



### DATA SHEET

## Access to a new world of feature rich, connected anywhere telephony, at low cost and low risk

**Com.X5 provides a scalable and powerful communications solution for small to medium installations**

**Com.X5(G) is a flexible and feature-rich Integrated Access SIP Gateway solution in a single ½ x 19" rack, 1U box**

**Zero hardware obsolescence, optional SIP Gateway upgrade to full featured Com.X5(P) IP PBX**



### Features

- 1U rack-mount or desk mount unit
- SIP trunks: 4, 8 or 16 simultaneous G.729 CODEC's (model dependant)
- Telephony hardware: 2 to 8 Analogue, or 2, 4 or 8 BRI
- WAN ports: 4 Gigabit Ethernet, X.21, 3G or LTE
- Seamless expansion by means of additional rack mount Comma iTA units and an Ethernet interconnect
- Network Protocols and Services: PPP / PPPoE, HDLC, IPv4, DNS, VPN, NTP, SSH, HTTP, VLAN
- Routing: Static, NAT, NAT traversal, Port Forwarding, SIP ALG
- Firewall: Policies, Access Control Lists, Inbound/Outbound Filters, DMZ
- SIP Gateway features: Multiple "FlexPath" call routing priorities, Call Recording, B2BUA, Advanced Diagnostics, Nagios reporting, T.38 fax, register 2 local extensions
- Budget Trunk Routing feature: Set available call minutes per month, per trunk
- QoS:
  - Enhanced Class of Service: DSCP and 802.1P, (pending) Traffic Shaping
  - "ViBE" integration, Voipex (UK)
- PBX capacity:
  - 100+ Users: IP phone or Analogue phone POTS support
  - 4, 8 or 16 simultaneous calls (model dependant)
  - IP phone support: Yealink, SNOM, Polycom, Gigaset, Aastra, Alcatel, RTX
- PBX feature set: Yealink, SNOM & Polycom phone auto-provisioning, Voice Mail-to-email, IVR, Queues, Conferences, Music on Hold, Hot Desk, "Click to Dial" integration, Class of Service calls, Call Backs, Ring Back Indication ...
- Call Recording "Call Manager": 100,000's minutes on device, archiving to external devices
- Web-based GUI: User friendly, install and configuration "wizard"
- Remote Management: TR-069 provisioning, Nagios reporting, Backup & Restore, Call flow analysis
- TMS support: MAN3000, TNG, Aspivia-Unison, A2Billing and others
- ICASA type approval (TE-2011/192)

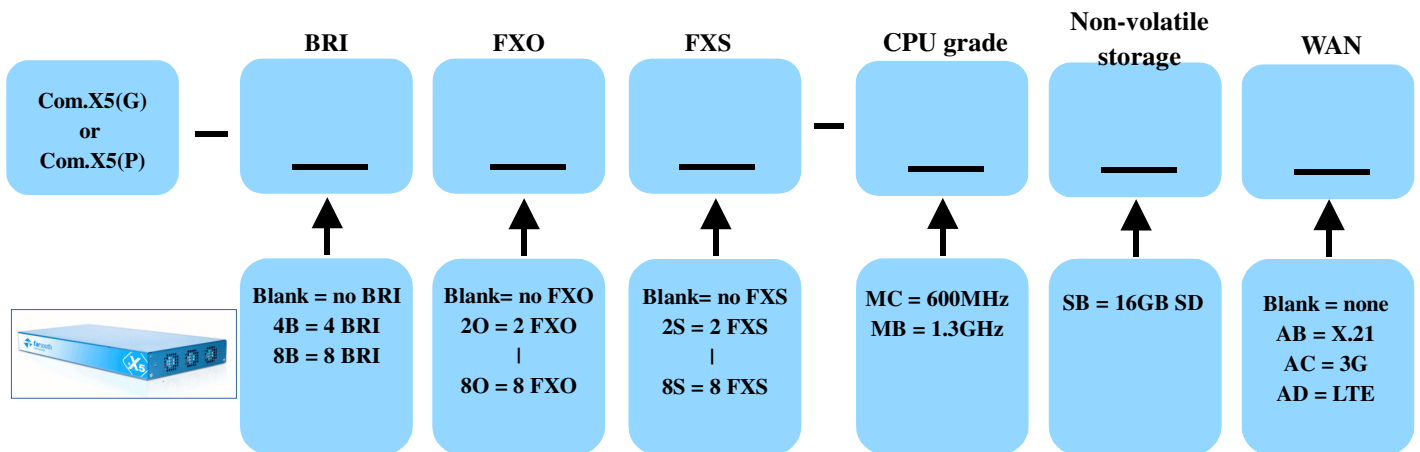


### DATA SHEET

## Ordering Information

### Part Number Generator

The Com.X5 is modular, with the ordering code made up as follows. Not all combinations are possible.



