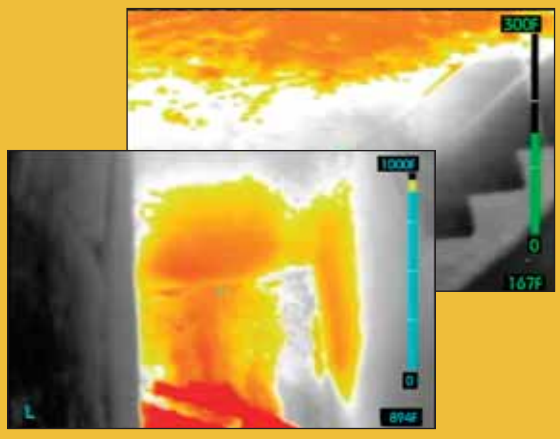
EMERGENCY RESPONDER
THERMAL IMAGING

Spring 2005 Volume 1 Number 2

• FIRE SERVICE • LAW ENFORCEMENT
• HAZMAT • EMS • HOMELAND SECURITY

Featuring MSA's New Evolution® 5200 TIC

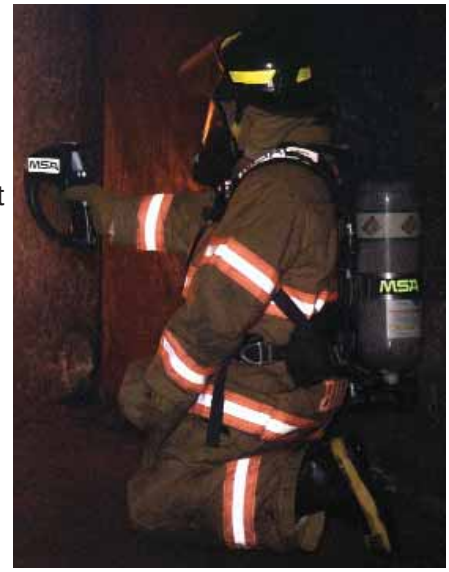
- ***Temperature Range Breakthrough***
- ***"Raising the Bar" on Low Sensitivity***
- ***ISDR Performance up to 4795!***
- ***New Heat Seeker PLUS shaded color***
- ***Simplified Training and Operation***



Evolution 5200 TIC's "Next Gen" Performance in both High and Low Sense mode

In this issue of *Emergency Responder Thermal Imaging:*

MSA's New Evolution 5200 – High-Performance Safety



MSA, the world's leading manufacturer of safety equipment, has introduced a new Thermal Imaging Camera (TIC) that represents a significant jump over current TIC technology. The new Evolution 5200 TIC promises to substantially enhance Firefighter and Emergency Responder safety and effectiveness in life-threatening situations.

MSA introduced the first hand-held thermal imaging camera for Firefighters and Emergency Responders in 1996. Ten years and eight cameras later, MSA has again set a new standard of safety and utility in the new Evolution 5200 TIC, with exclusive features and performance improvements available only from MSA.

Temperature Range Breakthrough!

- 320°F High Sense mode temperature range – high image quality and definition over the widest temperature range of any Firefighting TIC
- Twice the sensitivity in the 320° to +1000°F temperature range when compared to other TICs for better Low Sense mode imaging!

It all adds up to the highest ISDR* of any Fire Service TIC – with clearer, sharper and more detailed images produced over the entire temperature range.

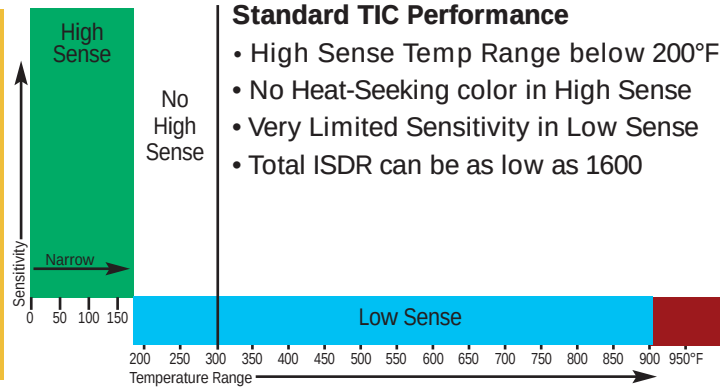
Ultimately, SAFETY is the fundamental issue with TIC use and applications. Whether it is the personal safety of the TIC user, or the safety of those they serve, with TIC usage it's all about SAFETY.

