TECCS™

TRACKING EMERGENCY COMMAND AND CONTROL SYSTEM

*fire*TrakR2™

MODEL MMI-TRAKR2

OWNERS MANUAL

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TABLE OF CONTENTS

Revision History

Revision 1	08/15/2022
Revision 2	11/29/2022
Revision 3	06/05/2023
Revision 4	07/11/2023

1) Introduction

The TECCS^{TM} system consists of three primary units, which together provide "real time" (once per minute, or once every 10 seconds in an emergency) tracking of fire personnel and equipment. The crew chief(s) and their individual crew members all carry fireTrakR1^{TM} units on their shoulder or backpack (with unobstructed antenna), while equipment is fitted with fireTrakR2^{TM} devices. Transmissions from these devices are collected by Mobile Command Modules (MCM) carried on Section or Division Supervisor's truck. Each MCM is attached to a rugged laptop on the truck which displays the location of all fireTrakRs within direct line of sight. The MCM can handle up to 5000 fireTrakRs.

To minimize non-line of sight shadowing due to ridges and other obstructions, an Autonomous Relay Modules (ARM) can be deployed on a spotter aircraft (or other vehicle of opportunity) at ~5000 feet altitude. The ARM receives all fireTrakR transmissions within its (largely unobstructed) line of sight and forwards the information to all MCM also within its line of sight. With this relay in place shadowing is greatly reduced, but not eliminated. Since each MCM receives location data from the ARM, an extended operational view is available. Although not as effective at minimizing shadowing, the ARM could alternately be placed on the least obstructed vantage point(s) accessible if necessary.

In addition to the above functionality, each fireTrakR can enter an emergency mode activated by an easily accessible wireless button. In this mode, which takes priority over normal operations, the fireTrakR transmits updated location and notification of the emergency every 10 seconds. The ARM prioritizes this traffic, and all MCM provide audible and visual indications of the emergency and its location so that appropriate action can be taken immediately.

Finally, the local incident command center can receive and display "real time" deployment of all personnel by "eavesdropping" on the ARM transmissions (including emergency events). This is accomplished by operating an Incident Command Module (ICM), with an option to utilize a moderate gain antenna aimed towards a deployed ARM. This data could be augmented by direct data relay from some or all of the deployed MCM if a suitable network is available.

2) Mounting

        The fireTrakR2^{TM} should be securely (permanently) attached to the equipment (or other item to be tracked) such that the antenna has a clear, unobstructed view of the sky with the antenna pointing upwards toward the sky. It should be mounted in such a manner that it will not get entangled with brush, branches, or other obstructions encountered during normal equipment operation.

3) Operating Instructions

Turn ON:
Hold button on fireTrakR2^{TM} for 5 seconds
One blue flash when initially pushed

While operating:
Blinking Blue = GPS NOT yet Acquired
Green = GPS Acquired
Green Flash = Updated Position Transmitted

Turn OFF:
Hold button on fireTrakR2^{TM} for 5 seconds.
Red flash once each second
All OFF

EMERGENCY Notification:
While ON, Press & Release fireTrakR2^{TM} button

While in Emergency mode:
Solid Red
Red flash = Emergency Transmission

Cancel emergency transmissions:
Turn OFF

4) Battery Charging

The fireTrakR2^{TM} is charged via a USB cable from any
USB 5VDC, 0,5 amp supply (computer, wall wart, vehicle adaptor, etc.)

Charging indications:
      Red = Charging
      Off = Fully charged

5) Storage and Maintenance

The TECCS^{TM} fireTrakR2^{TM} requires no maintenance other than regular cleaning with a damp cloth. It should be kept in a cool, dry environment when not in use.

6) Service and Repair

The TECCS^{TM} fireTrakR2^{TM} contains **NO USER SERVICEABLE PARTS**. It must be returned to an authorized service facility (or the manufacturer) for repair (RMA number required).

7) Limited Warranty

The TECCS™ fireTrakR2™ is warranted against factory defects in materials and workmanship for a period of 2 years from the date of original purchase. This warranty is extended only to the original purchaser of the unit.

During the warranty period, the manufacturer will repair or, at its option, replace a defective unit at no cost to the owner of the TECCS™ unit for materials and labor. Transportation charges are the responsibility of the owner, and a Return Merchandise Authorization Number (RMA) must be obtained prior to shipment. The unit must be packaged properly and shipped prepaid to an authorized service center.

This warranty is void if the TECCS™ unit has been damaged through accident, misuse, or during transportation. The warranty is also void if the unit has been opened by persons other than by service personnel authorized by the manufacturer.

This is the entire warranty offered. In no event will the manufacturer or its representatives be liable for any other damages, either direct, consequential, incidental, or punitive, however caused and regardless of theory of liability arising out of the use, failure, or misuse of the TECCS™, even if the manufacturer has been advised of the possibility of such damages. In no event will the manufacturer's liability exceed the original purchase price of the TECCS™ Unit.

8) Regulatory Notes

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 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.

In order to maintain compliance with FCC regulations, shielded cables must be used with this equipment. Operation with non-approved equipment or unshielded cables is likely to result in interference to radio and TV reception. The user is cautioned that changes and modifications made to the equipment without the approval of manufacturer could void the user's authority to operate this equipment.

RF Exposure Statement

This equipment complies with FCC RF radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated as described in this manual. Users must follow these specific operating instructions to satisfy RF exposure compliance regulations

To ensure compliance with FCC exposure requirements, this device must be installed in a location where the antennas of the device will have a minimum distance of at least 20 cm from all persons. Using higher gain antennas and types of antennas not certified for use with this product is not allowed. The device shall not be co-located with another.

Appendix A) TECCS^{TM} *fire*TrakR2^{TM} Specifications

TRACKING EMERGENCY COMMAND AND CONTROL SYSTEM

FREQUENCY	902-928 MHz
POWER	0.5 Watt Nominal, 1 Watt Max
GPS	Internal
CASE	High Impact Resistant Plastic
SIZE	3.25" X 2.5" X 1"
	(excluding antenna & mounts)
WEIGHT	4.4 Oz
ANTENNA	Internal
	Deploy with Antenna Vertical
BATTERY	Rechargeable Lithium Battery
OPERATING MODES	Off, Tracking, Emergency
INDICATOR	Multicolor LED
OPERATING LIFE	~72 Hrs per charge
OPERATING TEMPERATURE	-20° to +55°C
Splash RESISTANT	
MODEL	MMI-TRAKR2
FCC ID	RG6-MMI-TRAKR2

This device complies with Part 15 of the FCC Rules. 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.

   This document contains information on a new product. Specifications and information herein are subject to change without notice.

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