

# Quadro<sup>2x</sup>

THE GLOBAL PHONE NETWORK IN A BOX



## Quadro2x: The IP PBX with 1 FXO Port, 2 FXS Ports - up to 16 SIP Phones

The Quadro2x is a fully-featured IP PBX for home offices and teleworkers. Connected by one FXO line to the PSTN and over 10Base-T Ethernet to the Internet, the Quadro2x allows attaching two FXS phones and 8 fully-featured LAN IP phones. The 8 User Expansion increases the total number of LAN IP phones to 16. Additional virtual extension allow e.g., registering at various SIP servers.

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.

### Fully-Featured IP PBX

The Quadro2x offers a multitude of features including extensive PBX functionality, integrated voicemail, cost saving call routing functionality, IP routing, SIP call signaling and much more.

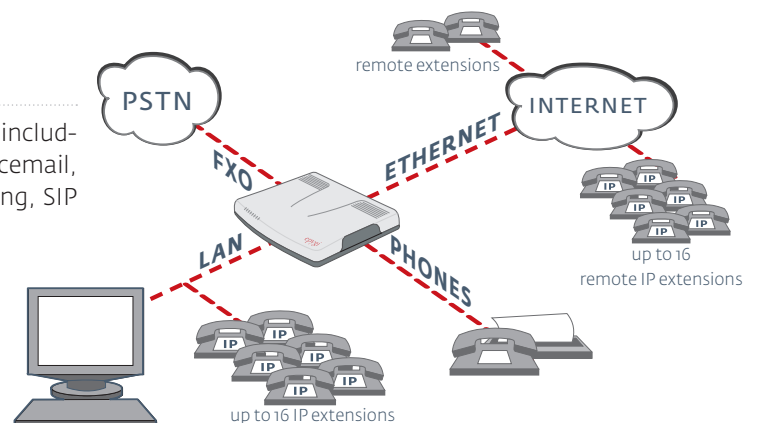
### Integrated Internet Access Router

The Quadro2x IP PBX embodies a fully-fledged Internet access router with firewall security, including, NAT, policy and

service based filtering. An extensive IPSec VPN functionality with DES, 3DES and AES encryption makes an additional contribution to data security.

### VoIP Carriers

The Quadro2x 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 Quadro2x 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.729A, iLBC (13, 33 kbit/s, 15.2 kbit/s);  
(ITU-T: G.711, G.723.1 Annex A, 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.711/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
G.723	30 msec	21 kbps/34 kbps
iLBC	30 msec	27 kbps/41 kbps

### PBX Features

Call blocking, Forwarding, Holding, Transferring  
Call relay, Call waiting, Caller ID Detection  
Voice mail  
Call park, Pickup, Paging, Intercom  
Multilevel auto attendant with InteractiveVoice 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 dialing  
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-tilbc-05)  
in band and out of band signaling support  
RTP Proxy  
Fax over IP (ITU-T: T.4, T.30, T.38, V.17, V.21, V.27 ter, V.29)

### POTS Signaling

Loop start  
FSK and DTMF Caller ID support

## Connectivity

### Extensions

Up to 70 extensions including FXS phones LAN IP  
Phones remote and virtual extensions  
All extensions can be registered on several SIP servers

### LAN IP Phones

8 SIP phones by default  
8 additional SIP phones may be added with a feature key  
Remote IP extensions may be enabled for all SIP phones

### System Capacity

10 simultaneous VoIP calls with external parties  
Unlimited station to station calling for IP phones  
Unlimited station to station calling for analog phones  
1 PSTN call with external parties  
Up to 4 simultaneous calls through a VPN

### Premise Connections

2 short-loop FXS ports (RJ11)  
1 Ethernet 10/100BASE-T port (RJ45)

### Uplink Connection

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

### Billing

Radius Client (RFCs: 2865, 2866)

## Internet

STUN/NAT traversal (RFC 3489)  
IPSec VPN with DES, 3DES and AES encryption  
in tunnel mode (RFCs: 2402, 2406, 2409). Manual and automatic IKE key support  
PPTP/VPN  
L2TP/VPN  
Firewall security via:  
NAT (Network Address Translation)  
IDS/IPS  
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  
Auto-provisioning  
VoIP Carrier Wizard  
Download/restore configuration  
Legible and editable configuration files  
Auto-configuration of IP phones via TFTP  
SNMP Monitoring  
Third Party Call Control XML RPC is available to order  
Reset button with factory reset option  
Custom Language Pack  
Outlook Feature

### 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  
Loop-back testing

## 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

Safety: UL 60950; CSA 22;  
EMC: FCC Part 15 Class B;  
EN 55022 Class B, EN 55024;  
Telecom: CTR21/TBR21

### Certification:

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



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