



KONICA MINOLTA

DIRECT DIGITIZER

AeroDR SYSTEM



Operation Manual

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& Warnings

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CE 0197 CE ⚠



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EN

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Introduction

Introduction

Digital radiography AeroDR SYSTEM (hereafter referred to as this device) performs X-ray imaging of the human body using an X-ray planar detector that outputs a digital signal, which is then input into an image processing device, and the image acquired with a digital image acquisition device is then transmitted to a filing system, printer, and image display device as diagnostic image data. Diagnostic X-ray image data of this device does not provide mammographic images.

There are 4 types of X-ray planar detectors for this device: AeroDR 1417HQ (AeroDR P-11), AeroDR 1417S (AeroDR P-12), AeroDR 1717HQ (AeroDR P-21) and AeroDR 1012HQ (AeroDR P-31), and connection is made by either wireless or wired connection.

The DIRECT DIGITIZER CS-7 (hereafter referred to as the image processing controller), which controls the receiving, processing, and output of image data of this device, is required for operation. For the operation of the image processing controller, refer to the "Operation Manual" of the image processing controller.

This operation manual provides instructions on the basic functions for operation of this device. Those operating this device for the first time should read this manual beforehand.

Also, store this manual close to this device after reading it through, so it can be used as a guide to allow optimum operating conditions.

- * **If the pages of the operation manual are smudged and illegible, replace it with a new one. (There is a fee for this service.)**
- * **The illustrations in this manual use the AeroDR 1417HQ (AeroDR P-11) as the example.**

Summary of usability specifications (for IEC/EN 60601-1-6, IEC/EN 62366)

- 1) Medical purposes
 - Provision and reading of disease and injury diagnostic images.
- 2) Patient groups
 - No patient population exists who uses or is in contact with the device.
 - Patient population for the X-ray images read is not specified.
- 3) Parts of body or organizations to which the device is mounted or that interact with the device.
 - AeroDR Detector contacts the body surface of a patient.
 - AeroDR Interface Unit contacts the body surface of an operator.
- 4) Operating principle
 - AeroDR Detector forms the still images according to the X-ray energy passing through the human and animal body; after digitizing the exposed image, it is transmitted to the console (the image processing controller) with wired or wireless communication by way of AeroDR Interface Unit.
 - AeroDR Interface Unit supplies the power to AeroDR Detector, AeroDR Generator Interface Unit, and AeroDR Access Point (radio communication device).
 - AeroDR Generator Interface Unit interfaces with an X-ray device.
 - AeroDR Access Point (radio communication device) performs a wireless communication with AeroDR Detector.
 - The console (the image processing controller) processes the image data into the diagnostic image, and then stores and outputs the images added with the patient information.
 - The AeroDR Battery Charger charges the AeroDR Detector. It registers the using cassette with the exposure room.
- 5) Significant physical characteristics
 - Refer to "7.1 Specifications".
- 6) Significant performance characteristics
 - Refer to "2.1 Overview of this device".
- 7) User of this device
 - No special training is required to use this device. The intended users of this device are as follows.
A professional in good health with specialist knowledge/qualifications who has fully understood the content of this document. (Such as a doctor or radiological technologist)

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AeroDR SYSTEM name correspondence table

Product name (Operation Manual name)	Model name (nameplate name)
AeroDR Detector	AeroDR P-11 AeroDR P-12 AeroDR P-21 AeroDR P-31
AeroDR Interface Unit	AeroDR B-1
AeroDR Generator Interface Unit	AeroDR X-1
AeroDR Battery Charger	AeroDR D-1
AeroDR Access Point	AeroDR C-1

Term description

The meanings of terms used in this operation manual are as follows:

Terms	Explanation
AeroDR Detector	Collective term indicating AeroDR 1417HQ, AeroDR 1417S, AeroDR 1717HQ and AeroDR 1012HQ.
Image processing controller	The CS-7 image processing workstation is referred to as the image processing controller.
Calibration	Processing for calibrating the characteristics of the AeroDR Detector for each pixel.
PoE	An abbreviation for Power over Ethernet. Provides power using an Ethernet cable.
Wired cable	Collective term indicating AeroDR I/F Cable and AeroDR UF Cable.
Aero Sync	This is a mode in which exposure is performed without being synchronized with the X-ray device.

Structure of pages

3.2 • Operation of AeroDR Detector

3.2.1 Exposure

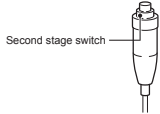
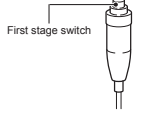
Exposure with this device is performed with the following procedure.

● **Exposure under the basic connection example**

- 1 Perform examination registration with the image processing controller.
- 2 Check that this device is ready to expose images, and then prepare for the exposure.
- 3 Push the exposure switch of the X-ray device to perform the exposure.
 - When the exposure is completed, images are stored in the AeroDR Detector and will then be converted to digital data and sent to the image processing controller sequentially.
- 4 Check that the exposed image is displayed on the image processing controller.

● **Exposure under the S-SRM connection example**

- 1 Perform examination registration with the image processing controller.
- 2 Check that this device is ready to expose images, and then prepare for the exposure.
- 3 Push the S-SRM's hand switch to the first stage.
 - The exposure preparation signal is sent to the X-ray device.
- 4 Push the S-SRM's hand switch up to the second level to perform exposure.
 - Exposure is performed from the X-ray device to produce X-ray images.
 - When the exposure is completed, images are stored in the AeroDR Detector and will then be converted to digital data and sent to the image processing controller sequentially.
- 5 Check that the exposed image is displayed on the image processing controller.

IMPORTANT

- The AeroDR Detector is precision equipment, and therefore impact or vibration during radiography or image transfer may affect the image quality. Be careful when handling the AeroDR Detector during and just after radiography.




HINT

- If the AeroDR Detector remains unused for a long time (time can be set) it transitions to the sleep mode.
- When the image processing controller is ready to expose, it recovers from the sleep mode.

Reference

- Regarding the operation of the image processing controller, refer to the "Operation Manual" of the image processing controller.

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Number	Item	Description	Icon
(1)	Item heading	Describes the titles of described content.	-
(2)	Operation procedure	The operating procedure is described in sequential numerical steps.	-
(3)	Hint	Describes important information.	 HINT
(4)	Reference	Describes reference items. Refer to these as necessary.	 Reference
(5)	Important items	Describes the important items for operation. Be sure to read them.	 IMPORTANT

Chapter 1

Safety Precautions & Warnings

This chapter describes precautions and warnings to ensure safe use of this device.

1.1 • Symbols relating to safety

1.1.1 Safety alert symbol



This is a "safety alert symbol". This symbol alerts you to matters and/or operation potentially hazardous to yourself and other people. Read these messages and follow the instructions carefully.

1.1.2 Warning notice (signal words)

Signal words indicate the degree of potential hazards in the use of the product.

Signal words include the following three types, which are used according to risk of damage caused by danger and the severity of damage.

DANGER

Indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury.

WARNING

Indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.

CAUTION

Indicates a potentially hazardous situation which, if not avoided, could result in minor or moderate injury. It may also be used to indicate hazardous situation where only physical damage is likely to occur.

1.1.3 Description of graphic symbols



Indicates the off position for the main power switch of this device.



Indicates the on position for the main power switch of this device.



Indicates the position where the ground is attached.



Indicates a B-type Applied Parts medical device.



Indicates that full caution is required when handling this device.



Indicates that it is necessary to read the User's Manual before use or operation of this device.



Indicates devices including radio frequency transmitters.

CE 0197

It means conformity with the Medical Devices Directive 93/42/EEC. 0197 is Notified Body number.

CE !

It means conformity with the Radio Equipment and Telecommunications Terminal Equipment Directive 1999/5/EC. And the alert sign (!) means that is categorized Class 2 radio equipment.

1.2 • Warning labels

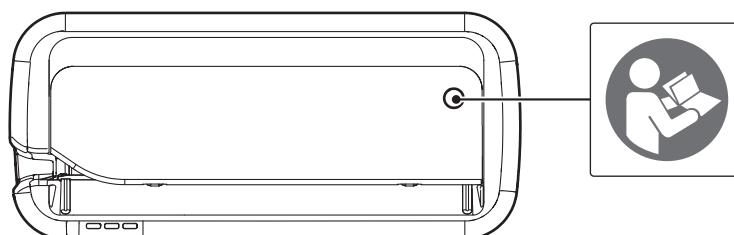
Various warning labels are attached to this device on the locations shown below. Do not remove these labels from this device. Warning labels are there to make sure that the user recognizes potential hazards when operating this device.

- * If a warning label is too dirty or damaged to read, contact Konica Minolta technical representatives to have a new warning label attached, and redisplay by parts replacement. (There is a fee for this service.)

1.2.1 AeroDR Detector



1.2.2 AeroDR Battery Charger



1.3 • Safety precautions

Read all safety precautions thoroughly before using this device.

Be sure to observe the safety precautions described in this section.

1.3.1 Precautions before usage

CAUTION

- The users (hospitals and clinics) hold responsibility for the usage and maintenance of this device. Do not use this device unless you are a physician or certified person under law.
- This device excluding the image processing controller is suitable for use in the patient environment. (PC used for the image processing controller is not suitable for use in the patient environment.)
- Confirm that this device is operating normally before using.
- When a problem occurs with this device, turn the power off, attach an appropriate sign, such as "malfunction", on this device, and contact Konica Minolta technical representatives.
- This device is not explosion-proof, so do not use any flammable or explosive gas near this device.
- For the basic operation of the computer, display monitor, and optional parts for this device, refer to their operation manuals.
- Please follow the rules and regulations of your relevant authorities in the disposal of this product, accessories, options, consumables, media and their packing materials.



For EU member states only

This symbol means: Do not dispose of this product together with your household waste!

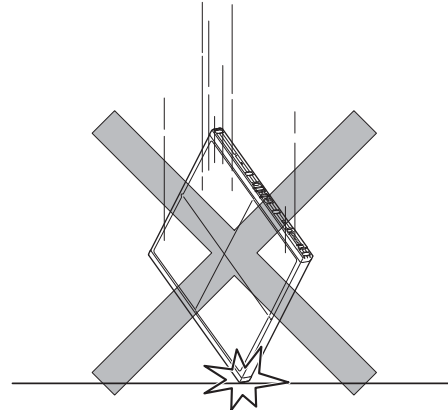
Please refer to the information of your local community or contact our dealers regarding the proper handling of end-of-life electric and electronic equipments.

Recycling of this product will help to conserve natural resources and prevent potential negative consequences for the environment and human health caused by inappropriate waste handling.

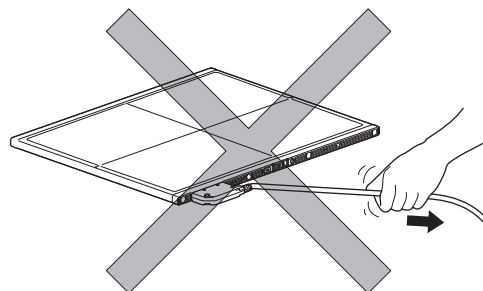
1.3.2 Precautions for usage

WARNING

- Take note of the following when using this device:
 - Do not subject the AeroDR Detector to strong shocks or excessive loads by dropping it, etc.



- Do not exceed the specified overall load range when applying a load to an AeroDR Detector.
- Do not disassemble or modify this device.
- Do not connect any devices that were not purchased from Konica Minolta.
- Do not turn the power switch off or pull out the power cable while the system is operating.
- Be careful not to drop the AeroDR Detector on any part of a person's body by catching the AeroDR I/F Cable or AeroDR UF Cable on your feet.
- Do not lean on or put pressure on the AeroDR Battery Charger installed on a wall.
- Do not charge the AeroDR 1012HQ in the AeroDR Battery Charger.
- The AeroDR I/F Cable and AeroDR UF Cable are connected to the AeroDR Detector using magnetic force. When moving the AeroDR Detector, do not hold onto the cable, and always hold on the AeroDR Detector. Also, do not grasp and pull the AeroDR Detector forcefully.



