- If the power LED lights up green, the DC power is permitted normally.
- If the active LED lights up orange, the detector is compeleted to boot up normally.

4.2.5 Checking Status LED of Detector

Power LED

- The power LED indicates the power status information which is permitted to the detector in green.
- The power LED lights up when the power is permitted normally.
- If the detector is connected with a tether interface, the power LED lights up when power is permitted to SCU because the detector is supplied power from SCU.

Active LED

- The active LED indicates status information about the possibility that the detector can be used normally or not in orange.
- The active LED is blinking when the detector is completed to boot up normally.
- The active LED is blinking when the detector turns to sleep mode.
- The active LED is blinking when the wireless communication is being initialized. (Refer to <5.3.3Wireless Initialization of Detector>.)

Data LED

- The data LED indicates status information of the data processing in blue.
- The data LED lights up when the detector is available to make data communication.
- The data LED is blinking while the detector transmits or saves data.

Detector AP LED

- The AP LED lights up in blue when the detector AP is on.
- The AP LED is blinking in blue when the detector switches the AP status.
- The AP LED is blinking in orange while the detector is synchronizing the wireless settings.
- The communication status of detector is indicated when the detector AP is off.
  - Wireless communication: Green LED at the 3rd level or higher / Orange LED under 2nd level.
  - Wired communication: Green LED in case of 1Gbps / Orange LED in case of 100Mbps connection.

Summary List of Detector Status LED (Side)

Information	Power LED	Active LED	Data LED
In process of booting after the power permission	Blink	OFF	OFF
Booting completed (Abnormal)	ON	-	-
Booting completed (Normal)	ON	ON	OFF
Ready for communication	ON	ON	ON
Sleep Mode	ON	Blink	OFF
In process of wireless initialization	ON	Blink	OFF

Data Communication (Send or Store)	ON	ON	Blink
Power OFF	OFF	OFF	OFF

Summary list of the Detector AP LED

Information	Detector AP LED
Detector AP OFF (Communication status: Good) • Wireelss communication: 3rd level or higher • Wired communication: 1000Mbps	ON
Detector AP OFF (Communication status: Normal) • Wireelss communication: Under 2nd level • Wired communication: 100Mbps	ON
Detector AP ON	ON
Switching the status of detector AP	Blink
The wireless setting is being synchronized	Blink
Power OFF	OFF

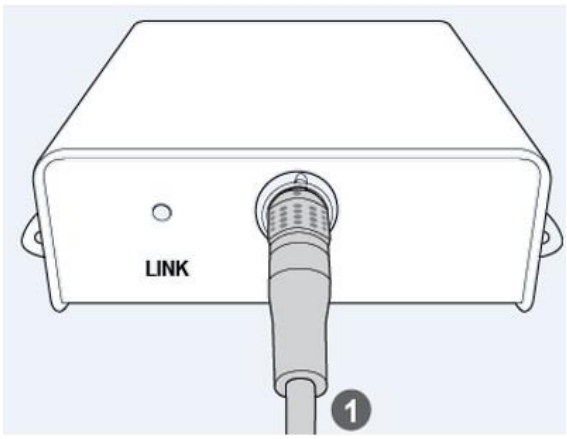
• If the LED blinks abnormally, refer to <6 Troubleshooting> to check if communication or system error is occurred.

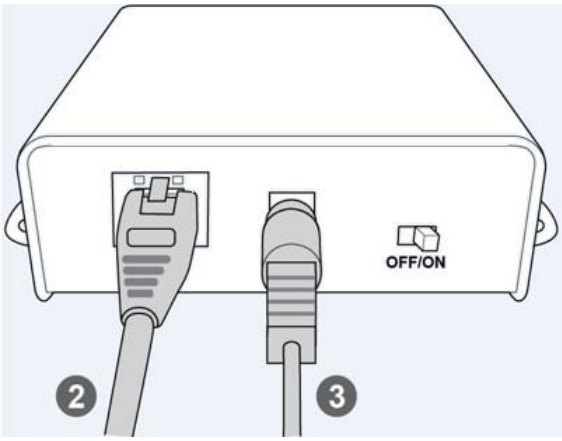
Summary List of Detector Status LED (Rear)

Category	Item	Icon	Description
Network Status	**AP**		Operates under the AP mode
		VVVVVVVVVV... 000.000.000.000	Indicates SSID and IP address
	Station		Operates under the station mode • Link Quality – Level 5
			Operates under the station mode • Link Quality – Level 4
			Operates under the station mode • Link Quality – Level 3
			Operates under the station mode • Link Quality – Level 2
			Operates under the station mode • Link Quality – Level 1
			Operates under the station mode • Link Quality – Level 0

			Indicates SSID and IP address
	Tether Interface		Operates under the tether interface mode • Connected by 1Gbps
			Operates under the tether interface mode • Connected by 100Mbps
			Indicates SSID and IP address
	Initianlization		Initializing the system
Battery	**Ramains (Charging)**		Battery remains – Level 5
			Battery remains – Level 4
			Battery remains – Level 3
			Battery remains – Level 2
			Battery remains – Level 1
			Battery remains – Level 0
Image Direction	**Indicating Direction**		Sets coordinates information to make the direction of a bar locate on the top of the image.

4.2.6 Connecting SCU Lite (FXRP-02A)



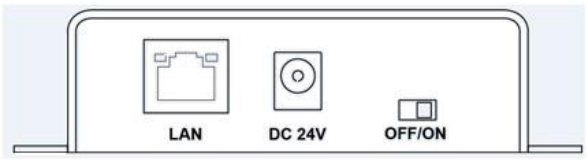


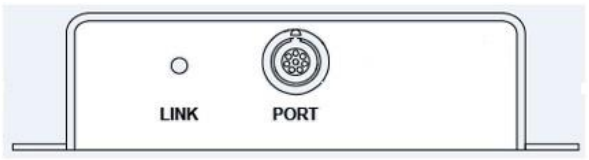
1 Connect one end of the tether interface cable to the detector, and connect the other end to **PoE port** of SCU Lite.

2 Connect one end of the LAN cable to the **LAN port** of SCU Lite, and connect the other end to the LAN card connector of workstation assigned for data transfer.

3 Connect the DC power adaptor to the power input port of SCU Lite.

4.2.7 Booting Up SCU Lite and Detector





1 Turn on the power switch at rear side of SCU Lite.

2 Check if the LINK LED of SCU Lite lights up green.

3 Check if the power LED of the detector lights up in light green.

4 Check if the active LED of the detector lights up in light green.

- When the LINK LED of SCU Lite lights up green, it means that the power is approved normally.
- The detector starts booting up when you turn on the power of SCU Lite.
- Refer to <5.3Product Initialization> for the detailed information about the default setting status of a detector.
- If the power LED of the detector does not light up, check if the tether interface cable is connected to the PoE port of SCU Lite correctly.

4.3 Device Setting

4.3.1 Software Installation

1 After connecting all devices, prepare the following softwares to set, calibrate and operate the detector / SCU.

Software	Description
VIVIX Device Driver (VDD)	Image filter driver for acquiring images from a detector.
VIVIX Setup	A program for setting and managing the detector / SCU.

2 Install **VIVIX Device Driver** and **VIVIX Setup** in sequence.

- It is not necessary to install **VIVIX Device Driver** and **VIVIX Setup** separately in case of installing the **VXvue** program made by Vieworks.

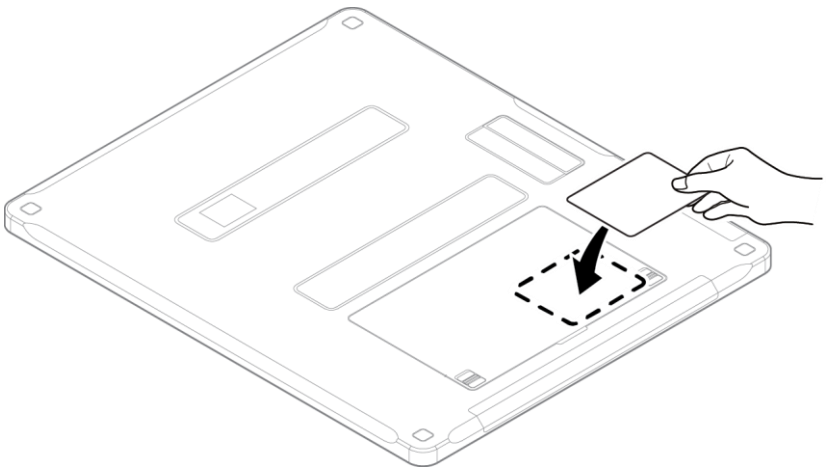
3 Configure environment for the workstation.

4.3.2 Setting Detector and SCU

1 After executing **VIVIX Setup**, access to the detector and SCU to set each device properly.
2 Perform detector calibration to acquire images suitable for the installation environment.
3 Take radiographic images to check if the shooting is conducted normally.

4.3.3 Setting NFC Tag

- To change the all detector settings by using NFC tag at once, you need to register Preset Configuration and set connection with the NFC tag to use from **VIVIX Setup** in advance.
- If you already set the NFC tag, you can change it to the Preset Configuration by contacting it on the contacting part of NFC located at the rear of the detector.
- The NFC mode is only to adjust settings and are not used simultaneously with Wi-Fi mode.



