

3.0 The User Interface

Figure 3-1 illustrates the front panel features of the FM Pro. You may refer to that diagram for a quick summary of all available controls and indicators. The following description, taken in conjunction with the diagram, will give you a very good understanding of all the features and controls, their purpose and use.

3.1 Metering and Status

While other processors provide only drab, jittery, and inaccurate LCD meter displays and tell the status of structural functions only on buried menu pages, the FM Pro provides the user with colorful front panel metering that is true and easy to read. The major dynamic processes are metered by real-time LED bar graph displays while the on/off status of static functions are indicated by single LED's. The state of all major functions of the FM Pro can therefore be observed at any time with one one glance at the front panel.

Following is a more detailed description of all the panel indicators.

3.1.1 Input Meter

Two yellow 10-segment bargraph meters are provided to indicate the stereo audio input level relative to the current input reference setting. The scale indicates from -18dB to +9dB in 3dB steps.

Note: The input reference level is adjusted in the Processing I/O menu. Left and Right inputs are adjusted in tandem with one control in software. For analog inputs, set the input reference level to cause a program reference tone to read zero VU. The digital audio input automatically sets the 0VU reference to 10dB below digital maximum peak reference.

3.1.2 Leveling Meter

This red dot-mode 10-segment meter indicates the amount of automatic gain correction that is created by the leveler. The leveler gain control is applied equally to both audio channels. The scale indicates up to 15 dB of gain addition, and 7.5 dB of gain reduction. The amount of activity that is seen in this meter will vary widely depending on program material and the settings of the leveler/gate parameters.

Note: Control for the Leveling function is located in the Processing, Leveler/Gate section of the control menu.

3.1.3 Multiband Compressor

Four green 10-segment bargraph meters labeled "Low", "Mid 1", "Mid 2", and "High" indicate the amount of gain reduction taking place in each of the four compression frequency bands up to a maximum of 15dB. Since the multiband compressor is a two-channel process, 8 meters would ordinarily be required to display all bands. For convenience, however, the front panel meters merge the dual channel indications into one set of four displays. Each band meter displays the greater amount of gain reduction of the left and right channel at all times.

Note: All multiband compression parameters are controlled in the control menu under Processing, Multiband.

3.1.4 Limiter

The Limiting meter is a red dot-mode 10-segment display that indicates the amount of peak limiting occurring in the limiter/bass processor circuit after the multiband compression. This is separate from and does not display any pre-emphasis limiting that takes place when the pre-emphasis limiter option is used. The scale is from 1 dB of limiting to 10 dB of limiting in 1 dB steps.

Note: Limiter parameters are controlled in the users menu under Processing, Limiter/bass.

3.1.5 Status Indicators

Individual LED's indicate the status of principal processing functions other than functions indicated by the 8 bar graph meters. A more detailed description of these functions follows.

3.1.5.1 16.5 KHz Lowpass Filter

This is a member of the input pre-processing group of filters. You can invoke this filter to clean up unwanted high frequency noise which may have resulted from interference in the STL path, or other source. It is not related to the 15KHz lowpass filters associated with the stereo generator. This filter works on both the analog and digital audio inputs.

Note: Control of the 16.5KHz Lowpass Filter is located in Processing, Input/Output menu.

3.1.5.2 20Hz Highpass Filter

This is another member of the input pre-processing

group of filters. You can invoke this filter to clean up unwanted rumble or subsonic noise which may be encountered. It is not related to the 15KHz lowpass filters associated with the stereo generator. This filter works on both the analog and digital audio inputs.

Note: Control of the 20Hz Highpass Filter is located in the Processing, Input/output menu.

3.1.5.3 75 uSec Indicator

This light tells if the pre-emphasis option is set to 75 microseconds. It remains dark if the pre-emphasis is set to 50 microseconds or if the pre-emphasis limiter option is not installed.

Note: This light responds to the pre-emphasis selection chosen in the Processing, Pre-emp Limiter menu.

