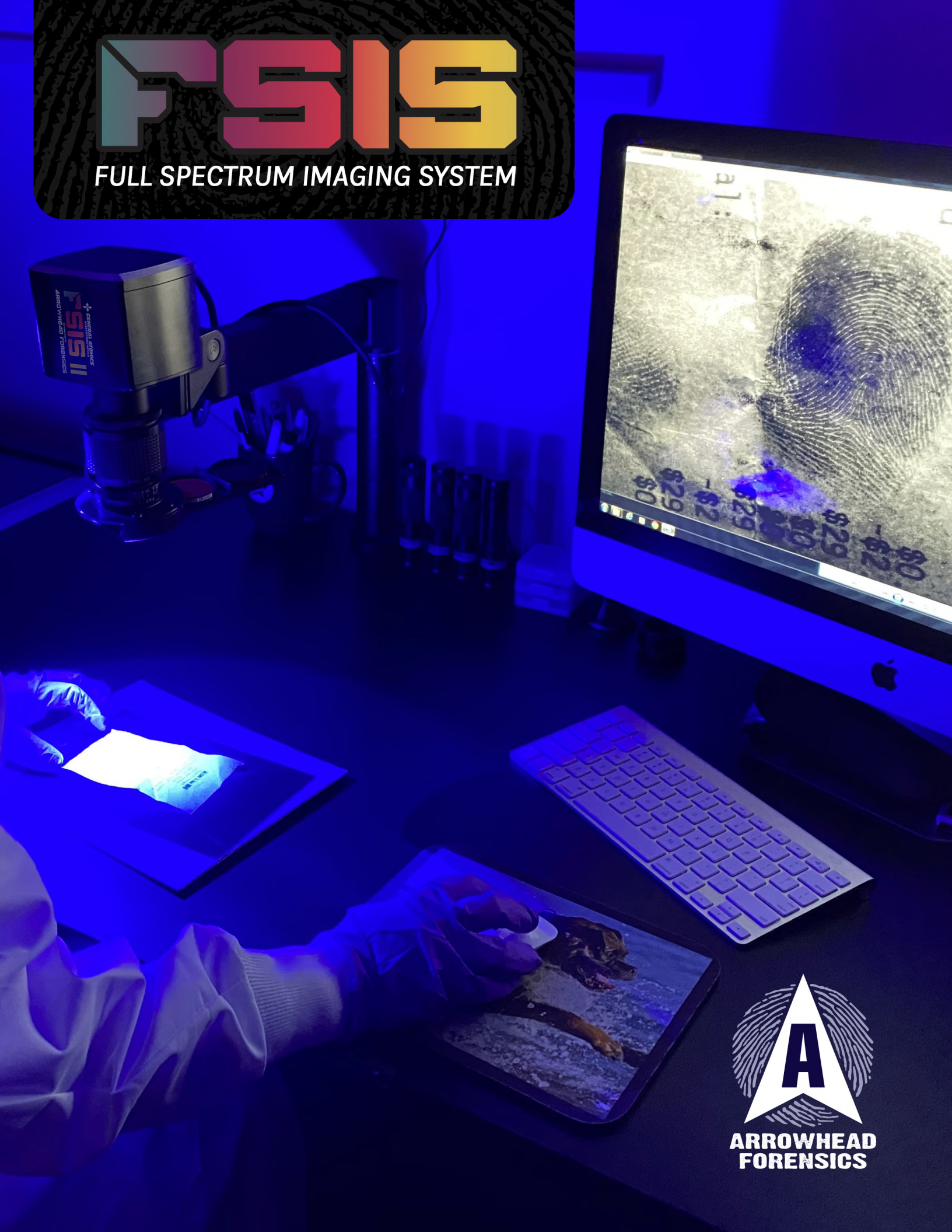


FSIS

FULL SPECTRUM IMAGING SYSTEM



**ARROWHEAD
FORENSICS**

To Whom it May Concern:

Thank you for your interest in the award winning Full Spectrum Imaging System (FSIS) family of products. The FSIS is a revolutionary camera system that was developed with the assistance of federal investigators. The task was taken on by Arrowhead Forensics to greatly improve the first generation Reflective Ultra-Violet Imaging System (RUVIS), a system that can only capture in one wavelength (254nm) with minimal resolution output. The FSIS camera can capture an image in the entire light spectrum from deep short wave UV (254nm) through real Infrared (1100nm).

The FSIS meets and exceeds the AFIS pixel per inch (PPI) requirement for latent print submission of 1,000 PPI by capturing an image up to 4,300 PPI. The first generation RUVIS systems require a separate camera to mount onto the RUVIS viewer and can capture a 1,000 PPI image in a 1" X 1" square. The FSIS system can capture a 1,000 PPI image in a 5.4" x 3.6" area (roughly the size of a palm), more than quadrupling the resolution size of RUVIS. We've combined the viewer, camera and light sources into a streamline, live view system with hands free photography.

Multiple types of evidence can be viewed and captured at the highest resolution available in forensics, including: untreated fingerprints, fumed fingerprints, dye-stained prints, biological specimens, blood, trace, GSR, altered documents and more.

Below you will find a detailed specification sheet highlighting the technical data of the FSIS systems. Also included in this packet is the sole source document stating Arrowhead Forensics is the only source to acquire the FSIS systems.

All available systems come equipped with the necessary interface cables, light sources, camera filters, computer hardware and software to complete the image capturing process in the full spectrum at the highest resolution in the industry.

This information is proprietary and company confidential. All information contained herein is designated for the receiver of this message only and may not be redistributed in any form without prior written consent from Arrowhead Forensics. Reference contact information can be made available upon request.

**ARROWHEAD
FORENSICS**

TEL: 800.953.3274 WEB: arrowheadforensics.com E-MAIL: sales@arrowheadforensics.com

AN INTRODUCTION

The Full Spectrum Imaging System (FSIS) is the most advanced forensic image capturing system in the world. Every aspect of the FSIS has been carefully designed to provide the only full spectrum imaging system able to capture at the highest resolution available. The FSIS features a patented 16MP digital camera with 50mm UV lens. With over 20 megapixels of resolution and sensitivity from 254nm to 1100nm, the FSIS can easily capture a full palmprint at 1000 ppi (pixels per inch), and micro evidence up to 4,300 ppi. No more looking for a latent fingerprint with a handheld RUVIS and then blindly photographing the evidence in order to get a high resolution image. No more green, grainy, low resolution images with a capture area limited to 1"x1" by the old RUVIS technology. The FSIS will digitally capture a high resolution image and display it in real time. The system begins with the patented camera and continues with the computer, an all-in-one Apple iMac with 27" 5K display running on Windows 10. The system's patented curved surface software is revolutionary. Now, evidence can be captured even on round or curved surfaces, such as a wine glass, using the integration feature. With a state of the art computer, a high sensitivity solid state camera, and software written specifically for capturing various types of evidence, the FSIS provides consistent sensitivity and sharpness in the UV, visible and IR spectrums.

Although the key feature is viewing and capturing untreated latent prints at a very high resolution, the FSIS isn't just for fingerprints. The large field of view (5.4" x 3.6"), high resolution (up to 4,300 ppi), and full spectrum capability (254nm - 1100nm) provide an extraordinary system to view and capture images of altered documents, urine, semen, saliva, blood, GSR, footwear, fumed prints, dye-stained prints and more. Forensic photography just got a lot easier because you can see and adjust the image real time and then capture the exact image seen on the screen. The FSIS is an amazing instrument that will maximize the efficiency and results of all criminalists who use it. There is no limit to the various types of evidence that can be processed using the FSIS. Put it to the test and request a demo today!

The exclusive series of Full Spectrum Imaging Systems (FSIS) from Arrowhead Forensics features the latest technology in forensic image capturing, processing and evidence collection. A project driven by the Federal Agency, the FSIS series will improve the workflow in photography of latent prints, trace evidence, questioned documents, impressions, and more. With an offering that suits both the laboratory and field examiner, there is an FSIS product that will benefit every agency. The FSIS Series is made up of 8 dynamic systems.



