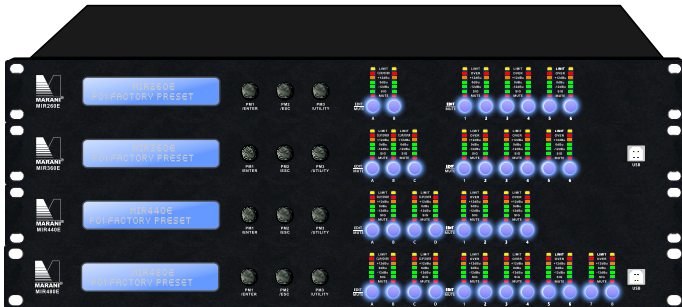




# MIR-E Series

## Digital Speaker Processors



## Quick Start Guide

The MIR-E Series of Loudspeaker Management Systems, is embedding plenty of classic processes devoted to the sound improvement and control.

On Input paths, the processing chain sees in cascade: Input Gain / Delay / Noise Gate / Dynamic Loudness / Filtering Section / RMS Compressor.

The Input Path Filtering Section is a flexible and configurable one, allowing to choose in between:

- 31 Band PEQ
- 24 Band PEQ + 7 Band T-PEQ (Target Parametric Eq)
- 13 Band PEQ + 512 Taps FIR
- 6 Band PEQ + 7 Band T-PEQ + 512 Taps FIR

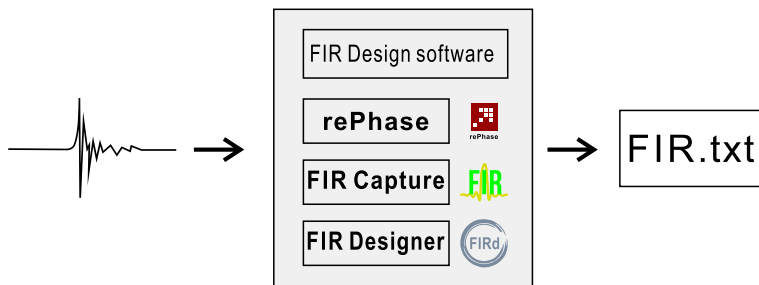
On Output paths, the processing chain sees in cascade: Output Gain / Delay / Polarity / Filtering Section / RMS Compressor / Peak Limiter.

The Output Path Filtering Section, including the Xover Section, is also a flexible and configurable one, allowing to choose in between:

- Classic IIR Xover (All Types Up to 48dB/Oct) + 8 Band PEQ
- MIR (LR24 / LR48 Linear Phase ) + 8 Band PEQ
- 512 Taps FIR + 8 Band PEQ
- Classic IIR Xover (All Types Up to 24dB/Oct) + 512 Taps FIR + 4 Band PEQ

Particularly, MIR-E is therefore offering the possibility both in input and output paths, of FIR filtering, which in input can be used for system phase correction and in output, also for creating Hp/Lp crossovers with “brick wall” slopes, which coefficients are internally generated by MIR-E.

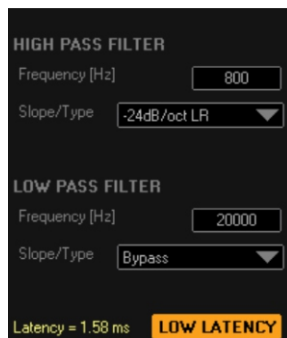
The FIR on both Input and Output paths, can process up to 512 Taps and the coefficients can be imported by third-party software: from external applications, can also be imported directly the IR for being displayed on the MIR-E graph after converted in Frequency Response. It can be used for speaker presets to improve the phase response and control the directivity if driving arrays.



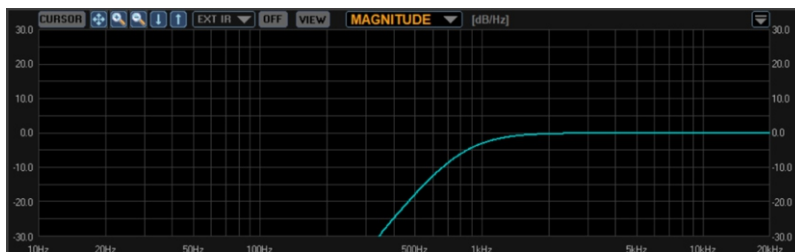
The new MIR linear phase IIR filters, on output paths are allowing simple and quick definition of Hp/Lp with perfect flat magnitude and linear phase behavior, adding a latency lower than the one of an FIR filter.

