

crystal2A*

ACCESS GATEWAY

FEATURE-RICH TELEPHONE SERVICE THROUGH YOUR INTERNET CONNECTION



OVERVIEW

The Crystal 2A Access Gateway enables high quality, feature rich telephone service through your cable or DSL internet connection. Just plug it in to your home gateway or router.

High quality, crystal clear sounding voice.

Compatible with all common telephone features, caller ID, call waiting, voice mail.

The Crystal 2A Professional is a two FXS gateway based on the SIP 2.0 standard. Providing one WAN port and three LAN ports, it allows up to four computers to share any broadband feed in an office or at home. This is a commercial grade product designed for providers.

- Supports auto-provisioning with remote firmware upgrade
- Password protected access and configuration
- Web-based configuration through a built-in web server
- Supports Session Initiation Protocol (SIP)
- Supports multi voice compression
- Supports Dynamic Host Configuration Protocol (DHCP)

KEY ADVANTAGES

- Routing ability with "Built in" QoS
- Commercial Carrier grade products
- Complete Lock and Encrypt Admin (guarantees product functions only on provider network)
- Full remote provisioning with encryption
- Outstanding voice quality
- Highly competitive pricing

KEY FEATURES

- Voice Codec: G.711, G.723.1, G.729A
- Voice Activity Detection (VAD)
- CNG (comfort noise generation)
- PLC (packet loss concealment)
- Dynamic Jitter Buffer
- L2/L3 QoS
- T.38 FAX
- WEB, Telnet Configuration
- Auto Provisioning
- PPP/PPPOE, DHCP Client/Server
- Support Polarity Reversal
- Call Hold, Call Waiting, Call Forward, 3 Way Calling
- Do not Disturb, Direct IP Calling,
- Blind Transfer, Attended Transfer

MINIMUM REQUIREMENTS

- High-speed Internet connection (cable/DSL/other)
- Broadband Router or Gateway to share internet connection
- Regular analog touch-tone telephone or fax machine
- CD-ROM drive

Specifications		Crystal 2A Access Gateway
General Information		
1.1	Product Type	SIP & MGCP VoIP Access Gateway, carrier class voice quality.
1.2	Box Type	Neutral Brown Box / Giftbox
1.3	Market Target	Design for Operator VoIP network small-to-medium size access gateway / Enterprise small-to-large access gateway
1.4	Hardware	Carrier class hardware with embedded microprocessor, high voice quality
1.5	Software	Based on Uclinux.
1.6	Performance	Stable and High voice quality.
1.7	Cost Performance	High performance-price ratio.
1.8	Release Date	3/25/04
1.9	Current Software Version	9.50.12
1.10	Current Hardware Version	PCB 60.0
1.11	Lines Delivered	>1,200,000
Mechanical		
2.1	Dimension (W×D×H)	160×110×28 mm
2.2	Package Size	210×195×60 mm
2.3	Net Weight	0.25kg
2.4	Gross Weight	0.6kg
LEDs Indicator		
3.1	PWR	Indicates Power. Remains ON when Power is connected.
3.2	RUN	Device running LED (RUN) indicates that the device is running or not
3.3	WAN	Indicates LAN (or WAN) port activity.
3.4	LAN	Indicates PC (or LAN) port activity.
Powering		
4.1	Power Input	100-240V AC, 50-60Hz, 0.5A Max
4.2	Power Output	12V DC, 1A.
4.3	Single Power	Yes
4.4	Max power consumption	10W.
Environment - EMC		
5.1	Operational	32~104F / 0~40°C
5.2	Storage environment	-4~176F / -20~80°C
5.3	Humidity, No condensation	10~90%
5.4	Stationary use environment	EN 300 019: Class 4.1 and Class 4.2H
5.5	Storage environment	EN 300 019: Class 1.2
5.6	Transportation environment	EN 300 019: Class 2.3
5.7	Acoustic noise	EN 300 753: Rural
5.8	EMC	FCC Part 15 Class B; CE EMC directive 2004/108/EC: EN55022: 2006+A1: 2007 EN61000-3-2: 2006 EN61000-3-3: 1995+A1: 2001+A2: 2005 EN55024: 1998+A1: 2001+A2: 2003
5.9	Safety	CE LVD
5.10	Certifications	FCC, CE
5.11	Resistibility	K.20
Availability - Redundancy		
6.1	Service life time	20 years
6.2	MTBF	20 years
6.3	MTTR	5 mins
6.4	Calling Established time	<300ms
6.5	Power-on time	1 mins
6.6	Lightning protection	Protection of telephone interface against lightning strike. 10/700, 4000V
Physical Interface		
Ethernet interface		
7.1	Number of interface	4 * 10/100 BASE-TX (RJ-45)
7.2	Auto adapted	Yes
7.3	MDIX(Auto-media-dependent interface crossover)	Yes
FXS Interface		
8.1	FXS port number	2 * FXS ports
8.2	Ringing Current	Effective Value: 45V, AC, 25Hz
8.3	Feed Voltage	On hook: -48V
8.4	Feed Current	Off hook: 20mA
8.5	Transmission Distance	1 KM
8.6	Support Charge Mode	Reverse Signal
8.7	Impedance	600 Ω 900 Ω Japan (600 Ω + 1 μF) 900 Ω + 2.16 μF CTR21 270 Ω + (750 Ω 150 nF) Australia/New Zealand 220 Ω + (820 Ω 120 nF) Slovakia/Slovenia/South Africa 220 Ω + (820 Ω 115 nF) China 200 Ω + (680 Ω 100 nF)