FSIS II
FSIS COLOR
FSIS

LAB | MOBILE | BACKPACK

UV RESULTS

EXHIBIT A

Patented paint-by-light curved surface software allows user to apply light to the desired area of evidence. Curved surfaces can now have an even application of light.



1 The evidence is the inside on untreated nitrile glove (curved surface).



2 Shortwave 254nm light, 254nm filter and paint-by-light function reveal fingerprints. Process time took less than 2 minutes.

EXHIBIT B

Images of latent prints on a credit card were developed with cyanoacrylate & revealed using a 254nm UV lamp & specialty UV filter (both included with the FSIS System).



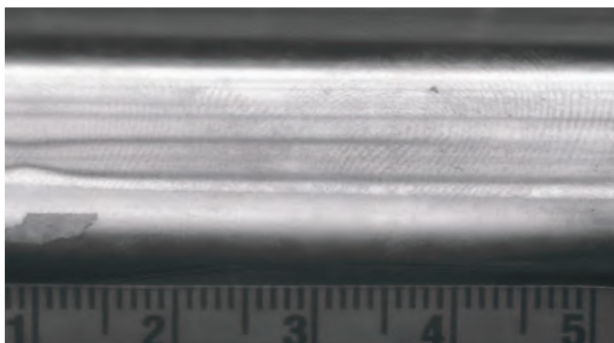
1 The evidence is a lightly fumed credit card with complex background.



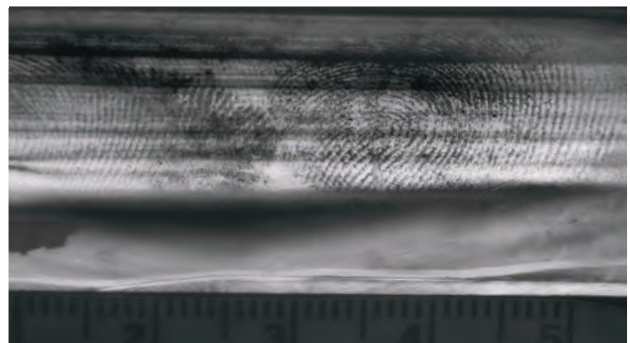
2 High contrast prints are revealed & background is dropped. Process time takes less than 2 minutes.

EXHIBIT C

Proprietary paint-by-light image capture software allows user to apply light to the desired area of evidence. Curved surfaces can now have an even application of light.



1 The evidence is an untreated casing.



2 Shortwave 254nm light combined with the 254nm filter reveal fingerprints. Process time took less than 2 minutes.

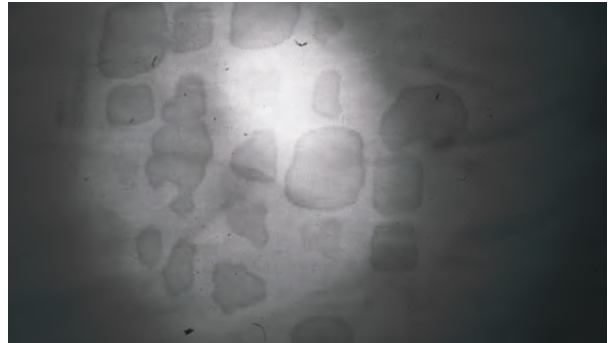
IR RESULTS

EXHIBIT A

Capturing blood on dark backgrounds can be obtained by using the IR flashlight and IR filter (both included with the FSIS System), contrasting detail can be easily viewed and captured.



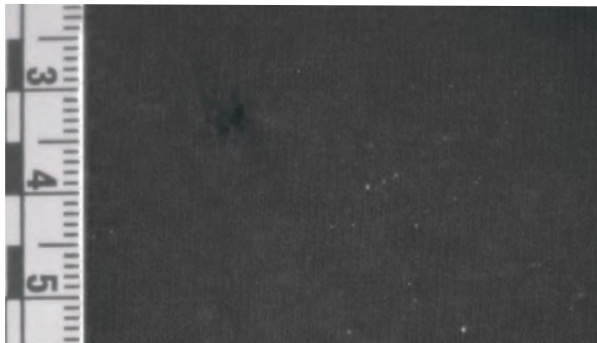
1 The evidence is a black t-shirt with a bloody footprint on it.



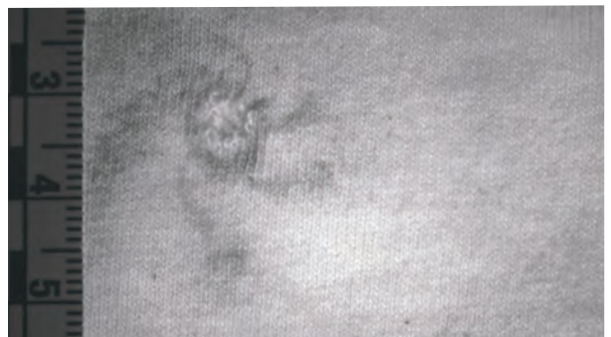
2 Contrasting foot impression is revealed with no background. Process time takes less than 2 minutes.

EXHIBIT B

Detecting GSR on a black t-shirt can be challenging. Using the IR flashlight & IR filter (both included with the FSIS System), contrasting detail can be easily viewed and captured.



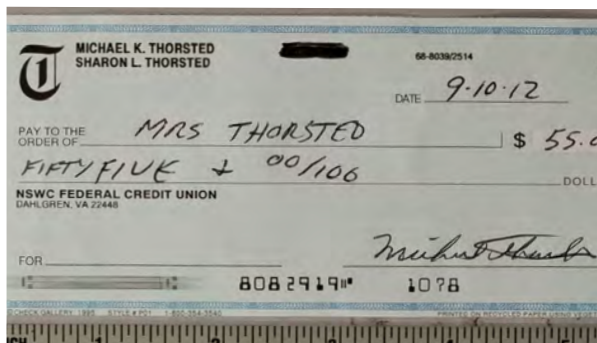
1 The evidence is a black t-shirt with a gunshot through it.



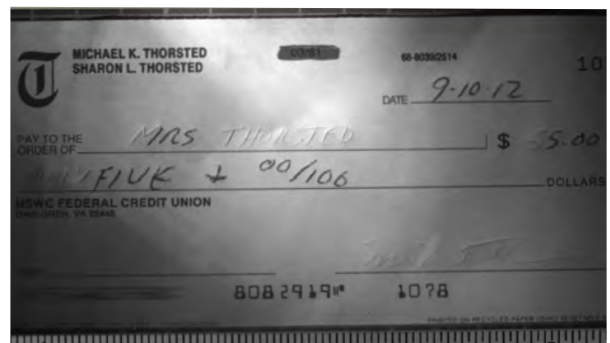
2 High contrast particle details are revealed using IR lighting and filters. Process time took less than 2 minutes.

EXHIBIT C

Detecting altered documents for impressions or other inks can be accomplished using the IR light and IR filter.



1 The evidence is a check with black ink.



2 Differing inks are revealed using IR lighting and filters. Process time took less than 2 minutes.

COLOR RESULTS

EXHIBIT A

High resolution images can be captured in color and black and white making photographing evidence such as altered documents, urine, semen, saliva, blood, GSR, footwear, fumed prints, dye-stained prints (and more) seamless and consistent.



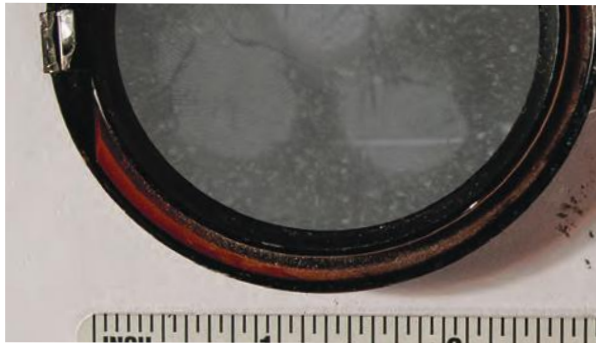
1 Evidence can be captured in full color at high resolution for clarity color of evidence.