A special feature, is also allowing the user to optimize the latency, further reducing it: the reduction of the latency simply brings a higher ripple to the knee of the filter, which anyway never exceed the 0.05% and is normally calculated to be 0.01%.

If we set in example an MIR High Pass at 800Hz, with and without Latency reduction (which is with 0.05% or 0.01% ripple)

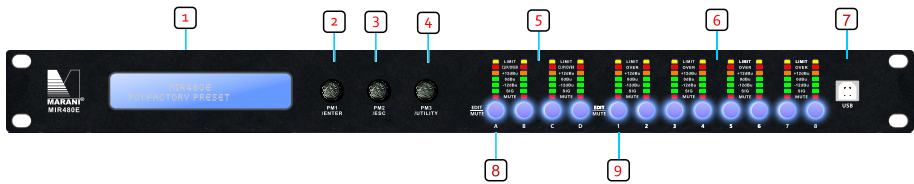


And the related Magnitude and phase responses are the following:



# Processor Overview

## Front panel



1. 2\*24 Alphanumeric display

2. PM1/ENTER: the knob is used for the selection of the main pages of the several Menus; when pressed the BUTTON function, a lower level of the Menu is entered or an edited parameter's value is confirmed.

3. PM2/ESC: the knob is used for changing the values or the status of a parameter edited within the specific Menu page, accessed through the PM1/ENTER controls; when pressed the BUTTON function, a higher level of the Menu is entered or an edited parameter's value is NOT confirmed.

4. PM3/UTILITY: the knob is used for changing the values or the status of a parameter edited within the specific Menu page, accessed through the PM1/ENTER controls; when pressed the BUTTON function, a Utility Menu is entered for the MIRA-E general setting (the "navigation within the several "Utility" Menus is done using the PM1/PM2 knobs)

5. INPUT SIGNAL LEVEL METERS: these meters display the Input Signal level before the Input Gain: MUTE does not affect the displayed level; the MUTE status is shown by the "Mute Led" which turns RED when the related channel is Muted; when the SIG Led is ON, it means the input signal reaches the -40dBu;-12dBu, 0dBu, +6dBu, +12dBu represent the actual RMS value of the signal; the CLIP/OVER Led is ON to indicate that the signal is exceeding the maximum level before the A/D analog-to-digital conversion OR that an internal Overflow is occurring due to excessive added gain on the signal path (normally, the Overflow is controlled by an internal process and doesn't bring to signal distortion, but need to decrease the signal level along the path); The LIMIT light will turn ON when the Input RMS Compressor is operating a Dynamic control.

6. OUTPUT SIGNAL LEVEL METERS: these meters display the Output Signal level before the Output Gain, therefore after the all processes: MUTE affects the displayed level; the MUTE status is shown by the "Mute Led" which turns RED when the related channel is Muted; when the SIG Led is ON, it means the input signal reaches the -40dBu;-12dBu, 0dBu, +6dBu, +12dBu represent the actual RMS value of the signal; the OVER Led is ON to indicate that an internal Overflow is occurring due to excessive added gain on the signal path (normally, the Overflow is controlled by an internal process and doesn't bring to signal distortion, but need to decrease the signal level along the path); The LIMIT light will turn ON when the Output RMS Compressor or/and the Output Peak Limiter is/are operating a Dynamic control.

7. TYPE B USB interface for connecting to a computer for communication.

8. INPUT CHANNEL SELECTION KEY: Short press this key to edit the parameters of the Input Channel processes (Gain / Polarity / Delay / Parametric EQ / RMS Compressor) or general parameters as the channel name. Press and hold for three seconds to mute the current channel.