Preset Items (Changeable by using NFC tag)

Category	Item	Factory Reset
Network	IP Address, Netmask, Gateway	O
WNetwork	SSID, Key, Wireless Only	O
Image	Timeout, Option	O
AP	On/Off, Frequency, Band, Channel, SSID, Key	O
Power Mode	Sleep, Shutdown, Power Control	O
Exposure Mode	DR Trigger, AED	
Auto Offset Refresh Setting	Use offset refresh, Time Interval, Temperature Interval, Number of shot	O
Direction Compensation	Auto On/Off	

- Refer to **VIVIX Setup Operation Manual** for the detailed information about the device settings.

- The device setting should be done by an engineer who understands the **VIVIX Setup**, Windows system, wired/wireless network and the related technique. If not, an error could occur while operating the detector, or the image quality could be affected.

4.4 Diagnosis of Devices

Execute the **VIVIX Setup** program to check if threre is any problem to operate the detector / SCU after installing and setting devices.

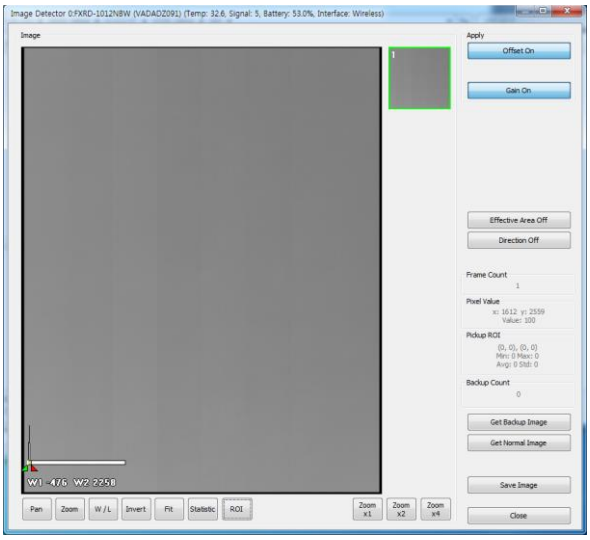
Diagnosis Items

Items	Description
Image	Diagnoses the acquired images.
Battery Pack	Diagnoses the condition of a battery pack.
Wireless Communication	Diagnoses the status of wireless communication.
Wired/Wireless Communication Speed	Diagnoses the speed of wired/wireless communication.
Self-diagnosis	Diagnoses defects of a detector by self-diagnosis.

- Set the devices and perform calibration again if any problem is found during the diagnosis. Contact the person in charge of service if the problem is not corrected.

4.4.1 Image Diagnosis

1 Execute **VIVIX Setup** and move to the **Image** dialog.
2 Take an image and check if it has any problem.
3 Take a dark image and check if it has any problem.
4 Check the effective area and whole area of the image.



- Refer to **VIVIX Setup Operation Manual** for the detailed information about the image diagnosis.

- If any problem is found on the image, check if it is caused by the surrounding environment and calibrate the detector again. Contact the person in charge of Vieworks if the problem is caused by the performance of a detector.

4.4.2 Battery Pack Diagnosis

Check battery remains from the detector

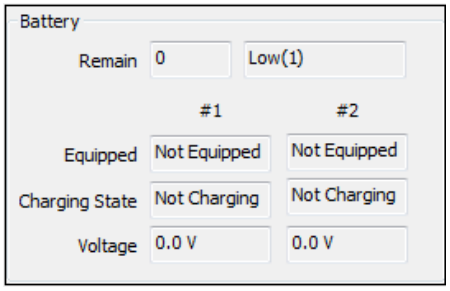
1 Check if a battery pack is attached to the detector.

2 Check remains of a battery from LED display located at the rear of a detector.

Check battery remains from VIVIX Setup

1 Execute **VIVIX Setup** and go to the **Information** tab of the **Diagnosis** dialog.

2 Check remains and voltage of a battery.



- You can also check the battery remains from **VXvue** or **VIVIX SDK**.
- Refer to **VIVIX Setup Operation Manual** for the information about the battery diagnosis.

- Since a battery pack is consumables which performance will be decreased as time passes, make sure to check its life when you use it. If a battery pack has any problems, consult service personnel in Vieworks.

Display of Battery Remains

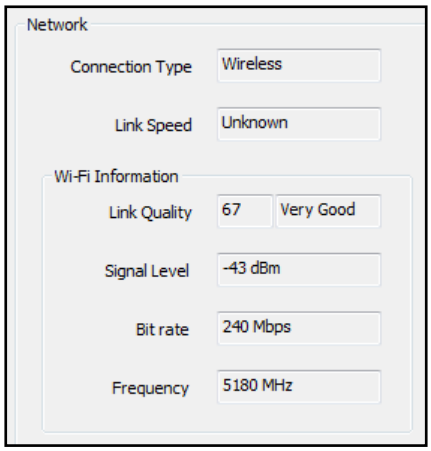
Level	Value	Battery Remains	LED Display
Full	5	81% ~ 100%	
Half Quarter	4	61% ~ 80%	
Half	3	51% ~ 60%	
Quarter	2	31% ~ 50%	
Low	1	11% ~ 30%	
		1% ~ 10%	
Unknown	0		

- If the battery remains under 30% or is at the 1st level, the system warns low battery and the detector will be turned off automatically after the battery is consumed for a specific period of time. Therefore, it is recommended to change the battery when a warning message or an indicator displays.

4.4.3 Wireless Communication Diagnosis

1 Execute **VIVIX Setup** and go to the **Information** tab of the **Diagnosis** dialog.

2 Check the status of wireless communication from the **Network** item.



- You can also check the communication status from **VXvue** or **VIVIX SDK**.
- Refer to **VIVIX Setup Operation Manual** for the detailed information about the wireless communication diagnosis.

Strength of Wireless Communication Signal

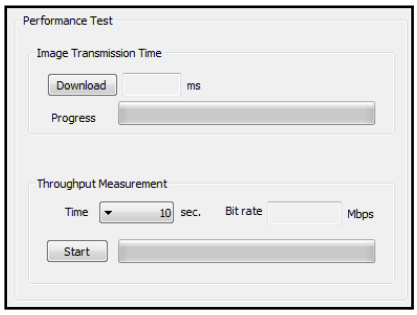
Stage	Level	Status LED	Link Quality	Meaning
Very Good	5		66 ~ 70	The wireless communication is running smoothly, and it ensures the image acquisition.
Good	4		56 ~ 65	
Normal	3		41 ~ 55	The wireless communication status is normal, but it does not ensure performace of the image acquisition.
Bad	2		31 ~ 40	The wireless communication status can become unstable.
Very Bad	1		1 ~ 30	Impossible to make wireless communication normally.
Unknown	0		0	Impossible to get the wireless communication status, or the system is not connected wirelessly.

- The communication cannot run smoothly when the strength of wireless communication is under the level 2. Therefore, it is required to check the surrounding wireless communication status.

- In case of using the detector under wireless communication, be sure to check the communication status before starting to use the detector. If the status is bad, the speed of acquiring images will be very slow or you may fail to acquire images.
- Be sure to check the surrounding wireless communication to prevent communication interference. If wireless communication module in the detector has any problems, contact the service engineer in Vieworks.

4.4.4 Wired/Wireless Communication Speed Diagnosis

1 Execute **VIVIX Setup** and go to the **Information** tab of the **Diagnosis** dialog.
2 Click on the **Download** button in **Image Transmission Time** and check image transmission speed of the detector.
3 Click on the **Start** button in **Throughput Measurement** to check the data traffic per setting time.

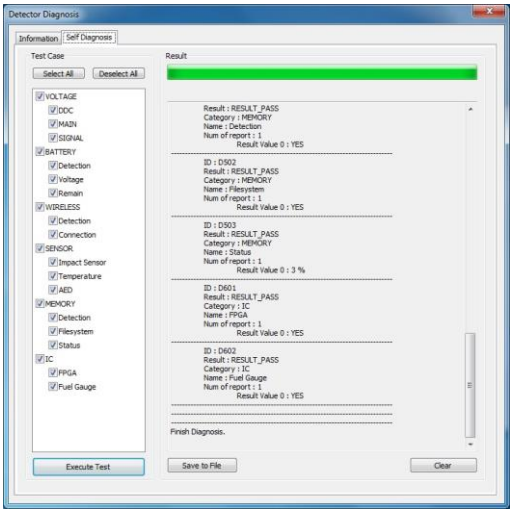


- Refer to **VIVIX Setup Operation Manual** for the detailed information about the communication speed diagnosis.

- Be sure to check the communication environment if there is any problem occurs in the communication speed. Contact the person in charge of service if the problem is related to the communication module of a detector and SCU.

4.4.5 Self-Diagnosis

1 Execute **VIVIX Setup** and go to the **Self Diagnosis** tab in the **Diagnosis** dialog.
2 Check the desired items to diagnose from the **Test Case** list.
3 Click on the **Execute Test** button to perform self-diagnosis.
4 Check the status and result of diagnosis for each item in the **Result** dialog.



- Click **Save to File** button to save the result of a diagnosis as a file and contact the service engineer if any problem is found.

Self-diagnosis items of detector and measures

Voltage

Item	Form	Expected problem	Measures
DDC	Decision	Defective tether interface cable	Change a tether cable.
		Poor power supply to the wired operation mode.	Contact a service engineer.
MAIN	Decision	Poor power supply to the processor.	Contact a service engineer.
SIGNAL	Decision	Poor power supply to FPGA.	Contact a service engineer.

