

# QuadroFXO

THE ANALOG GATEWAY



## QuadroFXO: The Gateway to PSTN, FXO Extension and/or Mini POP

### Gateway to the PSTN

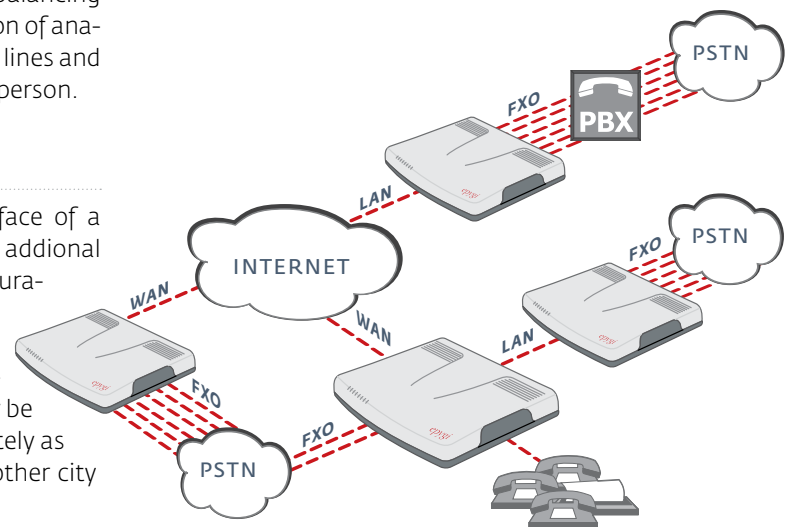
The QuadroFXO is a modular approach to adding additional outside PSTN lines (POTS) to a corporate phone network that utilizes an Epygi Quadro IP PBX. Each QuadroFXO is a stand-alone SIP gateway device with 6 outside POTS lines. Multiple QuadroFXO gateways can be added to a Quadro IP PBX depending on how many additional lines are required. Uses include the addition of inbound lines, the balancing of outbound call volumes from a combination of analog and IP phones, fax lines, E911 emergency lines and individual direct dial numbers for each salesperson.

### FXO Extension for Quadro IP PBX

Connected via Ethernet to the LAN interface of a Quadro IP PBX, QuadroFXO delivers six additional POTS lines for PSTN calls. Minimal configuration is needed, the Quadro IP PBX will automatically use the new POTS ports and present them within its management system as additional FXO lines. These lines may be co-located with the IP PBX or located remotely as an "extension cord" to another office in another city or even another country.

### Mini Point of Presence (POP)

The QuadroFXO can be used as a low cost, mini Point of Presence (POP). In this configuration you remove the IP PBX altogether by assigning VoIP network DID numbers from an ITSP directly to the QuadroFXO lines. Think of it as a smaller scale alternative to the QuadroE1/T1 gateway. It truly is the lowest cost for creating a local presence anywhere on the globe.



## Telephony

### Voice Features

Voice Coding G.711, G.726 (16, 24, 32, 40 Kbps), G.729, iLBC (13,33 kbit/s, 15,2 kbit/s); (RFC 3951, ITU-T: G711, G.726, G729 AnnexA; IETF; ITU-T, Bellcore GR.506, GR.181; ITU-T G.168-2000, 2002; ETS\_300659\_1,2,3; A-law, m-law coding)  
NAT traversal (both manually and STUN)VAD, CNG, G.168 echo cancellation

### Bandwidth Requirements

Per call WAN bandwidth requirements for the following codecs (non-encrypted):

G.711a/G.711u	20 msec	84 kbps
G.726-16	20 msec	37 kbps
G.726-24	20 msec	45 kbps
G.726-32	20 msec	52 kbps
G.726-40	20 msec	60 kbps
G.729a	20 msec	29 kbps
iLBC	30 msec	27 kbp

### PBX Features

Call block, unconditional forwarding  
Call statistics  
Call routing  
Auto Attendant  
T.38 fax, fax relay and clear channel fax

### Call Signaling

SIP (RFCs: 3261, 3263, 3265, 3311, 3323, 3324, 3325, 3428, 3515, 3578, 3581, 3725, 3891, 3892, 3842, 3856, 3863, 4028, 4235)  
SDP (RFC 2327)  
RTP (RFCs: 1889, 1890, 2833, 3389, 3550, 3551, 3555, draft-ietf-avt-rfc2833bis-05, draft-ietf-avt-rtp-ilbc-05) in band and out of band signaling support  
Fax over IP (ITU-T: T4, T30, T38, V17, V21, V27 ter, V29)

### POTSS signaling

Loop start  
FSK and DTMF Caller ID support

## Connectivity

### System Capacity

6 simultaneous IP-PSTN calls

### Premise Connections

1 Ethernet 10/100BASE-T port (RJ45)

### Uplink Connection

6 FXO ports to the Central Office (RJ11)  
1 Ethernet 10BASE-T (RJ45)

### Billing

Radius Client (RFCs: 2865, 2866)

## Internet

STUN/NAT traversal (RFC 3489)

Firewall security via:

NAT (Network Address Translation)  
Policy and service-based filtering  
DHCP server on the LAN side  
DHCP client on the WAN side  
DNS server with forwarding functionality  
SNTP (Simple Network Time Protocol) server/client for computer clock synchronization  
PPPoE connection to the ISP with PAP/(MS)CHAP authentication  
IP DIFFSERV for QoS  
DNS support with third party  
Port forwarding  
Port translation

## System

### Management

WEB interface accessible from LAN and WAN (HTTP/HTTPS), the WAN management access can be switched off  
Password control  
Remote diagnostics and software upgrade  
Download/restore configuration  
Reset button with factory reset option

### Diagnostics/Testing

LEDs: Busy, Info/Fault, FXO1, FXO2, FXO3, FXO4, FXO5, FXO6, LAN, WAN  
Remote testing and VoIP diagnostics  
Power-up diagnostics

## Environmental

### Physical Dimensions

Desktop devices, wall-mountable:  
Measurements: 7.41" x 6.24" x 1.77"  
(19 x 16 x 4.5 cm)  
Weight: 13 ounces (360 g)

### Conditions

41°F - 104°F (5°C - 40°C) operating temperature  
41°F - 140°F (5°C - 60°C) storage temperature  
5% - 90% non-condensing humidity

### Power Supply

Input 100 - 240 VAC; 50/60 Hz; 0.5 A  
Output 12.0 VDC; 1.5 A

### Regulatory Compliance

EMC: FCC Part 15 Class B; EN55022 Class B, EN55024;  
Telecom: CTR21/TBR21

