E M O D
CI2L
2 Ch. Analog
Input Module

The CI2L is Whirlwind's 2-channel CobraNet line level input module. Use it to convert line level analog audio into professional quality digital audio for distribution over CobraNet digital networks. The CI2L can be temporarily or permanently connected to the CobraNet network, anywhere network access and AC power are available. Connect any line level source such as stereo mixer outputs, computer sound card outputs, or media player outputs and instantly send them throughout the CobraNet digital audio network.

Setup and operation are simple and easy. Just set the bundle select wheels to the desired transmit bundle number, and set the bitwidth/latency selector to match the bitwidth and latency of the receiving device. Then apply the two channels of audio and adjust the input level as necessary, ensuring that the level is below the 0dB clipping level.

FEATURES

- Uses CobraNet networking protocol compatible with all other CobraNet devices from over 40 manufacturers.

- Transmits 20 or 24 bit word length.

- Transmits 5.33 ms, 2.66 ms or 1.33 ms latencies.

- Inputs can be assigned to multiple channels within the transmit bundle.

- Input level control can provide 36 dB of gain or attenuation to the analog input signal.

- Front panel LED meters indicate analog signal level.

- Integrated universal power supply for 100-250 VAC, 50/60 Hz operation

- Integral mounting bracket provides for secure vertical or horizontal orientation or mounting to a rack shelf.

whirlwind

MADE IN USA

Specifications for Whirlwind CI2L

|	
Frequency Response	± .25 dBv 20-20 kHz at unity gain
Total Harmonic Distortion +noise	< .0022% 20-20 kHz at unity gain
Dynamic Range	110 dBv at unity gain, 97 dBv at 20 dBv of gain, 101 dBv at 20 dBv of attenuation
Stereo Separation	< -98 dBv at 20 kHz <-112 dBv at 1 kHz
Total Gain	36 dBv
Range of level pot	-36 dBv to + 36 dBv
Common Mode Rejection of Input	70 dBv 20-20 kHz
Maximum Input level	+20 dBv
Input Impedance	20k Ohms balanced
Noise at various gains	-100 dBv at unity, -87 dBv at 20 dBv of gain, -101 dBv at 20 dBv of attenuation
Input LED threshold	0 dBfs, -12 dBfs, and –36 dBfs
Thermals	Convection cooled, 5 to 30°C operating range
Power consumption	13.3 Watts idle, 17 Watts max
Power requirements	85-264 VAC, 50 or 60 Hz
Size	8 1/2" x 5/8" x 6" (WxHxD)
Unit Weight	3 lbs.
Internal Mains fuse	Internal self resetting .37 Amp trip current .16 Amps hold current

All specifications subject to change without notice

WARRANTY

This product is guaranteed to be free from defects in materials and workmanship to the original purchaser for a period of 5 years from the date of purchase. Should service be required, return the unit postage prepaid along with the original sales receipt to:

Whirlwind
Attention - Repair
99 Ling Road
Rochester, New York 14612

The warranty on this product shall not apply to defects or damage resulting from abuse, abnormal use or from repairs or modifications performed by anyone other than Whirlwind. If it is determined a manufacturing defect has occurred, Whirlwind will repair or replace the unit at our option and pay the postage back to you.

99 Ling Road - Rochester, NY 14612
800-733-9473 / 585-663-8820 Fax: 585-865-8930
Website: http://www.whirlwindusa.com
Email: sales@whirlwindusa.com
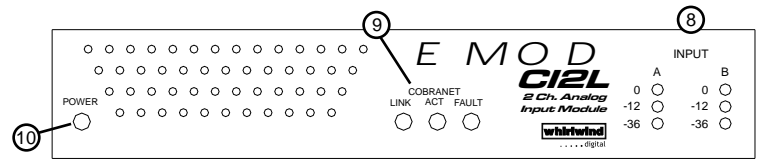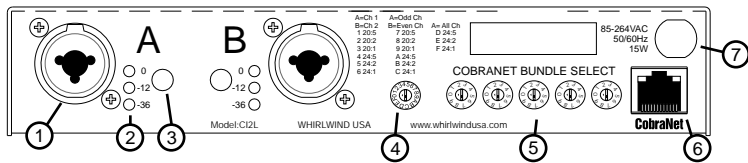
1. Combination XLR and ¼" TRS inputs A and B accept balanced or unbalanced analog audio at line levels.

2. Three position LED meters monitor the analog signal at the inputs of the analog to digital converters after the input level controls. The green LED illuminates at -36 dBfs, the yellow at -12 dBfs and the red at the clipping point of the analog to digital converter.

3. Input Controls adjust the level of the analog input signal being applied to the analog to digital converters. 36 dB of gain or attenuation allows optimization of the analog signal to minimize noise at the converters. Adjust the signal so that peaks do not light the red 0 dBfs LED.