WARNING

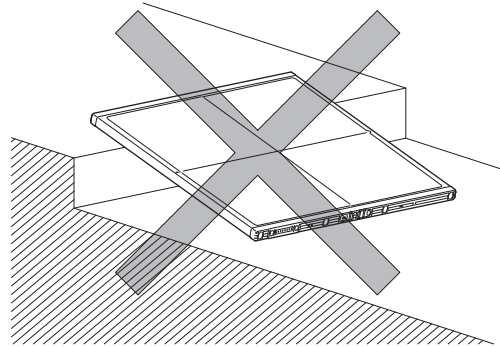
- If there is any smoke, odor, or abnormal sound, it may cause a fire if use is continued, so immediately turn the power switch off, unplug the power plug from the wall outlet, and contact Konica Minolta technical representatives.
- Take note of the following to reduce the risk of fire, electric shock, or electrical leakage:
 - Use specified cables for the power cable, etc.
 - Use a wall outlet with the correct rating as a power source.
 - Connect the power plug to the wall outlet properly without any slack.
 - Use a grounded power source.
 - If you do not plan to use this device for an extended period of time, unplug the power plug.
 - The supplied power cable is dedicated for this device, so do not use it elsewhere.
 - Avoid exposure to liquid such as water.
 - Make sure that foreign material, such as pieces of metal or wire, does not get inside.
 - Do not allow any metal or conductive objects to come into contact with the spring connector of the AeroDR I/F Cable.
 - Do not handle the power plug with wet hands.
 - Do not let soil or dust accumulate on the power plug, AeroDR I/F Cable, or AeroDR UF Cable.
 - Do not use extension cords.
 - Do not connect many plugs to a single electrical outlet.
 - Do not damage the power cable, AeroDR I/F Cable, or AeroDR UF Cable. Also, do not use damaged cables.
 - Do not block the ventilation openings.
- If there is any abnormality in appearance such as deformation of the housing or a crack, stop using the device immediately and contact Konica Minolta technical representatives.

CAUTION

- Take note of the following when using this device:
 - People with an implanted pacemaker or implanted defibrillator may feel palpitation or dizziness.
 - Do not use devices that emit electromagnetic waves such as high-frequency therapy equipment, mobile phones, or pocket pagers, close to this device.
 - Take note of the reception status for radios and TVs near this device, since interference may occur in them when this device is in use.
 - Use under the specified environmental conditions. Failure to do so may result in degradation of performance or malfunction.

CAUTION

- Take the following notes when using the AeroDR Detector:
 - Use on a flat base.



- Use the recommended adapter when you need to perform exposure on a stretcher or a place where load is to be applied locally.
- The AeroDR Detector has wireless antennae positioned at 2 places. Do not block them with the body or metal because that will interfere with, disconnect or slow down wireless communication.
- Pressing the power switch causes each LED (green, orange, blue) to light temporarily or flash. After this, only green begins to flash in a slow cycle. Please check the lighting or flashing of each color once.
- The battery capacity is designed to allow the life period calculated based on the standard usage of the AeroDR Detector. It can be replaced with a new battery for a fee if replacement is necessary after the warranty period due to battery breakdown or decrease in capacity.
- Be careful not to get your hand caught when setting the AeroDR Detector into the AeroDR Battery Charger.
- The AeroDR Detector is precision equipment, and therefore impact or vibration during radiography or image transfer may affect the image quality. Be careful when handling the AeroDR Detector during and just after radiography.
- Never leave AeroDR Detectors around heat generators such as electric carpet.
- Do not damage or deform the AeroDR Detector; doing so may have an effect on exposed images, or lead to injury.
- When using the AeroDR I/F Cable, observe the following:
 - Remove the cable by holding the connector housing.
 - Do not let the cable get pinched by doors and do not place heavy objects on it.
 - Do not bend or pull the cable excessively.
 - Make sure that the cable is properly connected to the AeroDR Detector without wobbling.
 - Do not connect the connector housing backwards.



CAUTION

- Take note of the following if the AeroDR Detector is damaged and fluorescent medium or lead is exposed:
 - Immediately stop using the device, and contact Konica Minolta technical representatives.
 - If the fluorescent medium gets in your eyes, do not rub and instead wash with running water immediately.
 - If you have swallowed any of the fluorescent medium or if the fluorescent medium has gotten into your eyes, administer first-aid treatment immediately, and consult a doctor.
 - If the medium comes into contact with your skin directly, wash the affected area thoroughly with water.
 - Use and store in a location inaccessible to children.
- When the AeroDR Detector is used for exposure, pay attention to the following items.
 - Start exposure after confirming on the display of the image processing controller that the machine is ready for exposure.
 - Perform exposure under the X-ray imaging conditions that has been confirmed by us.
 - Use the specified grid to perform exposure.
 - Apply the specified operation methods to use the grid.
- Precautions when performing exposure in Aero Sync mode.
 - Confirm that the image processing controller is ready for exposure through its display before performing exposure.
 - Confirm that a confirmation is sounded from the image processing controller after the start of exposure.
 - Do not let the AeroDR Detector vibrate or receive shock until the preview image is displayed.
 - Confirm that the AeroDR Detector's battery level is full before performing exposure.
 - Use the system under the exposure condition confirmed prior to exposure.

1.3.3 Precautions regarding electromagnetic waves

● EMC Statement

This device has been tested and found to comply with the limits for medical devices in IEC 60601-1-2: 2007.

These limits are designed to provide reasonable protection against harmful interference in a typical medical installation. The device generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to other devices in its vicinity. However, there is no guarantee that interference will not occur in a particular installation.

Whether this device does cause harmful interference to other devices can be determined by turning this device off and on. If it causes harmful interference, the user is encouraged to try to correct the interference by 1 or more of the following measures:

- Reorient or relocate the receiving device.
- Increase the separation between the devices.
- Connect this device into a wall outlet on a circuit different from that to which the other devices are connected.
- Contact Konica Minolta technical representatives.

● Supplementary information regarding IEC 60601-1-2: 2007

- (1) Take precautions against this device especially regarding EMC. Install and put into service according to the electromagnetic compatibility (EMC) information provided in the manual (Table 1 - Table 4).
- (2) Do not use mobile phones or pocket pagers in the vicinity of this device. Use of mobile phones or pocket pagers near this device can cause errors in operation due to electromagnetic wave interference, so such devices should be turned off in the vicinity of this device.
- (3) Cable list
 - Power cable (3 m/3-Wire/No Shielding)
 - Ethernet cable (max 100 m/100 BASE-TX)
 - Ethernet cable (PoE) (30 m/No Shielding)
 - Various AeroDR I/F Cables
 - Various AeroDR UF Cables
 - AeroDR Collimator Cable Set
 - Various AeroDR XG Cable Sets
- (4) The use of accessories, transducers and cables other than those sold by KONICA MINOLTA MEDICAL & GRAPHIC, INC. as internal components, may result in increased emissions or decreased electromagnetic immunity of this device.
- (5) Do not use this device adjacent to or stacked with other devices. If adjacent or stacked use is necessary, confirm normal operation in the configuration in which this device will be used.
- (6) Specifications regarding RF transmitters frequency:
 - Frequency: 5150 to 5350 MHz, 5470 to 5850 MHz
 - Modulation: OFDM
 - Maximum effective radiation power: +15 dBm
 - This device may be interfered with by other devices that conform to CISPR emission requirements.

1.3 Safety precautions


Table 1

Guidelines and manufacture's declaration - electromagnetic emissions		
This device is intended for use in the electromagnetic environment specified below. The customer or the user of this device should assure that it is used in such an environment.		
Emissions test	Compliance	Electromagnetic environment - guidelines
RF emissions CISPR 11	Group 1	The device 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 B	This device is suitable for use in all establishments including the following: Domestic establishments and those directly connected to the public low-voltage power supply network that supplies buildings for domestic purposes.
Harmonic emissions IEC 61000-3-2	Class A	
Voltage fluctuations/ flicker emissions IEC 61000-3-3	Complies	

Table 2

Guidelines and manufacturer's declaration - electromagnetic immunity			
This device is intended for use in the electromagnetic environment specified below. The customer or the user of this device should assure that it is used in such an environment.			
Immunity test	IEC 60601 test level	Compliance level	Electromagnetic environment - guidelines
Electrostatic discharge (ESD) IEC 61000-4-2	± 6 kV contact	± 6 kV contact	Floors should be wood, concrete or ceramic tile. If floors are covered with synthetic material, the relative humidity should be at least 30%. Mains power quality should be that of a typical commercial or hospital environment.
	± 8 kV air	± 8 kV air	
Electrical fast transient/ burst IEC 61000-4-4	± 2 kV for power supply lines	± 2 kV for power supply lines	Mains power quality should be that of a typical commercial or hospital environment.
	± 1 kV for input/output lines	± 1 kV for input/output lines	
Surge IEC 61000-4-5	± 1 kV differential mode	± 1 kV differential mode	Mains power quality should be that of a typical commercial or hospital environment.
	± 2 kV common mode	± 2 kV common mode	
Voltage dips, short interruptions and voltage variations on power supply input lines IEC 61000-4-11	<5% U_T (>95% dip in U_T) for 0.5 cycle	<5% U_T (>95% dip in U_T) for 0.5 cycle	Mains power quality should be that of a typical commercial or hospital environment. If the user of the device requires continued operation during power mains interruptions, it is recommended that the device be powered from an uninterrupted power supply or a battery.
	40% U_T (60% dip in U_T) for 5 cycles	40% U_T (60% dip in U_T) for 5 cycles	
	70% U_T (30% dip in U_T) for 25 cycles	70% U_T (30% dip in U_T) for 25 cycles	
	<5% U_T (<95% dip in U_T) for 5 sec	<5% U_T (<95% dip in U_T) for 5 sec	
Power frequency (50/60 Hz) magnetic field IEC 61000-4-8	3 A/m	3 A/m	Power frequency magnetic fields should be at levels characteristic of a typical location in a typical commercial or hospital environment.
[NOTE] U_T is the AC mains voltage prior to application of the test level.			

Table 3

Guidelines and manufacturer's declaration - electromagnetic immunity			
This device is intended for use in the electromagnetic environment specified below. The customer or the user of this device should assure that it is used in such an environment.			
Immunity test	IEC 60601 test level	Compliance level	Electromagnetic environment - guidelines
Conducted RF IEC 61000-4-6	3 Vrms 150 kHz to 80 MHz	[3] V	Portable and mobile RF communications equipment should be used no closer to any part of this device, including cables, than the recommended separation distance calculated from the equation applicable to the frequency of the transmitter. Recommended separation distance $d=[1.2] \sqrt{P}$ $d=[1.2] \sqrt{P}$ 80 MHz to 800 MHz $d=[2.3] \sqrt{P}$ 800 MHz to 2.5 GHz
Radiated RF IEC 61000-4-3	3 V/m 80 MHz to 2.5 GHz	[3] V/m	where P is the maximum output power rating of the transmitter in watts (W) according to the transmitter manufacturer and d is the recommended separation distance in meters (m). Field strengths from fixed RF transmitters, as determined by an electromagnetic site survey ^a , should be less than the compliance level in each frequency range ^b . Interference may occur in the vicinity of equipment marked with the following symbol: 
[NOTE] At 80 MHz and 800 MHz, the separation distance for the higher frequency range applies.			
[NOTE] These guidelines may not apply in all situations. Electromagnetic propagation is affected by absorption and reflection from structures, objects and people.			
a Field strengths from fixed transmitters, such as base stations for radio (cellular/cordless) telephones and land mobile radios, amateur radio, AM and FM radio broadcast and TV broadcast cannot be predicted theoretically with accuracy. To assess the electromagnetic environment due to fixed RF transmitters, an electromagnetic site survey should be considered. If the measured field strength in the location in which this device is used exceeds the applicable RF compliance level above, this device should be observed to verify normal operation. If abnormal performance is observed, additional measures may be necessary, such as reorienting or relocating this device.			
b Over the frequency range 150 kHz to 80 MHz, field strength should be less than [3] V/m.			

