Film-Tech

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These manuals are designed to facilitate the exchange of information related to cinema projection and film handling, with no warranties nor obligations from the authors, for qualified field service engineers.

If you are not a qualified technician, please make no adjustments to anything you may read about in these Adobe manual downloads.

www.film-tech.com

FM-1 User's Tips

Commercial buildings are full of steel girders, conduit, electrical panelboxes and other metal objects. Radio frequency signals will not go through metal. They may go around, or be bounced off a metal object, and sent in another direction. This is often why you get poor TV or FM reception inside a building from commercial stations. Your FM-1 Hearing Impaired transmitter is inside the building and is subject to conditions that may require some common sense compromises in order to get the desired performance.

1 - Signals bouncing from nearby metal objects may collect at a point in the room that can cancel the FM signal at that point. Ask the patron to move slightly from that seat to avoid "multi-path distortion" due to multiple reflections of the radio signal at that particular spot in the seating area.

2 - Most portable FM receivers are not as sensitive as your car radio or fine FM tuner you may have at home. The antenna for the pocket receiver is often the cord of the headphones. If you encounter a noisy FM signal, reorient the headphone cord. A wadded-up cord is not a good antenna.

3 - If the patron cannot find the station for his auditorium, please assist him. Some receivers have a small tuning knob and will easily skip over the station. The digital type radios have no problems because they tune in 100 kHz jumps and the frequency is displayed on the radio.

4 - Make sure you are not interfering with any commercial stations in your area. If you get a call from a neighbor complaining he cannot pick up his favorite station, you must move your transmitter frequency. FCC rules makes you responsible.

5 - If you cannot install the transmitter directly in the auditorium for direct transmission to the receivers, place the transmitter on the projection window and get as much of the antenna into the auditorium as you can. Glass is not an obstacle to radio waves, but a metal window frame can be.

6 - Don't be concerned if patrons can pick up FM signals from the next auditorium. They will want to hear the sound for the movie they are watching.

7 - all the factory if we can be of technical assistance in getting the best results from your "little radio stations".

8 - Installations that may be very near high power commercial FM transmitters may not be usable.

SMART

FM-1 Stereo FM Transmitter for Hearing Impaired Systems

NOTE: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a residential environment. This equipment generates, uses and can radiate radio frequency,energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. However there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

CAUTION:
Changes or modifications to the FM-1 transmitter that are not expressly approved by SMART Devices could void the user's authority to operate the equipment.

NOTE: This transmitter contains a delicate tuning coil. Do not force the slug when you feel resistance while tuning.

made in AMERICA

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Norcross, Georgia 30071
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INSTALLING THE FM-1 STEREO TRANSMITTER.

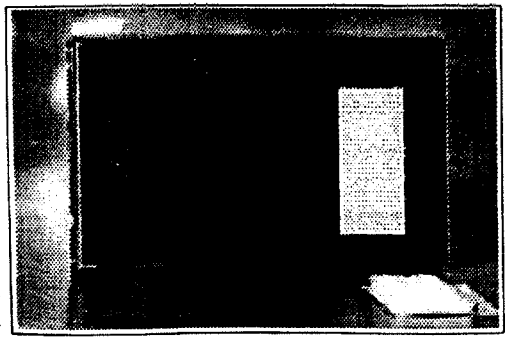
The SMART FM-1 Stereo Transmitter for the Hearing Impaired is a system to broadcast the stereo soundtrack from a cinema stereo processor to patrons in a movie auditorium. The theatre may provide FM receivers with headphones to certified hearing impaired customers, or the patron may bring his own "walk-man" type receiver. The system works on the standard 88-108 mHz FM band.

Look Ahead!

Plan your installation before you begin!
Because of the very low power of the transmitter, it is highly recommended that the transmitter be installed inside the auditorium, and not in the projection booth. FM transmission in the commercial band is primarily line-of-sight transmission. Any metal object in the path between the transmitter and receivers may block the signal causing a "shadow" that can cause poor reception. Steel beams, conduit, or other metal in the wall between the projection booth and auditorium can stop the signal. For this reason the transmitter should be installed just outside the projection room port windows to provide a direct signal to any receiver in the auditorium. When the transmitter is on the rear wall of the auditorium, there should be no obstructions of the signal directly to receivers in the room.

