



# EVOLUTION<sup>®</sup> Thermal Imaging Camera Remote Wireless Video Receiver System

## Instruction Manual

### DELUXE AND MINI RECEIVER KIT (RX) INSTRUCTIONS

#### **⚠ WARNING**

THIS MANUAL MUST BE READ CAREFULLY BY ALL INDIVIDUALS WHO HAVE OR WILL HAVE THE RESPONSIBILITY FOR USING OR SERVICING THE PRODUCT. Like any piece of complex equipment, the unit will perform as designed only if it is used and maintained in accordance with the manufacturer's instructions.

OTHERWISE, IT COULD FAIL TO PERFORM AS DESIGNED AND RESULT IN SEVERE PERSONAL INJURY OR DEATH.

This manual is available on the internet at [www.MSAafety.com](http://www.MSAafety.com)



Manufactured by

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# INTRODUCTION

## ⚠ WARNINGS

1. The user must be trained and thoroughly familiar with the proper operation and limitations of the thermal imaging and video transmission systems prior to use. Use in controlled live-burn exercises is suggested before using the equipment in actual emergency situations.
2. The Wireless Video System and thermal imaging system are not rated as "Intrinsically Safe." Do not use these systems in environments or atmospheres where static or sparks may cause an explosion.
3. Do not remove the receiving unit cover or casing as the system operates on high voltage. Only authorized personnel may service the unit.
4. Do not alter or modify this device

Failure to follow the above warnings can result in serious personal injury or death.

## ⚠ CAUTION

This equipment has been tested and found to comply with the limits for a Class A 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 commercial 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. Operation of this equipment in a residential area is likely to cause harmful interference, in which case, the user will be required to correct the interference at their own expense.

This Class A digital apparatus complies with Canadian ICES-003.

Cet appareil numérique de la classe A est conforme à la norme NMB-003 du Canada.

Do not drop the Remote Wireless Video System components, otherwise, damage to the system could occur.

## ⚠ WARNING

This is a Class A product. In a domestic environment, this product may cause radio interference, in which case, the user may be required to take adequate measures.



Figure 1.

## BACKGROUND AND OVERVIEW

MSA's Remote Wireless Video Receiver Kit is the complement to the transmitter unit for Evolution Thermal Imaging Cameras (TICs). It provides the capture, conditioning, and display of the transmitted video image to the user.

The Receiver System is available in two configurations:

- the Deluxe Receiver Kit (P/N 10119319) which consists of a receiver module and a 15.4 inch LCD mounted in a hard-sided carrying case
- or
- the Mini Receiver Kit (P/N 10048134) which is packaged in a soft-sided carrying case.
  - Both kits also contain an antenna, coaxial video cable, power supply cables, and an instruction manual.
  - Both kits also include a space to store the Evolution 5000 Transmitter when not in use.

This Receiver Kit is compatible with all Evolution TIC Transmitters. For best video performance with the Evolution 5000 series transmitter, connect the included video adapter/attenuator to the Evolution 5000 video-out jack; then, connect the Evolution 5000 series transmitter to the adapter.

The channel settings on this receiver have been set to correspond with the Evolution 5000 external transmitter. If using another MSA TIC with an internal transmitter (i.e., Evolution 4000 or 3000), it may be necessary to reverse the channel settings (e.g., transmit on channel 1 while receiving on channel 2) in order to ensure full compatibility.

This manual addresses the features, benefits, specifications, and operational instructions for both receiver kits. Additional information/instructions for the optional telemetry system can be found in the following documentation:

- Evolution 3000 TIC Operation and Instruction Manual (P/N 10023654)
- Evolution 4000 TIC Operation and Instruction Manual (P/N 10015940)
- Evolution 5000 Transmitter Instruction Manual (P/N 10048454).

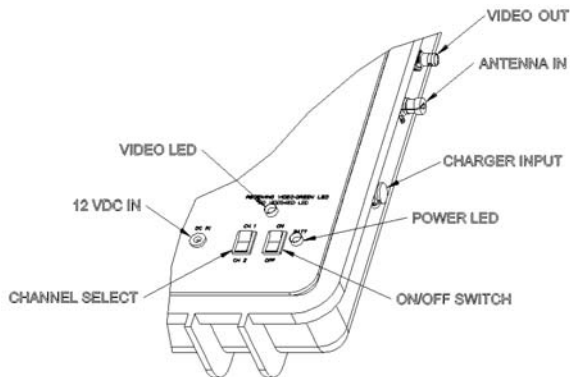
## **APPLICATIONS**

The Remote Wireless Receiver System is to be used in conjunction with the wireless transmitters available for the Evolution 3000, Evolution 4000, or Evolution 5000 Thermal Imaging Cameras (TICs) to remotely display the images generated by the Evolution TIC. Many applications exist for a remote transmission and reception system, including training, scene monitoring, and event recording.

