

## DATA SHEET

## Secure Business Communications

### Any Device, Any Place


**Provides enterprise class Unified Communications service for small offices environments**

**Secure, quality multimedia services via any internet enabled device (BYOD)**

**Multiple access technologies: Telco, SIP, WebRTC**



### Features

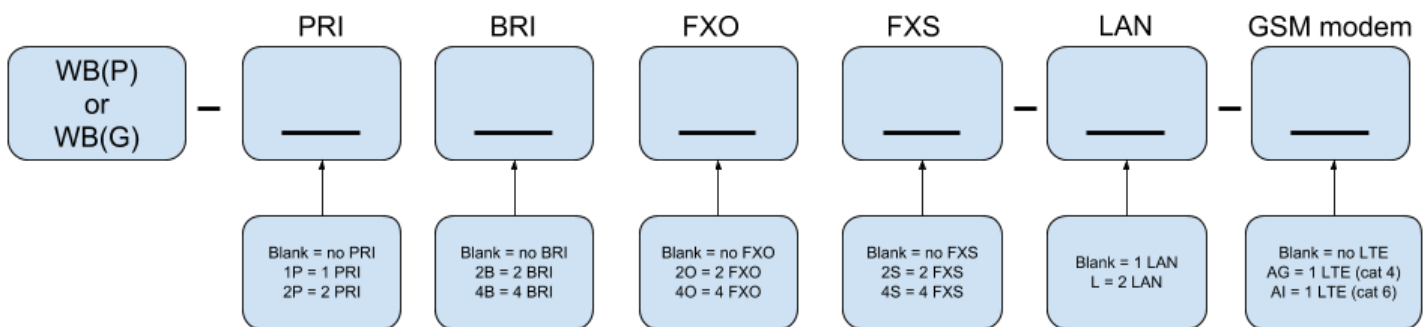
- Desk mount unit
- SIP trunks: 4 \* G.729a CODEC's (upgradable to 8, 12, 16, 24, ... 32)
- Telephony hardware:
  - 0, 2, 4 Analogue (FXS or FXO)
  - 2 or 4 Basic Rate ISDN (TE or NT mode)
  - 1 or 2 Primary Rate ISDN (TE or NT mode)
- WAN ports:
  - 1 Ethernet, 2 \* USB2.0 (1 \* OTG / Host, 1 UART)
  - 1 LTE (cat 4 or 6)
- LAN: 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, 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)
- PBX capacity:
  - 50+ Users: IP phone or Analogue phone POTS support
  - 4 simultaneous calls (upgradable to 8, 12, 16, 24, ...32)
- IP phone support: Auto-provisioning for Yealink, Polycom, snom, Escene
- PBX feature set: Voicemail-to-Email, Auto-Attendant, Queues, Conferences, Music-on-Hold, and more ...
- 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"
-  ready:
  - Connect: Web based "NOC as a Service" (device ID, connect & monitor)
  - Talk: UC&C via user-based BYOD
- TMS support: MAN3000, Aspivia-Unison and others
- 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) defines SIP Gateway feature set support, with optional PBX license upgrade

WB(P) defines a full PBX feature set available

PRI, BRI, FXS, FXO, WiFi interface technical specifications Wanderbox "Quick Start and Installation Guide"

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

<b>WB(P)-SX</b>	IP PBX (IP only), 1 Ethernet
<b>WB(P)-SX-L</b>	IP PBX (IP only), 2 Ethernet
<b>WB(G)-2O2S</b>	SIP Gateway with support for 2 FXO, 2 FXS (incl 2FXO<-> 2FXS by-pass), 1 Ethernet
<b>WB(P)-4O</b>	IP PBX with support for 4 FXO, 1 Ethernet
<b>WB(G)-4S</b>	SIP Gateway, with support for 4 FXS, 1 Ethernet
<b>WB(P)-2B</b>	IP PBX, with support for 4 FXS, 1 Ethernet
<b>WB(P)-1P</b>	IP PBX with support for 1 PRI, 3 Ethernet
<b>WB(P)-SX-AG</b>	IP PBX with support for 1 Ethernet, LTE (cat 4)
<b>WB(G)-2P</b>	SIP Gateway with support for 2 PRI (incl PRI <-> PRI by-pass), 3 Ethernet
<b>WB(G)-SX-AI</b>	SIP Gateway with support for 1 Ethernet, LTE (cat 6)

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**Technical Specifications**
**Host Processing Platform**

CPU	ARM Cortex-A9, 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), IR, (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 or 60 (E1)	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	E1/G.703 120Ω T1/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 $\mu$ -law	G.711 A-law or $\mu$ -law
Software Codecs	G.711, OPUS, GSM, G.729A G.726, G.723, iLBC, SPEEX			
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	WebRTC 1.0 SIP + RTP IAX2 + RTP
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**RF interfaces (FMC)**
**LTE category 6 (Advanced)**
**LTE category 4**

	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)