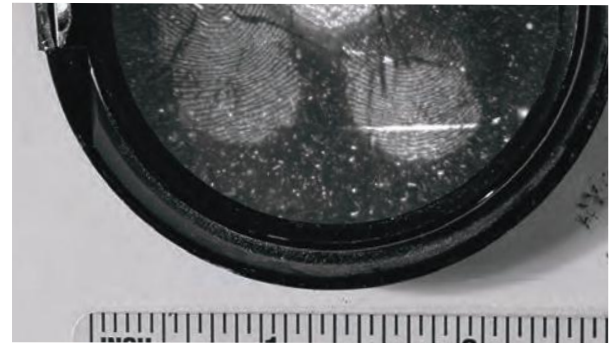
2 The same evidence can be captured seamlessly in shortwave UV with the same high quality.

EXHIBIT B

Capturing images on mirrored surfaces presents a huge problem because the subject taking the photo is often seen in the mirror. The untreated fingerprint is revealed with great contrast and no reflection using the Shortwave 254 lamp and the 254nm UV filter (both provided)

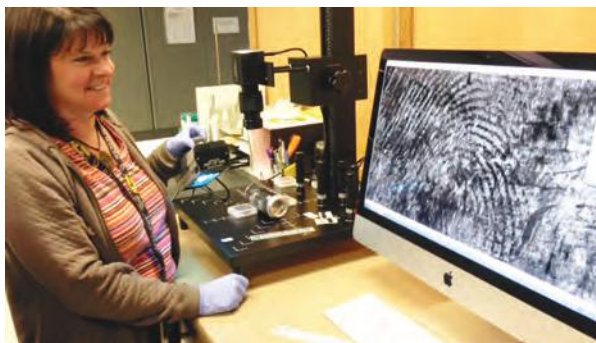


1 The evidence is a mirrored surface with non-treated prints.

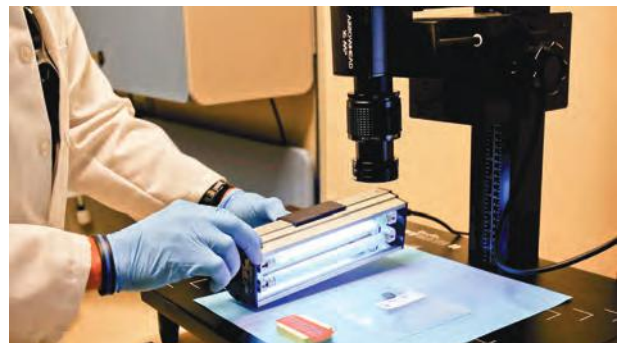


2 High contrast prints are revealed with not reflection. Process time took less than 2 minutes.

FROM THE FIELD



The first day the Wichita Police Department started using the FSIS they were all smiles. Latent prints popped off the evidence and was easily captured in less than 2 minutes.



When the Minneapolis Crime Lab was updating procedures they selected the FSIS to boost their technological capability as well as decrease the time it takes to process latent print evidence.

SPECIALIST FEATURES



1 ARTICULATING ARM
The articulating arm allows for clear, fast evidence scanning of large areas with the FSIS Camera.

2 FILTER SLIDE
The 3 position filter slide allows you to easily change filters without screwing or unscrewing new filters.

3 LIGHT SOURCES
Each of these rugged, high power lights uses the latest technology 3W solid state LEDs. They have lifetimes in excess of 50,000 hours. 5 wavelengths included along with dual UV lamp.

4 SPECIALIZED FILTERS
Paired with the shortwave UV light this 78mm UV Lens with Universal Filter Holder helps eliminate backgrounds and bring contrast to the fingerprint.

5 EXTENDED CABLE
15' extended cable allows you to connect your camera and place your workstation at the most desirable location. Customized lengths can be provided to agencies with open lab configurations.

6 TRIPOD MOUNT
Each FSIS Camera can be easily mounted to a Tripod that has a 1/4"-20 mount.

7 FOOT PEDAL
USB Powered Foot Pedal allows user to capture the image by pressing down on the pedal. This frees up one's hands to process and maneuver evidence and light angles to the best position.

THE ALL NEW

FSIS II



The new Full Spectrum COLOR Imaging System (FSIS-II) is the most advanced forensic image capturing system in the world. The FSIS-II features a patented 20MP digital camera with 50mm UV lens. Now, for the first time, the new FSIS-II can capture an image in FULL COLOR! With over 20 megapixels of resolution and sensitivity from 254nm to 1100nm, the FSIS-II can easily capture a full handprint at 1000 PPI (pixels per inch), and micro evidence up to 4,800 PPI. No more looking for a latent fingerprint with a handheld RUVIS and then blindly photographing the evidence in order to get a high resolution image. No more green, grainy, low resolution images with a capture area limited to 1" x 1" by the old RUVIS technology. The FSIS-II will digitally capture a high resolution image and display it in real time, allow the user to adjust settings real time, then capture the image in full color! The system begins with the patented camera and continues with the computer, an all-in-one Apple iMac with 27" 5K display running on Windows 10. The system's patented curved surface software is revolutionary. Using the integration feature, evidence can be captured even on round or curved surfaces, such as a wine glass. With a state of the art computer, a high sensitivity solid state camera, and software written specifically for capturing various types of evidence, the FSIS-II provides consistent sensitivity and sharpness in the UV, visible and IR spectrums. Although the key feature is viewing and capturing untreated latent prints at a very high resolution, the FSIS-II is not just for fingerprints. The large field of view (5.4" x 3.6"), high resolution (up to 4,800 PPI), and full spectrum capability (254nm - 1100nm) provide an extraordinary system to view and capture COLOR images of altered documents, urine, semen, saliva, blood, GSR, footwear, fumed prints, dye-stained prints and more. Forensic photography just got a lot easier because now you can see and adjust the image real time and capture the image in full color! The FSIS-II is an amazing instrument that will maximize the efficiency and results of all criminalists who use it. The FSIS-II Lab system is designed specifically for a laboratory environment. The approximate lab footprint is 36" x 36" x 24". An articulating arm and a 27" display allow for clear, fast evidence scanning. Hands free image capture is easy using the integrated foot pedal and a mounted UV light. The FSIS-II will increase throughput by minimizing the time needed to get quality color images of evidence. There is absolutely no limit to the various types of evidence that can be processed using the FSIS-II. Put it to the test and request a demo today!

PART NUMBER: A-FSC-1-FS-30

Price includes 2 year manufacturer warranty. *Extended warranty available upon request.

WHAT'S INCLUDED

- Apple iMac All-In-One Computer (running Windows 10) Intel Six-Core 3.2GHz, 8GB RAM, 1TB Hard Drive, with a 27 inch 5120 x 2880 pixel (5K) display, a wireless mouse and keyboard
 - 20MP Digital FSIS-II camera, w/ 20 Megapixel resolution able to image a 5.4" by 3.6" area with 1000 PPI resolution from 254nm to 1100nm. Able to capture FULL COLOR 24 bit images (60MB file size). Camera is pre-threaded for optional tripod mounting.
 - Patented Curved Surface Software
 - Integrated Foot Pedal (for hands-free image capture)
 - Articulating Camera Arm
 - Flexible Arm for Light Source
 - 50mm UV Lens with Universal Filter Holder
 - 365nm UV Bandpass Filter
 - 445nm Blue Bandpass Filter
 - 695nm IR Filter
 - 3 Position Filter Slider includes: 254nm UV, 550nm Orange, 830nm IR Filter
 - Shortwave (254nm) UV Light
 - 3 watt, 365nm (UV) LED Flashlight
 - 3 watt, 455nm (Blue) LED Flashlight
 - 3 watt, 525nm (Green) LED Flashlight
 - 3 watt, 625nm (Red) LED Flashlight
 - 3 watt, 850nm (IR) LED Flashlight
 - Chargers for Flashlights (12V, 100-240VAC)
 - UV Face shield
 - UV and Orange Goggles
- Specifications subject to change.



