SOLIDYNE DIGITAL POWER

www.solidynePRO.com

portable consoles

MB 2100 & MB 2100-BL

Portable mini-console

User manual

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Revision
October '09

Whats in the box

Inside the box you will find:

- *1 MB-2100 console*
- *Printed user's manual 1*
- *1 multi-voltage charger*
- *1 warranty certified.*

1. Overview

1.1 Features

The Solidyne MB-2100 mini-console was designed to provide low cost professional solution for those using the cell phone as a microphone at outdoors transmissions.

We know that no matter how expensive it is, a cell phone used in this way does not provide the sound quality or the professional image that your station needs. You no longer have to manipulate the cellular phone. With the MB-2100 you can use good quality dynamic microphones, using the cell phone only as link to the radio station. You can also use the console connected to a land-line.

The potential of the console expands if you use at the studios an hybrid with VQR technology, that achieves a remarkable restoration in the audio quality of telephone communication, rebuilding part of the bass and treble lost in transmission and eliminates the background noise that characterizes the telephone transmissions. You can listen this technology on our website.

The cell phone is connected to the console via a **Bluetooth** wireless connection (only MB2100-BL models) or using a cable adapter connected to hands-free connector.

Bluetooth wireless technology allows to connect compatible devices without cables. A Bluetooth connection does not require that the devices be in line of sight, but the devices should be within 10 meters from each other (3 meters maximum recommended for safe operation). Connection can be subject to interference from obstructions such as walls or other electronic devices.

All amplifiers used in MB2100 are CMOS technology, ultra-low power consumption. This design decision makes the console consumes less than 0.1 watt, ensuring a longer duration to 16 hours continuous operation. With non continuous work is normal that the battery lasts 20 to 25 hours.

1.1.1 Inputs

- ***3 inputs for dynamics microphones**, 1/4" TRS female jack. Non-saturation pre-amplifiers with "local-feedback" technology by Solidyne.*
- ***1 line input** (mono), compatible with headphone output of portable players.*
- *Built-in condenser microphone (shares the knob with the line input).*

1.1.2 Outputs

The program signal is compressed by an automatic **dynamic range compressor**, which maintain a constant output level.

The outputs are:

- ***Main Program Output** (PGM). Balanced with TRS Impedance 10 KOhms.*
- ***CUE output** (monitor) 2 headphone outputs allows to connect up to **4 headphones** of 32 ohms or higher impedance. This avoids the use of external amplifiers. A knob allows to change the listen between the console's output or the return signal from Studios.*
- *RJ11 to cell phone or land line.*

1.1.3 Power source

Internal Battery Ni-Cd batteries allowing 16 hours of continuous operation. They are typically 20 to 25 hours of non continuous operation.

Included external charger. Multi-voltage, can be connected indifferently to any voltage between 100 to 240V, 50/60 Hz.

1.1.4 Portability

The unit has a hook "U" that allows to use the console belt hanging near the phone. MB-2100 has extensive protection against RF interference. With GSM digital phones are advised, however, a minimum distance of 20cm.

Its small size and low weight (only 600 gr) make it very comfortable to operate.

1.1.5 Connectivity

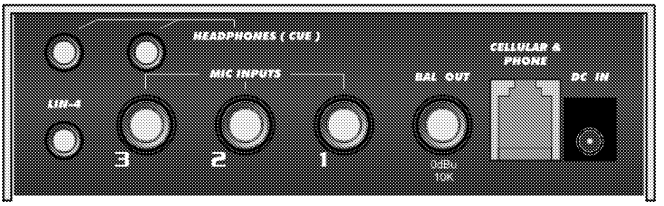
Link with cell phone via Bluetooth (MB 2100-BL models).

Link with cell phone via hands-free connector.

DTMF keypad to dial up with land-lines.

2. INPUTS, OUTPUTS and CONNECTIONS

2.1 Rear panel



rear panel

2.1.1 Microphone inputs

All microphone inputs (MIC-1 MIC-2, MIC-3) use connectors type TRS of ¼". The pre-amps use a technique called "local feedback" that avoids saturation when the sound pressure level over the microphone capsule is high (e.g. a sports relator who cries a goal).