### Note:

Total FXS plus FXO ports may not exceed 8 ports per Com.X5 unit

Com.X5(G) SIP Gateway feature set support with support for PBX license upgrade

Com.X5(P) defines a full PBX feature set available

BRI, FXS, FXO, X.21, 3G, LTE interface technical specifications Com.X5 "Quick Start" and "Installation Guides"

### Part number examples: (many other build variants are available)

<b>Com.X5(G)Lite-2O2S-MCSB</b>	4 channel SIP Gateway, 2 FXO, 2 FXS (hardware 2FXO <-> 2FXS by-pass)
<b>Com.X5(G)Lite-4O4S-MCSB</b>	4 channel SIP Gateway, 4 FXO, 4 FXS (hardware 4FXO <-> 4FXS by-pass)
<b>Com.X5(G)-2B-MCSB</b>	4 channel SIP Gateway, 2 BRI (TE or NT mode)
<b>Com.X5(G)-4B-MCSB-AC</b>	8 channel SIP Gateway, 4 BRI (TE or NT mode), 3G
<b>Com.X5(G)-8B-MBSB-AD</b>	16 channel SIP Gateway, 8 BRI ports (TE or NT mode), LTE
<b>Com.X5(P)Lite -4O-MCSB-AD</b>	4 channel PBX, 4 FXO, LTE
<b>Com.X5(P)Lite -2O6S-MCSB</b>	4 channel PBX, 2 FXO, 6 FXS (hardware 2FXO <-> 2FXS by-pass)
<b>Com.X5(P)-4B2O2S-MCSB</b>	8 channel PBX, 4 BRI (TE or NT mode), 2 FXS, 2 FXO
<b>Com.X5(P)-8B-MBSBAD</b>	16 channel PBX, 8 BRI (TE or NT mode), LTE



## DATA SHEET

## Technical Specifications

## Host Processing Platform

CPU	Options include: <ul style="list-style-type: none"> <li>• Intel Atom E620, 600MHz</li> <li>• Intel Atom E660, 1.3GHz</li> </ul>
Memory	512 MB DDR2-800
Storage	16GB SD
I/O Ports	4 x 10/100/1000 Base-Tx LAN, 2 x USB 2.0, 1 x RS-232
WAN ports	X.21 "Diginet", 3G/LTE
Operating System	Ubuntu Linux 10.04 LTS

## Telephony Interfaces (per unit)

	Primary Rate	Basic Rate	Analog (FXS)	Analog (FXO)
Voice Ports		8, 16	2, 4, 6, 8	2, 4, 6, 8
<u>Note:</u> Telephony port expansion supported via connection of Comma iTA units				
Physical		4 / 8 x RJ-45	RJ-11	RJ-11
Electrical		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
Conformance		TBR3		TE-001 (Country-dependent)

## Voice Features

Echo Cancellation	Hardware based G.165 type adaptive echo cancellation per channel Up to 64 channels at 16 ms or 32 ms Up to 32 channels at 64 ms			
Hardware Codecs	-	-	G.711 A-law or $\mu$ -law	G.711 A-law or $\mu$ -law
Software Codecs	G.711, G.726, G.723, iLBC, SPEEX, GSM G.729A (optional with license purchase)			
Fax and Modem	Packet-network synchronization and G.711 provide transparent fax/modem support			

## Signalling

Signaling System		ISDN BRI – ETSI ISDN BRI – NI-2	Loop-start DTMF	Loop-start DTMF
Other Features		Configurable network clock synchronization	Caller ID transmission Hook flash Distinctive ring	Caller ID reception

## Packet Interfaces

VoIP	SIP + RTP IAX2 + RTP
------	-------------------------

## 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, 5A via external AC/DC adapter (supplied)
Environmental	0°C - 40°C
Dimensions	225mm x 220mm x 44mm
Mounting	Desktop, half 1U rack mount (mounting kit supplied)

## Certification

Safety	IEC 60950-1:2001 & SANS 60950-1:2003
EMC	CISPR22 Class B
Other	TBR3, ICASA TE-001 (South Africa)



## DATA SHEET

Refer to Com.X PBX and IAG 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>Call Recording Manager:               <ul style="list-style-type: none"> <li>16GB SD: 100,000min (.gsm)</li> <li>64GB SSD: 500,000min (.wav)</li> </ul> </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>TR-069 provisioning</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>QoS: Class of Service</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>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 (minutes/month based routing)</li> </ul>	<ul style="list-style-type: none"> <li>T.38 fax</li> </ul>
	<ul style="list-style-type: none"> <li>Nagios: Platform monitor &amp; reporting</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>Analogue and IP phone configuration</li> </ul>	<ul style="list-style-type: none"> <li>Announcements, Paging and Intercom</li> </ul>	<ul style="list-style-type: none"> <li>Ring groups &amp; Queues</li> </ul>
<ul style="list-style-type: none"> <li>IP-phone support: SNOM, Yealink, Polycom, Gigaset, Aastra and more...</li> </ul>	<ul style="list-style-type: none"> <li>Music on Hold (uploaded and streaming)</li> </ul>	<ul style="list-style-type: none"> <li>Outlook integration ("Click to Dial")</li> </ul>
<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>Feature Codes &amp; Pin Sets</li> </ul>	<ul style="list-style-type: none"> <li>Ring Back indication</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>UPS (Proline) management</li> </ul>	<ul style="list-style-type: none"> <li>Skype Connect</li> </ul>
<ul style="list-style-type: none"> <li>Conferencing</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>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>Inbound route configuration (Conferences, Day/Night, Ring Groups, Voice mail, IVR, Phonebook)</li> </ul>	<ul style="list-style-type: none"> <li>Operator Panel (FOP2): 15 users free, unlimited users with license update</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>Parking lots &amp; Directed Pick-ups</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>Immediate dialling</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>Directed Pickup</li> </ul>	<ul style="list-style-type: none"> <li>Number transformation</li> </ul>
<ul style="list-style-type: none"> <li>DISA support</li> </ul>	<ul style="list-style-type: none"> <li>HTTP Dialer ("Click to dial" integration)</li> </ul>	