**Instantaneous Scene Dynamic Range is the combined value of a sensor's sensitivity and temperature range to determine the number of temperature differences that can be seen at any given instant. The Evolution 5200's ISDR is 4795. The Evolution 5000's ISDR comes in at 3985.*

Comparison of TIC Performance in High & Low Sense Modes

Thermal images are generated in either High Sense or Low Sense mode, depending on the temperature at the scene. High Sense mode delivers the best image quality but has a limited temperature range. Low Sense mode trades image quality for a wider temp range to keep the TIC working in high-heat conditions. Here are three TIC Performance Comparison Graphs: Standard TIC, MSA Evolution 5000 TIC, and the new MSA Evolution 5200 TIC.

1. These TIC Performance Graphs show High Sense mode in green and Low Sense mode in blue.
2. The height of each block represents how high the TIC's sensitivity is, and the width shows the temperature range of each.
3. The black vertical line at 300°F represents the temp range that Firefighters are in 80% of the time in structural fires.
4. The yellow and/or red blocks represent when and where the Heat-Seeking Color pixels are activated.

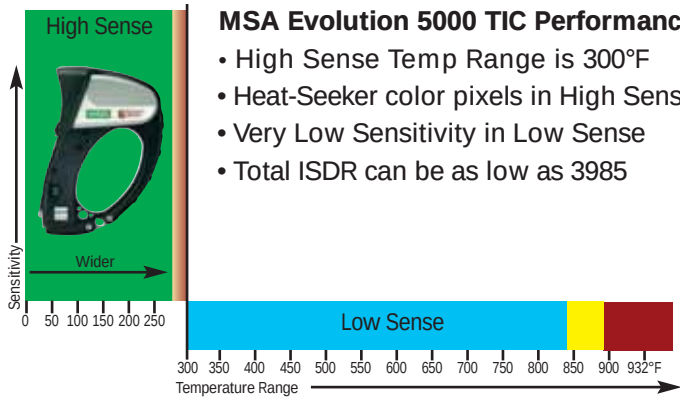


Standard TIC Performance

- High Sense Temp Range below 200°F
- No Heat-Seeking color in High Sense
- Very Limited Sensitivity in Low Sense
- Total ISDR can be as low as 1600

Standard TIC Performance – The limited High Sense temperature range on most TICs means that high image quality is lost well before 200°F. Low Sense then becomes the standard operating mode, using only about 12% of the total available sensitivity. In addition, most TICs lack Heat-Seeking color in High Sense mode, an important tool in determining the presence and direction of a fire.

1. The Evolution 5000 TIC's High Sense mode (green block) matches the 300°F range in structural fires.
2. Heat-Seeking color (yellow and red in green block) in High Sense mode is a safety feature, providing information on the direction of the fire at lower temps.
3. Evolution 5000 TIC's wider High Sense Temperature Range more than doubles the total ISDR to 3985.
4. Evolution 5000 TIC's yellow and red shows color temperature differences in both High and Low Sense mode.

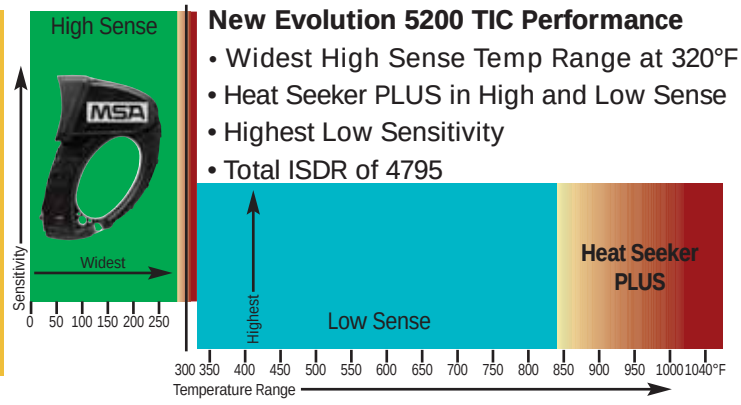


MSA Evolution 5000 TIC Performance

- High Sense Temp Range is 300°F
- Heat-Seeker color pixels in High Sense
- Very Low Sensitivity in Low Sense
- Total ISDR can be as low as 3985

MSA Evolution 5000 TIC Performance – MSA's Evolution 5000 TIC, introduced in 2003, was the first Firefighter and Emergency Response TIC to provide a full 300°F temperature range in High Sense mode. That made High Sense mode the standard operating mode, giving Firefighters the safety of 100% of available sensitivity. The Evolution 5000 Low Sense mode performance is the same as that found in Standard TICs.