3.1.5.4 SPR

Spectral Phase Refractor (SPR) is another member of the input pre-processing group of filters. The SPR filter contains a flat frequency response but introduces a frequency dependent phase rotation into the audio path for the purpose of increasing the subjective clarity of the audio. A further effect of SPR is to improve voice waveform symmetry as an aid to the limiter. This filter works on both the analog and digital audio inputs.

Note: Control of the SPR filter is located in the Processing, Input/Output menu.

3.1.5.5- HF Limiter

This is another name for the **Pre-emphasis Limiter**, which is an optional processing module. The light is continuously dark if the option is not installed. If the option is installed, then the LED indicates whether the Pre-emphasis Limiter is switched on or off.

Note: Control of the HF Limiter is located in the Processing, Pre-emp Limiter menu.

3.1.5.6 Analog In

This LED lights if the audio input is set to analog (versus digital).

Note: Selection of analog or digital input is located in the Processing, Input/Output menu.

3.1.5 Digital In (Optional)

Indicates if the audio input is set to digital (versus analog). Digital input is part of the digital audio option and is available only when the option is installed. If the digital audio option is not installed, this light stays dark and the Analog In light remains lit.

Note: Selection of the analog or digital input is located in the Processing, Input/Output menu.

Part of the digital audio option is the “Auto Source” feature that will automatically switch from the digital input to the analog input if excessive errors are detected at the digital audio input. In such a case, the Analog In and Digital In lights will indicate which input has been automatically selected.

Note: Enable/disable of the Auto Source feature is located in the Processing, AES Status menu.

3.1.5.8 Data Present

When the digital audio option is installed, this LED shows if there is AES/EBU data arriving at the digital audio input to the FM Pro. If there are errors present in the AES/EBU datastream, the Data Present light will flash, and as stated above, when the Auto Source feature is selected, the unit will automatically switch to the analog audio inputs. As the datastream error condition rectifies itself, the FM Pro will automatically switch back to the Digital input.

3.1.5.9 DVG

If the Dynamic Verification Gate (DVG) is turned on, this LED flashes in response to the DVG action. If the DVG is switched off, the LED remains dark. Dynamic Verification Gate is an Aphex patented invention that allows the leveler’s gain correction to move only during the brief periods when present peaks are above the historical average peak level. Based on the pattern of the audio waveform, the DVG will freeze the movement of gain during intervals when the ear is most cognizant of the gain movement, thus making the leveler more transparent sounding. The DVG also serves to freeze the leveler gain during brief program pauses of about 1.5 seconds or less duration, preventing immediate noise swelling. After about 1.5 seconds, the DVG releases control. The DVG works only with the leveler function of the FM Pro, and does not affect the compression

system in any way.

Note: Enable/disable of the DVG feature is located in the Processing, Leveler menu.

3.1.5.10 Sil. Gate (Silence Gate)

The Silence Gate LED lights up whenever the Silence Gate activates. The Silence Gate is a delayed level detector which acts to freeze the leveler gain during extended pauses in program. Since the DVG serves this purpose for brief program pauses, the Silence Gate is delayed about 1 second to take over from the DVG for more lengthy periods. The delayed response prevents the Silence Gate from constantly interfering with the action of the Leveler, deferring gain gate control to the DVG between periods of silence.

Note: Enable/disable and Threshold of the Silence Gate feature is located in the Processing, Leveler menu.

3.1.5.11 Lvl. Stic. (Sticky Leveler)

The Lvl. Stic. LED lights up when the user selectable Sticky Leveler is turned on. The Sticky leveler is a new Aphex invention that keeps the leveler's gain frozen until the input signal amplitude changes by more than a certain amount. By holding constant gain until the audio level exceeds a user selectable window, the Sticky Leveler further improves the transparency of the leveler's action, especially at the faster rate settings.

Note: Controls for the Sticky leveler are located in the processing Leveler/Gate menu.

3.1.5.12 Insert

The Insert LED lights up when the processing "insert loop" is turned on. This control allows the user to insert any type of stereo audio processor between the Leveler and the Multiband Compressor. The insert inputs and outputs are supplied by rear panel unbalanced (pin 2 hot, 1&3 grounded) XLR connectors.

