

ISG

Thermal Systems USA, Inc.



OPERATING MANUAL

CONTENTS

COMPANY BACKGROUND	3
1. SPECIFICATIONS	6
2. SYSTEM COMPONENTS	7
3. OPTIONAL ACCESSORIES	7
4. CHARGING THE BATTERIES	8
5. FAST ATTACK TRUCK CHARGER	9
6. OPERATOR CONTROLS	10
7. WARNING AND INFORMATION SYMBOLOGY	10
8. DIGITAL DIRECT TEMPERATURE (DDT)	11
9. COLOR COMPARATOR BAR	11
10. EMISSIVITY AND ITS EFFECTS ON DDT	12
11. FITTING ACCESSORIES	14
12. DIGITAL FRAME CAPTURE (OPTIONAL)	14
13. WIRELESS VIDEO TRANSMISSION	15
14. CLEANING AND MAINTENANCE	16
15. REPAIR PROCEDURE	17
16. WARRANTY INFORMATION	18
IMPORTANT EXPORT INFORMATION	19



WARNING

Read and understand all instructions prior to using this product. Any tampering and/or disassembly of the thermal imager will void all warranties and could cause equipment damage. Maintenance and/or repairs beyond those described herein shall only be performed by an authorized ISG Service Center. Failure to observe this information could result in death or serious injury.

COMPANY BACKGROUND

Your imager was designed and manufactured by ISG, the world's leading firefighting thermal imaging supplier. ISG system design engineers are specialists in the complex firefighting IR application and custom design the driving electronics and sensor support systems specific to the firefighting application.

With over 100 combined years of engineering experience designing and manufacturing firefighting thermal imagers, and thousands of imagers installed in the most progressive departments worldwide, you are assured of only the highest quality and reliability.

ISG Thermal Systems USA, Inc.

305 Petty Road
Lawrenceville, GA 30043
USA

Toll Free: (877) 733-3473
Fax: (678) 442-1295
URL: www.isgfire.com
Email: info@isgfire.com



WARNING

Thermal imaging is not a technology designed to replace current firefighting tactics. Thermal imaging is a tool that allows a firefighter to be more effective and make better decisions. Failure to observe this information could result in death or serious injury.



WARNING

Users of thermal imagers, regardless of brand or type, are required to read the operating manual prior to using the imagers.

The ISG K1000 ELITE Thermal Imager is not life support equipment and should not be used as such.

1. All users must be thoroughly trained on the K1000's proper operation, features and full functionality prior to use. This includes general understanding of thermal images and how they are interpreted. Improper use of the equipment in a hazardous atmosphere could result in death or serious injury.
2. The K1000 ELITE Thermal Imager must only be used by personnel familiar with the uses, proper operation, features and full functionality of the product, including uses in simulated fire conditions such as controlled live burn situations. Use of the K1000 by unauthorized, unfamiliar or untrained users could result in death or serious injury.
3. The K1000 ELITE is a complex electro-optical device, and just like any other machinery, electronic systems are subject to potential failures. If a failure occurs, the user will no longer have access to the special thermal images provided by the K1000 ELITE. Tactical use of this equipment must not deviate from standard operating procedures used by personnel who do not have the benefit of the equipment.
4. Failure to follow standard operating procedures in a hazardous atmosphere could result in death, serious injury or disorientation should equipment failure occur.
5. The K1000 ELITE must be serviced only by authorized personnel. The K1000 ELITE includes high voltage components. Removing the cover causes a potential shock hazard which if not avoided, could result in death or serious injury. Never remove the cover.
6. The K1000 ELITE will not provide images through glass, water, or shiny objects. These surfaces act like mirrors to the system.
7. The K1000 ELITE will not provide thermal images underwater.
8. Users should be conscious of the battery life. Only enter a hazardous environment when a full battery charge is indicated on the battery charge indicator.
9. The K1000 ELITE is not rated as "Intrinsically Safe". Do not use the system in environments or atmospheres where static or a spark will cause explosion.