LIN-4 is a line input (mono). Accepts direct connection to the headphone output of the analog and digital portable players. You can use a standard stereo miniplug cable to connect (on the console ring goes unconnected).

2.1.2 Inputs connection

Microphones	
Sleeve	Ground
Ring	Balanced (+)
Tip	Balanced (-)

LIN-4	
Sleeve	Ground
Tip	Signal

✍ ***Note:*** *If you connects an stereo signal to* ***line input****, take in mind that this input monoaural, since only one channel will be used. You can use a plug-plug stereo cable since at the console the ring (right channel) is unconnected.*

2.1.3 Power source

The console can be operated without external power for 16 hours in continuous use due to its CMOS chipset technology. It has a rechargeable Ni-Cd battery.

Console is provided with an external charger. The switching charger is automatic: you can connect to any outlet of 100 to 240 VAC.

When you connect the charger to the console, a red LED (CHG) lights indicating the unit is recharging. THIS LED WILL BE LIT WHILE THE UNIT IS CONNECTED TO THE CHARGER, REGARDLESS OF THE UNIT IS ON OR OFF.

The battery requires about 12 hours of connection to reach its full charge. Above this value reduces the load current may be permanently connected, if desired.

2.1.4 Program output (Bal Out)

The program output is balanced, monoaural, and uses a TRS connector (Sleeve = Ground, Ring = signal [-] Tip = signal [+]) This output sends the signal from the program mix, that is, the sum of the signals MIC-1, MIC-2, MIC-3 and MIC-4/LINE. The impedance of the device to connect must be 10 KOhms or greater.

The signal passes through a compressor that automatically manages the dynamic range, avoiding differences of levels in the air or distortion on the telephone line due to signal excess.

This output can connect to a portable DAT recorder or mini disc to make recordings of high audio quality. You can also send the signal to Studios using a VHF/UHF radio link to transmit with studio quality (30-15.000 Hz)

2.1.5 Headphones output

There are two headphone outputs with 1/8” minijack. The signal sent to the headphones is controlled from the knob CUE, which select the source and adjust the volume simultaneously. With CUE knob at center will not output audio. Turning toward MIXER increase the audio level

monitoring from direct output of the console. Turning toward STUDIO increase the level of monitoring the return of study, listening to journalists who are at the studios and at the same time, the transmission from MB2100.

You can connect up to two additional headphones. To make this, you must have an adapter or "Y" cable to connect two headphones in parallel for each output. In this case, preferably using headphones with impedance of 32 Ohms or higher.

2.2 Link with the radio station

2.2.1 Connecting to a land line

The console connects to the telephone line through connector *"Cellular & Phone"*, RJ11 type. Through the phone line the console sent the program mix to the studios and receive return from the studios, adding to headphone mix.

MB-2100 has a DTMF keypad to dial with land lines. To dial up:

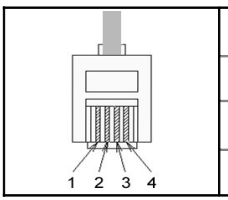
Take the line pressing the button "On air".

Listen the dial tone in headphones.

Dial the phone number.

To talk, you can use the built-in microphone (Line-1 / MIC), or a microphone connected to the console (recommended). Both signals are sent to studios via land line.

The RJ-11 connections are:



1	Sin conexión
2	LINEA
3	LINEA
4	Sin conexión

RJ11 connections to land line. This is the a standard cable for lannd lines.

2.2.2 Connecting to a cell phone

MB-2100/BL (Bluetooth model) supports connection of a mobile phone via Bluetooth to link to studios.

Any phone with Bluetooth can be linked to the MB-2100/BL, eliminating dependence on the headset cable, which differs in each cell.

While the cell may be up to 5 meters away from the console, we recommend wearing, but not beside to the console. The shirt pocket, or hang on the waist opposite side of the console, are appropriate places

The Bluetooth wireless connection allows for better audio quality as the digital signal remains from the cell to the MB-2100.

2.2.2.1 Link the cell phone with the console

By linking cell phones to the console creates a link between two devices, and allows the phone to remember the unique ID of the console (ID). Do you need to make this only the first time that use the phone. Once the console and the phone are linked, the console automatically connects to these phone when you enables Bluetooth on both devices.

