

SystemBase

IP Audio Codecs

C510ip-s
0200-001

SYSTEMBASE
REL 306

L INPUT			R INPUT	
L	R	dB	L	R
		0		
		-6		
		-12		
		-18		
		-30		
		-60		



**Talkback
Contribution
Commentary
SIP Compatibility
Reliable IP Delivery**

C500ip-s Series

PROFESSIONAL QUALITY AUDIO

The Systembase C500ip range of digital audio codecs have been designed and manufactured to deliver unparalleled performance and reliability for professional real-time audio applications over ISDN, ADSL, IP and Satellite. The C500ip series codecs incorporate the fast apt-X Sub Band ADPCM compression system which can deliver a coding delay of only 2.8ms, in addition to L24, L16, G.722, PCMA, PCMU and G.711.



SIP SUPPORT

Systembase IP codecs support the SIP protocol which provides compatibility with other codec manufactures in standard G722, G711 (PCMU/PCMA), L24, L16 and aptX modes. The IP codec is capable of automatically detecting both Systembase and SIP protocols without user intervention.

SIP may be used in multiple ways. The first method can provide a direct point to point SIP connection between two compliant codecs from different manufactures. The second method requires that each codec registers with a secure SIP server using a username and password. Once registered a connection can be established using the SIP server as a proxy. The use of a SIP server simplifies operations as each codec will always have the same user name/number whatever the physical location.

NETWORK SECURITY

The Systembase protocol has a field called GROUP ID. If programmed the codec will only accept incoming setup data and audio, provided that the GROUP ID fields match. If the GROUP ID does not match then the packets are dropped before they are transferred into the Systembase IP stack.

In Addition, the C500ip series has dual Ethernet connectivity and IP stacks, providing isolation between the management interface and the public facing AOIP Interface.

MULTIPLE CONNECTIONS

The IP Module has been designed to enable six simultaneous connections. A connection can be made or broken without disrupting connections that already exist. When making a connection to a remote codec, the user can specify the audio to be duplex, receive only or transmit only. If the receiving codec is not able to implement the requested audio mode due to a conflict with an existing connection, Automatic Negotiation will take place to provide a suitable operating mode.

The C510ip is fully compatible with the older C310xr ISDN codec when operating over ISDN and X.21 circuits. In addition, the C510ip also supports Dual G.722 and Dual G.711 coding to provide enhanced compatibility with ISDN codecs from other manufacturers. Additional design features include 24 Bit analogue and AES interface.

IP MODULE

The C500ip Codecs integral IP Module has been 100% developed in-house by Systembase. The IP Module has been optimised for Audio Streaming and utilises Forward Error Control (FEC), connection security and digital clock recovery to give maximum operational reliability. The IP module supports various signalling protocols including Systembase mode, SIP, SDP, SIP Proxy, IGMP(V2) Multicast and Simulcast.



FORWARD ERROR CONTROL

IP connections are not always 100% error free and occasionally the IP network will loose a packet of data. In the case of a typical broadband ADSL connection packet loss can be fairly frequent. Systembase Forward Error Control (FEC) facilitates the transmission of additional information that allows the receive codec to automatically re-create the missing packet from data contained within the neighbouring packets.

SIP TBU FUNCTION

The C500ip series codec can register with a SIP telephony provider. Once registered, the codec can make and receive calls with other registered devices and PSTN based equipment. A subscription based Proxy provider will allocate you a telephone number that can be dialled from anywhere in the world via another proxy provider, standard PSTN telephone or mobile. This feature gives users the ability to connect using regular telephone numbers.

EasyMON CODEC MONITOR

EasyMON is a Free monitor tool that allows multiple Systembase C500ip series codecs to be monitored in a single browser window. Each codec icon allows the user to monitor the audio input and output levels together with the "SYNC" status. A simple click of the "OPEN CODEC" tag will open a new browser window and take the user directly to the associated codec's web page interface.

This tool is designed to work reliably in all conditions and only requires 1 Ethernet packet per second for each codec.



FAST BOOT

In the event of power failure the C500 series can re boot, negotiate and restore an AOIP connection to its streaming state in approximately 10 seconds. This feature is useful if the codec is being used for commercial applications such as transmitter links or live commentary.

WEB SERVER

The C510ip audio codec features a dedicated Ethernet connection reserved purely for WEB management and SNMP control. This dedicated Ethernet connection provides essential isolation from the AOIP streaming connection, simplifying the process connecting the codec to the public internet. The management interface allows each codec to be remotely controlled using the various standard web browsers such as IE, Chrome and Firefox. To enable a hassle free experience the WEB server pages have been developed to avoid the use of active x components that may require administrative rights to install on the local computer. In addition, this feature allows the Web manager to function correctly on MAC OS.

