaseT RJ-45
- 100/1000 SFP
- T1/E1 (ANSI T1.403/ITU-T G.704)
- Craft Access RS232c, RJ-45
- OOB Mgt 10/100BaseT RJ-45
- Alarm relay dry-contacts RJ-45
- External clock sync I/O RJ45-unbalanced

Network topologies

- PtP, Ring and Chain

Carrier Ethernet Transport

- VLAN per IEEE 802.1p/q
- Q-in-Q per 802.1ad
- PBB-TE per 802.1Qay
- Carrier Ethernet Services Attributes per MEF6, MEF10
- MEF9, MEF14, and MEF18 certified

Class of Service (CoS) Support

- Committed and Excess Information Rate (CIR/CBS and EIR/EBS)
- Bandwidth limiter per Port/flow/CoS
- Policing-TrTCM (Two rate Three Color Marker) per RFC2698
- 8 x CoS per port/EVC
- Service Priority per 802.1p & q, DSCP/TOS
- Service Priority mapping to PSN
- SP and/or WRR and/or DWRR with Configurable weights WRED queue Management
- ATM QoS : UBR , CBR , VBR (future)
- ATM VC/VP policing/Queueing/ shaping (future)

Protocol Support

- SAToP (RFC4553)
- CESoPSN (RFC 5086)
- ETHoP PWE (RFC4448)
- CES over Ethernet per MEF8

- PWE3 Control Word (RFC 4385)
- Dry-Martini Support
- ATMoP (RFC4717)
T1/E1 ATM/IMA 1.0/1.1
- ATM UNI 4.1
- ATM TM 4.1 (future)

Timing & Synchronization

- Synchronous Ethernet/SSM (G.8262/64)
- IEEE 1588v2-2008 precision time protocol
- Adaptive Clock Recovery (ACR) ,multi time domain
- BITS timing I/O
- E1/T1 Line Derived timing
- Jitter performance per G.8261/823/4
- ST3/ST3e

Ethernet Protection Switching

- G.8032 Ethernet Ring Protection
- CCM base Ethernet Linear Protection
- 802.1Qay PBB-TE Path Protection
- 802.1AX Link Aggregation/LACP (formerly known as 802.3ad)

Network Management

- TAG-View NMS
- TAG-view EMS
- In-band ,out-of-band management (Telnet)
- SNMP V1/v2 support
- CLI with on line help

Monitoring and OAM

- 802.1ag Connectivity Fault Management (CFM)
- 802.3ah Link layer OAM
- Y.1731 Performance Monitoring
- IEEE 802.1AB Link Layer Discovery Protocol (LLDP)
- PSN Alarm propagation

Security

- Radius client ,Secure Shell Support (SSH)
- TACACS+ client (future)
- In-band/OOB ports lock
- User management access profiles
- ACL rules - address data theft , Hacking , DoS attacks

Power Specs

- 25W max. power consumption
- 100 – 240 VAC 50-60Hz
- -48 VDC nominal
- ± 24 to ± 60VDC (future)
- 1+1 Hot swap and pluggable

Conformance

- Safety - UL 60950-1 (2000); CSA C22.2 No. 60950-1; IEC 60950-1 CB/2001 CE Marking; EN60950-1: 2000+A11: 2004
- Laser Safety - FCC 21 CFR subpart (J); Europe: EN60825-1:1994 +A11:1996+A2:2001
- Emissions - FCC 47CFR Part15B CLASS A; ICES-003 Class A; EN55022: 1998 CLASS A; CISPR22: 1997; ETSI/EN 300 386 V1.3.2
- Environmental - RoHS DIRECTIVE 2002/95/EC; WEEE 2002/96 EC
- NEBS L3 Compliant Design

Environmental Characteristics

- Standard Operating Temperature: 0° C to +50° C (+32° F to +122° F)
- Hardened Operating Temperature: -40° C to +65° C (-40° F to +149° F)
- Storage Temperature: -40° C to +70° C (-40° F to +158° F)
- Relative Humidity: 5% to 90% non-condensing

Physical Characteristics

- Dimensions: 1.73" (H) x 17.4" (W) x 8.6" (D); 44 mm (H) x 440 mm (W) x 220 mm (D)
- ETSI300/600, 19" or 23" rack-mountable
- Weight. 4 kg (8.8 lbs);