

8 TOOLS MENU

8.1 GENERATOR & LEVEL METER CONTROL PANEL

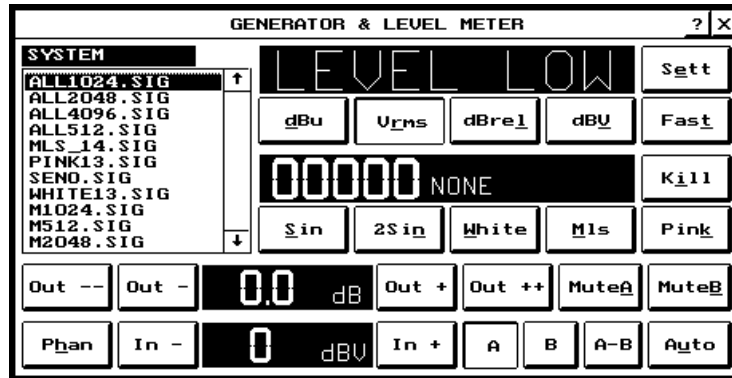


FIGURE 8.1 – The Generator & Level Meter control panel

8.1.1 INTRODUCTION

The Generator & Level Meter control panel shown in Fig. 8.1 is of fundamental importance while using CLIO. From within this panel five distinct main function can be handled many of which acts also in other control panel:

- a) signal generator
- b) level meter
- c) input gain control
- d) output attenuation control
- e) Global/Local Settings control

We remind you that the Generator & Level Meter control panel can be loaded from within every other control panel by pressing the F4 key.

Several function buttons are grouped for each function that will be described in the following sections.

8.1.2 LEVEL METER

The function buttons of the Level Meter differ depending on whether the program is in Pressure mode or not; refer to the CLIO SETUP chapter and to the Sett button.

Fast/Slow This changes the integration time used by the level meter. The label on this button changes depending on the integration mode that has been selected.

NORMAL (VOLT) MODE

Vrms Selects the volt rms (root-mean-square) reading.

dBRel Selects a “dB relative” reading. The reading will be referenced to the level acquired at the moment when the button has been pressed.

dBV Selects the reading to be in dB relative 1 V rms.

dBu Selects the reading to be in dB relative to 0.775 V rms.

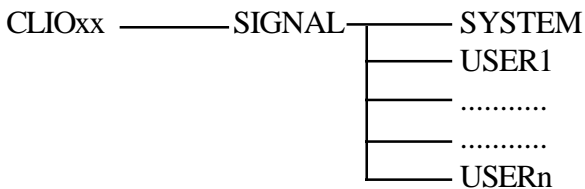
PRESSURE MODE

In this measuring mode the reading is selected to be in dB SPL (sound pressure level). Readings taken in dB SPL are relative to a pressure of 20 μ Pa. While in Pressure mode, the four buttons labelled Vrms, dBRel, dBV and dBm are disabled.

8.1.3 SIGNAL GENERATOR

The CLIO board has a built-in two-channel programmable signal generator. Although the two channels could be separately driven, CLIO software Release 4.0 operates them in a “mono” mode so that the signal present at one output is also present at the other, both with the same level. It is therefore possible to selectively mute each channel.

The signal to be generated can be chosen from the pre-defined ones or selected from a list of signal files that will be “played” by CLIO. Physically these files are stored, under the SIGNAL directory, in several other sub-directories; the standard signal files furnished with the software are in a the directory named SYSTEM.



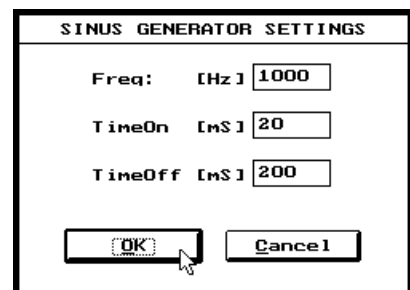
Hot keys **F2**, **F5**, and **F6**, described in chapter 5.4, are active here to handle different signal directories you might create. It is a good idea to leave the System directory as it is and create copies of existing files and new file in new dedicated directories. With **F6** a new directory can be created. **F5** allows to change the active directory; the signal file list in the control panel is updated with the file of the active directory. **F2** allows to save, in the active directory, a new signal file. To do this Clio has to be in generation state. Aside saving existing files with different names in different directories, this allow also to save as file run-time calculated signal as bursted sinusoid or two tone signals (see below).

To select the file to be played, just double-click the left mouse button while the mouse cursor is placed over the desired file being displayed in the file list. If required, you can move through the displayed list of files using the scroll bar. You can also advance through the files by moving the highlight bar using the arrow keys on the keyboard. Once you have highlighted the desired file, you can select it by pressing the Enter key.

