

## DATA SHEET

## Integrated Access Gateway

**Integrated Access Device: Firewall & Router**

**VoIP Gateway: SIP, ISDN, PSTN**

**Access technologies: Telco, IP, GSM/LTE**

**Upgradable to 3CX PBX package**



### Features

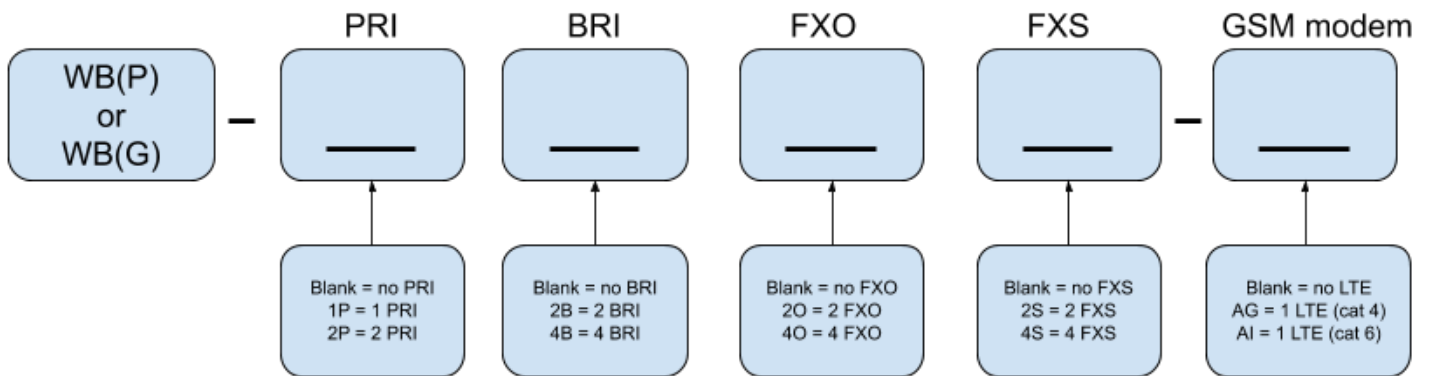
- Desk mount unit
- SIP trunks: 4 \* G.729a CODEC's (upgradable to 8, 16, 24, 32)
- Telephony hardware:
  - 0, 2, 4 Analogue (FXS or FXO)
  - 2 or 4 Basic Rate ISDN (TE or NT mode)
  - 1 Primary Rate ISDN (TE or NT mode)
- WAN ports:
  - Ethernet
  - LTE (cat 4 or 6)
- LAN:
  - Ethernet, USB2.0 (OTG)
  - WiFi Access Point or Client
- Network Protocols and Services: PPP & PPPoE, HDLC, IPv4, DNS, VPN, VLAN, NTP, SSH, HTTPs
- Routing: Static, NAT, NAT traversal, Port Forwarding, SIP ALG
- Firewall: Policies, Access Control Lists, Inbound/Outbound Filters, DMZ
- SIP Gateway features: B2B User Agent, Call Recording, T.38 fax, Announcements, register 2 PBX extensions
- QoS:
  - Enhanced Class of Service: DSCP and 802.11p
  - "ViBE" integration, [www.voipex.co.uk](http://www.voipex.co.uk)
- Call Recording "Call Manager": 30,000 minutes on device (expand via 32GB or 64GB mini SD card)
- Web-based GUI: User friendly, install and configuration "wizard"
- Software upgrade: 3CX PBX software package
- ICASA type approval: TE-2016/068

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### Ordering Information

#### Part Number Generator

The Wanderbox is modular, with the ordering code made up as follows.



#### Note:

WB(G) defined SIP Gateway feature set support

PRI, FXS, FXO, WiFi interface technical specifications within the Wanderbox “Quick Start” and “Installation Guide”

#### Example part number variants (other options are available)

<b>WB(GP)-SX</b>	SIP Gateway, 2 Ethernet
<b>WB(G)-2O2S</b>	SIP Gateway, 2 FXO, 2 FXS (incl 2FXO<-> 2FXS by-pass), 2 Ethernet
<b>WB(GP)-4O</b>	SIP Gateway, 4 FXO, 2 Ethernet
<b>WB(G)-4S</b>	SIP Gateway, 4 FXS, 2 Ethernet
<b>WB(G)-4B</b>	SIP Gateway, 4 BRI, 2 Ethernet
<b>WB(G)-1P</b>	SIP Gateway, 1 PRI, 4 Ethernet
<b>WB(G)-SX-AG</b>	SIP Gateway, 2 Ethernet, LTE (cat 4)
<b>WB(G)-SX-AI</b>	SIP Gateway, 2 Ethernet, LTE (cat 6)

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**Technical Specifications**

