# EBS-FXS 240 SPX

## 24 SUBSCRIBER EXTERNAL BOARD FOR SOFT PBX

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## Main Characteristics

- 24 analog FXS channels
- DSPs for processing of audio
- Web interface for control, visualization and download of logs
- Classification of call answering (Call Analyzer)
- Compatible with open source soft PBX

## Typical Applications

- PBX
- IP PBX
- Gateway
- IVR
- DAC

## Models

- EBS-FXS 240, with 24 FXS interfaces

## Overview

The EBS-FXS 240 SPX is a compact 1U and half rack (19") module designed to meet market applications that use open source software and require an interface with an analog extension, and is readily apparent as an excellent option for applications like IP PBX and hybrid call center systems with VoIP channels and analog extensions.

Connection of extensions to the module is done with the EBS-FXS SPX with a 50-channel Centronics connector and interconnection of the module with the server is done via Ethernet in a local network, isolating the power part of the extensions from the internal part of the server.

The EBS-FXS 240 maintains the standard and quality of the Khomp family of boards, performing all of the audio and signaling processing within the hardware itself, independently from the applications server.

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## **Exclusive Resources** of the EBS-FXO 240 SPX

- Network channels: 24 analog FXS channels
- PBX Protocols: Transfer, second line, hold and conference
- Configurable ring cadences
- Compatible with FOP (Flash Operator *Panel)*
- Information on signaling and state of channels reported via AMI interface
- Detection of answering available via dialplan and AMI interface
- Specific signaling commands made available via AMI and AGI interfaces
- Balancing of calls between channels from one or more output routes

Physical characteristics:

- Connectors: 50-via Centronics
- Weight: 2.70Kg
- Ambient operating temperature: 0°C to 35°C.
- Withstands humidity: of up to 90% without condensation.

## Resources available on the entire EBS family of products

### Voice processing

High capacity resources:

- All voice resources available simultaneously on all channels
- DSPs for processing of audio and signaling

Detection and generation of tones (DSP)

- MFC exchange (R2 signaling)
- Detection and generation of DTMF digits, fax tones, 425Hz (dial tone) and TDD messages *(Telecommunications Device for the Deaf)*
- Detection of intercept tones (voice mail, collect calls, etc.)
- Generation of programmable tones (beep)
- Detection of silence and presence of audio before and after answering
- Detection of fax signal and voice mail with standard signaling: 600Hz/450ms – 1000Hz/450ms or 300Hz/250ms
- Detection of programmable frequencies (for example: portability tone, non-standard voice mail, etc)

Audio enhancement features

- DTMF suppression
- Manual and automatic volume control (AGC)
- *Carrier grade* echo canceling in hardware
  - Up to 64ms (512 TAPS) simultaneously on all channels, independent of other resources
  - Convergence and automatic delay adjustment during the entire call
  - Compatible with ITU-T G.165 and G.168 norms (2000 and 2002)

### High availability

- 2 Ethernet ports for server connection (network redundancy)
- Server redundancy (supports virtual IP)

### OAMPT

- Automated installer for updating and implementing new systems
- Web system for configuration, monitoring and diagnostics
- Native integration with SNMP
- Signaling analyzer
- Remote monitoring in real time (via web)
- Web interface for control, visualization and download of logs

### Physical Characteristics

- Standard 1U Module and 1/2 19" rack
- Measurements in mm: 44.5 (height) x 220.5 (width) x 280 (length)
- Power source: Full Range (100~240Vac - 50/60 Hz)

### Compatibility

- Compatible with Asterisk®

### Guarantees and Certifications

- Factory warranty 3 years
- The entire EBS line is Anatel certified
- ISO 9001:2008 Industry certified

# EBS-FXS 240 SPX

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Call signaling and handing

- Detection of collect calls through recognition of tones, signaling or double answering
- Call progress for generation of call control events in FXO interfaces and PBX protocols
- Classification of call answering *(Call Analyzer)*

## PATCH PANEL

### EXCLUSIVE ACESSORY FOR EBS-FXS AND EBS-FXO HI

Khomp patch panels were developed to work in conjunction with the EBS-FXS 240 and EBS-FXO HI products in the conversion of Centronics-type inputs to RJ11 outputs. This way, with one patch panel it is possible to convert 1 Centronics input into 24 RJ11 ports on the 24-port model, or 2 Centronics connectors to 48 RJ11 ports, on the 48 port model.

## MPE-FXS 240

### EXCLUSIVE ACCESSORY FOR EBS-FXS 240

Developed exclusively for the EBS-FXS 240, the function of the MPE-FXS 240 protection module is to protect the equipment from atmospheric discharges and electrical power surges that can hit the equipment extensions. With a compact design, it is directly attached to the EBS-FXS 240, making a series of connections and cables linked to the individual units unnecessary.

## Additional product images

Rear view

Example of 7 EBS modules arranged in a standard 19''.rack

# Application Model