1.3 Safety precautions

Table 4

Recommended separation distance between portable and mobile RF communications equipment and the device			
This device is intended for use in an electromagnetic environment in which radiated RF disturbances are controlled. The customer or the user of this device can help prevent electromagnetic interference by maintaining a minimum distance between portable and mobile RF communications equipment (transmitters) and this device as recommended below, according to the maximum output power of the communications equipment.			
Rated maximum output power of the transmitter W	Separation distance according to frequency of transmitter m		
	150 kHz to 80 MHz $d=[1.2] \sqrt{P}$	80 MHz to 800 MHz $d=[1.2] \sqrt{P}$	800 MHz to 2.5 GHz $d=[2.3] \sqrt{P}$
0.01	0.12	0.12	0.23
0.1	0.38	0.38	0.73
1	1.2	1.2	2.3
10	3.8	3.8	8
100	12	12	23
For transmitters rated at a maximum output power not listed above, the recommended separation distance d in meters (m) can be estimated using the equation applicable to the frequency of the transmitter, where P is the maximum output power rating of the transmitter in watts (W) according to the transmitter manufacturer.			
[NOTE] At 80 MHz and 800 MHz, the separation distance for the higher frequency range applies.			
[NOTE] These guidelines may not apply in all situations. Electromagnetic propagation is affected by absorption and reflection from structures, objects and people.			

1.3.4 Precautions regarding wireless communication



CAUTION

- This device is equipped with a communication function that operates via wireless LAN. Conformance is required with the relevant regulations defined by the countries in which this device is to be used.
- Inappropriate usage may cause interference in radio communication. Also, if this device is modified, approval and warranty according to the radio law of the applicable government will be voided.
- It may affect aeronautical systems, so do not use on-board airplanes.
- This device may be affected by other wireless devices. Make sure that the environment is free of wireless communications.
- AeroDR Detector has been confirmed to comply with the relevant regulations of the following countries:

United States & Canada

Federal Communications Commission Statement / Canadian Department of Communications

•AeroDR Detector complies with Part 15 of FCC Rules and RSS-Gen of IC Rules. Operation subject to the following 2 conditions:(1) this device may not cause interference, and (2) this device must accept any interference, including interference that may cause undesired operation of this device.

- This transmitter must not be co-located or operated in conjunction with any other antenna or transmitter.
- 5.15-5.25 GHz band is restricted to indoor operations only.
- The available scientific evidence does not show that any health problems are associated with using low power wireless devices. There is noproof, however, that these low power wireless devices are absolutely safe. Low power Wireless devices emit low levels of radio frequency energy (RF) in the microwave range while being used. Whereas high levels of RF can produce health effects (by heating tissue), exposure of low-level RF that does not produce heating effects causes no known adverse health effects. Many studies of low-level RF exposures have not found any biological effects. Some studies have suggested that some biological effects might occur, but such findings have not been confirmed by additional research. AeroDR Detector has been tested and found to comply with FCC/IC radiation exposure limits set forth for a controlled equipment and meets the FCC radio frequency (RF) Exposure Guidelines in Supplement C to OET65 and RSS-102 of the IC radio frequency (RF) Exposure rules.
- Compliance with FCC requirement 15.407(c): Data transmission is always initiated by software, which is the passed down through the MAC, through the digital and analog baseband, and finally to the RF chip. Several special packets are initiated by the MAC. These are the only ways the digital baseband portion will turn on the RF transmitter, which it then turns off at the end of the packet. Therefore, the transmitter will be on only while one of the aforementioned packets is being transmitted. In other words, this device automatically discontinue transmission in case of either absence of information to transmit or operational failure.
- Compliance with FCC requirement 15.407(g): Frequency Tolerance: 20ppm

FCC WARNING

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

European Union

European Union Directives Conformance Statement

AeroDR Detector conforms with the Declaration of Conformity (DoC) to Directive 1999/5/EC (to R&TTE Directive). This device purposely connects to an access point of a 5 GHz network.

AeroDR Detector is used for the following countries indicated by country code (ISO3166 2-letter code).

AT	BE	BG	CY	CZ	DK
EE	FI	FR	DE	GR	HU
IE	IT	LV	LT	LU	MT
NL	PL	PT	RO	SK	SI
ES	SE	GB	IS	LI	NO
CH					

Taiwan

Observe the following based on the regulations stated in Article 10 of Administration Measures for Low-power Radiation Electric Machines.

Article 12

As for type-approval qualified low-power radio-frequency generator, no company, firm, or user may arbitrarily change the frequency, increase the power or alter the function or characteristics of the original design without prior permission.

Article 14

The use of low-power radio-frequency electric machines shall not affect air flight safety or disturb lawful communication. If disturbance is found, the use of such electric machines shall be suspended immediately and such use shall not be resumed until the disturbance is eliminated. Lawful communication mentioned in the preceding paragraph refers to wireless communication operation in accordance with the provisions of the Telecommunication Law. Low-power radio-frequency electric machines shall tolerate disturbance from lawful communication or from radio-wave radiation electric machine for industrial, scientific or medical use.

China

1. Clearly indicate the technical indicators and the scope of usage in the accompanying document, and explain the usage of all controls, adjustments, and switches, etc.
 - Operating frequency range: 5725-5850 MHz
 - Transmit power: ≤ 500 mW and ≤ 27 dBm
 - Equivalent isotropic radiated power (EIRP): ≤ 2 W and ≤ 33 dBm
 - Maximum radiation power density: ≤ 13 dBm/MHz and ≤ 19 dBm/MHz (EIRP)
 - Frequency Tolerance limit: 20 ppm
 - Transmit power at the band edge (EIRP): ≤ 80 dBm/Hz (≤ 5725 MHz or ≥ 5850 MHz)
 - Spurious emissions:
 - ≤ 36 dBm/100 kHz (30-1000 MHz)
 - ≤ 40 dBm/1 MHz (2400-2483.5 MHz)
 - ≤ 40 dBm/1 MHz (3400-3530 MHz)
 - ≤ 33 dBm/100 kHz (5725-5850 MHz)(Note: Other than ± 2.5 -times supported channel bandwidth)
 - ≤ 30 dBm/1 MHz (Other 1-40 GHz)
2. Do not arbitrarily change frequency or increase transmit power (including the added radio frequency amplifier). In addition, do not mount an antenna without permission, or change to another transmission antenna.
3. When in use, do not cause harmful interference in other legal wireless communication services. If you find interference to be occurring, discontinue use immediately. After taking measures to eliminate interference, you may continue using the device.
4. If you use low power radio equipment, you must accept interference from various wireless services or radiation interference from industrial, scientific and medical application equipment.
5. Do not use near a plane or an airport.

South Korea

Because this wireless equipment may be affected by radio interference, it cannot provide services related with life safety.

Thailand

AeroDR Detector conforms to NTC technical requirement.

Brazil

This equipment operates secondarily, that is, it doesn't benefit from protection against harmful interference, even from stations of the same type, and cannot cause interference to systems that operate primarily.

AeroDR Detector has been approved by ANATEL in compliance with the procedures regulated by Resolution 242/2000 and complies with the applicable technical requirements.

For more information, please visit:

<http://www.anatel.gov.br>

Mexico

This equipment operates on a secondary basis; consequently, you must accept harmful interferences from equipment of the same type, and cannot cause interferences to systems operating on a primary basis.

1.3.5 Precautions for installing, moving, and storing

WARNING

- Take note of the following when moving this device not including the AeroDR Detector:
 - Do not subject to shocks or vibration.
 - Do not start moving until the power is turned off, and operation has stopped completely.
 - Do not move with the power cable or any other cable connected.
- When installing the AeroDR Battery Charger on a table top, observe the following:
 - Install on a base that can withstand maximum patient weight because load is inserted when setting the AeroDR Detector.
 - The contact area for the AeroDR Battery Charger must be larger than the area of the AeroDR Battery Charger so that it will not fall down when the AeroDR Detector is set or when people touch it by accident.
 - Install on a horizontal and stable surface.
 - Do not use a base that has a surface made of slippery material such as teflon.
 - Connect power cable and wires so that no one will trip.
 - Install in a place easy to set the AeroDR Detector.
 - Install so that the vent on the back is not blocked.

CAUTION

- Because connections of the X-ray device can only be made by Konica Minolta or its designated contractors, contact Konica Minolta or its designated contractors.
- Contact Konica Minolta or dealers specified by Konica Minolta to install or move this device.
- For the X-ray devices enabled to connect, contact Konica Minolta technical representatives.
- Since it is required to meet the specification provided by the X-ray device manufacturer to connect with an X-ray device, contact Konica Minolta or dealers specified by Konica Minolta.
- Take note of the following when installing or storing this device.
 - Do not install or store in a location where it may be adversely affected by atmospheric pressure, temperature, humidity, ventilation, sunlight, dust, salt-air, or air containing sulfur.
 - Do not install or store in a location where it is not stable, ventilation is insufficient, the difference in light-dark is great, electromagnetic waves are generated, or where subject to vibration or shock.
 - Do not install or store in a location where chemical agents are used or stored.
 - Do not install this device facing up or upside down.
 - Do not install the AeroDR Interface Unit and the AeroDR Generator Interface Unit stacked on each other.

CAUTION

- Connect the AeroDR Generator Interface unit to a model from the IEC 60601 series or an X-ray device that conforms to an equivalent standard.
- Do not use access points other than those on this device.

1.3.6 Precautions regarding maintenance

WARNING

- Perform the maintenance and inspection periodically. In addition to the user periodical maintenance that needs to be performed, periodical maintenance by a service engineer is also required.
- If there are stains such as body fluids, clean and disinfect.

CAUTION

- Based on the warranty, parts that are no longer under warranty (1 year) can be replaced for a fee.
- Turn off the power and disconnect the power plug from the wall outlet before cleaning or maintaining this device.
- Securely connect the power cable, AeroDR I/F Cable, and AeroDR UF Cable after cleaning and maintenance.
- Clean the dirt from between the protective cover and the exterior, and the terminal using a commercial plastic brush. Do not clean with sharp or hard objects.
- Take care regarding the following when disinfecting the AeroDR Detector.
 - Use ethanol for disinfection, isopropanol for disinfection, or commercial chlorine bleach, or 0.5% hypochlorite (10-fold dilution of household bleach) when disinfecting. However, bleach and hypochlorite are corrosive, so wash the bleach off well to avoid corrosion.
 - Dampen a lint-free, soft cloth with disinfecting solution, and use after wringing it thoroughly. Do not apply disinfecting solution onto the wired connection connector and LED when cleaning.
 - Disinfecting solution is a chemical agent, so follow the precautions of the manufacturer.
- Fully charge battery once a month even if the AeroDR Detector has not been used for a long time.

1.3.7 Precautions on service life



Service life

Name	Service life
AeroDR Detector	6 years
AeroDR Interface Unit	6 years
AeroDR Generator Interface Unit	6 years
AeroDR Battery Charger	6 years
AeroDR Access Point	6 years
AeroDR I/F Cable	6 years
AeroDR UF Cable	6 years

- The above service life is valid only if the product has been properly operated while following the precautions for use and performing the specified maintenance. (By self certification <our data>)
- The service life may differ depending on usage conditions and environment.
- Some component parts of this device are commercially available parts that have a short cycle of model changes, therefore, it might not be possible to supply service parts even within the service life. In addition, related component parts may need to be replaced to maintain compatibility at the time of model change.

