

# Quadro<sup>®</sup>16x

THE GLOBAL PHONE NETWORK IN A BOX



## Quadro16x: The IP PBX with 4 FXO Ports, 16 FXS Ports and up to 48 IP Phones

The Quadro16x is the fully-featured IP PBX for enhanced small businesses. Connected by four FXO lines to the PSTN and over 10Base-T Ethernet to the Internet, the Quadro16x provides up to 70 physical and virtual extensions to make up to 20 calls in parallel.

Besides 16 FXS phones, 48 fully-featured SIP phones may be attached to Quadro16x's LAN port. In addition, the SIP extensions assigned to a line may be mirrored and act as remote IP extensions. Wherever you are, calls will reach you, and you will be able to make calls as if you were in your office.

### Fully-Featured IP PBX

The Quadro16x offers a multitude of features including extensive PBX functionality, integrated voicemail, cost saving call routing functionality, IP routing, SIP and H.323 call signaling and much more.

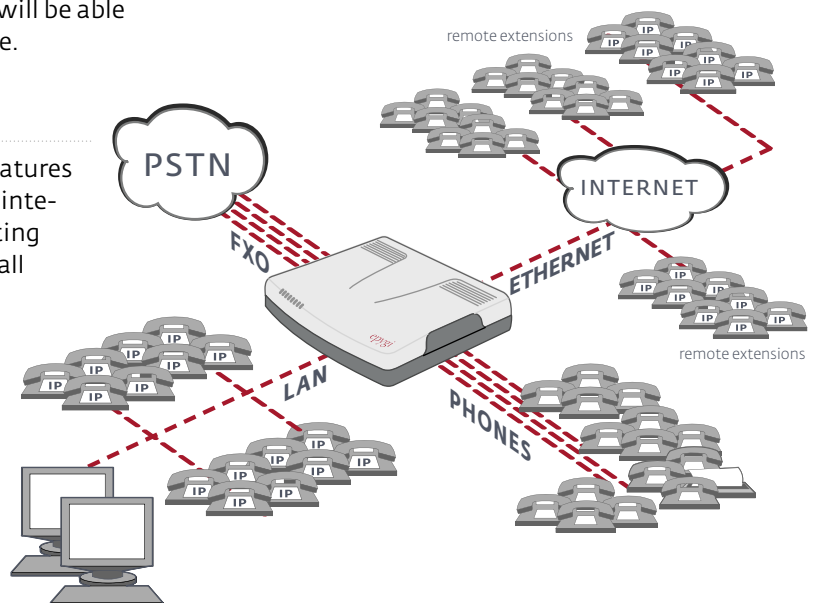
### Integrated Internet Access Router

The Quadro16x IP PBX embodies a fully-fledged Internet access router with firewall security, including IDS, NAT, policy and service based filtering as well as stateful inspection. An exten-

sive IPsecVPN functionality with DES and 3DES encryption makes an additional contribution to data security.

### VoIP Carriers

The Quadro 16x IP PBX is easily applicable for VoIP Carriers as well as small businesses. For VoIP carriers, a special wizard has been implemented that facilitates the configuration of Quadro16x to work according to individual requirements.



## Telephony

### Voice Features

Voice Coding G.711, G.723 (5.3, 6.3 kbit/s), G.726 (16, 24, 32, 40 Kbps), G.729, iLBC (13.33 kbit/s, 15.2 kbit/s); (RFC 3951, ITU-T: G.711, G.723.1 Annex A, G.726, G.729 Annex A; IETF; ITU-T Q.23, Q.24, Bellcore GR.506, GR.181; ITU-T G.168-2000, 2002; ETS\_300659\_1,2,3)  
NAT traversal (both manually and STUN)  
VAD, CNR, G.168 echo cancellation  
Lifeline POTS (single line)

### PBX Features

Call block, forward, hold, ID, park, relay, transfer, wait  
Voice mail  
Multilevel auto attendant with Interactive Voice Response (IVR)  
Distinctive ring, hold music, speed dialing  
Hunt group  
Call statistics  
Do not disturb service  
Unified messaging  
3-way conferencing  
Hotline service  
T.38 fax, fax relay and clear channel fax  
Unified Fax Messaging  
Busy auto redial  
Multiple user extensions (up to 70 physical/virtual extensions)

