Wireless Digital Wireless Digital Flat Panel Detector

Mars1417X

User Manual



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Before operating, please read this user manual and pay attention to all safety precautions.

Please ensure that this user manual is properly maintained so that it can be accessed at any

time (reserve).

Please use it correctly based on full understanding of the content.

E

Congratulations on your purchase of the Wireless Digital Wireless Digital Flat Panel Detector (hereinafter referred to as Mars1417X) which is manufactured by iRay Technology Company Ltd. (Hereinafter referred to as iRay).

Please take time to read through this user guide in order to utilize the product effectively. We hope you enjoy the experience with iRay Mars1417X.

If you have any questions or suggestions, please feel free to contact us.

Notes on usage and management of the equipment

- Read all of the instructions in the user guide before your operation. Give particular attention to all safety precautions.
- 2. Only a physician or a legally certified operator should use this product.
- The equipment should be maintained in a safe and operable condition by maintenance personnel.
- Use only computers and image display monitors complying with IEC 60601-1 or IEC 60950-1. For details, consult our sales representative or local iRay dealer.
- Use only the dedicated cables. Do not use any cables other than those supplied with this product.
- 6. Request your sales representative or local iRay dealer to install this product.

Caring for your environment



This symbol indicates that this product is not to be disposed of with your residential or commercial waste.

Recycling iRay Equipment

Please do not dispose of this product with your residential or commercial waste. Improper handling of this type of waste could have a negative impact on health and on the environment. Some countries or regions, such as the European Union, have set up systems to collect and recycle electrical or electronic waste items. Contact your local authorities for information about practices established in your region. If collection systems are not available, call iRay Customer Service for assistance.

Disclaimer

- iRay shall not be liable to the purchaser of this product or third parties for any damage, loss, or injury incurred by purchaser or third parties as a result of fire, earthquake, any accident, misuse or abuse of this product.
- iRay shall not be liable to any damage, loss, or injury arising from unauthorized modifications, repairs, or alterations to this product or failure to strictly comply with iRay's operating and maintenance instructions.
- iRay shall not be liable for any damage or loss arising from the use of any options or consumable products other than those dedicated as Original iRay Products by iRay Technology.
- 4. It is the responsibilities of the user/attending physicians for maintaining the privacy of image data and providing medical care services. iRay shall not be responsible for the

legality of image processing, reading and storage nor it shall be responsible for loss of image data for any reason.

 Information regarding specification, compositions, and appearance of this product is subject to change without prior notice.

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Symbols and Conventions

The following symbols and conventions are used throughout the user guide.

	Identify the conditions under which improper use of the product may cause death or serious personal injury.
	Identify conditions under which improper use of the product may cause minor personal injury.
CAUTION	Identify conditions under which improper use of the product may cause property damage.
Prohibited	Indicate a prohibited operation.
0	Indicate an action that must be performed
Important	Indicate important operations and restrictions.
(i) Information	Indicate operations for reference and complementary information.

Labels and markings on the equipment

The contents of the label and mark on iRay Mars1417X product are indicated as below:

Symbol	Description
\triangle	Caution: please refer to the instructions in the user manual.
	Indicates that the equipment has passed CE testing and the CE
CE	Notified Body number follows it.
SN	Serial number of the product.
	Name and address of the manufacturer.
20XX-XX	Manufacturing date of this product.
20XX XX XX	Expiring date of this product.
((1-3))	This symbol is used to indicate non-ionized electromagnetic
	radiation.
	Name and address of iRay authorized representative in the
EC REP	European region.
Ĩ	Consultation of the user guide for general information.
XCX	This product is not to be disposed of with your residential or
X	commercial waste.
	Safety Signs:
	Please refer to the user guide for safety instructions.

Ŕ	В Туре.
	Load limit. (Central area)
\$	Handled with care.
10°C	Operational temperature limits.
-972	Storage temperature limits.
I	Fragile
紊	Keep away from sunlight
Ť	Keep dry
	Humidity limits.
<u><u><u></u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u></u>	Keep the equipment up right.
渣	Do not roll the transportation package.
5	Stacking limit number.
IP	IP56 for working surface only
Rx only	Detector symbol : device is for prescription use only

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1. Safety Information

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1.1. Safety Precautions

Follow these safeguards and properly use the equipment to prevent injury and damage to any

equipment/data

WARNING	
Installation and	Do not use or store the equipment near flammable
environment of use	chemicals such as alcohol, thinner, benzene, etc.
\otimes	If chemicals are spilled or evaporate, it may result in fire or
Prohibited	electric shock through contact with electric parts inside the
	equipment. Also, some disinfectants are flammable. Be
	sure to take care when using them.
	Do not connect the equipment with anything other
	than specified.
	Doing so may result in fire or electric shock.
	All the patients with active implantable medical
	devices should be kept away from the equipment.



Power supply	Do not connect a multiple portable socket-outlet or
0	extension cord to the system.
Prohibited	Doing so may result in fire or electric shock.
	To avoid the risk of electric shock, this equipment
	must only be connected to power supply with
	protective earth.
	Not doing so may result in fire or electric shock.
•	Securely plug the power cord into the AC outlet.
•	If contact failure occurs, or if metal objects come into
	contact with the exposed metal prongs of the plug, fire or
	electric shock may result.
	Be sure to turn OFF the power to each piece of
	equipment before connecting or disconnecting the
	cords.
	Otherwise, you may get an electric shock that could result
	in death or serious injury.
	Be sure to hold the plug or connector to disconnect
	the cord.
	If you pull the cord, the core wire may be damaged,
	resulting in fire or electric shock.
	WARNING

Handling	Never disassemble or modify the equipment. No
	modification of this equipment is allowed. Parts of
\bigotimes	the Mars1417X that are not serviced or maintained
Prohibited	while in use with the patient.
	Doing so may result in fire or electric shock. Also, since the
	equipment incorporates parts that may cause electric shock
	as well as other hazardous parts, touching them may cause
	death or serious injury.
	Do not place anything on top of the equipment.
	The object may fall and cause an injury. Also, if metal
	objects such as needles or clips fall into the equipment, or
	if liquid is spilled, it may result in fire or electric shock.
	Do not hit or drop the equipment.
	The equipment may be damaged if it receives a strong jolt,
	which may result in fire or electric shock if the equipment is
	used without being repaired.
	Do not put the equipment and pointed objects
	together.
	The equipment may be damaged. If so, the equipment
	should be used in bucky.
	Have the patient take a fixed posture and do not let
	the patient touch parts unnecessarily.
	If the patient touches connectors or switches, it may result
	in electric shock or malfunction of the equipment.

When a problem	Should any of the following occurs, immediately
occurs	unplug the power cord of Control Box, and contact
	your sales representative or local iRay dealer:
	When there is smoke, an odd smell or abnormal sound.
	When liquid has been spilled into the equipment or a metal
	object has entered through an opening.
	When the equipment has been dropped and damaged.
Maintenance and	Please turn OFF the power of the equipment and
	unplug the power cord of adaptor before cleaning.
Prohibited	NEVER use alcohol, ether and other flammable
inspection	cleaning agent for safety. NEVER use methanol,
	benzene, acid and base because they will erode the
	equipment.
	DON'T dip the equipment into the liquid.
	Please make sure that the equipment's surface &
	plugs are dry before turning ON.
	Otherwise, it may result in fire or electric shock.
•	Clean the plug of the power cord periodically by
U	unplugging it from the AC outlet and removing dust
	or dirt from the plug, its periphery and AC outlet with
	a dry cloth.
	If the cord is kept plugged in for a long time in a dusty,
	humid or sooty place, dust around the plug will attract
	moisture; this could cause insulation failure that may result
	in a fire.

For safety reasons, be sure to turn OFF the power to	
each piece of equipment when performing	
inspections indicated in this manual.	
Otherwise, electric shocks may occur.	
CAUTION	

Installation and	Do not install the equipment in any of the locations
environment of use	listed below. Doing so may result in failure,
	malfunction, equipment falling, fire or injury.
•	Close to facilities where water is used
	Where it will be exposed to direct sunlight
	Close to the air outlet of an air-conditioner or ventilation
	equipment
	Close to heat source such as a heater
	Where the power supply is unstable
	In a dusty environment
	In a saline or sulfurous environment
	Where temperature or humidity is high
	Where there is freezing or condensation
	In areas prone to vibration
	On an incline or in an unstable area
	Take care that cables do not become tangled during
	use. Also, be careful not to get your feet caught by
	cable.
	Otherwise, it may cause a malfunction of the equipment or
	injury of the user due to tripping over the cable.
	1.5 m 1.5 m 1.5 m 1.5 m 1.5 m 1.5 m 1.5 m

	Always connect the three-core power cord plug to a
•	grounded AC power outlet.
Power supply	To make it easy to disconnect the plug at any time,
	avoid putting any obstacles near the outlet.
	Otherwise, it may not be possible to disconnect the
	plug in an emergency.
	Be sure to ground the equipment to an indoor
	grounded connector. Also, be sure to connect all the
	grounds for the system to a common ground.
	Do not use any power source other than the one
	provided with this equipment.
	Otherwise, fire or electric shock may be caused due to
	leakage.
Handling	Do not spill liquid or chemicals onto the equipment.
0	In case the patient is injured, it is not allowed to
	contact with blood or other body fluids.
	Doing so may result in fire or electric shock.
	In such a situation, protect the equipment with a disposable
	cover as necessary.
	Turn OFF the power and pull out the plug to each
	piece of equipment for safety when not used.
	CAUTION



Local load : 150 kg on an area 4 cm diameter.
CAUTION
Do not close to fire, do not use in high temperature
Do not invert positive and negative pole
Do not contact with metal in case of short circuit

1.2. Notes for Using

When using the product, take the following precautions. Otherwise, problems may occur and the product may not function correctly.

Before exposure

- Be sure to check the connection of all the parts are set properly & check the detector is kept in insulated cover that operator or patient can't touch the detector directly before powered up.
- Be sure to check the product daily and confirm it work properly.
- Sudden heating of the room in cold areas will cause condensation on the product. In this case, wait until the condensation evaporates before performing an exposure. If it is used when condensation is formed, problems may occur in the quality of captured images.
 When an air-conditioner is used, be sure to raise/lower the temperature gradually to prevent condensation.
- The product should be warmed up for 15 minutes before exposure or updating the gain map and defect map.
- Make sure wave form of the energy going to the X ray tube is square not pulse.
- Be cautious with circumstance that someone has radio isotope recently injected into them, it may cause panel transmit image without x ray.
- Once powered off, please wait at least 60s before power on again

During exposure

- Do not move Power Cable or Ethernet Cable during exposure, or it may cause image noise or artifacts, even incorrect images.
- Do not use the product near the equipment generating a strong magnetic field. Otherwise, it may cause image noise, artifacts or even incorrect images.

After Usage

- After every examination, wipe the patient contact surfaces with disinfectants such as ethanol, to prevent the risk of infection. For details on how to sterilize, consult a specialist.
- Do not spray the product directly with disinfectants or detergents.
- Wipe it with a cloth slightly damped with a neutral detergent. Do not use solvents such as alcohol, benzene and acid. Doing so may damage the surface of the product.
- It's recommended to use a waterproof non-woven cover as the isolated layer between product and the blooding patient.

2. General Description

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2.1. Product Description

Mars1417X is a cassette-size wireless X-ray Wireless Digital Wireless Digital Flat Panel Detector based on amorphous silicon thin-film transistor technology. It is designed to provide the high quality radiography image which contains an active matrix of 3500×4300 with 100um pixel pitch, the TFT module has a pixel matrix of 3584*4352. There are 12 dummy columns for both right and left, 15 dummy rows for both top and bottom. Also, there are 30 unconnected columns for both right and left, and 11 unconnected rows for both top and bottom.

The scintillator of Mars1417X is CsI(Caesium Iodide) which is direct deposit. Since Mars1417X supports multiple trigger modes, it can satisfy both of the general DR system and retrofit DR system.



2.2. Principle

Detectors contain a layer of scintillator material, which converts the x-rays into light. Directly behind the scintillator layer is an amorphous silicon pixel array contains a photodiode which generates an electrical signal in proportion to the light produced by the portion of scintillator layer in front of the pixel. The signals from the photodiodes are amplified and encoded by additional electronics positioned behind the sensor array in order to produce an accurate and sensitive digital representation of the x-ray image.

2.3. Scope

This manual contains information about iRay Mars1417X product. All operators must read and understand this manual before using equipment. All information in this manual, including the illustrations, is based on equipment prototype. If configuration of your equipment does not have any of these items, information about these items in the manual does not apply to your equipment.



2.4. Characteristics

- Wireless static Wireless Digital Wireless Digital Flat Panel Detector
- 14 inch ×17 inch
- Removable handle
- AED
- 802.11ac
- 16-bit AD

2.5. Intended Use

Mars1417X is indicated for digital imaging solutions designed to provide general radiographic diagnosis for human anatomy including both adult and pediatric patients. It is intended to replace film/screen systems in all general–purpose diagnostic procedures. The device is not intended for mammography or dental applications.

Suitable patient

It is suitable for providing digital X-ray imaging for DR system to provide general radiographic diagnosis for human anatomy including both adult and pediatric patients, but not intended for mammography or dental applications. The remaining notes depend on the DR system.

PATIENT population:

- Adult and pediatric patients
- Weight: not relevant
- Health: not relevant
- Nationality: multiple
- Patient state: patient is not user
- Gender: except for pregnant women

Pediatric Use: Guidance & Considerations

Special care should be exercised when imaging patients outside the typical adult size range, especially smaller pediatric patients whose size does not overlap the adult size range (e.g.less than 50 kg (110 lb) in weight and 150 cm (59 in) in height, measurements which approximately correspond to that of an average 12 year old.

The following ranges of pediatric subpopulations are to be used as a guide for manufacturers in developing medical devices:

Pediatric Subgroup	Approximate Age Range
Newborn (Neonate)	From birth to 1 month of age
Infant	Greater than 1 month to 2 years of age

Child	Greater than 2 to 12 years of age
Adolescent	Greater than 12 through 21 years of age

Exposure to ionizing radiation is of particular concern in pediatric patients because:

 for certain organs and tumor types, younger patients are more radiosensitive than adults (the cancer risk per unit dose of ionizing radiation is higher for younger patients);

2) use of equipment and exposure settings designed for adults of average size

can result in excessive and unnecessary radiation exposure of smaller patients;

3) younger patients have a longer expected lifetime putting them at higher risk

of cancer from the effects of radiation exposure.

To help reduce the risk of excessive radiation exposure, you should follow the ALARA (As Low As Reasonably Achievable) principle and seek to reduce radiation dose to only the amount necessary to obtain images that are adequate clinically.

Additional guidance and recommendation are provided by the Alliance for Radiation Safety in Pediatric Imaging (Image Gently Alliance) *https://www.imagegently.org/*

Body Parts	Patient Size	kVp	mAs	SID	Grid
	Very Low Birth Weight (Less than 1.5Kg)	55	1	1m	No
Abdomen AP/PA	Low Birth Weight (Between 1.5 and 2.5Kg)	55	1.6	1m	No
	Newborn (Age is less than 1 month and Weight above than 2.5Kg)	70	1.6	1m	No

 Table 1 : Techniques for Typical Body Parts

Body Parts	Patient Size	kVp	mAs	SID	Grid
	Infant (Age is between 1 month and 2 years) Child (Age is between 2 years and 12 years)		2	1m	No
			7.1	1m	Yes
Abdomen AP/PA	Preadolescent (Age is between 12 years and 13 years)	75	14	1m	Yes
	Adolescent (Age is between 13 years and 21 years)	75	20	1m	Yes
	Adult Small	75	18	1m	Yes
	Adult Medium	80	22	1m	Yes
	Adult Large	85	32	1m	Yes
	Very Low Birth Weight	50	1	1m	No
	Low Birth Weight	55	1	1m	No
	Newborn	65	1	1m	No
	Infant	70	1.6	1m	No
Chost DA / A D	Child	70	1.6	1m	No
Cliest FA/AF	Preadolescent	90	2	1m	Yes
	Adolescent	90	2	1m	Yes
	Adult Small	110	1.8	1.8m	Yes
	Adult Medium	110	2.8	1.8m	Yes
	Adult Large	120	4	1.8m	Yes
	Very Low Birth Weight	50	1	1m	no
	Low Birth Weight	55	1	1m	no
	Newborn	57	1	1m	no
	Infant	57	1.2	1m	no
Futuro maiting	Child	58	1.2	1m	no
AP/PA	Preadolescent	62	1.6	1m	no
-	Adolescent	62	2	1m	no
	Adult Small	F detail: Extremi	Regarding s techniqu ties, pleas	adult les of le refer	no
		to the ta for Ad	able "Tech ult Extrim	iniques ities"	

Table 2: Techniques for Adult Extrimities

Adult Extemities List	kVp	mAs	SID	Grid
Ankle - AP	58	4	1m	no

Adult Extemities List	kVp	mAs	SID	Grid
Ankle – Lateral	58	4	1m	no
Femur – AP	70	16	1m	yes
Femur – Lateral	70	10	1m	yes
Hand - AP	53	1.8	1m	no
Hand – Lateral	53	1.8	1m	no
Humerus - AP	75	7.1	1m	yes
Humerus – Lateral	70	3.2	1m	yes
Knee - AP	65	10	1m	yes
Knee – Lateral	65	10	1m	yes
Wrist - PA	55	1.8	1m	no
Wrist – Lateral	55	1.8	1m	no

ESSENTIAL PERFORMANCE

According to the Mars1417X INTENDED USE and the result of risk management, image acquisition and data transmission are defined as ESSENTIAL PERFORMANCE.

Getting dark image proves that ESSENTIAL PERFORMANCE does not influence INTENDED USE. Method for getting dark image in detail refers to section "installation" and "operation"

Intended OPERATOR:

All of use, maintenance and operation steps should be carried out by the operator who has accepted the professional training offered by the company's customer service staff.

Life-time:

Life-time: 5 years without frequency limit

2.6. Environment

	Temperature	Humidity	Atmospheric Pressure
Operating	10~35℃	5~90% RH	700~1060mbar
Storage	-20~55°C	5~95% RH	600~1060mbar

2.7. Product Components

Item	Picture	Description
Mars1417X Detector		1pcs
Medical Adapter		1pcs
AC Power Cable	FURT	1pcs



2.7.1. Detector





2.7.2. Indicator



2.8. Specification

2.8.1. Basic

ltem	Specification
Model	Mars1417X
Image Sensor	a-Si (Amorphous Silicon) TFT
Scintillator	Csl
Pixel Size	100um

Fill Factor	60%
Effective Array	3500x4300
Effective Area (H x V)	35mm×43mm
Spatial Resolution	4.3 lp/mm
Image Transfer	WIFI
Full Image Time	<5s (with 1s XWin, from end of XWin)
Cycle Time	6s
Power Consumption	35W @ Full-Running 7.5W @ Idle
Dimension (L × W × H)	460mmx384mmx15mm @typ.
Weight	2.8kg(with battery)
X-ray Energy	40-150kV
Panel protection	IP56
Trigger Mode	Software/AED
SID	90-180cm

3. Basic Operation

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3.1. Preparation

3.1.1. Attach Battery Pack

The product can be powered by both a battery pack and DC power. Once the battery pack is inserted or DC power is connected, detectors will be turned on immediately. If neither battery nor DC power is connected, panel will power off. Please see below for battery installation.



3.1.2. Adapter

Detector supports an external adapter powered, It gets CB certificate No. SG PSB-MD-

00005 and NRTL certificate No. U8V 093768 0016. The ports defined as bellow:

No	Definition	Voltage Range	Rated Current
P1	DC Power Negative	0~0.5V	0~0.42A
P2	DC Power Positive	23~25V	0~0.42A
P3	DC Power Positive	23~25V	0~0.42A
P4	DC Power Negative	0~0.5V	0~0.42A

In order to meet the safety and function requirements of the detector, standard components are recommended.



3.2. Routine Operation

3.2.1. Starting Up

On the control panel, users can press the power button to turn on.





Power indicat	or:			
Dowor			Status	
Indicator	Lighting Status	Battery Capacity	DC Input	Description
OFF		N/A	N/A	Detector is off
Green ON		N/A	YES	Detector is on
Orange Blinking		≥7% & < 15%	NO	Detector is on
Green Blinking		≥15% & < 95%	YES	Detector is on
Green&Oran ge Blinking		<95%	YES	Detector is off

After booting up, users can check the indicator of the detector.

Link indicator:

Link Indicator	Lighting Status	Description
		Detector is turned off
OFF	(?)	Wired connection broken and wireless
	-	connection not ready
Blue ON	(îr	Wireless connection is enabled
		Wired connection is enabled (Service
Green ON	?	Mode)

Mode indicator		
Mode Indicator	Lighting Status	Description
ON	>4	Data transmission
OFF	X	Detector is off

Status indicator :

Mode Indicator	Lighting Status	Description
OFF		Detector is off
Green ON		Exposure is allowed

Orange ON	0	Error

3.3. Battery Charger Installation

Operation	Figure
 Unload Battery from battery charger. 	
 Insert battery into battery charger. Note the interface position as figure. 	
 Press the battery to the bottom of battery compartment. 	

4. Software Setup

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NE	WORK	ŀ

4.1. System requirement

iDetector is developed and deployed on Windows Operation System, it can be run on Windows XP/Windows 7/Windows 8/Windows 10, OS should install latest service pack. And requires computer memory 4 GB minimum. The firewall should be shut down to avoid commuication issue.

4.2. Environment setup

Setup files and download url are included in SDK directory: Tools\env_setup

1. Please install Microsoft .NET Framework 4.5(Windows XP only can install V4.0). Download from Microsoft web site, please.

2. Visual C++ redistributed package need to be installed: vcredist_x86_2013(or

vcredist_x64_vs2013).

3. For Windows XP, full path should be used in file "bind.txt".

The wifi information should be configured for first use with wired connection. The configuration can be changed when needed.

4.3. Wired Connection (for setting&maintenance)



Figure 3-3-1

Connect the power cable and data cable to the detector as figure 3-3-1, please mind that there are two type-c interfaces on the detector, the one closes to the edge of the battery component is for data and command, the other one is for service.

General	
You can get IP settings assigned this capability. Otherwise, you r for the appropriate IP settings.	d automatically if your network supports need to ask your network administrator
🗇 Ottain en P address autor	matically
Uge the following IP addres	10
P address:	192 , 168 , 8 , 188
Sybriet mask:	255 .255 .255 . 0
Default gateway:	5 X X I
C Ogtan DHS arrive address	automatically
A Ling the following DPS and	er addresses:
Befered DVS server:	11 1 1 1
Alternate DNS server:	
📰 Valjdate settiriga upon esi	adymost
📰 Vajidaste serttings upon exil	t Adyanced
E Vajdate settings upon exi	t Adyanced
Vajdate settings upon evi Config.ini - Notepad File Edit Format View	t Adgenced
Vajdate settings upon exi Config.ini - Notepad File Edit Fgrmat View (System)	Adgenced
■ Vajdate settings upon exi © config.ini - Notepad Gle ⊈dit Fgrmat ⊻iev System] Fg_DetectorImp=B4	t Adgenced OK Gencel w Help
Vajdate settings upon exi config.ini - Notepad Ele Edit Fgrmat View System] fg_DetectorImp=E4 fg_CornImp=CornUd	t Adyancet
Configuri - Notepad Sie Edit Format View System] Fg_DetectorImp=E4 Fg_CaliImp=CaliE4 Fg_CaliImp=CaliE4	t Adgenced
Vajdate settings upon est config.ini - Notepad Ele Edit Format View (System) Cfg_DetectorImp=E4 Cfg_ConnImp=ConnUd Cfg_CaliImp=CaliE4 Cfg_LogLevel=1 Cfg_UseServiceProc	t Adgencet OK Cancel w Help IW IpTop IW
Vajdate settings upon est config.ini - Notepad Ele Edit Format Yest System] Fg_DetectorImp=E4 Fg_CornImp=ConnUd Fg_CaliImp=CaliE4 Fg_LogLevel=1 Fg_UseServiceProc Fg_ProtocolEditio	t Adgenced OK Cancel W Help IW tpTcp IW cess=1 in=4
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Vajdate settings upon est config ini - Notepad Ele Edit Fgrmat View System] Fg_DetectorImp=E4 Fg_ConnImp=ConID4 Fg_LogLevel=1 Fg_LogLevel=1 Fg_UseServiceProc Fg_ProtocolEditio Fg_ProductNo=61 Fg_SN=	t Adgenced OK Cancel W Help IW tpTcp IW cess=1 im=4
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Figure 3-3-2

The default IP address (IPv4) of the detector is 192.168.8.8, the PC address (IPv4) should be configured as 192.168.8.xxx, which should be the same as the value of parameter "Cfg_HostIP" in file "*\work_dir\Mars1417X\config.ini"

Wireless Configuration





On the main window of Home page, select the instance of "Mars1417X" and use the "Connect" button the build the connection.

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Figure 3-3-4

After finishing building the connection, click "Read Config" button on the "Wifi" tab of "Detector"

pag to get the current wifi configuration.

User can set the mode of the wifi for detector, "AP" or "Client".

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Figure 3-3-5

For Client mode, user can add the information of the access point with button "Add", and set the

default access point that the detector should connects to with button "Select".

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Figure 3-3-6

After click "Write Config" button, the new setting of the wifi will be valid after the status shows succeed.

The detector will connect to the access point when the data cable is removed.

What needs to be noticed is, the wifi frequency set on the "AP" interface will also be valid for

"Client"mode.

4.4. Software UI

SDK supply iDetector as tool softwore:

32-bits iDetector.exe: Tools\iDetector\w32

64-bits iDetector.exe: Tools\iDetector\x64

Double click iDetector.exe to run the software. For different software version, the UI maybe has little difference.

For this manual, the example is based on SDK_*_xxxx. This UI is almost the same for different versions of iDetector.

Tab	Function description
Home	Connect FPD and view the connect state
Acquire	Acquire image, select correction mode, save image and process
	image
SDK	config.ini setting, log level setting
Detector	Configurate parameters for detector.
Calibrate	Generate calibration files and manage the calibration files
Local File	Open and view local images.

4.4.1. HomePage

The main function in this page is to connect detector.

C Unester				010 0
Hans Arguin	KDK Detector	Calibrate Local File		2019/02/21 17:38:42
				40.253386
	Name Vensil1119,1 Mast4119,1	Us Product Type VersiL127X Mark04278	State End Med	Cannet
				Farecos

Item	Function description				
Name	Display the name of detector				
SN	Display the SN of detector				
Product	Display the type of detector				
Туре					
State	Display the connection state (Bind , Unknown, Ready etc.)				

Button	Function description
Connect	Click this button to connect the selected detector.
Close	Click this button to disconnect the selected detector.
Add	Add work directory
Remove	Remove work directory
Syncbox	Open Syncbox configuration window(Optional device)

4.4.2. Acquire Page

This page is used to acquire image under different work mode, and user can select correction options too. When acquire image finished there will be a preview image shown on the screen (if the correction option is selected, otherwise only the raw images will be shown). The propertities of image is displayed on the left of image window. And on the right of image window there is a list to show thumbnail of images. User can select it and double click to see for detail. User can rotate, reverse or mirror image. User can get the value of AVG and SNR by ROI tool. The acquired images can be save as raw, tiff or dicom formats. Both raw and tiff formats support single frame and continuous frames save.



Status bar shows detector's serial number, the current task and state of detector, and feedback information of command. Status bar is also can be seen in other pages, and they are all the same.

ltem	Description			
SN	SN number of current connected detectors			
State	Detectors state , eg busy, ready			
Task	the current task of detector			
Message	feedback information of command,eg succeed,failed			

Functions in this Page.

Correction Menu		Description			
Offset	HWPostOffset	Do hardware PostOffset correction for image if			
		checked			
Gain	HWGain	Do hardware Gain correction for image if selected			
Defect	HWDefect	Do hardware defect correction for image if checked			
Acqurie Button Description		Description			
Prep		Clear. Prepare to integrate.			
SingleAcq		Acquire once			
PrepAcq		Clear and acquire			
Acquire		Acquire once			
Sleep		Make the detector enter sleep mode (not supported			
		for samples)			
Save		Save the current image, the format is raw and tiff			
PowerOff		Turn off the detector via command			
Image Pro	operties& Image	Description			
Р	rocess				
WW		window width			
WL		window level			
PosX		X coordinates of the current cursor at the point			

PosY	Y coordinates of the current cursor at the point
Value	Value of the current cursor at the point
Width	Image width
Height	Image height
FPS	Frame rate
Frames	Display the frame count
C	Rotate the image clockwise, 90 degrees every time.
3	Rotate the image anticlockwise, 90 degrees every
	time.
Mirror	time. Open or close mirror
Mirror ROI	time. Open or close mirror ROI tool , to view the image of the AVG, SV, SNR
Mirror ROI	time. Open or close mirror ROI tool , to view the image of the AVG, SV, SNR and other parameters with right click. Press "ctrl" key,
Mirror ROI	time. Open or close mirror ROI tool , to view the image of the AVG, SV, SNR and other parameters with right click. Press "ctrl" key, can create several ROI area.
Mirror ROI WW/WL	time. Open or close mirror ROI tool , to view the image of the AVG, SV, SNR and other parameters with right click. Press "ctrl" key, can create several ROI area. Auto adjust WW/WL based on selected area by right
Mirror ROI WW/WL	time. Open or close mirror ROI tool , to view the image of the AVG, SV, SNR and other parameters with right click. Press "ctrl" key, can create several ROI area. Auto adjust WW/WL based on selected area by right button of mouse.

When the image is displayed on the screen, maybe the user want to see details by dragging or zoom in/out the image, for convenience, these are some shortcuts.

- 1. Click the left mouse button: movie playback function operation area display.
- 2. Double-click the left mouse button: the image display in center and with maximum size;
- 3. Double-click the right mouse button: restore the window level and width for

WL:32767/WW:65535;

- 4. Drag the left mouse button to drag the image display;
- Lateral-drag the right mouse button to adjust the window width, and vertical-drag the right mouse button to adjust the window level;

- 6. F3 Key: Quickly locate the image window width and window level.
- 7. F4 Key: Adjust window width and window level automatically.

4.4.3. SDK Pgae

SDK page is used to set parameters in config.ini and log level.

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Different log level will show different details. It is recommended to set the log level as Debug

4.4.4. Detector Page

In this page, there are Parameters, Sensor and Images tab.

• Parameters

- Enter Detector page, the tab of Paramters is activity by default. There are 5 regions in this page.
- 2. Parameter name region: lists the paramters.