WARNING

10. Repeated exposure to high temperature environments without adequate periods for the unit to self-cool may result in degradation, loss of the thermal image or damage to the internal components. Be sure to allow adequate cool-down periods between high temperature exposures.
11. Exposure to high temperature environments for an extended period of time may result in degradation or loss of the thermal image. Be sure not to overexpose or heat saturate the equipment beyond the design tolerances of the system.
12. The service life of the K1000 ELITE depends in part on how it is used and the environmental conditions in which it is used. Under heavy usage, or under extreme environmental conditions, the service life of the equipment may vary.
13. Batteries supplied with the K1000 ELITE have been selected based on specific performance values. Replacement batteries must be obtained ONLY from an Authorized ISG Service Center.
14. The K1000 ELITE incorporates special automatic electric temperature control systems. Run time on each battery may decrease slightly when used in cold temperature environments.
15. It is important to test the K1000 ELITE and any other associated accessories often to ensure that the equipment is functional before entering a hostile environment. Always perform a visual check on the equipment to validate that it has not been damaged or degraded prior to use.
16. Never use the K1000 ELITE as the sole source of navigation. If system failure occurs, you may become disoriented or lost in a hostile environment which could result in death or serious injury.
17. Failure to exit a hostile environment immediately on observation of the low battery warning may result in system failure in a hostile environment which, if not avoided, could result in death or serious injury.
18. The K1000 ELITE provides a thermal image in normal vision impairing conditions. The user could become distracted from safety precautions and protocols, leaving a partner out of the communications range of the incident command structure which could result in death or serious injury.
19. While every effort has been made to ensure that your K1000 ELITE is both tough and reliable, the camera is a sophisticated electro-optical system that will fail if it is abused or exposed to environments beyond its design envelope.

Failure to observe these warnings could result in death or serious injury.

1. SPECIFICATIONS

Physical Characteristics

Weight (nominal):	2.6 lbs.
Dimensions:	5.4 x 6.5 x 4.5 inches
Shell Material:	Radel R
Handstrap Material:	Kevlar

Infrared Characteristics

Detector:	VOx Uncooled IR Microbolometer
Spectral Response:	8 μ m to 14 μ m
Total Sensor Resolution (pixels):	76,800
Dynamic Range:	Over 2000°F in Thousand Plus Mode
Focus Range:	Automatic, 1.0m to infinity
IR Protection Window:	Yes
Sensitivity:	50mK nominal
Field of View:	50°

Electrical Characteristics

Video Standard:	NTSC, (American TV Standard Compatible)
Controls:	Power On/Off Transmitter or DFC On/Off (if fitted)
Image Optimization:	Automatic, No operator adjustment required
Sleep Mode:	Not Required
Start Up Time:	5 Seconds (nominal)
Battery Technology:	Rechargeable NiMH
Recharge Cycles:	500+
Recharge Time:	2.5 Hours (nominal)

Display Characteristics

Technology:	AMLCD
Size (Diagonal):	3.5" (90mm)
Display Resolution (pixels):	320 x 240

Operational Characteristics

SuperCell Battery	~3 Hours
Extended SuperCell Battery	~5 Hours
Sub-zero Start Up:	Yes, Camera will power up below 32°F
Cold Climate Compensation:	Not Required
Operating Temperature:	5°F to ~840°F (- 15°C to ~450°C)
Water Resistance:	IP 67, 3' 3" (1.0m) depth
Contaminant Resistant:	Yes
Drop:	6 feet

2. SYSTEM COMPONENTS

Your K1000 ELITE comes complete with the following:

- K1000 ELITE Thermal Imager
- 2 SuperCell Batteries
- Battery Conditioning Charger
- Operating Manual on CD
- Shipping Container



3. OPTIONAL ACCESSORIES

The following (optional) accessories are available.

- Extended SuperCell Battery
- Fast Attack Truck Charger
- Hard Shell Carrying Case
- Breakaway Lanyard
- Retractable Lanyard
- Detachable Pistol-Grip Handle



See page 14 for instructions on fitting optional accessories.

4. CHARGING THE BATTERIES

Note: This process applies to both the SuperCell and Extended SuperCell Batteries.

Note: For first time use, allow new batteries to remain in the charger for approximately 14-16 hours.

1. Plug the AC adapter into a 110V AC wall outlet.
2. Insert the 2.1mm plug into the charger base. The charger will be in standby mode and the **RED** LED will flash.
3. Align the battery with the battery receptacle as illustrated. Firmly insert the battery into the charger. The **GREEN** LED will flash indicating the battery is charging.



