

Codec-Mixer MB2400

Digital
Stereo



Codec + Portable Mixer for high quality
outdoors radio transmission **Audio over IP**



10 audio channels with digital output
for stereo audio streaming.

Internal audio processor, Bluetooth wireless
connection to mobile phones.

A new
landmark in
high quality
FM radio

An exclusive Solidyne product

The Codec-Mixer MB2400 is a Studio quality digital audio system.

Robust and reliable, it is manufactured for many years of hard use. With aircraft quality aluminum cabinet, very light and resistant.

All potentiometers are conductive ceramic of one million operations (100 times more than your current console)

The use of low-power integrated OP-Amps of the kind used at NASA spacecraft, allows MB2400 to have up to 20 hours of continuous use with NI-Metal rechargeable batteries.

It has inputs for five MIC balanced, with optional Phantom 48V, 3 balanced lines and one stereo unbalanced line.

6 stereo jacks outputs for 6 handsets with internal distributor amplifier

Analog stereo and mono balanced outputs, as well as Digital Ethernet output for direct connection to Internet via streaming audio TCP/IP in mono or stereo.

Using a 3G standard modem it can be connected to the cellular Internet network. It allows broadcasting from anywhere in the world without costly links

It does not require an expensive decoder at the radio studio, because any PC connected at Internet can be used.

MB2400 encodes using standard MP3 audio streaming reproduced by Windows Media Player, Winamp or any other free software. MB 2400 allows simultaneous analog and digital transmissions. It uses internal telephone hybrid for terrestrial line or cellular phones wirelessly connected by Bluetooth.



MB 2400 allows getting the audio quality of a stereo FM radio during an outdoor transmission.

The audience deserves to feel they're inside the stadium and share excitement of the podium .



6 headphones outputs, with 3 jack connectors on each side can operate in mono or stereo.



The MB 2400 is installed very quickly because employs standard connectors. All potentiometers are conductive ceramic of one million operations, **NOT required to use a special decoder at Studios**

MB2400 has switching power supply You can connect it to any outlet between **90 and 240V** without having to ask anyone: Is it 220 or 110?

Charge batteries in one night. The mixer can work while charging batteries .



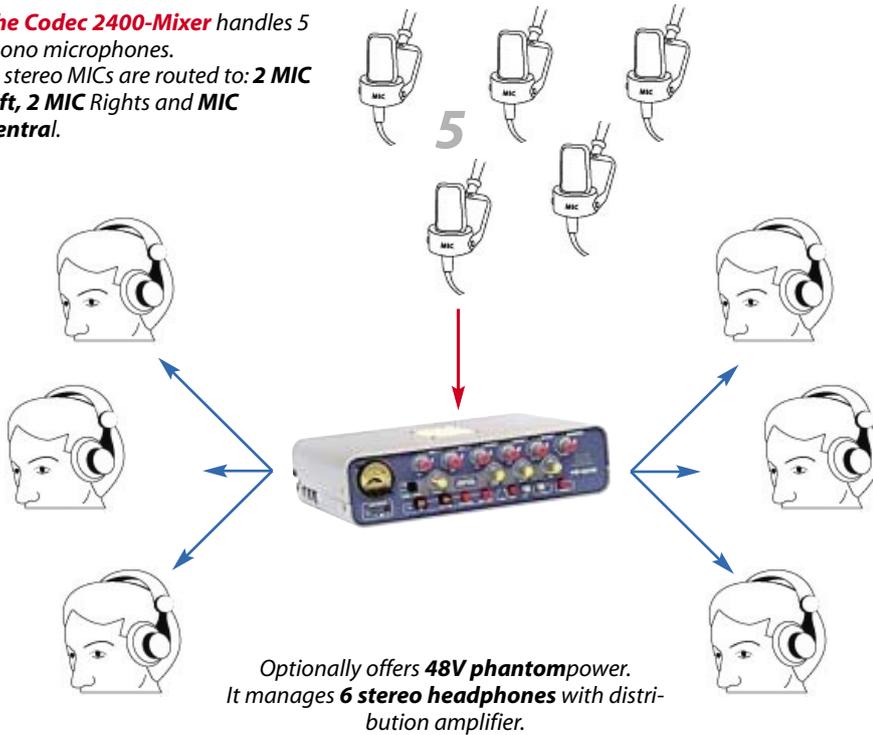
It is installed very quickly because employs standard connectors.



An excellent needle VUmeter measures true peak signal and can be perfectly seen at full sunlight.