9. OUTPUT CHANNEL SELECTION KEY : Short press this key to edit the parameters of the Output Channel processes (Gain / Polarity / Delay / Xover / Parametric EQ / RMS Compressor) or general parameters as the channel Inputs to Output channel Matrix. Press and hold for three seconds to mute the current channel.

# Back Panel



1. AC power input, standard C13 interface, please ensure that the grounding pin of the power supply is well grounded, otherwise an electric shock accident may occur.

2. ON/OFF Power switch.

3. The LAN control port supports TCP/UDP protocol, and the IP address is automatically obtained by DHCP by default.

4. RS485 protocol interface, providing 1 input and 1 output dual interface, which can be used to connect software and also be used for central control protocol transmission,

More... the figure has to be set below the following line where wiring is defined as Fig.

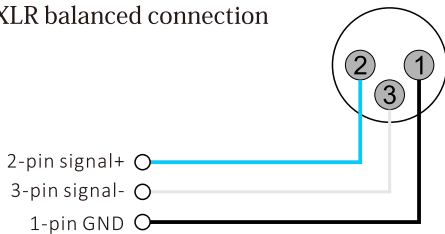


5. Analog Signal Output Interface: processor audio signal output, maximum output level +18dBu, minimum load 100Ω

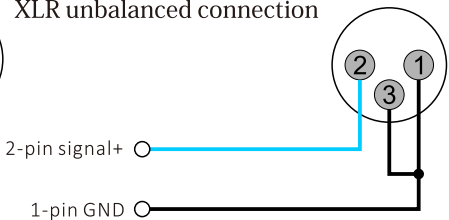
6. Analog Signal Input Interface: processor audio signal input, maximum input level +20dBu, input impedance 20KΩ

## Connectors Pinouts:

XLR balanced connection



XLR unbalanced connection



## How to quickly connect the PC Remote Control Software

Given a specific model of the MIR-E series, as in example the MIR480E, in order to get started with it need to add the unit to the main shell of the Pc Sw in order to get to control it.

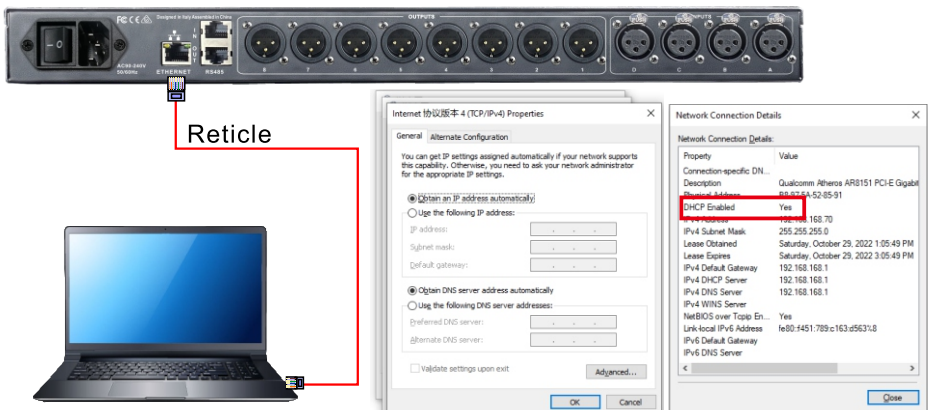
MIR-E series provides 3 kinds of control interface, namely USB / RS485 / ETHERNET, therefore will be necessary to decide which of these interfaces will be used for the MIR-E control.

In order to add a new unit to the Sw Shell, need to click on the “  ” icon.

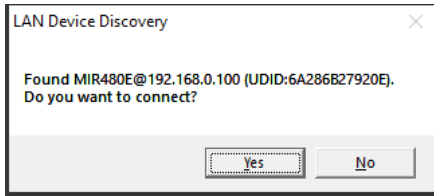
1. When using the USB interface, directly connect to the USB port of the PC using a B-type cable, select USB as connection way, and select the model is going to be added (in the example the MIR480E)



2. When using the network interface to connect, select on “Add New” window the TCP/IP interface, then use a Category 5/6 network cable to connect the ETHERNET port of the processor to the network adapter interface of the PC, and adjust the IPv4 address option in the corresponding network adapter in the Windows network settings to DHCP automatic acquisition, and then Open the software to automatically discover the current processor.