1. The Evolution 5200 TIC High Sense mode (green block) has the widest High Sense Temperature Range at 320°F
2. The Evolution 5200 TIC has the highest Low Sense mode (blue block), with more than double the sensitivity for better image quality
3. The Evolution 5200 TIC's total ISDR is 4795. (Comparisons based on competitors' published specs and the ISDR calculation of °C Temperature Range/mK Sensitivity.)



New Evolution 5200 TIC Performance

- Widest High Sense Temp Range at 320°F
- Heat Seeker PLUS in High and Low Sense
- Highest Low Sensitivity
- Total ISDR of 4795

Evolution 5200 TIC Performance – MSA's Evolution 5200 TIC delivers High Sense image quality up to 320°F, providing additional "head room" and more Heat-Seeking color in the temperature range found 80% of the time in most structural fires. In addition, MSA has increased sensitivity in its Low Sense mode to provide better Low Sense image quality. Shaded color in both High and Low Sense is Evolution 5200 TIC's new Heat Seeker PLUS.

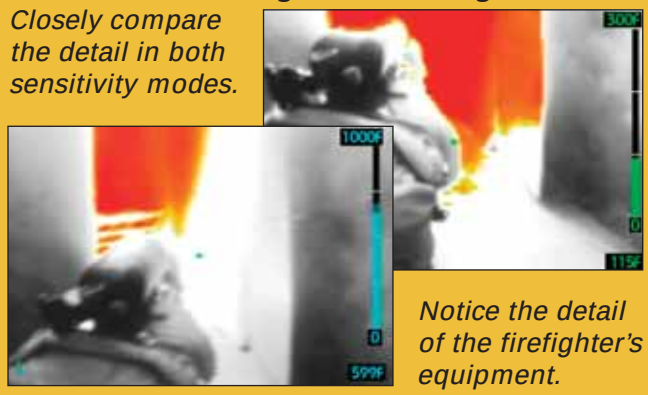
Image is Everything! (Image Quality and Heat Seeker PLUS)

Detailed Imagery in Either Mode

The image on the far right shows the Evolution 5200 TIC's High Sense mode (indicated by green temperature symbols). The lower-left image depicts the Evolution 5200 TIC Low Sense mode (blue temperature symbols). Look closely at these two images. With MSA, both the High and Low Sense scenes show a detailed image — a result of the Evolution 5200 TIC's expanded performance in both modes. The Evolution 5200 TIC has *twice* the sensitivity of any other Fire Service TIC, including the MSA Evolution 5000 TIC. The result is imagery that offers more detail in either mode.

Evolution 5200 High Sense Image

Closely compare the detail in both sensitivity modes.



Notice the detail of the firefighter's equipment.

Evolution 5200 Low Sense Image

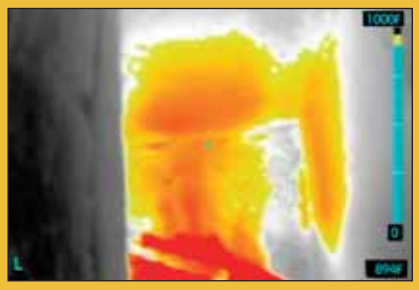
Evolution 5200 Heat Seeker PLUS

The High Sense image (below left) shows added detail through the use of the Evolution 5200 TIC's new Heat Seeker PLUS shaded color pixels. The pixels begin to display color when the temperature of an object exceeds 275°F in High Sense mode.

Notice the clear separation of the doorway, walls and ceiling. The same detail is also available in Low Sense mode (as seen below right), where the shaded color pixels show details when object temperatures reach 842°F.

Here are two more High and Low Sense images for comparison.

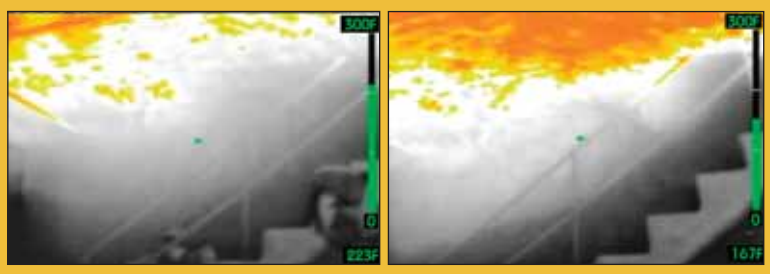
Heat Seeker PLUS in High Sense mode



Heat Seeker PLUS in Low Sense mode

Heat Seeker PLUS as a Safety Tool

The first image on the right shows how Heat Seeker PLUS in High Sense Mode indicates the direction of a fire. The shaded coloring also suggests the changing temperature levels, seen in the second image on the right, where the thermal curtain begins to drop.



