

FXS 8B 8-Channel Voice Service Card

For use in Adit 600 Platform

Part Number: 740-0240

Key Benefits:

- Provides up to 96 FXS voice lines in a 2RU rack space
- Provides integrated GR-909 test capabilities
- 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



Expand business or residential voice service revenues and realize operational efficiencies with GR-909 integrated loop testing

As part of the Adit® 600 solution, the FXS 8B 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 with the FXS 8B Service Card's GR-909 loop test capability offer a range of deployment options includes 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 8B Service Card can be inserted into any 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, distinctive ringing, ground start, and E&M signaling conversion. V.90 transmission is supported for optimal dial-up modem performance.

The FXS 8B Service Card 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).

Technical Specifications for the FXS 8B 8-channel Voice Service Card

Components :

- Requires Adit 600 Dual T1 or E1 Controller Card software release 9.1 or higher

Management :

- Command Line Interface (CLI)

FXS Transmission Performance :

- Return loss: ERL ≥ 19 dB, SRL ≥ 11 dB with respect to $900\ \Omega + 2.16\ \mu\text{F}$
- Trans-hybrid loss: THL @1010 Hz > 23 dB at frequencies between 310 Hz and 3210 Hz > 16 dB with respect to $900\ \Omega + 2.16\ \mu\text{F}$
- Idle Noise: A/D < 19 dBmC, D/A < 15 dBmC
- 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: $+6$ dB to -12 dB (in .25 dB increments) software selectable
- Receive gain/loss: $+6$ dB to -12 dB (in .25 dB increments) software selectable
- Overload:
 - ≤ 0.5 dB @ $+3$ dB
 - ≤ 1.8 dB @ $+6$ dB
 - ≤ 4.5 dB @ $+9$ dB
- Frequency Response: $+0.25$ dB -1.5 dB 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: $\geq 1700\ \Omega$
- Loop Feed: Nominal 27 mA with automatic battery switching
- Off-Hook Detection: Detects tip/ring currents > 14 mA
- Ring Ground: Detects ring ground currents > 33 mA
- Ringing Voltage: 85 V rms, 20 Hz, optionally 25 Hz
- 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 2 second current interruption 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: DC voltage > 135 V or an AC voltage > 50 V
- Foreign electromotive force: DC voltage > 6 volts or an AC voltage > 10 V
- Resistive faults: resistance tip-ring, tip-GND (ground), ring-GND
- Receiver off-hook (differentiated from a short tip-ring)

Power :

- 15 W maximum

Regulatory Approvals :

- USA
 - UL60950
 - FCC Part 15, Class A
 - FCC Part 68 lightning protection - interbuilding levels
 - Designed to NEBS Level-3 for type 2 and 4 equipment (not certified)
- Canada
 - CSA C22.2 No. 60950-00
 - 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
- Australia/New Zealand
 - AS/NZS 60950
 - AS/NZS CISPR22, Class A

Physical :

- FXS connections made on RJ21-X telco connector rear panel
- 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)

Environment :

- Operating temperature range: $0\ ^\circ\text{C}$ to $40\ ^\circ\text{C}$ ($32\ ^\circ\text{F}$ to $104\ ^\circ\text{F}$)
- Storage temperature range: $-40\ ^\circ\text{C}$ to $70\ ^\circ\text{C}$ ($-40\ ^\circ\text{F}$ to $158\ ^\circ\text{F}$)
- Cooling method is by free air convection and requires long axis of unit to be mounted horizontally
- Maximum operating altitude: 3,048 m (10,000 ft)
- Maximum non-operating altitude: 12,192 m (40,000 ft)
- Relative humidity (non-condensing) range: 0% to 95%