Battery

Item	Form	Expected problem	Measures
Detection	Decision	The battery is not attached.	Check if a battery is attached or not.
		A defective ciruit is connected to a battery pack.	Contact a service engineer.
Voltage	Information	N/A	N/A
Remain	Information	N/A	N/A

Wireless

Item	Form	Expected problem	Measures
Detection	Decision	Defective wireless module	Contact a service engineer.
Connection	Decision	Inconsistent environment of the wireless communication.	Check obstacles and distance between a detector and SCU.
		Defective wireless module	Contact a service engineer.

Sensor

Item	Form	Expected problem	Measures
Impact Sensor	Decision	Defective shock sensor	Contact a service engineer.
Temperature	Decision	Defective temperature sensor	Contact a service engineer.
AED	Decision	Defective AED sensor	Contact a service engineer.

Memory

Item	Form	Expected problem	Measures
Detection	Decision	Impossible to save backup images.	Contact a service engineer.
		Impossible to save logs.	Contact a service engineer.
		The calibration data is inapplicable.	Contact a service engineer.
File system	Decision	Impossible to save backup images.	Contact a service engineer.
		Impossible to save logs.	Contact a service engineer.
Status	Information	N/A	N/A

IC

Item	Form	Expected problem	Measures
FPGA	Decision	Impossible to take images from a detector.	Contact a service engineer.
Fuel Gauge	Decision	Impossible to check the remaining of a battery pack.	Contact a service engineer.

Self-diagnosis items of SCU and measures

Wireless

Item	Form	Expected problem	Measures
Detection	Decision	Defective wireless module	Contact a service eingineer.

Memory

Item	Form	Expected problem	Measures
Detection	Decision	Impossible to save logs.	Contact a service eingineer.
File system	Decision	Impossible to save logs.	Contact a service eingineer.
Status	Information	N/A	N/A

IC

Item	Form	Expected problem	Measures
Switching IC	Decision	Impossible to connect the detector and PC.	Contact a service eingineer.
Current Controller	Decision	Impossible to block overcurrent when using the wired mode.	Contact a service eingineer.

5. Inspection and Maintenance

This section gives information about inspection and maintenance of the product.

Product Inspection

Cleaning and Disinfection

Product Initialization

Detector Power Save Function (Sleep)

Replacing the Fuse of SCU

5.1 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 Vieworks or a relevant engineer.

5.1.1 Daily Inspection

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

Item	Description
Detector	• Ensure that there are no loose screws or breaks. • Ensure that there is no dust or foreign matter on the battery bay connector. • Ensure that there are no breaks or short-circuits in the battery bay connector.
SCU	• Check if the antenna is damaged.
Cable	• 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.

5.1.2 Performance Inspection

Check the detector and other devices periodically as follows.

Item	Period	Description
Self-Diagnosis	Half-yearly	• Conduct **Self-Diagnosis** of the **VIVIX Setup** program for the internal devices of the detector and check the status.
Resolution	Half-yearly	• Check the resolution of the detector through resolution chart or using a phantom.
Sensitivity	Half-yearly	• 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	• 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 Vieworks grants.

5.2 Cleaning and Disinfection

After using the detector and peripheral equipments for examination, use germicidal disinfecting wipes or cloth with mild diluted disinfectant detergent to clean surfaces of the product.

- In case the surface or narrow space of equipment is contaminated by contact with blood or other body fluids of a patient, make sure to clean and disinfect it to protect the patients and users from infection.

5.2.1 Recommended Detergent Foam

Recommended disinfectant wipe

- Super Sani-cloth Plus Wipes by PDI
- Sani-cloth Active Wipes multi Surface (Alchol Free/Sans alcool) by PDI
- Sani-cloth CHG 2% by PDI
- Cavi Wipes by Kerr Total Care
- Sporicidal Wipes by Clinell
- Universal Wipes by Clinell

Recommended disinfectant product

- Sulfa'safe by Anios
  - Storage temperature: **5°C ~ 35°C**

5.2.2 How to Use Detergent Foam

1 Prepare the disinfectant detergent and a clean and dry non-woven cloth.
2 Use the spray bottle to spray detergent to the cloth and clean the equipment.
3 Clean residue on the equipment with its power off.
4 Conduct cleaning once a week or in case of contamination.

- Do not re-use wipes.
- Be careful to use disinfectant detergent which can cause irritation to eyes and skin.
- Use in well-ventilated areas, and wear gloves at all times.
- Do not clean the equipment with its power on.
- Do not use abrasive brush and scraper to clean the product.
- Do not make liquid soak when cleaning battery bay and a connector on side of products.

- Other Disinfectant detergent compliant to conditions listed below may be used following proper procedures according to its own manual.
  - European Biocidal Products designed for surface disinfection (Directive 98/8/EC)
  - Detergent with composition of Didecyldimethylammonium chloride, polyhexamethylene biguamide hydrochloride.

5.3 Product Initialization

If the connection status of system is not stable or setting value is not correct, user can initialize the products.

5.3.1 SCU Initialization

1 Click on the **Configuration** button of SCU after running the **VIVIX Setup** program.
2 Click on the **Factory Reset** button in the **Configuration** dialogue.
3 Wait for SCU to be initialized and rebooted automatically.
4 Check whether SCU initialization is completed.

Default value of SCU initialization

Item		Default Value
Network		
	IP Address	169.254.2.100
	Subnet Mask	255.255.0.0
	Gateway	169.254.2.100
AP		
	AP On/Off	ON
	Frequency	5㎓
	Country	KR
	Band	40㎒
	Channel	+36
	SSID	vivix
	Key	1234567890
Trigger		
	Method	Packet
	Polarity	Auto

5.3.2 Detector Initialization

1 Click Configuration button of Detector after running the **VIVIX Setup** program.
2 Click on the **Factory Reset** button in the **Configuration** dialogue.
3 Wait for Detector to be rebooted automatically.
4 Check whether detector initialization is completed.

Default value of detector initialization

Item	Default Value
Network	
IP Address	169.254.1.10
Subnet Mask	255.255.0.0
Gateway	169.254.2.100
WNetwork	
SSID	vivix
Key	1234567890
AP Scan	OFF
AP	
AP On/Off	OFF
Frequency	5GHz
Country	KR
Band	40MHz
Channel	+36
SSID	vivix_ap
Key	1234567890
Test Pattern Type	20 sec.
Image Timeout Time	Disable
Power Management	
Sleep	OFF
Sleep After	10 min.
Shut Down	OFF
Shut Down after	30 min.
Power Control	By Detector

5.3.3 Wireless Initialization of Detector

1 Turn off the detector.
2 Press and hold both the power button and AP button over 3 seconds.
3 Initialization will be conducted when orange LED is flickering, after that, the detector will be turned off automatically.
4 Turn on the detector and check whether detector initialization is completed.

Default value of wireless initialization

Item	Default Value
Network	
IP Address	169.254.1.10
Subnet Mask	255.255.0.0
Gateway	169.254.2.100
WNetwork	
SSID	vivix
Key	1234567890
Wireless Only	OFF
AP	
AP On/Off	OFF
Frequency	5GHz
Country	KR
Band	40MHz
Channel	+36
SSID	vivix_ap
Key	1234567890

- When processing the wireless initialization of a detector, only the detector's network information is initialized as a default value.

5.4 Detector Power Save Function (Sleep)

The battery pack can be comsumed slowly by using the power save function.

- The power save function is operated only when the battery supplies power to the detector. In other words, the power save function cannot be operated if a tether interface cable supplies power to the detector.

Types of Power Save Mode

Item	Description
Normal	The detector can be operated and take images at any time.
Sleep	The detector cannot be operated. User can take an image by disabling the Sleep mode.
Shut Down	The detector has been turned off. User can take an image after the detector is rebooted.

Setting Items of Power Save Function

Item	Description
Sleep	Sets whether you use the sleep mode function of the detector or not. (**On** / **Off**)
Sleep after	If the detector is not used for the specific setting time, it is turned to the sleep mode. This mode activates only when the sleep mode is set. (**10 / 15 / 20 / 25 / 30 min.**)
Shut Down	Sets whether you use the shut down function in the detector or not. (**On** / **Off**)
Shut Down after	The power of detector is off if it is not used within the setting time. This menu is activated while the Shut Down function is being used. (**30 / 60 / 90 / 120 min.**)

- Refer to **VIVIX Setup Operation Manaul** for the detailed information about the power save mode functions.

Entry Condition of Power Save Mode (Sleep)

Item	Description
Normal	-
Sleep	The detector turns to sleep mode if not used for the setting time (Sleep after).
Shut Down	The detector is turned off if not used for the setting time (Shutdown after) under the sleep mode. However, if the detector is not operated during the setting time when it is not in the sleep mode, the detector will be turned off.

Checking Power Save Condition

Item	Description
Normal	All status LEDs are turned on.
Sleep	• The Status LED (Green) is blinking. • You can check the Sleep status from **VIVIX Setup** or **VXvue**. • **VIVIX SDK** notices the status of **Sleep**.
Shut Down	All LEDs are turned off.

Disabling Power Save Function

Item	Description
Normal	-
Sleep	1 Turns off sleep mode from **VIVIX Setup** or **VXvue** 2 Calls the function from **VIVIX SDK** to turn off sleep mode.
Shut Down	Reboots the detector by pressing a power button on the detector.

Other Information

Mode	Default value	Turnaround time	Power consumption
Normal	-	-	24V, 360mA (Standby) 24 V, 950mA (While taking images)
Sleep	OFF / 10min.	Approx. 10 sec.	24V, Max. 180mA
Shut Down	OFF / 30min.	Approx. 15 sec.	-

5.5 Changing the Wireless Setting

5.5.1 Switching to the Detector AP Mode

You can change the detector mode as AP by the two ways as follows.