Heat Seeker PLUS showing Fire Scene Progression

Not every TIC offers heat-seeking color. Most TICs only have Heat-Seeking color in Low Sense mode, set to activate at about 900°F. On those TICs, this important safety feature is available only during situations with very high heat. There are many applications for Heat-Seeking color at lower temperatures where hot objects can potentially cause trouble.

Heat Seeker PLUS is available in both High Sense and Low Sense mode on the Evolution 5200 TIC. Heat Seeker PLUS in High Sense mode is especially helpful in applications where ambient temperatures are not yet extreme – but heat is rising. In those conditions, Heat Seeker PLUS can indicate the direction to the source of the fire. Heat Seeker PLUS in High Sense mode can also quickly find an overheated electrical component, such as a bad ballast.

Heat Seeker PLUS shaded color, combined with the clarity and definition of High Sense mode, enhances safety and gives the Evolution 5200 TIC even more versatility as a fireground tool.

What About TIC Durability and Reliability?

How do you know that a TIC will survive the drops, bumps, dunks, vibration, high heat and direct flame that Firefighters and Emergency Responders face every day? Is the TIC durable? Can you depend on it?

What about TIC standards?

Currently there is not a specific Fire Service TIC Standard. What is available to all TIC manufacturers, though, are the Fire Service, Mil Spec, Federal and International standards developed for existing similar Fire Service and Emergency Response equipment. These standards cover dropping, dunking, RFI, vibration, and exposure to high heat and direct flame. It is obvious from these existing standards what Firefighters and Emergency Responders should expect when it comes to TIC durability and reliability.

MSA designs and tests Evolution TICs to existing standards that include:

Water/Dust Ingress . . . . . International Standard CEI, IEC 529, IP 67 Classification
Direct Flame/Heat Exposure . . . . . Simulated NFPA 1981–2002 Edition, NFPA 1982-1998 Edition
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

TIC manufacturers' product specifications generally disclose which of the existing Fire Service standards they have designed their TICs to pass, and how the tests are conducted. Check and compare TIC product specifications for more information.

Lower Cost – Higher Value

As Fire Service TICs become more affordable, MSA continues to add value through increased performance, improved image quality and new features — while at the same time lowering both initial and lifetime costs. An example of improved quality in the new Evolution 5200 TIC involves its increased temperature tolerance (the level of heat the TIC can withstand), which in turn increases the Evolution 5200 TIC's operating time in high heat by 60% to 100%.

Additionally, when the Evolution 5200 TIC is ordered with the optional Heat-Seeking color feature, the new shaded color of Heat Seeker PLUS is included at no additional charge. Likewise, when the optional Quick Temp feature is ordered, Digital Temperature Measurement (DTM) is also included at no additional charge.

The Evolution 5200 TIC also includes these safety features at no additional charge:

1. **Warnings are always displayed prior to shutdown for any reason.**
2. **No Accidental Shut Off – TIC has a shut-off delay and warning.**
3. **Over-Temp Warning automatically activates when the TIC is exposed to excessive heat.**
4. **Shutter Indicator is triggered prior to the microbolometer sensor shuttering.**
5. **Battery Usage Indicator clearly alerts pending TIC shutdown.**
6. **Lithium Ion batteries are reliable and long-lasting with no memory build up.**
7. **The Evolution 5200 is resistant to Radio Frequency Interference (RFI), to better prevent shutdown.**
8. **An RFI Shell surrounds the TIC's electronics with a continuous ground.**
9. **TIC features Instant Start Up and Instant Mode Switching.**
10. **TIC lens FOV (Field of View) is 55° — for wide-area viewing without panning.**

Evolution 5200 TIC Accessories

The Evolution 5200 TIC can transmit images to a remote location either via a hard-wired connection or through a Transmitter and Receiver Kit. Every Evolution 5200 TIC comes with a BNC hard-wire adapter that can be attached when needed, as shown below.

BNC Hard-Wire Adapter

The Evolution 5200 TIC utilizes the Evolution 5000 TIC Series Transmitter. At 450mW, it's the highest-powered TIC transmitter available. Two Receiver Kits are also available — the low-cost Mini Receiver Kit for use with your own monitor, and the Deluxe Receiver Kit with a large 12'' monitor built right into its protective case.

Deluxe Receiver Kit

For more information on accessories for the Evolution 5200 TIC, visit *MSAFire.com* or call 1-877-MSA-FIRE.

Mini Receiver Kit and Transmitter

Battery Management on the Evolution 5200 TIC is simplified by the use of a 2+ hour commercially available camcorder battery. The Evolution 5000 TIC Series Truck Mount Charger is also available, which charges the in-camera battery and a spare.

