

EVOLUTION[®] 5000 Transmitter

Wireless Video Transmission System

Operation and 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

The warranties made by Mine Safety Appliances Company with respect to the product are voided if the product is not used and serviced in accordance with the instructions in this manual. Please protect yourself and others by following them. We encourage our customers to write or call regarding this equipment prior to use or for any additional information relative to use or repairs. During regular working hours, call 1-877-MSA-FIRE.





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1 Before Use / Description

Introduction

Congratulations on the purchase of your new MSA EVOLUTION® 5000 Thermal Imaging Transmitter. This handheld unit provides advanced technology backed by years of MSA quality, dedication, and service.

This high definition Transmitter provides the latest in available transmission technology

Before Use / Description

The EVOLUTION 5000 Thermal Imaging Transmitter is a highly sophisticated piece of electronic equipment. The unit is designed to withstand the firefighting conditions of heat, driving spray, and frequent impact normally seen in the Fire Service. Excessive rough handling may damage the Transmitter and render it inoperable. It is not recommended that the Transmitter run for extended periods in high-heat conditions.

The EVOLUTION® 5000 Thermal Imaging Camera and Transmitter is intended as an aid to fire and rescue operations, and training. It is not a replacement for standard firefighting techniques and precautions. Users must ensure that the fire department's standard operating procedures are followed while using the Transmitter.

About the Transmitter

The EVOLUTION® 5000 Thermal Imaging Transmitter is:

- equipped with two user selectable channels to provide the best transmission of images.
- designed ergonomically for the firefighting environment.
- designed to easily attach to the EVOLUTION® 5000 TIC for rapid deployment without compromising the TIC's design when not in use.

Specification		
Construction		Flame resistant, water resistant, externally mounted to the TIC.
Approximate Dimensions	Height	210 mm, 8.5 in
	Width	140 mm, 5.5 in
	Length	120 mm, 5 in
Weight	w/ battery	455 g, 16.1 oz
	w/o battery	360 g, 12.7 oz
Power Source		Rechargeable Li Ion battery
Power Consumption	at room temperature	max 430 mA when both Channel LED's are lit and the battery LED is flashing red
Operating Time	1 Li Ion battery pack	> 4 hours
Transmitting Power	EIRP	450 mW
Transmission Range	Line of sight	1 mile
Channel 1	Frequency	2458 MHz
Channel 2	Frequency	2474 MHz

This device complies with part 90 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

2 Warning and Cautions

WARNING

- 1 The user must be trained and thoroughly familiar with the proper operation and limitations of the Transmitter. Use in controlled exercises is suggested before using the equipment in actual emergency situations. Improper use of the equipment in a hazardous atmosphere could result in serious injury or death.
- 2 Do not rely on the TIC's image as the sole means of navigation or deviate from standard fire-fighting practices during use.
Most electronic devices will cease to operate at certain high temperature extremes. Exposure to excessive thermal conditions may result in deterioration and loss of transmission.
- 3 This Transmitter is **not** rated as "Intrinsically Safe". Do not use the system in environments, or atmospheres where static or sparks may cause an explosion.
- 4 Before entering a hostile environment, test the Transmitter as specified in the instructions to ensure that it is functional. After each use inspect the system to determine if servicing is required.
- 5 Replacement batteries must be identical to the ratings and configuration of those supplied with the equipment.
- 6 Do not remove the case or cover of the electronics. Only authorized personnel may service the unit.

FAILURE TO FOLLOW THE ABOVE WARNINGS CAN RESULT IN SERIOUS PERSONAL INJURY OR DEATH.

CAUTION

- 1 Ensure that the battery is fully charged before use. If not fully charged, the system will not operate for the specified amount of time. Monitor level during use and be prepared to exit the hazardous area when a low battery warning is observed.
- 2 Electromagnetic radiation (radio transmission) may cause interference. Minimize other nearby radio transmissions if excessive interference occurs.
- 3 Do not drop the Transmitter. Although the system is designed to withstand normal impacts that occur in fire service, such impacts may alter the transmission or damage the unit.

FAILURE TO FOLLOW THE ABOVE CAUTIONS CAN RESULT IN SERIOUS PERSONAL INJURY OR DEATH.

LIMITATIONS

- 1 Although the Transmitter is water resistant, the thermal imaging camera does not provide under water images.
- 2 The system will show reduced or no performance when transmitting video signals through thick walls of concrete or other building materials.

3 Operation

Operation

Getting started

The rechargeable batteries supplied with the Transmitter must be fully charged before use. Also, periodically check and replace the battery in an actively-used transmission system.

See "Battery care and Installation" later in this manual.

The unit must be attached to the EVOLUTION® 5000 TIC.