THE ALL NEW FSIS II RUGGED MASTER



The Full Spectrum Imaging System-2 Mobile (FSIS-2 Mobile) is the most advanced forensic image capturing system in the world. The FSIS-2 features a patented 20MP digital camera with 50mm UV lens. With over 20 megapixels of resolution and sensitivity from 254nm to 1100nm, the FSIS-2 can easily capture a full handprint at 1000 ppi (pixels per inch), and micro evidence up to 3,500 ppi. No more looking for a latent fingerprint with a handheld RUVIS and then blindly photographing the evidence in order to get a high resolution image. No more green, grainy, low resolution images with a capture area limited to 1"x1" by the old RUVIS technology. The FSIS-2 will digitally capture a high resolution image and display it in real time, allow the user to adjust settings real time, then capture the image in full color! The system begins with the patented camera and continues with the computer, high-retina Macbook Laptop display running on Windows 10. The system's patented curved surface software is revolutionary. Using the Integration feature, evidence can be captured even on round or curved surfaces, such as a cartridge casing, trigger of a gun, or handle of a knife. With a state of the art computer, a high sensitivity solid state camera, and software written specifically for capturing various types of evidence, the FSIS-2 provides consistent sensitivity and sharpness in the UV, visible and IR spectrums. Although the key feature is viewing and capturing untreated latent prints at a very high resolution, the FSIS-2 isn't just for fingerprints. The large field of view (5" x 4"), high resolution (up to 3,500 ppi), and full spectrum capability (254nm - 1100nm) provide an extraordinary system to view and capture COLOR images of altered documents, urine, semen, saliva, blood, GSR, footwear, fumed prints, dye-stained prints and more. The FSIS-2 is an amazing instrument that will maximize the efficiency and results of all criminalists who use it. The FSIS-2 Mobile System is designed specifically for the field. The approximate Mobile footprint is 24" x 36" x 24". A built in copy stand to the Pelican case and a high-retina Macbook display allow for clear, fast evidence scanning. Handsfree image capture is easy using the integrated foot pedal and a mobile UV light. The FSIS-2 will increase throughput by minimizing the time needed to get quality color images of evidence. There is absolutely no limit to the various types of evidence that can be processed using the FSIS-2 Put it to the test and request a demo today! Price includes 2 year manufacturer warranty.

WHAT'S INCLUDED

- Macbook Pro (running Windows 10)
- 20MP FSIS-2 camera, w/ 20 Megapixel resolution able to image a 5" x5" area with 1000 ppi resolution from 254nm to 1100nm.
- Able to capture FULL COLOR 24 bit images (48MB file size). Camera is pre-threaded for optional tripod mounting.
- Patented Curved Surface Software
- Integrated Foot Pedal (for hands-free image capture)
- Built in copy stand to Pelican case
- Battery operated UV light
- 50mm UV Lens with Universal Filter Holder
- 365nm UV Bandpass Filter
- 445nm Blue Bandpass Filter
- 695nm IR Filter
- 3 Position Filter Slider includes:
 - 254nm UV, 550nm Orange, 830nm IR Filter
- Shortwave (254nm) UV Light
- 3 watt, 365nm (UV) LED Flashlight
- 3 watt, 445nm (Blue) LED Flashlight
- 3 watt, 525nm (Green) LED Flashlight
- 3 watt, 625nm (Red) LED Flashlight
- 3 watt, 850nm (IR) LED Flashlight
- Chargers for Flashlights (12V, 100-240VAC)
- UV and Orange Goggles
- 2 Year Manufacturer Warranty

Specifications subject to change.

PART NUMBER: A-FSC-5-16MP-30

THE ALL NEW FSIS II BACKPACK



The Full Spectrum Imaging System-2 Mobile (FSIS-2 Mobile) is the most advanced forensic image capturing system in the world. The FSIS-2 features a patented 20MP digital camera with 50mm UV lens. With over 20 megapixels of resolution and sensitivity from 254nm to 1100nm, the FSIS-2 can easily capture a full handprint at 1000 ppi (pixels per inch), and micro evidence up to 3,500 ppi. No more looking for a latent fingerprint with a handheld RUVIS and then blindly photographing the evidence in order to get a high resolution image. No more green, grainy, low resolution images with a capture area limited to 1" x 1" by the old RUVIS technology. The FSIS-2 will digitally capture a high resolution image and display it in real time, allow the user to adjust settings real time, then capture the image in full color! The system begins with the patented camera and continues with the computer, high-retina Macbook Laptop display running on Windows 10. The system's patented curved surface software is revolutionary. Using the Integration feature, evidence can be captured even on round or curved surfaces, such as a cartridge casing, trigger of a gun, or handle of a knife. With a state of the art computer, a high sensitivity solid state camera, and software written specifically for capturing various types of evidence, the FSIS-2 provides consistent sensitivity and sharpness in the UV, visible and IR spectrums. Although the key feature is viewing and capturing untreated latent prints at a very high resolution, the FSIS-2 isn't just for fingerprints. The large field of view (5" x 4"), high resolution (up to 3,500 ppi), and full spectrum capability (254nm - 1100nm) provide an extraordinary system to view and capture COLOR images of altered documents, urine, semen, saliva, blood, GSR, footwear, fumed prints, dye-stained prints and more. The FSIS-2 is an amazing instrument that will maximize the efficiency and results of all criminalists who use it. The FSIS-2 Backpack System is designed specifically for the field. The approximate FSIS-2 Backpack footprint is 24" x 36" x 24". A mobile tripod and a high-retina Macbook display allow for clear, fast evidence scanning. Handsfree image capture is easy using the integrated foot pedal and a mobile UV light. The FSIS-2 will increase throughput by minimizing the time needed to get quality color images of evidence. There is absolutely no limit to the various types of evidence that can be processed using the FSIS-2 Put it to the test and request a demo today!

PART NUMBER: A-FSC-6-30

WHAT'S INCLUDED

- Macbook Pro (running Windows 10)
- 20MP FSIS-2 camera, w/ 20 Megapixel resolution able to image a 5" x5" area with 1000 ppi resolution from 254nm to 1100nm.
- Able to capture FULL COLOR 24 bit images (48MB file size). Camera is pre-threaded for optional tripod mounting.
- Patented Curved Surface Software
- Integrated Foot Pedal (for hands-free image capture)
- Mobile tripod
- Battery operated UV light
- 50mm UV Lens with Universal Filter Holder
- 365nm UV Bandpass Filter
- 445nm Blue Bandpass Filter
- 695nm IR Filter
- 3 Position Filter Slider includes: 254nm UV, 550nm Orange, 830nm IR Filter
- Shortwave (254nm) UV Light
- 3 watt, 365nm (UV) LED Flashlight
- 3 watt, 455nm (Blue) LED Flashlight
- 3 watt, 525nm (Green) LED Flashlight
- 3 watt, 625nm (Red) LED Flashlight
- 3 watt, 850nm (IR) LED Flashlight
- Chargers for Flashlights (12V, 100-240VAC)
- UV and Orange Goggles
- 2 Year Manufacturer Warranty
- *Extended Warranty available upon request

Specifications subject to change.

WHAT'S NEW

- RESOLUTION UPGRADE FROM 16MP TO 20MP FROM FSIS TO FSIS II
- EACH SYSTEM INCLUDES THE ALL-NEW MACBOOK AIR
- WINDOWS 10 NOW INCLUDED WITH EACH NEW FSIS II SYSTEM
- SPEED IMPROVEMENTS IN FAST SCAN AT UP TO 10X WHEN SCANNING FOR EVIDENCE
- REAL-TIME EVIDENCE VIEWING, SIMILAR TO THE FRAMES PER SECOND IN LIVE TELEVISION
- UPGRADE TO THE CLARITY IN THE IMAGE WHEN UTILIZING THE "GAIN" FUNCTION IN THE SOFTWARE
- HUGE IMPROVEMENT IN SPEEDS USING THE INTEGRATION "PAINT BY LIGHT" CURVED SURFACE PHOTOGRAPHY TOOL
- BUY WITH CONFIDENCE WITH AN INCLUDED 2-YEAR WARRANTY WITH EACH SYSTEM
- HDR ENHANCEMENT AVAILABLE IN LIVE VIDEO AND IMAGE CAPTURE FOR GREATER DETAIL IN DARK IMAGES



INDIVIDUAL COMPARTMENTS STORE SYSTEM COMPONENTS SECURELY

EXHIBIT

A

Images of latent prints on a credit card were developed with cyanoacrylate & revealed using a 254nm UV lamp & specialty UV filter (both included with the Workstation).



