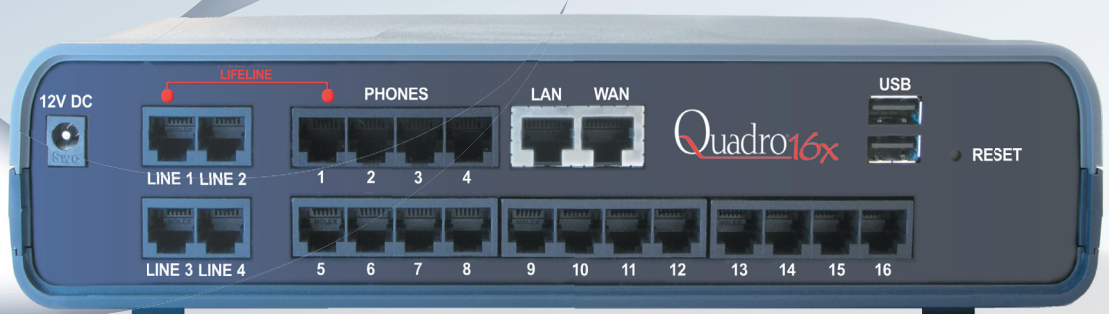# Quadro16x

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 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.
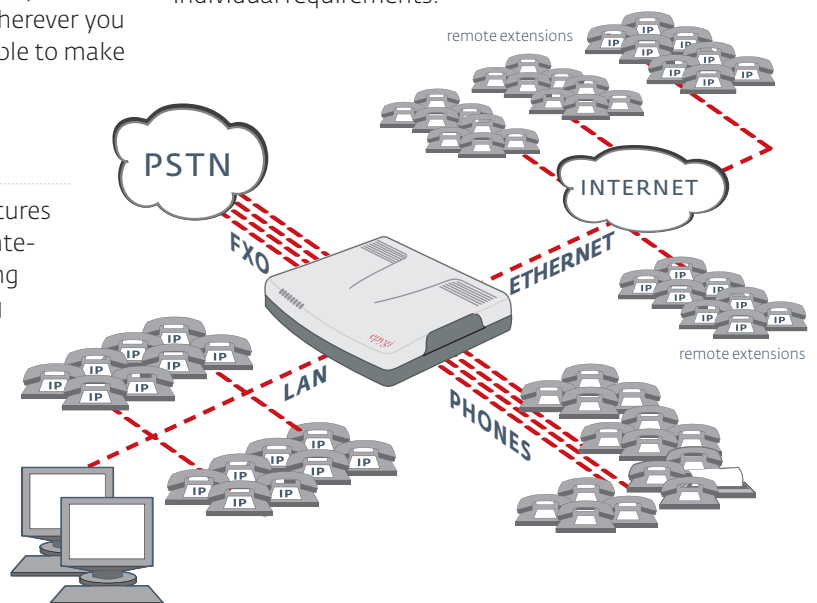
Integrated Internet Access Router

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.

epygi

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: G711, G.723.1 Annex A, G.726, G729 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, CNG, G.168 echo cancellation
Lifeline POTS (single line)

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 block, forward, hold, ID, park, relay, transfer, wait
Voice mail
Multilevel auto attendant with Interactive Voice Response (IVR)
Directory assistance
Distinctive ring, hold music, speed dialing
Hunt group
Many extensions ring
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-sip-ping-dialog-package-05)
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
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, draf t-foster-mgcp-returncodes-01,
PKT-SP-EC-MGCP-I10-040402)
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 (16), IP phones (up to 48) and virtual extensions)
The virtual extensions allow e.g., registering on several SIP servers
Remote extensions for any physical extension (up to 64)

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

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
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, ADSL or G.SHDSL 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

NAT address translation
STUN/NAT traversal (RFC 3489)
IPSec VPN with DES, 3DES amnd AES 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
Downoad/restore configuration
Legible and editable configuration files
Auto-configuration via TFTP
Reset button with factory reset option

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

FC

C UL US
LISTED
I.T.E.
18JY
E242666

PGT
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ANATEL
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Technical Data: Quadro16x