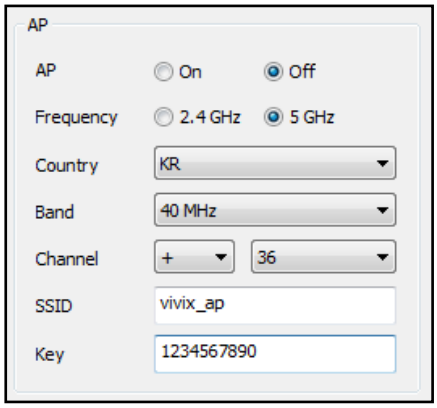
Convert to the Detector AP mode by using the Detector AP button

- Press the **AP** button on the detector for 5 seconds to set the **Detector AP** mode.
- The LED of detector AP blinks in a blue color while the mode is being switched, and turns on blue after the mode is compeleted to be converted.

- This method can be used only when the detector is under the wireless communication status without connecting a tether interface cable.

Convert to the Detector AP mode from VIVIX Setup

- Choose **AP** as **On** or **Off** from the **Detector Configuration** dialog in **VIVIX Setup** program.



5.5.2 Synchronizing the Wireless Setting

Synchronize the wireless setting with a tether interface cable as follows.

1 Connect the detector and SCU with a tether interface cable.
2 Press the detector AP button for 5 seconds after the detector is turned on.
3 The LED of detector AP blinks while processing synchronization.
4 The sync information is saved automatically after it is transmitted to the detector where SSID and KEY of SCU are connected.
5 The detector is switched to the wireless communication mode.

- Refer to **VIVIX Setup Operation Manaul** for the detailed information about the synchronization of wireless setting.

5.6 Replacing the Fuse of SCU

- The description in the section is applicable to the SCU Basic model only.

There are 2 fuses attached on the SCU Basic for the purpose of electrical accident precaution, in case of over current from external power input. Stop using the SCU immediately when the fuse is blown.

Fuse Information

Item	Specifications
Model	Littelfuse® 218002 (2EA)
Type	Time Lag Cartridge Fuse
Amp Rating	2A
Voltage Rating	250V

- Pull the plug out and turn all the devices off before changing the fuse.
- First, resolve the cause why the fuse is blown. Replace the fuse to the one provided as an option (1 set / 2 ea) or to the one with same specifications when the fuse is out.
- Be careful not to touch both the patient and the fuse holder at the same time or let the patient touch the fuse holder.
- This product has lower breaking capacity type. So do not install the product at the building power system which prospective short-circuit current is exceeding 35 A.

How to Replace the Fuse

No.		Description
1		Separate the fuse from the holder located power input port on the back side of standard SCU by pulling the fuse holder.
2		After checking, replace the fuse with correct specifications in case of need.
3	-	Insert the fuse holder again.

6. Troubleshooting

Troubleshooting

6.1 Troubleshooting

6.1.1 Troubleshooting Guide

When you encounter problems while using the equipment, search for the table below for the problem or error messages and try the solutions.If the problem persists, turn off the detector and consult your sales representative or a distributor. Please refer to the details of the following symptoms or error messages.

- Troubleshooting must be performed by service engineer who is authorized by Vieworks. If an unqualified person performs troubleshooting on the system resulting in damaging the detector, software or hardware, then the Vieworks or its representative is not responsible for the detector repair regardless of remain warranty. For more detailed information, refer to <8.1 Service Information> and <8.2 Warranty>.

6.1.2 Fail to Turn the Detector On

Category	Description
Symptom	• Failed to turn the power of the detector.
Expected Causes	• The battery pack is attached wrongly. • The battery pack is discharged. • The battery pack or detector is broken down.
Solutions	1 Attach a battery pack 2 Charge a battery pack 3 Check the result after getting rid of a battery and connect the tether cable. 4 Replace other battery packs and check the result. 5 Replace other Detectors and check the result. 6 Replace the corresponding devices.

6.1.3 The Power Switch of SCU or Status LED is not worked

Category	Description
Symptom	• The power switch of Basic SCU or SCU mini is not working. • The status LED of SCU is not responding.
Expected Causes	• Power cable is broken down. • Errors in the fuse • Internal circuit is broken down.
Solutions	1 Check the connection between AC power cable and SCU Basic / DC power cable and SCU mini. 2 Turn off the power switch and turn it on again. Check a fan or the back side. 3 Replace the fuse of Basic SCU. (refer to <5.6 Replacing the Fuse of SCU>) 4 Replace another SCU and check the result of it. 5 Replace corresponding devices.

6.1.4 The Power Switch of SCU Lite is not Working

Category	Description
Symptom	• The LINK LED of SCU Lite is not working even though its power switch is turned on.
Expected Causes	• The power cable is broken down. • The internal circuit is broken down.
Solutions	1 Check the connection between DC power cable and SCU Lite. 2 Turn off the power switch and turn it on again. Check if the LINK LED of SCU Lite is working properly. 3 Replace SCU Lite to another one and check the result.

6.1.5 Communication Test is failed

Category	Description
Symptom	• Transmission error occurred, and the communication test is failed.
Expected Causes	• Network connection problem • Network setting problem • PC environment setting problem • Wireless environment environment problem • Errors in devices
Solutions	1 Check the connection of network cable between Workstation and SCU. 2 Check if the accurate network cable is used or not. (CAT 5E or 6) 3 Set the network information of Workstation, SCU and detector again. 4 Check whole workstation environment again such as firewall setting and release the power save mode. 5 Check surrounding wireless communication environment. 6 Reboot the detector and SCU again by processing initialization. (Refer to <5.3Product Initialization>) 7 Replace the detector and SCU Basic to another ones and check the result of it. 8 Replace corresponding devices.

6.1.6 The Active LED and Data LED of the Detector are blinking

Category	Description
Symptom	• The active LED and data LED are blinking while power LED is turned ON.
Expected Causes	• Detector registeration error • Data transmission error
Solutions	1 Turn on SCU again. 2 Check the network cable connection. 3 Check the workstation environment and network information again. 4 Check if the surrounding wireless communication is good. 5 Check cable connection again when connected with tether interface cabel 6 Replace other devices and check the result of it 7 Replace corresponding devices.

6.1.7 Errors in Detector LED

Category	Description
Symptom	• All LEDs of a detector are blinking. • Two LED lamps of a detector are blinking and the remaining one is blinking slowly.
Expected Causes	• Internal hardware errors of a detector.
Solutions	1 Reboot the detector and check the result. 2 Replace the detector to another one.

6.1.8 Rapid Consumption of Battery

Category	Description
Symptom	• The fully-charged battery is consumed rapidly.
Expected Causes	• The performance of a detector is decreased by its length of use. • In case of using a battery under in low temperature.
Solutions	1 Replace a battery pack if it is used for a long time. (Battery pack is consumables.) 2 Use a battery pack at room temperature. Charging capacity of a battery pack is decreased in low temperature.

6.1.9 Battery Pack or Installation Part of Battery is Getting Hot

Category	Description
Symptom	• A compartment for installing a battery pack is getting hot.
Expected Causes	• A battery malfunction • Detector failure
Solutions	1 Stop using a battery pack. 2 Contact the service engineer in Vieworks.

7. Regulatory Information

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

Medical Equipment Safety Standards

Radio Frequency Compliance Information

Labels and Symbols

Guidance and Manufacturer Declaration for EMC

7.1 Medical Equipment Safety Standards

7.1.1 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	IP56 (Degrees of protection againt ingress of water 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.

7.1.2 Product Safety Standard

South Korea

전기, 기계적 안전성에 관한 시험: IEC 60601-1과 식품의약품안전청고시 제 2009-137호에 따른다.
전자파장해방지에 관한 시험: IEC 60601-1-2에 따른다.

전자파 간섭 (EMI)	
전자파 전도	식품의약품안전청 고시 2009-54호 1종 A급 기기로서 별표 1의 5.1 식품의약품안전청 고시 2009-54호 별표 1의 전자파장해 (간섭)
전자파 방사	식품의약품안전청 고시 2009-54호 1종 A급 기기로서 별표 1의 5.2 식품의약품안전청 고시 2009-54호 별표 1의 전자파장해(간섭)

전자파 내성 (EMS)	
정전기방전(ESD) 시험	식품의약품안전청 고시 2009-54호 별표 2의 36.202/36.202.2/ KN61000-4-2
방사성 RF 전자기장 시험	식품의약품안전청 고시 2009-54호 별표 2의 36.202/36.202.3/ KN61000-4-3
전기적 빠른 과도현상 (EFT) 시험	식품의약품안전청 고시 2009-54호 별표 2의 36.202/36.202.4/ KN61000-4-4
서지(Surge) 시험	식품의약품안전청 고시 2009-54호 별표 2의 36.202/36.202.5/ KN61000-4-5
전도성 RF 전자기장 시험	식품의약품안전청 고시 2009-54호 별표 2의 36.202/36.202.6/ KN61000-4-6
전원공급 입력선의 전압 강하, 순간정전 및 전압변동 시험	식품의약품안전청 고시 2009-54호 별표 2의 36.202/36.202.7/KN61000-4-11

U.S.A / Canada

Item	
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(2014)	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: 2007(ed.3)	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	
MDD (Medical Device Directive)	93/42/EEC as amended by 2007/47/EC
EN ISO 13485:2012	Medical devices – Quality Management systems – Requirements for regulatory purposes
EN 60601-1: 2006/A1:2013	Medical electrical equipment- Part1: General requirements for basic safety and essential performance
EN 60601-1-2: 2007(ed.3)	Medical electrical equipment-Part 1-2: Collateral Standard : Electromagnetic compatibility-Requirements and tests
EN 62304:2006	Medical device software-Software life cycle processes
ISO 14971: 2012	Medical device – Application of risk management to medical devices.