A The evidence is a lightly fumed credit card with complex background.



B High contrast prints are revealed & background is dropped. Process time took less than 2 minutes.

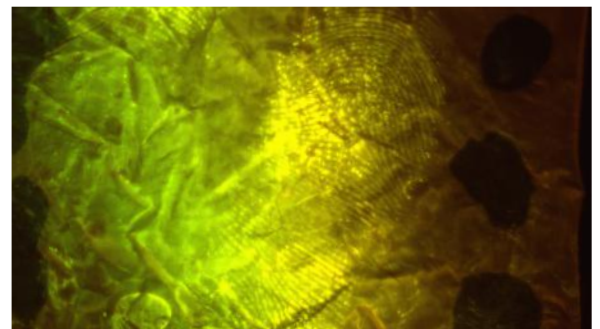
EXHIBIT

B

High resolution images can be captured in color and black and white making photographing evidence such as altered documents, urine, semen, saliva, blood, GSR, footwear, fumed prints, dye-stained prints (and more) seamless and consistent.



A Evidence can be captured in full color at high resolution for clarify color of evidence.



B The same evidence can be captured seamlessly with 455nm light with the same high quality.

FSIS

FOR THOSE WHO NEVER COMPROMISE



FSIS COLOR LAB

The new Full Spectrum COLOR Imaging System (FSC) is the most advanced forensic image capturing system in the world. The FSC features a patented 16MP digital camera with 78mm UV lens. Now, for the first time, the new FSC can capture an image in FULL COLOR! With over 16 megapixels of resolution and sensitivity from 254nm to 1100nm, the FSC can easily capture a full handprint at 1000 ppi (pixels per inch), and micro evidence up to 3,500 ppi. No more looking for a latent fingerprint with a handheld RUVIS and then blindly photographing the evidence in order to get a high resolution image. No more green, grainy, low resolution images with a capture area limited to 1"x 1" by the old RUVIS technology. The FSC will digitally capture a high resolution image and display it in real time, and now is 50% faster at focusing and evidence scanning, allowing the user to adjust settings real time, then capture the image in full color! The system begins with the patented camera and continues with the computer, an all-in-one Apple iMac with 27" display running on Windows 10. The system's patented curved surface software is revolutionary. Using the integration feature, evidence can be captured even on round or curved surfaces, such as a wine glass. With a state of the art computer, a high sensitivity solid state camera, and software written specifically for capturing various types of evidence, the FSC provides consistent sensitivity and sharpness in the UV, visible and IR spectrums. Although the key feature is viewing and capturing untreated latent prints at a very high resolution, the FSC isn't just for fingerprints. The large field of view (4.9" x 3.3"), high resolution (up to 3,500 ppi), and full spectrum capability (254nm - 1100nm) provide an extraordinary system to view and capture COLOR images of altered documents, urine, semen, saliva, blood, GSR, footwear, fumed prints, dye-stained prints and more. Forensic photography just got a lot easier because now you can see and adjust the image real time and capture the image in full color! The FSC is an amazing instrument that will maximize the efficiency and results of all criminalists who use it. The FSC Lab system is designed specifically for a laboratory environment. The approximate lab footprint is 36" x 36" x 24". An articulating arm and a 27" 5K display allow for clear, fast evidence scanning. Hands-free image capture is easy using the integrated foot pedal and a mounted UV light. The FSC will increase throughput by minimizing the time needed to get quality color images of evidence. There is absolutely no limit to the various types of evidence that can be processed using the FSC. Put it to the test and request a demo today!

PART NUMBER: A-FSC-1-FS

Price includes 1 year manufacturer warranty. *Extended warranty available upon request.

WHAT'S INCLUDED

Apple iMac All-In-One Computer (running Windows 10)
Intel QuadCore 3.2GHz, 8GB RAM, 1TB Hard Drive, with a 27 inch 3840 x 2160 pixel, 5K display, a wireless mouse and keyboard.
16MP Digital FSC camera, w/ 16 Megapixel resolution able to image a 4.9" by 3.3" area with 1000 ppi resolution from 254nm to 1100nm. Able to capture FULL COLOR 24 bit images (48MB file size). Camera is pre-threaded for optional tripod mounting.
Patented Curved Surface Software
Integrated Foot Pedal (for hands-free image capture)
Articulating Camera Arm
Flexible Arm for Light Source
78mm UV Lens with Universal Filter Holder
365nm UV Bandpass Filter
445nm Blue Bandpass Filter
695nm IR Filter
3 Position Filter Slider includes:
254nm UV, 550nm Orange, 830nm IR Filter
Shortwave (254nm) UV Light
3 watt, 365nm (UV) LED Flashlight
3 watt, 455nm (Blue) LED Flashlight
3 watt, 525nm (Green) LED Flashlight
3 watt, 625nm (Red) LED Flashlight
3 watt, 850nm (IR) LED Flashlight
Chargers for Flashlights (12V, 100-240VAC)
UV Face shield
UV and Orange Goggles
1 Year Manufacturer Warranty
*Extended Warranty available upon request
Specifications subject to change.



FSIS MOBILE COLOR

Our FSIS Mobile Color system utilizes portability and durability. System components fit securely in a carry-on sized Pelican case with custom cut foam. The custom folding copystand creates a level, hard surface for placing evidence for image capturing. Complete kit weighs approximately 28 lbs and measures 22" H x 14" W x 9" D.

PART NUMBER: A-FSC-5-16MP

WHAT'S INCLUDED

- 16MP Digital FSIS camera w/ 16 Megapixel resolution able to capture a 4.9" by 3.3" area with 1000 PPI resolution from 254nm to 1100nm. (Camera has 1/4-20 mount)
- 78mm UV Lens with Universal Filter Holder
- Patented Curved Surface Software
- Apple 11" Netbook Air Computer
- 15' Firewire Cable, Thunderbolt to Firewire Adapter
- Custom folding copystand with 10" x 10" base & 27" column extension arms
- Foot Pedal (for hands-free image capture)
- 3 position filter slide with:
 - 254nm narrow bandpass, 550nm Orange, 830nm IR filters installed
- 365nm Narrow bandpass filter
- Glass Filter Set: 445nm Blue Filter, 695nm IR Filter
- 3 watt, 365nm (UV) LED lamp
- 3 watt, 455nm (Blue) LED lamp
- 3 watt, 525nm (Green) LED lamp
- 3 watt, 625nm (Red) LED lamp
- 3 watt, 850nm (IR) LED lamp
- Clear UV and Orange Goggles
- Battery Operated Shortwave 254nm Light
- 100-240VAC & 12VDC Chargers for LED lamps
- 12VDC to 110VAC Inverter
- Carry-on size Pelican case with custom cut foam
- 1 Year Manufacturer Warranty
- *Extended Warranty available upon request

Specifications subject to change.



**RUGGED, WHEELED PELICAN CASE
CAN BE TRANSPORTED EASILY AND STORES
SYSTEM COMPONENTS SECURELY**

FSIS

FOR THOSE WHO NEVER COMPROMISE



FSIS LAB

The Full Spectrum Imaging System (FSIS) is the most advanced forensic image capturing system in the world. Every aspect of the FSIS has been carefully designed to provide the only full spectrum imaging system able to capture at the highest resolution available. The FSIS features a patented 16MP digital camera with 78mm UV lens. With over 16 megapixels of resolution and sensitivity from 254nm to 1100nm, the FSIS can easily capture a full handprint at 1000 ppi (pixels per inch), and micro evidence up to 3,500 ppi. No more looking for a latent fingerprint with a handheld RUVIS and then blindly photographing the evidence in order to get a high resolution image. No more green, grainy, low resolution images with a capture area limited to 1"x1" by the old RUVIS technology. The FSIS will digitally capture a high resolution image and display it in real time. The system begins with the patented camera and continues with the computer, an all-in-one Apple iMac with 27" display running on Windows 10. The system's patented curved surface software is revolutionary. Now, evidence can be captured even on round or curved surfaces, such as a wine glass, using the integration feature. With a state of the art computer, a high sensitivity solid state camera, and software written specifically for capturing various types of evidence, the FSIS provides consistent sensitivity and sharpness in the UV, visible and IR spectrums. The FSIS lab system is designed specifically for a laboratory environment. A large display and articulating arm allow for clear, fast evidence scanning. Achieve hands-free image capture with a mounted UV light and a foot pedal. Approximate lab footprint is 36" x 36" x 24".

