

DUAL MIC-PRE

Green Dual Mic Pre (introduction)4

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Green Dual Mic Pre

The Green Mic Pre provides two high performance microphone preamplifiers, as two independent channels.

A microphone preamplifier converts low-level microphone signals to line level signals, which is the level used in recording and PA gear. A lot of equipment contains mic preamps (for example, mixing desks, and some tape machines), but they do not provide the quality of a dedicated mic preamp, so you can improve the quality of your sound by using the Green Mic Pre instead of the built-in preamps.

Power Connections

There is an IEC mains lead supplied in the package which should have the correct moulded plug for your country. The wiring colour code used in all Focusrite products is:

For units shipped to the USA, Canada, Taiwan and Japan

Live - Black **Neutral** - White **Earth** - Green

For units shipped to any other country

Live - Brown **Neutral** - Blue **Earth** - Green and Yellow

The chassis is connected directly to the mains safety earth. We do not provide an earth lifting switch, since such a switch can allow for a dangerous wiring arrangement.

Warning: For safety reasons, it is absolutely IMPERATIVE that the mains safety earth is connected.

Power Supply

All modules will work correctly from either 50 Hz or 60 Hz power supplies, and draw approximately 35VA from the mains supply at highest load.

Most modules will operate on a range of voltages, and have a two-position switch on the rear panel that should be set to the correct voltage:

115V

Set to this position if the module is to be used with voltages in the range 85V to 120V

230V

Set to this position if the module is to be used with voltages in the range 200V to 250V

To comply with the safety codes in some countries, modules may be supplied without a voltage selector. In this case, the module is preset to the local supply voltage, which is clearly marked on the rear of the module. Check that the voltage is set correctly.

Signal Connections

All the signal connections are via connectors mounted on the rear panel. Standard XLR connectors are used for all mic and line level signals, and are wired to the AES standard, which are:

Pin 1 Screen chassis

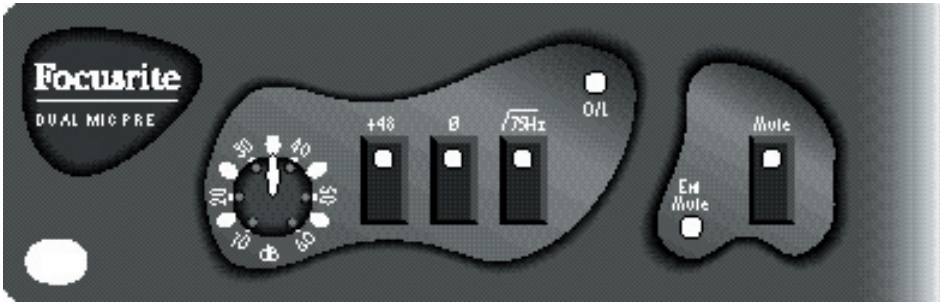
Pin 2 Live audio 0°

Pin 3 Return audio 180°

For all inputs and outputs, the screen (pin 1 of the XLR) is connected to the chassis earth point.

In the Green range, jack inputs are used only for external switching applications or as unbalanced guitar inputs on some units.

When the screen and earth wiring of the module is completed correctly, all modules which are marked with the European Community CE marking comply fully with the CE EMC regulations.



Controls

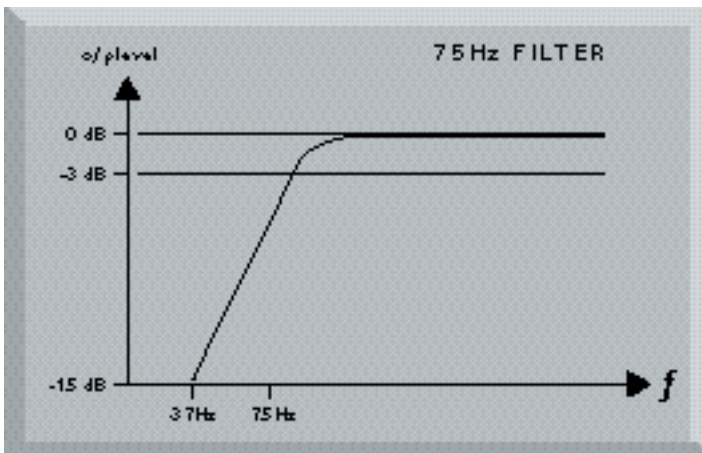
Each of the two channels is identical, and has the controls shown in the diagram above.

The **gain control** provides continuously-variable gain from +10 dB to +60 dB.

Ø is the **phase button**, and reverses the phase of the channel when lit.