7.2 Radio Frequency Compliance Information

Country	Item
U.S.A	• FCC Part 15.107(b) / Part 15.109(b) • FCC Part 15 Subpart E 15.407 • FCC Part 15 Subpart C 15.247
European Union	• ETSI EN 301 489-1 V1.9.2:2011 (EMC) • ETSI EN 301 489-17 V2.2.1:2012 (EMC) • EN 300 328 V.1.8.1; EN 301 893 V1.7.1 (RF)
South Korea	• KN 301 489-1 • KN 301 489-17

7.2.1 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 measure.
  - 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.

- This equipment complies with **FCC&CE SAR** regulation.
- The front side of a detector should be used for image acquisition.
- The SAR limit set by FCC is 2W/kg (for EU and Japan) and 1.6W/kg (for USA and Korea).
- The highest reported SAR for WLAN 2.4G head and WLAN 5G head exposure conditions are 0.493 W/kg, 0.966 W/kg, respectively.

	• This equipment complies with FCC&CE SAR regulation. • The front side of a detector should be used for image acquisition • The front with touch configuration was only tested since only the front is touched to human body in normal operation condition of this device.

7.2.2 FCC SAR

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

7.2.3 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 62209-1:2006	Human exposure to radio frequency fields from hand-held and body-mounted wireless communication devices – Human models, instrumentation, and procedures. • Part 1: Procedure to determine the specific absorption rate (SAR) for hand-held devices used in close proximity to the ear (frequency range of 300 MHz to 3 GHz).
EN 62209-2:2010	Human Exposure to Radio Frequency Fields from Handheld and Body-Mounted Wireless Communication Devices – Human models, Instrumentation, and Procedures. • 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).

7.2.4 NFC Specifications and Certifications

Item	Specifications / Certifications
Frequency Range	13.560 ㎒ (RFID) 2412 ㎒ ~ 2472 ㎒ (802.11b/g/n 20 ㎒ BW) 2422 ㎒ ~ 2462 ㎒ (802.11n 40 ㎒ BW) 5745 ㎒ ~ 5825 ㎒ (802.11a/n 20/ac 20 ㎒ BW), 5755 ㎒ ~ 5795 ㎒ (802.11n 40/ac 40 ㎒ BW), 5775 ㎒ (802.11ac 80 ㎒ BW)
Modulation System	ASK (RFID) DSSS (802.11b), OFDM (802.11a/g/n 20 ㎒ BW/n 40 ㎒ BW/ ac 20 ㎒ BW/ac 40 ㎒ BW/ac 80 ㎒ BW)
Type of Emmision	A1D (RFID) G1D (802.11b), D2D (802.11 a/g/n 20 ㎒ BW/n 40 ㎒ BW/ ac 20 ㎒ BW/ac 40 ㎒ BW/ac 80 ㎒ BW)
Channel	1 Ch (RFID) • 2 400 ㎒ Band

	▫ 13 Ch (802.11b/g/n 20 ㎒ BW), 9 Ch (802.11n 40 ㎒ BW) • 5 725 ㎒ Band ▫ 5 CH (802.11a/n 20 ㎒ BW/ ac 20 ㎒ BW), ▫ 2 CH (802.1n 40 ㎒ BW/ac 40 ㎒ BW), ▫ 1 Ch (802.11ac 80 ㎒ BW)
Output	Under 47.544 ㎷/m in 10m of distance • 2 400 ㎒ Band ▫ 10 ㎽/㎒: 802.11b/g/n 20 ㎒ BW (ANT 1, 2, 3, MIMO (ANT 1+2), MIMO (ANT 2+3), MIMO (ANT 1+3), MIMO (ANT 1+2+3)) ▫ 5 ㎽/㎒: 802.11n 40 ㎒ BW (ANT 1, 2, 3, MIMO (ANT 1+2), MIMO (ANT 2+3), MIMO (ANT 1+3), MIMO (ANT 1+2+3)) • 5 725 ㎒ Band ▫ 10 ㎽/㎒: 802.11a/n/ac 20 ㎒ BW (ANT 1, 2, 3, MIMO (ANT 1+2), MIMO (ANT 2+3), MIMO (ANT 1+3), MIMO (ANT 1+2+3)) ▫ 5 ㎽/㎒: 802.11n/ac 40 ㎒ BW (ANT 1, 2, 3, MIMO (ANT 1+2), MIMO (ANT 2+3), MIMO (ANT 1+3), MIMO (ANT 1+2+3)) ▫ 2.5 ㎽/㎒: 802.11ac 80 ㎒ BW (ANT 1, 2, 3, MIMO (ANT 1+2), MIMO (ANT 2+3), MIMO (ANT 1+3), MIMO (ANT 1+2+3))

7.2.5 KC Wireless Certification

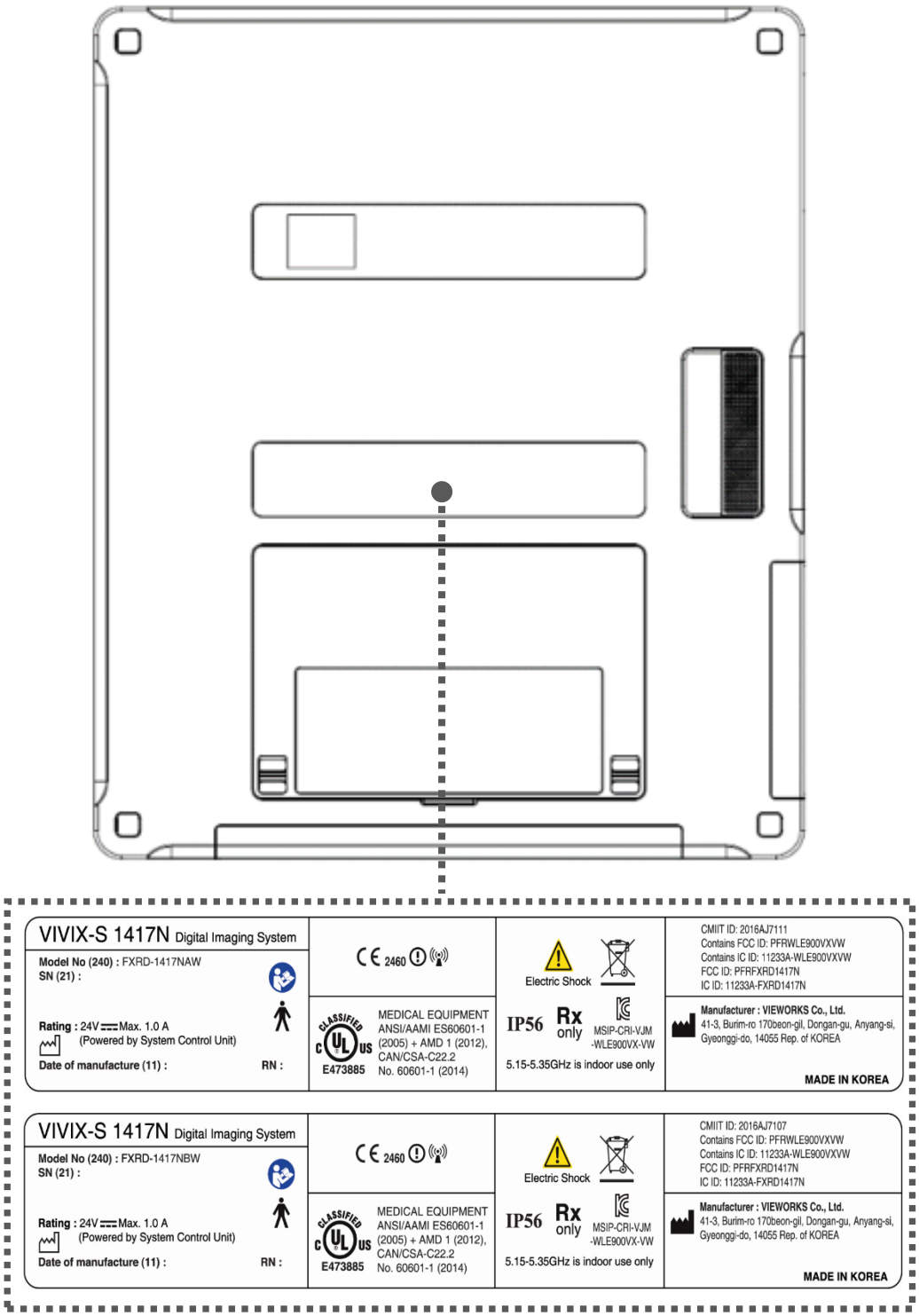
Item	Description
Symbol	
Name of the Device	FXRD-1417NAW
Certification Number	MSIP-CRM-VJM-FXRD-1417NAW
Name of the Manufacturer	Vieworks Co., Ltd.
Manufacturer/ Country of Origin	Vieworks Co., Ltd. / Republic of Korea
Certified Module Used	MSIP-CRI-VJM-WLE900VX-VW

