FXS 8D 8-Channel Voice Service Card

8-Channel Voice Service Card for the Adit 600 provides up to 96 FXS voice lines in a 2RU space using 2 side-by-side units

Provides integrated GR-909 test capabilities

Longer loop length of up to 24,000 feet

High-Density Voice Services

As part of the Adit 600 solution, the FXS 8D 8-Channel Voice Service Card enables a high capacity platform for a range of integrated voice and data service offerings. The Adit 600 platform's carrier-grade design, along with the FXS 8D Service Card's GR-909 loop test capability, offer a range of deployment options, including customer premises and local loop termination in the service provider's point of presence. GR-909 loop test capability provides service providers with a valuable tool to help quickly diagnose customer service issues, which results in enhanced customer care.

The FXS 8D Service Card can be inserted into any service card slot of the six-slot Adit 600 Multi-service Delivery Terminal. This allows the provisioning of up to 48 FXS lines in a single chassis and up to 96 lines in two side-by-side units occupying just two rack units of space. The lines can be configured as FXS loop-start or ground-start interfaces, which can be used to deploy either external phone lines, or on-premises customer business line services from T1 access lines.

A unique range of software-controlled signaling capabilities designed into the FXS voice service cards connect virtually any type of 2-wire battery-feed telephone line service. Supported features include caller ID, calling party disconnect, disconnect, distinctive ringing, ground start, and E&M signaling conversion. V.90 transmission is supported for optimal dial-up modem performance.

The card utilizes internal ringing SLIC circuits to remove the need for external ring generator circuitry and LCAS circuitry on the front end of the FXS channels. It also provides high power and low power ring mode selection.

The FXS 8D is supported with several local and remote management options. The card can be configured and managed locally using the Command Line Interface (CLI). On-site installation and maintenance is supported with multi-color channel status LEDs for monitoring call progress and channel status. Remote management is accomplished directly either over an in- band DS0 management channel or via a separate SNMP Ethernet connection. Alternatively, remote management can be accomplished through the Access Navigator® over the Facility Data Link (FDL).

Key Features

- Supports migration from TDM to VoIP service delivery while preserving existing capital investment
- Supports loop range, ringing and protection for end-office or customer premises
- Provides overvoltage and overcurrent protection to minimize service calls due to lightning and power cross incidents
- Minimizes power consumption for high-density service delivery with automated battery voltage switching
- Ringing voltage/cadence generation and ring trip detection
- Loop hold and programmable impedance and termination for international compliance
- Selectable μ-Law and A-law encoding
- Configurable calling party disconnect timing

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Specifications: Adit 600 FXS 8D 8-Channel Voice Service Card

Physical

Adit 600 FXS 8D 8-Channel Voice Service Card

Dimensions: 3.5 in (H) x 0.75 in (W) x 11.25 in (D)
    8.9 cm (H) x 1.9 cm (W) x 28.6 cm (D)

Weight: 5.8 oz (0.16 kg)

Power

15 W maximum

Environmental

Operating temperature range: 32°F to 104°F (0°C to 40°C)

Storage temperature range: -40°F to 158°F (-40°C to 70°C)

Cooling method is by free air convection and requires long axis of unit
    to be mounted horizontally

Maximum operating altitude: 10,000 ft (3.048 m)

Maximum non-operating altitude: 40,000 ft (12,192 m)

Relative humidity (non-condensing) range: 0% to 95%

Requirements

Requires Adit 600 Dual T1 or E1 Controller Card software release 9.7
    or higher

Management

Command Line Interface (CLI)

FXS Transmission Performance

Return loss
    ERL ≥19 dB, SRL ≥11 dB with respect to 900 $\Omega\partial$•+ 2.16µF

Trans-hybrid loss
    THL @1010 Hz >23 dB at frequencies between 310 Hz and
    3210 Hz >16 dB with respect to 900 Ω •+ 2.16µF

Idle Noise: A/D <19 dBrnC, D/A <15 dBrnC

Crosstalk: <65 dB

Signal/distortion
    >33 dB @ 0 dBm0 to –30 dBm0
    >27 dB @ -30 dBm0 to –40 dBm0
    >22 dB @ -40 dBm0 to –45 dBm0

Terminating Impedances
    19 selectable impedances

Transmit gain/loss
    +2 dB to -9 dB (in .25 dB increments) software selectable

Receive gain/loss
    +2 dB to -9 dB (in .25 dB increments) software selectable

Overload
    δ 0.5 dB @ +3 dB
    δ 1.8 dB @ +6 dB
    δ 4.5 dB @ +9 d

Frequency Response
    +0.25 dB -1.5dB from 300 Hz to 3400 Hz (relative to 1010Hz)

Longitudinal balance
    >58 dB per NEBS GR-57 and TIA-464-C

Modem support
    Full compatibility with V.90 modems

FXS Signaling Performance

DC Loop Range
    24000 feet with optimal conditions

Loop Feed
    Nominal 27 mA with automatic battery switching

Off-Hook Detection
    Detects tip/ring currents >14mA

Ring Ground
    Detects ring ground currents >33mA

Ringing Voltage
    85 V rms, 20 Hz, optionally 25 Hz

User selectable
    "High Power" and "Low Power" ring mode

Maximum Ringers
    5 REN, FCC Class B ringers

Internal Ringing Cadence
    2 seconds on, 4 seconds off for E&M wink start conversion modes

Control Technique
    Solid-state with no mechanical relays

CLASSSM features supported
    Calling party ID, three-way calling, and distinctive ringing

Calling Party Disconnect
    Calling party (forward) disconnect provides a configurable current
    interruption interval to disconnect answering devices and modems
    – requires E&M signaling on the T1

FXS Signaling
    FXS loop start or FXS ground start with LS/GS selection per channel

FXSDN Signaling
    E&M immediate or wink start with ring-back tone for carrier
    services such as Megacom®, Flexpath®, DSS®,VPN®,VNET®, etc.
    Wink delay for advanced ANI/DNIS 800 number services and
    Direct Inward-Dial (DID) conversion. R2 signaling for E1
    applications

Encoding
    Selectable for µ-Law and A-Law

GR-909 Line Tests

Hazardous potential
    ESF and D4 (via transparent DS1 pass-through) formats

Foreign electromotive force
    Local, Network Payload, Network Line, Remote Payload,
Insertion
    of remote loopback commands

Resistive faults
    Receiver off-hook (differentiated from a short tip-ring)

Regulatory Compliance

USA
    UL60950, FCC Part 15, Class A, FCC Part 68 lightning
    protection - inter-building levels, Desgined to NEBS Level-3
    for type 2 and 4 equipment (not certified)

Canada
    UL60950, ICES-003, Class A

European Union
    EN 55022, Class A, EN 60950, Safety of Information
    Technology Equipment, EN 61000-3-2, Harmonics,
    EN 61000-3-3, Flicker, EN 55024, Immunity, RoHS & CE
    Marking

Australia/New Zealand
    AS/NZS 60950EN 60950, Safety of Information Technology

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