## **FEATURES**

- Two user-selectable channels (2458 MHz and 2474 MHz)
- Dual voltage input (110 VAC or 12 VDC)
- Omni-directional Antenna
- Video output connector
- Compatibility with all Evolution TIC transmitters.

# DELUXE RECEIVER KIT



**Figure 2.**

## SETUP/USE

The Deluxe Receiver Kit consists of a receiver module and 15.4-inch LCD mounted in a hard-sided carrying case. The kit also contains an antenna, coaxial video cable, charger, attenuator, and cables. The following guidelines describe its basic setup and use.

- Connect the antenna to the Receiver Kit. Locate the antenna as close as possible to the transmitting TIC. For best reception, position the antenna with the tip pointed upward. Avoid as many obstructions between the antenna and the TIC as possible.
- A turn-ON procedure is provided for optimal performance. Turn the receiver kit "ON"
- Turn ON any of the Evolution 3000, 4000 or 5000 series transmitters mentioned previously.
- Confirm the receiver signal indicator light is green. If the LED is not green, confirm the receiver and transmitter are on the correct channels.
- If OFF, turn on the LCD Screen by pushing the power button located on the lower left of the LCD Screen. Confirm the LCD Display buttons light up blue. After a short delay (few seconds), the image appears on the screen.
- The Deluxe Receiver Kit can be powered from three possible sources.
  - The internal sealed lead-acid battery
  - An external 120 VAC source. The supplied charger can simultaneously charge the battery and power the Receiver Kit



**Figure 3.**

- Vehicle power. External or Vehicular power operation is accomplished by connecting a vehicular power cord to the unit and setting the front panel power switch to the "OFF/DC" position. The unit runs automatically from a 12 volt vehicular power supply.
- Channel selection is accomplished using the two-position rocker switch on the front panel.
- To verify correct receiver unit operation, turn ON an Evolution TIC and its transmitter. Verify the same image appears on the TIC and the LCD of the receiver unit.
- When the unit is turned ON, a green LED should be lit on the base of the receiver unit, and the LCD should be ON and showing static until a transmitter is turned ON.
- To change the channel of the Receiver, toggle the switch between "1" and "2".
- To verify correct receiver unit operation, turn ON an Evolution TIC and its transmitter. Verify that the same image appears on the TIC and the LCD of the receiver unit.

Prior to deploying the TIC, it is important to verify that the transmitter contained in the Evolution TIC and the receiver units are synchronized to the same transmitting frequency. Also, verify that the Evolution TIC has fully charged batteries. Low battery power can result in transmission power loss, and degrade the resulting image seen with the Receiver Kit.

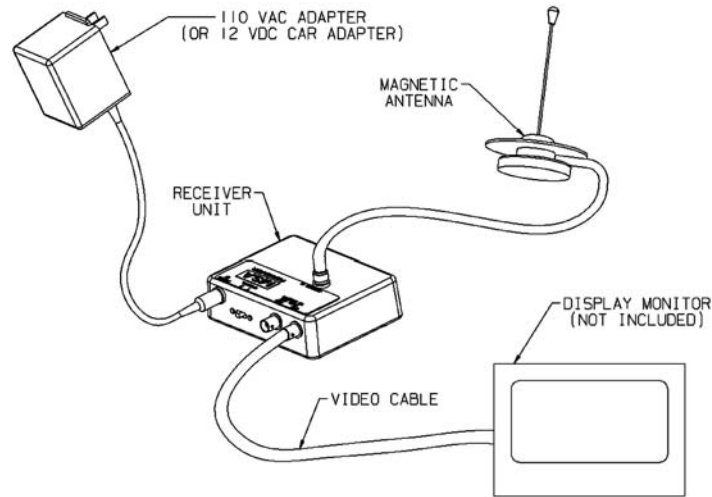
## **EXTERNAL OUTPUT CONNECTIONS**

The receiver unit features a video output jack. The jack is a BNC-style connector that can be used to connect the receiver output to video monitors or VCRs. Adapter plugs are provided to convert the BNC connection to RCA-style connections that are required for common video equipment. The receiver simultaneously provides output to the internal 15.4-inch display and the output jack.