Signals&Protocols		
SIP Signaling		
9.1	Protocols compliant	SIPv2.0, RFC3261
9.2	Support SIP User ID and Password	Yes
9.3	SIP Encryption support (Private protocols, only work with Crystal's own ATA, to avoid the SIP packets captured and discarded)	Yes
MGCP Signaling		
10.1	Protocols compliant	MGCP V1.0, RFC2705
10.2	MGCP Encryption support (Private protocols, only work with Crystals own IAD to avoid the MGCP packets captured and discarded)	Optional
Voice QoS Technologies		
11.1	VAD	Yes
11.2	CNG	Yes
11.3	PLC	Yes
11.4	DJB	Yes
Voice Codec		
12.1	G.168	Yes
12.2	G.711	Yes
12.3	G.723.1	Yes
12.4	G.729A/B	Yes
12.5	PCMU	Yes
12.6	PCMA	Yes
FAX over IP		
13.1	T.38 Fax Support	Yes, up to 14.4kbps
13.2	Fax data pump	V.17, V.19, V.27ter, V.29 for T.38
DTMF Method		
14.1	DTMF(RFC2833/SIGNAL/INBAND)	Yes
Standard Services		
15.1	Call Transfer	Yes
15.2	Call Hold	Yes
15.3	Call Forward	Yes
15.4	Do-Not-Disturb(DND)	Yes
15.5	Caller ID	Bellcore Type 1 & 2, ETSI, BT, NTT, and DTMF-based CID, Caller ID display or block
Enhanced Services		
16.1	Hot Backup	Yes
Network Features		
17.1	Network Protocol	TCP/UDP, RTP/RTCP, HTTP, ARP/RARP, DNS, NTP, PPPoE, TFTP, TELNET, STUN.
17.2	Static IP	Yes
17.3	DNS	Yes
17.4	PPPoE Dialup	Yes
17.5	QoS	Yes
17.6	NAT	Max: 2k sessions
17.7	DHCP Server	Yes
17.8	DHCP Client	Yes
17.9	Static IP	Yes
17.10	Static Route	Max: 8
17.11	Soft Switch Config by IP	Yes
17.12	Soft Switch Config by URL	Yes
Security & Reliability		
18.1	Administrator Authentication	Support administrator authentication, to ensure the safety of resources and data.
18.2	Packet Encryption (Private protocols, only work with Crystals own IAD, to avoid the SIP packets captured and discarded)	Optional
18.3	Hot Backup	Yes
18.4	Anti-Block	Optional
Maintain & Upgrade		
19.1	Web Configuration	Yes
19.2	Telnet Configuration	Yes
19.3	Support Language	English, Chinese.
19.4	Firmware upgrading by TFTP	Yes
19.5	Firmware upgrading by FTP	Yes
19.6	Config file backup and upload	Yes
19.7	Config file download	Yes
19.8	Managed by M1000	Yes
Compatibility		
20.1	Compatibility	Perfect connection with other vendors SoftSwitch and SIP server, such as Cisco BTS10200, HUAWAI SoftX3000, ZTE ZXSS10, etc.