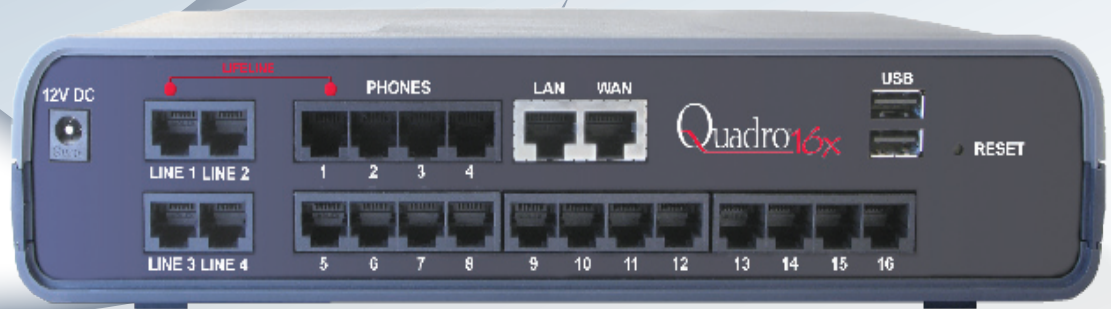# Quadro®16x

THE GLOBAL PHONE NETWORK IN A BOX

Quadro16x: The IP PBX with 4 FXO Ports, 16 FXS Ports – up to 50 SIP 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 allows to make up to 20 calls in parallel.

Including 16 FXS phones, 50 fully-featured SIP phones may be attached to Quadro16x's LAN port. In addition, the 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 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 extensive IPSec VPN functionality with DES, 3DES and

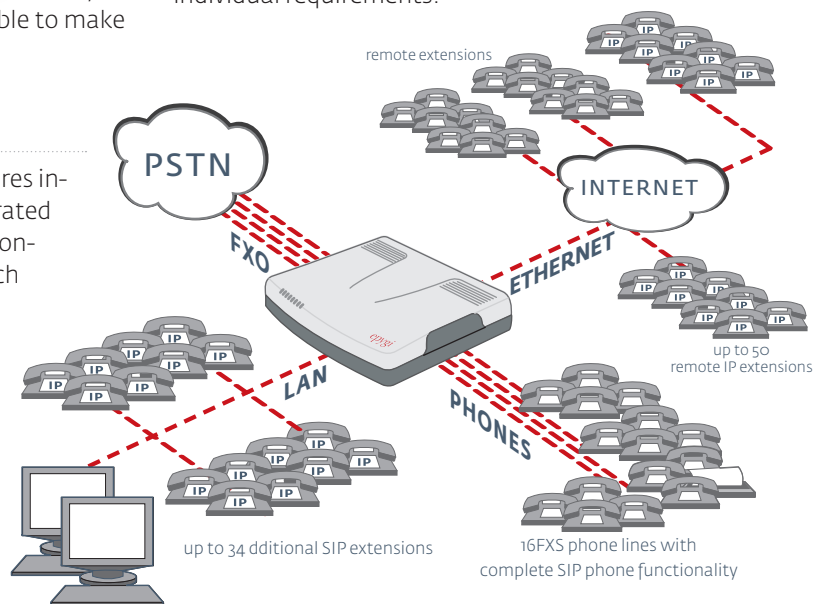AES encryption makes an additional contribution to data security.

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.

remote extensions

PSTN

INTERNET

FXO

ETHERNET

LAN

PHONES

up to 50 remote IP extensions

up to 34 dditional SIP extensions

16 FXS phone lines with complete SIP phone functionality

epygi®

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: G711, G.723.1 Annex A, G.726, G729 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):

Codec	Interval	Bandwidth
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
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 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 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-ilbc-05),
in band and out of band signaling support
RTP Proxy
Fax over IP (ITU_T: T4, T30, T38, V17, V21, V27 ter, V29)

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
18 SIP phones by default;
32 additional SIP phones may be added with feature keys
Remote IP extensions may be enabled for each SIP phone

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
4 simultaneous PSTN calls with external parties
Up to 4 simultaneous calls through a VPN

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 or ADSL 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)
IPSec VPN with DES, 3DES amnd AES encryption in tunnel mode (RFCs: 2402, 2406, 2409). Manual and automatic IKE key support
PPTP VPN
L2TP VPN
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
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
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 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 - 35°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

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

CE

Nemko GS geprüfte Sicherheit

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Technical Data: Quadro16x