## **DISPLAY**

The 15.4 inch display is an LCD type unit which includes brightness and contrast controls in the panel at the bottom of the screen. See the supplied operator's manual for the complete description and features.

# MINI RECEIVER KIT



**Figure 4.**

## SETUP/USE

The Mini Receiver Kit consists of a receiver module packaged in a soft-sided carrying case. The kit also contains an antenna, coaxial video cable, and power supply cables. The following guidelines describe its basic setup and use.

- In order to see the image seen by the remote camera and transmitter, a display monitor must be connected to the mini receiver. The monitor is not supplied in this kit. Most standard TV monitors or TV/VCR combinations can be used.
- Connect the antenna to the connector on the receiver unit.
- Connect the monitor to the receiver unit using the supplied video cable.
- Connect the receiver module to power using the 110 VAC cable or the 12 VDC car adapter.
- A red LED on the receiver module lights when the unit is properly powered.

Prior to deploying the TIC, it is important to verify that the transmitter and the receiver units are synchronized to the same transmitting frequency. Also, verify that the Evolution TIC Transmitter has fully charged batteries. Low battery power can result in transmission power loss, and degrade the resulting image seen with the receiver kit.

## EXTERNAL OUTPUT CONNECTIONS

The receiver unit features two video output jacks. The jacks are BNC-style connectors that can be used to connect the receiver output to video monitors or VCRs. Adapter plugs are provided to convert the BNC connection to RCA style connections that are required for common video equipment. The receiver simultaneously provides output to the internal 12-inch display and the output jacks.



**Figure 5.**

# MAINTENANCE AND TROUBLESHOOTING

After each use, clean all receiver components (display unit, cables, connections, and antenna) by wiping with a dry, soft, lint-free cloth. Inspect all connector terminals, cables and components for dirt or water damage, chemical damage, cracks and breaks. Replace all damaged components immediately to ensure proper system function.

If the display does not function, check to see if the battery has a charge. If the battery is dead, the unit can be run from the 120 VAC charger or from a 12 VDC vehicle power supply.

If the Evolution TIC unit is not transmitting, the normal image on the display should be solid blue.

While operating the Evolution TIC and receiver the antenna cable must be connected to the receiving unit. If the image on the display is rolling and erratic, it is typically a sign that the Evolution TIC transmitter and receiver are not set to the same channel/ frequency.

- This can easily be verified by leaving the Evolution TIC unit set in its current position and changing the channel switch on the receiver unit. If this worsens the situation, restore the receiver channel to its original setting.
- Other sources of interference, such as large metal objects within the line of sight with the transmitter, electrical machinery, microwave ovens, or other transmitters operating at nearby frequencies could affect the receiving station. To improve image quality, reorient the receiving antenna and/or relocate the receiving station relative to the transmitter and interfering objects.

If the image continues to be erratic and the transmission range on the Evolution 5000 series transmitter seems to be very short, verify that the video adapter/attenuator is installed on the video-out jack on the camera before connecting the video transmitter.

## SERVICE

If your receiver kit is in need of service or repair, please contact the MSA Service Center at 1-877-MSA-FIRE.

Describe the problem to the Representative as completely as possible.

1. Verify with your Representative that the product should be returned to MSA.
2. Before returning the product, decontaminate and clean your receiver kit to remove any hazardous materials that may have settled on the product during use.
  - Laws and/or shipping regulations prohibit the shipment of hazardous or contaminated materials.
  - Products suspected of contamination are to be professionally decontaminated at the customer's expense before servicing.

Ship returned products (including those under warranty) with pre-paid transportation charges; MSA cannot accept returned goods on a freight-collect basis.

## SPARE PARTS LIST

ITEM DESCRIPTION	PART NO.
BNC Male to RCA Female Adapter	10020221
BNC Female to RCA Male Adapter	10020220
10 ft. Remote Video Cable Assembly	10020290
RX Kit Instruction Manual	10048166
Antenna, Magnetic	10047841
Video Adapter/Attenuator	10126889