7.3 Labels and Symbols

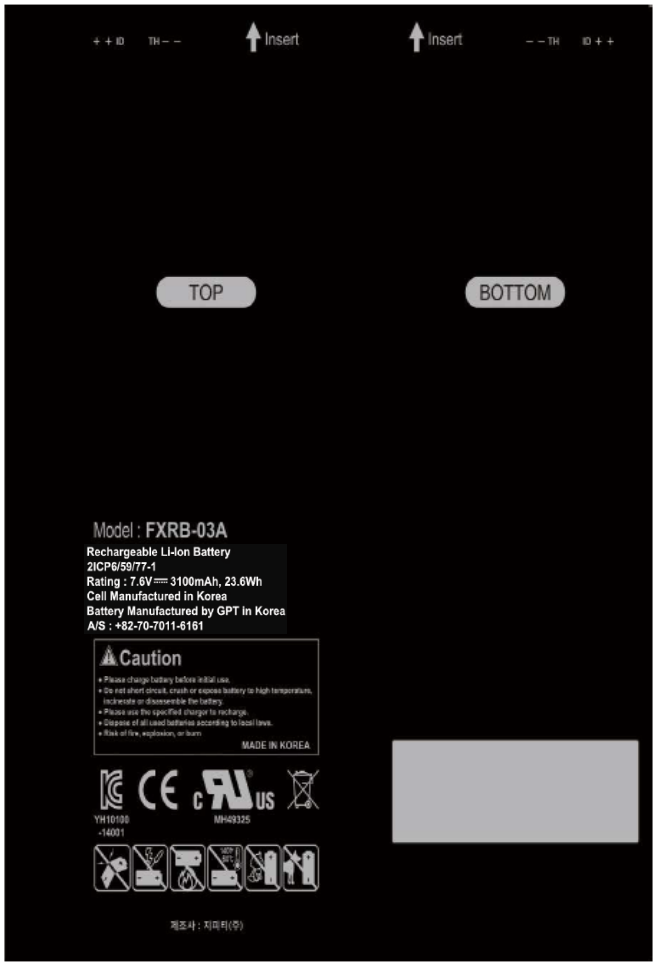
The **VIVIX-S 1417N** detector and relevant components have labels attached on them. The contents and locations of each label are indicated below.

7.3.1 Label

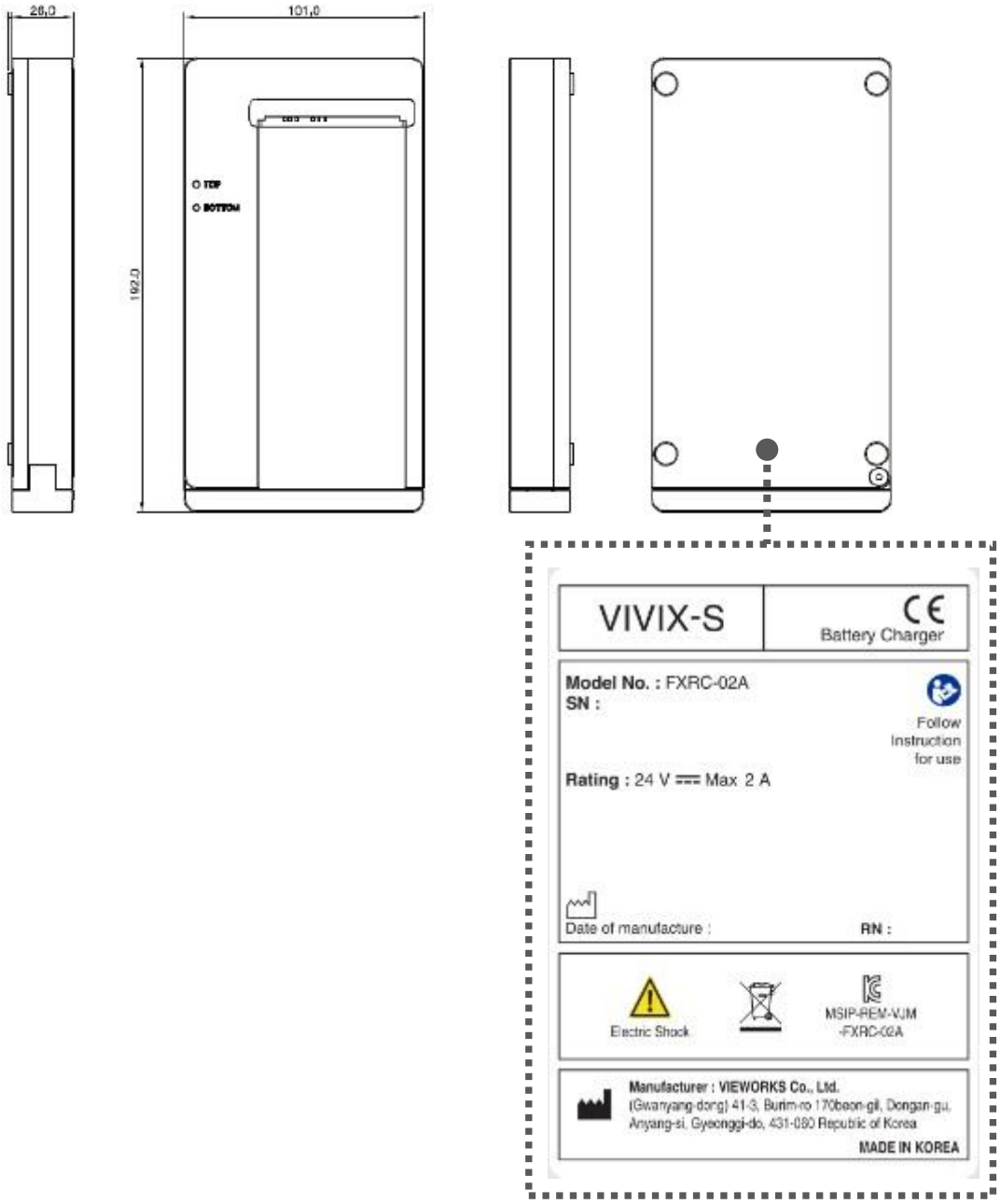
FXRD-1417NAW / FXRD-1417NBW



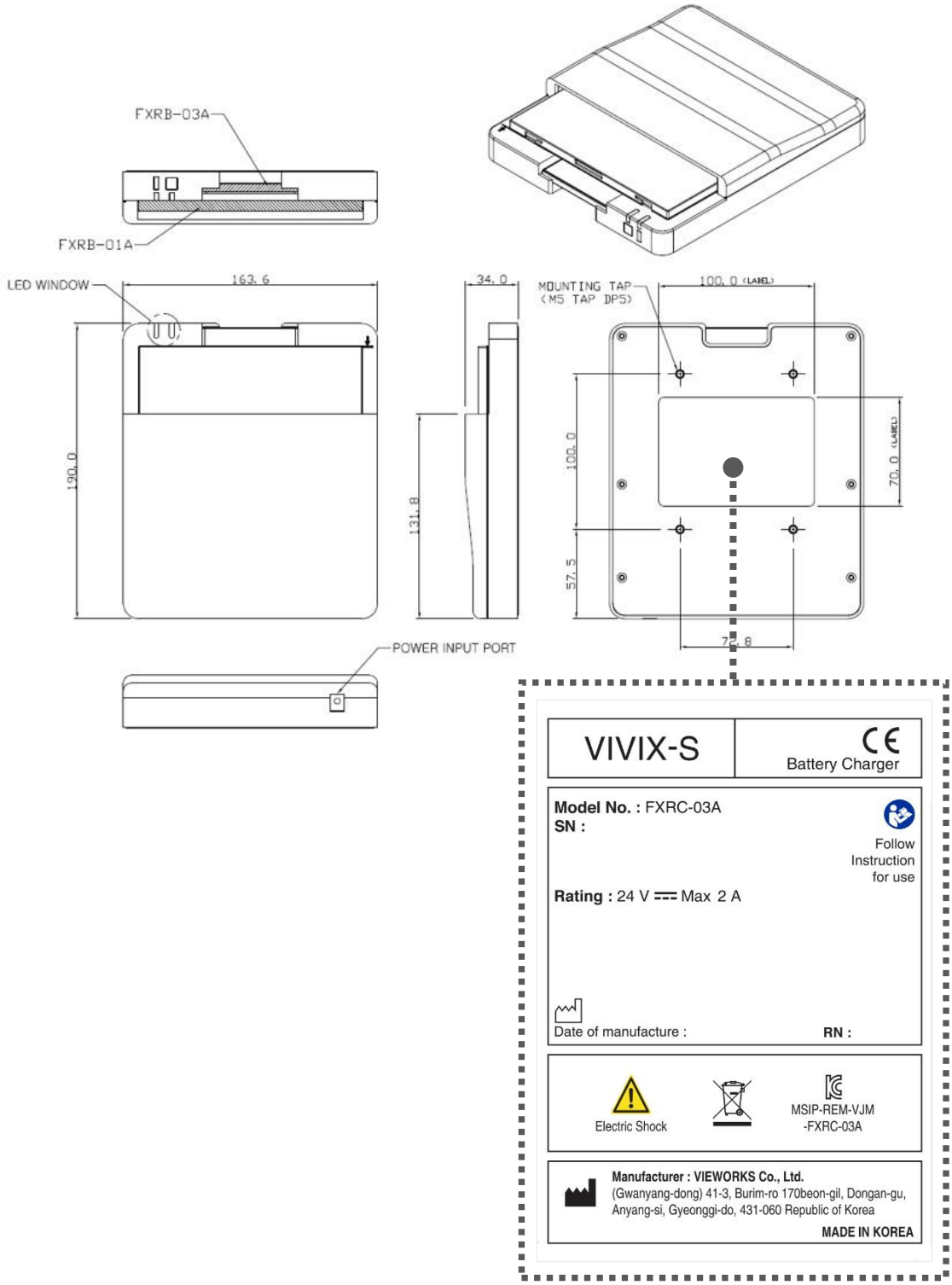
Battery (FXRB-03A)