PART NUMBER: A-FS-1-FS

Price includes 1 year manufacturer warranty.

*Extended warranty available upon request.

Patent Number 9294689 Camera: Full Spectrum Imaging System (FSIS)

Patent Number 9292726 Software: Photography of 3D, Curved and Textured Surfaces (Integration)

WHAT'S INCLUDED

Apple iMac All-In-One Computer, Intel Quad Core 3.2GHz, 8GB RAM, 1TB Hard Drive, with a 27 inch, 2560 by 1440 pixel display, a wireless mouse and keyboard running Windows 10.
16MP Digital FSIS camera w/ 16 Megapixel resolution able to capture a 4.9" by 3.3" area with 1000 PPI resolution from 254nm to 1100nm. (Camera has 1/4-20 mount)
Foot Pedal (for hands-free image capture)
Patented Curved Surface Software
Articulating Camera Arm
Flexible Arm for Light Source
78mm UV Lens with Universal Filter Holder
Dual 6W 254 UV Light
3 watt, 365nm (UV) LED lamp
3 watt, 455nm (Blue) LED lamp
3 watt, 525nm (Green) LED lamp
3 watt, 625nm (Red) LED lamp
3 watt, 850nm (IR) LED lamp
365nm Bandpass Filter
445nm Blue Filter
695nm IR Filter
3 Position Filter Slider includes: 254nm UV, 550nm Orange, 830nm IR Filter
UV Faceshield
UV and Orange Goggles
1 Year Manufacturer Warranty
*Extended Warranty available upon request
Specifications subject to change.

FSIS

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FSIS MOBILE

Our FSIS Mobile system utilizes portability and durability. System components fit securely in a carry-on sized Pelican case with custom cut foam. The custom folding copystand creates a level, hard surface for placing evidence for image capturing. Complete kit weighs approximately 28 lbs and measures 22" H x 14" W x 9" D.

PART NUMBER: A-FS-5-16MP

WHAT'S INCLUDED

- 16MP Digital FSIS camera w/ 16 Megapixel resolution able to capture a 4.9" by 3.3" area with 1000 PPI resolution from 254nm to 1100nm. (Camera has 1/4-20 mount)
- 78mm UV Lens with Universal Filter Holder
- Patented Curved Surface Software
- Apple 11" Netbook Air Computer
- 15' Firewire Cable, Thunderbolt to Firewire Adapter
- Custom folding copystand with 10" x 10" base & 27" column extension arms
- Foot Pedal (for hands-free image capture)
- 3 position filter slide with:
 - 254nm narrow bandpass, 550nm Orange, 830nm IR filters installed
- 365nm Narrow bandpass filter
- Glass Filter Set: 445nm Blue Filter, 695nm IR Filter
- 3 watt, 365nm (UV) LED lamp
- 3 watt, 455nm (Blue) LED lamp
- 3 watt, 525nm (Green) LED lamp
- 3 watt, 625nm (Red) LED lamp
- 3 watt, 850nm (IR) LED lamp
- Clear UV and Orange Goggles
- Battery Operated Shortwave 254nm Light
- 100-240VAC & 12VDC Chargers for LED lamps
- 12VDC to 110VAC Inverter
- Carry-on size Pelican case with custom cut foam
- 1 Year Manufacturer Warranty
- *Extended Warranty available upon request

Specifications subject to change.



**RUGGED, WHEELED PELICAN CASE
CAN BE TRANSPORTED EASILY AND STORES
SYSTEM COMPONENTS SECURELY**



**PROCESS
IN THE
FIELD**



FSIS BACKPACK

The FSIS Backpack system is designed for complete mobility and quick setup when searching in rough terrain. The 16MP Camera is designed to mount on the Manfrotto tripod with 360 degree ball mount head, and the crushproof backpack can be used as a flat worksurface for image capture. A crushproof, watertight compartment is used to store the Macbook Pro Laptop. Loaded backpack weighs 24 lbs and measures 18.5" H x 13" W x 10" D.

PART NUMBER: A-FS-6

WHAT'S INCLUDED

16MP Digital FSIS camera w/ 16 Megapixel resolution able to capture a 4.9" by 3.3" area with 1000 PPI resolution from 254nm to 1100nm. (Camera has 1/4-20 mount)
78mm UV Lens with Universal Filter Holder
Patented Curved Surface Software
Apple 15" Macbook Pro Laptop
-2GHZ, 8GB RAM, 15.4" 2880 x 1800 Retina Display, Running Windows 10
15' Firewire Cable, Thunderbolt to Firewire Adapter
Custom folding copystand with 10" X 10" base & 27" column extension arms
Foot Pedal (for hands-free image capture)
Manfrotto Tripod with 496RC2 Ball Head Mount
3 position filter slide with:
-254nm narrow bandpass, 550nm Orange, 830nm IR filters installed
365nm Narrow bandpass filter
Glass Filter Set: 445nm Blue Filter, 695nm IR Filter
3 watt, 365nm (UV) LED lamp
3 watt, 455nm (Blue) LED lamp
3 watt, 525nm (Green) LED lamp
3 watt, 625nm (Red) LED lamp
3 watt, 850nm (IR) LED lamp
Clear UV and Orange Goggles
Battery Operated Shortwave 254nm Light
100-240VAC & 12VDC Chargers for LED lamps
12VDC to 110VAC Inverter
Watertight & Crushproof Pelican S115 Backpack
1 Year Manufacturer Warranty
*Extended Warranty available upon request
Specifications subject to change.



**INDIVIDUAL COMPARTMENTS STORE
SYSTEM COMPONENTS SECURELY**

TEL: 800.953.3274 WEB: arrowheadforensics.com E-MAIL: sales@arrowheadforensics.com

REVIEWS

“One of the most revolutionary pieces of forensic equipment to hit the market in years.”

Cory M. Rodivich | Crime Scene Supervisor
Wichita Police Department

“The Ferrari of crime scene processing.”

Greg Mason | Forensic Science Manager
Pinellas County Sheriff's Office

**53% INCREASE
ON PRINTS
RECOVERED**

Kayla Limb | CCSI
St Lucie County Sheriff's Office

**WITHOUT THE
FSIS, WE WOULD
NOT HAVE BEEN
ABLE TO
IDENTIFY ANY
SUSPECTS IN THAT
CASE!**

Josh Connelly | Latent Print Unit Technical Lead
Douglas County Sheriff's Office

“A print was identified quickly... as a result, the house was surrounded within hours and police arrested two members of a notorious drug cartel.”

Tom Smith | Chief
St. Paul Police Department



IT'S ALL ABOUT THE CAMERA

Each FSIS system features the 16MP FSIS Camera with the following specifications:

Resolution: 16 million pixels
Frame Rate: 1.5 fps @ full resolution
Spectral Sensitivity: 254nm to 1100nm
Integration time: 1ms to 16 seconds
Aspect Ratio: ≈ 3 to 2
4.9" x 3.30" 1,000 PPI Image Output
Lens: UV 78mm with T-mount
Optical Filter: 254nm bandpass
Mechanical Interface: Standard 1/4-20 mount
Electrical Interface: Firewire (IEEE 1394)

CASE STUDY

TOO MANY TIMES WHEN PROCESSING EVIDENCE,

we crime scene investigators come to a fork in the road and ask ourselves: Do we process for DNA, or do we process for latent prints? Once we contemplate which process would be best, we hope that we made the most logical decision for catching our suspect. However, there is now a piece of equipment called the Full Spectrum Imaging System (FSIS) that can make that decision process not only simpler but will also give you the ability to process your evidence for both latent prints and DNA. The equipment aids in cutting down on the time it takes to process evidence, and also allows you to avoid invasive processes on items that belong to victims.