*Note: If the **RED** LED continues to flash with the battery installed in the charger, this is an indication that either the battery is not making connection or that the battery is not capable of holding an adequate charge to operate the camera for any length of time.*

*ISG batteries and chargers have a **90 day warranty**. In the event that the batteries are not charging, call ISG immediately.*

4. When the battery is fully charged, the **GREEN** LED will stay illuminated indicating that the battery is charged and is in maintenance mode.

Note: You cannot 'overcharge' the Battery.

5. Firmly insert the battery into the camera until a 'click' is heard or pull on the battery to ensure proper seating.

4.1. Removing the Battery

Simultaneously and firmly press the battery release catches located on either side of the camera. This action will release the battery pack and the pack will partially eject from the camera body. Remove the pack by gripping and sliding it out of the camera body as illustrated.



4.2 AA Battery Adapter

1. Push button to eject battery cell holder.
2. Remove old batteries cells and insert new cells as per markings on cell holder.
3. Slide battery cell holder into cassette body until it clicks into position.



*Note: Use **ONLY** brand new, high quality, AA alkaline cells.*

CAUTION

Failure to install new or replace old cells per the instructions may result in minor or moderate injury and/or product damage.

*The AA Battery Adapter is **NOT** a sealed unit. After each use, immediately remove all batteries from the holder and verify no moisture is present. Clean and dry as necessary. Failure to observe these instructions may result in minor or moderate injury and/or equipment damage.*

5. FAST ATTACK TRUCK CHARGER (OPTIONAL)

5.1. Installation

The Fast Attack Truck Charger (FA) is designed to be mounted to a solid and secure surface inside of a vehicle using bolts or screws with washers no smaller than size #12. To install the FA, utilize the four, ¼ inch holes that are in the bottom of the unit. You can orientate the charger in either of two directions to allow for better visibility of the LED charge indicator.

5.2. Connecting Power

The FA was designed to operate with standard 12 volt automobile current. Attach the positive RED wire on the power cable to 12 volt DC + POSITIVE and the BLACK wire to 12 volt DC – NEGATIVE (GROUND). There is a 4 amp AGC fuse protecting the power circuit. The Fast Attack will be in standby mode and the RED LED will flash.

CAUTION: NEVER ALLOW METAL OBJECTS TO TOUCH THE CHARGING CONTACTS. ELECTRICAL SHOCK OR COMPONENT DAMAGE MAY OCCUR!

5.3. Inserting and Charging Camera

Insert the camera into the FA as shown .

After inserting the battery into the camera, place the camera into the FA as shown. The GREEN LED will flash indicating the camera battery is charging.

When the camera battery is fully charged, the GREEN LED will stay illuminated indicating that the camera battery is charged and is in maintenance mode. If RED LED continues to flash, see notes on CHARGING BATTERIES opposite this page.

ALWAYS SECURE THE CAMERA IN PLACE. Proper fastening of the camera will secure it in the event of a roll-over.



5.4. Auxiliary Battery Holder

An Auxiliary Battery Holder (ABH) is also included and may be used if you desire to keep a spare battery charged and ready with the camera. The ABH is designed to be attached to the tall rear wall of the main body of the Fast Attack assembly as shown in the photos provided. ALWAYS POSITION THE BOLTS SO THAT THE HEAD OF THE BOLT FACES THE CAMERA.



After attaching the Velcro tabs provided, place the battery charger into the ABH. Connect the auxiliary cable by placing the RED end into the charger. The FA has a power outlet that supplies regulated voltage to the additional battery charger. A twelve (12) volt automobile current **will not** allow the charger to operate correctly and may damage the charger.

ALWAYS SECURE THE BATTERY IN PLACE BY USING THE ELASTIC STRAP PROVIDED. The elastic strap is designed to hold the battery and spare charger securely in the event of a vehicular roll-over, and should be replaced if it loses its elasticity. This strap will also keep the battery from moving while the vehicle is in motion, thereby causing the charger to constantly re-initialize.

6. OPERATOR CONTROLS

6.1. Switching the Thermal Imager On and Off

To switch the unit **On**, press and hold the **RED** POWER button until the logo appears on the thermal imager display. Immediately release the **RED** POWER button.

Once the camera is on, the electronic shutter and iris will automatically evaluate the scene to give continuous and updated thermal information to the viewer. This will produce a clicking sound. This is a normal function for the ELITE.