4. Bitwidth/Latency Selector matches the audio bitwidth and latency transmitted by the CI2L to that of the receiving CobraNet device. Individual CobraNet devices must have the same bitwidth and latency to communicate with each other properly. The transmit setting must be acceptable to the device set to receive that bundle. Many receive devices have an autodetect feature that will match the bitwidth and latency to that of the transmitter. The CI2L uses a 16 position selector for choosing 20 or 24 bit word length and 5.33ms, 2.66 ms or 1.33 ms latencies. In addition, the CI2L can assign its two analog input signals to multiple channels within the CobraNet bundle. Positions 1-6 assign Input 1 to Bundle channel 1 and Input 2 to Bundle channel 2 at the six choices for bitwidth and latency. Positions 7-C assign Input 1 to Bundle channels 1,3,5,7 and Input 2 to Bundle channels 2,4,6,and 8. Positions D-F assign Input 1 to all channels in the Bundle at 24 bit word length and 5.33 ms, 2.66 ms or 1.33 ms latencies.

   In 24 bit word length and 5.33 ms latency mode, a special case exists; there are a maximum of seven audio channels that can be packaged into a single bundle at this setting. The CI2L handles this exception by only transmitting seven channels and truncating channel 8. (Encoder positions A and D)

5. CobraNet Bundle Select switches are used to select the bundle number to be transmitted by the CI2L. All 65,279 CobraNet bundles are directly accessible from the encoders. Bundles 1-255 are Multicast bundles and 256-65,279 are Unicast. The leftmost encoder also has 3 special functions. With the encoder in the 7xxxx position, the front three status LEDs (LINK, ACT, FAULT) and the audio LEDs, both front and rear, will flash a code for the software version in the CI2L. The LEDs will blink the number of the software version with a long pause between the series of blinks; e.g., four flashes followed by a long pause equals version four. Should the CI2L ever need to be rebooted, the 8xxxx position of the encoder will cycle a reset of the unit every two seconds. Unplugging and reconnecting the power cord will also reset the CI2L. The 9xxxx position of the encoder is a self test for all the LEDs except the power LED. Setting all switches to 0 allows remote setting of bundle parameters through the network with CobraNet Discovery software v3.4.4.

6. CobraNet Jack connects the CI2L to the Ethernet switch carrying the CobraNet network. A green LED indicates network link and a yellow LED indicates data activity. These are duplicated by two green LEDs on the front panel along with a red Fault LED indicator.

7. Power cord is a standard US 15 A 3 wire connection. The power supply is internationally universal by changing the plug at the end of the cord. Black or Brown = Line; White or Blue = Neutral; Green or GrnYel = Ground.

8. Three position LED meters are the same as the meters on the rear panel. The green LED illuminates at -36 dBfs, the yellow at -12 dBfs and the red at 0 dBfs, the clipping point of the analog to digital converter.

9. CobraNet LINK, ACT, and FAULT LEDs indicate the status of the CobraNet network connection;
   LINK LED illuminates only when the Ethernet cable is connected to a network with other CobraNet devices.
   ACT (activity) LED is on only when there is a match between the bitwidth/latency and bundle settings of the CI2L and those of the receiving device.
   FAULT LED is used to blink a numeric code to the user with a series of blinks followed by a pause. The number of blinks indicate the following:
   1. Mismatched format or bundle settings
   2. Not used on CI2L
   3. Invalid bundle number selected (greater than bundle # 65279)
   4. Ethernet cable disconnected or no other CobraNet devices on network.
   5. CobraNet can not communicate with DSP in the CI2L.
   6. This code blinks once on power up and whenever an encoder setting change is detected, to warn the user that persistence is enabled through CobraNet Discovery v3.4.4 and that changing the encoders from 00000 will defeat Disco control at the next power cycle. Persistence enabled means that the unit will remember its last settings through power cycling.

10. Power LED illuminates when AC power is applied to the unit and the unit is operating.

CobraNet Parameter Control through Discovery v3.4.4.

Setting all the Bundle Select Switches to 00000 allows remote setting of CobraNet parameters through the network with CobraNet Discovery software, v3.4.4 available at www.cirrus.com/cobranetsoftware. Some of the parameters that can be controlled on the CI2L include bundle number, number of channels in the bundles, digital word length, latency and persistence.

These parameters are unlike the selections made with the encoders. Bundle numbers and bitwidth:latency selections made with the switches are hard coded and remembered when the power to the CI2l is cycled. Settings made through Disco are volatile and forgotten on a power cycle, unless persistence is turned on and Bundle Select Switches are set to 0. There are also four transmitters available through Disco instead of just the one through the encoders.

Disco will temporarily override encoder settings on a CI2L. These settings will not be remembered on power cycling regardless of the persistence setting in Disco.