Host Processing Platform				
CPU	ARM Cortex-A53, Quad Core, 1.6GHz			
Memory	2GB DDR3			
Storage	8GB NAND Flash, 16GB uSD			
I/O Ports	2 * USB 2.0 (1 * OTG / Host, 1 * UART)			
WAN ports	IEEE802.11b/g/n, Bluetooth, 10/100Base-Tx (RJ45), (optional) LTE-Advanced			
Operating System	Ubuntu Linux 16.04 LTS			
Telephony Interfaces (per unit)				
	Primary Rate	Basic Rate	Analog (FXS)	Analog (FXO)
Voice Ports	30 (EI)	0, 4	0, 2, 4	0, 2, 4
	<b>Note:</b> Telephony port expansion supported via connection of Comma iTA units			
Physical	RJ-45	4 x RJ-45	RJ-11	RJ-11
Electrical	EI/G.703 120Ω TI/G.703 100Ω	S/T TE or S/T NT (software selection)	Zone dependent, software programmable DC and AC characteristics. Balanced sinusoidal ringing (3 REN)	Zone dependent, software programmable impedance matching.
Protection	Power cross Inter-building	-	Power cross Inter-building	Power cross Inter-building
Conformance	TBR 4	TBR3		TE-001 (Country-dependent)
Voice Features				
Echo Cancellation	Hardware based G.165 type adaptive echo cancellation per channel Up to 32 channels at 16 ms or 32 ms Up to 16 channels at 64 ms			
Hardware Codecs	-	-	G.711 A-law or μ-law	G.711 A-law or μ-law
Software Codecs	G.711, GSM, G.729A, G.726, G.723			
Fax and Modem	Packet-network synchronization and G.711 provide transparent fax/modem support			
Signaling				
Signaling System	ISDN PRI - ETSI ISDN PRI - NI-2	ISDN BRI – ETSI ISDN BRI – NI-2	Loop-start DTMF	Loop-start DTMF
Other Features	Configurable network clock synchronization	Configurable network clock synchronization	Caller ID transmission Hook flash Distinctive ring	Caller ID reception
Packet Interfaces				
VoIP	SIP + RTP			
RF interfaces (FMC)				
	LTE category 6 (Advanced)		LTE category 4	
Antenna Geometry	Dual Rx diversity		Dual Rx diversity	
Antenna connector	2 * SMA(F)		2 * SMA(F)	
Antenna gain (Omni-850)	2.5dBi		2.5dBi	
Frequency range	690MHz – 2700MHz		690MHz – 2700MHz	
Polarisation	Linear Vertical		Linear Vertical	
SIM slot	Micro SIM		Micro SIM	
GSM Frequencies	900 / 1800MHz		900 / 1800MHz	
WCDMA bands	1, 3, 5, 8		1, 5, 8	
LTE bands	1, 3, 5, 7, 8, 20, 26, 28, 38, 40, 41		1, 3, 5, 7, 8, 20, 38, 40, 41	
Carrier Aggregation	2		Non	
FDD	50Mbps (UL), 300Mbps (DL)		50Mbps (UL), 150Mbps (DL)	
TDD	28Mbps (UL), 266Mbps (DL)		35Mbps (UL), 130Mbps (DL)	
GSM	LTE cat 6, WCDMA 3GPP DC-HSDPA		LTE cat 4, WCDMA 3GPP DC-HSPA+	
Modulation	QPSK, 16-QAM, 64-QAM		QPSK, 16-QAM, 64-QAM	
Approvals	ICASA pending (Quectel EP06E – mPCIe)		ICASA TA-2017/2652 (Quectel EC25E – mPCIe)	
Administration				
Management	Web based GUI, including platform backup and restore			

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Logging	Log (with configurable levels)
Field upgrade	Application and firmware remote update from hosted repository
<b>Physical Characteristics</b>	
Power	12VDC, 2.5A via external AC/DC adapter (supplied)
Environmental	0°C - 45°C
Dimensions	127mm x 130mm x 25mm
Mounting	Desktop
<b>Certification</b>	
Safety	IEC 60950
EMC	CISPR22 Class B
Other	TBR3, ICASA TE-001 (South Africa)

## Gateway Feature Set

The short list of features provided below is common across all Wanderbox Gateway platforms:

SIP Gateway Features		
<ul style="list-style-type: none"> <li>Remote Management:                             <ul style="list-style-type: none"> <li>Monitoring &amp; Diagnostics</li> <li>Backup and restore</li> <li>Call flow analysis</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>Networking: DHCP, DNS, NTP, HTTP, VPN, SSH, VLAN</li> </ul>	<ul style="list-style-type: none"> <li>Security:                             <ul style="list-style-type: none"> <li>Firewall policy</li> <li>Access Control lists</li> <li>In/Outbound filter</li> <li>DMZ</li> </ul> </li> </ul>
<ul style="list-style-type: none"> <li>Fail2Ban security module</li> </ul>	<ul style="list-style-type: none"> <li>Routing: Static, NAT, Forwarding, SIP ALG</li> </ul>	<ul style="list-style-type: none"> <li>Call Recording Manager: <b>30,000min</b></li> </ul>
<ul style="list-style-type: none"> <li>B2BUA mode</li> </ul>	<ul style="list-style-type: none"> <li>SIP / (TCP or UDP)</li> </ul>	<ul style="list-style-type: none"> <li>TOS/COS: DSCP, 802.11p</li> </ul>
<ul style="list-style-type: none"> <li>SIP proxy registration</li> </ul>	<ul style="list-style-type: none"> <li>Trunk to Trunk routing</li> </ul>	<ul style="list-style-type: none"> <li>QoS: ViBE management</li> </ul>
<ul style="list-style-type: none"> <li>Register 2 phones (emergency calls)</li> </ul>	<ul style="list-style-type: none"> <li>Outbound route configuration (LCR) and multi-level trunk fail-over</li> </ul>	<ul style="list-style-type: none"> <li>Atmos compliant "Call Recording" from Call Cabinet</li> </ul>
<ul style="list-style-type: none"> <li>T.38 fax</li> </ul>	<ul style="list-style-type: none"> <li>Budget Trunk Router (minutes/month)</li> </ul>	

Refer to Wanderbox brochures and Com.X Administrators Guide for feature set specification, available at: <http://farsouthnet.com/support/manuals/>