MB 2400 can handle an outdoor complex transmission

The Codec 2400-Mixer handles 5 mono microphones. In stereo MICs are routed to: 2 MIC left, 2 MIC Rights and MIC Central.



Direct connection to Internet

Connect MB2400 to any network having Internet access.

You do NOT NEED to use a laptop! Any journalist can perform this operation. This sends the transmission to the radio studio where you receive it using existing PC for Internet use. **MB2400 is received as a standard MP3 audio streaming.**

Latency (time delay): **MB2400** has a reduced latency of only 50 milliseconds. The full loop delay, including Internet and MP3 streaming decoder, is usually between 0,5 sec to 1,5 sec. In some type of interviews from studio, the operator can switch immediately to the mode: **Cellular + VQR** with no delay.

MB 2400 Codec-Mixer Facilities

The MB2400 is comprised of 4 different equipments into a single cabinet



1-Audio processor to control the level of transmission. Lets keep 100% modulation in the 5 microphones, avoiding saturate the cellular phone and improving the **VQR** post processing.

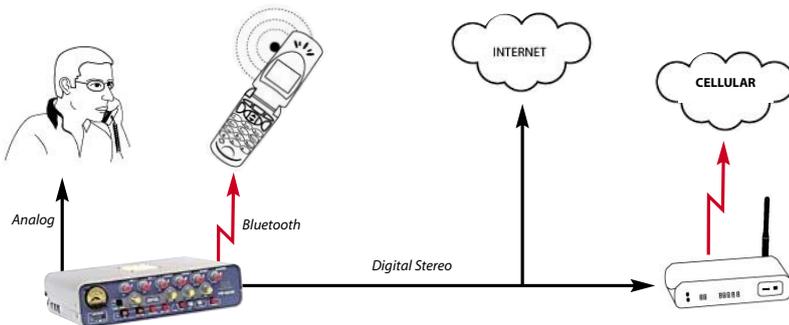
2-Six stereo channels transmission mixer manages mono and stereo audio.

3-Four channels mixer return mono or stereo output with distribution amplifier for 6 headphones.

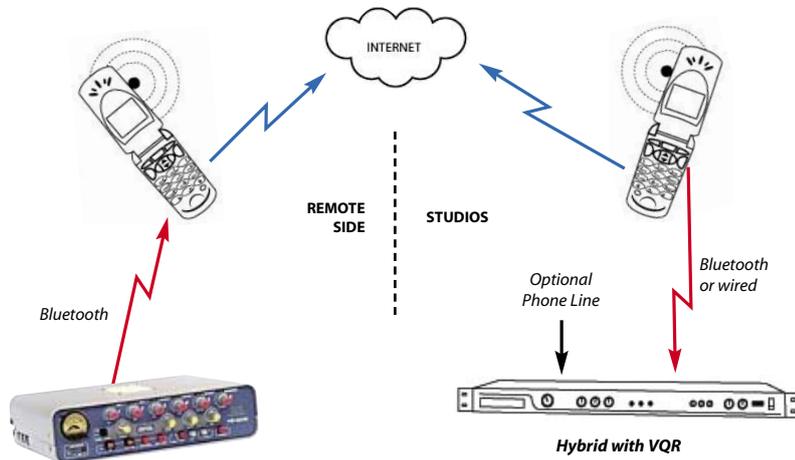
4-Codec with output for direct Internet connection. Encode **TCP/IP** audio streaming in **MP3** that can be received in any studio computer. **DIGITAL** wireless connection with cellular phone with **Bluetooth 1 KHz Generator at + 4 dBu**, for level reference Internal Talkback MIC.

MB2400 allows connecting with the radio studio in many ways

It does not require a special decoder at studio because any PC receives the transmission



Through VQR technology is it possible to improve the sound quality of analogue transmissions



It is possible to use the MB2400 in analog mode in order to have very low cost audio links by taking advantage of corporate low cellular rates. The use of audio processing inside **MB2400** and digital connection to **Bluetooth** cell phone, allows a good audio quality restoration at Studios. Of course it works only in **MONO**.

1-Connected via phone line from internal Hybrid. Includes DTMF dialer and talkback microphone

2-Connected via cell phone. It does not need wires because it has a digital Bluetooth link, up to 15 meters.

3-The digital output TCP/IP has connectivity with any PC with Internet at the radio studio

4-The MB2400 Ethernet output can be connected directly to any 3G modem. Then, from any place at the world, you can link with the radio studio, using the international data 3G network

It is also possible, on request, to incorporate 3G modem inside the MB2400 cabinet

MB2400 will never be tied to cellular



Communicating through a cell phone is done wirelessly using a digital microwave link.