INSTALLATION

A Velcro strip is mounted on the back of the plastic case of the transmitter. The mating strip has an adhesive back that can be stuck to the wall in the auditorium. If the auditorium has wall drapery, slip the transmitter under the drapes near the projection port and secure the mating Velcro strip directly to the wall. You may site the position where you want to mount the transmitter before installation so you can measure the wiring needed to reach that point.



Velchro strip on the back of the transmitter. Mating strip has an adhesive back to secure the transmitter to a wall.

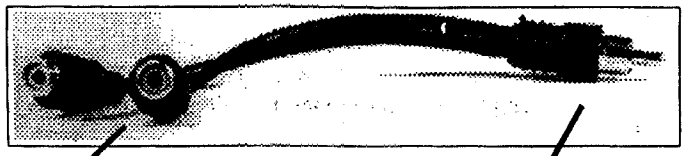
1. Route the audio cable and power supply cable through the projection port window. Many windows slide sideways to allow cleaning of the glass. Others fold down from the top. In some older booths, there may be a steel window casing with removable glass. The glass may have to be cut in a corner to allow the cables from the booth to reach the transmitter in the auditorium.

2. Use the nearest 117 VAC power outlet to plug in the UL listed power supply. You may have to use a small AC extention cord if no outlet is near the projector.

3. The stereo audio cable attached to the transmitter is 20 feet long. This should allow enough length to reach the sound rack or be routed under the projector into the base of the console to reach the sound system. The left input and right input audio cables are color coded. Red is the RIGHT channel and BLACK is the LEFT channel to the transmitter. A mating RCA pin socket connector (and cable) may be used to plug the RCA pin jacks in to so that the transmitter may be quickly disconnected for repair, or if you wish to move the unit. Mating RCA socket extension cords are available in 6 foot lengths. The socket cord connects directly the the Left and Right preamplifier outputs of the stereo processor. The signal available at the preamplifier outputs is ideal for the transmitter, since there is no audio input control on the transmitter. See the line drawings at the rear of this manual for the location of the preamplifier outputs of various stereo processors.

Cut RCA pin jacks off the extension cable (not the transmitter cable) with cutter pliers or a razor blade.

4. You will cut the RCA pin jacks off the *extension cable* and remove about 1 inch of each wire jacket. Before you cut the RCA pin jack off, mark the wire that contains the RED RCA pin jack. This is the right channel. You will see the stranded cable shield just below the jacket. Twist all of the fine wires of the shield together tightly to form a wire lead that will be connected th the ground terminal of the preamplifier outputs. There is a shield for each of the two conductors in the extension cable.



5. Carefully skin the insulation from the white inner conductor about 1/2". This wire is the "Hot" audio wire for each channel and the shields will be "Ground".

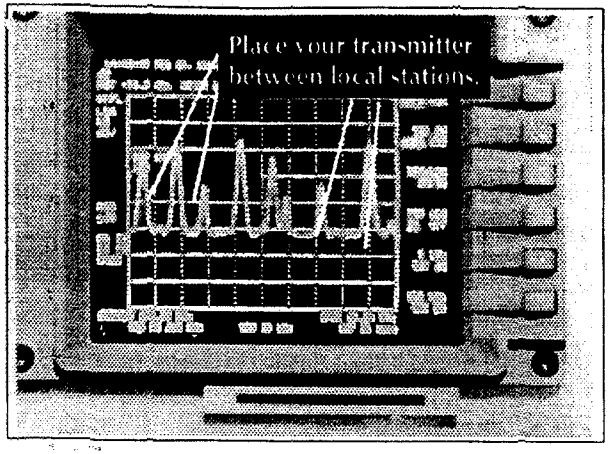
Make sure the stranded shield wires are twisted together and no stray strands touch the inner conductor that can cause a short circuit.

6. Connect the audio cables directly to the **preamplifier output** terminals of the cinema stereo processor. The audio signal at this point will measure between 500 mV and 750 mV (depending on the brand of processor). This signal level is ideal for the FM transmitter and will not cause transmitter overload that can produce spurious radiation which might result in illegal interference to other services on the FM band.

