

# Quadro<sup>®</sup>4x

THE GLOBAL PHONE NETWORK IN A BOX



## Quadro4x: The IP PBX with 2 FXO Ports, 4 FXS Ports - up to 62 SIP Phones

The Quadro4x is the fully-featured IP PBX for small businesses. Connected by two FXO lines to the PSTN and over 10Base-T Ethernet to the Internet, the Quadro4x allows to make up to 20 calls in parallel.

Including four FXS phones, up to 62 fully-featured SIP phones may be attached to Quadro4x's LAN port. In addition, all 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.

VPN functionality with DES, 3DES and AES encryption makes an additional contribution to data security.

### VoIP Carriers

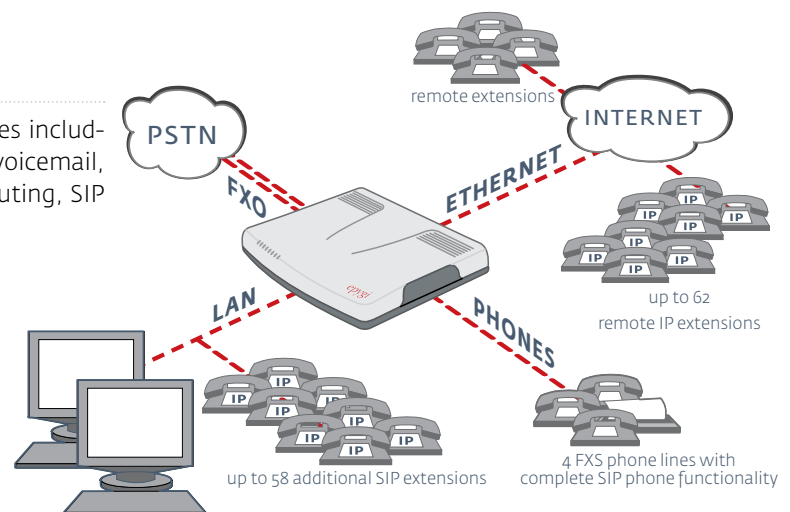
The Quadro4x IP PBX is easily applicable for VoIP Carriers as well as small businesses. For VoIP carriers, a special wizard has been implemented that facilitates the configuration of Quadro4x to work according to individual requirements.

### Fully-Featured IP PBX

The Quadro4x offers a multitude of features including extensive PBX functionality, integrated voicemail, cost saving call routing functionality, IP routing, SIP call signaling and much more.

### Integrated Internet Access Router

The Quadro4x 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 extensive IPSec



## Telephony

### Voice Features

Voice Coding G.711, G.726 (16, 24, 32, 40 kbps), G.729A, iLBC (33, 33 kbit/s, 15, 2 kbit/s); (ITU-T: G.711, G.726, G.729 Annex A; RFC 3951; iLBC; 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, CNG, G.168 echo cancellation  
Lifeline POTS (single line) on line 1

### Bandwidth Requirements

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

|               |         |                  |
|---------------|---------|------------------|
| G.711a/G.711u | 20 msec | 84 kbps/105 kbps |
| G.726-16      | 20 msec | 37 kbps/59 kbps  |
| G.726-24      | 20 msec | 45 kbps/65 kbps  |
| G.726-32      | 20 msec | 52 kbps/74 kbps  |
| G.726-40      | 20 msec | 60 kbps/80 kbps  |
| G.729a        | 20 msec | 29 kbps/49 kbps  |
| iLBC          | 30 msec | 27 kbps/41 kbps  |

### PBX Features

Call blocking, Forwarding, Hold, Transfer  
Call relay, Call waiting, Caller ID Detection  
Voice mail  
Call park, Pickup, Paging, Intercom  
Multilevel auto attendant with Interactive Voice Response (IVR) and VoiceXMLv2 support  
Voice mail with SMS notification  
Distinctive ringing  
Speed dialing  
Many extension ringing  
Receptionist  
Call hunting, Hiding Caller ID  
Automated Call back from Auto Attendant  
Hold music  
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  
Directory assistance  
Dial plans (call routing)  
Time of day routing  
Call Queue

### Call Signaling

SIP on the WAN and LAN side (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  
RTP Proxy  
Fax over IP (ITU-T: T.4, T.30, T.38, V17, V21, V27 ter, V29)

### POTS Signaling

Loop start  
FSK and DTMF Caller ID support

## Connectivity

### Extensions

Up to 96 extensions including FXS phones, IP Phones, remote and virtual extensions  
All extensions can be registered on different SIP servers

### LAN IP Phones

30 SIP phones by default;  
32 additional SIP phones may be added with feature keys  
Remote IP extensions may be enabled for all SIP phones

### System Capacity

20 simultaneous VoIP calls with external parties  
Unlimited station to station calling for IP phones  
Unlimited station to station calling for analog phones  
2 (optionally 4) simultaneous PSTN calls with external parties  
Up to 4 simultaneous calls through a VPN

### Premise Connections

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

### Uplink Connection

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

### USB Expansion

USB memory sticks for additional voice mail storage

### Billing

Radius Client (RFCs: 2865, 2866)

## Internet

STUN/NAT traversal (RFC 3489)  
IPSecVPN with DES/3DES and AES encryption in tunnel mode (RFCs: 2402, 2406, 2409). Manual and automatic IKE key support  
PPTPVPN  
L2TPVPN  
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 and fax messages (.wav and .tif) as e-mail attachments and system notifications  
DNS (DYNDNS) support with third party  
NAT/Router with port forwarding and port translation

## System

### Management

Multilingual WEB interface accessible from LAN and WAN (HTTP/HTTPS)  
Password control  
Remote diagnostics and software upgrade  
Auto-provisioning  
VoIP Carrier Wizard  
Download/restore configuration  
Legible and editable configuration files  
Auto-configuration of IP phones via TFTP and HTTP  
SNMP Monitoring and Configuration  
Third Party Call Control XML RPC  
Reset button with factory reset option  
Custom Language Pack

### 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 1.77"  
(25.5 x 21.0 x 4.5 cm)  
Weight: 22.6 ounces (640 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

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

### Certification

For Australia, Brazil, Canada, European Community, Mexico, Russia, USA



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