Fire ID

User Manual

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3DISC IMAGING

Contact

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The device complies with Part 15 of the FCC Rules. Operation is subject to the condition that this device does not cause harmful interference.

NOTE : This equipment has been tested and found to comply with the limits for a Class B Digital Device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instruction, may cause harmful interference to radio communication. However, there is no guarantee that interference will not occur in a particular installation. If this equipment dose cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures : - Reorient or relocate the receiving antenna. - Increase the separation between the equipment and receiver - Connect the equipment into an outlet on a circuit different from that to which the receiver is connected. - Consult the dealer or an experienced radio/TV technician for help.

Warnings and Used Symbols

To ensure the safety of patients, staff and other persons, any changes to software and hardware delivered by ***3D Imaging & Simulations Corp.*** may only be made with prior written permission from ***3D Imaging & Simulations Corp.***

The following symbols will be used throughout this manual:

DANGER
This equipment is indoor use only and all the communication wirings are limited to inside of the building.

DANGER
The functionality of the system can be destroyed in the case of incorrect use.
If unauthorized changes have been made to delivered system and accessories, the warranty by ***3D Imaging & Simulations Corp.*** becomes void. ***3D Imaging & Simulations Corp.*** will not accept any responsibility or liability for the improper functioning of the product in such a case.

WARNING
The functionality of the system can be limited in the case of incorrect use. Hints that require special attention.

NOTE
Notes represent information that is important to know but which do not affect the functionality of the system.

General Safety Guidelines

This device has been designed and tested to meet strict safety requirements applicable to IT equipment, and has been supplied in a safe condition. ***3D Imaging & Simulations Corp.*** assumes no liability for failure to comply.

If this device is not used as specified, the protection provided by the device could be impaired. This device must be used in a normal condition only.

There are no user serviceable parts inside this device. The device should only be opened and serviced by qualified service personnel. If there is a service problem, please contact ***3D Imaging & Simulations Corp.*** or authorized dealer.

Do not spill liquids on the device, and never operate the device in a wet environment.

Keep the device from radiators and heat sources.

Use the device only with accessories supplied with this device.

This device contains static sensitive components. Proper static handling procedures and equipment must be used when servicing this device.

If any of the following conditions occur, unplug the device from the PC to USB cable and contact authorized service personnel.

- The USB cable is damaged.
- An object has fallen into the device.
- The device has been exposed to water.
- The device has been dropped or damaged.
- The device does not operate correctly when the operating instructions are followed.
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Chapter 1. Introduction

Compact & Affordable

The ***Fire ID*** is compact and affordable, helping to increase patient throughput and improve the overall productivity of your practice. With its small footprint, the reader fits seamlessly into even the most space-challenged clinic and exam rooms.

Elegant Design & Streamlined Operation

The ***Fire ID***'s elegant design belies a powerful yet easy-to-use system that gets the job done day in and day out.

Chapter 2. Unpacking

2.1. Inspection for Damage

Fire ID is shipped in a custom designed box to protect the reader from external shock. Before unpacking the reader, inspect the shipping box for damage. In case the box is damaged, notify the shipper immediately.

2.2. Identify the Components

Open the shipping container and identify each of these components.

Part No.	Item
CR-FP-51-001	***Fire ID***
CR-FPA-02-004	USB Mini 5pin cable

WARNING

If the ***Fire ID*** needs to be returned to manufacturer or one of its representatives, the reader must be repacked in the original box with all accessories.

WARNING

Improper disposal of this product may result in environmental contamination. When disposing of this equipment, contact ***3D Imaging & Simulations Corp.***'s representative or related organs of government. Do not dispose of any part of this equipment without consulting a ***3D Imaging & Simulations Corp.***'s representative first.

3D Imaging & Simulations Corp. does not assume any responsibility for damage resulting from disposal of this equipment without consulting ***3D imaging & Simulations Corp***.

WARNING

Use the device passed IEC60950-1 or IEC60601-1 for the product connected via USB port.

Chapter 3. Setting Up

WARNING

Unsuitable Installation Sites

- Locations with excessive humidity or dust
- Locations subject to high temperature
- Locations subject to shaking or vibration
- Locations exposed to considerable electrical or magnetic noise, or other forms of electromagnetic energy
- Locations with poor heat radiation

3.1 Identify Important Features

Look over the Fire ID and features shown in this section. User will need to know where these features are when user operates the reader in later chapters.