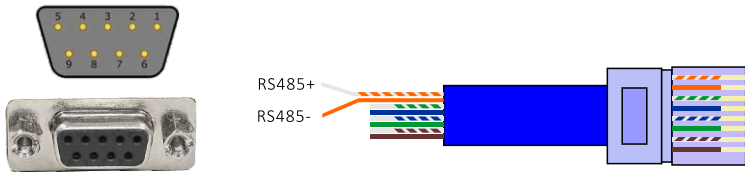


popup image



3. The use of RS485 often requires an adapter wire

① Traditional PC will provide DB9 serial port, you need to use DB9 to RJ45 conversion cable to adapt. Usually pins 2 and 3 are the high-level and low-level signals of the RS485 protocol, and pin 5 is grounded.

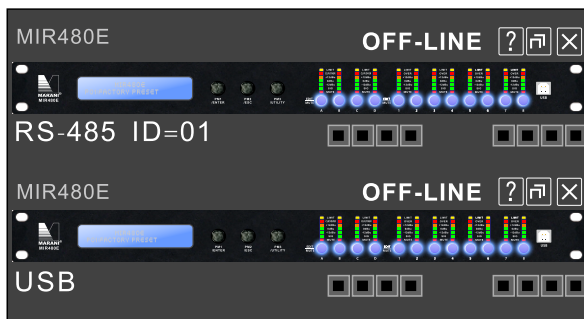


② Usually current home models do not provide serial ports, so a usb-to-serial converter is required. Optional USB to RJ45 serial converter (USB-485-RJ)

If necessary, you can contact the sales to purchase



When using the network mode, after the hardware connection is successful, the interface window with the ID will pop up automatically; USB is a one to one connection, not requiring any ID and if using RS485 needs to add manually the ID to assign to the added MIR-E. If in example the RS485 connection is used for an added MIR480E, and the ID = 01 is the one to assign to the unit, then, selecting, MIR480E, RS485 interface, need to select for this unit the ID = 01.



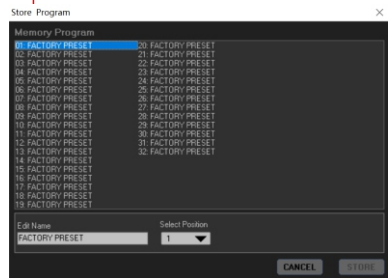
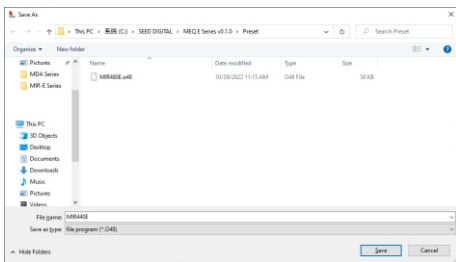
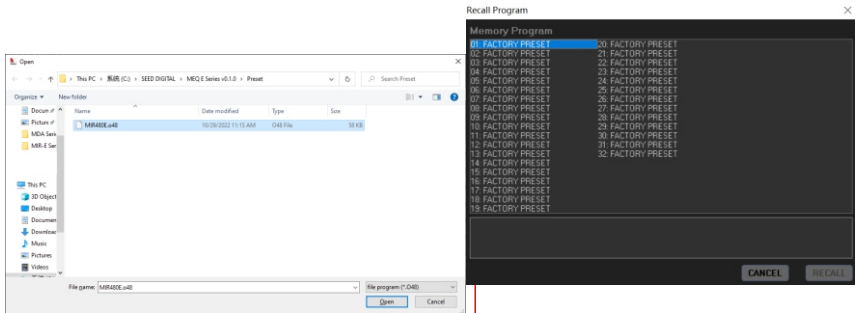