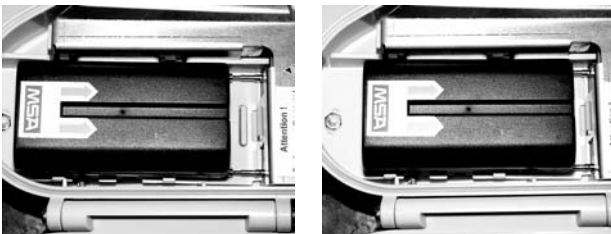
Attaching the Transmitter to the EVOLUTION® 5000 TIC

- 1 Place a fully charged battery inside the housing.

Open the housing



Insert the fully charged battery



Close the housing



- 2 Fasten the TRANSMITTER to the EVOLUTION 5000 TIC housing



- 3 Secure the antenna inside of the front handle of the EVOLUTION® 5000 TIC



- ④ Place the transmitter housing onto the EVOLUTION® 5000 TIC and connect the Transmitter via cable to the SMA video outlet of the EVOLUTION® 5000 TIC



- ⑤ The system is now ready for operation



Turning the system ON and OFF

Once the Transmitter is properly mounted to the TIC turn on the EVOLUTION® 5000 TIC [see instructions for use of the TIC]. The Transmitter will switch on automatically. The system will begin to operate on channel one [1]. The system shows the ON mode with a lit battery and channel LED.



Verify that the Transmitter is functioning – the thermal image must be shown on the display of the receiver station or monitor.

- The Transmitter is now ready for use

NOTE: If the EVOLUTION® 5000 TIC is switched to standby mode, the Transmitter will continue to transmit a video signal.

Turning the camera completely OFF will automatically switch OFF the Transmitter.

Channel Selection Button

The green channel selection button offers the ability to change the transmitting frequency. Pushing the button for about one second will change from channel 1 to channel 2 or vice-versa.

It is also possible to switch OFF the Transmitter separately. To turn the Transmitter OFF, press and hold the channel selection button [green] in for four seconds.

- To avoid inadvertent switching of the channels changes or shutdown, the green button must be held for four seconds to turn OFF the Transmitter.
- When all LED indicators shut OFF the user may release the green button
- The Transmitter is now OFF



To turn the Transmitter ON again push the channel selection button and hold it for approximately one second. The Transmitter will restart on the same channel in which it was switched off.

User interface-indicators and warnings



Battery LED / System Status

A lit battery and channel LED indicates that the Transmitter is on and fully operational.

- **Green** indicates full or nearly full battery.
- **Yellow** indicates marginal battery capacity.
- **Red** indicates battery warning and nominally 15 minutes of battery capacity remaining.
- **Flashing Red** indicates battery shutdown is imminent [about one minute of warning time].

Channel LED [green]

One lit LED indicates channel 1 is selected.

Two lit LEDs indicate channel 2 is selected.

When the wireless video transmission system is turned OFF, all LED's are darkened.

4 Battery Information

Rechargeable Batteries

The EVOLUTION® 5000 Transmitter runs on one Lithium Ion battery. Although this is the same type battery used in the EVOLUTION® 5000 TIC the Transmitter is powered separately

Battery Installation and Care

Install the battery as described in point 3 "getting started"].

Battery Maintenance

After each use, inspect:

- battery contacts for damage



Normal battery shown.

- batteries for damage or leakage



Image indicates no damage.

Stand Alone Battery Charger

The battery charger [sold separately] is the same that is used with the EVOLUTION® 5000 TIC or is available as accessory [see ordering information]. Please consult your EVOLUTION® 5000 TIC users manual for battery charging instructions. The battery must be removed from the Transmitter prior to charging.

Truck Charger

When the Transmitter is attached to the EVOLUTION® 5000 TIC, the combined unit cannot be used with the EVOLUTION® 5000 Truck Charger or Truck Bracket. The Transmitter must be completely detached from the TIC before inserting the TIC into the Truck Charger or Truck Bracket. The Transmitter battery cannot be charged while inside the Transmitter.

⚠ CAUTION

Although the EVOLUTION® 5000 TIC and EVOLUTION® 5000 Transmitter use the same type of battery, each component is powered separately. The Transmitter battery does not provide power to the TIC and the TIC battery does not provide power to the Transmitter. Battery indicators are independent for each device.

5 Maintenance and Adjustments

General Maintenance

After each use, inspect

- the Transmitter for structural, heat and / or chemical damage.
- the mechanical hardware to ensure no screws are loose and no O-rings or gaskets are loose or misplaced.
- to ensure that all warning labels are intact.
- battery - see "Battery Care and Installation"
- charger and Transmitter LED's for proper indication that the system is operating properly.

NOTE: Transmitter not meeting the above inspection must be removed from service and returned for repair.

