

Multi-Faceted E1 Circuit Protection



Resilient E1 Automatic Protection Switch

- Deliver on Stringent Service Level Agreements
- Back Up Mission Critical Connectivity
- Disaster Recovery

Perseverant and Secure Voice, Video, & Data Connectivity

Engage's **Syn•APS-E1** delivers critical infrastructure connectivity assurance that utilizes a "Guardian Spirit" with Multi-Circuit and Multi-Technology "powers" to exercise every available option to keep the Voice, Video or Data systems fully operational. The **Syn•APS-E1s** is targeted at the Critical Infrastructure connectivity requirements of Government Agencies, Multi-site Corporations and Organizations in many different sectors of the economy.

Government, Commercial and Educational organizations are heavily dependent upon the uninterrupted operation of their Voice, Data and Video systems. The need to do whatever it takes to keep the vital systems fully operational is a **Primary Objective** and a **Presidential Directive (#63)**.

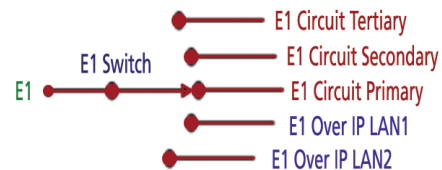
Critical Infrastructure

Critical infrastructure is defined as the collection of public and private services that are essential to sustain government, provide for a safe living environment, maintain day-to-day business, and secure a prosperous economy. They include both public and private enterprise services such as:

- **Defense & Defence Contractors**
- **Emergency Services & 911 Public Safety Dispatch Centers**
- **Telecommunications Providers**
- **Natural Gas & Electric Power Utility Companies**
- **Oil and Gas Companies**
- **Banking & Financial Services Institutions**
- **Transportation Agencies**
- **Water**

Multi-Faceted Circuit Protection

Syn•APS-E1 is a Multi-Faceted protection switch with 4 E1 and 2 Ethernet interfaces. The third and fourth E1s are used for intelligently switching the Primary to a Secondary or Tertiary circuit. Additionally the Protected Circuit is converted into IP packets for interconnectivity through the Ethernet LANs.



AES Circuit Encryption

Engage offers 256 bit AES Circuit and Packet Encryption that is optionally employed to *prevent interception and disruption of public or private communication channels*.

Circuit Extension Over Packet Networks

The **Syn•APS-E1's** conversion of the circuit to packets facilitates the utilization of data networks for backup over 2 Independent LAN interfaces that are routable over packet networks such as:

- **LANs • WANs • xDSL • MANs • Satellite • Wireless**

Syn•APS Standard Features

Encryption Method

The Advanced Encryption Standard (AES) is utilized by the **Syn•APS-E1** to protect electronic data. The AES algorithm is a symmetric block cipher that encrypts and decrypts information.

AES is a FIPS approved symmetric encryption algorithm that may be used by U.S. Government organizations (and others) to protect sensitive information.

Key Management

Automated 256 bit key management configurations ensure timely key transitions and eliminate the operational and maintenance costs of managing an encrypted network with manual key distribution.

Management

An IP Ethernet interface, with SNMP, enables ease of management, configuration, and upgradeability.

Syn•APS Optional Features

Echo Canceller OPTION -ECAN

The **Syn•APS-E1-Ecan** is a module that has an integrated E1 Echo Canceller option that cancels up to 64 milliseconds of Far End echo. The echo canceller meets ITU-T G.164, G.165 and ITU-T G.168 requirements for echo cancellation.

Lossless Data Compression OPTION -CMP

The **Syn•APS-E1-CMP** continuously detects idle and redundant data within each E1 Voice circuit resulting in as much as a 40 to 1 bandwidth savings.

Technical Specifications

Encryption Algorithm:

- AES 256-bit
- Fully Automatic key management

E1/Fractional E1 Specifications:

- 4 Integrated E1 DSU/CSUs
- Framing - CRC4 or FAS or UnFRAMED • Coding - HDB3 or AMI
- Supports DS0 assignments from 1 to 31
- Not Contiguous Configuration x-y,z Supported

LAN Network Interface:

- Two 10/100BaseT Full/Half Ethernet
- Auto negotiation or Configured Speed and Duplex

LAN Network Protocols Supported:

- IP, TCP, UDP, ICMP
- Telnet

TFTP Online Upgrade Capable (FLASH ROMs)

- Syn•APS is fully operational during upgrade

Dimensions:

- Dimensions: 9" (L) x 7.3" (W) x 1.50" (H)
- Optional Medeco Case

Echo Canceller Module (Option):

- Voiceband Echo Cancelling according to ITU G.165 and G.168
- u- and A-Law coding according to ITU G.711
- 31 channels with end echo path delay of less than 63.75 ms

Automatic Protection Switch:

- E1 Alarms: Red, Yellow, CRC Error Level
- Proactive Circuit to Packet with Assured Delivery and Hot Backup

Environmental:

- 0° to 132° F (-10° to 50°C) operating temperature
- Up to 90% operating humidity (non-condensing)
- Optional Extended Temperature Range available

Regulatory:

- CE • Safety -IEC60950 • EMC - CFR 47 Part 15 Sub Part B:2002, EN55022:1994+A1&A2, EN55024, ICES-003 1997, CISPR 22 Level A
- Telecom TBR12, TBR13

Management:

- Telnet support with Edit and Paste Template Files
- Console Port for Out of Band Management
- SNMP support (MIB I, MIB II) with configured traps
- Remote config., monitoring, & reset
- Telco Diagnostics: Local Loop, Remote Loop

Power:

- 12-30 VDC, 1.0A. • Locking Connector
- Optional -48V 0.25 Amp • Hot Standby

How To Order - Syn•APS-E1

Part No.	Description	Notes
APS-1544-04	Syn•APS-E1	Base Model with 4 E1 Ports and 2 LANs
-ECAN	Echo Cancellation Module	Far End 64ms Tail Echo Cancellation
-CMP	Lossless Data Compression	Bandwidth Minimizer 56:1 idle/redundant
Power Options		Specify as suffix - Combine 2 for Hot Standby
-DCMOD	Power Module 12/26 VDC/AC ADAPTER	Ships with Universal Adapter 100/240 50/60
-WIRED	Power Supply Module 12/26 VDC Screw Term	
-N48VDC	Power Supply Module Negative 48 Volt DC	Isolated Negative 48 Volt Power
-RACKMNT	19/23" Wide Rack Mount Brackets	Enclosure Nut Serts Installed