

# Quadro<sup>®</sup> ISDN

THE VOICE OVER IP GATEWAY



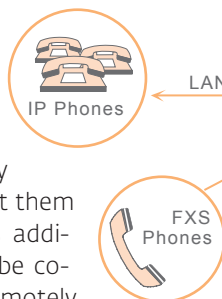
## The Quadro Gateway to PSTN, ISDN BRI Extension and/or Mini POP

### Gateway to the PSTN

The Quadro Gateway is a modular approach to adding additional outside PSTN lines (ISDN BRI) to a corporate phone network that uses Epygi's Quadro IP PBXs. Each Quadro Gateway is a stand-alone SIP gateway device with 4 outside ISDN BRI lines. Multiple Quadro Gateways can be added to a Quadro IP PBX depending on how many additional lines are required. Uses include the addition of inbound lines, the balancing of outbound call volumes from a combination of analog and IP phones, fax lines, emergency lines and individual direct dial numbers for each member of staff.

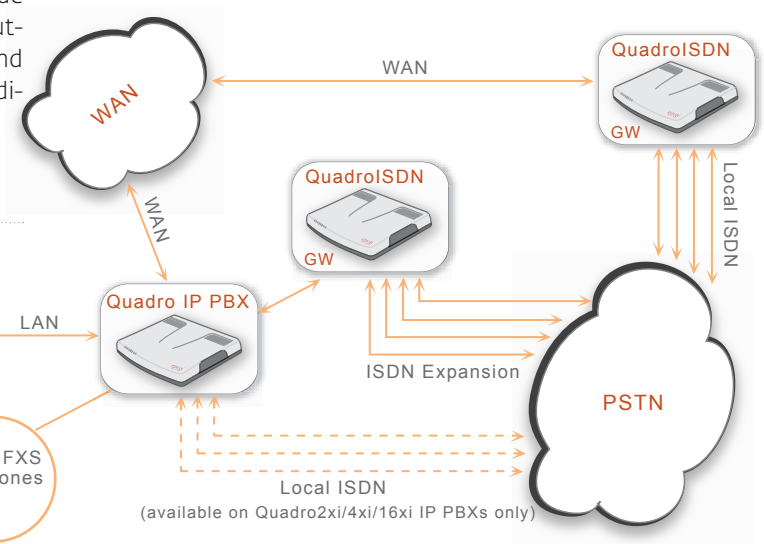
### ISDN BRI Extension for Quadro IP PBX

Connected via Ethernet to the LAN interface of a Quadro IP PBX, the Quadro Gateway delivers four additional ISDN lines for PSTN calls. Minimal configuration is needed, the Quadro IP PBX will automatically use the new ISDN ports and present them within its management system as additional ISDN lines. These lines may be co-located with the IP PBX or located remotely as an "extension cord" to another office in another city or even another country.



### Mini Point of Presence (POP)

The Quadro Gateway can be used as a low cost, mini Point of Presence (POP). In this configuration you remove the IP PBX altogether by assigning VoIP network DID numbers from an ITSP directly to the Quadro Gateway lines. It truly is the lowest cost for creating a local presence anywhere on the globe.



## 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, G.729 Annex A; IETF; GR.181; A-law,  $\mu$ -law coding)  
NAT traversal (both manually and STUN)  
VAD, CNG, G.168 echo cancellation;  
Reduced simultaneous channel capacity;  
Supported Called ID standard ETS\_300659\_1.2.3

### Bandwidth Requirements

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

G.711a/G.711u	20 msec	84 kbps
G.726-16	20 msec	37 kbps
G.726-24	20 msec	45 kbps
G.726-32	20 msec	52 kbps
G.726-40	20 msec	60 kbps
G.729a	20 msec	29 kbps
G.723	30 msec	21 kbps
iLBC	30 msec	27 kbp

### PBX Features

Multilevel auto attendant with Interactive Voice Response (IVR) and VoiceXMLv2 support  
Voice mail with SMS notification  
Directory assistance  
Call hunting, call blocking  
Call statistics  
Unified messaging  
T.38 fax, fax relay and clear channel fax  
Unified Fax Messaging  
Dial plans (call routing)  
Time of day dialling  
Multiple user extensions (up to 70 physical/virtual extensions)

### ISDN Features

NT mode support  
TA mode support  
BRI expansion for Quadro IP PBXs

### Call Signaling

SIP (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-rtcp-ilbc-05)  
Fax protocols (ITU-T: T4, T30, T38, V17, V21, V27ter, V29)

### ISDN Signaling

ITU-T: Q.921, Q.931 (DSS1), Q.951; ETSI ETS300 102 (NETS); NTT INS1500 for Japan

### DTMF

In band and out of band signaling support

## Connectivity

### Premise Connections

1 Ethernet 10/100BASE-T port to connect a PC for configuration purposes (RJ45)

### Uplink Connections

1 Ethernet 10BASE-T (RJ45)

### ISDN Connection

4 ISDN ports to the Central Office or local PBX (RJ45)

### 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)

PPTPVPN  
L2TPVPN

Firewall security via:

NAT (Network Address Translation)  
Policy and service-based filtering  
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  
DNS support  
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 Carriers wizard  
Download/restore configuration  
Legible and editable configuration files  
SNMP Monitoring  
Reset button with factory reset option

### Diagnostics/Testing

LEDs: Busy, Info, Fault, PWR, Line 1, Line 2, Line 3, Line 4  
ISDN diagnostics, Remote testing  
Power-up diagnostics

## 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: EN60950;  
EMC: EN55022, EN55024;  
Telecom: TBR3 (ISDN)

### Certification:

For Australia, Canada, European Community, USA