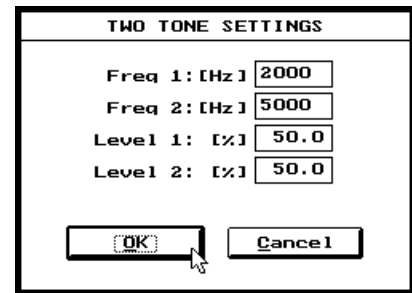
Sin Starts the generation of a sinusoidal signal. The user inputs the desired frequency in the following ranges (depending on the sampling frequency selected):

- sampling frequency 51200 10 Hz – 21300 Hz
- sampling frequency 12800 2.5 Hz – 5333 Hz
- sampling frequency 3200 0.625 Hz – 1333 Hz

The sinusoid may be bursted typing value different than 0 in the TimeOn and TimeOff fields. The sum of Time On and Time Off cannot exceed 32767 divided the sampling frequency in seconds (640 ms for 51200Hz sampling frequency).



2Sin Starts the generation of a double tone. Two frequency input field control the desired frequencies. Amplitude of each sinusoid is controlled with the level 1 and level 2 in percentage of full scale. Obviously the sum of the two cannot exceed 100%; it can be less but in this way you loose part of the 16 bits resolution.



White Starts the generation of pseudo-random white-noise signal. This signal can also be selected from the displayed list of available signal files (WHITE.SIG).

MLs Starts the generation of the MLS signal. This signal is the same as that which is utilized in the MLS menu bar command, and it can also be selected from the displayed list of available signal files (MLS_14.SIG).

Pink Starts the generation of a pseudo-random pink-noise signal. This signal is the same as that which is utilized in the Pink menu bar command, and it can also be selected from the displayed list of available signal files (PINK13.SIG).

8.1.4 OUTPUTS CONTROL

The level of the signals generated by CLIO can be controlled over a wide range from +12 dB to -63 dB. A full mute can also be operated selectively on each output channel.

Out++ Increments the output signal level in 1 dB steps. The same effect can be obtained by pressing the F8 key.

Out+ Increments the output signal level in 0.1 dB steps. The same effect can be obtained by pressing the Shift+F8 key.

Out— Decrements the output signal level in 1 dB steps. The same effect can be obtained by pressing the F7 key.

Out- Decrements the output signal level in 0.1 dB steps. The same effect can be obtained by pressing the Shift+F7 key.

MuteA Mutes channel A output.

MuteB Mutes channel B output.

Kill Stops (kills) any active signal generation. **F1** hot key does the same job.

8.1.5 INPUTS CONTROL

The CLIO board has a flexible and powerful input gain control. It can accept signals in the range +30 dBV to -40 dBV full scale. This means that, by avoiding saturation, the instrument can be operated with different input settings thus having different saturation margins and signal-to-noise ratios. Although some control panels help the user by directly controlling the input gain, it is very important to become acquainted with these controls in order to get the best possible performance from CLIO (see also the use of the AutoRange button).

Furthermore, it is possible to switch a phantom supply to power an external microphone (Audiomatica Type MIC-01 or MIC-02).

- In+ Increments the input sensitivity in 10 dB steps; the same effect can be obtained by pressing the F10 key.
- In- Decrements the input sensitivity in 10 dB steps; the same effect can be obtained by pressing the F9 key.
- A Selects channel A to be used as input. **Alt-1** hot key does the same job.
- B Selects channel B to be used as input. **Alt-2** hot key does the same job.
- A-B Selects both channels to be used as input in a balanced differential configuration. **Alt-3** hot key does the same job.
- Phan** Switches the phantom power supply.
- Auto** Automatically selects the most appropriate input gain for the currently applied input signal.
This feature is convenient to use when starting a measurement. First play the signal that will be used during the measurement (i.e. MIs for an MLS analysis, Pink for a third-octave analysis, and so on) and then press AutoRange. The software will autorange the instrument and put the user in a good condition to execute the measurement. There are anyway kind of signal where the autorange function does not work properly. Typical example are burst signal with an off time greater then the voltmeter integration time. Autorange function should not be used in these cases.

8.1.6 THE **Sett** BUTTON

Enters the Global Measurement Setting dialog box allowing the user to control some critical aspects like the sampling frequency.

If the Generator & Level Meter control panel was recalled from within another control panel, it enters the Local Measurement Setting (i.e. specific for that measurement).

For a more detailed explanation, please refer to Chapter 7 CLIO SETUP.

8.2 L-C METER CONTROL PANEL

This easy-to-use meter provides a quick way of measuring unknown capacitors or inductors (Fig. 8.2). The unknown component has to be connected as if you were doing an impedance measurement in Internal mode. To perform a capacitance measurement on an capacitor, just press the CMeter button to start the measurement. To perform an inductance measurement on an inductor, just press LMeter button to start the measurement. The L-C meter will autorange changing test frequency that is displayed together with the measure.

