EMOD
CO8A
8 Ch. Analog
Line Out Module

The CO8A is Whirlwind's 8-channel CobraNet output module. Use it to deliver networked digital audio wherever multiple analog outputs are required such as line level returns in PA systems, feeding powered speaker arrays, paging systems, multichannel multimedia presentations and more.

Setup and operation are simple and easy. Just set the bundle select wheels to the appropriate bundle number and the eight channels of audio will be converted to analog and presented at line level on balanced XLR jacks.

FEATURES

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

- Auto-detects 20 or 24 bit word length.

- Auto-detects 5.33 ms, 2.66 ms or 1.33 ms latencies.

- Nominal output level is set by internal dipswitches. Factory setting is +6 dBv.

- Outputs mute upon power disruptions for system protection.

- Front panel LED meters indicate analog signal level.

- Integrated universal power supply for 90-250 VAC, 50/60 Hz operation.

- Standard 19" rack mount, 1 RU, all connections on rear.
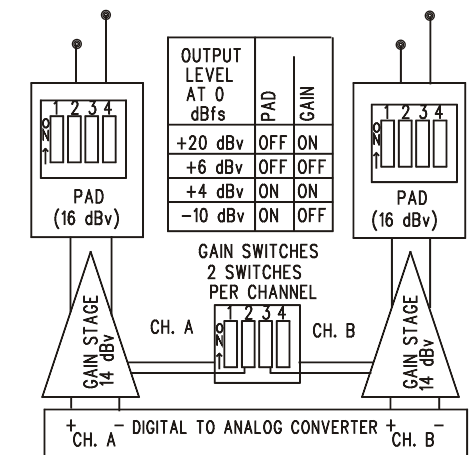
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Specifications for Whirlwind CO8a

Frequency Response	± .56 dBv 20-20 kHz
Total Harmonic Distortion + Noise	< .0026 % 20-20 kHz
Dynamic Range	106 dBv
Maximum Output Level	+20 dBv
Output Impedance	45 Ohms balanced, pad off 600 Ohms balanced, pad on
VU LED thresholds	Red 0 dBv headroom Yellow 12 dBv headroom Green 36 dBv headroom
Isolation between output channels	93 dBv 20-20 kHz
Power Consumption	39 Watts max. 21.25 Watts idle
Fan Thresholds	3 stage fan cooling: Off for internal temperatures below 40°C Low speed for internal temperatures from 40-50°C High speed for internal temperatures above 50°C
Power Requirements	85 to 264 VAC, 50 or 60 Hz
Size	1 RU
Internal Mains fuse	2.5 Amp 250V Type SP 0001.1008
AC dropout voltage	85 VAC