# Software main interface

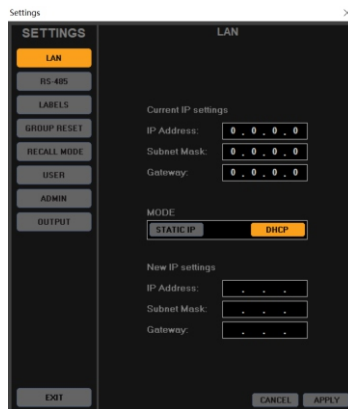
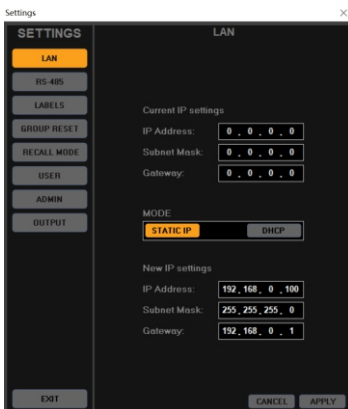
The screenshot displays the software main interface for the MARIAN MEO system. The interface is organized into several functional areas:

- Top Bar:** Contains system information such as "MARIAN MEO - IP: 192.168.1.1 - PI: FACTORY PRESSE" and a "Settings" gear icon. A red box labeled "1" highlights the top status area, and another red box labeled "2" highlights the "Settings" icon.
- Navigation Panel (Right Side):** Includes icons for "Load", "Save", "Fiscal", "Store", "Factory", "Copy", "V Upgrade", "Logout", "GUI", "Panel", "Identify", "Backup", "Restore", and "Sig Gen". A red box labeled "3" highlights the "Factory" icon, "4" highlights the "Logout" icon, and "5" highlights the "Backup" icon.
- Routing Matrix (Center):** A large grid of controls for routing input channels (CH1-CH8) to output channels (OUT1-OUT8). Each cell contains a dropdown menu for parameters like GATE, GAIN, DELAY, POLARITY, DLF, EQ, and CMP. A red box labeled "6" highlights the top row of this matrix.
- Bottom Panel:** Features "OFF-LINE" and "INP LINK" (A, B, C, D) buttons, "OUT LINK" (1-8) buttons, "LATENCY LINK" (INP, OUT) buttons, and a "MARIAN MEO" logo.

1. Use Save to save the current preset to the PC, use Import to import the preset saved on the PC to the processor, use Recall to recall the preset stored in the processor, and click Save to save the preset in the processor's preset library.



2. In the settings, you can adjust the network connection mode to a fixed IP address. The default option is DHCP to obtain the address automatically. In the use of multiple processors or complex LAN conditions, it is recommended to use a fixed IP address.



3. Input processing part, including gain, delay, polarity, noise gate, maximum 31-band parametric equalization or using FIR filter and other combinations, dynamic processor part includes compressor and dynamic loudness booster; The input section is open to all by default.

3

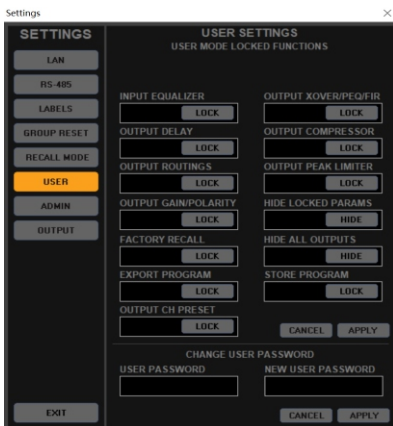


4. The administrator has the highest authority of the machine. After logging in to the administrator account, all or part of the output processing modules can be locked. The locked part can be hidden or not. The hidden output part is completely invisible in the non-administrator state.

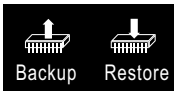
The Device Administrator default password is: 111111



4



5. All presets backups and restores of the whole device are suitable for device migration or OEM customers to clone and write data on multiple devices.



5

6. Output processing section, including gain, polarity, delay, Xover and 8-band PEQ, RMS compressor, peak limiter, and a variety of dynamic processing modules.

In the Xover and Parametric EQ section you can choose:

- ? Classic IIR Xover (All Types Up to 48dB/Oct) + 8 Band PEQ
- ? MIR (LR24 / LR48 Linear Phase) + 8 Band PEQ
- ? 512 Taps FIR + 8 Band PEQ
- ? Classic IIR Xover (All Types Up to 24dB/Oct) + 512 Taps FIR + 4 Band PEQ

6