To switch the unit **Off**, press and hold the **RED** POWER button until a message appears on the screen. Immediately release the **RED** POWER button.



7. WARNING AND INFORMATION SYMBOLOGY

Your K1000 ELITE is fitted with a sophisticated information and warning system.

7.1. Battery Charge State

The Charge State of the battery is indicated by the ten moving bars located on the lower left hand side of the Display as illustrated.

7.2. Low Battery Warning

In addition to the Charge State indicator, a separate low battery warning "LOW" appears on the screen as illustrated.

The "Battery Low" indicator will appear when three battery bars are remaining.



WARNING

Failure to observe any of the low battery warnings and properly getting to a safe location upon notification, could result in death or serious injury.

8. DIGITAL DIRECT TEMPERATURE (DDT)

The DDT provides the average relative (or “observed”) temperature of an object, or objects within the crosshairs. The relative temperature is displayed in numerical form in the upper right hand corner of the viewing screen.

DDT is operational at all times and cannot be switched on or off.

The accuracy of the relative temperature is affected by many factors, including the “emissivity” of the object. An object’s emissivity is its ability to either absorb or reflect heat energy. The better the characteristic to absorb heat (the higher the emissive value), generally the more accurate the temperature reading.

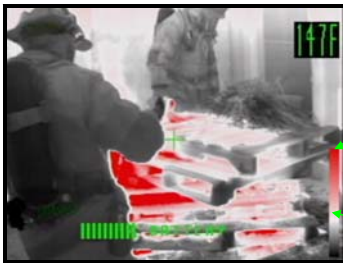
NOTE: See more on DDT in Section 10.



9. COLOR COMPARATOR BAR

In addition to the Direct Digital Temperature (DDT), the Color Comparator Bar (CCB) allows the user to estimate temperatures using the relative hue of colorization in the scene. The CCB is displayed at the right side of the screen below the DDT symbology. The bar has two sensitivity modes. In **high** sensitivity mode, the bar is black to grey to red. In the **Thousand Plus** mode (EI+), the bar is black to yellow to red. Initial yellow is indicative of temperatures around 500°F.

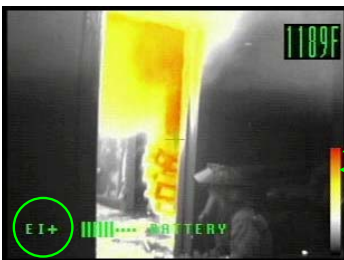
Using the DDT crosshairs and the color bar on the right side of the screen gives the user tactical tools for relative hue and temperature comparison.



HIGH SENSITIVITY MODE

Top of RED is approx. 450°F

The bottom of RED is approx. 150°F



THOUSAND PLUS MODE

Top of RED is approx. 2,000°F

Beginning of RED is approx. 1,000°F

Beginning of YELLOW is approx. 500°F

Electronic Integration icon will appear.

10. EMISSIVITY AND ITS EFFECTS ON DDT

The DDT provides the average relative (or “observed”) temperature of an object, or objects within the crosshairs. The relative temperature is displayed in numerical form in the upper right hand corner of the viewing screen.

The accuracy of the relative temperature is affected by many factors, including the “emissivity” of the object. In short, an object’s emissivity is its ability to either absorb or reflect heat energy. The better the characteristic to absorb heat (the higher the emissive value), generally the more accurate the temperature reading.

The DDT installed in the K1000 ELITE assumes an emissivity of 0.95. That is, for objects with emissivity of 0.95, the DDT will return temperature readings accurate to within 10% of the actual temperature. The value of .95 was chosen because most objects found in normal, traditional structural firefighting environments will have an emissivity value close to 0.95. This will give the firefighter the most accurate average temperature possible, under these conditions.

However, when looking at shiny objects such as chrome, unpainted aluminum, unpainted stainless steel, and other metals, the DDT temperature readings can be significantly distorted. (For painted objects, the emissivity of the paint, rather than the emissivity of the actual material should be considered.) When the temperature of metal objects are being estimated using DDT, it is important to note that painted metal objects generally return a much more accurate temperature readout than unpainted metals.

The cross-tabulation in the tables following will give the user a general idea of the effective (real) temperature versus the observed temperature, given varying emissivity levels. The higher the material’s emissivity, the more accurate the DDT reading will be.