3.1.1. Reader Connecting Part

Figure 2. Reader Connecting Part

3.2. Computer Requirements

3.2.1. Recommended Requirement

Operation System	Microsoft Windows 7 (32 bit or 64 bit)
CPU	Core Duo / Core2 Processor
Memory	RAM 4GB or more
Hard Disk	300GB Free Hard Disk Space
Network	1Gbps Ethernet
Video	32 bit Color Display
Video Resolution	1280 x 1024

3.2.2. Minimum Requirement

Operation System	Microsoft Windows 7 (32 bit or 64 bit)
CPU	Core Duo / Core2 Processor
Memory	RAM 2GB or more
Hard Disk	80GB Free Hard Disk Space
Network	1Gbps Ethernet
Video	32 bit Color Display
Video Resolution	1280 x 900

3.3. Connect the USB Cable

3.3.1. Connect USB Interface Cable

The reader interfaces with computer via USB Mini 5pin cable.

1. Use the USB cable inside the shipping container.
2. Connect the cable to the reader's USB Mini port, located on the rear of the reader.
3. Connect the other end of the cable to the USB Mini port on the computer.

Figure 4. USB Connection

DANGER
This equipment is indoor use only and all the communication wirings are limited to inside of the building.

WARNING
Do not pull out the USB cable during tag information reading.

3.3.2. Installation Report

After installation of the reader, fill in Installation Report from (Appendix I) and send to ***3D Imaging & Simulations Corp.*** service department by fax or e-mail.

- Fax : +82-42-931-2299
- E-mail : support@3DISCimaging.com

Chapter 4. Operating

4.1. System Specifications

Dimension	27 x 60 x 96 (H x L x W)
Weight	90g
Frequency	13.56MHz
Protocol	ISO 15693
Interface	Mini USB B
Power Supply	USB Power
Temperature Range	-25℃ to +70℃

* Specifications subject to change without notice.

WARNING

There are no user serviceable parts inside the reader. The reader should only be opened and serviced by qualified service personnel. If there is a service problem, please contact ***3D Imaging & Simulations Corp.*** or authorized dealer.

4.2. Operating Specifications

4.2.1. Circuit Functions

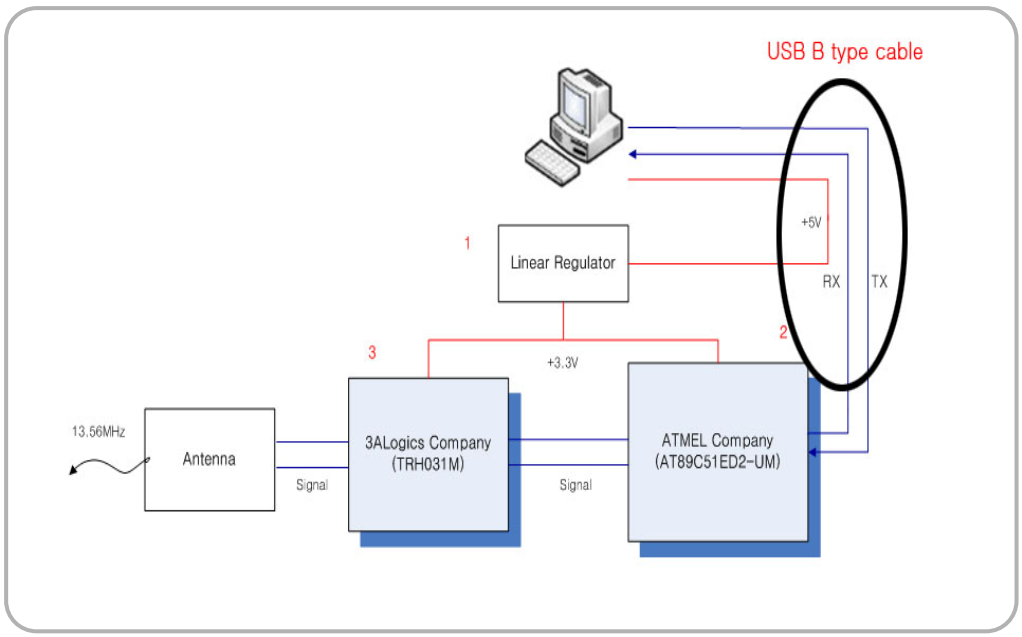

Figure 8. Circuit Diagram

✓ Linear Regulator:
PC receives power from +3.3V to +5V conversion

✓ MCU:
Atmel's AT89C51ED2-UM
Tag information to the PC via RS-232 communication
Reader chip control

✓ Reader chip:
3ALogics's TRH031M
Intermediate role between the antenna and MCU

Chapter 5. Symbols

Symbol	Description
	Manufacturer
	Warning, Consult Accompany Documents
	General mandatory action manual
	General prohibition indication
	Directive on Waste Electrical and Electronic Equipment
	Authorised Representative in the European Community
	Keep Dry
	Fragile
	Handle with care
	This side up
	Non-ionizing electromagnetic radiation

FCC ID : X68CRSCANNER**4**	FCC Mark
	Medical Equipment WITH RESPECT TO ELECTRIC SHOCK FIRE, AND MECHANICAL HAZARDS ONLY IN ACCORDANCE WITH UL60601-1 / CAN / CSA CSS.2 No. 601.1 3SE3
	CE Mark