A Bluetooth connection inside the console allows up to 15 meters away from mobile. Thus, in circumstances of low signal the cell can be placed next to a window while the mixer is remotely used.

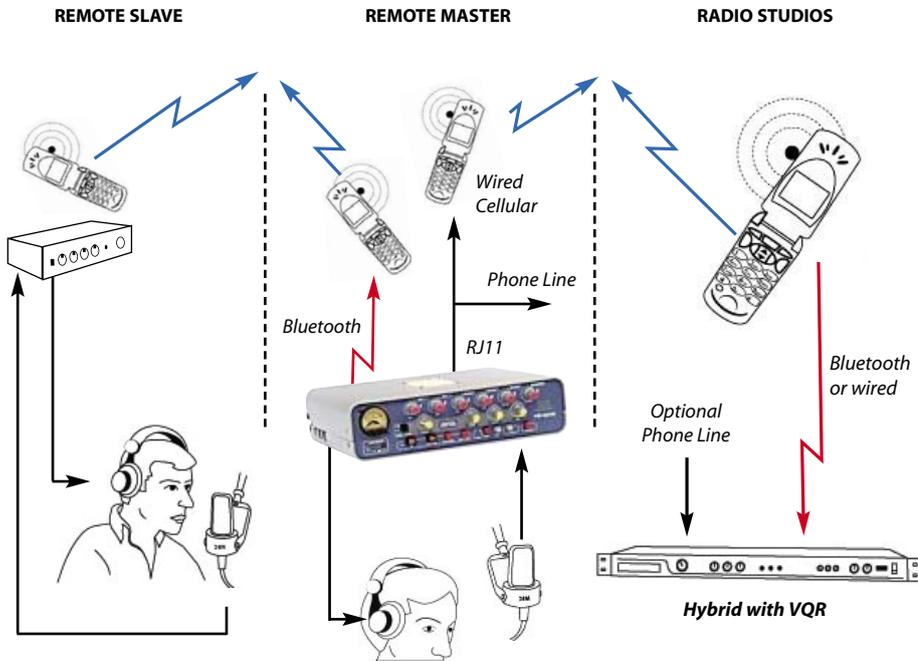
The wireless communications can be done simultaneously with the digital connection **TCP/IP at Internet**. Thus, there is always a second channel, which can be connected to air in emergency. The cell also provides return from Studios for interviews

MB2400 allows you to create radio studios connected by cell phone inside a stadium since it manages two simultaneous cellular phones

1 Often you need a mobile studio inside the Stadium to interview players or artists. This can be done using a portable Solidyne MB2100 mixer or even a single cell phone which is connected with the Remote Master study.

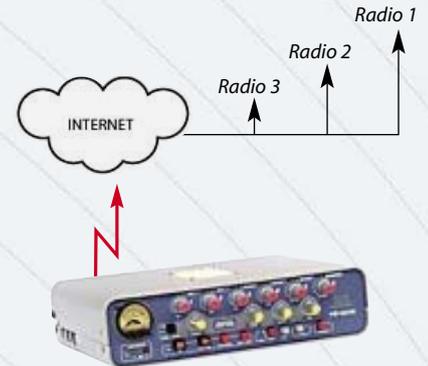
2 The Main Remote studio at stadium receives signals wirelessly from a cell phone and connects by Bluetooth with the MB2400 Mixer, that is able to handle a second cell phone to link with the radio studios.

3 At the radio studios will be received 5 microphones from the Remote Master plus 3 microphones from Remote Slave.



This advanced system allows simplicity to solve complex situations, sometimes impossible to solve with other providers. The Master and Slave studio can talk between them. The same applies to the Master and Radio Studios

SIMULTANEOUS SENDING OF OUTDOORS TRANSMISSION TO MANY RADIO STATIONS



Using a streaming host, down transmission is possible simultaneously to several radio stations around the world. Even hundreds of them.

This is very convenient between stations of the same network or in cases where sports transmission services are performed by freelance commentators



Listen our audio demos in web site section English/ MB2400 portable Codec-Mixer/DEMOS.