Procedure:

1. **MB-2100:** Enables *discovery mode*. With Bluetooth switched off (LED off) press and hold the number **#** and **9** on DTMF keypad (5 seconds) until the LED flashes alternating between green and red, indicating discovery mode. Being in this mode the MB-2100 can be found by the cell phone.

To enable Bluetooth, press and hold the numbers # and 9 on the DTMF keypad by 2 seconds. Release the buttons just when LED lights. Led will flash in green slowly, indicating Bluetooth enabled. If you hold BLUET button more that 2 seconds (5 sec approx) Bluetooth changes to “discovery” mode (toggling green and red).

2. **At the cell phone**, search for Bluetooth devices. This procedure varies by brand and model cell, see the instruction manual of phone.

3. When the phone finds the MB-2100's Bluetooth device, shows the code “BTH-008” on screen. When the phone asks for the password, **enter 0000** (default). See your phone's manual for details.

4. MB-2100's ID is now stored at the cell phone's memory. You don't need to repeat this procedure for this phone. In the front panel of the console, the light will change to green flashing slow, indicating that Bluetooth is active.

In some cell phones, it is necessary to "connect" the new device found to active it. In others, the new device is activated after being detected.

If there were other systems operating in the Bluetooth studios, we commend turning off Bluetooth on the MB-2100, to repeat the search with the cell and write-down the existing devices. Then turn on Bluetooth in the MB-2100 and repeat the search. The displayed (BTH-008) will MB-2100.

2.2.2.2 Re-connections

To reconnect the cell before linked, activate the MB-2100's Bluetooth pressing by 2 seconds the numbers # and 9, and enables Bluetooth at the cell phone (if necessary, some cell phones disables Bluetooth device when turn it off). To make or receive a call, the audio is sent to the console.

2.2.2.3 Adjusting the value

At the cell phone, **Bluetooth volume must be adjusted at maximum level** in order to obtain a good reception and to sure the best signal to noise ratio.

This adjusting must be done with a real calling using Bluetooth.

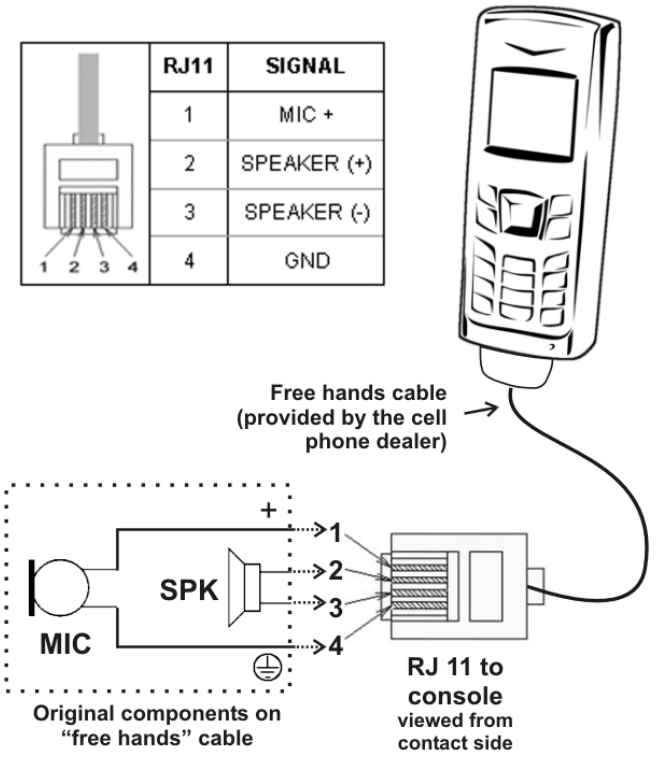
Usually, the volume of the phone's speaker is independent of the volume of Bluetooth device. If you change the phone's level without make a Bluetooth calling, you will only be changing the volume for the phone's speaker, not the Bluetooth level. To change the Bluetooth level, make a call using the console (or a hands free headset) and set the Bluetooth level to the maximum. This setting is stored at the cell phone's memory. **If you use another cell phone with the console, you needs to set the Bluetooth level again**.