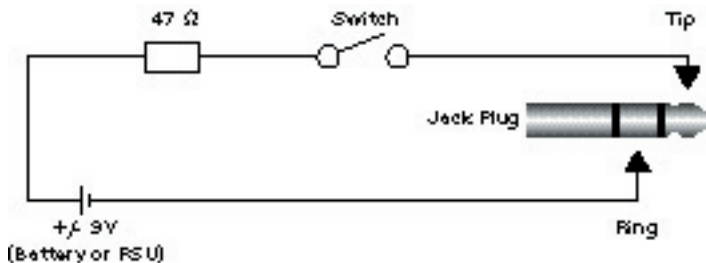
+48 is the **phantom power button**. When lit, it provides phantom power to the microphone connected to the channel.

75Hz is a **filter** that removes very low frequencies from the signal (see diagram below). Use it to remove rumble or bass lift (a proximity effect of microphones, giving a bass boost as the singer gets closer to the microphone).



The **mute switch** mutes the channel (that is, it reduces the volume to zero). This can be useful during a live performance (for example, between songs). You can mute the channel manually, using the switch on the front panel, or you can mute it remotely by connecting a suitable switch to the external jack socket on the rear panel. The diagram below shows the circuit for such a switch.

When you trigger the external switch, the LED on the front panel lights. Note that the muting circuit is optically isolated to prevent interference from external signals.



Setting the Gain

Use the gain control to match the incoming level and gain to the internal operating level. With an input signal coming into the channel, use the gain control to modify the gain to the required level. If you set the gain too high, there may be danger of overloading the unit, so there is a clip light to indicate when the level of the signal is 6 dBu below the clipping point of the unit. You can set the gain so that occasional transients activate that clip light; however, if the signal frequently activates the clip light, then you should reduce the gain.

If you have access to metering for the signal, set the input gain so that it registers between -4 VU and 0 VU on the meter. This sets the level above the noise level of the unit, and leaves room for any sudden increase in performance level (it gives about 20 dB of usable headroom).

Setting the Phase

When recording a single source using more than one microphone, it is possible for the signals from the microphones to be out of phase, which affects the quality of the recording since signals that are out of phase tend to sound “thin”.

For example, when recording a snare drum with two microphones (one on the top of the snare, the other on the bottom) they will be out of phase. Use the phase switch to reverse the phase on one of the microphones (but not both) - it normally doesn't matter which microphone you reverse. However, if the source is being picked up by another microphone (for example, by an ambient microphone) then you need to ensure that you do not put your two close microphones out of phase with the ambient microphone.

If you think two signals are out of phase, listen for phase as follows:

1. On your monitor system, pan one signal to the left and the other to the right.
2. Use the phase switch to reverse the phase on one of the signals. When the two signals are in phase, the signal sounds bigger.

Using Mic Preamplification

You can use the Green Mic Pre to record directly to your recording medium, or to replace the existing mic pre in your console. If you are recording a session with many mics simultaneously, then for maximum benefit use the Green Mic Pre for the most sensitive source (such as the main vocal or any acoustic instruments). The following sections give examples of recording techniques using the Green Mic Pre, and cover:

Recording direct to hard disk (such as Pro Tools) or to DAT.

Recording direct to tape (analogue or digital).

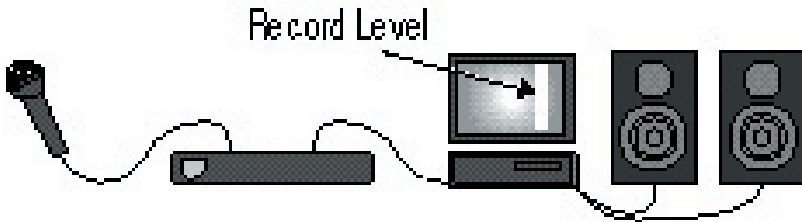
Stereo recording.

Recording Direct to Hard Disk or DAT

Using only a microphone, Green Mic Pre and recording machine is the minimalist approach to recording, and gives recordings of great clarity, with low noise and distortion, due to the extremely short path to the recording stage.

Use the input level meters of the hard disk recorder or DAT machine to monitor the recording level of the output signal from the Green Mic Pre. You can monitor the quality of the signal from the Green Mic Pre using the mix from the hard disk system, or via headphones with a DAT machine.

Direct to Hard Disk



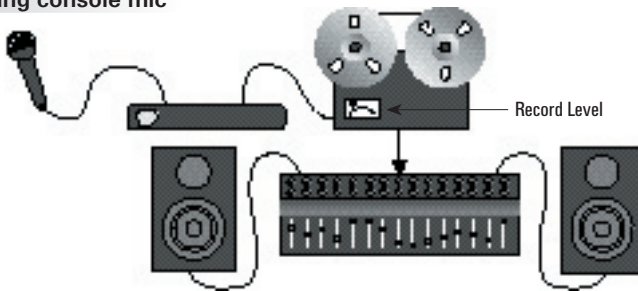
Direct to DAT



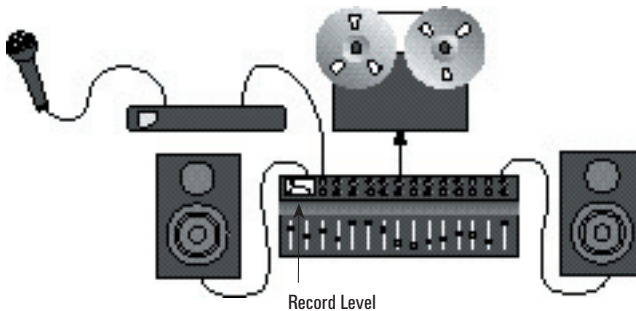
Recording to Tape (Analogue or Digital)