Actual vs. Displayed Temperatures for Differing Emissivity

Temperature of Surrounding 70°F

		<u>Displayed temperature, deg F</u>													
		0	20	40	60	80	100	150	200	300	400	500	600	800	1000
<u>Actual Source Emissivity</u>	0.1					104	231	423	563	793	996	1187	1373	1736	2093
	0.2				-32	88	166	306	416	602	769	929	1084	1388	1688
	0.3			-110	10	82	139	251	344	507	656	798	938	1211	1481
	0.4		-155	-40	27	79	124	218	300	446	583	714	843	1096	1348
	0.5	-172	-72	-11	36	77	114	196	269	403	530	653	774	1013	1250
	0.6	-89	-37	6	43	76	108	179	246	371	490	606	721	949	1175
	0.7	-53	-16	16	47	75	103	167	228	345	458	569	678	897	1114
	0.8	-31	-3	24	50	75	99	157	214	324	431	537	643	853	1063
	0.9	-16	7	30	52	74	96	149	202	306	409	511	613	816	1019
	1	-5	15	34	54	74	93	143	192	291	389	488	587	784	981

10.1 Typical Emissivity Values

Material (metal)	Emissivity	Material (non-metal)	Emissivity
Aluminum		Asbestos	0.95
Un-oxidized	0.02 – 0.1	Asphalt	0.95
Oxidized	0.2 – 0.4	Brick	0.90 – 0.98
Roughened	0.1 – 0.3	Ceramic	0.95
Brass		Clay	0.95
Burnished	0.3	Concrete	0.95
Oxidized	0.5	Cloth	0.95
Copper		Glass (plate)	0.85
Polished	0.03	Gravel	0.95
Roughened	0.05 – 0.1	Ice	0.98
Oxidized	0.4 – 0.8	Limestone	0.98
Iron		Paint	0.90 – 0.99
Un-oxidized	0.05 – 0.2	Paper	0.95
Oxidized	0.5 – 0.95	Plastics (opaque)	0.95
Rusted	0.5 – 0.7	Rubber	0.95
Steel		Sand	0.90
Cold-rolled	0.7 – 0.9	Snow	0.90
Ground sheet	0.4 – 0.6	Soil	0.90 – 0.98
Polished	0.1	Skin (human)	0.95 – 0.98
Oxidized	0.7 – 0.9	Water	0.93
Stainless	0.1 – 0.8	Wood (natural)	0.90 – 0.95



WARNING

When looking at shiny objects such as chrome, unpainted aluminum, unpainted stainless steel, and other metals, the DDT temperature readings can be significantly distorted. It should be noted that when viewing a fire scene, DDT is measuring the temperature of an object and NOT the air temperature. Failure to observe this warning could result in death or serious injury.

11. FITTING ACCESSORIES

11.1. Lanyard (optional)

To connect the Lanyard, attached the bottom end to the camera's 'D' ring on the rear of the K1000 ELITE camera as illustrated.



11.2. Adjusting the Hand Straps

The hand-straps are adjusted by peeling back the Velcro® fold-over flap, releasing and adjusting the strap to suit your needs and replacing the fold-over flap to secure the straps in the chosen position as illustrated.

11.3 Pistol-Grip Handle (optional)

1. To install an optional Pistol-Grip handle, match the two attachment ports on the camera with the male side attachments on the handle. Slide the handle into place. You should hear and feel the handle lock in. **IMPORTANT: DO NOT** use the handle unless you've determined you have positively locked it in place.
2. To unlatch the handle, unlock the positive mechanism by sliding the lock tab down and sliding the handle off the camera.
3. To adjust the fit, tightened or loosened the two screws located on the connecting side to your preference.



PISTOL-GRIP



CAUTION

Failure to install the TAC-Grip handle per the instructions may result in minor or moderate injury and/or product damage during camera use.

12. DIGITAL FRAME CAPTURE (OPTIONAL)

ISG's Digital Frame Capture option allows firefighters to capture up to 500 BMP images in the camera's memory.

To save an image to memory, press and release the **YELLOW** button. The screen will hold the image about 1 to 2 seconds. After 1 to 2 seconds, the camera will automatically return back to live thermal imaging. The **GREEN** light will flash while the image is being saved. You will not be able to save another image until the **GREEN** light stops flashing.