5.1. *Manufacturer's Declaration- Electromagnetic Emission*

*The **Fire ID** system is intended for use in the electromagnetic environment specified below. The customer or the user of **Fire ID** system should assure that it is used in such an environment*		
Emission test	Compliance	Electromagnetic environment - guidance
RF emissions CISPR 11	Group 1 Class B	The **Fire *ID*** system uses RF energy only for its internal function. Therefore. Its RF emissions are very low and are not likely to cause any interference in nearby electronic equipment

5.2. *Manufacturer's Declaration - Electromagnetic Immunity*

*The **Fire ID** system is intended for use in the electromagnetic environment specified below. The customer or the user of **Fire ID** system should assure that it is used in such an environment*			
Immunity test	**IEC 60601 Test level**	**Compliance level**	**Electromagnetic Environment -guidance**
Conducted RF IEC 61000-4-6	3 Vrms 150 kHz to 80 MHz	3 Vrms 150 kHz to 80 MHz	Portable and mobile RF communications equipment should be used no closer to any part of the ***Fire ID*** system, including cables, than the recommended separation distance calculated from the equation applicable to the frequency of the transmitter. **Recommended separation distance** $d = [\frac{3,5}{V_1}]\sqrt{P}$

Radiated RF IEC 61000-4-3	3 V/m 80.0 MHz to 2.5 GHz	3 V/m 80.0 MHz to 2.5 GHz	**Recommended separation distance** $d = [\frac{3,5}{E_1}]\sqrt{P}$ 80 MHz to 800 MHz $d = [\frac{7}{E_1}]\sqrt{P}$ 800 MHz to 2,5 GHz Where *P* is the maximum output power rating of the transmitter in watts (W) according to the transmitter manufacturer and *d* is the recommended separation distance in meters (m). Field strengths from fixed RF transmitters, as deter-mined by an electromagnetic site survey, (a) Should be less than the compliance level in each frequency range (b). Interference may occur in the vicinity of equipment marked with the following symbol: 

Note 1) At 80 MHz and 800 MHz, the higher frequency range applies.

Note 2) These guidelines may not apply in all situations. Electromagnetic propagation is affected by absorption and reflection from structures, objects and people.

a Field strengths from fixed transmitters, such as base stations for radio (cellular/cordless) telephones and land mobile radios, amateur radio, AM and FM radio broadcast and TV broadcast cannot be predicted theoretically with accuracy. To assess the electromagnetic environment due to fixed RF transmitters, an electromagnetic site survey should be considered. If the measured field strength in the location in which the EUT is used exceeds the applicable RF compliance level above, the EUT should be observed to verifynormal operation. If abnormal performance is observed, additional measures may be necessary, such as re-orienting or relocating the EUT.

b Over the frequency range 150 kHz to 80 MHz, field strengths should be less than [V1] V / m.

Recommended Separation Distances Between Portable and Mobile RF Communications Equipment and the ***Fire ID*** system.

The ***Fire ID*** system is intended for use in an electromagnetic environment in which radiated RF disturbances are controlled. The user of the ***Fire ID*** system can help prevent electromagnetic interference by maintaining a minimum distance between portable and mobile RF communications equipment (transmitters) and the ***Fire ID*** system as recommended below, according to the maximum output power of the communications equipment.

Rated maximum output	Separation distance (m) according to frequency of transmitter

power (W) of transmitter	150 kHz to 80 MHz	80 MHz to 800 MHz	800 MHz to 2.5 GHz
0.01	0.12	0.12	0.23
0.1	0.37	0.37	0.74
1	1.17	1.17	2.33
10	3.70	3.70	7.37
100	11.70	11.70	23.30
For transmitters rated at a maximum output power not listed above, the recommended separation distance (d) in meters (m) can be estimated using the equation applicable to the frequency of the transmitter, where P is the maximum output power rating of the transmitter in watts (W) according to the transmitter manufacturer.			
Note 1: At 80 MHz and 800 MHz, the separation distance for the higher frequency range applies. **Note 2:** These guidelines may not apply in all situations. Electromagnetic propagation is affected by absorption and reflection from structures, objects, and people.			

