REDSEAT ENTERTAINMENT Tremor FX Kinetic Seating System

USER'S GUIDE

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Contents

What is Tremor FX?

Tremor FX is a dynamic vibration technology that offers an enhanced, more immersive media experience. Unlike other audio enhancement solutions, Tremor FX was designed to enhance any media experience that involves an audio stream.

Tremor FX processing technology focuses on the components of various soundtracks and how they are put together in movies and other media. This proprietary, patented audio processor makes use of varied outputs based upon intended effects and intensity. Because of this, the customizable chair offers different levels of intensity that individuals can modify according to their preference.

The Tremor FX patented processor interprets audio streams and dynamically creates three frequency-based signals to separate actuators within the seat. Signals for 'cinematic events' with low frequency are sent to the seat actuator, while middle frequency 'events' are sent to the middle of the seat back and upper frequency 'events' are sent to the transducer in the upper back of each seat.

This customization also means users can expect the chairs to respond intelligently as they turn the intensity up or down; the chairs do more than simply increase or decrease in vibration. For example, if a battle takes place in a film, on the lowest intensity setting, only the biggest explosions and gunshots will be felt. As the intensity is increased, however, secondary sounds and explosions can be felt in different parts of the seat, such as second-tier explosions happening farther from the main action on-screen, or single gunshots being felt in addition to their louder, more intense counterparts.

Tremor FX was born as a kinetic seating system designed to enhance the movie watching experience in theaters. The system contains the audio processing unit, and is comprised of theater style chairs with individual

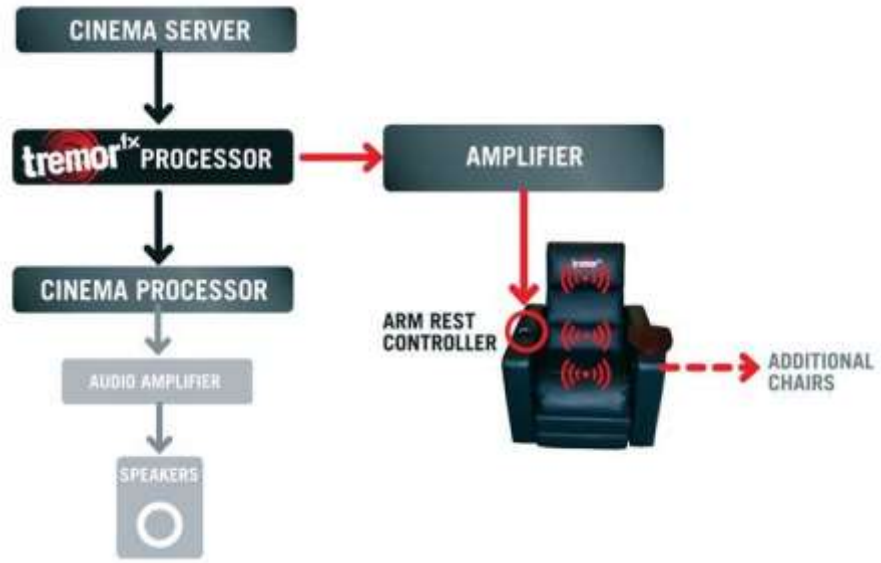
controls; electronics governing the operation of the chairs; a server, Tremor FX Processor or wireless transmitter; and software.

How Does It Work?

At the heart of the Tremor FX system is the Tremor FX Processor. Three actuators, or vibrating units, embedded in each theater chair (two in the seatback, one in the bottom) receive digital signals from the configured DSP that correspond to the audio signals coming from the movie or media soundtrack, providing a sense that the viewer can "feel" the sound.

Tremor FX chairs are the same size as most standard theater chairs, simplifying and streamlining the theater conversion process, and a modular design allows for easy upgrades and repairs to individual seats. The control box for an entire theater of seats takes up minimal space in the projection room and is smaller than a desktop computer tower.

In movie theater installation, Tremor FX chairs need to be connected to the Tremor FX server in order to receive audio and messages. This is done with



a basic Cat5e cable, first coming from the server and then into the electronic box, which controls the chairs in a daisy chain connection, eventually powering all chairs in that row. With the connection in place, the Tremor FX server performs two operations: first, it interprets the audio soundtrack and sends out a digital signal to the chairs. Second, it sends and receives messages from the chairs. These messages are used to enable or disable the chairs, to read any reported errors, and to receive other information about the chair.

Chairs

The TremorFX system consists of many parts. There are two actuators in the back of the seat and one in the bottom. These 3 are connected into a larger cable at the bottom of the chair.

