

## **2.0 Product Description**

- 2.1 The FM Pro Story**
- 2.2 Description**
- 2.3 Applications**
- 2.4 Table of Options**
- 2.5 Feature List**

## **3.0 The User Interface**

### **3.1 Metering and Status**

- 3.1.1 Input Meter
- 3.1.2 Leveling Meter
- 3.1.3 Multiband Compressor
- 3.1.4 Limiter
- 3.1.5 Status Indicators
  - 3.1.5.1 16.5 KHz Lowpass Filter
  - 3.1.5.2 20Hz Highpass Filter
  - 3.1.5.3 75 uSec Indicator
  - 3.1.5.4 SPR
  - 3.1.5.5- HF Limiter
  - 3.1.5.6 Analog In
  - 3.1.5.7 Digital In (Optional)
  - 3.1.5.8 Data Present
  - 3.1.5.9 DVG
  - 3.1.5.10 Sil. Gate (Silence Gate)
  - 3.1.5.11 Lvl. Stic. (Sticky Leveler)
- 3.1.6 Multiband Coupling
  - 3.1.6.1 L><R Hard
  - 3.1.6.2 L><R Elast. (L><R Elastic)
  - 3.1.6.3 1><2
  - 3.1.6.4 2><3
  - 3.1.6.5 3><4
- 3.1.7 Output Status LEDs
  - 3.1.7.1 Analog
  - 3.1.7.2 Digital
  - 3.1.7.3 Bypass
- 3.1.8 LCD Display

### **3.2 Front Panel Controls**

- 3.2.1 Spin Dial
- 3.2.2 Navigation (Cursor) Buttons
- 3.2.3 Esc (No), Enter (Yes)
- 3.2.4 Input, Output Monitor

## **4.0 Navigating The Menus**

### **4.1 Introduction To The Menu Display**

### **4.2 Menu Display Features**

- 4.2.1 Header
- 4.2.2 Menu Selections
- 4.2.3 Footer

### **4.3 Display Sleeping Mode**

**4.4 Password Security Page****4.5 Main Menu Page 1 of 2**

- 4.5.1 Password Menu
  - 4.5.1.1 Edit Password
  - 4.5.1.2 View Password
  - 4.5.1.3 Log in
  - 4.5.1.4 Log out
- 4.5.2 Presets
  - 4.5.2.1 Recall Preset
  - 4.5.2.2 Save Preset
  - 4.5.2.3 View list
  - 4.5.2.4 Day Parting
    - 4.5.2.4.1 Edit Day Parting
    - 4.5.2.4.2 View parting
- 4.5.3 Processing
  - 4.5.3.1 Processing Menu Page One
    - 4.5.3.1.1 Input/Output Menu
    - 4.5.3.1.2 Leveler/Gate Menu
    - 4.5.3.1.3 Multiband Compressor Menu
    - 4.5.3.1.4 Limiter/Bass Menu
  - 4.5.3.2 Processing Menu Page Two
    - 4.5.3.2.1 Preemp-Limiter Menu
    - 4.5.3.2.2 Stereo Generator Menu
    - 4.5.3.2.3 AES Status Menu
    - 4.5.3.2.4 More or Less! Menu
- 4.5.4 Remote Link

**4.6 Main Menu Page 2 of 2**

- 4.6.1 Set Unit Time Menu
- 4.6.2 Display Mode Menu
- 4.6.3 Options Page
- 4.6.4 Unit Info Page

**5.0 Detailed Audio Processing Description****5.1 Processing Overview****5.2 Generalized Processing Structure**

- 5.3.1 Input Selection
- 5.3.2 Filters
  - 5.3.2.1 20Hz Highpass Filter
  - 5.3.2.2 16.5KHz Lowpass Filter
  - 5.2.2.3 Spectral Phase Refractor (SPR)
  - 5.3.2.4 Pre-emphasis Assist Equalizer

**5.4 Frequency Discriminate Leveler (FDL)**

- 5.4.1 Silence Gate
- 5.4.2 Dynamic Verification Gate DVG
- 5.4.3 Sticky Leveling
- 5.4.4 Jump Ahead
- 5.4.5 Attenuation Lock
- 5.4.6 Gain Lock
- 5.4.7 Leveling Rate Control
- 5.4.8 Frequency Discrimination

**5.5 Insert Loop**

**5.6 The Multiband Compressor**

- 5.6.1 Post Crossover Method
- 5.6.2 Wave Dependent Compression (WDC)
- 5.6.3 Peak Accelerated Compression (PAC)
- 5.6.4 Adjustable Crossovers (Band Filters)
- 5.6.5 Output Mixing
- 5.6.6 Adjustable Release Timing
- 5.6.7 Band Coupling
- 5.6.8 Stereo Coupling
- 5.6.9 The VCA Technology

**5.7 Split Band Bass Processor/Limiter**

- 5.7.1 Warm Bass Equalizer
- 5.7.2 Sub Bass Equalizer
- 5.7.3 Phase Coherent Crossover
- 5.7.4 Split Band Clipper (SBC)

**5.8 Brightness Processor****5.9 Pre-emphasis Limiter****5.10 PPDM Stereo Generator****5.11 Digital I/O Module****6.0 Setting Up Processing****6.1 Steps In Setting Up****6.2 Targeting Processing Goals****6.3 Create the Global Preset****6.4 Select A Factory Preset****6.5 Adjusting the Processing****6.6 Leveling**

- 6.6.1 Control Locks
- 6.6.2 DVG
- 6.6.3 Sticky Leveler
- 6.6.4 Silence Gate
- 6.6.5 Leveling Rate

