

Evolution[®] 5800 TIC Product Specification



I. Purpose

To establish minimum standards for the MSA Evolution 5800 Thermal Imaging Camera (TIC) and Evolution 5000 Series Universal Truck-Mounted Charging System. Evolution 5800 TICs are tools for firefighters and first response emergency personnel, used for search and rescue, fire scene size-up, overhaul, location of victims, and advanced firefighting and first response applications.

II. Type

The thermal imaging camera covered by this specification shall be of the type incorporating a 320x240 vanadium oxide microbolometer focal plane array sensor. Evolution 5800 Series TIC displays black and white scene representations on a 3.5" diagonal LCD display. Design is optimized for firefighters in ergonomic design and ease of incorporation with firefighting gear. TIC features dual-handle design for easy handoff and handling, and high-impact, heat-resistant housing to ensure that TIC will withstand rigors of firefighting environments. TIC is further protected by a rubber bumper system to provide additional protection from extremely harsh environments. TIC shall be tested to and comply with the following standards:

WATER/DUST INGRESS	International Standard CEI, IEC 529, IP 67 Classification
DIRECT FLAME/HEAT EXPOSURE	Simulated NFPA 1981-2002 Ed., NFPA 1982-1998 Ed.
VIBRATION	MIL-STD-810E Category 1 Loose Cargo Transport
RADIO FREQUENCY INTERFERENCE	CE/EN 50081-2:1992, EN 50082-2: 1992, FCC Part 15
ROLLOVER (TRUCK CHARGER)	Simulated NFPA 1901-12, 1.7

III. Component Parts

The product shall consist of the following component parts. TICs, kits and accessories can be purchased individually.

1. Evolution 5800 Thermal Imaging Camera
2. Direct temperature measurement
3. Heat Seeker PLUS Indicator
4. 2X digital zoom
5. Five user selectable pallets
6. Video-out connector
7. Operating manual

Components below sold in kit format and/or individually:

8. Lithium-ion battery packs
9. Stand-alone battery charger with wall plug and cigarette lighter adapter
10. Vehicle-mounted charging system
11. Attachments: carabiner, wrist strap, shoulder strap, retractable lanyard
12. Carrying case



*Because every life has a **purpose...***

IV. Specific Requirements

1. Evolution 5800 TIC

SENSOR: TYPE ARRAY SIZE SPECTRAL RESPONSE NETD DYNAMIC RANGE VIDEO STANDARD FRAME RATE VIDEO OUTPUT	Uncooled vanadium oxide microbolometer focal plane array detector 320x240 8-14 microns ≤65mK (in High Sensitivity), ≤240mK (in Low Sensitivity) -40° to 320°F (-40° to 160°C) in High Sensitivity, -40°F to 1040°F, (-40°C to 560°C) in Low Sensitivity 16 bit real time analog 30 Hz NTSC
MECHANICAL: DIMENSIONS BASE WEIGHT MATERIALS OUTER HOUSING RUBBER BUMPERS DISPLAY COVER	10.8" x 8.1" x 4.4" (275 mm x 205 mm x 112 mm) 45 oz. (2.8 lbs) Outer case and bumper materials pass simulated NFPA 1981:2002 edition direct flame and heat exposure tests. Bayer PCPET Makroblend FR neoprene Heat- and scratch-resistant polycarbonate
ELECTRICAL: POWER SUPPLY POWER CONSUMPTION VIDEO OUTPUT DISPLAY	Supplied by integral battery pack <6 W nominal RS-170 standard SMA connector is included under display for remote video source direct connection. SMA to BNC adapter is included. 3.5" LCD backlit display
ENVIRONMENTAL AMBIENT TEMP: 80°C, 176° F 120°C, 248° F 260°C, 500° F -30°C, -22° F -40°C, -40° F	The Evolution 5800 TIC provides the following temperature tolerances: OPERATING TIME: > 30 minutes > 20 minutes > 8 minutes > 40 minutes > 25 minutes
WATER/DUST INGRESS:	TIC shall resist dust and water and must conform to International Standard CEI IEC 529; Degrees of Protection Provided by Enclosures (IP Code); IP67 classification.
IMPACT/DROP:	Will survive 6 ft drop at any angle with no operational defaults or physical compromise of outer housing.
VIBRATION:	TIC and components housed in carrying case shall be resistant to vibration and must conform to MIL-STD-810E, Category 3, loose cargo transport.
RFI/EMC:	TIC should not interfere with standard firefighter frequency bands at power levels found in hand-held (3-5W) and vehicle-mounted systems (~100W). Communication/electronic devices cannot affect TIC to the point where navigation is compromised when TIC is subjected to RF interference of 80 MHz to 1 GHz at 30V/m. TIC must meet RFI emissions and susceptibility of CE/EN.
OPTICAL: LENS FIELD OF VIEW FOCUS DIGITAL ZOOM	19mm, F1.4 34° horizontal, 26° vertical Optimal 3 ft to ∞ (1m to ∞) 2X
WARNINGS/INDICATORS: GREEN FLASHING GREEN	There will be 1 green LED to indicate TIC status, functioning as follows: TIC in normal mode and functioning correctly TIC in standby mode and functioning correctly
BATTERY STATUS: GREEN YELLOW RED FLASHING RED SHUTTER INDICATOR LOW SENSITIVITY INDICATOR	Total battery capacity will be indicated in viewing area with row of 3 LEDs, functioning as follows: Full battery capacity Marginal battery capacity Battery warn – lit for 15 minutes before shutdown Battery shutdown – flashes for 60 seconds before shutdown On-screen indicator appearing as small block in upper left display corner when camera shutters indicates that area re-scan is necessary. On-screen indicator appearing as letter "L" in lower left screen portion indicates activities when TIC is in Low Sensitivity.
OVER-TEMPERATURE WARNING: NOT LIT FLASHING RED	There will be 1 red LED to indicate TIC's over-temperature status, functioning as follows: TIC is within operational thermal limits TIC has exceeded recommended operational thermal limits