To view the last captured image, press the **RED** button and the **YELLOW** button **at the same time** until the viewing screen appears. To **BROWSE** multiple captured images, press the **YELLOW** button to go *forward* and the **RED** button to go *back*. To return back to live thermal imaging press **both** buttons again.

12.1 Download and Delete Images

To download stored images remove the battery from the thermal imager. Inside the battery area is the camera's USB port. Plug one end of the camera's USB cable into this port and the other end into an available port on your PC. Click on the "My Computer" icon on your desktop. You should see an icon that says "Removable Storage" or "Removable Disk" "Drive X". (The drive letter can vary depending on the number of hard drives, CD drives, etc. installed on your PC.) By clicking on the "Removable Storage" icon, you can then view and transfer images from the camera to your PC.

When you are finished, you can then delete the images from the camera through the PC. The PC will recognize the camera as it would any other USB device.

13. WIRELESS VIDEO TRANSMISSION (OPTIONAL)

If fitted, the Video Transmitter is always OFF. To switch the Transmitter ON, press and hold the YELLOW button until the transmitter icon appears on the display screen. (See illustration). Immediately release the YELLOW button. To switch the Transmitter Off, press and hold the YELLOW button until the transmitter icon disappears.



13.1 Connecting the Receiver to a Monitor

NOTE: The video monitor typically used is a small TV or TV/VCR combination. The unit must have an RCA "Video IN" connector.

It is not possible to adapt to and use the "Cable" or "Antenna" input connector.

1. Plug the AC wall adapter or the 12 volt car cord into the receiver.
2. Connect one end of the 10 ft. antenna cable to the antenna, the other end to the receiver. The ends have different connector types and are not interchangeable.
3. Connect the supplied video cable to the receiver (BNC jack) and the video monitor (TV). Be sure the video cable's RCA connector is fitted to the "Video IN" jack of the monitor.
4. Plug the AC wall adapter into a suitable 120V AC wall outlet, or plug the 12 volt car cord into a 12 Volt DC accessory jack (cigarette lighter). The red LED should illuminate indicating power on.
5. The video monitor/TV should have the proper input selected. (*It will not be channel 3 or 4, etc.*) Typically it is "LINE", "LINE IN", "AUX", "L1", "R1", etc.
6. Power up the thermal imager and activate the video transmitter. Select the proper channel on the receiver and video should be displayed.

Your K1000 ELITE Thermal Imager may incorporate the optional features at time of order. These options may also be purchased and installed at any time after delivery.

Please call ISG to schedule any option upgrade.

14. CLEANING AND MAINTENANCE

Following use, the K1000 ELITE should ALWAYS be cleaned and inspected for damage.

1. Inspect all lenses for soot / dirt buildup. Clean if necessary.
2. Normal "intended use" scratches on ISG's high efficiency aspheric lens do not degrade picture quality, however chips may affect lens transmission. Inspect IR lenses for chips.
3. Inspect the unit for structural, heat, and/or chemical damage.
4. Inspect all battery contacts for damage.
5. Inspect battery charger.
6. Inspect all batteries and battery adapters for damage or leakage.
7. Check all switches including the battery charger for proper indication that systems are running correctly.
8. Inspect battery charger contact points for corrosion or damage.
9. Make sure battery charger is charging.
10. Inspect all lenses for heat or chemical damage, cracks and breaks.
11. Inspect the mechanical hardware to make sure no screws have loosened or have come loose.
12. Store your ISG Thermal Imager in the optional Fast Attack or in the delivery case provided.
13. The thermal imager should be cleaned using warm soapy water and nonabrasive cleaners. Allow the thermal imager to completely dry before replacing in its carrying case. **Note: Avoid solvents and abrasive cleaners.**
14. It is recommended that the display is treated with anti-fog solutions as used on SCBA/BA facemasks.
15. To ensure long service life, it is recommended that the thermal imager and its accessories are stored in temperate environment (58°F - 95°F, moderate humidity) at all times.



WARNING

Failure to observe these instructions may result in minor or moderate injury and/or equipment damage.



WARNING

In the event that any damage is detected (for example, cracked or broken window or housing) the imager should be IMMEDIATELY withdrawn from service and returned to an authorized service center for repair. Failure to observe this warning could result in death or serious injury.