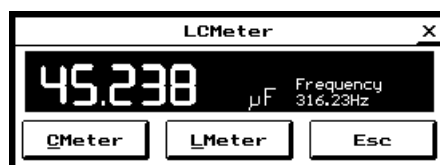


FIGURE 8.2 - The L-C Meter control panel

8.3 SCOPE CONTROL PANEL

8.3.1 INTRODUCTION

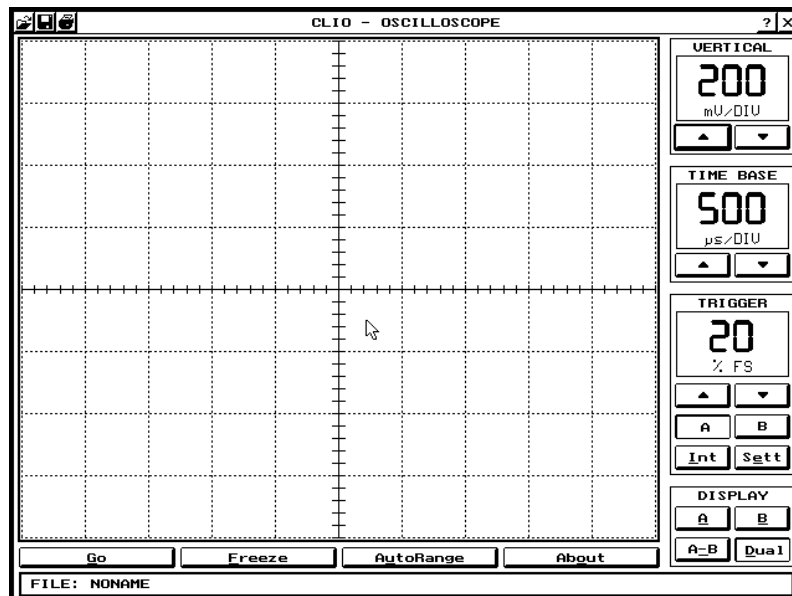


FIGURE 8.3 – The Oscilloscope control panel

The Oscilloscope control panel (Fig. 8.3) turns the CLIO board into a powerful low-frequency dual channel oscilloscope. It is possible to view the input signal on a rapidly updating display, capture it, and save it to a file. The signal can be triggered (with programmable delay) by the internal generator, thus permitting the analysis of transient signals such as sinusoidal bursts. The control panel permits interaction with the usual vertical and time-base settings just like those found in a real oscilloscope.

An input autorange feature automatically selects the most appropriate vertical amplification and input gain.

The Oscilloscope control panel can also be directly activated from the FFT control panel to allow the user to easily move between the time and frequency domains when analyzing a signal. In this case, depending on size of FFT the selected time window is also displayed. This makes easier to select the correct FFT size in analyzing transient signals.

8.3.2 FUNCTION BUTTONS

VERTICAL UP AND DOWN

Select a vertical amplification in the range 10 V/div to 10 mV/div. These buttons also control the input gain not allowing user control with the F9 and F10 hot keys.

TIME BASE UP AND DOWN

Select a horizontal time base in the following ranges:

- sampling frequency 51200 20 ms/div to 50 μs/div
- sampling frequency 12800 80 ms/div to 200 μs/div
- sampling frequency 3200 320 ms/div to 800 μs/div

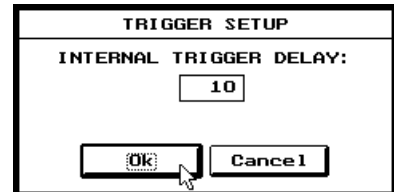
TRIG LEVEL UP AND DOWN

Select a trigger level (as a percentage of the scale). A and B buttons select the channel for the trigger in dual mode. The right channel is automatically selected in single channel mode.

NOTE: the above eight buttons are accessible from the keyboard with the TAB, SHIFT-TAB and SPACE keys. When a button is active, it is highlighted by a thicker border. Use the TAB key to move forward and select a button. Use the SHIFT-TAB keys to move backwards and select a button. Press the SPACE bar to operate the button.

Int Switches to the “Internal Trigger” mode. The display is triggered by the internally generated signal and starts after a user-definable delay time.

Sett Inputs the delay time (expressed in samples) associated with the operation of the Internal Trigger. NOTE: this quantity is effective also during FFT measurements.



↑ Equivalent to Vertical Up

↓ Equivalent to Vertical Down

← Equivalent to Time Base Up

→ Equivalent to Time Base Down

DISPLAY BUTTONS

A Select Channel A for the display.

B Select Channel B for the display.

A-B Select A-B for the display as a single channel.

Dual Both A and B channels are displayed.

MEASURE BUTTONS

Go Starts the measurement.

Freeze Captures the last displayed curve.

AutoRange Selects the amplitude autorange.

About Used to input, modify or display text as a comment about the present measurement.