All C500ip series codecs have a facility to apply firmware updates via the WEB interface. This feature allows for hassle free maintenance in environments where physical access is not always possible. During the update process the upgrade file, typically 400Kb, will be checked for integrity prior to being flashed into the system. Program disruption is minimized to approximately 20 seconds.

SNMP

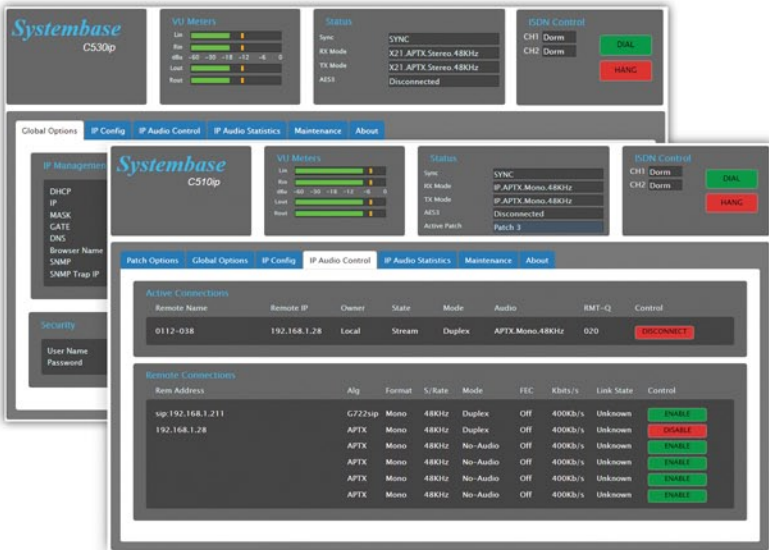
All Systembase AOIP Codecs provide support for SNMP (Simple Network Management Protocol). SNMP allows the codec to be managed by industry standard, third party applications that are capable of monitoring and controlling equipment over LAN and WAN environments.

All Systembase AOIP codecs are supported by the BNCS control platform developed by ATOS and DataMiner developed by Skyline Communications. This feature makes the C510ip audio codec ideal for integration into a automated control room environment.



WORLD-WIDE OPERATION

Systembase codecs interface directly to the ISDN network via standard RJ45 sockets. To facilitate world-wide operation, 12 international ISDN standards are supported, and can be selected by the user from either the front panel or the Web Server interface.



Technical Specifications

	C510ip-s	C530ip-s
AUDIO PERFORMANCE		
Coding Standards	L24, L16, APTX, G.722, PCMU, PCMA	L24, L16, APTX, G.722, PCMU, PCMA
Analogue S/N Ratio	>102dB	>102dB
Headroom	+12dBu Max or +18dBu Max	+12dBu Max or +18dBu Max
Input Impedance	>10K ohms	>10K ohms
Output Impedance	<100 ohms	<100 ohms
Physical Connectors	XLR	XLR
Sample Rate / Resolution	48KHz / 24Bit	48KHz / 24Bit
AES3		
Physical Connectors	XLR	XLR
Sample Rate / Resolution	48KHz / 24Bit	48KHz / 24Bit
ETHERNET		
Web Server Management	yes	yes
Backup/Restore Settings	yes	no
SMTP Email Alerts	yes	no
Firmware Flash Updates	yes	yes
SNMP	yes	yes
DHCP	yes	yes
ISDN FACILITY		
Standards	12 User Selectable	no
Sub Addressing/ MSN	yes	no
G.711 Dual, PCMU, PCMA	Dual Mono (64KBps)	no
G.722 Dual: 7K5	Dual Mono (64KBps)	no
APTX: 8/16/32 FS	Mono/Stereo (64-128KBps)	no
BACKUP MODES		
X.21 to ISDN	yes	no
X.21 to IP	yes	yes
IP to ISDN	yes	no
X21 AUDIO MODES		
APTX: 8/16/32/48 FS	Mono/Stereo (64-384KBps)	Mono/Stereo (64-384KBps)
AUDIO OVER IP		
L24, L16: 8/16/32/48 FS	Mono/Stereo	Mono/Stereo
APTX: 8/16/32/48 FS	Mono/Stereo	Mono/Stereo
G.722: 16 FS	Mono/Stereo	Mono/Stereo
G.711: (PCMU/PCMA telephone)	Mono/Stereo	Mono/Stereo
FEC (Forward Error Control)	User Selectable	User Selectable
Unicast / Simulcast / Multicast	yes	yes
SIP / SIP Proxy	yes	yes
Recovery Buffer	User Adjustable	User Adjustable
DHCP	yes	yes
Adjustable Packet Size	yes	yes
POWER		
Voltage	80-260VAC 50/60Hz	80-260VAC 50/60Hz
Connector	IEC Mains Plug	IEC Mains Plug
Consumption	20W	20W
PHYSICAL		
Weight	2.5Kg	2.5Kg
Height	45mm (1U)	45mm (1U)
Width	480mm(19")	480mm(19")
Depth	200mm	200mm

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