To turn off MB-2100's Bluetooth, press and hold “#” y “9” until the LED turn off.

2.2.3 Wired cellular: hands free adapter

“Cellular & Phone” supports direct connection of a cell phone, using the "hands free" connector. This cell phone is used to link to the Studios.

This connection differs by brand and model of phone. You must purchase the hands free headset for your cell phone and consult your phone's documentation to make the connection as diagram below.



What cell phone transmits through this connector are the audio signals from cell phones. The console sends PGM signal to the cell, which transmits to the radio. The radio sends back to the telephone, which enters through the cell phone to the console and sent to the headphone mix

(Studio). Usually, the microphone and speaker phone are disconnected while using the audio connector for hands-free.

2.2.4 Receiving at the studios

At the Studios, the signal of MB-2100 is received using a standard telephone hybrid. To achieve good results it is recommended to use professional quality equipment. Solidyne provides high quality telephone hybrid, both rack-mount units (Series HL-202 and Bluetooth HL-203VQ) and built-in systems into the on-air consoles.

In addition, hybrids may include **Voice Quality Restoration** (VQR®), a technology developed by Solidyne which allows the reconstruction of the low and high frequency components losses in the telephone communication; and eliminate background noise. The operator adjusts the degree of restoration. This technology expands the performance of MB-2100, allowing high quality transmission on location using conventional phone lines (land or cellular). We recommend listening to the VQR® demos clips at www.solidynePRO.com

3. USING THE CONSOLE

3.1 Front panel

3.1.1 Power on

Pressing “ON” the console starts up, either the console is connected to a charger or operating with internal battery.

When the unit is connected to a charger, LED charging indicator ("CHG") is on while the console is off.

The battery has autonomy of 16 hours in continuous use. The total charge time is **12 hours**, there being no damage if left connected indefinitely, as the system load MB2100 automatically reduces the charging current to get it to 100%.

REMEMBER TO TURN OFF THE CONSOLE AFTER USE IT.

3.1.2 Program and headphones controls

3.1.2.1 Program mixer

The audio signals from the MIC-1, MIC-2, MIC-3 and MIC-4/LINE mixed through their respective knobs from the front panel, generate the program signal. This signal is sent to the radio through the telephone line (land line or cellular exit) and BAL OUT output. It is also sent to the section MIXER at headphone's CUE knob.

The attenuator MIC-4/LINE sends signal from microphone or line input. When plugging a plug into the line input, the internal microphone disconnected.

*3.1.2.2 **CUE Mixer** (headphones)*

At this stage is generated the headphone mix. The knob-control with zero at center regulates the level of signals STUDIO, which is the return from Studios sent through the telephone line, and MIXER, which is local mix of microphones generated by the console.

Turning the CUE knob to position MIXER you will hear only the local mix generated in the console, and not hear return from Studios.

With the knob at STUDIO position you will hear the return from Studios, which reaches the MB-2100 through telephone communication, listening while the signal from the console MB-2100.

Therefore when you test the microphones you must use this control at MIXER position. But when the transmission started via cellular or land-line, you must turn the CUE knob to STUDIO to listen both the return signal (journalists who are at the radio station) as the local signal generated by the MB-2100.

✍ **Note:** It is not necessary that the operator in Studios forward the radio signal received from the MB-2100. At the location the journalist will hear yourself (and your console that transmits audio) because, of course, part of which transmits audio MB2100 returns through phone line (or cellular). This signal is attenuated about 15 dB over the level transmitted, but audio will good as reference.

✍ When communication is not established, the level of monitoring of the microphones in the position 'Studio' is higher than during the communication.

3.1.3 Signal level indicator

The console features a two-level LED's indicator that shows the action of the internal compressor. The green LED illuminates when the signal level is below the action of the compressor. When the signal begins to compress, red LED lights. The higher compression will produce more brightness red LEDs.

The adequate level of work achieves when peaks lights the red LED with regularity.

Dynamic range compression

The MB-2100 incorporates an audio compressor + limiter, of automatic action, which take effect on all outputs of the console to maintain peak output signal at a constant level.