Evolution 5200 TIC Battery

Evolution 5000 Series Truck Charger

The Evolution 5200 TIC and 5000 TIC both employ the same retractable lanyard. Additional accessories (such as wrist- and shoulder-strap lanyards, display covers and desk charges) are also available.

Evolution 5200 TIC Temperature Measurement Feature

Temperature Measurement is a popular feature on most Fire Service and Emergency Response TICs. It is both a safety feature and a valuable tool with many applications. it measures the temperature of an object targeted in the crosshairs on the display. The temperature reading is then displayed on a temperature bar graph or as a digital number — or both ways, as on the Evolution 5200 TIC.

Temperature Bar Graph: As the temperature of the object in the crosshairs increases, the bar graph fills like a thermometer. The bar graph is a real attention-getter, especially when the thermometer starts "jumping." Some TICs use the same bar graph to show temperature measurement in both High and Low Sense mode – even though their temperature ranges differ. The Evolution 5200 TIC's bar graph adjusts its temperature increments automatically to the correct High and Low Sense temperature range for easier reading and interpretation.

High Sense Mode Temp Bar with DTM

Low Sense Mode Temp Bar with DTM

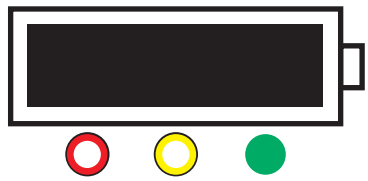
Digital Temperature Measurement: The Evolution 5200 TIC also displays its temperature reading as a digital number to provide more accurate temperature information that is easier to register and compare. This is helpful in applications where knowing the temperature difference is crucial (Example: monitoring rising heat or in a HAZMAT situation).

Evolution 5200 TIC Answers the "New TIC" Training Issue:

As Fire Service TIC use expands, TIC Operation and Use Training is a growing issue. Until now, almost every new TIC had its own unique way of displaying information such as temperature measurement, remote transmitter activation, over-temp warnings and other TIC functions.

MSA has designed the new Evolution 5200 TIC with consistency of training built in. Fit, form and function are the same as the Evolution 5200 TIC's predecessor, the popular Evolution 5000 TIC. The symbols and warnings are the same; color indicators are the same; and operation of both the new Evolution 5200 TIC and the Evolution 5000 TIC remains the same. This makes training easier and simpler for existing Evolution 5000 TIC Departments that will now begin using the new Evolution 5200 TIC. It is also helpful in Mutual Aid situations.

Battery Gauge



*Example: Both the MSA Evolution 5000 TIC and the **New** Evolution 5200 TIC use the same Battery Gauge Indicator to show remaining battery usage, as shown above.*

New from MSA – Department ID Labels:

These HIGHLY REFLECTIVE write-on labels make TIC accountability easier and provide additional reflectivity on the top and sides of your Evolution 5200 TIC. Each label kit contains five sets of four labels in bright red, orange, yellow, green and blue. Labels can easily be written on with a permanent marker.

Professional TIC Training

Expert training on TIC operation and use goes a long way in developing a solid understanding of a TIC's SAFETY functions. MSA Distributors can recommend TIC training programs from independent and objective organizations to help meet or supplement your department's TIC training needs.

Fire. There's a new standard in safety and we are defining it. Every day.

NEW Evolution® 5200 Heat Seeker PLUS

Take the Next Step Up – in TIC Performance and Safety.

The Evolution® 5200 Thermal Imaging Camera delivers *"next generation" performance,* along with ***exclusive features*** available only from MSA.

High Performance Safety:

- 320˚F High Sense mode* range gives **high image definition** over the **widest temperature range** of any Firefighting TIC.
- Twice the Low Sensitivity* in the 320˚ to +1000˚F temperature range, compared to all other Firefighting TICs - for **great Low Sense imaging!**

*Most TICs generate thermal images in either High Sense or Low Sense mode, depending on the temperature of the scene. High Sense mode delivers the best image quality – but has a limited temperature range. Low Sense mode trades image quality for a wider temp range to keep the TIC working in high heat conditions.

MSA Be Sure. Choose MSA.

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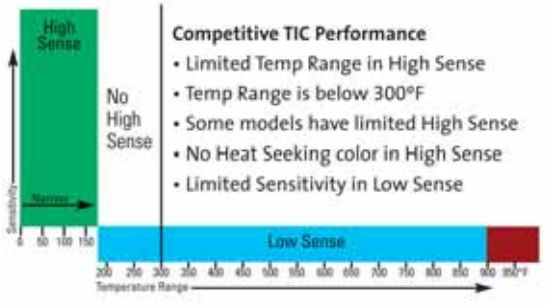

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