1.4 • R&TTE DECLARATION of CONFORMITY



KONICA MINOLTA

DECLARATION of CONFORMITY For



Product: AeroDR SYSTEM
Model: AeroDR P-11, AeroDR P-12,
AeroDR P-21

Supplied by
KONICA MINOLTA MEDICAL &
GRAPHIC, INC.
1 Sakura-machi, Hino-shi, Tokyo, Japan
191-8511

Technical Construction File held by
KONICA MINOLTA MEDICAL &
GRAPHIC, INC.
1 Sakura-machi, Hino-shi, Tokyo, Japan
191-8511

Notified Body - R&TTE Directive

N/A

**R&TTE Directive
(Article 3.1(a) Safety)**

Standard used for comply
EN60950-1:2006 + Amd.11:2009 + Amd.1:2010 +
Amd.12:2011
EN 62311: 2008
Exposure limit: 1999/519/EC

**R&TTE Directive
(Article 3.1(b) EMC)**

EN 301 489-1 V1.8.1: 2008-04
EN 301 489-17 V2.1.1: 2009-05

**R&TTE Directive
(Article 3.2 Spectrum)**

EN 301 893 V1.5.1: 2008-12

Means of Conformity

We declare under our sole responsibility that the Product (s) is conformity with the essential requirements and other relevant requirements of the Radio and Telecommunication Terminal Equipment (R&TTE) Directive (1999/5/EC).

Date of issue: October 25, 2011

Signature of Responsible Person:

Hiroyuki Ushiroyama
Manager
Quality Assurance Center

The essentials of imaging

Chapter 2

Product Overview

This chapter describes the overview of this device.

2.1 • Overview of this device

This section describes the functions of this device as well as a system configuration and connection examples using this device.

2.1.1 Functions

This device consists of AeroDR Detector, AeroDR Interface Unit, AeroDR Generator Interface Unit, AeroDR Battery Charger, AeroDR Access Point, etc. With the AeroDR Detector, diagnostic X-ray digital image data is generated by the irradiation signal and exposure from an X-ray device, and sent to the image processing controller.

Furthermore, the AeroDR Detector can be connected with (or inserted in) an AeroDR Interface Unit or AeroDR Battery Charger or removed from them.

2.1.2 System configuration and connection examples

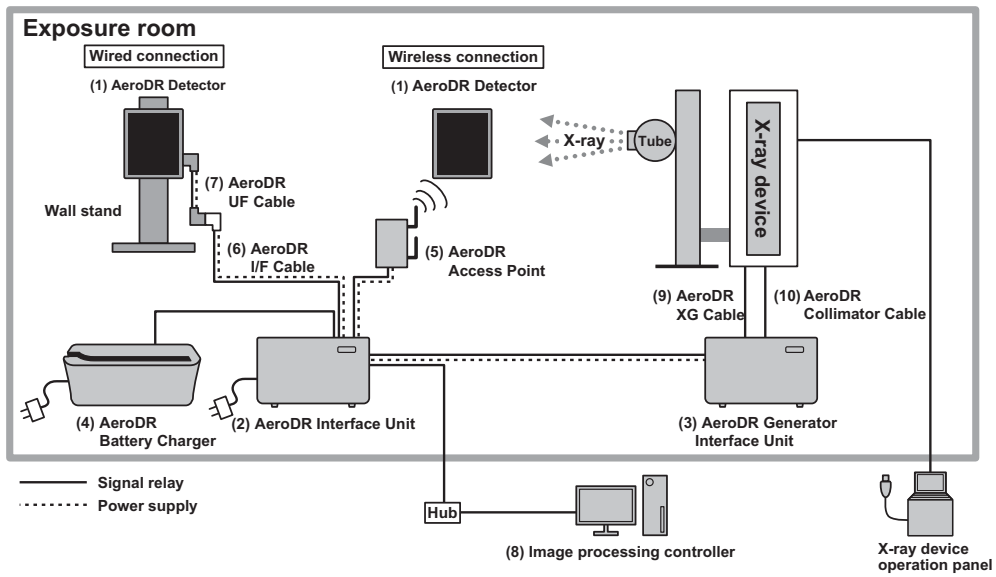
The system configuration and connection examples are as follows.

● Basic configuration example

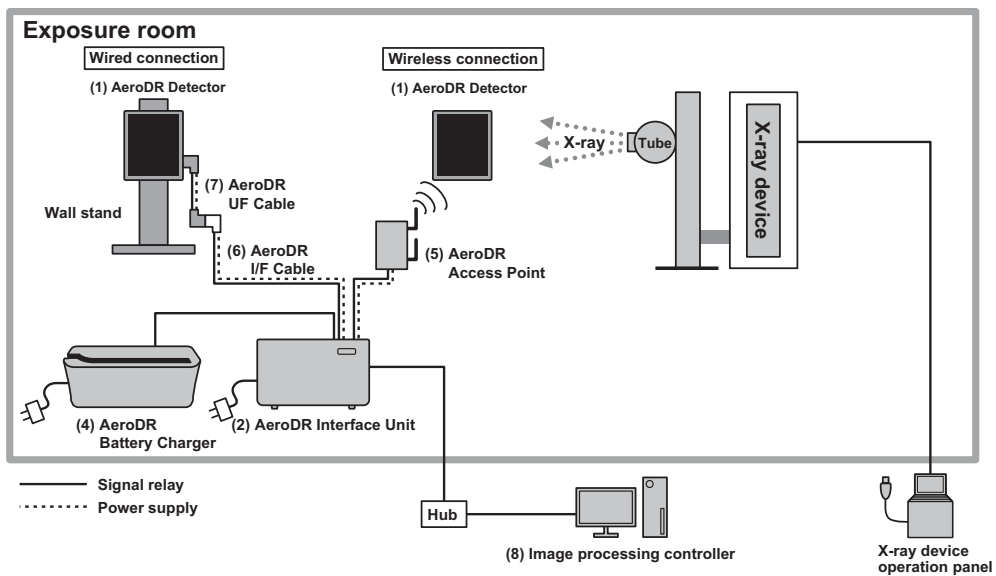
Number	Name	Functions
(1)	AeroDR Detector	<ul style="list-style-type: none">• There are 4 types of AeroDR Detectors: AeroDR 1417HQ, AeroDR 1417S, AeroDR 1717HQ and AeroDR 1012HQ.• AeroDR Detector is of B-type Applied Parts.
(2)	AeroDR Interface Unit	<ul style="list-style-type: none">• Supplies power to the AeroDR Generator Interface unit and the AeroDR Access Point, and supplies power to the AeroDR Detector and charges the battery of the AeroDR Detector when an AeroDR I/F Cable or AeroDR UF Cable is used.• 4 AeroDR Detectors can be connected via wireless connection and 2 via wired connection.• The expansion AeroDR Interface Unit is required for connecting the third and fourth AeroDR Detectors via wired connection.
(3)	AeroDR Generator Interface Unit *	Relays signals between the X-ray device, the AeroDR Detector, and the image processing controller.
(4)	AeroDR Battery Charger *	Charges the AeroDR Detector. It also has the registration function for the AeroDR Detector.
(5)	AeroDR Access Point *	Used for wireless connection with the AeroDR Detector.
(6)	AeroDR I/F Cable	Used for wired connection with the AeroDR Detector. Also used for charging and registering the AeroDR Detector.
(7)	AeroDR UF Cable *	Used when the AeroDR Detector is set in the wall stand or table.
(8)	Image processing controller	Controls the reception, management, and output of this device's image data.
(9)	AeroDR XG Cable *	Performs signal relay between the X-ray device and the AeroDR Generator Interface Unit.
(10)	AeroDR Collimator Cable *	Performs exposure field signal relay between the X-ray device and the AeroDR Generator Interface Unit.
(11)	AeroDR S-SRM Cable *	Performs signal relay between the X-ray device operation panel and the AeroDR Generator Interface Unit.
(12)	S-SRM *	Synchronizes AeroDR Generator Interface Unit and X-ray device simply. Exposure is performed using the AeroDR Generator Interface Unit.

* Optional product.