Cleaning

After each use, clean all external surfaces by wiping with a solution of mild detergent and warm water. Dry with a lint-free cloth, to avoid scratching the surfaces.

Periodically check connector terminals, video socket, channel switch, locking latch and hinge for contamination. Clean with a lint-free cloth.

⚠ CAUTION

Do not use solvents or paint thinners to clean the Transmitter; otherwise, the protective case may become degraded.

⚠ WARNING

Do not remove the Transmitter cover or electrical casing. Only authorized personnel may service the unit.

Troubleshooting Guidelines

Symptom	Possible Solution
No LED's lit	Check cable connection to SMA video outlet of the TIC. Is the cable threaded correctly ?.
	Check power connections. Is power available ?
	Is a battery inside the camera and is the EVOLUTION® 5000 TIC turned ON ?
	Is a battery inside the Transmitter ?
	Are the batteries fully charged ?
	Inspect battery contacts for dirt, corrosion or damage. If necessary clean or replace battery.
	Push the channel switch for approximately one second.

Service

If your EVOLUTION® 5000 Transmitter 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 Transmitter to remove any hazardous materials that may have settled on the product during use.
3. Laws and / or shipping regulations prohibit the shipment of hazardous or contaminated materials.
4. Products suspected of contamination will be professionally decontaminated at the customer's expense before servicing.
5. Ship returned products [including those under warranty] with pre-paid transportation charges; MSA cannot accept returned goods on a freight-collect basis.

6 Warranty and Service

MSA Warranty

1. Warranty - seller warrants that this product will be free from mechanical defect or faulty workmanship for a period of one [1] year from date of purchase, provided it is maintained and used in accordance with seller's instructions and / or recommendations. The seller shall be released from all obligations under this warranty in the event repairs or modifications are made by persons other than its own or authorized service personnel or if the warranty claim results from physical abuse or misuse of the product.

No agent, employee or representative of the seller has any authority to bind the seller to any affirmation, representation or warranty concerning the goods sold under this contract.

THIS WARRANTY IS IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED, IMPLIED OR STATUTORY, AND IS STRICTLY LIMITED TO THE TERMS HEREOF: SELLER SPECIFICALLY DISCLAIMS ANY WARRANTY OF MERCHANTABILITY OR OF FITNESS FOR A PARTICULAR PURPOSE:

2. Exclusive remedy - It is expressly agreed that purchaser's sole and exclusive remedy for breach of the above warranty, for any tortious conduct of seller, or for any other cause of action, shall be the repair and / or replacement at the seller's option, of any equipment or parts thereof, which after examination by seller is proven to be defective. Replacement equipment and / or parts will be provided at no cost to purchaser, F.O.B. seller's plant. Failure of seller to successfully repair any nonconforming product shall not cause the remedy established hereby to fail of its essential purpose.
3. Exclusion of Consequential Damage - Purchaser specifically understands and agrees that under no circumstances will seller be liable to purchaser for economic, special, incidental or consequential damages or losses of any kind whatsoever, including but not limited to, loss of anticipated profits and any other loss caused by reason of non-operation of the goods. This exclusion is applicable to claims for breach of warranty, tortious conduct or any other cause of action against seller.

MSA Factory Repair & Service Policy Card

To help process your repair requests, please provide the following information:

Please complete this form in full. Thank you.

Customer's billing address:		Customer's shipping address:	
Company Name		Company Name	
Street / P.O. Box		Street / P.O. Box	
City / State / Zip		City / State / Zip	
Contact name		Phone number	
Product name		Fax number	
Model number		Your PO number	
To save time - please check ONE of these alternatives:		Description of problem / special instructions:	
<input type="checkbox"/>	Repair and return [PO number must be provided]		
<input type="checkbox"/>	Estimate required before return		
<input type="checkbox"/>	Warranty claim [original MSA invoice no. _____]		
<input type="checkbox"/>	Medical RA no. _____		
Authorized by:	Title:	Date:	- -
<p>FOR CALIBRATION OR REPAIR; PLEASE PROVIDE THE INFORMATION REQUESTED ABOVE: PLEASE USE A SEPERATE SHEET FOR EACH EQUIPMENT / UNIT.</p>			

7 Ordering Information

Part number	Description
10046340	EVOLUTION® 5000 Transmitter
10041100	Charger, 110 / 220 VAC with cigarette lighter adapter
10038412	Lithium Ion battery
10046342	Replacement Strap
10048454	"Operation and Instructions" Manual
10048134	Receiver station w/ LCD-monitor
10048135	Receiver station w/o LCD-monitor

Manufactured by

MINE SAFETY APPLIANCES COMPANY



PITTSBURGH; PENNSYLVANIA; U.S.A. 15230