

14.0 Installation Instructions

14.1 Unpacking

Your FM Pro was packed carefully at the factory in a container designed to protect the unit during shipment. Nevertheless, Aphex recommends making a careful inspection of the shipping carton and the contents for any signs of physical damage.

The FM Pro occupies two standard 19 in. x 1 3/4 in. rack spaces (2RU). Chassis depth is 13.25 inches not including connectors. Allow at least 3.5 inches additional space in back for wiring and connectors. The chassis is designed to be fully supported by front panel mounting alone. To avoid cosmetic damage to the panel, use the cushioned rack screws

If damage is evident, do not discard the container or packing material. Contact your carrier immediately to file a claim for damages. Customarily, the carrier requires you, the consignee, to make all damage claims. It will be helpful to retain the shipping documents and the waybill number.

14.2 Damage & Claims

14.3 Mains Voltage And Fuses

The FM Pro is built with a custom designed universal off-line switch mode power supply. There are no fuse changes or voltage taps to change for the primary input voltage. The power supply accepts any primary input voltage between 85 and 265VAC at 50 to 1000 Hertz. Fuses inside the chassis will normally fail only from a catastrophic failure of the power supply. Therefore, need for fuse replacement suggests a malfunctioning power supply requiring component level repairs. Should fuses fail, please proceed cautiously while

provided in the shipping kit or other cushioned rack screws.

14.6 Proper Ventilation

The FM pro uses one cooling fan located on the right-hand side of the chassis. Unit ventilation passes through the chassis side walls, so no cooling space is required above or below the chassis. Please be sure there is adequate clearance at both sides of the chassis. This is normally not a problem since the Model 2020 was designed to be mounted in a typical rack which usually allows 2 inches or more of clearance on each side of the chassis. The fan has an attached filter cover which should be checked periodically for blockage. The filter

Power Cord Color Codes	
<p><u>USA Color Code</u> Black = Hot (live) White = Neutral Green = Ground</p>	<p><u>IEC/Continental Color Code</u> Brown = Hot (live) Blue = Neutral Yellow/Green = Ground</p>

investigating the failure. Extremely hazardous voltages appear on the pc board including the heat sinks. Observe all the printed cautions and refer servicing only to qualified personnel.

14.4 Power Cord

The Fm pro uses a standard IEC power cord set. The appropriate mains plug for each country is normally shipped with each unit. However, if you must install or replace the plug, use the correct wiring code as follows:

14.5 Mounting In A Rack

element is a cellular elastomer which can simply be washed out in water and towel dried. The filter can be removed and replaced while the unit is operating but be careful not to poke objects into the fan blade.

14.7 Safety Considerations

To minimize the risk of shock or fire, do not expose the unit to moisture. Allow adequate ventilation for cooling. Do not open the chassis cover: there are no user serviceable parts inside.

Installation should be performed only by qualified individuals. It is the installer's responsibility to insure his personal safety and the safety of others

in the work area. It is never a good idea to work alone in the vicinity of high power electrical and radio frequency equipment.

14.8 Analog Balanced I/O

14.8.1 Standard Wiring

The analog inputs and outputs are RFI protected and utilize industry standard 3-pin female XLR jacks. Connections are by the industry standard pinout as follows:

14.8.2 Main Input Wiring

For maximum RFI suppression, pin-1 is connected directly to chassis ground. To eliminate input ground loop hum, the balanced input stage ground references are coupled to pin 1 of the input jacks. For

phasing problems.

14.8.3 Main Output Wiring

The balanced output impedance of 65 ohms is optimized for driving long cables and consequently an FM Pro can drive just about any kind of line, balanced or unbalanced, of any length. Unique servo balanced output circuitry automatically maintains the proper gain and level into a balanced or unbalanced output line.

For best ground loop rejection and RFI suppression using balanced lines, do not connect the shield to the output ground, rather connect it only to the ground (pin-1) of the receiving end. For unbalanced use, tie pin-3 to pin 1 for the ground and connect pin-2 as “hot”. Connect the shield to ground at both ends of the cable.

Main Analog I/O Connections	
<u>Female (Input)</u> Pin-1 = GND Pin-2 = Positive Pin-3 = Negative	<u>Male (Output)</u> Pin-1 = GND Pin-2 = Positive Pin-3 = Negative

maximum RFI suppression and hum loop rejection using balanced lines, you should connect the shield only at the input connector of the FM Pro and let it float at the sending end of the line. Refer to Appendix A for detailed information.

For unbalanced use, tie pin-3 to pin 1 for the ground and connect pin-2 as “hot”. Connect the shield to ground at both ends of the cable. Interfacing with

Just as with the input wiring, unbalanced outputs can sometimes be improved using a pseudo-balanced connection. For a complete tutorial on balanced and unbalanced interfacing to other equipment, please refer to Appendix A of this manual.

14.8.4 Insert Loop I/O Connections

The insert loop utilizes 3-pin XLR jacks. It is expected that equipment connected to this loop

Insert Loop I/O Connectors	
<u>Female (Input)</u> Pin-1 = GND Pin-2 = Hot Pin-3 = GND	<u>Male (Output)</u> Pin-1 = GND Pin-2 = Hot Pin-3 = GND

unbalanced sources can sometimes be improved with a pseudo-balanced connection. For a complete tutorial on balanced and unbalanced interfacing to other equipment, please refer to Appendix A of this manual.

Whether using balanced or unbalanced wiring, be sure to follow the same pin connection scheme for both channels of the input wiring to avoid audio

will be located within a very short distance of the FM Pro, probably mounted only a few rack spaces away, so the insert loop I/O operates in the unbalanced mode.

14.9 Digital Audio I/O

The digital audio I/O utilizes standard 3-pin XLR

connectors as specified by the professional AES/EBU standards. Complete details about connecting and using the digital audio interface are available in section 9, “Using Digital Audio”, of this manual.

AES/EBU Connector Wiring	
<u>Female (Input)</u> Pin-1 = GND Pin-2 = Positive Pin-3 = Negative	<u>Male (Output)</u> Pin-1 = GND Pin-2 = Positive Pin-3 = Negative

14.10 Multiplex Output

The BNC output connector is chassis isolated to reduce the possibility of ground loop output hum. The output ground does have a d.c. ground path to the chassis, but it flows by way of the multiplex output amplifier’s ground reference point to eliminate any hum loops that may intercede from the chassis or rack frame. The BNC connector is directly RF-coupled to the chassis to facilitate effective RFI suppression of RF signals which may enter the FM Pro through the BNC jack and cable. For best results, use only top quality BNC cables and connectors. Loose or intermittent connectors may cause noise and instability of your FM Exciter.

14.11 RS-232 Connector

This DB9 connector is for use with remote control as described in section 11 on Remote Operation. The pins of the connector are RFI filtered, but it is best to use shielded cables to reduce the possibility of interference entering the FM Pro if operating in a strong RF field.

14.9 Summary

You should have no trouble installing the FM Pro. If any difficulties are experienced, other information contained in this manual will probably supply adequate assistance. Please study this manual before contacting the factory for assistance.

end.