mimomax

FOUR WIRE AUDIO INTERFACE

Spec Sheet

The Mimomax Four Wire Audio Interface is an external full duplex audio 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 interface. Multiple channels configuration options are available, with optional E & M signalling, and an asynchronous serial interface that enables data communications, such as inter-site signalling or SCADA.

Key Features

- Toll Quality Audio via a 32 kbp/s ADPCM Vocoder
- Tone Transparent to Selcall and CTCSS Tones
- Flexible Modes of Operation
- Very High Throughput
  - Up to 6 x 4 Wire Audio E & M plus 9600 Serial
- Very Low Latency
  - Audio <12ms & Serial <7ms end-to-end in a 16QAM 25kHz channel bandwidth
- Multiple Configuration Options
  - Audio - Dynamic (E & M signalling), Static (Non E & M)
  - Serial - 9600 bps EIA232 Compliant UART
- Wide Audio Frequency Range
- Multipurpose Solution for:
  - Fixed Long Haul Analogue Linking
  - Signalling for VF Modems
  - Inter-site Signalling
  - 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 (320-35000 Hz) -20 dBm to -10dBm (65-320 Hz)
Insertion Loss	+0.6 dB (+/- 0.3 dB) @ 1000 Hz
Nominal Impedance	600 ohm
Delay (1)	<6ms (12ms @ 25kHz, 16QAM)
Vocoder	32 kbps ADPCM
Audio Bandwidth	60-3.5kHz

E&M Signaling	
Connector	RJ45 *(co-located with audio)*
Type	Current sense input / switch output
Delay (1)	<6ms (2) (12ms@ 25kHz, 16QAM)

UART (EIA232) Data	
Connector	RJ45
Data Rate	9600 (3)
Delay (1)	<1ms (4) (7ms @ 25kHz, 16QAM)

Network Port	
Connector	RJ45

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
Mechanical Dimension	38mm x 140mm x 258mm (H x W x D)

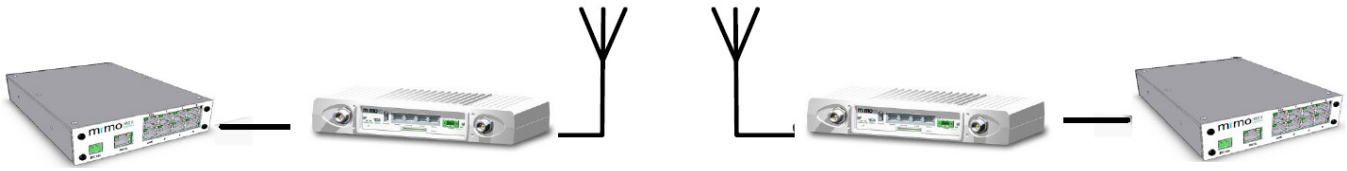
Environmental	
Temperature (Operational)	- 25 ºC to 60 ºC
Relative Humidity (Operational)	4% to 100% (per EN 300 019 sec. 3.3 & 4.2H)
Altitude (Operational)	0 to 3000m
Environmental Protection	IP20 (Indoor use only)

Radio Unit Bandwidth			
Net Available Radio Unit Bandwidth (bps)	16 QAM	64 QAM	256 QAM
25 kHz	129000	194000	258000
12.5 kHz	65000	97000	129000

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

(1) Quoted delays are for back-to-back connected FWA Interfaces following channel initialization. Quoted delays within brackets are including radio unit and are dependant on modulation settings.
(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.

Four Wire Audio Interface Connected to Mimomax Radio



Mimomax Four Wire Audio Interface Box

Mimomax Link-end Radio Unit