My department obtained the equipment in December 2015 and it has become my favorite tool when processing evidence. The FSIS comes with the option of an in-house station or a mobile station, or you can get both. Our in-house station came with the following items: the digital FSIS camera; 20-ft. cord from camera to computer; Apple iMac (all-in-one computer); 36-in. camera stand; a dual-band 254/365 UV lamp; five 3-watt LED lights that range from ultraviolet to infrared; a three-position filter slider that goes over the camera lens; and a foot pedal for taking pictures hands-free. You also have the option to use a laptop with the system so that you can take it out in the field for processing trace evidence.

The FSIS is used not only to examine items for prints, but it can also be used to search for blood, gunshot residue, altered ink on documents, and bruises on people. We have used this system numerous times when processing evidence for homicide cases, and it has yielded great results. The newly upgraded FSIS now can photograph in color and has a four-position filter slider that goes over the camera.

The FSIS has been instrumental in processing evidence without needing to use cyanoacrylate, powders, or chemical processing on the items. Place the item under the camera with the correct barrier filter and use the UV/IR lamp—or the designated wavelength LED light needed for your specific evidence—and the latent prints come to life on the computer screen. The program runs in live time so you scan the item with the light source, determine whether you have prints, and then pinpoint their locations. Once the print you want is in focus, you can switch the program over to the Full Resolution option, press your foot on that very handy foot pedal, and capture a high-resolution photograph of your latent print that is then saved into the specified destination folder on the computer. Another great feature in this system is the ability to remove background graininess, increase or decrease exposure, and enhance contrast. When searching for prints, there is a three-tier level icon on the screen. These three tiers are your controls for the background grain, exposure, and contrast. As you are adjusting the different levels to create the clearest picture, you can see the print in live time on the computer. This allows you to see the changes to your image on the computer. This feature cuts down on the number of pictures you need to take to obtain the best photo for later comparison. If you have an item of evidence that is too tall for the 36-in. camera stand, the camera is detachable so that you can attach the camera head of the FSIS to a tripod, or hand-hold it in order to examine bigger items of evidence.

Another feature that is a great tool is the integration feature. The integration feature involves painting with light, utilizing the UV lamp or designated wavelength LED light. This feature helps provide more contrast to the image you are trying to obtain. It also is very useful for processing curved surfaces. When using the integration on a curved surface, the system flattens the image to one level and allows you to photograph it as such, thus eliminating the need to adjust depth of field (as would be required on a regular camera).

Through using this system, I have found that the FSIS reveals prints that are not otherwise observed when an item is processed with powder. The number of prints recovered has increased by 53 percent since our department started utilizing the FSIS. There have also been times when we observed prints with the FSIS that we couldn't see with other processing techniques until we chemically dye-stained the item and examined it with an alternate light source (ALS). The FSIS has cut down the time required for ALS photographs, as we have already photographed the prints using the FSIS prior to observing them with the ALS.

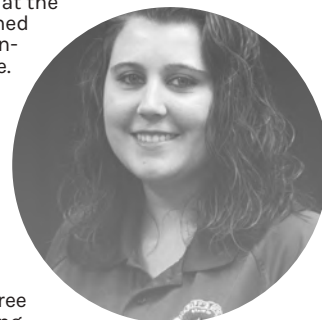


The program runs in live time to help the operator visualize prints and photograph them in one step.

All in all, the benefits of this system have proven themselves time and time again. It has made processing evidence better and has increased our ability to identify potential suspects in our cases. Evidence is always worth processing better, and this system is a step toward "better".

About the Author

Kayla Limb is a Florida native and loves what the Sunshine State has to offer. She has obtained an Associate of Science for Business Administration through Indian River State College. Her education is ongoing, and she intends to obtain her Bachelor of Science in biology in the near future. Limb is passionate about bringing justice to her home town and helping those who fall victim to crimes, which has led her to crime scene investigations. Kayla currently works as a Certified Crime Scene Investigator with the Saint Lucie County (Florida) Sheriff's Office. When she is not working scenes or solving crimes, you can find her playing with her three dogs and cat, reading a good book, or drawing.



FSSIS

CUSTOMER REFERENCES

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CBP/DHS Arizona
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520-519-7041
Stephen.d.greene@cbp.dhs.gov

St. Lucie County Sheriff
Kayla Limb- Certified Crime Scene Investigator
772-462-3341
LimbK@stluciesheriff.com

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CURRENT FSIS CUSTOMERS

Alexandria County (VA)
Arlington County PD (VA)
Atlanta PD (GA)
Beverly Hills PD (CA)
Camdenton ISD (MO)
Chicago PD (IL)
Collier County (FL)
Colorado Springs PD (CO)
Cumberland CO (PA)
DEA Dallas (TX)
DEA Pleasanton (CA)
DEA Vista (CA)
DHS Tucson (AZ)
DHS EL Paso (TX)
DHS-Houston (TX)
DHS RGV (TX)
Fairfax CO (VA)
FBI (VA)
FBI ERT Atlanta (GA)
Henderson PD (NV)
Hillsborough CO (FL)
Honolulu PD (HI)
Hyderabad (India)
Iowa DCI (IA)
Johnson County (KS)
Kansas Bureau of Inv. (KS)
Kansas City PD (MO)
Macon-Bibb County (GA)
Manatee County (FL)
Marion County (IN)
MOI Kuwait
Moldova IG
Missouri State Univ. (MO)
N. Career Center (MO)
U.S. Navy (SPAWAR)
Nebraska State Patrol (NE)
Omaha PD (NE)
Pinellas County (FL)
Plymouth PD (MA)
Rhode Island County (RI)
San Mateo County (CA)
SOHO (South America)
South Dakota DCI (SD)
St. Lucie County (FL)
St. Paul PD (MN)
TEDAC-Huntsville (AL)
TEDAC-Lorton (VA)
Tennessee Bureau of Inv. (TN)
University De Lausanne (Switzerland)
USACIL (GA)
Virginia DFS (Roanoke)
Virginia DFS (Manassas)
Virginia DFS (Richmond)
Virginia DFS (Norfolk)
Wichita PD (KS)
Waterloo PD (IA)
Williamson County (TX)
Wiregrass Technical College (GA)

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US PATENT 9,294,689 B2

DIGITAL RUVIS CAMERA

Michael K. Thorsted, Spotsylvania, VA (US)

Assigned to Sytronics, LLC, Fredericksburg, VA (US)

Filed by Michael K. Thorsted, Spotsylvania, VA (US)

Filed on Oct. 20, 2014, as Appl. No. 14/518,078.

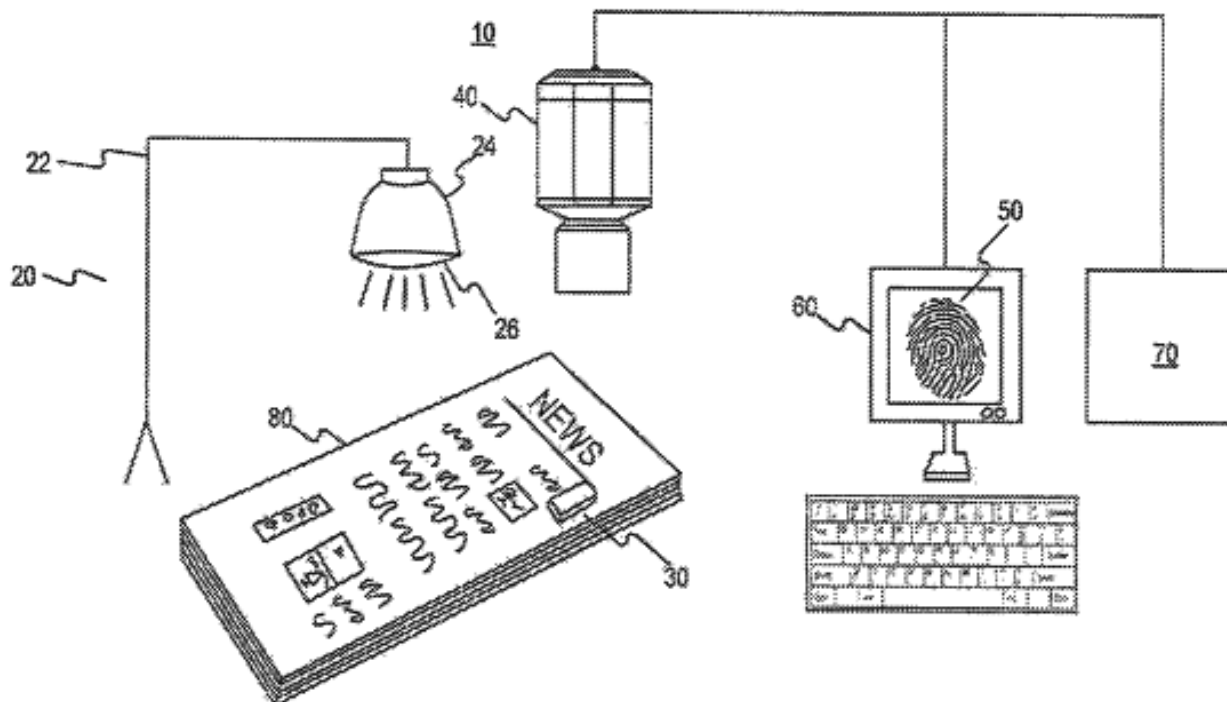
Application 14/518,078 is a continuation of application No. 14/070,328, filed on Nov. 1, 2013.