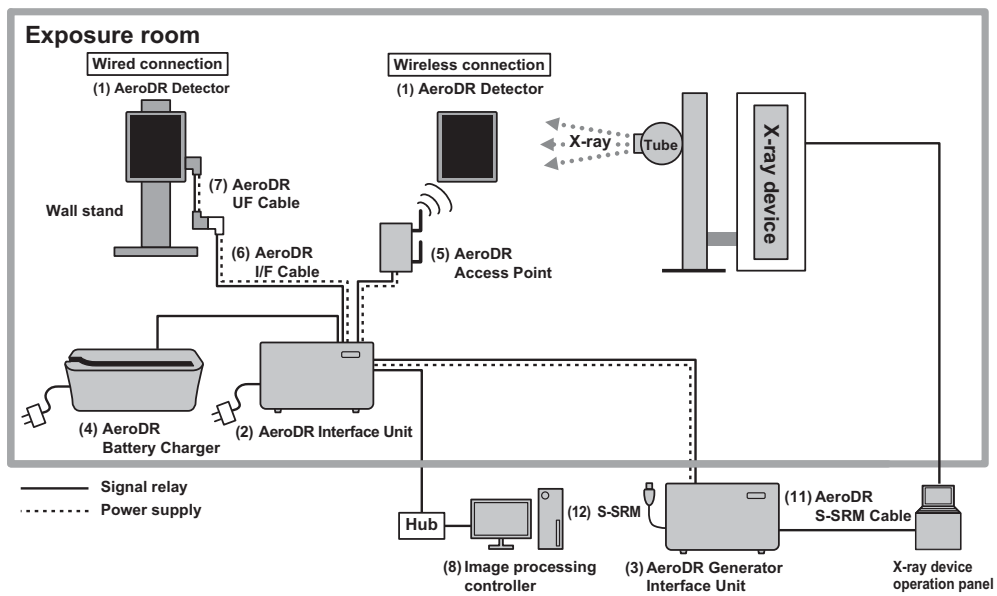
● Basic connection example



● Aero Sync connection example



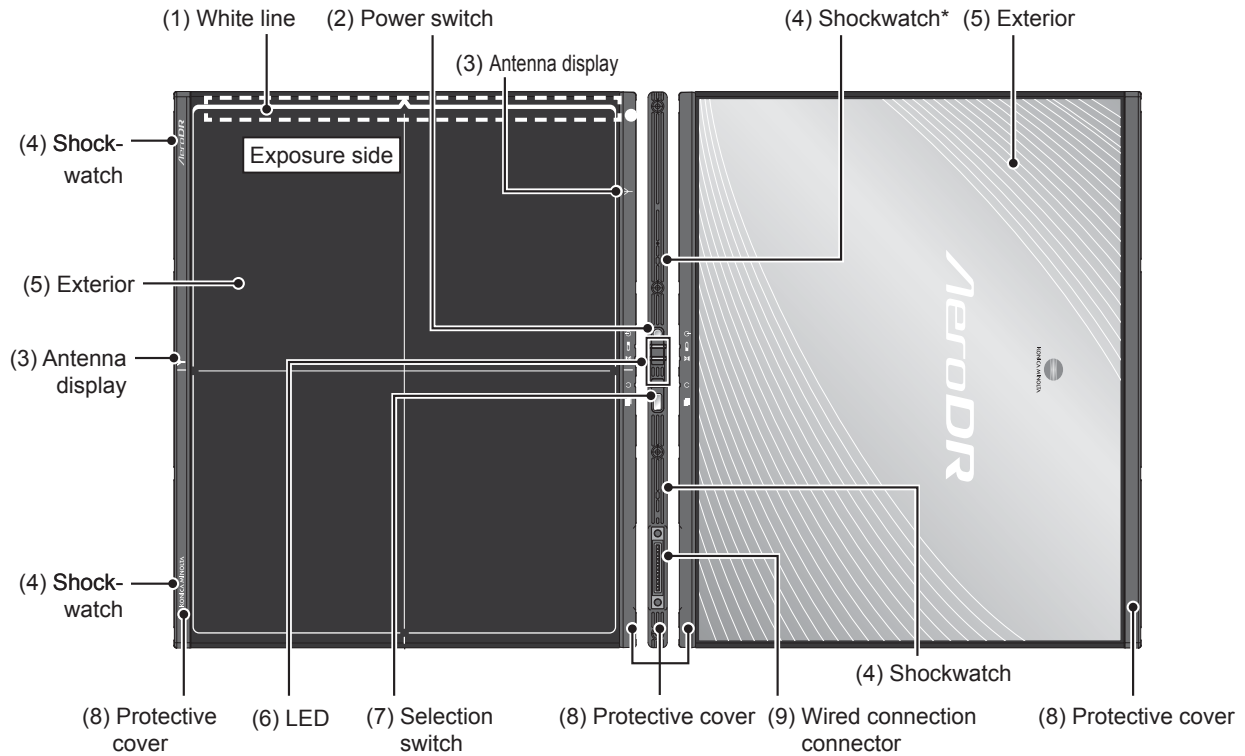
● S-SRM connection example





2.2 • Component names and functions

2.2.1 AeroDR Detector

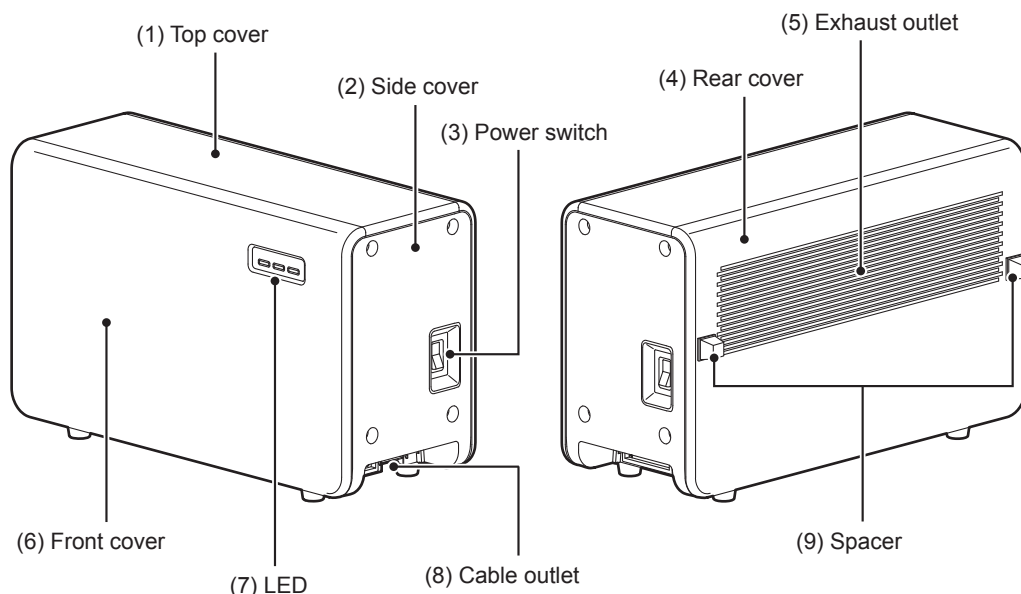
The component names and functions of the AeroDR Detector are as follows.




Number	Name	Functions
(1)	White line	Indicates the direction to place the AeroDR Detector in during exposure. When exposing in portrait, place the white line upward. When exposing in landscape, place the white line to the left or right. (Left and right are set during installation according to the exposure environment.)  Reference <ul style="list-style-type: none"> For the placement of the AeroDR Detector during exposure, refer to "3.2.2 AeroDR Detector orientation".
(2)	Power switch	Used to turn the AeroDR Detector on/off.
(3)	Antenna display	Displays the place where a wireless antenna is attached.
(4)	Shockwatch	Becomes red if the AeroDR Detector is subjected to a certain amount of shock. *AeroDR 1012HQ is equipped with only one Shockwatch, which is indicated by the *.
(5)	Exterior	Protects the internal parts.
(6)	LEDs	Displays the status of the AeroDR Detector.  Reference <ul style="list-style-type: none"> For the display patterns and status of the LEDs, refer to "4 Status (LED) Display".
(7)	Selection switch	Notifies the image processing controller that this AeroDR Detector will be used for the exposure.
(8)	Protective cover	Absorbs external shocks.
(9)	Wired connection connector	Connects to the AeroDR Battery Charger, AeroDR I/F Cable, and AeroDR UF Cable.

2.2.2 AeroDR Interface Unit

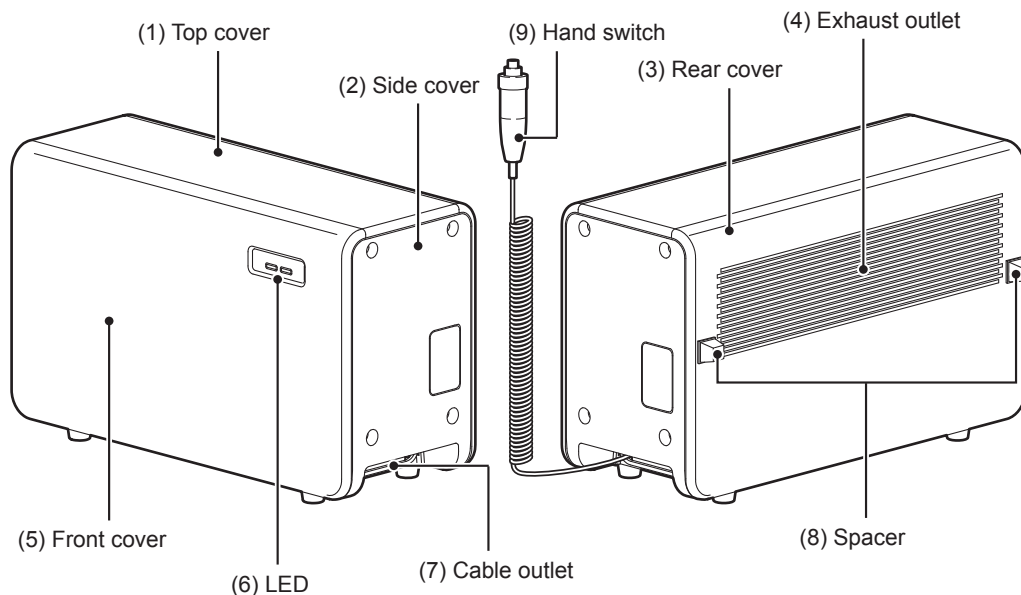
The component names and functions of the AeroDR Interface Unit are as follows.




Number	Name	Functions
(1)	Top cover	Protects the internal parts.
(2)	Side cover	Protects the internal parts.
(3)	Power switch	Turns the AeroDR Interface Unit on/off.
(4)	Rear cover	Protects the internal parts.
(5)	Exhaust outlet	Exhausts internal heat.
(6)	Front cover	Protects the internal parts.
(7)	LEDs	Displays the status of the AeroDR Interface Unit.  Reference • For the display patterns and status of the LEDs, refer to "4 Status (LED) Display".
(8)	Cable outlet	Outlet for various cables.
(9)	Spacer	Prevents exhaust outlet from being blocked after installation.

2.2.3 AeroDR Generator Interface Unit

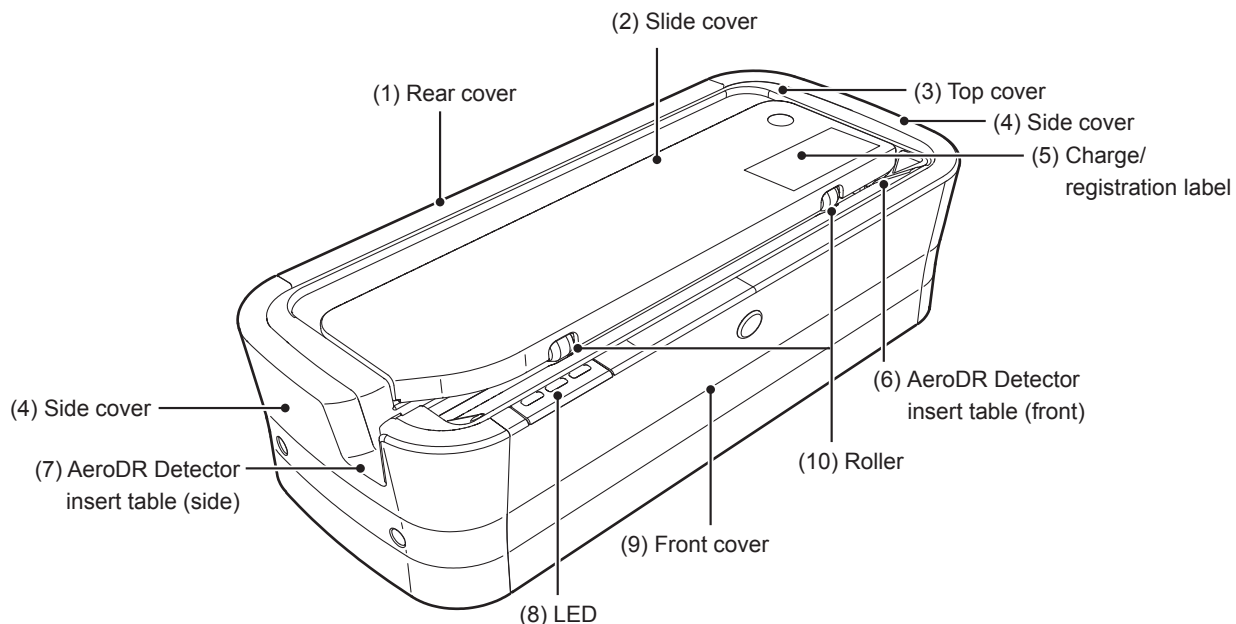
The component names and functions of the AeroDR Generator Interface Unit are as follows.



Number	Name	Functions
(1)	Top cover	Protects the internal parts.
(2)	Side cover	Protects the internal parts.
(3)	Rear cover	Protects the internal parts.
(4)	Exhaust outlet	Exhausts internal heat.
(5)	Front cover	Protects the internal parts.
(6)	LEDs	Displays the status of the AeroDR Generator Interface Unit.  Reference • For the display patterns and status of the LEDs, refer to "4 Status (LED) Display".
(7)	Cable outlet	Outlet for various cables.
(8)	Spacer	Prevents exhaust outlet from being blocked after installation.
(9)	Hand switch	When S-SRM connection is adopted, a hand switch is installed in the AeroDR Generator Interface Unit.

2.2.4 AeroDR Battery Charger

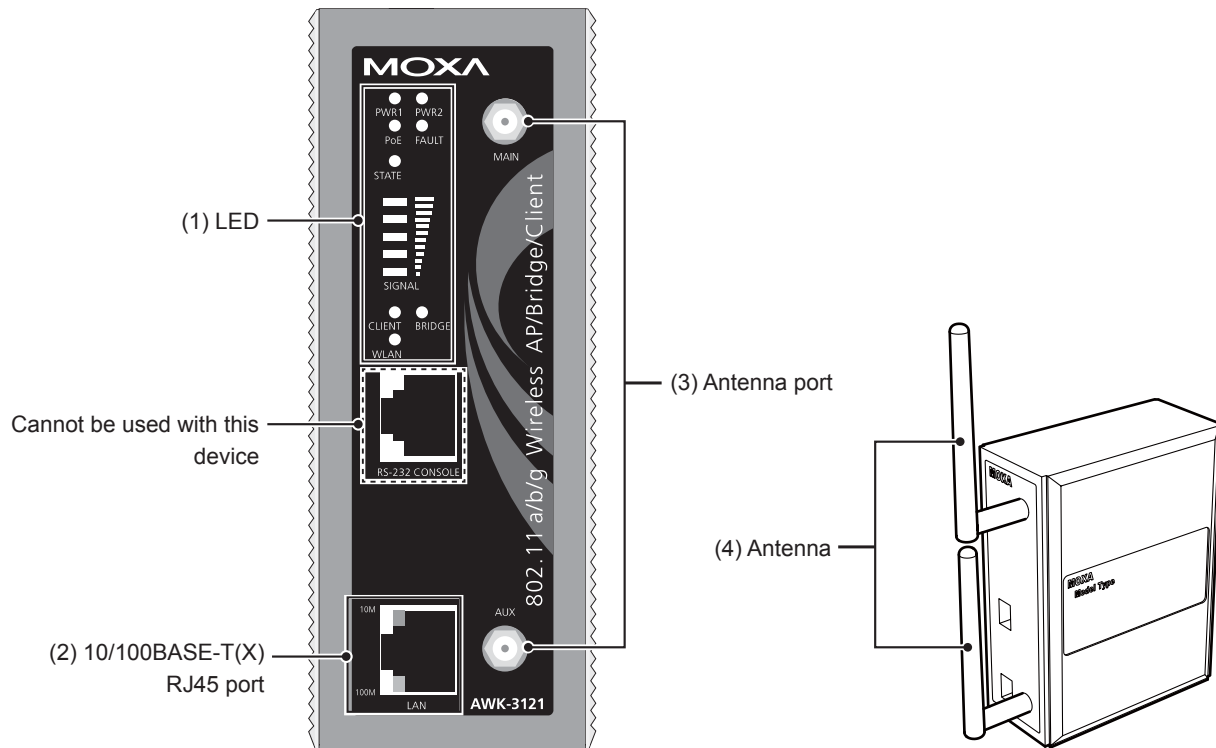
The component names and functions of the AeroDR Battery Charger are as follows.