**6.7 Multiband Compression**

- 6.7.1 Crossovers
- 6.7.2 Multiband Drive
- 6.7.3 Band Release
- 6.7.4 Band Mix
- 6.7.5 Band Coupling

**6.8 Peak Limiting****6.9 Bass Enhancement****6.10 Brightness Enhancement****6.11 Pre-emphasis Limiting****6.12 Save Your Preset****6.13 Tutorial: A “HOW TO” Experience****7.0 All About Presets****7.1 What Are Presets?**

**7.2 What You Can Do With Presets**

- 7.2.1 Recalling Presets
- 7.2.2 Saving Presets
- 7.2.3 Viewing Presets
- 7.2.4 Day-Part Scheduling

**7.3 The Auto Save Feature****7.4 Do I Really Need To Create Presets?****7.5 Classes Of Presets**

- 7.5.1 Factory Presets
- 7.5.2 User Presets
- 7.5.3 Global Preset

**7.6 Tutorial--Building And Using Presets**

- 7.6.1 Menu Navigation
- 7.6.2 Recalling A Preset
- 7.6.3 Saving A Preset (and making the global preset)
- 7.6.4 Day Parting (F4)

**7.7 Summary****8.0 Password Security System****8.1 Why A Security System?****8.2 Log-in Access****8.3 Logging Out**

- 8.3.1 Manual Log Out
- 8.3.2 Auto Lock Out

**8.4 Auto Save****8.5 Password Enabling**

- 8.5.1 Software Password Enabling
- 8.5.2 Hardware Password Enabling

**8.6 Access With Lost Password**

- 8.6.1 Clearing The Password Memory

**8.7 Setting The Password****8.8 Clearing The Password****9.0 Using Digital Audio****9.1 Connecting AES/EBU Lines**

- 9.1.1 Cable Pinout

**9.2 AES/EBU Synchronization****9.3 Digital-To-Analog Conversion****9.4 Auto Source****9.5 Digital Output****9.6 Facts About Digital Audio, Bit Rate Reduction and Dynamics Processing****10.0 Using Multiplex****10.1 Stereo Generator Option****10.2 The Stereo Generator Menus**

- 10.3 Presets Memory**
- 10.4 Mode Settings**
  - 10.4.1 Mono Modes
  - 10.4.2 Stereo Mode
- 10.5 Pilot Function**
- 10.6 Multiplex Output**
- 10.7 Multiplex Cable Connections**
- 10.8 Modulation Overshoot Problems**
  - 10.8.1 STL Problems
  - 10.8.2 FM Exciter Problems
  - 10.8.3 Composite Clippers
- 10.9 Using RDS Encoders**

## **11. Remote Operation**

- 11.1 Hardware Requirements**
- 11.2 Software Installation**
- 11.3 Cable Wiring**
  - 11.3.1 Direct Connection
  - 11.3.2 Modem Connections
    - 11.3.2.1 Modem To FM Pro
    - 11.3.2.2 PC To Modem
- 11.4 Operation By Modem**
  - 11.4.1 Usable Modem Types
  - 11.4.2 Modem In The Windows Operating System
    - 11.4.3 Modem Installation Procedure
    - 11.4.4 Troubleshooting The Modem
    - 11.4.5 Compatibility Issues
- 11.5 The PC Remote Control Main Form**
  - 11.5.1 Link Status
  - 11.5.2 Transmit Speed
  - 11.5.3 Receive Speed
- 11.6 Port Direct Linking**
  - 11.6.1 A Note On Day Parting
- 11.7 Modem Linking**
- 11.8 Using The Remote Control Panel**
- 11.9 Dealing With Presets**
  - 11.9.1 Recall Preset
  - 11.9.2 Save Preset
- 11.10 The View Menu**

## **12. Product Specifications**

- 12.1 Getting Meaningful Numbers**
- 12.2 FM Pro Setup**
- 12.3 Test Equipment Connections**
- 12.4 The Specifications**
  - 12.4.1 General Analog
  - 12.4.2 Analog Input

- 12.4.3 Analog Line Outputs
- 12.4.4 Digital Inlut
- 12.4.5 Digital Output
- 12.4.6 Composite Baseband Output
- 12.4.7 Remote Control Interface
- 12.4.9 Physical
- 12.4.10 Environmental

### **13. Test & Calibration**

### **14. Installation Instructions**

- 14.1 Unpacking**
- 14.2 Damage & Claims**
- 14.3 Mains Voltage and Fuses**
- 14.4 Power Cord**
- 14.6 Mounting In A Rack**
- 14.6 Proper Ventillation**
- 14.7 Safety Considerations**
- 14.8 Analog Balanced I/O**
  - 14.8.1 Standard Wiring
  - 14.8.2 Main Input Wiring
  - 14.8.3 Main Output Wiring
  - 14.8.4 Insert Loop I/O Connections
- 14.9 Digital Audio I/O**
- 14.10 Multiplex Output**
- 14.11 RS-232 Connector**
- 14.12 Summary**

### **15. Schematics**

### **16. Parts List**

### **17. Service & Warranty Information**

- 17.1 Obtaining Service For The FM Pro**
- 17.2 Warranty Claims**
- 17.3 What Is Covered**

### **18. Web Broadcasting Applications**

- 18.1 Why Process the Audio?**
- 18.2 Basics of Processing**
  - 18.2.1 Leveling
  - 18.2.2 Peak Limiting
  - 18.2.3 Designing the Sound
- 18.3 Getting the Best Processing**

**18.4 Digital Versus Analog Processing**

**18.5 How to Use the Model 2020**

18.5.1 Set the Input Level

18.5.2 Set the Output Level

18.5.3 Set Up the Processing

**18.6 Bit Rate Effects**