Immunity and Compliance Level			
Immunity test	IEC 60601 Test Level	Actual Immunity Level	Compliance Level
Conducted RF IEC 61000-4-6	3 Vrms, 150 kHz to 80 MHz	3 Vrms, 150 kHz to 80 MHz	3 Vrms, 150 kHz to 80 MHz
Radiated RF IEC 61000-4-3	3 V/m, 80 MHz to 2.5 GHz	3 V/m, 80 MHz to 2.5 GHz	3 V/m, 80 MHz to 2.5 GHz

5.3. Guidance and Manufacturer's Declaration – Electromagnetic Immunity

*The **Fire ID** system is intended for use in the electromagnetic environment specified below. The customer or the user of **Fire ID** system should assure that it is used in such an environment*

Immunity test	**IEC 60601 Test level**	**Compliance level**	**Electromagnetic environment - guidance**
Conducted RF IEC 61000-4-6	3 Vrms 150 kHz to 80MHz	3 Vrms 150 kHz to 80 MHz	***Fire ID*** system must be used only in a shielded location with a minimum RF shielding effectiveness and, for each cable that enters the shielded location with a minimum RF shielding effectiveness and, for each cable that enters the shielded location
Radiated RF IEC 61000-4-3	3 V/m 80.0 MHz to 2.5GHz	3 V/m 80.0 MHz to 2.5GHz	Field strengths outside the shielded location from fixed RF transmitters, as determined by an electromagnetic site survey, should be less than 3V/m.**a** Interference may occur in the vicinity of equipment marked with the following symbol: 

Note 1) These guidelines may not apply in all situations. Electromagnetic propagation is affected by absorption and reflection from structures, objects and people.

Note 2) It is essential that the actual shielding effectiveness and filter attenuation of the shielded location be verified to assure that they meet the minimum specification.

a- Field strengths from fixed transmitters, such as base stations for radio (cellular/cordless) telephones and land mobile radios, amateur radio, AM and FM radio broadcast and TV broadcast cannot be predicted theoretically with accuracy. To assess the electromagnetic environment due to fixed RF transmitters, an electromagnetic site survey should be considered. If the measured field strength outside the shielded location in which the EUT is used exceeds 3V/m, the EUT should be observed to verify normal operation.
If abnormal performance is observed, additional measures may be necessary, such as relocating the EUT or using a shielded location with a higher RF shielding effectiveness and filter attenuation.

Chapter 6. Warranty and Repair Service

6.1. Standard Warranty

3D Imaging & Simulations Corp. warrants its non-consumable hardware products to be free from defects in materials and workmanship. The warranty covers the cost of parts and labor to repair the product. Please keep the shipping box for future use.

The warranty is valid when the product is used for its intended purpose and does not cover products which have been modified without written permission from ***3D Imaging & Simulations Corp.***, or which have been damaged by abuse, accident or connection to incompatible equipment.

This warranty is in lieu of all other warranties, expressed or implied.

6.2. Repair Service

The company reserves the right to cease providing repair maintenance, parts and technical support for its non-consumable hardware products five years after a product is discontinued. Technical support for old versions of software products will cease 12 months after they are upgraded or discontinued.

6.3. Out of Warranty Repair Service

Out of warranty repair service is available in selected geographical locations. Contact the supplier for current terms and rates.

6.4. Shipping

The ***Fire ID*** is a solidly built system designed to survive shipping around the world. However, in order to avoid damage during shipping, the ***Fire ID*** must be properly packaged.

In general, the best way to package the ***Fire ID*** is in the original factory container. If this is no longer available, we recommend that user carefully wraps the ***Fire ID*** in at least 75 mm (3 inch) of foam or bubble pack sheeting. The wrapped device should then be placed in a sturdy cardboard carton. Mark the outside of the box with word ***FRAGILE*** and an arrow showing which way is up.

We do not recommend using loose foam pellets to protect the ***Fire ID***. If the carton is dropped by the shipper, there is a good chance that the device will shift within the loose pellet packing and be damaged.

If user needs to ship the ***Fire ID*** to another location, or back to the factory, and user does not have a means to adequately package it, user can order additional shipping container. This may seem an expense user would like to avoid, but it is inexpensive compared to the cost of repairing an instrument that has sustained shipping damage.

It is user's responsibility to package the system properly before shipping. If the packaging is inadequate, and the system is damaged during shipping, the shipper will not honor user's claim for compensation.

Chapter 7. Technical Assistance

If user has any questions about installing or using the device, contact your ***3D Imaging & Simulations Corp*** representative or your local dealer.

3D Imaging & Simulations Corp.

815, Tamnip-Dong, Yuseong-Gu, Daejeon, Korea
Tel : 82-42-931-2100 Fax : 82-42-931-2299
www.3DISCimaging.com

Appendix I

Installation Report

Please complete this report at the time of installation and submit the completed form signed by customer to:

- **Fax : +82-42-931-2299**
- **E-mail : support@3DISCimaging.com**

Date of Installation :

Customer Information

Hospital / Institute	
Name	
Address	
Tel	
Fax	
E-mail	

Installer Information

Company	
Name	
Address	
Tel	
Fax	
E-mail	

System Information

Model	***RFID Reader***
System S/N	

Installer's Signature: **Date:**

Customer's Signature: **Date:**