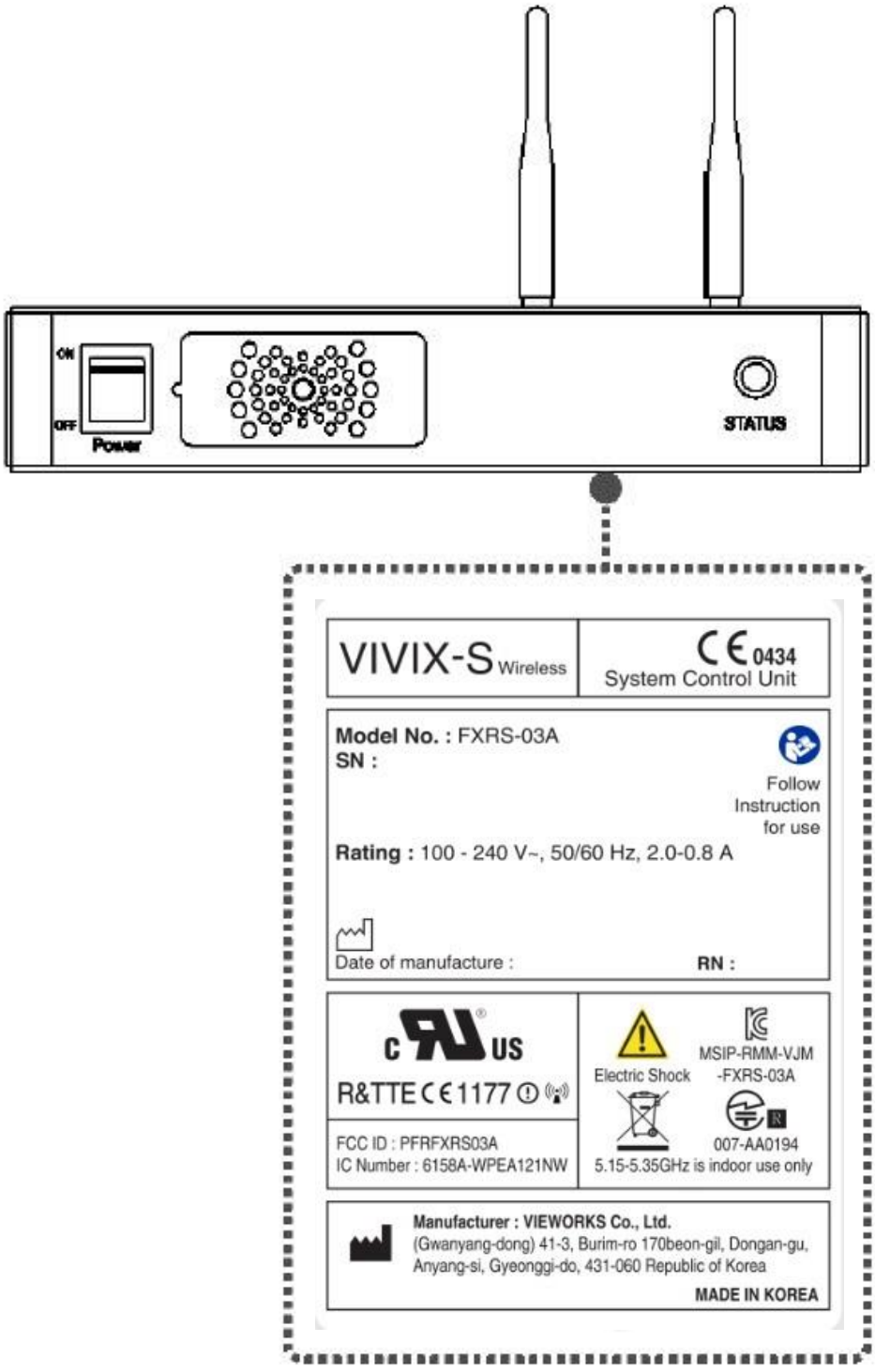
Battery Charger (FXRC-02A)



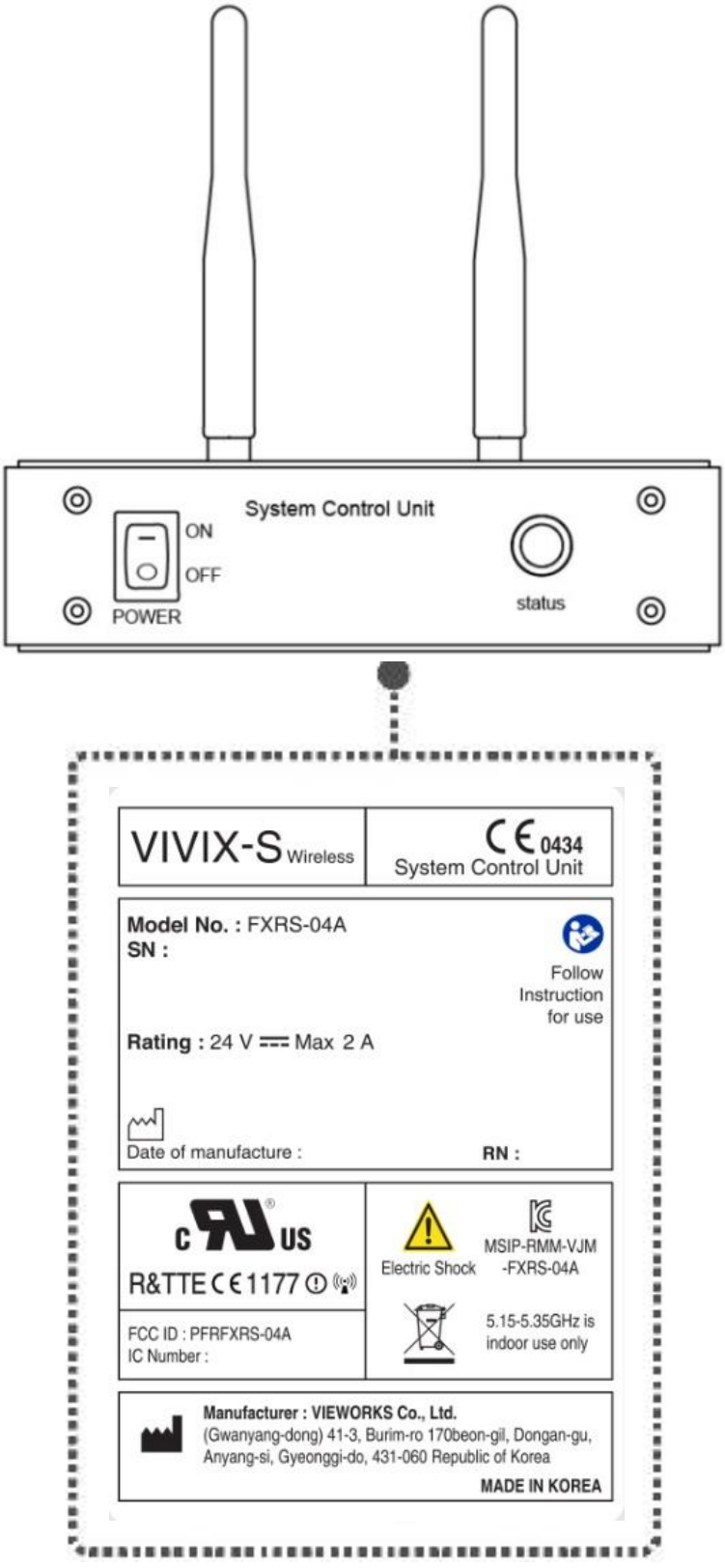
Battery Charger (FXRC-03A)