You can use the Green Mic Pre to replace the existing mic preamp in a recording console, and record direct to tape as below, monitoring the signal via the tape machine to the console. Alternatively, you can use the Green Mic Pre to bypass the mic preamp in the console by feeding the signal from the Green Mic Pre as a line level signal into a channel on the console. In this way, you can still access the onboard EQ or dynamics (such as compression or limiting) in the console, and can route the signal to the tape machine, and monitor it, in the usual manner.

Replacing console mic



Bypassing console mic



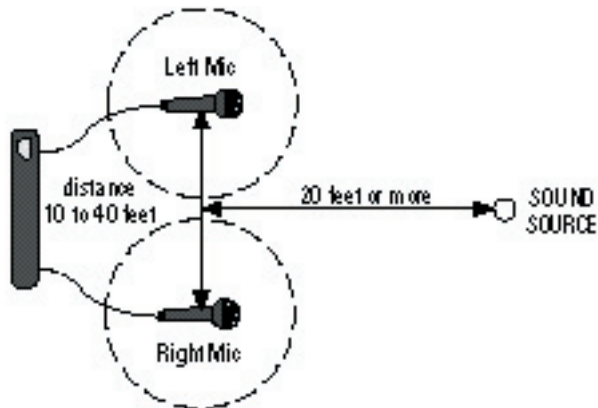
Stereo Recording

You can use either of the techniques given above to record in stereo, though the first (minimalist) gives the best results, and is often used when making stereo live recordings such as in a jazz club (nice) or of an orchestral performance.

To record in stereo, simply use two similar (or matched) microphones, and set the gain to identical levels on each channel. There are two common stereo microphone techniques that can be used:

Spaced Omni-directional

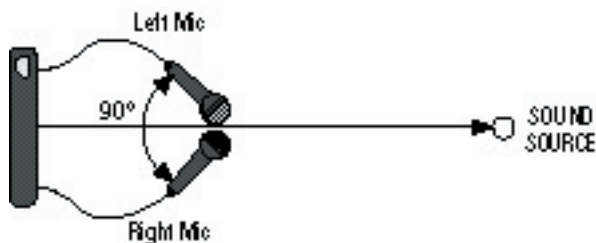
This is the simplest stereo technique, using two omni-directional mics spaced apart. The distance between the mics can range from several feet to greater than 30ft, and relates to the source being recorded, the size of the room, and the reflections in the room. For example, an orchestra obviously requires far greater spacing than a single instrument. Be careful not to space the microphones too far apart, as this may create a hole in the centre of the stereo image.



Coincident Pair

This uses two unidirectional mics placed together and oriented at an angle of 90° to each other, so that the mics point at an angle of 45° from the point source. The coincident pair technique avoids the phasing problems that can occur with the spaced omni-directional technique, caused by the distance between the two mics. The other benefit of this technique is that it is mono compatible.

You can use bi-directional mics instead of unidirectional mics in the coincident pair, if



you want to pick up more room reverberation and so give more space to the recording.

Non-Operation

If none of the LEDs light, check the mains supply:

Is the module connected to the mains supply?

Is the socket switched off?

Is the voltage select switch on the back of the unit in the correct position?

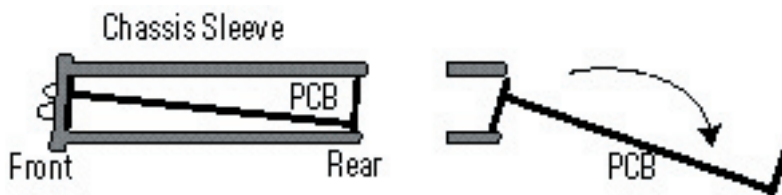
If the supply is okay and the module turned on but no LEDs light, then a fuse has probably blown. See the section on changing a fuse.

Changing a Fuse

We strongly recommend that you do NOT attempt to change fuses unless you are absolutely certain that you know exactly what you are doing. If you are in any doubt whatsoever, contact your dealer or the factory before you open the module.

To change a fuse, if you are certain of your technical ability:

1. Disconnect the mains cable.



2. Viewing the module from the back, remove the four screws that secure the back panel (there are two at each end).
3. Carefully slide out the inside of the unit with a downward motion. (see diagram)
4. The fuse is in a holder close to the transformer. To remove the fuse, pull off the top of the fuse holder, which holds the fuse.
5. Replace the fuse with a 250 mA anti-surge type.
6. When you have replaced the fuse, slide the inside of the unit back into the