Claims priority of provisional application 61/721,667, filed on Nov. 2, 2012.

Prior Publication US 2015/0097963 A1, Apr. 9, 2015

Int. Cl. H04N 5/30 (2006.01); H04N 5/225 (2006.01)

CPC H04N 5/30 (2013.01) [H04N 5/2254 (2013.01); H04N 5/2256 (2013.01)]



12. A system for capturing ultraviolet reflectance images of a latent fingerprint on a subject, the system comprising:
an ultraviolet lamp for illuminating the subject, wherein the ultraviolet lamp has a power rating between 1 and 50 watts;
an ultraviolet sensitive camera for capturing the ultraviolet reflectance images of the latent fingerprint, the camera comprising:
a lens for receiving ultraviolet radiation reflected from the subject, wherein the lens is transmissive of at least about 90 percent of radiation having a wavelength of 254 nm;
a bandpass filter for filtering the ultraviolet radiation reflected from the subject, the bandpass filter having a passband centered at about 254 nm and having a bandwidth of about 1 nm to about 100 nm;
a full frame 35 mm format size image sensor for collecting ultraviolet radiation passed through the lens and bandpass filter and for generating an ultraviolet image output based on the collected ultraviolet radiation, wherein the image sensor is configured to sense light in at least the ultraviolet spectrum and the visible spectrum, and pixels of the image sensor have at least one dimension of about 7.4 micrometers or more; and
at least one controller configured to generate display signals based on the ultraviolet image output of the image sensor;
a display for viewing the ultraviolet reflectance images of the latent fingerprint based on the display signals generated by the at least one controller; and
a storage device configured to store data relating to the ultraviolet reflectance images of the latent fingerprint.

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US PATENT 9,292,726 B2

SYSTEM AND METHOD FOR IMAGING EVIDENCE DEPOSITED ON CURVED SURFACES
Michael K. Thorsted, Spotsylvania, VA (US); and Ian A. Moore, Fredericksburg, VA (US)

Assigned to SYNTRONICS, LLC, Fredericksburg, VA (US)

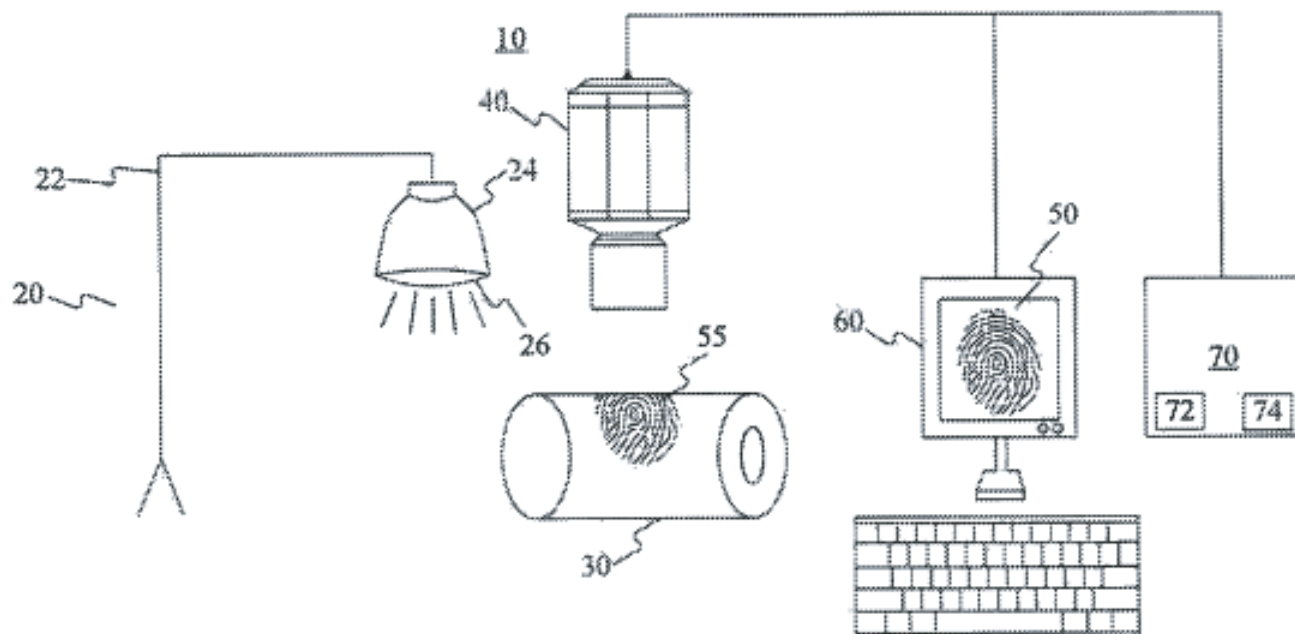
Filed by Michael K. Thorsted, Spotsylvania, VA (US); and Ian A. Moore, Fredericksburg, VA (US)

Filed on Dec. 22, 2014, as Appl. No. 14/579,254.

Claims priority of provisional application 61/919,386, filed on Dec. 20, 2013.

Prior Publication US 2015/0178545 A1, Jun. 25, 2015

Int. Cl. G06K 9/00 (2006.01)



1. A system for generating an integrated image of a fingerprint present on a curved surface of an object, the system comprising:
an imaging assembly including a light source and an image capturing device, the imaging assembly enabling selective illumination of the fingerprint on the curved surface of the object to selectively create specular reflections of different aspects of the fingerprint for capture by the image capturing device;
a memory storing a set of instructions; and
at least one processor configured to execute the set of instructions to:
receive first image information corresponding to a first image captured by the image capturing device, the first image information including pixel values for pixels of the captured first image, and wherein a first representation of the fingerprint appears within a first set of pixels of the captured first image, and the captured first image includes data representing a specular reflection from a first aspect of the fingerprint;
receive second image information corresponding to a second image captured by the image capturing device, the second image information including pixel values for pixels of the captured second image, and wherein a second representation of the fingerprint appears within a second set of pixels of the captured second image, and the captured second image includes data representing a specular reflection from a second aspect of the fingerprint, the second aspect of the fingerprint being different than the first aspect of the fingerprint, and the second set of pixels of the captured second image occupying substantially a same region of the captured second image as the first set of pixels occupies in the captured first image;
compare a first plurality of pixel values from the first set of pixels with a corresponding second plurality of pixel values from the second set of pixels;
determine, for each compared pixel, whether a selected pixel from the first set of pixels or a corresponding pixel from the second set of pixels has a higher pixel value; and
for each compared pixel, store in a pixel value set the pixel value of the selected pixel from the first set of pixels if the selected pixel has a higher pixel value than the corresponding pixel from the second set of pixels, and store in the pixel value set the pixel value of the corresponding pixel from the second set of pixels if the corresponding pixel has a higher pixel value than the selected pixel from the first set of pixels, wherein the pixel value set provides an integrated image of the fingerprint formed from detail obtained in the specular reflection from the first aspect of the fingerprint and the specular reflection from the second aspect of the fingerprint.

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