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Administration	
Management	Web based GUI, including platform backup and restore
Logging	Log (with configurable levels)
Field upgrade	Application and firmware remote update from hosted repository
Call Detail Records	MySQL database for CDR
Physical Characteristics	
Power	12VDC, 2.5A via external AC/DC adapter (supplied)
Environmental	0°C - 45°C
Dimensions	127mm x 130mm x 25mm
Mounting	Desktop
Certification	
Safety	IEC 60950
EMC	CISPR22 Class B
Other	TBR3, TBR4, ICASA TE-001 (South Africa)

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

### Gateway Feature Set

The short list of features provided below is common across all Com.X(G) 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>Wanderweb CONNECT – Web based device managed services</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>Networking (DHCP, DNS, NTP, HTTP, VPN, SSH, VLAN)</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: 40,000min (.gsm)</li> </ul>
<ul style="list-style-type: none"> <li>B2BUA mode</li> </ul>	<ul style="list-style-type: none"> <li>SIP / (TCP or UDP) and IAX2 trunks</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</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>Diagnostics tools: SIPp and Wireshark</li> </ul>
<ul style="list-style-type: none"> <li>Fail2Ban security module</li> </ul>	<ul style="list-style-type: none"> <li>Budget Trunk Router (call minutes per month)</li> </ul>	<ul style="list-style-type: none"> <li>T.38 fax</li> </ul>

### PBX Feature Set

Inclusive of the SIP Gateway features listed above, Com.X(P) PBX short list feature set includes:

PBX Features		
<ul style="list-style-type: none"> <li>Yealink, SNOM &amp; Polycom IP Phone auto-configuration from spreadsheet</li> </ul>	<ul style="list-style-type: none"> <li>Wanderweb TALK ready: UC&amp;C                             <ul style="list-style-type: none"> <li>Directory, Presence</li> <li>IM &amp; Group Collaboration</li> <li>HD Voice</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>Inbound route configuration (Conferences, Day/Night, Ring Groups, Voice mail, IVR, Phonebook)</li> </ul>
<ul style="list-style-type: none"> <li>Outlook integration (“Click to Dial”)</li> </ul>	<ul style="list-style-type: none"> <li>I-Number support</li> </ul>	<ul style="list-style-type: none"> <li>Active Call Notification (&amp; History)</li> </ul>
<ul style="list-style-type: none"> <li>Web based “Click to Call” – HTML integration</li> </ul>	<ul style="list-style-type: none"> <li>Auto-attendant / IVR (English South African dialect)</li> </ul>	<ul style="list-style-type: none"> <li>Blocking extensions &amp; trunks, Call time limits</li> </ul>
<ul style="list-style-type: none"> <li>Unlimited voice mail &amp; voice mail to email</li> </ul>	<ul style="list-style-type: none"> <li>Music on Hold – Up to 5 sources (uploaded and streaming)</li> </ul>	<ul style="list-style-type: none"> <li>HTTP Dialler (“Click to dial” integration)</li> </ul>
<ul style="list-style-type: none"> <li>Conferencing</li> </ul>	<ul style="list-style-type: none"> <li>Feature Codes &amp; Pin Sets</li> </ul>	<ul style="list-style-type: none"> <li>Ring groups &amp; Queues</li> </ul>
<ul style="list-style-type: none"> <li>Listening in on calls – “spy” feature</li> </ul>	<ul style="list-style-type: none"> <li>Call back</li> </ul>	<ul style="list-style-type: none"> <li>Hot-desk support</li> </ul>
<ul style="list-style-type: none"> <li>Parking lots &amp; Directed Pick-ups</li> </ul>	<ul style="list-style-type: none"> <li>Camp-on “Call Back”</li> </ul>	<ul style="list-style-type: none"> <li>Follow me and Divert</li> </ul>
<ul style="list-style-type: none"> <li>“Flexpath” routing:                             <ul style="list-style-type: none"> <li>Class of Service</li> <li>Partitioning / Multi-tenant</li> <li>Trunk to trunk Gateway</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>Calendar Integration (Google &amp; Outlook)                             <ul style="list-style-type: none"> <li>Individual &amp; Group events linked to PBX services &amp; call routing</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>Operator Panel &amp; User HUD: 15 users. License upgrade for unlimited users</li> </ul>
<ul style="list-style-type: none"> <li>E-mail support (voice mail &amp; alerts)</li> </ul>	<ul style="list-style-type: none"> <li>Announcements, Paging and Intercom</li> </ul>	<ul style="list-style-type: none"> <li>Call Barging</li> </ul>
<ul style="list-style-type: none"> <li>Voice mail blasting</li> </ul>	<ul style="list-style-type: none"> <li>UPS (Proline) management</li> </ul>	<ul style="list-style-type: none"> <li>Directory / Phonebook</li> </ul>
<ul style="list-style-type: none"> <li>Day / Night mode</li> </ul>	<ul style="list-style-type: none"> <li>Parking lots &amp; Directed Pick-ups</li> </ul>	<ul style="list-style-type: none"> <li>Directed Pickup</li> </ul>
<ul style="list-style-type: none"> <li>DISA support</li> </ul>	<ul style="list-style-type: none"> <li>Immediate dialling</li> </ul>	<ul style="list-style-type: none"> <li>Ring Back indication</li> </ul>