Number	Name	Functions
(1)	Rear cover	Protects the internal parts.
(2)	Slide cover	Protects the internal parts, and prevents dust from getting inside the AeroDR Battery Charger.
(3)	Top cover	Protects the internal parts.
(4)	Side cover	Protects the internal parts.
(5)	Charge/registration label	When an AeroDR Battery Charger exclusively for charge is used, a label that distinguishes the AeroDR Battery Charger exclusively for charge from an AeroDR Battery Charger that is used for charge and registration is affixed.
(6)	AeroDR Detector insert table (front)	Guide for inserting the AeroDR Detector from the front.
(7)	AeroDR Detector insert table (side)	Guide for inserting the AeroDR Detector from the side.
(8)	LEDs	Indicates the status between the AeroDR Detector and the AeroDR Battery Charger. <div style="border: 1px solid black; padding: 2px; display: inline-block;">Reference</div> <ul style="list-style-type: none"> • For the display patterns and status of the LEDs, refer to "4 Status (LED) Display".
(9)	Front cover	Protects the internal parts.
(10)	Roller	Prevents external friction when you insert the AeroDR Detector.

2.2.5 AeroDR Access Point

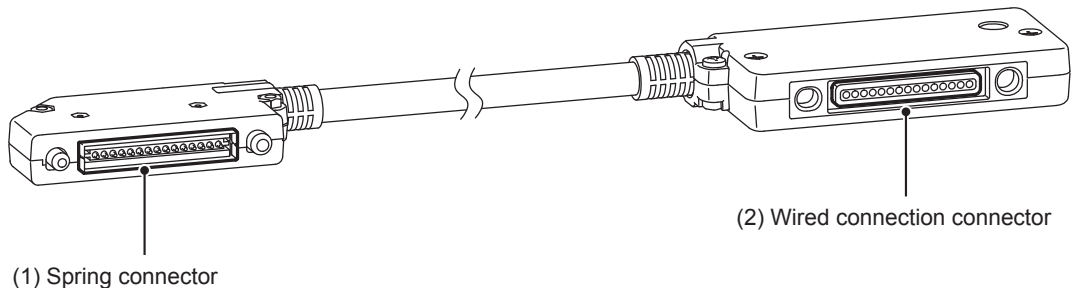
The component names and functions of the AeroDR Access Point are as follows.



Number	Name	Functions
(1)	LEDs	Displays the status of the AeroDR Access Point. Reference • For the display patterns and status of the LEDs, refer to "4 Status (LED) Display".
(2)	10/100BASE-T(X) RJ45 port	Used for connection to the AeroDR Interface Unit.
(3)	Antenna port	Port to attach antenna.
(4)	Antenna	Receives wireless signal.

2.2.6 AeroDR UF Cable

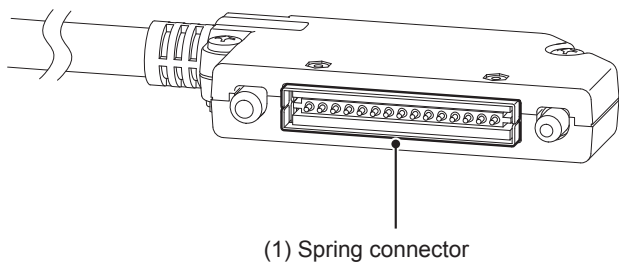
The component names and functions of the AeroDR UF Cable are as follows.



Number	Name	Functions
(1)	Spring connector	Connects to the wired connection connector of the AeroDR Detector.
(2)	Wired connection connector	Connects to the spring connector of the AeroDR I/F Cable.

2.2.7 AeroDR I/F Cable

The component name and function of the AeroDR I/F Cable are as follows.



Number	Name	Functions
(1)	Spring connector	Connects to the wired connection connector of the AeroDR Detector or AeroDR UF Cable.

Chapter 3

General Operations

This chapter describes general operation methods of this device.

3.1 • Startup and shutdown

Normally, this device is used with the power on. When not used for more than 1 day, operate the start-up/shutdown as follows.

Reference

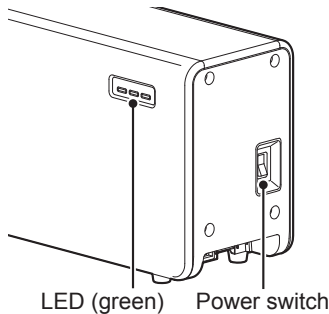
- Refer to the "Operation Manual" of the image processing controller regarding on/off for the image processing controller.

3.1.1 Startup of this device

Startup of this device is performed with the following procedure.

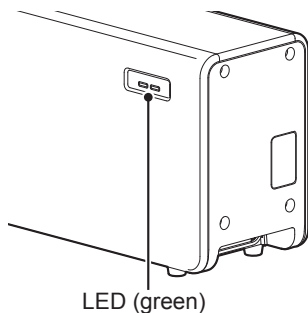
1 Start the AeroDR Interface Unit.

- Turn the power switch of the AeroDR Interface Unit on, and confirm that the LED (green) lights.



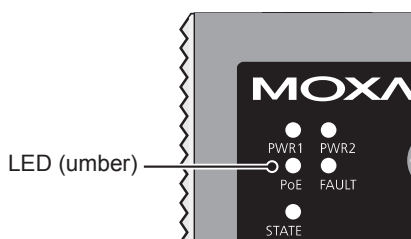
The AeroDR Generator Interface Unit is started.

- When the power switch of the AeroDR Interface Unit is turned on, power is supplied to the AeroDR Generator Interface Unit, and the LED (green) will flash.



The AeroDR Access Point is started.

- When the power switch of the AeroDR Interface Unit is turned on, power is supplied to the AeroDR Access Point, and the LED (umber) on the AeroDR Access Point will light.



HINT

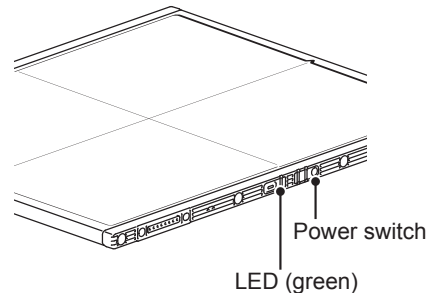
- In Aero Sync mode, the AeroDR Generator Interface Unit is not used.

2 Start the image processing controller.

- Start the image processing controller by turning the power switch of the image processing controller on.

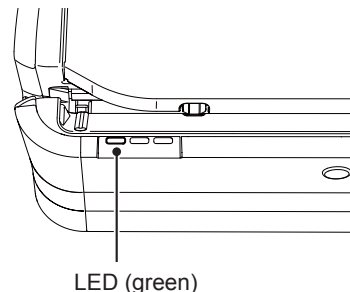
3 Start the AeroDR Detector.

- If the AeroDR Detector is inserted into the AeroDR Battery Charger with a wireless connection, the AeroDR Detector should be removed.
- For a wired connection, confirm that the AeroDR UF Cable or the AeroDR I/F Cable is connected securely to the wired connection connector of the AeroDR Detector.
- Next, press the power switch of the AeroDR Detector for 2 seconds and turn it on, and confirm that the LED (green) is slowly flashing or lit.



4 Start the AeroDR Battery Charger.

- When the power cable is connected to the wall outlet, power of the AeroDR Battery Charger is turned on. Confirm that the LED (green) is slowly flashing.



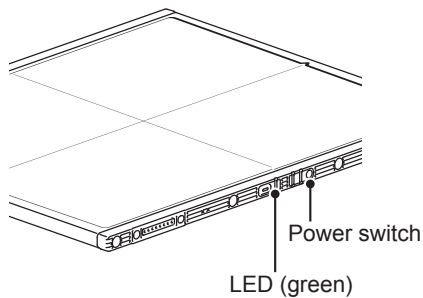
5 Confirm that the AeroDR Detector is ready for use on the image processing controller.

3.1.2 Shutdown of this device

Shutdown of this device is performed with the following procedure.

1 Shut down the AeroDR Detector.

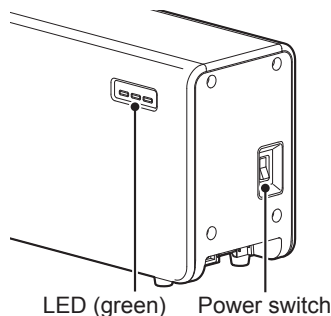
- Press the power switch of the AeroDR Detector for 5 seconds to turn it off, and confirm that the LED (green) is turned off.



2 Shut down the image processing controller.

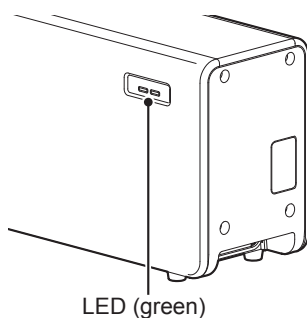
3 Shut down the AeroDR Interface Unit.

- Turn the power switch of the AeroDR Interface Unit off, and confirm that the LED (green) is turned off.



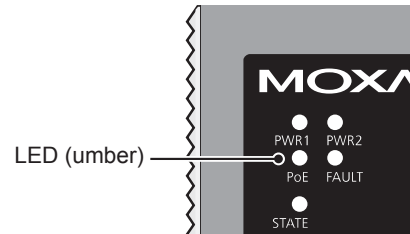
The AeroDR Generator Interface Unit shuts down.

- When the power switch of the AeroDR Interface Unit is turned off, the power supply to AeroDR Generator Interface Unit is terminated. The LED (green) will turn off on the AeroDR Generator Interface Unit.



The AeroDR Access Point shuts down.

- When the power switch of the AeroDR Interface Unit is turned off, the power supply to AeroDR Access Point is terminated. The LED (umber) on the AeroDR Access Point will turn off.

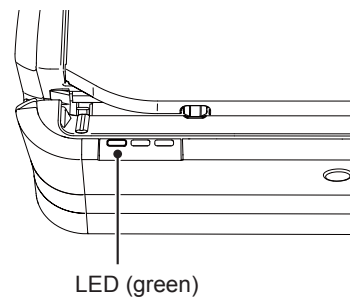


HINT

- In Aero Sync mode, the AeroDR Generator Interface Unit is not used.

4 Shut down the AeroDR Battery Charger.

- When the power cable is removed from the wall outlet, the power of the AeroDR Battery Charger is turned off and the LED (green) is turned off.