All specifications subject to change without notice

OUTPUT LEVEL SELECT

With digital input at 0 dBfs, internal pad and gain dip switches set balanced outputs to: +20 dBv, +6 dBv, +4 dBv, or -10 dBv. There is a 16 dB pad on the output and a 14 dB gain stage. Factory default is pad off and gain off which is +6 dBv output with 0 dBfs input level. Remove cover screws and slide cover forward to clear LEDs. Lift off to access dip switches.
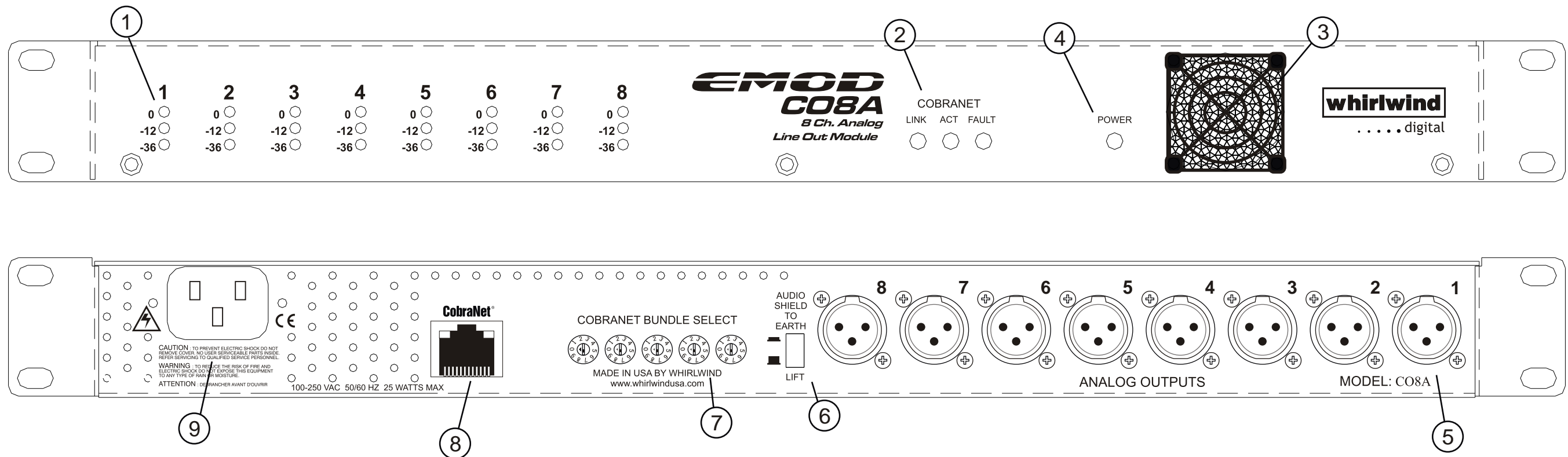
OUTPUT LEVEL AT 0 dBfs	PAD	GAIN
+20 dBv	OFF	ON
+6 dBv	OFF	OFF
+4 dBv	ON	ON
−10 dBv	ON	OFF

GAIN SWITCHES 2 SWITCHES PER CHANNEL

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Controls and Connections

1 Three position LED meters monitor the analog signal at the XLR outputs. The green LED illuminates at -36 dBV, the yellow at -12 dBV and the red at the point of output driver clipping.

2 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 CO8A and those of the transmitting 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 Received audio format is not supported (eg. 96 kHz)

   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 CO8A.

   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

3 Fan provides cooling to the internal components of the CO8A. There is a foam filter on the front, which should be cleaned periodically to maintain good airflow. The front plastic fan guard snaps out to expose the filter.

4 POWER LED illuminates when AC power is applied to the unit and the unit is operating.

5 XLR outputs A and B provide active balanced analog audio at line levels. Factory output level is set at +6 dBv. Internal dipswitches can be set to provide three other nominal output levels; -10 dBv, +4 dBv and +20 dBv.

6 AUDIO SHIELD TO EARTH Switch breaks the connection from AC Earth to the audio common to reduce hum when necessary.

7 CobraNet Bundle Select switches are used to select the bundle number to be received by the CO8A. All 65,279 CobraNet bundles are directly accessible from the encoders. Bundles 1-255 are Multicast bundles and 256-65,279 are Unicast. Individual CobraNet devices must have the same bitwidth and latency to communicate with each other properly. The setting of the transmitting unit must be acceptable to the device set to receive that bundle. Many receive devices, including the CO8A, have an autodetect feature that will match the bitwidth and latency to that of the transmitter. The leftmost encoder also has 3 special functions. With the encoder in the 7xxxx position, the front three status LEDs (LINK, ACT, FAULT) will flash a code for the software version in the CO8A. 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 CO8A 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 CO8A. 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. or higher.

8 CobraNet jack connects the CO8A 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.

9 Power inlet is a standard IEC connection. The power supply is internationally universal with a voltage range of 85 to 264 VAC at 50 or 60 Hz.

CobraNet Parameter Control through Discovery (Disco) 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 CO8A include bundle numbers, 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 CO8A 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 eight receivers available through Disco instead of just the one through the encoders.

Disco will temporarily override encoder settings other than 00000 on a CO8A. These settings will not be remembered on power cycling regardless of the persistence setting in Disco.