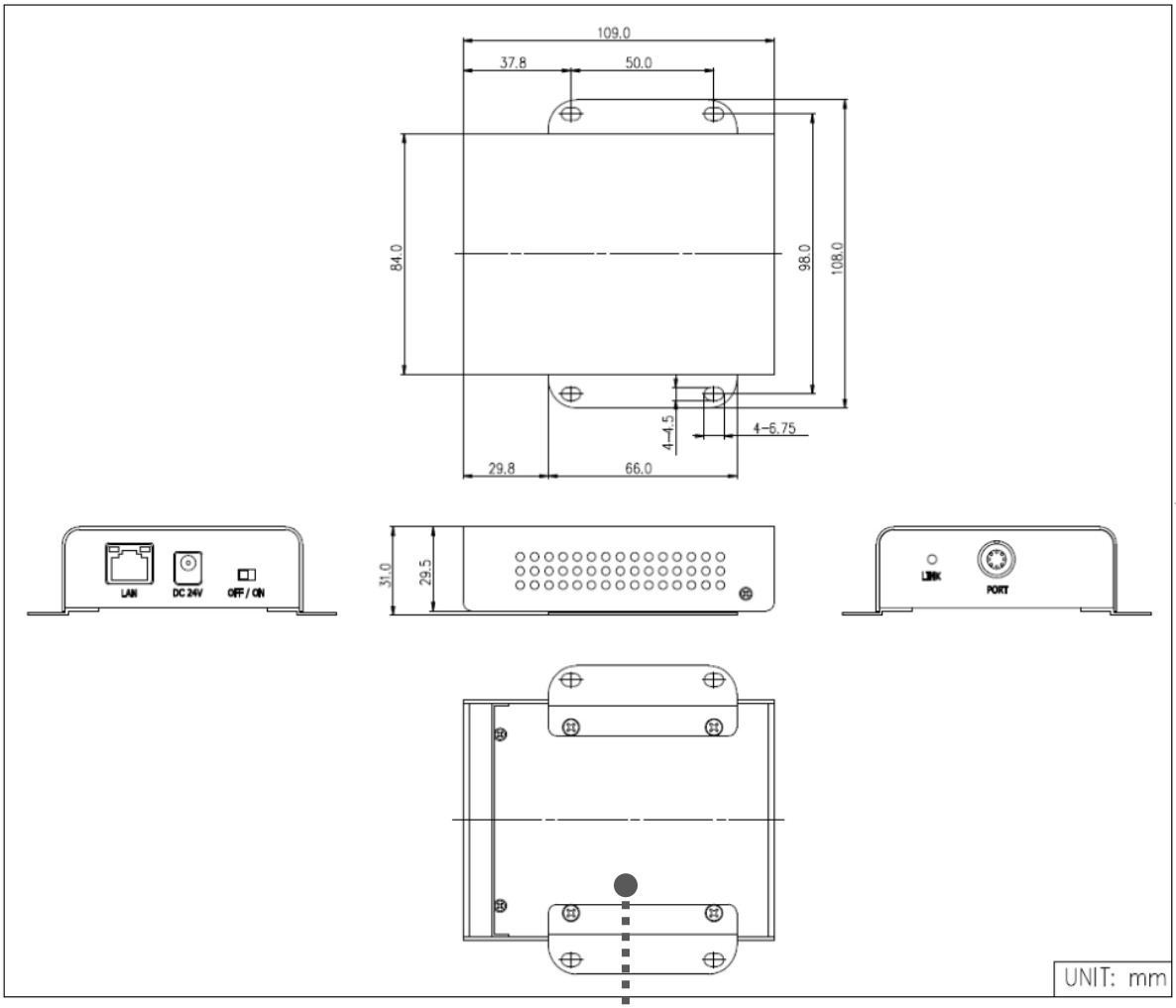
SCU Basic (FXRS-03A)

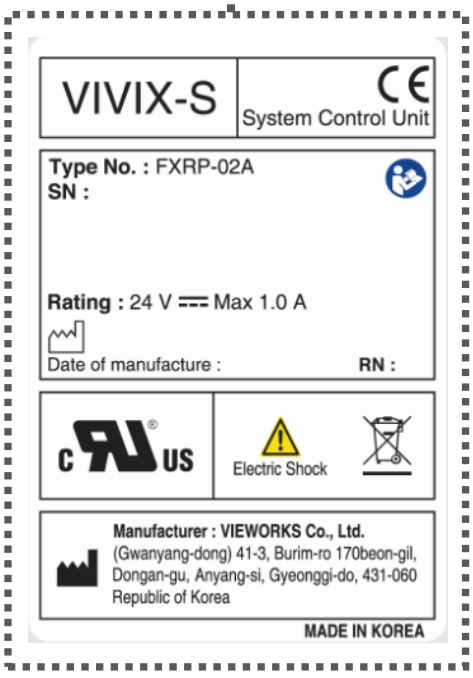


SCU mini (FXRS-04A)



SCU Lite (FXRP-02A)





7.3.2 Product Serial Number

Composition

The product serial numbers are composed as follows.

V	1	D	A	B	J	0	0	1
Item		Composition	Year		Month	Manufacturing number		

- The serial number will be updated in case of follows;
  - Mass production or a large amount of order.
  - Exterior alteration.
- Item code will be produced based on internal management standard of vieworks.
- Composition code is consisted as;
  - D: Detector
  - S (or P): SCU
  - C: Battery Charger
- Range of manufacturing number is 001 ~ 999.

Initial Per Year

11	12	13	14	15	16	17	18	19	20
AA	AB	AC	AD	AE	AF	AG	AH	AI	BJ

Initial Per Month

1	2	3	4	5	6	7	8	9	10	11	12
A	B	C	D	E	F	U	V	W	X	Y	Z

Composition of Serial Number for Each Item

Model	Composition	Serial Number
FXRD-1417NAW	Detector	VUDAGA001
FXRD-1417NBW	Detector	VVDAGA001
FXRC-02A	Battery Charger	VACAGA001
FXRC-03A	Dual-type Battery Charger	VBCAGA001
FXRS-03A	SCU Basic	VCSAGA001
FXRS-04A	SCU mini	VASAGA001
FXRP-02A	SCU Lite	V3PAGA001

7.3.3 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 (2014)
	This mark shows compliance of the essential requirement and other relevant provisions of Directive 93/42/EEC as a mended by 2007/47/EC.
	Non-ionizing radiation
	Read and understand all instructions and warning labels in the product documentation before using the equipment. Keep manual for future reference.
	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.
	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/EC (WEEE) in the European Union. (For European Union)
	This mark indicates that the battery must be collected separately under the Directive on Waste Electrical and Electronic Equipment 2012/19/EC (WEEE) in the European Union. (For European Union)
	Shows direction of installing the detector and generator tube.

7.4 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.

7.4.1 Electromagnetic Emissions

The Equipment Under Test (EUT) is intended for use in the electromagnetic environment specified below. The customer or user of the EUT should assure that it is used in such an environment.

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 suitable for use in all establishments other than domestic and those directly connected to the public low-voltage power supply network that supplies buildings used for domestic purposes.
Harmonic emissions (IEC 61000-3-2)	Class A	
Voltage fluctuations/ Flicker emissions (IEC 61000-3-3)	Complies	

7.4.2 Electromagnetic Immunity

The **VIVIX-S 1417N** system is intended for using in the electromagnetic environment specified below. The user of this system should assure that it is used in the following environment.

Electrostatic Discharge (ESD) IEC 61000-4-2

Item	Description
Immunity test	• Electrostatic discharge (ESD) IEC 61000-4-2
IEC 60601 test condition	• Contact ±6kV • Air ±8kV
Compliance Level	• Contact ±6kV • Air ±8kV
Electromagnetic Environment - Guidance	• 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	• Electrical fast transient/burst IEC 61000-4-4
IEC 60601 test condition	• Power supply lines ±2kV • Input / output lines ±1kV
Compliance Level	• Power supply lines ±2kV • Input / output lines ±1kV
Electromagnetic Environment - Guidance	• Main power quality should be that of a typical commercial or hospital environment.

Surge IEC 61000-4-5

Item	Description
Immunity test	• Surge IEC 61000-4-5
IEC 60601 test condition	• Differential mode ±1kV / Common mode ±2kV
Compliance Level	• Differential mode ±1kV / Common mode ±2kV
Electromagnetic Environment - Guidance	• 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	• Voltage dips, short interruptions and voltage variations on power supply input lines IEC 61000-4-11
IEC 60601 test condition	• <5% U_T (>95% dip in U_T) for 0.5 cycle. • 40% U_T (60% dip in U_T) for 5 cycles. • 70% U_T (30% dip in U_T) for 25 cycles. • <5% U_T (<95% dip in U_T) for 5 sec.
Compliance Level	• <5% U_T (>95% dip in U_T) for 0.5 cycle. • 40% U_T (60% dip in U_T) for 5 cycles. • 70% U_T (30% dip in U_T) for 25 cycles. • <5% U_T (<95% dip in U_T) for 5 sec.
Electromagnetic Environment - Guidance	• 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.

U_T is the AC power prior to approving the test level voltage.

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

Item	Description
Immunity test	• Power frequency (50/60 Hz) magnetic field IEC 61000-4-8
IEC 60601 test condition	• 3 A/m
Compliance Level	• 3 A/m
Electromagnetic Environment - Guidance	• 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	• Conducted RF IEC 61000-4-6	• Radiated RF IEC 61000-4-3
IEC 60601 test condition	• 3 Vrms 150 kHz to 80 MHz	• 3 V/m 80 MHz to 2.5 GHz
Compliance Level	• 3 Vrms 150 kHz to 80 MHz	• 3 V/m 80 MHz to 2.5 GHz
Electromagnetic Environment - Guidance	• Portable and mobile RF communications equipment should be used no closer to any part of the EUT, including cables, than the recommended separation distance calculated from the below equations applicable to the frequency of the transmitter. $d = [\frac{3.5}{V_1}]\sqrt{P}$ $d = [\frac{3.5}{V_1}]\sqrt{P}$ 80 MHz to 800 MHz $d = [\frac{7}{E_1}]\sqrt{P}$ 80 MHz to 800 MHz • P is the maximum output power rating of the transmitter in watts (W) according to the transmitter manufacturer and d is the recommended separation distance in meters (m). • Field strengths from fixed RF transmitters, as determined by an electromagnetic site surveya, should be less than the compliance level in each frequency range b. • 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.

8. Information

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

Service Information

Warranty

Revision History

8.1 Service Information

8.1.1 Product Lifetime

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

8.1.2 Regular Inspection and Maintenance

In order 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, make adjustments, 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.

8.1.3 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-1417NAW** / **FXRD-1417NBW**
- Serial number
  - 9 digit-number on the product label
- Explanation of problem
  - Describe as detailed as possible.

8.1.4 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.

8.1.5 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-03A**

8.2 Warranty

Vieworks warrants that this product will be free from defects in materials and workmanship for a period of 24 months from the date of delivery. 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. In order 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 MERCHANTABLILITY 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

8.3 Revision History

Version	Date	Descriptions
1.1	2016-10-12	• Initial Release
1.3	2016-11-07	• (Modified) 2 Product • (Modified) 7 Reglatory Information
1.5	2017-02-17	• (Modified) Image of 1417N detector • (Modified) 2 Product

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