3.2 • Operation of AeroDR Detector

3.2.1 Exposure

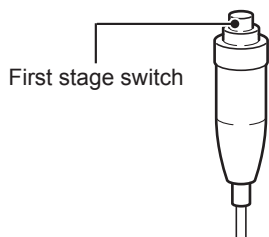
Exposure with this device is performed with the following procedure.

● **Exposure under the basic connection example**

- 1 Perform examination registration with the image processing controller.
- 2 Check that this device is ready to expose images, and then prepare for the exposure.
- 3 Push the exposure switch of the X-ray device to perform the exposure.
 - When the exposure is completed, images are stored in the AeroDR Detector and will then be converted to digital data and sent to the image processing controller sequentially.
- 4 Check that the exposed image is displayed on the image processing controller.

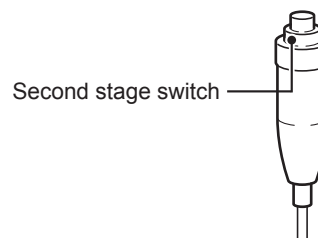
● **Exposure under the S-SRM connection example**

- 1 Perform examination registration with the image processing controller.
- 2 Check that this device is ready to expose images, and then prepare for the exposure.
- 3 Push the S-SRM's hand switch to the first stage.
 - The exposure preparation signal is sent to the X-ray device.



4 Push the S-SRM's hand switch up to the second level to perform exposure.

- Exposure is performed from the X-ray device to produce X-ray images.
- When the exposure is completed, images are stored in the AeroDR Detector and will then be converted to digital data and sent to the image processing controller sequentially.



5 Check that the exposed image is displayed on the image processing controller.

IMPORTANT

- The AeroDR Detector is precision equipment, and therefore impact or vibration during radiography or image transfer may affect the image quality. Be careful when handling the AeroDR Detector during and just after radiography.

.....

HINT

- If the AeroDR Detector remains unused for a long time (time can be set) it transitions to the sleep mode.
- When the image processing controller is ready to expose, it recovers from the sleep mode.

.....

Reference

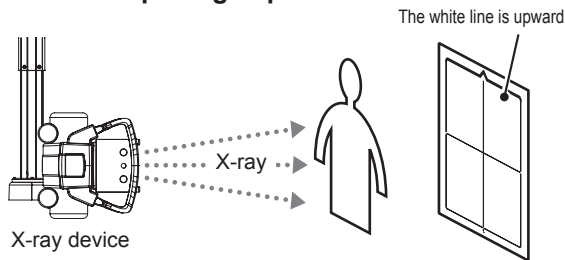
- Regarding the operation of the image processing controller, refer to the "Operation Manual" of the image processing controller.

.....

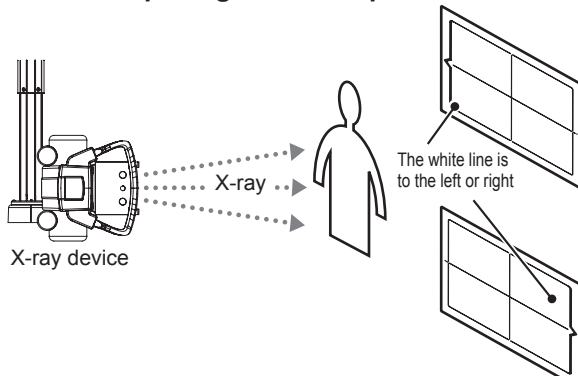
3.2.2 AeroDR Detector orientation

Change the orientation of the AeroDR Detector according to the exposure body part. Expose with the white line upward when exposing in portrait, and with the white line to the side when exposing in landscape.

● When exposing in portrait



● When exposing in landscape



- IMPORTANT**
- The side with the white line is the exposure surface.
 - When exposing in landscape, the direction of the white line is set according to exposure environment.
 - Radiography is not allowed on a subject in a horizontal position when an AeroDR 1717HQ is used.

3.2.3 Precautions for exposure

During exposure give adequate attention to the following items.

● High-dose exposure

- When high-dose exposures are performed continuously, afterimages of the last exposure will occasionally be visible. The affect of afterimages in this device can be resolved by leaving longer intervals between exposures, so make the intervals between exposures longer than usual when performing high-dose exposure.
- During high-dose exposure, continual use of a lead or other marker at the same position can cause burning in of the afterimage. Therefore, avoid using it in the same position. Also, if image burn-in is visible, run gain calibration.

● Exposure time

- Set exposure time to within 700 msec including X-ray irradiation delay time. Otherwise, sometimes it cannot expose normally.

- IMPORTANT**
- Set exposure time to within 800 msec when the Aero Sync mode is used.

- HINT**
- To use an exposure time longer than 700 msec, or to shorten the exposure cycle in Aero Sync mode, contact Konica Minolta technical representatives.

● Exposure area

- The white line of AeroDR Detector indicates the exposure size.
- During exposure, place the exposure body part within the white line.

● Grid

- Use the following grid when exposing.

Grid density	40 lp/cm or 34 lp/cm
Grid ratio	Variety
Convergence distance	Variety
Angle error	40 lp/cm: 1.0° or less 34 lp/cm: 1.7° or less

IMPORTANT

- For an AeroDR 1417S without the "1417S" identification, use a grid with a grid density of 34 lp/cm and an angle error of 0.5° or less.



**AeroDR P-12
(1417S)**

Identification

- When the "Aero Sync mode" is used with the AeroDR 1417HQ, use a grid with a grid ratio of 8 or less.
- A capped grid is recommended when laying the grid over the AeroDR Detector on the table top or for exposure with the portable X-ray diagnostic device.

● **S-SRM connection**

- When S-SRM connection is adopted, make sure to perform exposure using the hand switch connected to the AeroDR Generator Interface Unit.
- If exposure is performed using the hand switch on the operation panel of the X-ray device, exposure synchronized to the AeroDR SYSTEM is not possible.

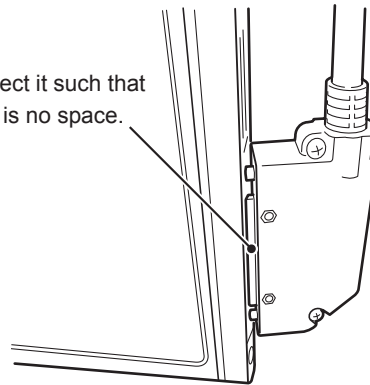
IMPORTANT

- If you restart the image processing controller, also restart the AeroDR Interface Unit.

● **Wired connection**

- When performing exposure with a wired connection, fasten the wired cable horizontally to the wired connection connector of the AeroDR Detector. If connected at an angle, transverse (noise) sometimes gets into acquired images after exposure.

Connect it such that there is no space.



● **Wireless communications environment**

- With a wireless environment, it is possible that errors such as no wireless connection, wireless communication terminates, and lengthened exposure cycle time might occur.

HINT

- Problems with a wireless communications environment can occur in the following conditions:
 - Installed location of the AeroDR Access Point is not good.
 - When inserted in the wall stand, table, or stretcher, the opening in the wall stand or table is too small and there is no passage for the radio waves.
 - The radio waves are not emitted due to metal parts close to the antenna, which changes the antenna characteristics.
 - For exposures where the body touches the AeroDR Detector directly, the radio waves are not emitted if the body completely covers the antennas positioned in 2 places.
 - Other devices use the same radio band, and cause interference.

● **AED (Automated External Defibrillator)**

- When an AED (Automated External Defibrillator) is used, move the AeroDR Detector away from the patient. High voltage and high current may result in a breakdown of the AeroDR Detector.

● **The operating temperature environment of AeroDR Detectors**

- If an AeroDR Detector is left close to or in contact with a heat generator such as electric carpet, its safety device may be activated and the AeroDR Detector may fail to work properly.

● Aero Sync mode

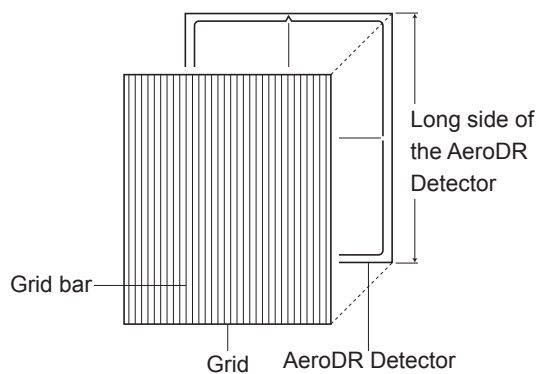
- The only AeroDR Detector that users can use with Aero Sync mode is an AeroDR 1417HQ distinctly identified with the marking "1417HQ". Users cannot use Aero Sync mode with AeroDR 1417S, AeroDR 1717HQ, AeroDR 1012HQ, or models of AeroDR 1417HQ that have serial numbers in which the first four digits and characters are "A45Y".



**AeroDR P-11
(1417HQ)**

Identification

- To use a grid in the Aero Sync mode, set the grid bar and the long side of the AeroDR Detector parallel to one another.



- Do not use additional filters for exposure dose reduction.

3.3 • Charging of AeroDR Detector

Charge the AeroDR Detector when the LED (blue) on the AeroDR Detector lights or flashes, or when the battery level gets low in the status display of the AeroDR Detector on the image processing controller.

IMPORTANT

- During charging, if the AeroDR Detector should become hot, stop charging immediately.
 - If charging errors occur repeatedly, contact Konica Minolta technical representatives.
-

HINT

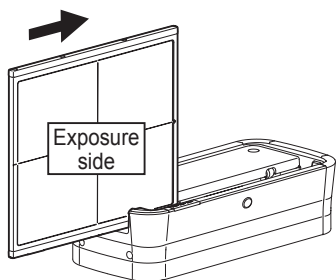
- The AeroDR Detector can be charged when the power is either on or off.
 - The AeroDR Detector can be used while stopping charging in progress.
 - To charge the AeroDR Detector with the AeroDR Battery Charger when you do not use it for a long time such as during the night, charge the AeroDR Detector with its power turned off.
 - Even if you use the battery equipped with this device for repeated quick charging and use, deterioration of battery life is small compared to a lithium-ion battery.
-

3.3.1 Charging with AeroDR Battery Charger

Inserting the AeroDR Detector into the AeroDR Battery Charger performs charging of the AeroDR Detector.

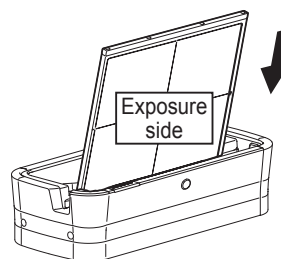
- 1 Confirm that the LED (green) of the AeroDR Battery Charger is slowly flashing.
- 2 Slowly insert the AeroDR Detector with its exposure side pointed toward the operator until the buzzer sounds. When inserted, charging of the AeroDR Detector begins.

Insert from the side

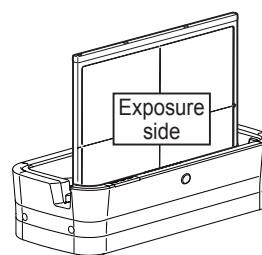


Slide slowly

Insert from the front (top)



Load slowly



Inserted

- 3 Once the AeroDR Detector is inserted correctly and charging starts, the LED (blue) on the AeroDR Battery Charger will light.
- 4 Once charging of the AeroDR Detector is completed, the LED (blue) on the AeroDR Battery Charger will turn off.