### Call Signaling

SIP on the WAN and LAN side (RFCs: 3261, 3263, 3265, 3311, 3428, 3515, 3842, 3856, 3891, 3892, 3581, draft-ietf-sip-session-timer-15, draft-ietf-sipping-dialog-package-05; Presence: RFCs: 3842, 3856, 3863, draft-ietf-sipping-dialog-package-05)  
SDP (RFC 2327)  
RTP (RFCs: 1889, 1890, 2833, 3389, 3550, 3551, 3555, draft-ietf-avt-rfc2833bis-05, draft-ietf-avt-rtcp-ilbc-05)  
RTP Proxy  
MGCP with support of the full MGCP business extensions and full screen and soft buttons control of the MGCP phones on the LAN side (RFCs: 3149, 3435, 3660, draft-foster-mgcp-returncodes-01, PKT-SP-EC-MGCP-110-040402)  
H.323 on the LAN side (ITU-T: H.225.0, H.235, H.245, H.323, H.450.x, Q.931, Q.932)  
Fax over IP (ITU-T: T.4, T.30, T.38, V.17, V.21, V.27 ter, V.29)

### POTS Signaling

Loop start

### DTMF

Caller ID support  
FSK and DTMF Caller ID support  
In band and out of band signaling support

## Connectivity

### Extensions

Up to 70 extensions including FXS phones (16), IP phones (up to 32) and virtual extensions  
Remote extensions for any physical extension (up to 20)

### LAN IP Phones

16 SIP/MGCP phones;  
32 additional SIP/MGCP phones may be added per feature key  
Remote IP extensions may be enabled for each SIP/MGCP phone

### Premise Connections

16 short-loop FXS ports (RJ11)  
1 Ethernet 10/100BASE-T port (RJ45)  
1 USB master connection

### Uplink Connection

4 FXO ports to the Central Office (RJ11)  
1 Ethernet 10BASE-T (RJ45)  
(Other Quadro IP PBX models offer also ISDN, ADSL or G.SHDSL uplink connectivity. Please refer to the corresponding Technical Data Sheets.)

### USB Expansion

USB memory cards for additional voice mail storage

### Billing

Radius Client (RFCs: 2865, 2866)

## Internet

NAT address translation  
STUN/NAT traversal (RFC 3489)  
IPSec VPN with DES and 3DES encryption in tunnel mode (RFCs: 2402, 2406, 2409)  
PPTP/VPN  
L2TP/VPN  
Manual and automatic IKE key support  
Firewall security via:  
Intrusion Detection System  
NAT (Network Address Translation)  
Policy and service-based filtering  
Stateful inspection firewall  
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  
Mail client to send voice messages as e-mail attachments (.wav) and system notifications  
DNS (DYNDNS) support with third party  
Port forwarding  
Port translation

## System

### Management

Multilingual WEB interface accessible from LAN and WAN (HTTP/HTTPS), the WAN management access can be switched off  
Password control  
Remote diagnostics and software upgrade  
VoIP Carriers wizard  
Download/restore configuration  
Legible and editable configuration files  
Auto-configuration via TFTP  
Reset button with factory reset option  
Online Company Directory

### Diagnostics/Testing

LEDs: Busy, Info, Fault, USB, LAN, WAN, Line 1, Line 2  
IP Call Quality Rating  
Remote testing and VoIP diagnostics  
Power-up diagnostics

## Environmental

### Physical Dimensions

Desktop devices, wall-mountable:  
Measurements: 10.04" x 8.27" x 2.4"  
(25.5 x 21.0 x 6.1 cm)  
Weight: 30 ounces (850 g)  
Rack-mountable devices:  
Measurements: 19" x 7.56" x 1.77"  
(48.0 x 19.2 x 4.5 cm)  
Weight: 9.2 lbs. (4.18 kg)

### 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; 3.5 A

### Regulatory Compliance

Safety: UL 60950; CSA 22;  
EMC: FCC Part 15 Class A;  
EN55022 Class A, EN55024;  
Telecom: CTR21/TBR21