Technical Specifications MB 2400



A-Stereo Mixer Section

Inputs	6 channel, 9 inputs; 5 Microphone balanced inputs; 3 are MIC / Line XLR connectors for MICs and 1/4" jacks for balanced line In stereo, MIC 1 & 3 are Left; MIC 2 & 4 Right; MIC 5 center. One Stereo line input 1/4" unbalanced jack, 50 Kohms.
Phantom Power	Optional 48 V phantom in all microphones with internal switching supply.
Input level	Balanced Microphone: -22 to -75 dBu, MIC 1,2,3 & 4 MIC 5 (stereo center) ; -22 to -65 dBu. Balanced Line: -20 to +20 dBu Stereo Line; -10 to + 20 dBu
Audio output	Mono balanced audio output + 4 dBm / 600 ohms / XLR out, Stereo, unbalanced -10 dBu to 0 dBu / 10 Kohms / 1/4" jack, Digital Stereo stream, coded MP3, see below CODEC / RJ45.
Hybrid Outputs	2 outputs with internal Hybrid. One for land phone line (POT) and one for cellular phone. Return to Studio output level: - 2 dBu over 2 Km artificial line.
Bluetooth link out	Microwave digital link, Bluetooth, to connect a second cellular phone wireless up to 15 meters. This avoids problems associated to wired connections.
Stereo Headset Mixer	6 stereo outputs for headsets; Z= 8 to 600 ohms 4 channel mixer and Distribution Amplifier included. It can work stereo or mono mode. Inputs are: Stereo Mixer Out, Studio return (Hybrid, Cellular or Tuner), Bluetooth and Digital stream.
Frequency Response	MIC to mono out: 20 - 20.000 Hz +/- 0,5 dB plus -3 dB @ 20 Hz anti pop filter Stereo Line to Stereo Out: 20-20.000 Hz +/- 0,2 dB Stereo Line to Digital at 64 Kbits/s: 30-15.000 Hz +/- 0,5 dB
THD Distortion	MIC to mono out: less than 0,1%. Stereo Line to Stereo Out: less than 0,04%. Stereo Line to Digital stream at 64 Kbits/s less than 0,04%.
Noise	MIC to mono out: Signal/noise > 60 dBA at -40 dBu MIC input. Stereo Line to Stereo Out: Dynamic range > 85 dBA Stereo Line to Digital stream Dynamic range > 75 dBA.
Stereo Crosstalk	Better than 65 dB at 1 KHz.
Audio Compressor	Audio compressor for level control at the mono output and cellular phone. High audio quality stereo output is uncompressed 20 dB action with 2 LED indication; 5 & 15 dB 1 ms attack time and 200 ms recovery Slope 20:1.
Electronic Technology	Advanced rail to rail amplifiers with very low power consumption , for long battery duration. Modular easily changed sub-set for Bluetooth, 48V phantom, Digital stream and potentiometers. One million operation potentiometers for full life duration.
Cellular connection	Cellular # 1 wireless Bluetooth linked up to 15 meters. Cellular # 2 (backup unit) wired to RJ11 connector.
Additional Features	Battery charge meter. Internal talkback MIC. Internal DTMF dialer. Audio generator at + 4 dBu reference level, 1.000 Hz +/- 10 %
Battery charger	The console includes a multivoltage 90 V to 240 V switching battery charger. During charge the console can work On Air. Full charge overnight, 10 to 12 hours.
Battery duration	Analog mixer use with Bluetooth: more than 20 hours. Digital stereo or mono Internet streaming: 8 hours. Professional grade Nikel-Metal battery, 1.000 charges guaranteed.
Dimensions and Weight	Dimensions: 70 mm x 200 mm (wide) and 265 mm depth Weight: 1,8 Kg with battery.

B-Codec streaming section

Streaming connection	Standard RJ45 Ethernet connection TCP/IP.
Standards supported	MP3 Layer 1 (32, 44.1 and 48 kHz). MP3 Layer 2 (16, 22.05 and 24 kHz). G.711 (μLaw / aLaw 8 and 24 kHz. sampling rate) 16bit PCM uncompressed (8 and 24 kHz)
Protocols	IP standard based protocols; TCP/IP, UDP, HTTP, ICMP, SNMP. Supports BootP, DHCP and Auto IP. It supports RTP for low latency.
Studio link	Using a streaming host (Solidyne provides one temporal to test the MB 2400), the Journalist only needs to connect the codec to Internet to start the digital transmission.
Latency (time delay)	MB2400 has a latency of only 50 mS. The full loop including Internet and receiver software in a direct conection is between 0,5 sec. to 1,5 sec Using an iceCast host streaming server this value usually raise to 1 - 2 sec.
Voice IP identification	When MB2400 is connected to a LAN network for codec programming, a voice response in English can be heard at head phones in order to get the IP address of LAN.