15. RETURN AUTHORIZATION (RA)

Should our ISG Thermal Imager or Fast Attack ever be in need of repair, the following outline will speed the process of your request.

Note: Prior to returning the thermal imager, the device should be fully decontaminated. Non-decontaminated units will not be serviced by ISG.

1. First, locate the **SERIAL NUMBER (SN)**. Camera SNs are located inside the battery compartment. Fast Attack SNs are located on the bottom of the unit. *Keep these numbers available on file should the imager be in use.*
2. Call ISG to obtain an **RETURN AUTHORIZATION NUMBER** (877) SEE-FIRE or (678) 442-1234.

Please have all of the following information readily available when calling:

- The unit's Serial Number (i.e.. K1K- ; FA -)
- Department name
- Primary contact person
- Best available contact (cell or email)
- Physical shipping address (all cameras are shipped and tracked via FedEx)
- Detailed description of problem

When shipping a product back to ISG, if possible, place it inside its original shipping container. Be sure it is sealed appropriately. It is recommended that all accessories (batteries, charger) are returned as well for inspection.

Clearly mark the container with the RA Number on the **OUTSIDE** for proper processing.

Shipped directly to ISG, the Authorized Repair Center:

**ISG Thermal Systems USA, Inc.
305 Petty Road, Ste B
Lawrenceville, GA 30043**

Note: ISG will not be responsible for damages or losses incurred during shipping.

16. WARRANTY INFORMATION

ISG Thermal Systems USA, Inc. warrants the K1000 ELITE thermal imager to the original owner to be free of defects in material and workmanship under intended use and service for one year from the date of purchase. ISG's obligation under this warranty is limited to the replacement or repair, at ISG's option, of articles if returned to ISG in Georgia, or an authorized distributor, with shipping charges prepaid by the owner, and which, upon inspection by ISG, shall prove to have been defective in normal, "intended use" and service. Maintenance and field replaceable items (batteries, battery chargers, AC/DC adaptors, straps, display covers and all accessories), if defective, are covered under warranty for a ninety (90) day period.

This warranty does not apply to equipment malfunction or damage resulting from accident, alteration, misuse, or non-intended abuse of the equipment including, but not limited to, power surges, over exposure to heat, defective power supply, abnormal wear and tear or other perils outside the design tolerances of the system. In addition, this warranty does not apply to elastomer or rubber components since they can be adversely affected by undue exposure to heat, sun, water, ozone, or other deteriorative elements. The decision as to what constitutes normal use shall be made solely by ISG.

To maintain this warranty, the purchaser must perform maintenance and inspections as prescribed in the operation and maintenance manual which shall include prompt replacement or repair of defective parts.

This warranty is expressed in lieu of all other warranties, expressed or implied, and all other obligations and liabilities on ISG's part. ISG neither assumes nor authorizes any other firm or person to assume on ISG's behalf any liability in any way connected to the sale of ISG Products.

PLEASE RETURN THE BOTTOM PORTION OF THIS PAGE VIA MAIL, OR FAX TO:

WARRANTY SHEET FOR ISG K1000 ELITE

ISG Thermal Systems USA, Inc., 305 Petty Road, Ste B, Lawrenceville, GA 30043

Fax Number (678) 442-1295

SERIAL NUMBER: _____

DEPARTMENT NAME: _____

CONTACT NAME: _____

PHYSICAL ADDRESS: _____

CITY / STATE / ZIP: _____

PHONE: (_____) _____

ALTERNATE PHONE: (_____) _____

FAX: (_____) _____

IMPORTANT EXPORT INFORMATION

This infrared camera is considered dual-use military equipment and is export controlled under DOC CCL 6a003.

It is a criminal act to export this camera and any of its components thereof outside the United States without obtaining an approved export license from the US DOC, DOD or DOS.

If you wish to export these items, please notify ISG Thermal Systems USA, Inc. who will assist you in obtaining the proper export documentation.

NOTES

All Rights Reserved

ISG Thermal Systems USA, Inc.

305 Petty Road

Lawrenceville, GA 30043

USA

Toll Free: (877) 733-3473

Fax: (678) 442-1295

Web: www.isgfire.com

Email: info@isgfire.com

Issue E 2008