6. Use a digital type FM receiver to locate vacant channels on the FM band in your town or city. The FCC spaces channels a minimum of 200 kHz apart. Even in the largest cities you'll find spaces to place your FM signal.

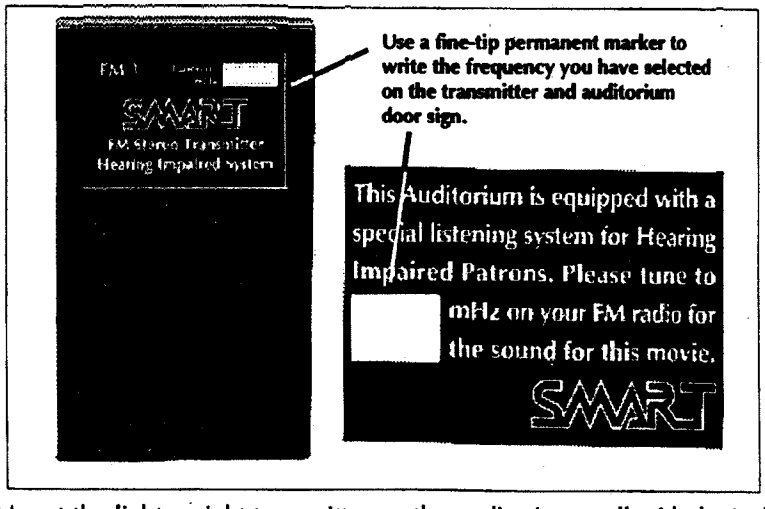
Portable digital display radios tune in 100 kHz jumps. This type radio is features precision tuning and ia valuable in locating vacant channels in your area. Also, patrons who bring this type radio to the theatre can easily tune the correct frequency by reading the display on their own radio.

Atlanta FM Stations as seen on an RF Spectrum analyzer. Peaks are stations. Spaces in between stations are spots to place your "stations"



7. Run a test loop on the projector soundhead. The test film can be any soundtrack. While listening to the FM receiver, tune the transmitter with the special non-metal tuning wand until you hear a clear signal on the frequency you have selected. Continue to tune carefully until the "stereo light" snaps on.

8. Write the frequency on the transmitter with a fine-tip permanent marking pen in the white box labeled "Freq". Also, write the frequency on the door sign that attaches to each auditorium door.

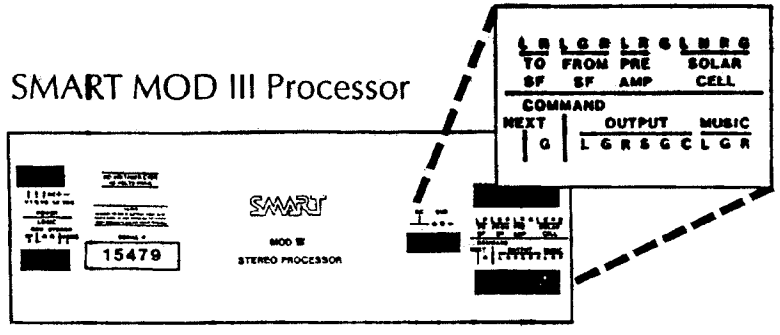


9. Mount the light weight transmitter on the auditorium wall with the Velcro strips provided. The antenna for the transmitter should hang straight down. Do not bend or loop the antenna.