Note: On/Off control for the Insert Loop is located in the Processing, Input/Output menu.

3.1.6 Multiband Coupling

Five LED's are provided to show the current status of the Multiband Compressor coupling features. The L><R coupling features refer to the stereo

coupling of the Multiband Compressor bands. The band><band features refer to coupling between adjacent bands of the same channel. When turned on, the band><band coupling is enacted in both channels at once. The band><band coupling does not produce any stereo coupling effect. Both band><band and L><R coupling may be enacted simultaneously.

Note: Multiband coupling features are controlled in the Processing, Multiband menu.

3.1.6.1 L><R Hard

Couples the compression gain of left and right compressors directly, i.e., whichever channel produces greater gain reduction controls the gain of both channels equally and at the same attack/release rates.

3.1.6.2 L><R Elast. (L><R Elastic)

Couples the compression gain of left and right compressors elastically, i.e., whichever channel produces greater gain reduction influences the the gain of the opposite channel through a slow averaging effect.

3.1.6.3 1><2

Couples the gain control of band 1 to the gain control of band 2 in such a way that whichever band produces the greater amount of gain reduction influences the the gain of the other band through a slow averaging effect.

3.1.6.4 2><3

Couples the gain control of band 2 to the gain control of band 3 in such a way that whichever band produces the greater amount of gain reduction influences the the gain of the other band through a slow averaging effect.

3.1.6.5 3><4

Couples the gain control of band 3 to the gain control of band 4 in such a way that whichever band produces the greater amount of gain reduction influences the the gain of the other band through a slow averaging effect.

3.1.7 Output Status LEDs

Three LED's are provided to show the processor output status, analog, digital, or bypass.

Note: The output controls are located in the Processing, Input/Output menu.

3.1.7.1 Analog

Indicates if the analog output is turned on. The analog output is permanently selected unless the digital audio option is installed in which case the user can select analog out, digital out, or both at once.

3.1.7.2 Digital

When the digital audio option is installed, this light indicates if the digital output is turned on.

3.1.7.3 Bypass

In bypass mode, the analog input jacks are relay connected directly to the analog output jacks, and the AES/EBU input jacks are relay connected directly to the AES/EBU output jacks. The bypass mode can be user selected and automatically occurs when the power is off.

3.1.8 LCD Display

All operating menus and messages will appear on this LCD display. Refer to section 4, “Navigating The Menus” for detailed information on using the menu system.

3.2 Front Panel Controls

The Fm Pro utilizes a sophisticated yet intuitive method of user interface. The right side of the front panel comprises the user controls. By means of LCD menus, the navigation/control keys, and the “Spin” dial, all processor controls are easily accessed. The right half of the panel also contains a high quality headphone monitor that provides a means for listening to the raw input signal in comparison to the fully processed output signal.

3.2.1 Spin Dial

The Spin dial is used to adjust the variable menu parameters which have been chosen by use of the navigation keys. Depending upon the situation, the Spin dial will act like a potentiometer or selector switch.

3.2.2 Navigation (Cursor) Buttons

The four lighted red buttons that are labeled with white arrows pointing up, down, right, and left are used to navigate the various pages and menus seen on the LCD display. Generally, the up and down

cursors move the pointer up and down through selections on a menu page, while the left and right cursors switch between multiple pages of a multipage menu.

3.2.3 Esc (No), Enter (Yes)

These two lighted red buttons allow the user to commit to or escape from menu choices. Repeated escapes will back out of menus until the Main menu is reached. Enter (yes) is used to select a menu choice or verify a menu commitment.

3.2.4 Input, Output Monitor

The lighted red buttons above the headphone jack select their respective audio signals for monitoring. The selected signal appears at the stereo headphone jack only. The proper de-emphasis (if appropriate) is automatically inserted in the output monitor. The input monitor taps the unaltered input signal.

Note: The volume of the input and output signals can be set independently in the Processing, input/Output menu.

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