This compressor, professional features, not produces deterioration in audio quality.

3.2 Link with the radio station

The communication is done from the phone connected to the console, either land-line or cell phone (See “2.2 link with the radio station”). The following describes the procedure for both cases:

Cell phone

*If the cell phone is **linked via Bluetooth**, call to the radio station from a cell phone. Once the call, use the microphone and headphones connected to the MB-2100 to talks with Studios. The radio also can call you. In that case you will hear the ring tones at the headphones, as long as the control mix/studio is in the middle or in "studio” zone.*

If the cell phone is connected using a cable adapter to hands-free connector, first make the call, once the communication, press the PHONE button on the console and plug the cable to the "hands free” on cell phone (the cable must be connected to the RJ-11 of MB-2100). From this moment you must use the microphone and headphones connected to the console to talk with studios.

Land line

***Take the line** by pressing the **PHONE** button and dial the destination number using the console's DTMF keypad. Once the communication, can talk with studies*

using a microphone and headphone connected to the console.

The program signal (console output) is sent to the radio through the telephone. The return from the radio comes to the MB-2100 and sent to CUE control headphones for monitoring (position Studio).

Monitoring

The knob 'CUE' is a dual control that allows to listen to the output of the console (MIXER) or the return from Studios (STUDIO).

The first option is used when there is no communication with the radio, to test and adjust the microphones before making the call. Or when the console is connected to a portable recorder for recording on location, having no link with the radio.

STUDIO position is used when establishing a telephone link with the Studios. The operator of the MB2100 hear the audio from the radio and your own audio, entering the console via the telephone.

End the call

To end the notifications sent by land line, press PHONE button again, the button is discharged. This action will hang up the communication, except that the phone had been let down before.

In the case of a **cell phone**, simply end the call using the phone keypad (see the phone manual, “hands free" operation).

If the communication interrupts...

Remember that when using the "hands free" option at cell phone, microphone and speaker of the phone (usually) are disconnected. If communication is lost, you must remove the cable from the phone to make the call again. You can also wait for the Studios call you . As the cell

phone ends the call when the connection is broken, you can wait for the radio to call and respond by pressing YES SND or on the phone, without having to disconnect the "hands free" cable. When answer, the radio link is restored.

If you are using a **land-line** and communication lost, release the ON-AIR to make or receive another call from the associated phone set. If you receive a call from the radio you can answer directly from the console by pressing ON-AIR, without using the associated phone.

4. Technical Specifications

Audio inputs	***4 Microphone** inputs; 3 external dynamic MIC and one internal condenser MIC. **1 line** input for cassette, DAT or digital recorder.*
MIC Input levels	*From -20 dBu to -75 dBu. Non clipping MIC amplifier at any level.*
Audio outputs	*Balanced audio output 0 dBu / 10 Kohms.*
Hybrid outputs	*2 outputs with internal Hybrid. One for phone line (POT) and one for cellular phone*
Headphones outputs	*2 outputs for headphones. Z= 8 to 600 ohms Up to 4 headphones can be used. Level controlled by a double action knob: Mixer output in one side, or audio from remote Studio.*
Frequency response	*Flat 20-15.000 Hz plus an anti-pop filter with -6 dB @ 30 Hz and Low pass filter -3 dB @ 12 KHz.*
Noise	*70 dBA Signal/Noise ratio with -40 dBu MIC level.*
THD	*Less than 0,4 % @ 1 KHz.*
Audio compressor	*16 dB action with 2 LED indication. 10 ms attack time and 200 ms recovery.*
Fast limiter	*Peak limiter after compressor stage to avoid digital saturation of cellular phones.*
Electronic technology	*Full use of advanced CMOS amplifiers with very low power consumption , for long battery duration.*
Cellular connection	*Cable for Motorola cellular phone, miniplug connection, is standard. Other brands on option.*
Battery charger	*The console includes a multivoltage 90 V to 240 V battery charger, with automatic voltage selection*
Battery duration	*MB 2100 works continuously during 16 hours. Can be charged in one night*
Dimensions & Weight	*Dimensions: 121 mm x 129mm x 37 mm Weight: 600 gr (0,6 Kg)*

Notes