



MiMOMax Four Wire Audio Interface

THE MiMOMax FOUR WIRE AUDIO INTERFACE IS AN EXTERNAL, FULL DUPLEX AUDIO INTERFACE SOLUTION THAT COMMUNICATES DIRECTLY WITH A MiMOMax RADIO UNIT. IT IS HIGHLY FLEXIBLE AND INTENDED FOR CONNECTIVITY TO ANALOGUE AUDIO EQUIPMENT, SUCH AS VF MODEMS OR RADIO SYSTEMS WITH ANALOGUE AUDIO INTERFACES. MULTIPLE CHANNEL CONFIGURATION OPTIONS ARE AVAILABLE, WITH OPTIONAL E & M SIGNALING, AND AN ASYNCHRONOUS SERIAL INTERFACE THAT ALSO SUPPORTS DATA COMMUNICATIONS, SUCH AS PMR INTER-SITE SIGNALING OR SCADA.

KEY FEATURES

- ~ Toll Quality Audio via a 32 kbp/s ADPCM Vocoder
- ~ Tone Transparent to Selcall and CTCSS Tones
- ~ Very High Throughput
 - Up to 6 x 4 Wire Audio E & M plus 9600 Serial plus Ethernet
- ~ Very Low Latency
 - Audio <12ms & Serial <7ms end-to-end in a 16QAM 25kHz channel bandwidth
- ~ Multiple Configuration Options
 - Audio - Dynamic (E & M signaling), Static (Non E & M)
 - Serial - 1 x EIA232 9600 bp/s compliant UART
- ~ Wide Audio Frequency Response
- ~ Multipurpose Solution for:
 - Fixed Long Haul Analogue Audio Linking
 - Signaling for VF Modems
 - Inter-site Signaling
 - SCADA

BENEFITS

High Quality

Highly Reliable

Very Robust

Scalable

Near Instantaneous

Environmentally Sound

Very Versatile

Economical

Secure

FOUR WIRE AUDIO INTERFACE SPECIFICATIONS

Audio	
Connector	RJ45
Number of Channels	Up to 6
Input Range to Unit	-20 dBm to +9dBm
Insertion Loss	0 dB
Nominal Impedance	600 ohm
Delay (1)	<6ms (12ms including radios)
Vocoder	32 kbps ADPCM
Audio Bandwidth	60-3.5kHz @ -3dB (-10dBm nominal)
E&M Signaling	
Connector	RJ45 (co-located with audio)
Type	Current sense input / switch output
Delay (1)	<6ms (2) (12ms including radios)
UART (EIA232) Data	
Connector	RJ45
Baud Rate	9 600 Baud (3)
Delay (1)	<1ms (4) (7ms including radios)
Network Port	
Connector	RJ45
Protocol	Proprietary of direct connection to MiMOMax RU
Power	
Connector	Detachable screw terminal
Type	Isolated DC/DC converter
Isolation	1500 volts
Nominal Input Voltage	12 to 48 V DC
Power Consumption	< 1.5W
Environmental	
Temperature (Operational)	- 25 °C to 60 °C
Relative Humidity (Operational)	4% to 100% (per EN 300 019 sec. 3.3 & 4.2H)
Altitude (Operational)	0 to 3000m
Environmental Protection	IP20 (Indoor use only)

Radio Unit Bandwidth

Net Available Radio Unit Bandwidth (bps)	16 QAM	64 QAM
25 kHz	129000	194000
12.5 kHz	65000	97000

Interface Bandwidth Requirements

7 Channel Mode (6 x Audio & 1 x UART) (5)		
Active Channels (Static or Dynamic)	No UART(bps)	Plus UART (bps) (6)
0 Audio	0	19200
1 Audio	64000	73600
2 Audio	96000	105600
3 Audio	128000	137600
4 Audio	160000	169600
5 Audio	192000	201600
6 Audio	224000	233600
3 Channel Mode (2 x Audio & 1 x UART)		
Active Channels (Static or Dynamic)	No UART(bps)	Plus UART (bps) (7)
0 Audio	0	19200
1 Audio	64000	64000
2 Audio	96000	96000
Fixed Channel Mode		
Fixed Channels	No UART(bps) (8)	
0 Audio	0	
1 Audio	32000	
2 Audio (9)	64000	

- (1) Quoted delays are for back-to-back connected FWA Interfaces following channel initialization. Total end-to-end delay will require addition of delay through the Radio Units.
- (2) E & M delay includes a 5ms debounce delay.
- (3) Additional rates are available by request only.
- (4) For the UART the quoted delay does not account for the interface transmission delay (eg. The time to transfer a word between the UARTs).
- (5) Concurrent channel operation is dependent on available radio bandwidth.
- (6) In 7 Channel Mode the bandwidth required for UART data is equal to the nominal UART data rate. When only UART data is present bandwidth is also required for protocol overheads.
- (7) In 3 Channel Mode the data bandwidth is carried in a protocol header and therefore the required bandwidth is independent of the UART data rate. Nominal rates greater than 9600 bps are NOT supported.
- (8) UART data is NOT supported.
- (9) 2 audio channels in fixed mode is not currently available.

Four Wire Audio Interface connected to MiMOMax Radio Unit