2. Rechargeable Lithium-Ion Battery Pack

BATTERY TYPE:	Rechargeable lithium-ion battery pack
BATTERY LOCATION:	Inside handle
BATTERY WEIGHT:	3.2 oz.
OPERATING TIME:	2 hours

3. Stand-Alone Battery Charger

BATTERY CHARGE TIME:	2 hours nominal
POWER SUPPLY:	110 VAC (220 VAC optional) 12 VDC cigarette adapter included

4. Evolution 5000-Series Truck-Mounted Charger

FUNCTIONALITY:	Optional truck-mounted charger will charge TIC and 1 spare battery when properly installed in vehicle. Each truck charger includes vehicle installation mounting kit. Charger will draw less than 1.5 amps of power.
BATTERY CHARGE TIME:	3 hours nominal, trickle maintenance charge
POWER SUPPLY:	12-24 VDC
VIBRATION:	Truck-mounted charger must safely charge TIC while in a moving vehicle – reference MIL-STD-810E — vibration resistance.
ROLLOVER:	Truck-mounted charger must meet rollover requirements identified in NFPA 1901-12-1.7
LED INDICATORS BATTERY STATUS: NOT LIT FLASHING GREEN-SLOW FLASHING GREEN-FAST GREEN RED	Truck-mounted charger user interface will consist of 3 LEDs: 1 LED for each battery (inside TIC and 1 spare) and 1 system status LED, operating as follows: Battery not present Charge pending Charge in process Battery fully charged Fault, lost signal to battery
SYSTEM STATUS: NOT LIT GREEN	System fault Power on, system operational
DIMENSIONS:	10 3/8" L, 5 3/4" W, 6" H

5. Attachments and Carrying Options

CARABINER:	Each TIC shall come equipped with carabiner attachment for securing TIC to tool belt or other gear.
WRIST STRAP/BUNKER CLIP:	Optional wrist strap/bunker clip attachment is available, constructed of fire- and heat-resistant materials.
SHOULDER STRAP:	Optional flame- and heat-resistant shoulder strap is available, includes emergency release clip.
RETRACTABLE LANYARD:	Optional retractable lanyard for use with TIC/carabiner assembly is available. Retraction line is to be made of Kevlar core material, housing is to be heat-resistant.

6. Video Connector

All TICs shall come standard with SMA video-out connector.

7. Tripod Mounting

Tripod mounting attachment shall be available as an option.

8. Carrying Case

CONTENTS:	Case will hold as minimum, TIC, 2 lithium-ion battery packs, manual, carrying attachments, stand-alone battery charger assembly, tripod mount, SMA to BNC adapter cable.
WATER/DUST INGRESS:	Case shall resist dust and water ingress and must conform to International Standard CEI IEC 529; Degrees of Protection Provided by Enclosures (IP Code); IP54 classification.
IMPACT/DROP:	Dropped 3 consecutive times onto concrete from 3 ft (1m) at any angle with no operational defaults or physical compromise of case or contents.

9. Operation and Instruction Manual

10. Direct Temperature Measurement

INSTALLATION:	Integrated inside TIC without add-on devices. Capability can be included at time of purchase or added to base camera by MSA Repair and Service Center.
DEVICE:	Measurement taken from FPA
RANGE:	32°F to 300°F (0° to 150°) in High Sensitivity, 32°F to 1000° (0° to 500°C) in Low Sensitivity
TICK MARKS:	100°F and 200°F (50°C and 100°C) in High Sensitivity; 250°F, 500°F, 750°F in Low Sensitivity
ACCURACY:	± 27°F (15°C) or ±10% whichever is greater. For temperatures greater than 435°F (225°C) ± 20%.
READOUT:	Thermometer-style bar indicator in Fahrenheit or Celsius available. Digital temperature feature displays approximate number value of object temperatures located in spotter.

11. Heat Seeker PLUS Indicator

INSTALLATION:	Integrated inside TIC without add-on devices
DEVICE:	Measurement taken from FPA
READOUT:	Graduated color (yellow to orange to red) of portions of scheme that are above 275°F, (135°C)-yellow, 297°F (147°C)-red, in High Sensitivity, or 842°F (450°C)-yellow, 914°F, (490°C)-red, in Low Sensitivity mode.

12. User-selectable Palettes

INSTALLATION:	Integrated inside of TIC without add-on devices
DEVICE:	User-selectable palette offers five options: white hot, black hot, and color options fusion, fire and ice, rainbow.
READOUT:	Single-button operation provides 3-second indication of user-selected palette on TIC display.

Note: This Bulletin contains only a general description of the products shown. While uses and performance capabilities are described, under no circumstances shall the products be used by untrained or unqualified individuals and not until the product instructions including any warnings or cautions provided have been thoroughly read and understood. Only they contain the complete and detailed information concerning proper use and care of these products.



ID 3400-104-MC / November 2012
© MSA 2012 Printed in U.S.A.

MSA Corporate Center
1000 Cranberry Woods Drive
Cranberry Township, PA 16066 USA
Phone 724-776-8600
www.MSAafety.com

U.S. Customer Service Center
Phone 1-800-MSA-2222
Fax 1-800-967-0398

MSA Canada
Phone 1-800-672-2222
Fax 1-800-967-0398

MSA Mexico
Phone 01 800 672 7222
Fax 52 - 44 2227 3943

MSA International
Phone 724-776-8626
Toll Free 1-800-672-7777
Fax 724-741-1559
Email msa.international@msasafety.com

Offices and representatives worldwide
For further information: