

VIEWWORKS

VIVIX-S 2530VW / 3643VW /4343VW

Operation Manual

(FXRD-2530VAW/ FXRD-2530VAW PLUS, FXRD-3643VAW/
FXRD-3643VAW PLUS, FXRD-4343VAW/ FXRD-4343VAW PLUS)



CE₂₄₆₀

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1. Instruction

This section gives basic information about this manual and safe product use.

Document Guide

Purpose of Use

Clinical Benefits of Product Use

Features

Product Use

Safety Instruction

Product Usage Guide

1.1 Document Guide

This operation manual explains how to use the **VIVIX-S VW** detector models made by Vieworks, X-ray interface unit, and other peripheral equipment. Use this manual to set up the **VIVIX-S VW** detector as well as understand its various functions.

1.1.1 Target Audience

This manual is intended for the users who set up and operate the **VIVIX-S VW** detector models.

1.1.2 Symbols

This product should be operated under the safety instructions with the warning or caution symbol in this manual. It is important for you to read and understand the contents to operate the products safely.

Caution



- This symbol is used to indicate a potentially hazardous situation that may cause death, personal injury or substantial property damage if the instructions are ignored. Users should be well acquainted with this symbol and the related contents.

Information



- This symbol is used for indicating product related references and supplementary information. Users are recommended to read the sentences with this notice carefully.

1.1.3 Notations

Bold Types

Words in bold indicate products terms, or the sentences which are needed to transmit clear meaning to the customers.



- Among the references specified in this document, some installations and settings are performed by qualified service engineers. For proper product installation and setup, please check the manuals listed in the references or contact your service engineer.

1.1.4 Contact Us

- This manual is provided in print format upon request by the customer.
- For comments or inquiries regarding this document and relevant products, contact via email below:

Item	Contents
Department	Customer Support Team at Vieworks
E-mail	CustomerSupport@vieworks.com



- You can download this manual from VDS (Vieworks Download System) website:
<https://clouds.vieworks.com:5001/>.
- To obtain an ID and password for manual download, please contact the customer support team in Vieworks.

1.2 Intended Use

1.2.1 Intended Use

It is indicated for use in general radiographic applications to acquire for diagnostic quality radiographic images of the human anatomy, wherever conventional screen film systems may be used.

1.2.2 Patient Group

Patients of all ages, including pediatric patients, and genders.

1.2.3 Contra-Indication

It is not indicated for use in mammography.

1.3 Clinical Benefits of Product Use

Compared to X-ray exposure to a patient during X-ray imaging using this detector, the benefit of diagnosing a patient's disease or injury is much greater. The digital flat panel detector has superior X-ray image quality compared to the conventional analog film type and enables real-time image transmission and image processing, so that the benefit is much greater in terms of ease of diagnosis and usability compared to electrical risks that may occur.

1.4 Features

- Since VIVIX-S VW detectors, excluding the FXRD-2530VW model, are compatible with a conventional film cassette, they enable to replace the analog radiographic diagnosis.
- VIVIX-S VW detectors provide high resolution digital images. The resolution varies depending on the models as follows.
 - **FXRD-3643VAW, FXRD-3643VAW PLUS** : 140µm pixel pitch sensor (Approx. 7.9 Mega Pixels)
 - **FXRD-4343VAW, FXRD-4343VAW PLUS** : 140µm pixel pitch sensor (Approx. 9.4 Mega Pixels)
 - **FXRD-2530VAW, FXRD-2530VAW PLUS** : 124µm pixel pitch sensor, (Approx. 5.2 Mega Pixels)
- The scintillator provides two types of CsI, and you can use one of the detectors.
- VIVIX-S VW detectors support IEEE 802.11n/ac to acquire images without a wired connection in anytime, anywhere.
- Checks the connecting status of the detector and battery remains through OLED Display.
- Makes direct wireless communication with the built-in wireless AP function. (Inside AP™)
- Makes quick application of various functions with two buttons on the side of the detector.
- Supports the stable and reliable AED (Auto Exposure Detection) function. (Anytime™)
- Designed for easy carrying
- You can use the product with cable connection (tether interface cable) depending on the using environment.

1.4.1 Brand Name

There are three brand names: VIVIX-S 2530VW, VIVIX-S 3643VW and VIVIX-S 4343VW.
The brand name varies depending on the detector's panel size.

1.4.2 Model Name

There are two types of model names for each size (FXRD-2530VAW/FXRD-2530VAW PLUS, FXRD-3643VAW/FXRD-3643VAW PLUS and FXRD-4343VAW/FXRD-4343VAW PLUS).

The model name varies depending on the type of scintillator.

1.5 Product Use

This chapter provides instructions about the use of the product, disposal, and the liability limit of Vieworks.

1.5.1 Product Usage


- 1 Only legally certified radiologic technician, radiologist, and physician should use this product.
- 2 The equipment should be kept in a safe and operable condition by maintenance personnel.
- 3 Follow the guidelines in this manual when installing and using this product.
- 4 Use only computers and image display monitors recommended in this manual.
- 5 Use only the dedicated cables provided with this product.
- 6 For details about installation and use of the product, consult your sales representative or a distributor.

1.5.2 Disclaimer

- 1 In no event shall Vieworks be liable for damage or loss arising from a fire, earthquake, any action or accident by a third party, any intentional or negligent action by users.
- 2 In no event shall Vieworks be liable for damage or loss arising from any trial usage, or other usage under abnormal conditions.
- 3 In no event shall Vieworks be liable for personal physical harm or property damage that is sustained when the instructions of this manual are not followed.
- 4 In no event shall Vieworks be liable for any damage arising from moving, alteration, inspection or repair the product by a person other than an authorized service engineer by Vieworks.
- 5 In no event shall Vieworks be liable for loss of image data for any reason while using this product.
- 6 Roentgenography, image processing, image reading, and image data storage must be performed in accordance with the laws of the country or region in which the product is being used.
- 7 The user is responsible for maintaining the privacy of image data acquired from this product.
- 8 It is the responsibility of the attending physicians to provide medical care services. Vieworks will not be liable for faulty diagnoses.
- 9 Specifications, composition, and appearance of this product may change without prior notice.
- 10 In the event of a serious accident involving the device, please report it to Vieworks and the country in which you purchased the product.

1.5.3 Outdoor Restrictions

There are restrictions on the outdoor use of the U-NII Low (5150-5250 MHz) and U-NII Mid (5250-5350 MHz) bandwidths of the WLAN module incorporated in the device in the following Member States: Belgium (BE), Bulgaria (BG), Czech Republic (CZ), Denmark (DK), Germany (DE), Estonia (EE), Ireland (IE), Greece (EL), Spain (ES), France (FR), Croatia (HR), Italy (IT), Cyprus (CY), Latvia (LV), Lithuania (LT), Luxembourg (LU), Hungary (HU), Malta (MT), Netherlands (NL), Austria (AT), Poland (PL), Portugal (PT), Romania (RO), Slovenia (SI), Slovakia (SK), Finland (FI), Sweden (SE) and United Kingdom (UK).

	AT	BE	BG	CY	CZ
	DE	DK	EE	EL	ES
	FI	FR	HR	HU	IE
	IT	LT	LU	LV	MT
	NL	PL	PT	RO	SE
	SI	SK	UK		

1.5.4 Product Disposal

Disposal of this product in an unlawful manner may have a negative impact on health and on the environment. When disposing of this product, therefore, be absolutely sure to follow the procedure that conforms to the laws and regulations applicable in your area.

European Union (and EEA*) only



This symbol indicates that this product is not to be disposed with your household waste, according to the WEEE Directive (2012/19/EU) and your national law.

This product should be handed over to a designated collection point, e.g., on an authorized one-for-one basis when you buy a new similar product or to an authorized collection site for recycling electrical and electronic equipment (EEE). Improper handling of this type of waste could have a negative impact on the environment and human health due to potentially hazardous substances that are generally associated with EEE. At the same time, your cooperation in the correct disposal of this product will contribute to the effective usage of natural resources. For more information on where you can drop off your waste equipment for recycling, please contact your local city office, waste authority, approved WEEE scheme, or your household waste disposal service.

*EEA: Norway, Iceland, and Liechtenstein

1.6 Safety Instruction

This product is designed and manufactured to ensure maximum safety of operation and to meet all the safety requirements applicable to electronic medical equipment. Follow these safeguards while using the products to prevent severe personal injury or substantial property damage. It is important to read and understand the contents of this manual before using the product.

1.6.1 Management and Authority



- The product should be installed, operated, and serviced according to Vieworks maintenance procedures and by a Vieworks service representative or a distributor who provides purchase of the Vieworks' product.
- Operation and maintenance should be done in strict compliance with the operation instructions contained in the manual.
- The system, in whole or in part, cannot be modified in any way without prior approval from Vieworks.
- Before authorizing any person to operate the system, verify that the person has read and fully understood the manual. The owner should make certain that only properly trained and fully qualified personnel are authorized to operate the equipment. An authorized operators list should be made and maintained.
- It is important that this manual be kept at hand, studied carefully, and reviewed periodically by the authorized operators.
- If a malfunction occurs, do not use this device until qualified personnel correct the problem.

1.6.2 Power Supply



- Do not operate the equipment using any type of power supply other than the one indicated on the rating label. Doing so may result in a fire or electric shock.
- Do not supply power to more than one piece of equipment using the same AC outlet for this product. Doing so may result in a fire or electric shock.
- Do not connect multiple portable socket-outlets or extension cords to the system. Doing so may result in a fire or electric shock.
- Always connect the three-core power cord plug to a grounded AC power outlet.
- Ground the equipment to an indoor grounded connector. Connect all the grounds for the system to a common ground.
- Do not connect the AC or DC power cable to the product with the power applied. Failure to do so may result in damage to the product.
- Do not use any power source other than the one provided with this product. Otherwise, a fire or electric shock may be caused due to a leakage.
- The owner should ensure continuous power supply to the system with voltage and current according to the product specifications. If the system is powered unstably during its operation, we recommend you install a UPS (Uninterrupted Power Supply) to avoid loss of data.

- 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.
- Do not place heavy objects, such as medical equipment on cables and cords. Do not pull, bend, bundle, or step on the cables and cords to protect their sheath from being damaged.
- Make sure that the detector is on before connecting a tether cable to the detector.
- Securely plug the power cord into the outlet. If contact failure occurs, or if dust/metal objects encounter the exposed metal prongs of the plug, fire or electric shock may result.
- 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.
- Hold the plug or connector when you disconnect the cord. If you pull the cord, the core wire may be damaged, resulting in a fire or electric shock.
- Do not handle the product with wet hands. You may experience an electric shock that could result in death or serious injury.

1.6.3 Handling



- Do not disassemble or modify the product. It can cause a product malfunction, electric shock, or fire.
- Only use the parts specified in this manual. If you want to use other parts, confirm with the supplier of the parts in advance.
- Be careful not to cause liquid or metal objects such as needles and clips that may damage the product to get into the product.
- If the product has been affected by an impact or vibration due to the user's misuse, make sure that you perform a product inspection before using it again.
- When moving or using a disfigured product, be careful of the sharp edge or the overhangs of the product.
- The exterior of the product is made of a material that does not cause skin problems. However, some users may be allergic to it.
- If an X-ray is taken while the patient is moving, the quality of the picture may be affected. Make sure that the patient maintains a fixed posture as much as possible.
- If there is harmful liquid on the surface of the detector, the patient may be exposed to a risk of infection or may suffer rashes. In this case, wash the detector or use a disposable cover. When using the product for a bleeding patient, use a disposable cover whenever possible.
- For safety reasons, be sure to turn OFF the power of the equipment when the inspections indicated in this manual are going to be performed.
- Soaking the detector in water can cause a product malfunction or electric shock. Follow the instructions in "Cleaning and Sterilization" of this document to wash the detector.
- It is recommended that the detector is used on a flat table. Especially, if the product is used on an uneven surface such as a patient's bed, it may be damaged, or its lifespan may be affected when a load heavier than the specified limit is applied.

- Organize the connecting cables while using the product so that they do not tangle with the body of the user or the patient. Failure to do so may injure the user or the patient, or cause the product to fall, which can result in a malfunction.
- A product with a ventilation hole should be installed at a location that is ventilated well. Otherwise, dust can pile up in the ventilation hole, causing a malfunction or damage by overheat.

1.6.4 Battery Pack



- The lithium-ion battery pack is built into the VIVIX-S VW detectors. Due to the life of the battery pack, use only the battery pack designated for the VIVIX-S VW detectors when replacing the battery pack.
- If you use a battery pack other than the specified one, the battery pack may explode, or electrolyte may spill out, resulting in a fire or electrical shock. Do not use the battery pack with other power sources.
- Always charge the battery pack by attaching it to the VIVIX-S VW detectors. Do not use any other power supply to charge the battery pack.
- Do not handle the battery pack with wet hands.
- Do not attempt to disassemble, alter, or apply heat to the battery pack.
- Avoid dropping or subjecting the product to severe impacts. To avoid the risk of injury, do not touch the internal parts of the battery if it has been cracked or damaged.
- Stop using the battery pack immediately if it emits smoke, a strange smell, or otherwise operates abnormally.
- Do not let the battery pack encounter water or other liquids and do not allow the battery to get wet.
- Do not clean the battery pack with substances containing organic solvents such as alcohol, benzene, thinner, or other chemicals. Otherwise, fire or electrical shock may result.
- Do not allow dirt or metal objects (such as hair pins, clips, staples or keys) to contact the terminals of the battery pack. Otherwise, battery may explode, or leakage of electrolyte may occur, resulting in fire, injury or pollution of surrounding area. If the battery leaks and the electrolytes encounter your eyes, mouth, skin or clothing, immediately wash it away with running water and seek medical attention.
- Do not leave, store, or place the product in a location near heat sources, or in a place subject to direct sunlight, high temperature, high humidity, excessive dust, or mechanical shock. Otherwise, battery leakage, overheating or damage to the product may occur, resulting in electrical shock, burns, injury or fire.
- If the battery pack becomes heated or swollen, immediately replace the battery with a new one before using it. Otherwise, overheat, smoke, explosion, or fire may occur.

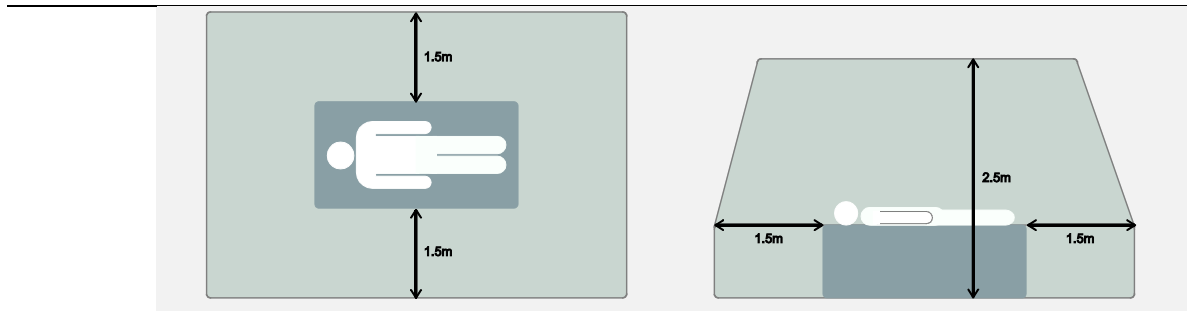


- The lithium ion battery is reusable by charging.
- The battery slowly discharges even if not in use.
- The battery pack may have expired if it discharges immediately after being fully charged. You can purchase an optional battery pack to replace an exhausted one.
- The battery pack is a consumable item. If a fully charged battery is consumed quickly, use a new and fully charged battery pack.
- Be sure to charge the battery periodically (once a year) if it is not used for an extended period of time. The battery pack cannot be charged if it has been over discharged.

1.6.5 Environment of Use



- Do not install the equipment in any of the locations listed below. Doing so may result in failure or 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
 - Nearby the electric heating appliance 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 higher than the operating temperature
 - Where there is freezing or condensation
 - In areas prone to vibration
 - On an incline or in an unstable area
- This product may malfunction due to electromagnetic interference (EMI) caused by telecommunication devices, transceivers, electronic devices, etc. To prevent the electromagnetic wave from badly influencing the product, be sure to avoid placing it near the product. Or, change direction or position of the product or move into the shielded place to reduce electromagnetic interference.
- This equipment is not suitable for use in the presence of a flammable anesthetic mixture with air or with oxygen or nitrous oxide.
- Conductive fluids that drain into the active circuit components of the system may cause short circuits that can result in electrical fire. Therefore, do not place fluids or food on any part of the system.
- To avoid electric shocks and burns caused by use of the wrong type of fire extinguisher, make sure that the fire extinguisher at the site has been approved for use on electrical fires.
- Non-medical devices such as wireless router and **SCU** (System Control Unit) cannot be used in patient's vicinity.



1.6.6 Temperature



- The product is not intended to supply heat to a patient.
- Do not use the equipment beyond the range of recommended operating temperature.

1.6.7 Problem Management



- Should any of the following occur, immediately turn OFF the power to each piece of equipment, unplug the power cord from the AC outlet, and contact sales representative or distributor.
 - When there is smoke, an odd smell or abnormal sound.
 - When liquid is spilled into the equipment or a metal object is entered through an opening.
 - When the equipment has been dropped and is damaged.

1.6.8 Maintenance and Inspection



- Do not use or store the equipment near flammable chemicals such as acetone, benzene, thinner, etc. If chemicals are spilled or evaporated, it may result in a fire or electric shock through contact with electric parts inside the equipment.
- If any flammable cleaning agent is used for the product, be sure to take care when using them.
- When the equipment is going to be cleaned, be sure to turn OFF the power of the equipment and unplug the power cord from the AC outlet. Never use thinner, acetone, benzene or any other flammable cleaning agent. Otherwise, it may result in a fire or electric shock.
- Clean the plug of the power cord periodically by 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, and this could cause insulation failure that could result in a fire.
- Be sure to turn OFF the power of the equipment while cleaning. Otherwise, a fire or electric shock may occur.

1.6.9 Cybersecurity



- The physical security of the product relies on the physical security policy of the agency or the environment. Access to the product should be only allowed to an authorized user.
- Reassembling or remodeling the product with the purpose of accessing the saved digital data is strictly prohibited.
- Activity occurred by inappropriate access is identifiable through the log saved in the product.
- The safest way to connect the product to an external equipment is using the closed network.
- When using the product in the wireless network, using Security Certification Program, like WPA, is recommended for confidentiality issue.
- If the network setting of the product is inappropriate, access is unavailable. Proper network setup is required.

1.7 Product Usage Guide

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

1.7.1 Calibration

- To ensure optimal system performance, it is important to verify that the system is calibrated correctly.
- Check if the calibration is performed after the equipment is completed to be installed or repaired.
- Do not try to use the system if the calibration has not been performed.
- If it is difficult to perform the calibration directly, use calibration data in the detector.



- The calibration result can be different by the use environment. Therefore, if the result performed with the calibration data in the detector is not satisfied, you can create the data at the field in person by using **VIVIX Setup**, the calibration software.

1.7.2 Disposal

- Disposal of this product in an unlawful manner may have negative effects on human health and the environment.
- Be sure to follow the procedure which is in conformity with the laws and regulations applicable in your area.

1.7.3 Pediatric Exposure



- When shooting a pediatric patient with the X-ray system including this product, be careful of the below details.

- Every request should be reviewed by a pediatric radiologist prior to beginning the examination to ensure that an appropriate study is being performed.
- The radiologist should decrease the radiation dose when he or she acquires diagnostic images with a proper technique considering the patient's size.
- ALL pediatric patients shall be shielded for their X-ray examinations, except for when the shield will obscure the region of interest, as in a pelvic or SI joint X-ray, or when it is physically or clinically unreasonable to shield the patient.
- For routine Hip X-Rays, ALL male children shall have their scrotum shielded using the small gonadal shield while females may not be shielded because doing so would obscure the hips.

1.7.4 Before Exposure

- Be sure to check the equipment daily and confirm that it works properly.
- Sudden heating of the room in cold areas will cause condensation to form on the equipment. In this case, wait until the condensation evaporates before performing an exposure. If the equipment is used while condensation is formed in it, problems may occur in the quality of captured images.
- When an air-conditioner is used, be sure to raise/lower the temperature gradually so that difference between the temperature in the room and in the equipment does not occur, to prevent condensation.

1.7.5 During Exposure

- This equipment is not protected (sealed) against liquids such as blood and medicine in the operating room. If necessary, wrap the equipment in a disposable cover when using it.
- Do not use the selected frequency channel (2.4 GHz and 5 GHz dual band) for other wireless devices. Mutual interference may affect the image data transmission rate.
- Do not use the detector near devices generating a strong magnetic field. Doing so may produce image noise or artifacts.

1.7.6 Operating and Storage Environment

- This equipment is mainly used in the X-ray exposure room and hospital wards. To use it in other places, consult Vieworks' sales representative or a distributor.
- Do not expose this equipment to high temperatures and/or high humidity. Malfunctions may occur.
- When not in use, keep the products in a safe location.
- Be sure to use and store this equipment under the conditions described below.

Item	Operation	Storage & Transportation
Temperature	0 ~ +40°C	-15 ~ +55°C
Humidity	5 ~ 90% (Non-condensing)	5 ~ 90% (Non-condensing)
Atmospheric Pressure	700 ~ 1060 hPa	500 ~ 1060 hPa
Shock	20G	30G
Vibration	2G	5G
Drop Limit	1,000mm	1,000mm



- Operating the detector in an environment at maximum ambient temperature (40°C) can make temperatures exceed 41°C (45.6°C highest recorded) on a patient-applied part (the front side of the detector). It is up to the operator to determine if this temperature is too high based upon the condition of the patient and, if so, to ensure the ambient temperature of the environment is 35°C or below.
- Normally, the detector can be used safely if the patient contact time on the front side of the detector is less than 10 minutes. If the ambient temperature is higher than 35°C and the patient contact time is more than 10 minutes, the thermal energy on the detector surface can sometimes have a detrimental effect on the patient. Therefore, in this case, the ambient temperature should be lowered to 35°C or below.

- When you charge the product quickly (with AC-DC adapter), it is strongly recommended to use it in the environment of 15°C ~ 35°C. When using the product in the environment of 0°C ~ 15°C, the battery capacity may decrease and its life may be shortened.
- Si vous utilisez le détecteur dans un environnement à la température ambiante maximale (40), la température peut dépasser 41 (45,6 maximum enregistré) sur une partie appliquée par le patient (face avant du détecteur). L'opérateur doit déterminer si cette température est trop élevée en fonction de l'état du patient et, le cas échéant, s'assurer que la température ambiante de l'environnement est égale ou inférieure à 35.
- Le détecteur peut normalement être utilisé en toute sécurité si le temps de contact du patient à l'avant du détecteur est inférieur à 10 minutes. Si la température ambiante est supérieure à 35 et que le temps de contact du patient est supérieur à 10 minutes, l'énergie thermique à la surface du détecteur peut parfois avoir un effet néfaste sur le patient. Par conséquent, dans ce cas, la température ambiante doit être abaissée à 35 ou moins.
- Lorsque vous chargez le produit rapidement (avec l'adaptateur CA-CC), il est vivement recommandé de l'utiliser dans des environnements où la température est comprise entre 15 et 35. Lors de l'utilisation du produit dans un environnement de 0 ~ 15, la capacité de la batterie peut diminuer et sa durée de vie peut être réduite.

2. Product

This section gives an instruction about the product components and their specifications.

Product Specifications

FXRD-3643VAW, FXRD-3643VAW PLUS

FXRD-4343VAW, FXRD-4343VAW PLUS

FXRD-2530VAW, FXRD-2530VAW PLUS

SCU Lite (FXRP-02A) - Option

SCU Mini (FXRS-04A) – Option

Cradle (FXRR-01A) – Option

Others

2.1 Product Specifications

This chapter explains about the specifications of the products which make up the system.

2.1.1 Detector (FXRD-3643VAW, FXRD-3643VAW PLUS)

Item	Specifications
Model	<ul style="list-style-type: none"> FXRD-3643VAW FXRD-3643VAW PLUS
Image Sensor	<ul style="list-style-type: none"> TFT: a-Si (Amorphous Silicon)
X-ray Scintillator Type	<ul style="list-style-type: none"> FXRD-3643VAW : CsI type A FXRD-3643VAW PLUS : CsI type B
Pixel Pitch	<ul style="list-style-type: none"> 0.14mm (140µm)
Field of View	<ul style="list-style-type: none"> 36cm x 43cm (14" x 17")
Active Area (H x V)	<ul style="list-style-type: none"> 358.4mm x 430.08mm
Active Array	<ul style="list-style-type: none"> 2560 x 3072 pixels
Effective Area	<ul style="list-style-type: none"> 355.04mm x 426.72mm
Effective Array	<ul style="list-style-type: none"> 2536 x 3048 pixels
Operating Time (Early life of battery)	<ul style="list-style-type: none"> One battery pack <ul style="list-style-type: none"> 7 hours (image acquired every 100 seconds) 8 hours (standby) Two battery packs <ul style="list-style-type: none"> 15 hours (image acquired every 100 seconds) 16 hours (standby)
Grayscale	<ul style="list-style-type: none"> 16bit
Spatial Resolution	<ul style="list-style-type: none"> Min. 3.5 lp/mm
Image Transmission	<ul style="list-style-type: none"> Wired: Gigabit Ethernet (1000BASE-T) via Power over Ethernet (PoE) Wireless: IEEE 802.11n / ac (2.4GHz / 5GHz), 3 antennas
Power Consumption	<ul style="list-style-type: none"> Max. 24W (without battery charged) Max. 80W (when charging battery)
Dimensions (H x W x D)	<ul style="list-style-type: none"> 384.0mm x 460.0mm x 15.0mm
Weight	<ul style="list-style-type: none"> FXRD-3643VAW <ul style="list-style-type: none"> With a battery pack: 2.95kg With two battery packs: 3.15kg FXRD-3643VAW PLUS <ul style="list-style-type: none"> With a battery pack: 3.1kg With two battery packs: 3.3kg



• Battery packs lose capacity as they age. This may reduce the operating time of the detector.

2.1.2 Detector (FXRD-4343VAW, FXRD-4343VAW PLUS)

Item	Specifications
Model	<ul style="list-style-type: none"> FXRD-4343VAW FXRD-4343VAW PLUS
Image Sensor	<ul style="list-style-type: none"> TFT: a-Si (Amorphous Silicon)
X-ray Scintillator Type	<ul style="list-style-type: none"> FXRD-4343VAW : CsI type A FXRD-4343VAW PLUS : CsI type B
Pixel Pitch	<ul style="list-style-type: none"> 0.14mm (140µm)
Field of View	<ul style="list-style-type: none"> 43cm x 43cm (17" x 17")
Active Area (H x V)	<ul style="list-style-type: none"> 430.08mm x 430.08mm
Active Array	<ul style="list-style-type: none"> 3072 x 3072 pixels
Effective Area	<ul style="list-style-type: none"> 426.72mm x 426.72mm
Effective Array	<ul style="list-style-type: none"> 3048 x 3048 pixels
Operating Time (Early life of battery)	<ul style="list-style-type: none"> One battery pack <ul style="list-style-type: none"> 7.5 hours (image acquisition every 100 seconds) 8 hours (standby) Two battery packs <ul style="list-style-type: none"> 15 hours (image acquisition every 100 seconds) 16 hours (standby)
Grayscale	<ul style="list-style-type: none"> 16bit
Spatial Resolution	<ul style="list-style-type: none"> Min. 3.5 lp/mm
Image Transmission	<ul style="list-style-type: none"> Wired: Gigabit Ethernet (1000BASE-T) via Power over Ethernet (PoE) Wireless: IEEE 802.11n / ac (2.4GHz / 5GHz), 3 antennas
Power Consumption	<ul style="list-style-type: none"> Max. 24W (without battery charged) Max. 80W (when charging battery)
Dimensions (H x W x D)	<ul style="list-style-type: none"> 460.0mm x 460.0mm x 15.0mm
Weight	<ul style="list-style-type: none"> FXRD-4343VAW <ul style="list-style-type: none"> With a battery pack: 3.45kg With two battery packs: 3.65kg FXRD-4343VAW PLUS <ul style="list-style-type: none"> With a battery pack: 3.7kg With two battery packs: 3.9kg



• Battery packs lose capacity as they age. This may reduce the operating time of the detector.

2.1.3 Detector (FXRD-2530VAW, FXRD-2530VAW PLUS)

Item	Specifications
Model	<ul style="list-style-type: none"> FXRD-2530VAW FXRD-2530VAW PLUS
Image Sensor	<ul style="list-style-type: none"> TFT: a-Si (Amorphous Silicon)
X-ray Scintillator Type	<ul style="list-style-type: none"> FXRD-2530VAW : CsI type A FXRD-2530VAW PLUS : CsI type B
Pixel Pitch	<ul style="list-style-type: none"> 0.124mm (124μm)
Field of View	<ul style="list-style-type: none"> 25cm x 32cm (10" x 12")
Active Area (H x V)	<ul style="list-style-type: none"> 253.952mm x 317.44mm
Active Array	<ul style="list-style-type: none"> 2048 x 2560 pixels
Effective Area	<ul style="list-style-type: none"> 250.976mm x 314.464mm
Effective Array	<ul style="list-style-type: none"> 2024 x 2536 pixels
Operating Time (Early life of battery)	<ul style="list-style-type: none"> 7.5 hours (image acquired every 100 seconds) 8 hours (standby)
Grayscale	<ul style="list-style-type: none"> 16bit
Spatial Resolution	<ul style="list-style-type: none"> Min. 4.0 lp/mm
Image Transmission	<ul style="list-style-type: none"> Wired: Gigabit Ethernet (1000BASE-T) via Power over Ethernet (PoE) Wireless: IEEE 802.11n / ac (2.4GHz / 5GHz), 3 antennas
Power Consumption	<ul style="list-style-type: none"> Max. 15W (without battery charged) Max. 50W (when charging battery)
Dimensions (H x W x D)	<ul style="list-style-type: none"> 287.0mm x 350.0mm x 15.0mm
Weight (with a battery pack)	<ul style="list-style-type: none"> FXRD-2530VAW: 1.95kg FXRD-2530VAW PLUS: 2.1kg



- Battery packs lose capacity as they age. This may reduce the operating time of the detector.

2.1.4 SCU

Model	Specifications
FXRP-02A	<ul style="list-style-type: none"> Power Supply: DC +24V, Max. 1.0A
FXRS-04A	<ul style="list-style-type: none"> Power Supply: DC +24V, Max. 2.0A

2.1.5 Battery Pack

Model	Specifications
FXRB-04A	<ul style="list-style-type: none"> • Type: Lithium Ion Polymer • Output: DC +11.55V, 3,400mAh • Life span: approx. 800 times <p>(One time standard: full discharge after fully charged)</p>



- Battery packs lose capacity over time.
 - You can replace the battery pack at the end of its life.
- The life of a battery pack is the number of charge and discharge cycles until it reaches 80% or less of its initial capacity (nominal capacity).

2.2 FXRD-3643VAW, FXRD-3643VAW PLUS

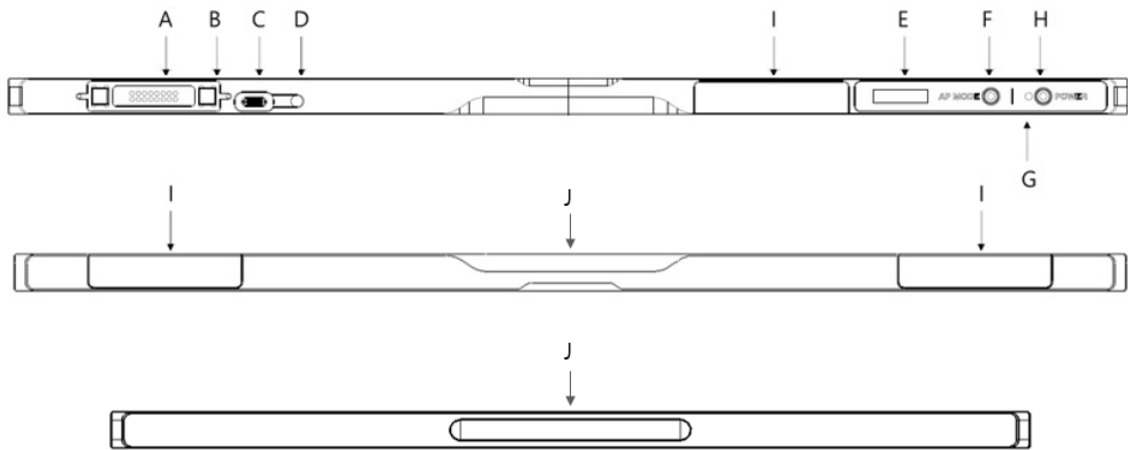
FXRD-3643VAW, FXRD-3643VAW PLUS detectors are devices that acquire X-ray signals and digital images through various conversion processes. You can utilize images obtained in 36cm X 43cm (14" x 17") film size according to the purpose of use.



- **FXRD-3643VAW** and **FXRD-3643VAW PLUS** are a type of VIVIX-S VW detector models manufactured by Vieworks Co., Ltd.
- Refer to VIVIX-S 3643VW Specifications for the detailed specifications and drawings.

2.2.1 Functions

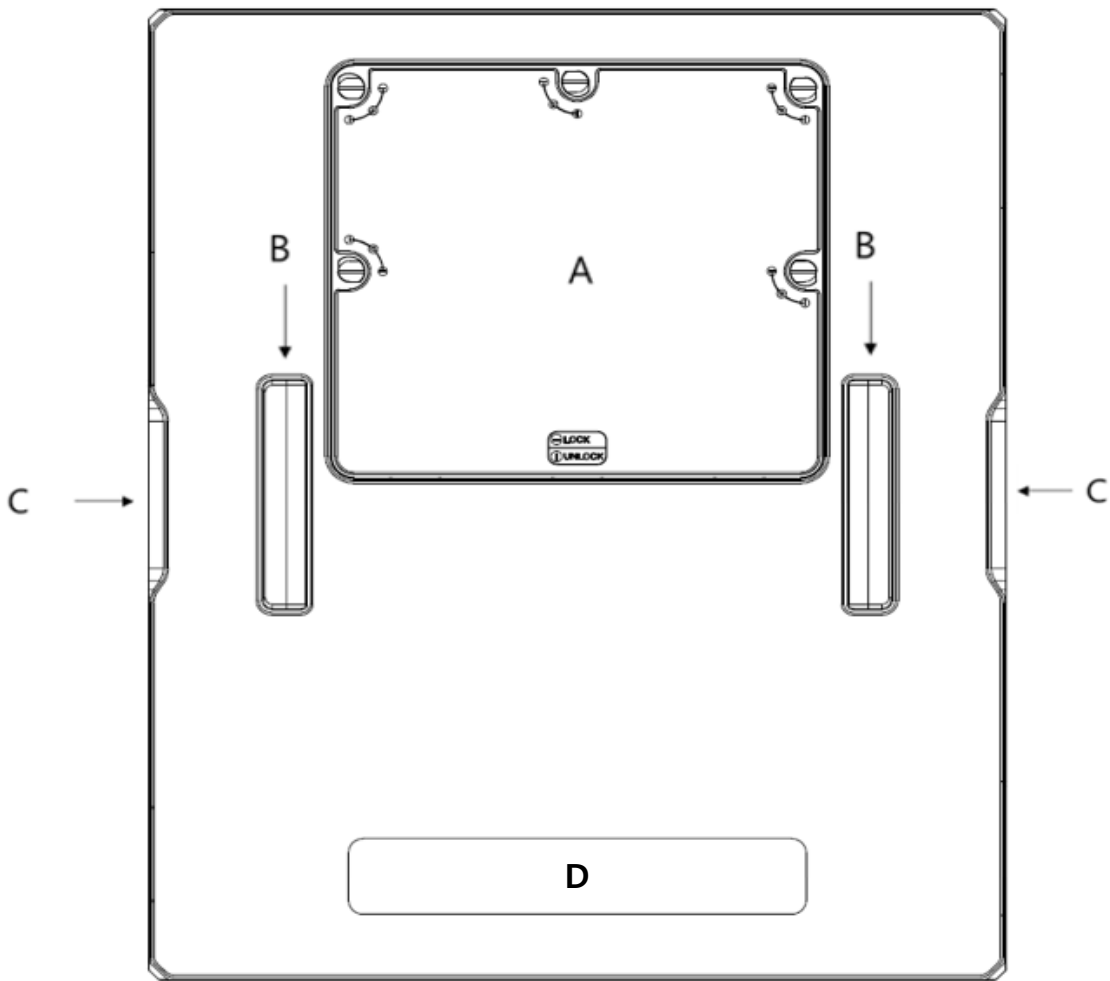
Side



Name	Description
A Tether Interface Connector	Tether interface cable connector. <ul style="list-style-type: none"> • Used for wired connection between a detector and SCU.
B Magnet for fixing the tether interface	Used for fixing a tether interface cable
C AC-DC Adapter Connector	<ul style="list-style-type: none"> • Connector for fastening the AC-DC adapter • Used for fast battery charging
D Charge Status LED	<ul style="list-style-type: none"> • Displays the charge status of the battery <ul style="list-style-type: none"> ▫ Discharged: LED is OFF ▫ Charging: LED is in orange ▫ Completed charging: LED is in green
E OLED Display	<ul style="list-style-type: none"> • Displays battery status • Displays wired / wireless connection status • Displays sleep mode status
F AP Button	<ul style="list-style-type: none"> • Changes AP settings button in wireless communication (Change detector AP / STAION or change preset in STATION mode) • Changes OLED screen
G Power Indicator LED	<ul style="list-style-type: none"> • Displays system power status

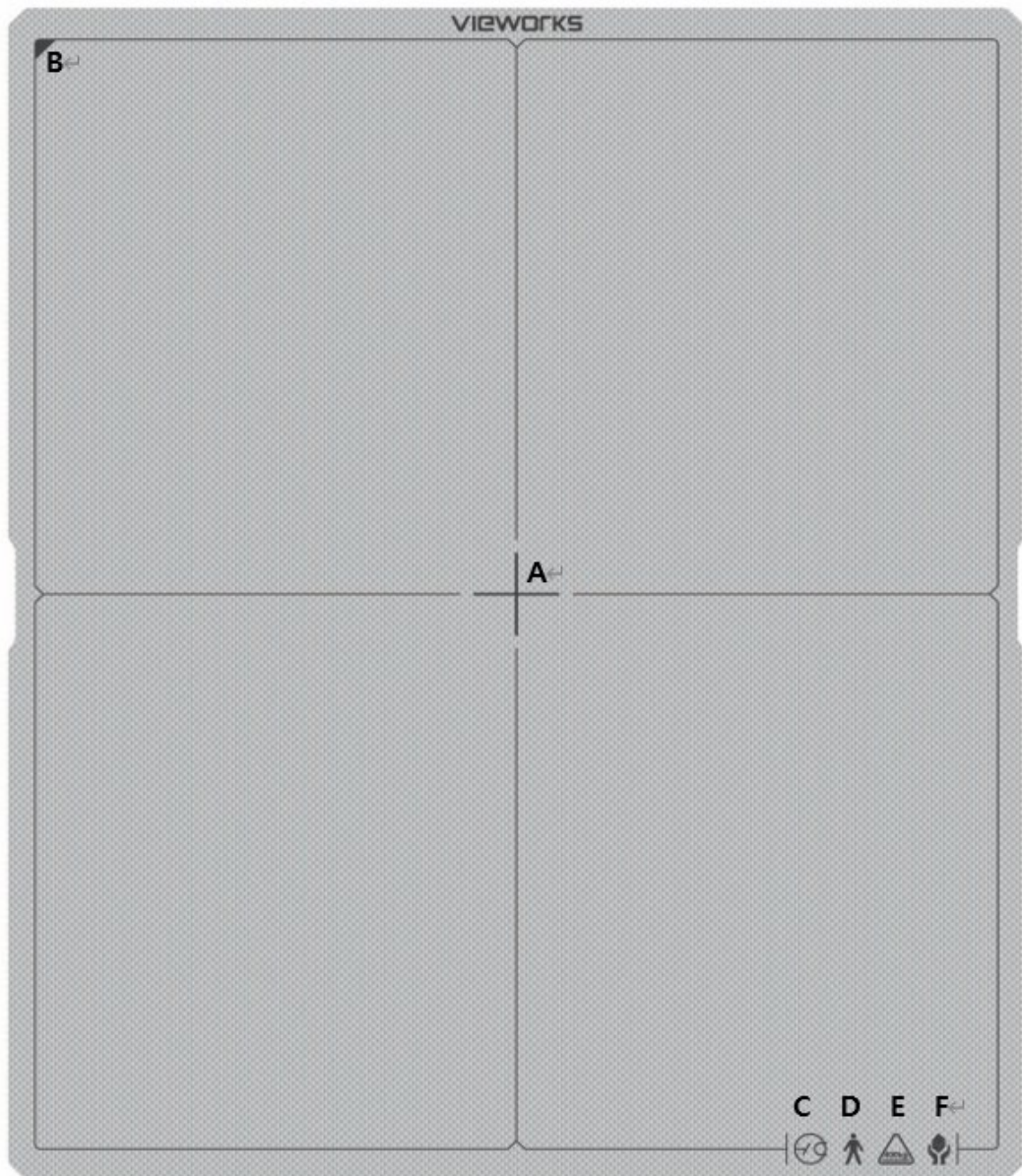
		<ul style="list-style-type: none"> • Displays system boot status <ul style="list-style-type: none"> ▪ Booting: LED blinks in green ▪ Completed Booting: LED is in green ▪ Detector out of order: LED is in orange
H	Power Button	<ul style="list-style-type: none"> • System power on/off • Changes OLED screen
I	Antenna for Wireless LAN	Antennas for wireless communication (3ea)
J	Lift Structure	Used when the detector is placed on a flat surface

Rear



Name	Description
A Battery Pack Cover	The cover needs to be opened and closed when replacing the battery pack.
B Handle	A handle for carrying a detector
C Lift Structure	Used when the detector is placed on a flat surface
D Label attaching place	Attach a label to the lower back of detector.

2.2.2 Deco Sheet



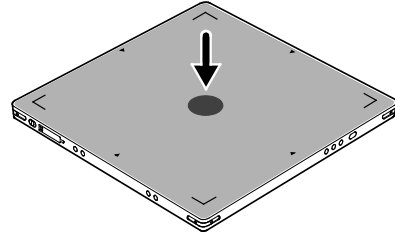
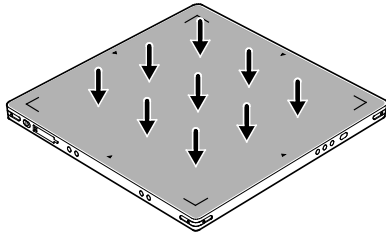
Indication Info.	Description
A Center of the detector	Indicates the central position of detector.
B Image starting point	Indicates the starting point of an original image.
C~F Logos relating to product safety and performance	Notices regarding product safety and performance.



- You can change the displayed direction of an image from the **VIVIX Setup** program, but it does not mean that the starting point and direction of the original image are changed.

2.2.3 Load Limit of Detector

Uniform load	Local load
Over the whole surface	Center diameter 40mm
Max. 400kg	Max. 200kg



- Do not let the patient or object heavier than load limit be on the detector. Then, detector can be damaged.
- Do not apply an excessive load on the product. Doing so may damage the inner sensor of the product or affect the quality of pictures.



- The detector load limit specifications of the VIVIX-S VW detectors (FXRD-3643VAW, FXRD-3643VAW PLUS, FXRD-4343VAW, FXRD-4343VAW PLUS, FXRD-2530VAW, FXRD-2530VAW PLUS) are the same.

2.3 FXRD-4343VAW, FXRD-4343VAW PLUS

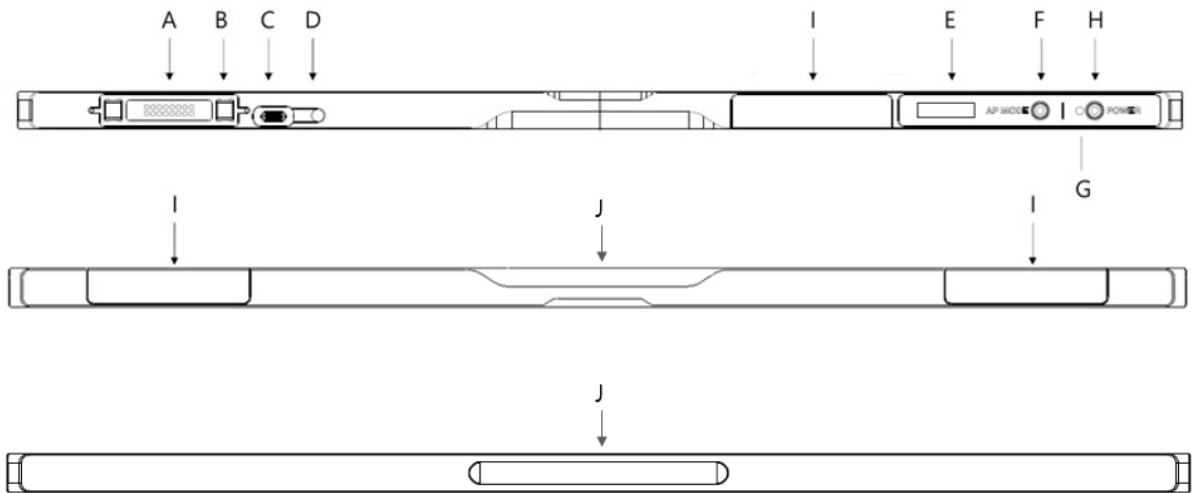
VIVIX-S 4343VAW and FXRD-4343VAW PLUS detectors are devices that acquire X-ray signals and digital images through various conversion processes. You can utilize images obtained in 43cm X 43cm (17" X 17") film size according to the purpose of use.



- **FXRD-4343VAW** and **FXRD-4343VAW PLUS** are a type of VIVIX-S VW detector models manufactured by Vieworks Co., Ltd.
- Refer to VIVIX-S 4343VW Specifications for the detailed specifications and drawings.

2.3.1 Functions

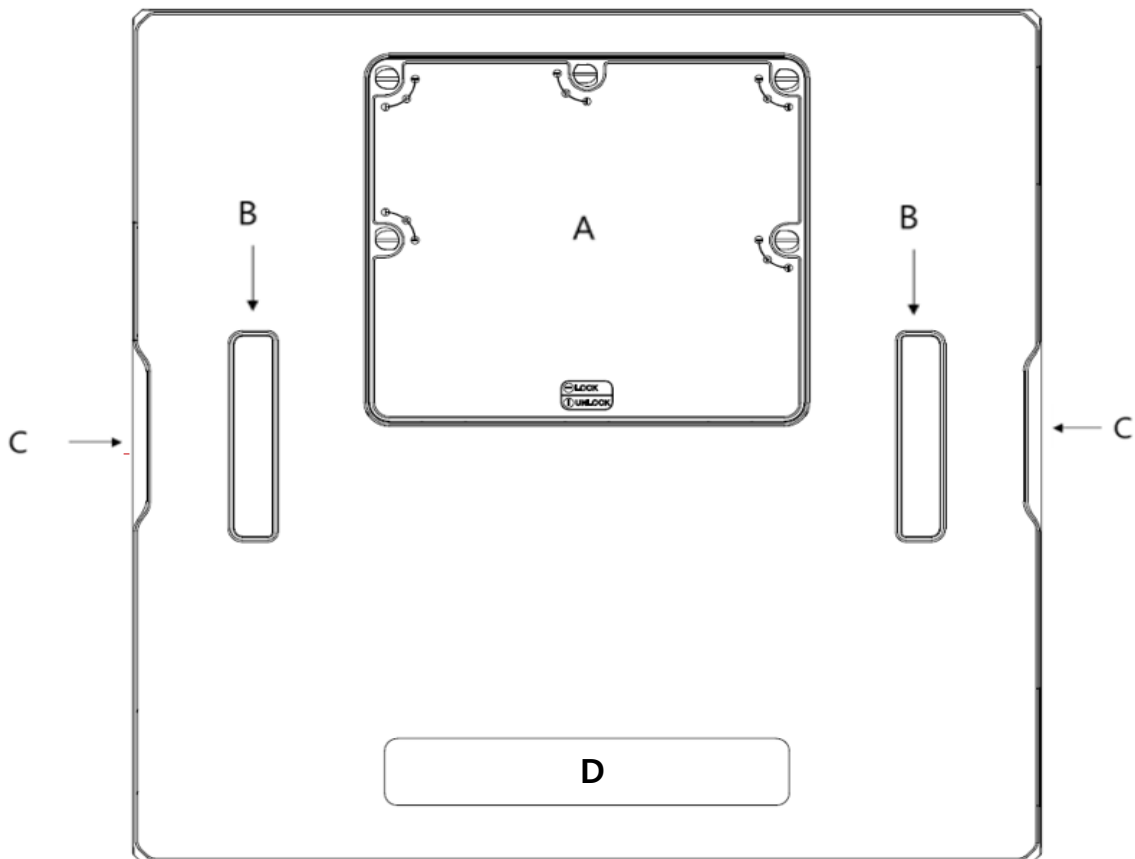
Side



Name	Description
A Tether Interface Connector	Tether interface cable connector. <ul style="list-style-type: none"> • Used for wired connection between a detector and SCU.
B Magnet for fixing the tether interface	Used for fixing a tether interface cable
C AC-DC Adapter Connector	<ul style="list-style-type: none"> • Connector for fastening the AC-DC adapter • Used for fast battery charging
D Charge Status LED	<ul style="list-style-type: none"> • Displays the charge status of the battery <ul style="list-style-type: none"> ▫ Discharged: LED is OFF ▫ Charging: LED is in orange ▫ Completed charging: LED is in green
E OLED Display	<ul style="list-style-type: none"> • Displays battery status • Displays wired / wireless connection status • Displays sleep mode status

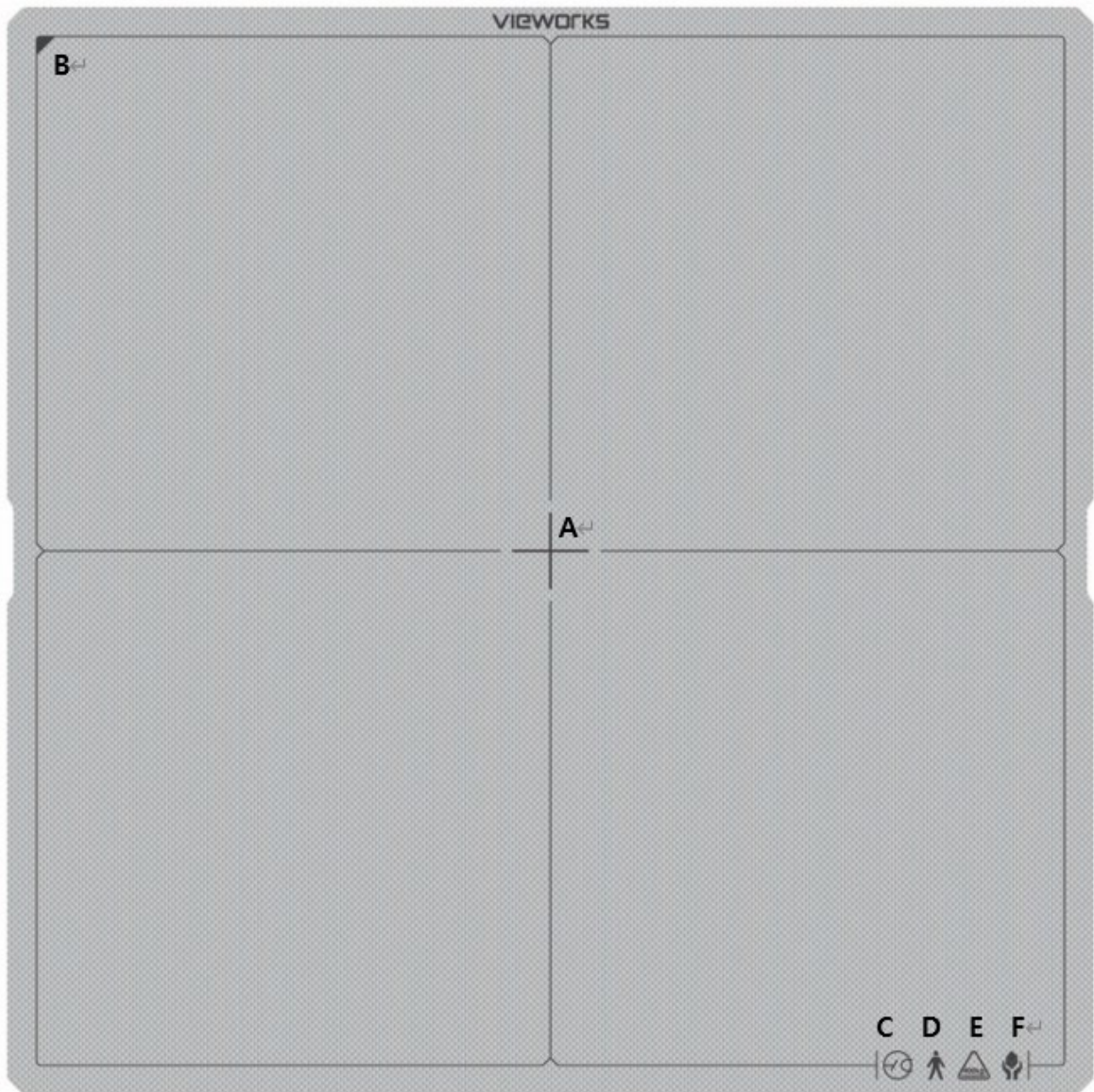
F	AP Button	<ul style="list-style-type: none"> • Changes AP settings button in wireless communication (Change detector AP / STAION or change preset in STATION mode) • Changes OLED screen
G	Power Indicator LED	<ul style="list-style-type: none"> • Displays system power status • Displays system boot status <ul style="list-style-type: none"> ▫ Booting: LED blinks in green ▫ Completed Booting: LED is in green ▫ Detector out of order: LED is in orange
H	Power Button	<ul style="list-style-type: none"> • System power on/off • Changes OLED screen
I	Antenna for Wireless LAN	Antennas for wireless communication (3ea)
J	Lift Structure	Used when the detector is placed on a flat surface

Rear



Name	Description
A Battery Pack Cover	The cover needs to be opened and closed when replacing the battery pack.
B Handle	A handle for carrying a detector
C Lift Structure	Used when the detector is placed on flat surface
D Label attaching place	Attach a label to the lower back of detector.

2.3.2 Deco Sheet



	Indication Info.	Description
A	Center of the detector	Indicates the central position of detector.
B	Image starting point	Indicates the starting point of an original image.
C~F	Logos relating to product safety and performance	Notices regarding product safety and performance



- You can change the displayed direction of an image from the **VIVIX Setup** program, but it does not mean that the starting point and direction of the original image are changed.

2.4 FXRD-2530VAW, FXRD-2530VAW PLUS

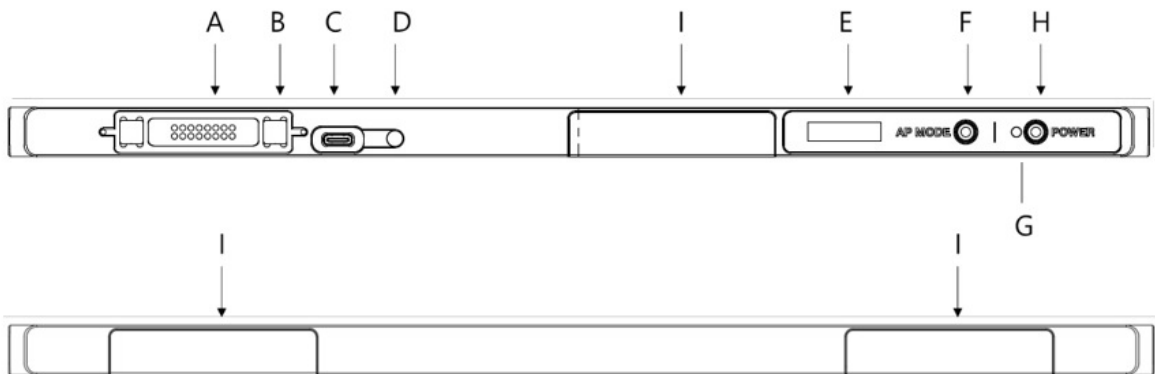
FXRD-2530VAW and **FXRD-2530VAW PLUS** detectors are devices that acquire X-ray signals and digital images through various conversion processes. You can utilize images obtained in 25cm X 30cm (10" X 12") film size according to the purpose of use.



- **FXRD-2530VAW** and **FXRD-2530VAW PLUS** are a type of VIVIX-S VW detector models manufactured by Vieworks Co., Ltd.
- Refer to VIVIX-S 2530VW Specifications for the detailed specifications and drawings.

2.4.1 Functions

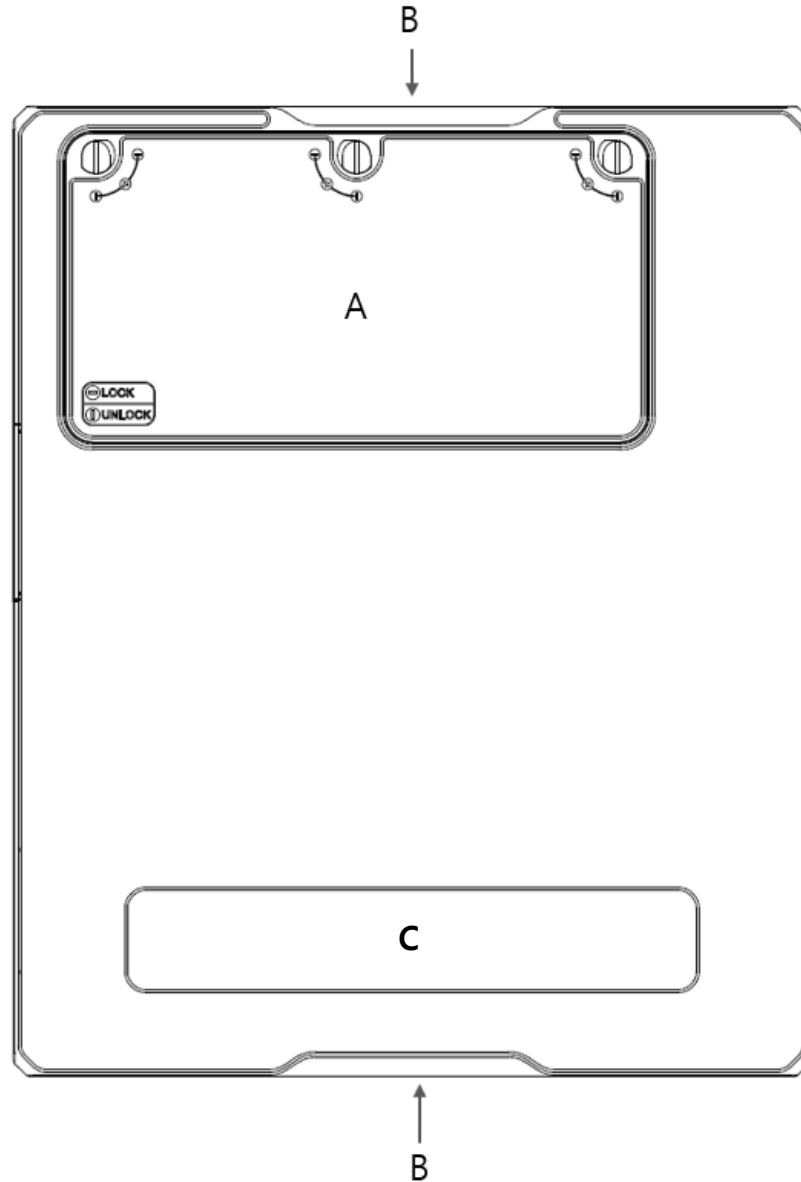
Side



Name	Description
A Tether Interface Connector	Tether interface cable connector. <ul style="list-style-type: none"> • Used for wired connection between a detector and SCU.
B Magnet for fixing the tether interface	Used for fixing a tether interface cable
C AC-DC Adapter Connector	<ul style="list-style-type: none"> • Connector for fastening the AC-DC adapter • Used for fast battery charging
D Charge Status LED	<ul style="list-style-type: none"> • Displays the charge status of the battery <ul style="list-style-type: none"> ▫ Discharged: LED is OFF ▫ Charging: LED is in orange ▫ Completed charging: LED is in green
E OLED Display	<ul style="list-style-type: none"> • Displays battery status • Displays wired / wireless connection status • Displays sleep mode status
F AP Button	<ul style="list-style-type: none"> • Changes AP settings button in wireless communication (Change detector AP / STAION or change preset in STATION mode) • Changes OLED screen
G Power Indicator LED	<ul style="list-style-type: none"> • Displays system power status • Displays system boot status

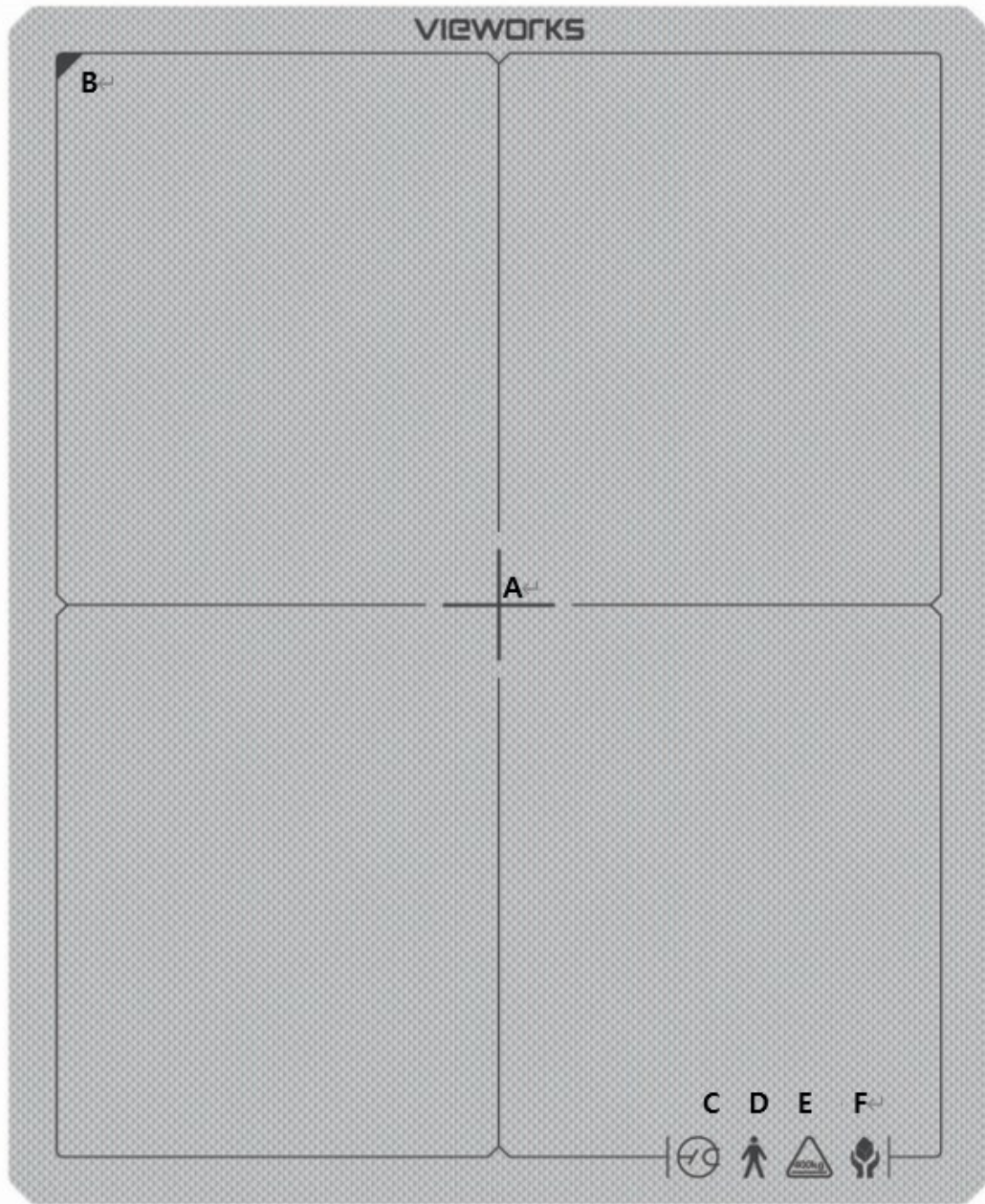
		<ul style="list-style-type: none"> ▫ Booting: LED blinks in green ▫ Completed Booting: LED is in green ▫ Detector out of order: LED is in orange
H	Power Button	<ul style="list-style-type: none"> • System power on/off • Changes OLED screen
I	Antenna for Wireless LAN	Antennas for wireless communication (3ea)

Rear



Name	Description
A Battery Pack Cover	The cover needs to be opened and closed when replacing the battery pack.
B Lift Structure	Used when the detector is placed on a flat surface
C Label attaching place	Attach a label to the lower back of detector.

2.4.2 Deco Sheet



	Indication Info.	Description
A	Center of the detector	Indicates the central position of detector.
B	Image starting point	Indicates the starting point of an original image.
C~F	Certification logo	Indicates the certification logos relating to a medical device.



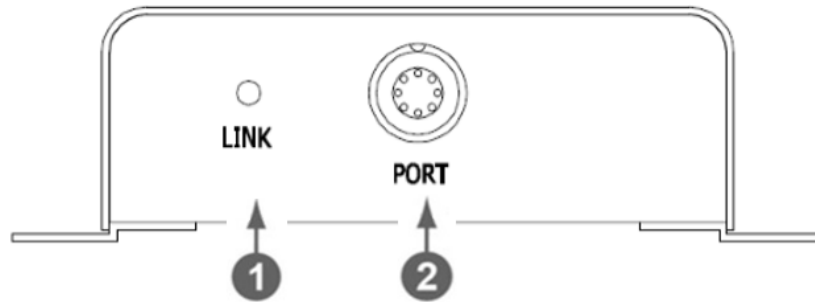
- You can change the displayed direction of an image from the **VIVIX Setup** program, but it does not mean that the starting point and direction of the original image are changed.

2.5 SCU Lite (FXRP-02A) – Option

SCU Lite is a device that transmits images by wired connection between a detector and workstation.

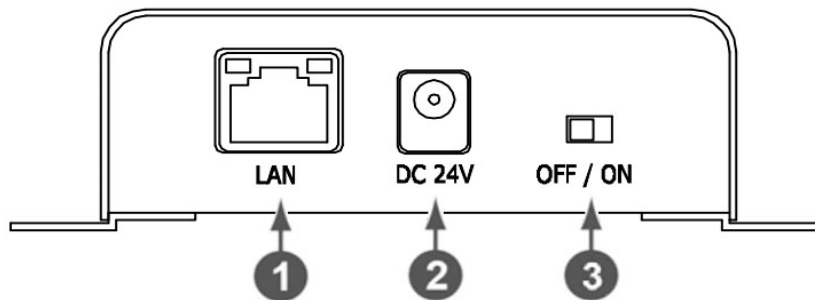
2.5.1 Functions

Front Side



No.	Name	Description
1	LINK LED	Indicates the status of PoE port. <ul style="list-style-type: none"> • Green : 1 Gbps • Yellow : 100 Mbps
2	POE Port	PoE (Power over Ethernet) port (1000BASE-T) <ul style="list-style-type: none"> • Communication between the detector and SCU Lite. • Supplies power to the detector.

Rear Side



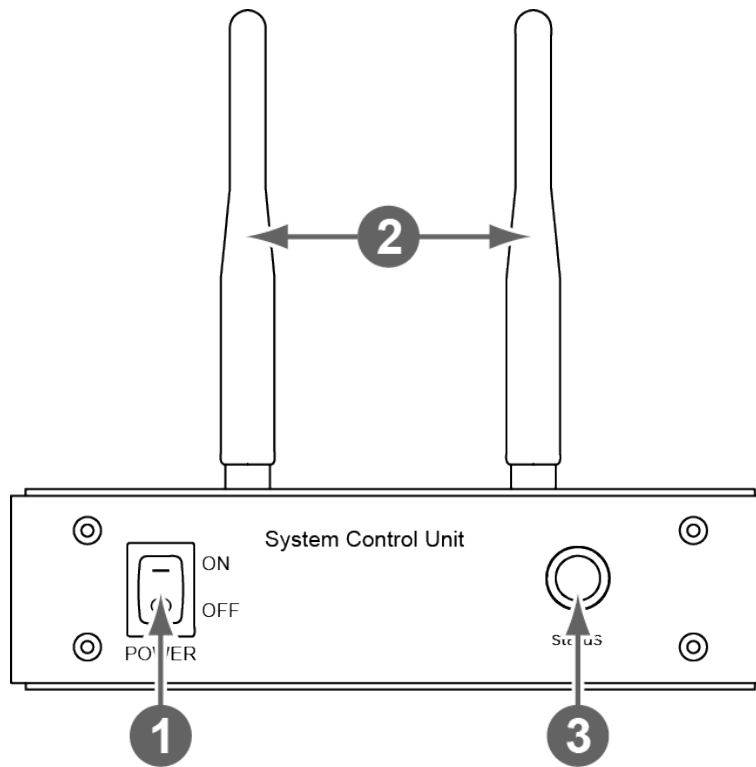
No.	Name	Description
1	LAN port	Gigabit Ethernet port (1000BASE-T) <ul style="list-style-type: none"> • Communication between the workstation and SCU Lite.
2	DC power input port	DC +24V <ul style="list-style-type: none"> • Supplies power to SCU Lite.
3	Power Switch	Turns on/off the power of SCU Lite.

2.6 SCU mini (FXRS-04A) – Option

SCU mini synchronizes the image and X-ray signal as locating among the detector, workstation and the X-ray generator. The SCU Mini has a wired or wireless connection with the detector (Wired connection to the workstation). You can also use the DR Trigger with the X-ray generator.

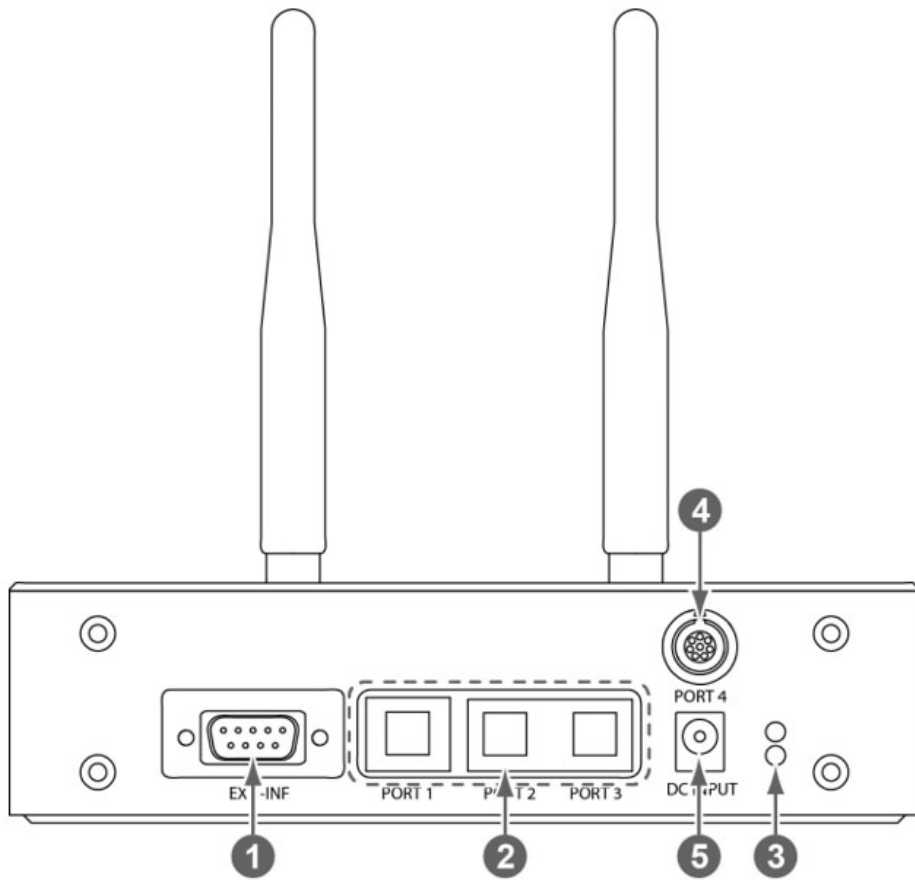
2.6.1 Functions

Front Side



No.	Name	Description
1	Power switch	Turns on/off the power of SCU mini.
2	Antenna	Assists communications between the detector and SCU mini.
3	Status LED	Indicates status of SCU mini operation and connection. <ul style="list-style-type: none"> • Blinking green: Booting • Green: Completed to boot up • Blue: The detector is connected to the software and ready to communicate.

Rear Side



No.	Name	Description
1	EXT_INF	X-ray generator interface connector (D-SUB 15pin, Female)
2	LAN port (Port 1, 2, 3)	Gigabit Ethernet port (1000BASE-T) <ul style="list-style-type: none"> • Port 1: Communication between the workstation and SCU mini. • Port 2, 3: Communication between multiple detectors.
3	PoE status lamp	Indicats the status of PoE port. <ul style="list-style-type: none"> • Green: 1 Gbps • Orange: 100 Mbps
4	PoE port	PoE (Power over Ethernet) port (1000BASE-T) <ul style="list-style-type: none"> • Communication between the detector and SCU mini. • Supplies power to the detector.
5	DC power input port	DC +24V <ul style="list-style-type: none"> • Supplies power to SCU mini.

2.7 Cradle (FXRR-01A) – Option

By attaching a detector to the cradle, you can conveniently charge the battery built into the detector.

- 1 Connect the DC adapter cable to the cradle, then turn on the power switch.



- 2 To charge a detector, install it in the cradle's A or B slot as shown below.
 - You can also charge two detectors at the same time.
 - When the slot (A/B) LED is lit yellow, it means that the detector is charging.
 - When the slot (A/B) LED is lit green, it means that the detector is fully charged.



- Refer to the VIVIX-S VW detector service manual for more information on a cradle.
- Refer to the image below to separate the detector from the cradle in the correct direction.

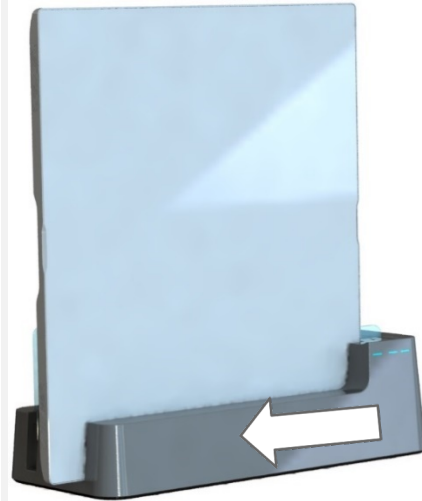


Fig.1 Correct Direction

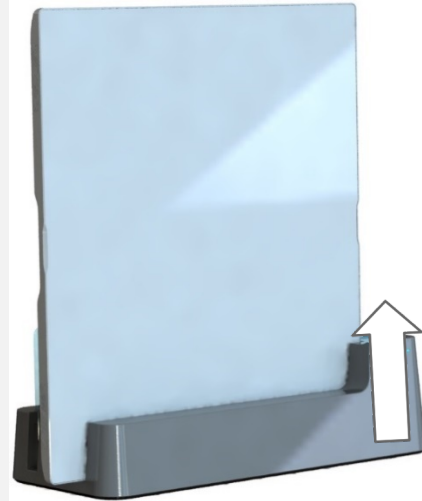


Fig.2 Wrong Direction

2.8 Others

2.8.1 X-ray Generator (Recommended Exposure Condition)

Item	Recommended condition
X-ray energy range	• 40kVp ~ 150kVp
Reliability (Lifetime Dose)	• 100Gy

3. Preparing for System Operation

This chapter will guide you how to prepare the detector operation.

Checking System Configuration

Charging the Battery Pack

Using the Detector and SCU

Checking the External Buttons and Display of the Detector

How to Replace the Battery Pack

3.1 Checking System Configuration

You can organize wired or wireless connection between the **VIVIX-S VW** detectors and **SCU**. You can also choose other connection ways suitable for the use environment in case of need.

Check the connection method before operation.



- The detector and accessories must be installed by a certified service engineer.
- If you have any problems, please contact your sales representative or engineer.
- Refer to **VIVIX-S VW Service Manual** for the detailed information about system configuration.

3.2 Charging the Battery Pack

When connected wirelessly, the detector is powered from the battery pack by default. Use the detector after fully charging the battery pack.



- The battery pack is built into the detector. The VIVIX-S VW detector (FXRD-3643VAW, FXRD-3643VAW PLUS, FXRD-4343VAW, FXRD-4343VAW PLUS, FXRD-2530VAW, FXRD-2530VAW PLUS) models use the same battery pack, so the charging method is the same.

3.2.1 General Charging

Power the detector from SCU mini (FXRS-04A) or SCU Lite (FXRP-02A) using a tether interface cable.



- 1 Connect the AC-DC adapter to the SCU.
- 2 Connect the SCU to the detector using a tether interface cable. The cable works normally regardless of the direction wehre it is connected (See image above).
- 3 Turn on the power button on the SCU.
- 4 Check the charge status on the detector's charge status indicator (LED).
- 5 When the system boots up by pressing the power button for about 1 second, you can check the charge status and remaining charge on the OLED display.
- 6 Once the communication is established, you can check the battery charge status and remaining charge in VIVIX Setup.

Model	Number of simultaneous charges	Charging Time
FXRD-3643VAW	2 battery packs	Max. 7hrs
FXRD-3643VAW PLUS		
FXRD-4343VAW	2 battery packs	Max. 7hrs
FXRD-4343VAW PLUS		
FXRD-2530VAW	1 battery pack	Max. 7hrs
FXRD-2530VAW PLUS		



- When the tether interface cable is connected to the detector, it is fixed by the magnet attached to the cable and the detector and is charged.
- Refer to the VIVIX-S VW Service Manual for detailed system configuration.
- Charging time may vary depending on the temperature and the charging status of battery.
- The battery pack is designed to reduce or stop charging voltage and charging power when the temperature becomes too high or too low. Charging will resume normally when the temperature reaches the proper level (10 ~ 40 °C).

3.2.2 Fast Charging

Use the AC-DC adapter (DC 18V 5A max.) to power the detector.

- 1 Connect AC-DC adapter to the USB connector of the detector. Since the output connector of the AC-DC adapter is a USB Type-C connector, it works normally in either direction.
- 2 Check the charge status on the detector's charge status indicator (LED).
- 3 When the system boots up by pressing the power button for about 1 second, you can check the charge status and remaining charge on the OLED display.
- 4 Once the communication is established, you can check the battery charge status and remaining charge in VIVIX Setup



Model	Number of simultaneous charges	Charging Time
FXRD-3643VAW	2 battery packs	Max. 2hrs (Approx. 70% charge in one hour)
FXRD-3643VAW PLUS	2 battery packs	Max. 2hrs (Approx. 70% charge in one hour)
FXRD-4343VAW	2 battery packs	Max. 2hrs (Approx. 70% charge in one hour)

FXRD-4343VAW PLUS

FXRD-2530VAW

1 battery pack

Max. 2hrs (Approx. 70% charge in one hour)

FXRD-2530VAW PLUS



- Connect to the AC-DC adaptor for charging.
 - Refer to the VIVIX-S VW Service Manual for detailed system configuration.
 - Charging time may vary depending on the temperature and the charging status of battery.
 - If the temperature of battery pack becomes too hot or too low, charge voltage / current will decrease, or charging will stop. When the temperature drops to the acceptable level, charging will resume normally (10~40°C).
-



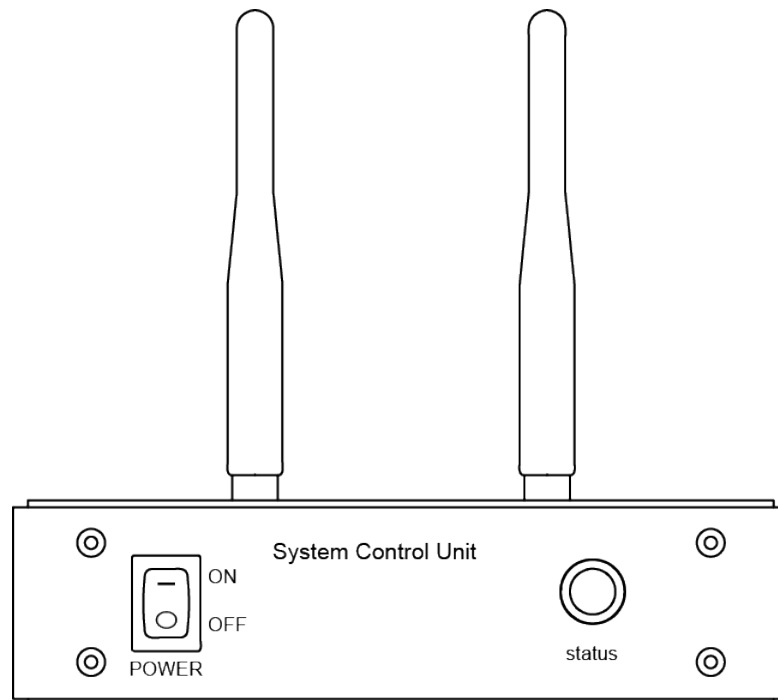
- Only charge the battery using the charging method provided by Vieworks.
 - When you charge the product quickly (with AC-DC adapter), it is strongly recommended to use it in the environment of 15 ~ 35 °C. When using the product in the environment of 0 ~ 15 °C, the battery capacity may decrease and its life may be shortened.
 - If the battery level is less than 5%, the user software warns you of a low battery level. After that, the battery will automatically shut down to protect the system if the battery is depleted for a certain period of time. Therefore, check the battery level periodically and charge the battery when it is low.
-

3.3 Using the Detector and SCU



- For detailed information on system configuration, refer to the VIVIX-S VW Service Manual.

3.3.1 Booting up SCU mini (FXRS-04A)

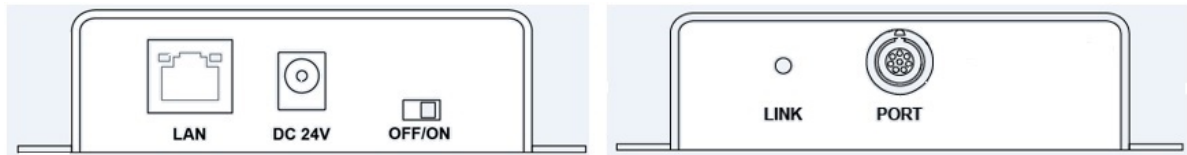


- 1 Turn on the power switch on the front of the SCU mini (ON).
- 2 After turning on the power switch, check that the status LED flashes green.



- If the status LED blinks green, it means that the power is applied and SCU is booting up.
- If the status LED is lit green, the SCU has finished booting.

3.3.2 Booting up SCU Lite



- 1 Turn on the power switch at rear side of SCU Lite.
- 2 If you connect a detector to SCU Lite by wire, check if the LINK LED of SCU Lite lights up green.



- LINK LED turned in green means that the detector and SCU is wired at 1Gbps.
- LINK LED turned in orange means that the detector and SCU is wired at 100Mbps.

3.3.3 Booting the Detector



- 1 Press the power button of the detector for 1 second until the power LED is turned on. But, booting the detector is automatically done without having to press the power button when wired-connection with SCU (FXRS-04A, FXRP-02A) is established.
- 2 When the power LED is on, check if it is lit green.
- 3 Check the battery status (remaining, charging) and communication connection status (wired / wireless, detector AP / STATION, wireless connection strength, etc.) on the detector's OLED display.



- If the power LED flashes green, power is applied, and the detector is booting up.
- When the power indicator LED is lit green, the detector has finished booting.
- Press and hold the power button for about 3 seconds to turn off the power LED and OLED display. After that, the system will be turned off. However, the battery pack can be charged if the SCU is powered via a tether interface cable or if an AC-DC adaptor is attached to the detector.
- If you remove the wired-power source, such as SCU and AC-DC Adaptor, and set SCU as power control, the system power is automatically turned off.

3.4 Checking External Buttons and Display of Detector



- For detailed information on system configuration, refer to the VIVIX-S VW Service Manual.

3.4.1 Power Button & Power Display LED

- The power indicator LED is off when the detector is powered off.
- When the detector is powered off, press the power button for about 1 second to apply power to the system.
- If the power LED flashes green, power is applied, and the detector is booting up.
- When the power indicator LED is lit green, the detector has finished booting.
- If you press and hold the power button for about 3 seconds, the power LED and OLED display are turned off, then the system is powered off.



- Before exposure, check LED and OLED displays to make sure that power is on.

3.4.2 Charge Status LED

- 1 The LED is off when there is no charging power.
- 2 The LED lights in orange while charging is in progress.
- 3 When charging is complete, the LED lights up green.

3.4.3 AP Button

VIVIX-S VW detector has an external AP button to easily change wireless settings on a wireless connection. You can select the following functions of the AP button in VIVIX Setup.

Function	Description
Detector AP / Station	<ul style="list-style-type: none"> • Switch the detector from AP to STATION or from STATION to AP.
Preset Switching	<ul style="list-style-type: none"> • If you press the AP button for about 3 seconds while the detector is in STATION, it scans the neighboring APs and automatically changes to the one with the highest signal strength among the detected APs. (The last connected AP is excluded) • When changing an AP, change the detector setting that is set for use when connecting with the AP.

3.4.4 OLED Display

How to turn on OLED Display

- Press the power button for about 1 second to power on the system.
- After the system boots, press the external button (power button or AP button) for about 1 second.















How to switch the screen of OLED Display

- With the OLED display screen on, press the external button (power button or AP button) for about 1 second.

How to turn off OLED Display

- About 60 seconds after the OLED display turns on, it automatically turns off to save the life of OLED.
- On the third screen of the OLED display, press the external button (power button or AP button) for about 1 second.

1 You can check communication status of the battery and detector on the default screen of OLED display.

Category	Item	Icon	Description
Battery	With or without a battery		No battery packs. Battery capacity is less than 5%.
	Whether the battery is charged		Charging (Battery capacity changes depending on remaining charge.)
	Battery level		Charging complete or discharged. (Battery capacity changes depending on remaining charge.)
Communication	AP (Wireless)		Operates in AP Mode
	STATION (Wireless)		Preset Identifier (Default 'Sy' if not using Preset switching)
			Level 5 (Link Quality: 66~70, Very Good)
			Level 4 (Link Quality: 56~65, Good)
			Level 3 (Link Quality: 41~55, Normal)
			Level 2 (Link Quality: 31~40, Bad)
			Level 1 (Link Quality: 1~30, Very Bad)
			Level 0 (Link Quality: 0, Unknown)
Tether Interface (Wired)		Operates in tether interface mode (connected at 1Gbps)	
		Operates in tether interface mode (connected below 100Mbps)	
System Power	Sleep Mode		Enters sleep mode



- When using the Sleep function, make sure the detector is in Sleep mode before shooting. No image is acquired in sleep mode.
- When the detector wakes up from sleep mode, it takes about 5 seconds to wake up. Do not emit X-rays during wake-up. If X-rays are exposed during wake-up, abnormal images may be obtained.

2 On the OLED home screen, press and hold the power button or AP button for about 1 second to switch the OLED display to the second screen. On the second screen, you can see the detector's IP address.

Second Screen of OLED Display (IP display)

Category	Item	Icon	Description
Communication	IP address		Detector IP address

3 If you press the power button or AP button on the second screen of the OLED display for about 1 second, the OLED display will switch to the third screen. On the third screen, you can see the SSID information important for the wireless connection of the detector.

Third Screen of OLED Display (SSID display)

Category	Item	Icon	Description
Communication	SSID		Displays SSID of the detector's current state (AP or STATION)

4 During certain operations, the OLED display shows operating status as follows;

Operation screen of OLED Display

Category	Display	Description
Operation Status		Booting up detector
		Turning off detector sleep mode
		Shooting images
		Saving images to the detector
		Sending images
		Switching to detector AP mode (AP button function: Detector AP / STA)

STA Mode Start	Switching to detector Station mode (AP button function: Detector AP / STA)
Reset WLAN	Initializing wireless setting information
Sync WLAN	Syncing wireless information with connected SCU
AP scan	Scanning for APs nearby (AP button function: Preset switching)
Change AP	Changing external AP (AP button function: Preset switching)

5 If a detector error is detected, an error number (e.g. **ERR_01**) is displayed on the OLED initial screen. If the power button or AP button is pressed for about 1 second while the error screen is displayed, the screen displays the battery and communication status.



- If the detector is used while an error number is displayed on the OLED, the image may not be acquired, or an abnormal image may be obtained. In this case, stop using the product until the service engineer corrects the problem.

3.5 How to Replace the Battery Pack

The battery pack is built into the detector. FXRD-3643VAW / FXRD-3643VAW PLUS / FXRD-4343VAW / FXRD-4343VAW PLUS can install up to two battery packs, and FXRD-2530VAW / FXRD-2530VAW PLUS can install only one battery pack.

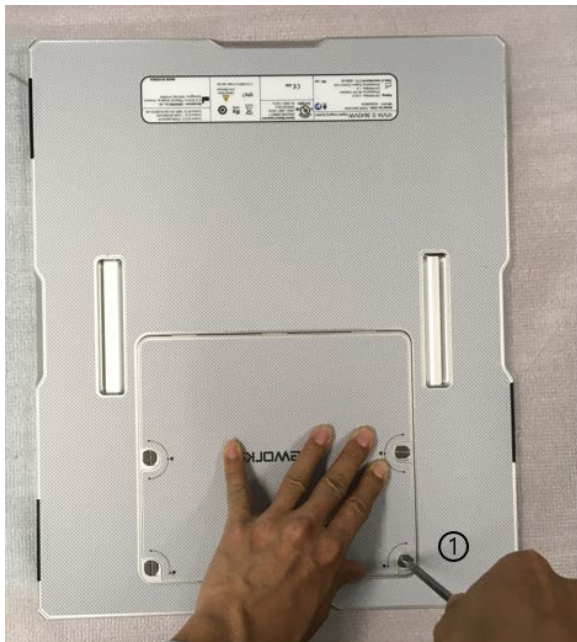


- Battery packs lose capacity over time.
 - The battery pack can be replaced at the end of its life.
- The life of a battery pack is the number of charge and discharge cycles until it reaches 80% or less of its initial capacity (nominal capacity).
- The battery pack used for VIVIX-S VW detector has a service life of approximately 800 times. (One time standard: Fully charged and then fully discharged)

3.5.1 Replacing the Battery of FXRD-3643VAW / FXRD-3643VAW PLUS / FXRD-4343VAW / FXRD-4343VAW PLUS

How to remove the battery pack

- 1 Use a flat head screwdriver to loosen the knob that secures the battery pack cover (Counterclockwise rotation, the groove of the knob should be vertical).
- 2 Remove the battery pak cover.



3 Take the battery pack out of the detector.



- Before removing the battery pack from the detector, turn off the detector. If you press and hold the power button for about 3 seconds, the power indicator LED and the OLED display turn off, then the system is powered off.
- Disconnect wired power before removing the battery pack from the detector. If a tether interface cable or AC-DC adapter is attached, remove it.

How to attach the battery pack

- 1 Insert the battery pack into the detector so that it contacts the detector's battery connector.
- 2 Close the battery pack cover and use a flat head screwdriver to tighten the knob that secures the battery pack cover (Rotate clockwise, make the groove of the knob level).

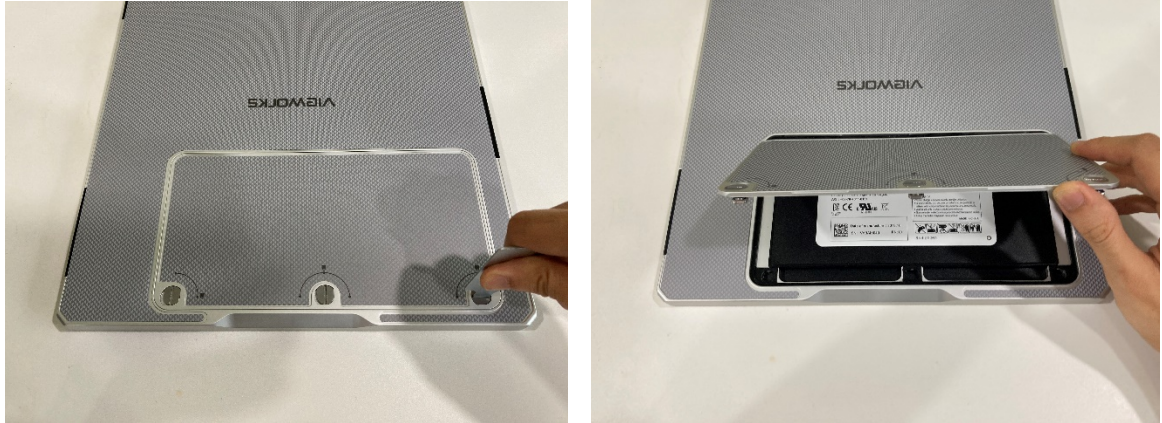


- Make sure the battery pack is installed correctly.
- When assembling the battery pack cover, make sure that the knob is in the fully locked position.
- The installed status and remaining charge of the battery pack can be checked on the OLED display and the VIVIX Setup program.

3.5.2 Replacing the Battery of FXRD-2530VAW / FXRD-2530VAW PLUS

How to remove the battery pack

- 1 Use a flat-head (-) screwdriver to loosen the knob that secures the battery pack cover. (Rotate counterclockwise, make the groove of the knob horizontal.).



- 2 Remove the battery pack cover.



How to attach the battery pack

- 1 Place the battery pack in the direction that shows the battery label.
- 2 Close the battery pack cover, and tighten the knob to secure the battery pack cover using a flat-head (-) screwdriver. (Rotate clockwise so that the groove of the knob is vertical.)

4. Inspection and Cleaning

This chapter provides instructions on how to inspect and clean the product.

Product Inspection
Cleaning and Disinfection

4.1 Product Inspection



- To use products safely, make sure to check the products before use. If problems occur during inspection or the product is impossible to repair, consult the sales representative in Viewworks or a relevant engineer.

4.1.1 Daily Inspection

Before or after using the detector and other surrounding devices, check below items daily.

Item	Description
Detector	<ul style="list-style-type: none"> • Ensure that there are no loose screws or breaks.
SCU / External AP	<ul style="list-style-type: none"> • Check if the antenna is damaged.
Cable	<ul style="list-style-type: none"> • Ensure that cables are not damaged and cable jackets are not torn. • Ensure that the power cord plugs are securely connected to both AC inlet and AC outlet of the equipment.

4.1.2 Performance Inspection

Check the detector and other devices periodically as follows.

Item	Period	Description
Self-Diagnosis	Half-yearly	<ul style="list-style-type: none"> • Conduct Self-Diagnosis of the VIVIX Setup program for the internal devices of the detector and check the status.
Resolution	Half-yearly	<ul style="list-style-type: none"> • Check the resolution of the detector through resolution chart or using a phantom.
Sensitivity	Half-yearly	<ul style="list-style-type: none"> • Evaluate the characteristic of the detector through checking gray value of the images made by X-ray dose amount reaching to the surface of the detector.
Calibration	Half-yearly	<ul style="list-style-type: none"> • Updating calibration data. (Offset → Gain → Defect) • Proceed to calibrate when X-ray Generator, Tube, Collimator or exposure environment are changed.



- Self-diagnosis and resolution can be conducted by a user or a service engineer.
- Sensitivity and calibration should be conducted by an authorized service engineer who Viewworks grants.

4.2 Cleaning and Disinfection



- Refer to "Cleaning and Disinfecting Vieworks Detectors"(D-21-184).

5. Regulatory Information

This section gives explanation about the regulatory information and standard related to the products

Medical Equipment Safety Standards
Guidance and Manufacturer Declaration for EMC
Radio Frequency Compliance Information
KC Wireless Certification
ANATEL
Labels and Symbols

5.1 Medical Equipment Safety Standards

5.1.1 Medical Equipment Classification

Item	Description
Type of protection against electrical shock	Class I or Internally Powered
Degree of protection against electrical shock	Type B applied parts
Degree of protection against ingress of water and dust	IP67 (Degrees of protection against ingress of water and dust provided by enclosure.)
Operation mode	Continuous operation
Flammable anesthetics	NOT suitable for use in the presence of a flammable anesthetic mixture with air or with oxygen or nitrous oxide.

5.1.2 Product Safety Standard

South Korea

Electrical and mechanical safety tests shall be in accordance with IEC 60601-1.

Test for electromagnetic interference prevention shall be in accordance with IEC 60601-1-2.

U.S.A / Canada

Item	Description
IEC 60601-1:2012 (ed.3.1)	Medical electrical equipment – Part1: General requirements for basic safety and essential performance
ANSI/AAMI ES60601-1 (2005) + AMD1 (2012)	Medical electrical equipment – Part1: General requirements for basic safety and essential performance
CAN/CSA-C22.2 No. 60601-1:14	Medical electrical equipment – Part 1: General requirements for basic safety and essential performance (adopted IEC 60601-1:2005, including Amendment 1:2012, with Canadian deviations)
IEC 60601-1-2: 2014 (ed.4)	Medical electrical equipment-Part 1-2: Collateral Standard: Electromagnetic compatibility
IEC 62304:2006	Medical device software-software life cycle processes
ISO 14971:2012	Medical Device- Application of risk management to medical devices

European Union

Item	
MDR (Medical Device Regulation)	Regulation (EU) 2017/745
EN ISO 13485 :2016/AC:2018	Medical devices – Quality Management systems – Requirements for regulatory purposes
EN 60601-1:2006/A1:2013	Medical electrical equipment - Part 1: General requirements for basic safety and essential performance
EN 60601-1-2 :2015	Medical electrical equipment - Part 1-2: General requirements for basic safety and essential performance - Collateral Standard: Electromagnetic disturbances - Requirements and tests
ISO 14971:2019	Medical devices – Application of risk management to Medical Devices
EN 62304 :2006/AC:2008	Medical device software – Software life-cycle processes
EN 62366-1:2015/A1:2020	Application of usability engineering to medical devices
EN 60601-1-6:2010/A2:2021	Medical electrical equipment - Part 1-6: General requirements for basic safety and essential performance - Collateral standard: Usability
EN 62220-1-1 :2015	Medical electrical equipment – Characteristics of digital X-ray Imaging devices – Part1-1: Determination of the Detective Quantum Efficiency – Detectors used in Radiographic imaging
EN 300 328 V2.2.2	Wideband transmission systems; Data transmission equipment operating in the 2,4 GHz band; Harmonised Standard for access to radio spectrum
EN 301 893 V2.1.1	5 GHz RLAN; Harmonised Standard covering the essential requirements of article 3.2 of Directive 2014/53/EU
EN 301 489-1 V2.2.3	ElectroMagnetic Compatibility (EMC) standard for radio equipment and services; Part 1: Common technical requirements; Harmonised Standard for ElectroMagnetic Compatibility
EN 301 489-17 V3.1.1	Electromagnetic compatibility and Radio spectrum Matters(ERM); ElectroMagnetic Compatibility (EMC) standard for radio equipment; Part17 : Specific conditions for Broadband Data Transmission Systems
EN ISO 15223-1:2016	Symbols to be used with medical device labels, labeling and information to be supplied; Part: General Requirements
EN 1041 :2008	Information supplied by the manufacturer of medical devices.
IEC 80001-1:2021	Safety, effectiveness, and security in the implementation and use of connected medical devices or connected health software — Part 1: Application of risk management
MEDDEV 2.7.1 rev.4	Guidelines on medical devices clinical evaluation
CEN ISO/TR 20416:2020	Medical devices - Post-market surveillance for manufacturers
ISO 2248:1985	Packaging — Complete, filled transport packages — Vertical impact test by dropping

5.2 Guidance and Manufacturer’s Declaration for EMC



- This device has been tested for EMI/EMC compliance, but interference can still occur in an electromagnetically noisy location. Attempt to maintain a suitable distance between electrical devices to prevent malfunction.



- Obtaining diagnostic images and transferring them to a PC (workstation) are the essential performance of VIVIX-S VW Detectors. If the required performance is degraded or lost due to electromagnetic interference, images that are not suitable for diagnosis may be obtained or the image may be lost.

5.2.1 Electromagnetic Emissions

The Equipment Under Test (EUT) is intended for use in the electromagnetic environment specified below.

Immunity test	Compliance	Electromagnetic Environment
RF Emissions (CISPR 11)	Group 1	The EUT 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.
RF Emissions (CISPR 11)	Class A	The EUT is directly connected to a low voltage power supply network and can be used in all facilities except the ones that supply voltage to home facilities or buildings.
Harmonic emissions (IEC 61000-3-2)	Class A	
Voltage fluctuations/ Flicker emissions (IEC 61000-3-3)	Complies	The EMISSIONS characteristics of this equipment make it suitable for use in industrial areas and hospitals (CISPR 11 class A). If it is used in a residential environment (for which CISPR 11 class B is normally required) this equipment might not offer adequate protection to radio-frequency communication services. The user might need to take mitigation measures, such as relocating or re-orienting the equipment.

5.2.2 Electromagnetic Immunity

The **VIVIX-S VW** system has secured the electromagnetic compatibility in the following environments. It is recommended that you use the product only in the specified electromagnetic environment.

Electrostatic Discharge (ESD) IEC 61000-4-2

Item	Description
Immunity test	<ul style="list-style-type: none"> Electrostatic discharge (ESD) IEC 61000-4-2
IEC 60601 test condition	<ul style="list-style-type: none"> Contact $\pm 8\text{kV}$ Air $\pm 15\text{kV}$
Compliance Level	<ul style="list-style-type: none"> Contact $\pm 8\text{kV}$ Air $\pm 15\text{kV}$
Electromagnetic Environment - Guidance	<ul style="list-style-type: none"> Floors should be wood, concrete or ceramic tile. If floors are covered with synthetic material, the relative humidity should be at least 30%.

Electrical Fast Transient/Burst IEC 61000-4-4

Item	Description
Immunity test	<ul style="list-style-type: none"> Electrical fast transient/burst IEC 61000-4-4
IEC 60601 test condition	<ul style="list-style-type: none"> Power supply lines $\pm 2\text{kV}$ Input / output lines $\pm 1\text{kV}$
Compliance Level	<ul style="list-style-type: none"> Power supply lines $\pm 2\text{kV}$ Input / output lines $\pm 1\text{kV}$
Electromagnetic Environment - Guidance	<ul style="list-style-type: none"> Main power quality should be that of a typical commercial or hospital environment.

Surge IEC 61000-4-5

Item	Description
Immunity test	<ul style="list-style-type: none"> Surge IEC 61000-4-5
IEC 60601 test condition	<ul style="list-style-type: none"> Differential mode $\pm 1\text{kV}$ Common mode $\pm 2\text{kV}$
Compliance Level	<ul style="list-style-type: none"> Differential mode $\pm 1\text{kV}$ Common mode $\pm 2\text{kV}$
Electromagnetic Environment - Guidance	<ul style="list-style-type: none"> Main power quality should be that of a typical commercial or hospital environment.


Voltage Dips, Short Interruptions/Voltage Variations on Power Supply Input Lines IEC 61000-4-11

Item	Description
Immunity test	<ul style="list-style-type: none"> • Voltage dips, short interruptions and voltage variations on power supply input lines IEC 61000-4-11
IEC 60601 test condition	<ul style="list-style-type: none"> • 100% reduction for 0.5 cycle at 0, 45, 90, 135, 180, 225, 270 and 315 degrees • 100% reduction for 1 cycle • 30% reduction for 25/30 cycles at 0 degree • 100% reduction for 250/300 cycles (5 sec.)
Compliance Level	<ul style="list-style-type: none"> • 100% reduction for 0.5 cycle at 0, 45, 90, 135, 180, 225, 270 and 315 degrees • 100% reduction for 1 cycle • 30% reduction for 25/30 cycles at 0 degree • 100% reduction for 250/300 cycles (5 sec.)
Electromagnetic Environment - Guidance	<ul style="list-style-type: none"> • Main power quality should be that of a typical commercial or hospital environment. • If the user of the EUT image intensifier requires continued operation during power mains interruptions, it is recommended that the EUT image intensifier be powered from an uninterruptible power supply or a battery.

Power Frequency (50/60 Hz) Magnetic Field IEC 61000-4-8

Item	Description
Immunity test	<ul style="list-style-type: none"> • Power frequency (50/60 Hz) magnetic field IEC 61000-4-8
IEC 60601 test condition	<ul style="list-style-type: none"> • 30 A/m
Compliance Level	<ul style="list-style-type: none"> • 30 A/m
Electromagnetic Environment - Guidance	<ul style="list-style-type: none"> • Power frequency magnetic fields should be at levels characteristic of a typical location in a typical commercial or hospital environment.

Conducted RF IEC 61000-4-6 / Radiated RF IEC 61000-4-3

Item	Description
Immunity test	<ul style="list-style-type: none"> Conducted RF IEC 61000-4-6 Radiated RF IEC 61000-4-3
	3 Vrms 150 kHz to 80 MHz
IEC 60601 test condition	<ul style="list-style-type: none"> 6 Vrms in the ISM bands 150 kHz to 80 MHz 3 V/m 80 MHz to 2.7 GHz
	3 Vrms 150 kHz to 80 MHz
Compliance Level	<ul style="list-style-type: none"> 6 Vrms in the ISM bands 150 kHz to 80 MHz 3 V/m 80 MHz to 2.7 GHz
Electromagnetic Environment - Guidance	<ul style="list-style-type: none"> The electromagnetic field strength of a stationary RF transmitter determined by an electromagnetic test survey must be less than the compliance level of each frequency range. Interference may occur in the vicinity of equipment marked with .



- At 80 MHz and 800 MHz, the higher frequency range applies.
- These guidelines may not apply in all situations. Electromagnetic propagation is affected by absorption and reflection from structures, objects and people.



- 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 EUT is used exceeds the applicable RF compliance level above, EUT should be observed to verify normal operation. If abnormal performance is observed, additional measures may be necessary, such as reorienting or relocating EUT.
- Over the frequency range 150 kHz to 80 MHz, field strengths should be less than [V1] V/m.
- Portable RF communications equipment (including peripherals such as antenna cables and external antennas) should be used no closer than 30cm (12 inches) to any part of the VIVIX-S VW Detectors, including cables specified by the Vieworks. Otherwise, degradation of the performance of this equipment could result.

5.3 Radio Frequency Compliance Information

Country	Item
U.S.A	<ul style="list-style-type: none"> FCC Part 15.107(b) / Part 15.109(b)
	<ul style="list-style-type: none"> FCC Part 15 Subpart E 15.407 FCC Part 15 Subpart C 15.247
	<ul style="list-style-type: none"> ETSI EN 301 489-1 V2.2.3 ETSI EN 301 489-17 V3.1.1 EN 300 328 V2.2.1 EN 301 893 V2.1.1
South Korea	<ul style="list-style-type: none"> KN 301 489-1
	<ul style="list-style-type: none"> KN 301 489-17

5.3.1 FCC Compliance

- This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of **FCC Rules**. These limits are designed to provide reasonable protection against harmful interference in a residential installation.
- Operation is subject to the following two conditions.
 - This device may not cause harmful interference.
 - This device must accept any interference received, including interference that may cause undesired operation.
- 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 communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does 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 where the receiver is connected.
 - Consult the distributor or an experienced radio/TV technician for help.



- Change or modification which is not expressly approved by the party responsible for compliance could void the user’s authority to operate the equipment.
- 5.15-5.35GHz band is restricted to indoor operations only.



- The **SAR** limit set by FCC is 2W/kg (for EU and Japan) and 1.6W/kg (for USA and Korea).
 - This equipment complies with **FCC&CE SAR** regulation.
- The front side of a detector should be used for image acquisition.


5.3.2 FCC SAR

- OET Bulletin 65, Supplement C (Edition 01-01)

5.3.3 CE R&TTE SAR

Item	
EN 62311:2008	Assessment of electronic and electrical equipment related to human exposure restrictions for electromagnetic fields. (0 Hz - 300 GHz)
EN 62209-2:2010	Human Exposure to Radio Frequency Fields from Handheld and Body-Mounted Wireless Communication Devices – Human models, Instrumentation, and Procedures. <ul style="list-style-type: none">• Part 2: Procedure to determine the specific absorption rate (SAR) for mobile wireless communication devices used in close proximity to the human body (frequency range of 300 MHz to 6 GHz).

5.4 KC Wireless Certification

Item	Description
Symbol	
Equipment Name	Particular low-power wireless device (Wireless equipment specialized in wireless data communications system) <ul style="list-style-type: none"> • FXRD-3643VAW • FXRD-3643VAW PLUS • FXRD-4343VAW • FXRD-4343VAW PLUS • FXRD-2530VAW • FXRD-2530VAW PLUS
Module Verification Code	MSIP-CRI-VJM-WLE900VX-VW
Verified Company	Vieworks
Manufacturing Date	
Manufacturer/ Country of Manufacture	Vieworks Co., Ltd. / South Korea



- This radio station equipment may cause radio interference that it cannot provide the service related to human life service.
- This equipment got an evaluation on suitability for work environment, and it may cause radio interference when used for family use.

5.5 ANATEL










This product contains the module WLE900VX 7AA000S-VW, with ANATEL homologation number 05379-20-05431.










5.6 Labels and Symbols

The **VIVIX-S VW** detectors and relevant components have labels attached on them. The contents and locations of each label are indicated below.










5.6.1 Label










FXRD-3643VAW / FXRD-3643VAW PLUS

VIVIX-S 3643VW Digital Imaging System Model No (240) : FXRD-3643VAW SN (21) :		        https://clouds.vieworks.com.5001/	
Rating : 18V \Rightarrow Max. 4.44A (Powered by AC-DC Adapter) 24V \Rightarrow Max. 1A (Powered by System Control Unit)	 Medical Equipment ANSIAAMI ES60601-1 (2005) + AMD 1 (2012), CAN/CSA-C22.2 No. 60601-1 (2014)	CE 2460 EC REP European Representative : Obelis s.a Bd. General Wahis 53 1030 Brussels, BELGIUM	Contains FCC ID : PFRWLE900VXVW Contains IC ID : 11233A-WLE900VXVW Contains KC ID : MSIP-CRI-VJM-WLE900VX-VW 5.15-5.35GHz is indoor use only Manufacturer : VIEWWORKS Co., Ltd. • Headquarter : 41-3, Burim-ro, 170beon-gil, Dongan-gu, Anyang-si, Gyeonggi-do, 14055 Republic of Korea • Hwasong Site : 25-7, Jeongnamsandan 2-gil, Jeongnam-myeon, Hwasong-si, Gyeonggi-do, 18514 Republic of Korea MADE IN KOREA

VIVIX-S 3643VW Digital Imaging System Model No (240) : FXRD-3643VAW PLUS SN (21) :		        https://clouds.vieworks.com.5001/	
Rating : 18V \Rightarrow Max. 4.44A (Powered by AC-DC Adapter) 24V \Rightarrow Max. 1A (Powered by System Control Unit)	 Medical Equipment ANSIAAMI ES60601-1 (2005) + AMD 1 (2012), CAN/CSA-C22.2 No. 60601-1 (2014)	CE 2460 EC REP European Representative : Obelis s.a Bd. General Wahis 53 1030 Brussels, BELGIUM	Contains FCC ID : PFRWLE900VXVW Contains IC ID : 11233A-WLE900VXVW Contains KC ID : MSIP-CRI-VJM-WLE900VX-VW 5.15-5.35GHz is indoor use only Manufacturer : VIEWWORKS Co., Ltd. • Headquarter : 41-3, Burim-ro, 170beon-gil, Dongan-gu, Anyang-si, Gyeonggi-do, 14055 Republic of Korea • Hwasong Site : 25-7, Jeongnamsandan 2-gil, Jeongnam-myeon, Hwasong-si, Gyeonggi-do, 18514 Republic of Korea MADE IN KOREA

FXRD-4343VAW / FXRD-4343VAW PLUS

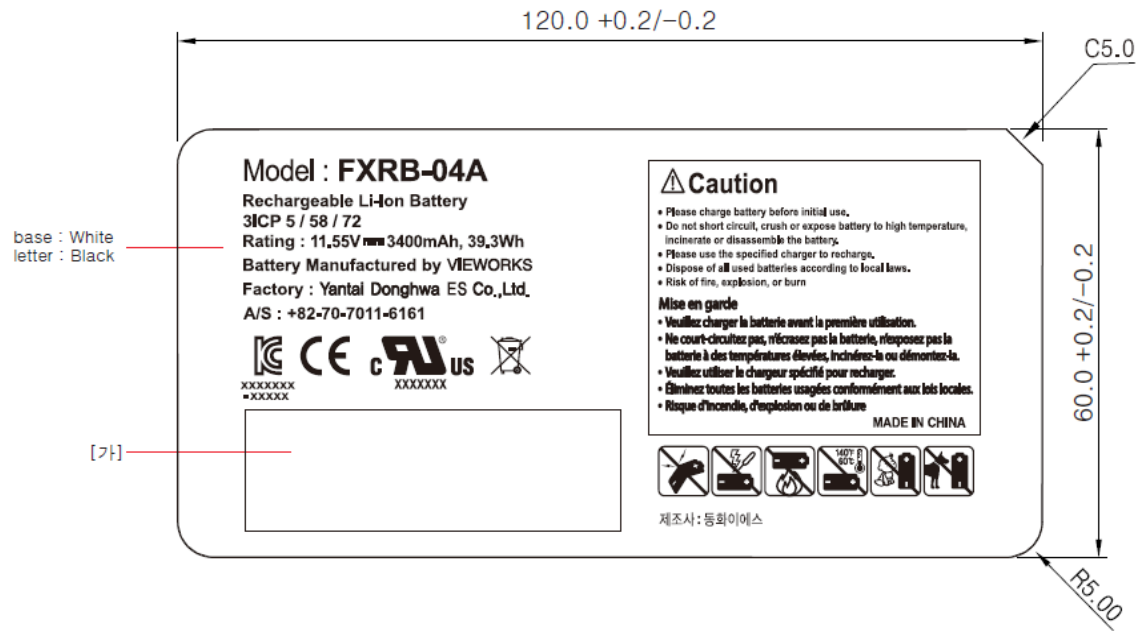
VIVIX-S 4343VW Digital Imaging System Model No (240) : FXRD-4343VAW SN (21) :		        https://clouds.vieworks.com.5001/	
Rating : 18V \Rightarrow Max. 4.44A (Powered by AC-DC Adapter) 24V \Rightarrow Max. 1A (Powered by System Control Unit)	 Medical Equipment ANSIAAMI ES60601-1 (2005) + AMD 1 (2012), CAN/CSA-C22.2 No. 60601-1 (2014)	CE 2460 EC REP European Representative : Obelis s.a Bd. General Wahis 53 1030 Brussels, BELGIUM	Contains FCC ID : PFRWLE900VXVW Contains IC ID : 11233A-WLE900VXVW Contains KC ID : MSIP-CRI-VJM-WLE900VX-VW 5.15-5.35GHz is indoor use only Manufacturer : VIEWWORKS Co., Ltd. • Headquarter : 41-3, Burim-ro, 170beon-gil, Dongan-gu, Anyang-si, Gyeonggi-do, 14055 Republic of Korea • Hwasong Site : 25-7, Jeongnamsandan 2-gil, Jeongnam-myeon, Hwasong-si, Gyeonggi-do, 18514 Republic of Korea MADE IN KOREA

VIVIX-S 4343VW Digital Imaging System Model No (240) : FXRD-4343VAW PLUS SN (21) :		        https://clouds.vieworks.com.5001/	
Rating : 18V \Rightarrow Max. 4.44A (Powered by AC-DC Adapter) 24V \Rightarrow Max. 1A (Powered by System Control Unit)	 Medical Equipment ANSIAAMI ES60601-1 (2005) + AMD 1 (2012), CAN/CSA-C22.2 No. 60601-1 (2014)	CE 2460 EC REP European Representative : Obelis s.a Bd. General Wahis 53 1030 Brussels, BELGIUM	Contains FCC ID : PFRWLE900VXVW Contains IC ID : 11233A-WLE900VXVW Contains KC ID : MSIP-CRI-VJM-WLE900VX-VW 5.15-5.35GHz is indoor use only Manufacturer : VIEWWORKS Co., Ltd. • Headquarter : 41-3, Burim-ro, 170beon-gil, Dongan-gu, Anyang-si, Gyeonggi-do, 14055 Republic of Korea • Hwasong Site : 25-7, Jeongnamsandan 2-gil, Jeongnam-myeon, Hwasong-si, Gyeonggi-do, 18514 Republic of Korea MADE IN KOREA

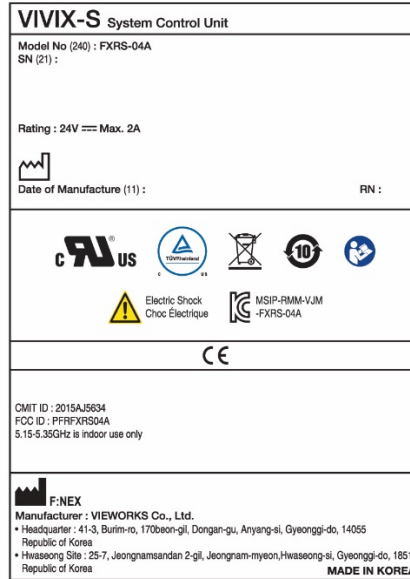
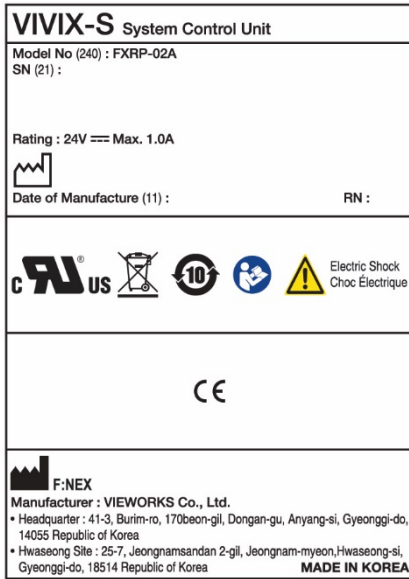
FXRD-2530VAW / FXRD-2530VAW PLUS

<p>VIVIX-S 2530VW Digital Imaging System</p> <p>Model No (240) : FXRD-2530VAW SN (21) :</p> <p>Rating : 18V \approx Max. 2.78A (Powered by AC-DC Adapter) 24V \approx Max. 0.825A (Powered by System Control Unit)</p> <p>Date of Manufacture (11) : RN :</p>			
<p>VIVIX-S 2530VW Digital Imaging System</p> <p>Model No (240) : FXRD-2530VAW PLUS SN (21) :</p> <p>Rating : 18V \approx Max. 2.78A (Powered by AC-DC Adapter) 24V \approx Max. 0.825A (Powered by System Control Unit)</p> <p>Date of Manufacture (11) : RN :</p>			
<p>CLASSIFIED Medical Equipment ANSI/AAMI ES60601-1 (2005) + AMD 1 (2012), CAN/CSA-C22.2 No. 60601-1 (2014) E473885</p>		<p>CE 2460</p> <p>Contains FCC ID : PFRWLE900VXVW Contains IC ID : 11233A-WLE900VXVW Contains KC ID : MSIP-CRI-VJM-WLE900VX-VW 5.15-5.35GHz is indoor use only</p> <p>European Representative : Obelis s.a Bd. General Wafis 53 1030 Brussels, BELGIUM</p>	
		<p>Manufacturer : VIEWWORKS Co., Ltd. • Headquarter : 41-3, Burim-ro, 170beon-gil, Dongan-gu, Anyang-si, Gyeonggi-do, 14055 Republic of Korea • Hwaseong Site : 25-7, Jeongnamsandan 2-gil, Jeongnam-myeon, Hwaseong-si, Gyeonggi-do, 18514 Republic of Korea MADE IN KOREA</p>	

Battery Pack (FXRB-04A)



SCU Lite (FXRP-02A) / SCU Mini (FXRS-04A)



5.6.2 Product Symbols

Symbol	Description
	Direct current
	Alternating current
	Protective earth (Ground)
	Equipotentiality
	Power on
	Power on for part of the equipment
	Power off
	Power off for part of the equipment
	Attention, consult accompanying documents
	General warning sign
	Warning sign for electricity

	This mark shows compliance with both Canadian and U.S. safety requirements. With Respect to electric shock, fire, and mechanical hazards only. In accordance with ANSI/AAMI ES60601-1 (2005) + AMD 1 (2012), CAN/CSA C22.2 No. 60601-1:14.
	This mark shows compliance with both Canadian and U.S. safety requirements. With Respect to electric shock, fire, and mechanical hazards only. In accordance with ANSI/AAMI ES60601-1 (2005) + AMD 1 (2012), CAN/CSA C22.2 No. 60601-1:14.
	This mark shows compliance of the essential requirement and other relevant provisions.
	Read and understand all instructions and warning labels in the product documentation before using the equipment. Keep manual for future reference.
	General mandatory action sign
	This mark indicates that this equipment must be handled with care.
	Do not jolt or apply excessive load to the equipment.
	This is a Type B Applied Part according to UL 60601-1 and EN 60601-1.
	This mark indicates that the equipment must be collected separately under the Directive on Waste Electrical and Electronic Equipment 2012/19/EU (WEEE) in European Union.
	This mark indicates that the battery must be collected separately under the Directive on Waste Electrical and Electronic Equipment 2006/66/EC in the European Union. (For European Union)
	Mark indicating compliance with RoHS 2 (China)
	Shows direction of installing the detector and generator tube.
	Dealing with a medicine that can only be given by a prescription from a doctor and you should use a certain medication that a doctor recommended.
	Dustproof/waterproof test results based on IEC 60529 (Dustproof grade 6, Waterproof grade 7)
	Indicates the medical device manufacturer.
	Indicates the date when the medical device was manufactured.
	Consult operating instructions on website provided by the manufacturer.



This mark shows compliance of the essential requirement and other relevant provisions.



Read and understand all instructions and warning labels in the product documentation before using the equipment. Keep manual for future reference.

6. Information

This section gives overview information for service and warranty of the product.

Service Information

6.1 Service Information

6.1.1 Product Lifetime

The estimated product lifetime may be up to seven (7) years under the appropriate regular inspection and maintenance.

6.1.2 Regular Inspection and Maintenance

To ensure the safety of patients, operating personnel and third parties, and to maintain the performance and reliability of the equipment, be sure to perform regular inspection at least once a year. If necessary, clean up the equipment, adjust, or replace consumables.

There may be cases where overhaul is recommended depending on the conditions. Contact your sales representative or distributor for regular inspections or maintenance.



- Maintenance related document (Checklist of Quality Assurance Test_VIVIX-S VW series and VXvue) can be downloaded from VDS (Vieworks Download System). If you need the relevant document, please contact Vieworks Customer Support Team.

6.1.3 Repair

If a problem cannot be solved even after taking the measures indicated in Troubleshooting and contact your sales representative or a distributor for repairs. Please refer to the name label and provide the following information.

- Model name
 - **FXRD-3643VAW / FXRD-3643VAW PLUS**
 - **FXRD-4343VAW / FXRD-4343VAW PLUS**
 - **FXRD-2530VAW / FXRD-2530VAW PLUS**
- Serial number
 - 9 digit-number on the product label
- Explanation of problem
 - Describe as detailed as possible.

6.1.4 Replacement Parts Support

Performance parts (parts required to maintain the functioning of the product) of this product will be stocked for seven years after discontinuance of production, to allow for repair.

6.1.5 Consumables

The following consumable can deteriorate because of its characteristics and structure. For purchase of consumables, contact your sales representative or distributor.

- Battery pack: **FXRB-04A**

7. Appendix

This chapter provides the information on the terminology used in this manual.

Glossary

7.1 Glossary

Vocabulary	Definition
Accessory	Parts added to a detector
Active Area	An area where an image is shown in a display panel
AED(Automatic Exposure Detection)	A function that allows a detector to acquire X-ray images without any synchronized signals from X-ray system
Alternating Current	An electric current which periodically reverses direction and changes its magnitude continuously with time
Applications	A computer program that is designed for a particular purpose
Atmospheric Pressure	The pressure within the atmosphere of earth
Auto Trigger	A mode typically used when automatically exchanging exposure signal
Backup	A copy of information held on a computer that is stored separately from the computer
Battery Pack	A set of identical batteries or individual battery cells
Bezel	A space around a detector for the protection purpose
Block Diagram	A diagram of a system in which the principal parts or functions are represented by blocks
Booting	The process of starting a detector
Calibration	The process of checking a measuring instrument to see if it is accurate
Capturing	The act of taking a picture of something
Circuit	A closed system of wires through which electricity can flow
Connector	A device that holds a wire in position in a piece of electrical equipment
Consumables	Goods that people buy regularly because they are quickly used and need to be replaced often
Control	The act of controlling something or someone, or the power to do this
Csi	A scintillator that captures the fine and high-quality image
Data Communication	The exchange of data between a source and a receiver via form of transmission media such as a wire cable
Data Interface	A shared boundary across which two or more separate components of a computer data exchange information
Data Loss Prevention	The practice of detecting and preventing data breaches, exfiltration, or unwanted destruction of sensitive data
Data Transmission Rate	The amount of data transmitted from one point to another at a given time
Deco Sheet	A glass fiber reinforced composite polyester sheet attached on a detector
Defect Map	A problem-solving tool used to visually identify and track physical locations and types of defects on a X-ray image
Detector	A device used to find particular substances, such as radiation and chemicals
Detergent	A water-soluble cleansing agent which combines with impurities and dirt to make them more soluble
Device Setting	To make a computer system practicable by installing a new software or hardware

Diagnosis of Devices	To identify the nature or case of a certain phenomenon of a device
Diagnostic Image	Various techniques of viewing the inside of the body to help figure out the causes of an illness or injury and confirm a diagnosis
Diagram	A two-dimensional geometric model that represents a machine
Dimensions	A measurable extent of some kind, such as length
Direct Current	The one directional flow of electric charge
Disclaimer	A formal statement saying that you are not legally responsible for something
Disinfectant Wipe	Small pre-moistened towels that are used to clean surfaces for the removal of dirt and bacteria
Download	To copy or move programs or information into a computer's memory
Dr Trigger Mode	A mode typically used when manually exchanging exposure signal
Dust And Water Resistant	Not allowing water and dust to go through
Dynamic Range	The ration between the maximum and minimum measurable light intensities
Effective Area	A usable pixel size
Effective Array	A usable number of pixels
Electromagnetic Immunity	The tolerance of circuits and components to all sources of interfering electromagnetic energy
Electromagnetic Wave	Waves that are created as a result of vibrations between an electric field and a magnetic field
Equipotential terminal	Iron with the same potential to connect the electrodes to the output
Equipotentiality	A region in space where every point in it is at the same potential
Exposure	A single or multiple photograph(es) on a piece of film.
Exposure Area	The place on the body where the radiation beam is aimed
FAN	A product that provides a flow of air
Features	A typical quality or an important function of a detector
Field of View	The extent of the observable view that is seen in the angle of view
Flammable Anesthetics	Anesthetic that supports combustion and forms explosive mixtures with oxidizing gases
Fluoroscopy	An imaging technique that uses X-rays to obtain real-time moving images of the interior of an object
Frame Rate(fps)	The speed at which the images are shown(Unit: second)
General Warning Sign	A type of sign which indicates a potential hazard, obstacle, or condition requiring special attention
Gigabit Ethernet	The term applied to transmitting Ethernet frames at a rate of a gigabit per second
Grayscale	A series of regularly spaced tones ranging from black to white through intermediate shades of gray
Ground Wire	A wire that has an electrical connection to the earth
Handling	Instructions that explain how to handle a product
Harmonic Emissions	A special type of spurious emission that typically applies to wireless electronics that deliberately generate EM radiation
Holder	A device for putting objects in or for keeping them in place

Humidity	A measurement of how much water there is in the air
Image Acquisition Time	The time required to gather a complete set of image data
Image Processing	A method to perform some operations on an image in order to get an enhanced image
Image Sensor	A sensor that detects and conveys information used to make an image
Image Transmission	Sending an image to another path
Imaging	The process of producing an exact picture of detector
Imaging Plate	A new and flexible X-ray sensor for the CR system which uses the conventional medical X-ray imaging system
Input	The amount of energy put into a system
Intended Use	The objective aim of medical products manufacturers related to the purpose of the products, processes or service
Interface	A connection between two pieces of electronic equipment or a computer
Label	A piece of information in which identification or caution is written
LAN Port	A socket used to connect a device to a router
Line Trigger	To exchange signals in order to acquire images with a generator interface cable
Lithium Ion	A type of rechargeable battery commonly used for portable electronics
Load Limit	The maximum working load that a device can endure.
Local Load	A load distributed nonuniformly over a portion
Maintenance	The process of keeping or continuing the detector operation
NFC Card	A card with a function of changing the preset of a detector on STATION mode
Noise	A grainy veil in a photograph
Non-ionizing Radiation	Radiation in the part of the electromagnetic spectrum where there is insufficient energy to cause ionization
Operating Environment	The environment in which users run application software
Operating System	An interface between a computer user and computer hardware
Operating Time	The time interval between the instant of the occurrence of a specified input condition to a system and the instant of completion of a specified operation
Operation	The way that parts of a machine or system work together
Output	The amount of energy produced by a piece of equipment
Overview	A short description of a detector manual
Panoramic Scan	A two-dimensional x-ray that captures a picture of a patient's entire mouth in just one picture
Pediatric Application	A computer application suited for pediatric treatment
Performance	How well a machine does a piece of work
Performance Inspection	Inspection that focuses on issues of safety and reliability of a product
Photodiode	A semiconductor p-n junction device that converts light into an electrical current
Photon	A single unit of light
Pixel	The smallest unit of an image

Pixel Pitch	The density of the pixels on an LED display
Plug	A piece used to make an electrical connection to a live circuit
Port	A part of a computer where wires from other pieces of equipment can be connected
Post-Processing	The process of editing the data captured by a camera while taking the photo taken to enhance the image
Power Button	A round or square button that powers an electronic device on and off
Power Cable	An electrical cable usually held together with an overall sheath to supply power to a product
Power Consumption	The electrical energy per unit time
Problem Management	Service management process tasked with managing the life cycle
Processing	The act of making pictures from films
Product Disposal	The process by which the goods a company produces are destroyed or disposed of
Product Features	A product's traits or attributes that deliver value to end-users and differentiate a product in the market
Product Lifetime	The time interval from when a product is sold to when it is discarded
Product Overview	The marketing copy used to describe a product's value proposition to potential customers
Product Specifications	An important product document that outlines key requirements for building a new feature, functionality, or product
Protective earth	The conductor that connects the exposed metallic parts of the consumer's electrical installation
Radiography	An imaging technique using X-rays, gamma rays, or similar ionizing radiation and non-ionizing radiation to view the internal form of an object
Rated Power Supply	The maximum amount of electric power that a device can provide
Recommended Cycle Time	The amount of recommended time required to produce a product
Regulatory	The activity of checking whether a business is working according to official rules or laws
Reliability	How well a machine, piece of equipment, or system works
Repair	The act of fixing something that is broken or damaged
Replacement Part	A part of used to replace or substitute an older or broken part
Resolution	The number of pixels in an image
Revision History	A list that allows you to see when and what was revised
Safety Instruction	Instructions that identify the health and safety issues that may arise from use of the machinery
Sample Diagram	A 3-dimensional picture in which the shape of an object or structure is drawn
Scan	To pass over in the formation of an image
Scintillator	The property of luminescence, when excited by ionizing radiation
SCU (System Control Unit)	An equipment installed between X-ray generator, a detector, and a workstation to synchronize images or signals

Sensor	A device that is used to record that something is present or that there are changes in something
Shock	A phenomenon that a function of a product suddenly declines due to the exterior collision
Signal to Noise Ratio	A measure used in science and engineering that compares the level of a desired signal to the level of background noise
Spatial Resolution	A measure of the smallest object that can be resolved by the sensor
Stage	A period of development
Status Indicator	Indicator that identified whether a service is successfully operated or not
Storage Environment	The state in which a device or equipment is not operated
Synchronization Control	A way of controlling the stream between two or more processes
Technology	The application of scientific knowledge to the practical aims of human life
Temperature	A physical quantity that expresses hot and cold
Troubleshooting	An act of solving serious problems generated in a device
Uniform Load	A load distributed uniformly over a portion
Use Environment	The circumstances, objects, or conditions by which a product is used
User Limitations	The specific permissions that you assign to each user
Vibration	Periodic back-and-forth motion of the particles
Voltage Fluctuations	A regular change in voltage that happens when devices requiring a higher load are used
Warning Sign for Electricity	A sign that indicates that injury or death may occur via high-voltage electrical equipment
Warranty	A written guarantee, issued to the purchaser of an article by its manufacturer, promising to repair or replace it if necessary, within a specified period of time
Wired	A way of sending and receiving information via wire
Wireless	The transfer of information between two or more points that do not use an electrical conductor as a medium
Wiring Diagram	A simplified conventional pictorial representation of an electrical circuit
Workstation	A special computer designed for technical or scientific application

8. Warranty

This chapter provides the information on the warranty of the product.

Warranty

8.1 Warranty

Vieworks Co., Ltd. follows the contract with each customer regarding the product warranty period. If any such product proves defective during this warranty period, Vieworks at its option, either will repair the defective product without charge for parts and labor or will provide a replacement in exchange for the defective product. To obtain service under this warranty, Customer must notify Vieworks of the defect before the expiration of the warranty period and make suitable arrangements for the performance of service. Customer shall be responsible for packaging and shipping the defective product to the service center designated by Vieworks with shipping charges prepaid.

Vieworks shall pay for the return of the product to customer if the shipment is to a location within the country in which Vieworks designated service center is located. Customer shall be responsible for paying all shipping charges, duties, taxes, and any other charges for products returned to any other locations.

This warranty shall not apply to any defect, failure, or damage caused by improper or inadequate maintenance and care. Vieworks shall not be obligated to furnish service under this warranty to repair damage resulting from attempts by personnel other than Vieworks or its representatives to install, repair, or service this product, to repair damage resulting from improper use or connection to incompatible equipment or power source; or to service a product that has been modified or integrated with other products when the effect of such modification or integration increases the time or difficulty of servicing the product.

THIS WARRANTY IS GIVEN BY VIEWORKS WITH RESPECT TO THIS PRODUCT IN LIEU OF ANY OTHER WARRANTIES, EXPRESS OR IMPLIED. VIEWORKS AND ITS VENDOR DISCLAIM ANY IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. VIEWORKS RESPONSIBILITY TO REPAIR OR REPLACE DEFECTIVE PRODUCTS IS THE SOLE REMEDY PROVIDED TO THE CUSTOMER FOR BREACH OF THIS WARRANTY. VIEWORKS AND ITS VENDORS WILL NOT BE LIABLE FOR ANY INDIRECT, SPECIAL, INCIDENTAL, OR CONSEQUENTIAL DAMAGES IRRESPECTIVE OF WHETHER VIEWORKS OR THE VENDOR HAS ADVANCE NOTICE OF THE POSSIBILITY OF SUCH DAMAGES.

There are no warranties which extend beyond the description mentioned in this document

9. Revision History

9.1 Revision History

Version	Date	Descriptions
1.0	2019-08-20	<ul style="list-style-type: none"> Initial Release
1.1	2020-03-06	<ul style="list-style-type: none"> Overall revised
1.2	2020-04-27	<ul style="list-style-type: none"> Added) 1.4.5 Cradle Added) 2.7 Cradle – Option
1.3	2020-07-28	<ul style="list-style-type: none"> Removed) 2.8.2 Recommended Specifications of Grid Modified) 2.4.2 Functions Drawing sheet of FXRD-2530VAW Modified) 5.3.2 Replacing the Battery of FXRD-2530VAW / FXRD-2530VAW PLUS
1.4	2020-10-16	<ul style="list-style-type: none"> Modified) 2.2.1 Functions of FXRD-3643VAW, FXRD-3643VAW PLUS Modified) 2.3.1 Functions of FXRD-4343VAW, FXRD-4343VAW PLUS Modified) 2.4.1 Functions of FXRD-2530VAW, FXRD-2530VAW PLUS Modified) 3.3.3 Booting the Detector
1.5	2020-11-23	<ul style="list-style-type: none"> Added) Production plant address Changed) 5.5.1 Label
1.6	2020-12-07	<ul style="list-style-type: none"> Changed) 3.4.3 AP button Changed) 3.3.3 Booting the Detector
1.7	2021-01-12	<ul style="list-style-type: none"> Added) 5.5.1 Label Changed) Production plant address Changed) 2.2.2 Deco Sheet Changed) 2.3.2 Deco Sheet Changed) 2.4.2 Deco Sheet
1.8	2021-04-02	<ul style="list-style-type: none"> Added) Sentence on the cover Changed) 1.1.4 Contact Us Added and Changed) 1.2 Purpose of Use Added) 1.3.2 Disclaimer Changed) 2.2 FXRD-3643VAW, FXRD-3643VAW PLUS Changed) 2.3 FXRD-4343VAW, FXRD-4343VAW PLUS Changed) 2.8.1 X-ray Generator (Recommended Exposure Condition) Changed) 4.2 Cleaning and Disinfection Changed) 5.5 Labels and Symbols
1.9	2021-06-17	<ul style="list-style-type: none"> Changed) 1.5.4 Product Disposal Changed) 5.5.2 Product Symbols
1.10	2021-06-29	<ul style="list-style-type: none"> Added) Detector model name
2.0	2021-09-30	<ul style="list-style-type: none"> Added) Appendix (Glossary) Overall revision
2.1	2021-11-15	<ul style="list-style-type: none"> Changed) Document name Changed) 1.4 Features Changed) 5.6.1 Label

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