The chair is controlled by some electronics in the amplifier box mounted behind and under the chair. Each box has one node which drives a single chair;

The intensity of each chair can be controlled by the arm rest controller which is mounted on the armrest of the chair.

Server

In order for the chairs to receive audio and messages from the server, they need to be connected to the TremorFX server. This is done with a basic Cat5e cable. This cable comes first from the server. From there it goes to the first box in the row. And from there, the rest are connected in a daisy chain connection, meaning that if one box gets unplugged, all of the other boxes after that point will no longer work. See Figure XK for required cabling topology.

The server does two things. First, it interprets the audio from the movie and sends out digital audio signals to the chairs. Second, it sends and receives data messages from the chairs. These messages are used to enable or disable the chairs, read errors the chairs are reporting, and get other information about the chair.

Client

In order to be able to reserve the chairs, the server must receive messages from a client program on a computer. When the server is plugged in to a power source, it will be assigned an IP address. The server is is a network client and must be assigned a static IP address by the IT system. Locate the MAC address of the TremorFX DSP Processor which is printed on a label on the rear of the unit and use that to assign a static IP address. This is required for both the TremorFX Configuration Utility as well as integration with the Point of Sale System.

TremorFX System Components

Prior to installing and connecting your TremorFX system, take a few moments to familiarize yourself with the included components:

TremorFX Home DSP Processor – Part Number 02018

TremorFX Chair Amplifier - Part Number 02661

Each amplifier housing is capable of containing one chair amplifiers. There will be an identifier printed on each housing to indicate the ID for each amplifier.

Chair Actuator - Part Number 02110

Reserving Seats

When properly configured and interfaced with the theater's operating system, Tremor FX chairs can be automatically enabled when reserved by the theater's Point of Sale (POS) program.

Absent the POS interface, a basic web-based reservation utility provided by Tremor FX can be used to connect and reserve individual chairs as follows:

1. First, edit the HTML code by right clicking on File, then selecting Edit. Go to line 44 and change the web socket IP to the static IP address.
2. Input chairs by Zone on line 11 using the node ID number of each.
3. Save your changes, and then double click to Run.
4. Click Connect. NOTE: If any error messages are evident, refer to the troubleshooting section to correct.
5. The default setting for all chairs is Reserved so you will need to click on each chair icon to Unreserve.

<insert graphic showing web-based utility screen with chair icons; some red, some green>

Armrest Controls

Each Tremor FX chair has a set of controls embedded in the armrest beside it. Once the chair has been reserved, a light on the armrest controller will indicate that. The occupant of the chair will then be able to adjust, up and down, the intensity of the actuators in his or her chair as well as lock their preference in place by pressing the applicable buttons (see figure D).

System Maintenance

The Tremor FX kinetic seating system is designed for continuous, low- maintenance operation. A self-diagnostic utility is built-in and will provide notifications of any faults or errors that may occur (see Troubleshooting section for more information).

Care and attention should be taken when cleaning the theater's seating areas. Subjecting the electronics in the amplifiers and seat brackets to undue moisture, or dislodging wired connections will result in problems operating the system.

As a preventive step, it is recommended that all wiring and cable connections be checked regularly to verify they haven't been compromised or partially dislodged. This should help ensure trouble free operation for an extended period of time.

Warranty and Service

Components of the Tremor FX system carry a limited warranty against material and workmanship. If a defect is discovered under the terms of the warranty, the affected component will be repaired or replaced.

For service issues, please check the Troubleshooting section of this manual. If problems persist or for additional information including any needed return authorization instructions, contact Seating Concepts at:

tremorfx@seatingconcepts.com

1-619-491-3159

Safety Certifications

Warning and Disclaimer

Changes or modification to this unit not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment

RF Exposure Information

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. In order to avoid the possibility of exceeding the FCC radio frequency exposure limits, human proximity to the antenna shall not be less than 20 cm during normal operation.

Contact Information
RedSeat Entertainment, LLC.
6440 South Wasatch Blvd. Ste 105
Holladay, Utah 84121
(801)268-4331
tremorfx@seatingconcepts.com

This device complies with Part 15 of the FCC Rules and this device also contains license-exempt transmitter(s)/receiver(s). Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

NO MODIFICATION: Modifications to the device shall not be made. Unauthorized modifications may void the authority granted under Federal Communications Commission rules permitting the operation of this device.

FCC ID: 2AK7R-02661
FCC ID: 2AK7R-02018

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 in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, 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, 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 technician for help