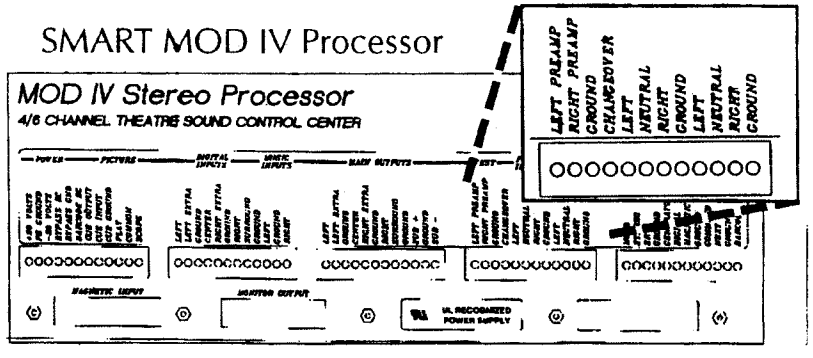
Connecting to the Stereo Processor

Connections to the FM-1 transmitter should be made only from the preamplifier output terminals for the stereo processor. This audio point in the system offers stereo signals that are before the noise reduction system. A compressed audio signal is adeal for hearing impaired people because the dynamic volume range after the noise reduction circuits may allow the sound volume to drop very low, making it difficult for the hearing impaired.

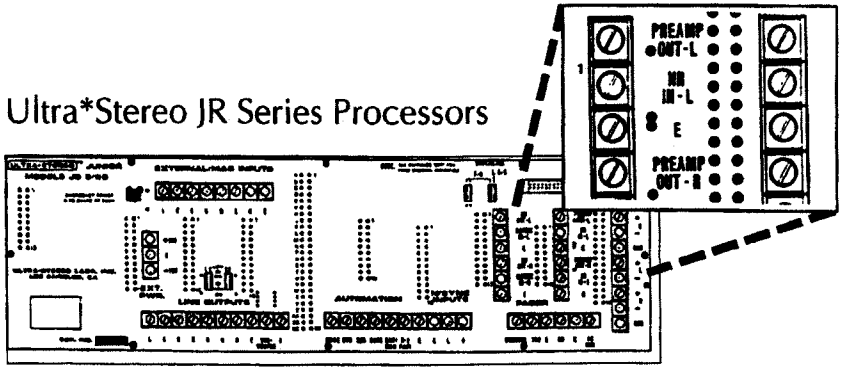
SMART MOD III Processor



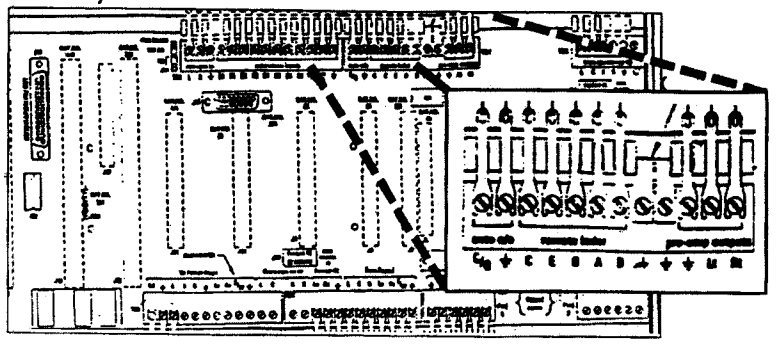
SMART MOD IV Processor



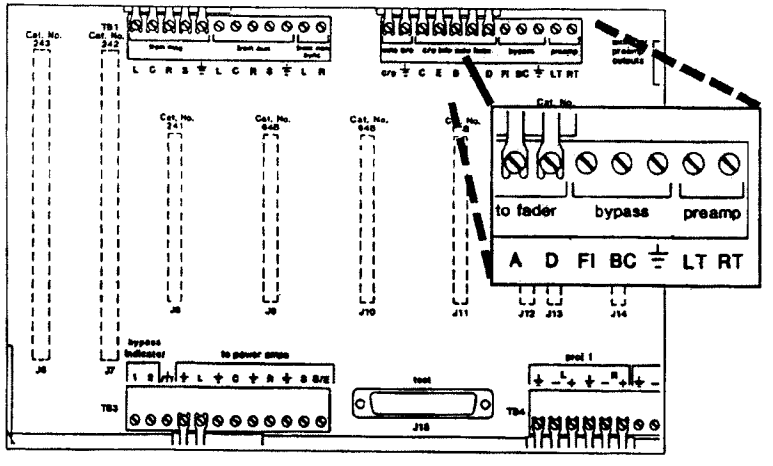
Ultra*Stereo JR Series Processors



Dobly CP65 Processor



Dolby CP55 Processor



Dolby CP50 Processor