



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

### Gateway to the PSTN

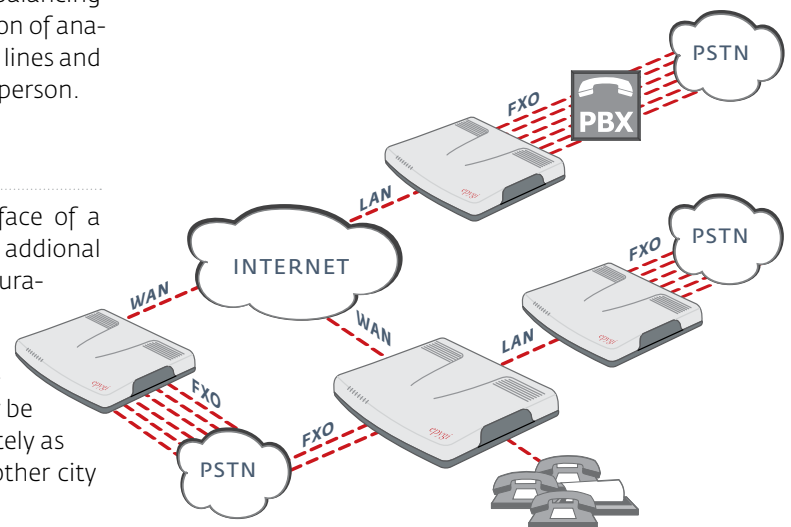
The QuadroFXO is a modular approach to adding additional outside PSTN lines (POTS) to a corporate phone network that utilizes an Quadro IP PBX. Each QuadroFXO is a stand-alone SIP gateway device with 6 outside POTS lines. Multiple QuadroFXO gateways can be added to a Quadro IP PBX depending on how many 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

Multilevel auto attendant with Interactive Voice Response (IVR) and VoiceXMLv2 support  
 Voice mail with SMS notification  
 Directory assistance  
 Call hunting, call blocking  
 Call statistics  
 Unified messaging  
 T.38 fax, fax relay and clear channel fax  
 Unified Fax Messaging  
 Dial plans (call routing)  
 Time of day routing  
 Multiple user extensions (up to 100 virtual extensions)

### 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