IMPORTANT

- Handle the AeroDR Detector with extreme care when inserting it into the AeroDR Battery Charger.
 - The LED of the AeroDR Detector is not visible when the AeroDR Detector is inserted into the AeroDR Battery Charger.
 - The wired connection connector of the AeroDR Detector may become warm right after charging on the AeroDR Battery Charger. This often occurs during charging and is not a malfunction.
 - The AeroDR 1012HQ cannot be charged in the AeroDR Battery Charger.
-

HINT

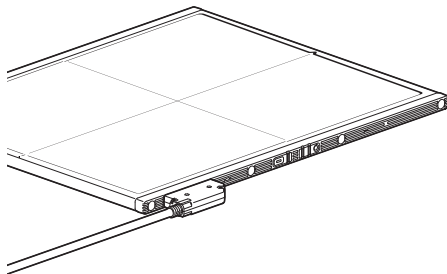
- If there is any problem during charging, the LED (orange) on the AeroDR Battery Charger will light. Also, charging will stop when an error occurs.
-

3.3.2 Charging with the wired cable

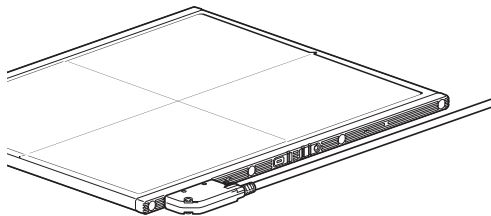
Connecting the AeroDR UF Cable or AeroDR I/F Cable to the AeroDR Detector performs charging of the AeroDR Detector.

- 1 Confirm that the LED (green) of the AeroDR Interface Unit lights.
- 2 Securely connect the AeroDR I/F Cable or AeroDR UF Cable to the wired connection connector on the AeroDR Detector. Once it is connected, the AeroDR Detector will start charging.

When the AeroDR I/F Cable is connected



When the AeroDR UF Cable is connected



- 3 Once the charging of the AeroDR Detector is higher than 10%, the LED (blue) on the AeroDR Detector will go out.

HINT

- Confirm completion of full charge and the level of battery power with the image processing controller.
- If there is any problem during charging, the LED (orange) on the AeroDR Detector will light. Also, charging will stop when an error occurs.

.....

3.3.3 Charging time guide

To fully charge the AeroDR Detector requires the following charging time.

Charging status	Charging time of the AeroDR Detector when the power is off	
	AeroDR 1417HQ, AeroDR 1417S, AeroDR 1717HQ	AeroDR 1012HQ
Via the AeroDR Battery Charger	Approx. 30 min	-
Via wired cable	Approx. 60 min	Approx. 30 min

IMPORTANT

- When the AeroDR Detector is on, the charging time will be slightly longer as it depends on the operation status.

.....

3.3.4 AeroDR Detector charging display

The AeroDR Detector LED (blue) changes according to the level of battery power.

Battery level	LED display
Less than 3% (exposure not possible)	Lit (blue)
Less than 5%	Fast flashing (blue)
Less than 10%	Slow flashing (blue)
10% or more	Off

IMPORTANT

- When the battery runs down completely, all the LEDs go out. Confirm that the LED (green) either lights or flashes when you perform exposure.

.....

3.4 • Registration and selection of the AeroDR Detector

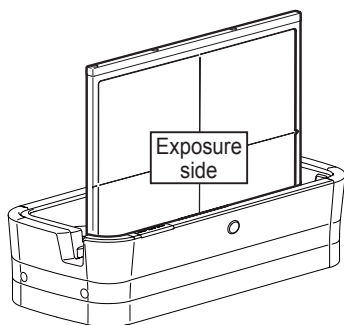
3.4.1 Registration of the AeroDR Detector

By registering the AeroDR Detector on the image processing controller, it is possible to move it between different exposure rooms.

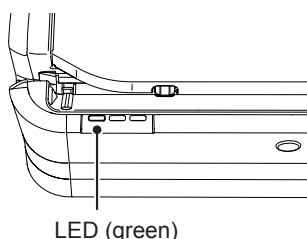
IMPORTANT

- AeroDR 1012HQ cannot be registered with the AeroDR Battery Charger. Use the AeroDR I/F cable to register AeroDR 1012HQ.

- 1 Make sure that all the devices in the destination exposure room are usable.
- 2 Insert the AeroDR Detector into AeroDR Battery Charger in the destination exposure room.
 - Registration process will start.



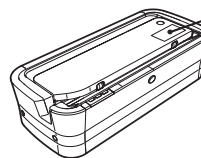
- 3 Once the registration is completed, a buzzer will sound on the AeroDR Battery Charger, and the LED (green) will change from slow flashing to lit.



- 4 Confirm that the AeroDR Detector icon is displayed on the image processing controller.

IMPORTANT

- Once it is registered in a new exposure room, it will not be usable in the previous exposure room. When returning to a previous exposure room, perform the registration operation again.
- When an AeroDR Battery Charger exclusively for charge is used, confirm that the battery charger in the destination has a "Charge and registration" label.



HINT

- Charging will also start when the AeroDR Detector is inserted into the AeroDR Battery Charger, and the AeroDR Battery Charger LED (blue) will light.
- The AeroDR Detector can also be registered by connecting the AeroDR I/F Cable or AeroDR UF Cable.

3.4.2 Selection of the AeroDR Detector

An AeroDR Detector is selected as follows depending on the number registered on each image processing controller.

Number of registered AeroDR Detectors	Selection method
1	<ul style="list-style-type: none"> AeroDR Detector is selected automatically when that AeroDR Detector is ready to be selected. The AeroDR Detector is not selected if it is not set in a wall stand or table that matches the order information.
Multiple	<ul style="list-style-type: none"> The AeroDR Detector that was selected immediately beforehand will be selected automatically if it is ready to be selected. If there is no AeroDR Detector in the wall stand or table that matches the order information, no AeroDR Detector will be selected.

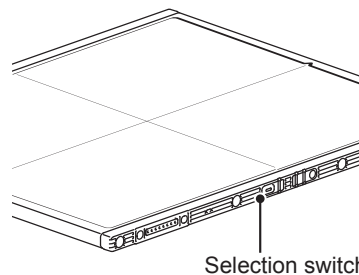
HINT

- The LED (green) of the selected AeroDR Detector is lit.

3.4.3 Manual selection of the AeroDR Detector

Selecting the AeroDR Detector manually is performed with the following procedure.

- 1 Press the selection switch of the AeroDR Detector that will be used.



- 2 After selection is completed, the LED (green) of the AeroDR Detector is lit.

Reference

- The AeroDR Detector can also be selected manually from the image processing controller. For details, refer to the "Operation Manual" of the image processing controller.

3.5 • Calibration

In order for the AeroDR Detector to provide optimal images, perform the following calibration. The calibration is performed with the image processing controller.

IMPORTANT

- It is necessary to perform the gain calibration periodically to compensate for changes over time or changes in the exposure environment.
- Fully charge the AeroDR Detector before the calibration.

Reference

- For the calibration, refer to the "User Tool Operation Manual" or the "Operation Manual" of the image processing controller.

3.5.1 Offset calibration

Every 3 months, acquire 1 unexposed image and perform calibration.

IMPORTANT

- Perform the offset calibration before the gain calibration operation.
- Perform by waiting at least 10 minutes after the previous exposure.
- You do not need to perform offset calibration when using the AeroDR Detector in Aero Sync mode.

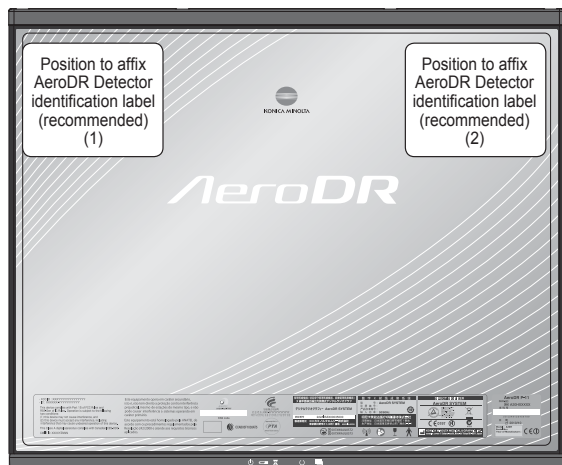
3.5.2 Gain calibration

Every 3 months, acquire multiple exposed images and perform calibration.

3.6 • Position to affix AeroDR Detector identification label

When using more than 1 AeroDR Detector and affixing identification labels (stickers) to the outside of the AeroDR Detectors, it is recommended to affix the labels to the 2 places ((1), (2)) shown as follows.

Position to affix AeroDR Detector identification label



IMPORTANT

- Affix the labels only in the recommended places. Failure to do so may cause the labels to come off or image unevenness to occur.

HINT

- Use of commercially available vinyl (Tepa, etc.) labels are recommended for the identification labels (stickers). When possible, use labels that do not easily peel off.
- It is recommended to write the name and identification number registered in the image processing controller on the label.

Chapter 4





Status (LED) Display

This chapter describes the LED display patterns and the status of the respective devices.

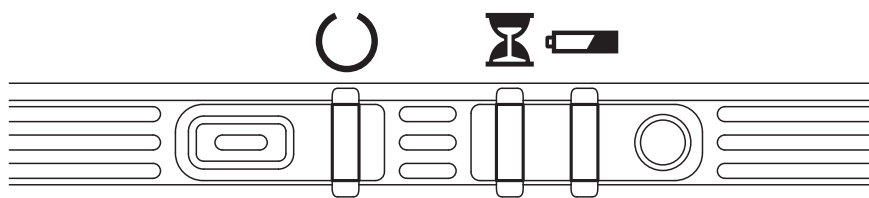
4.1 • LED display of respective devices

Status of the respective devices can be confirmed with LEDs.
Check the status of the respective devices, referring to the "LED display pattern".





LED display pattern

Notation	Display pattern
	Off
	Slow flashing
	Fast flashing
	On

4.1.1 AeroDR Detector






: Status LED (green)

Display pattern	Status
	Shutdown condition
	Standing by
	AeroDR Detector being selected
	Exposing





* During startup/shutdown processing, it also flashes fast and is lit.

: Busy/error LED (orange)

Display pattern	Status
	Shutdown condition or standing by
	Exposing or performing maintenance
	Error occurred

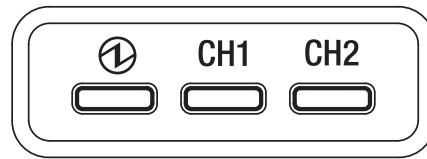
* During startup/shutdown processing, it also flashes fast and is lit.

: Battery LED (blue)

Display pattern	Status
	Shutdown condition or battery level is 10% or above
	Battery level is less than 10%
	Battery level is less than 5%
	Battery level is less than 3%

* During startup/shutdown processing, it also flashes fast and is lit.

4.1.2 AeroDR Interface Unit



① : Power LED (green)

Display pattern	Status
	Shutdown condition
	Operating

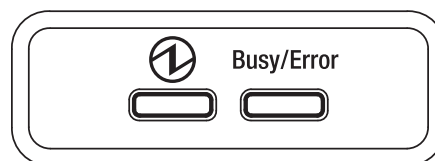
CH1 : Feeding1 LED (blue)

Display pattern	Status
	Shutdown condition or feeding1 is not connected to the AeroDR Detector
	The AeroDR Detector is connected to feeding1

CH2 : Feeding2 LED (blue)

Display pattern	Status
	Shutdown condition or feeding2 is not connected to the AeroDR Detector
	The AeroDR Detector is connected to feeding2

4.1.3 AeroDR Generator Interface Unit



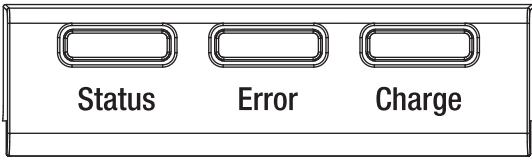
① : Power LED (green)

Display pattern	Status
	Shutdown condition
	Operating and not connected to the image processing controller
	Operating and connected to the image processing controller

Busy/Error : Busy/error LED (orange)

Display pattern	Status
	Shutdown condition or standing by
	Exposing or performing maintenance
	Error occurred

4.1.4 AeroDR Battery Charger



Status : Status LED (green)

Display pattern	Status
	Shutdown condition
	Operating
	Registration processing of the inserted AeroDR Detector is complete

* Because the charger dedicated for charging does not perform registration processing of the AeroDR Detector, the status LED always flashes slowly.

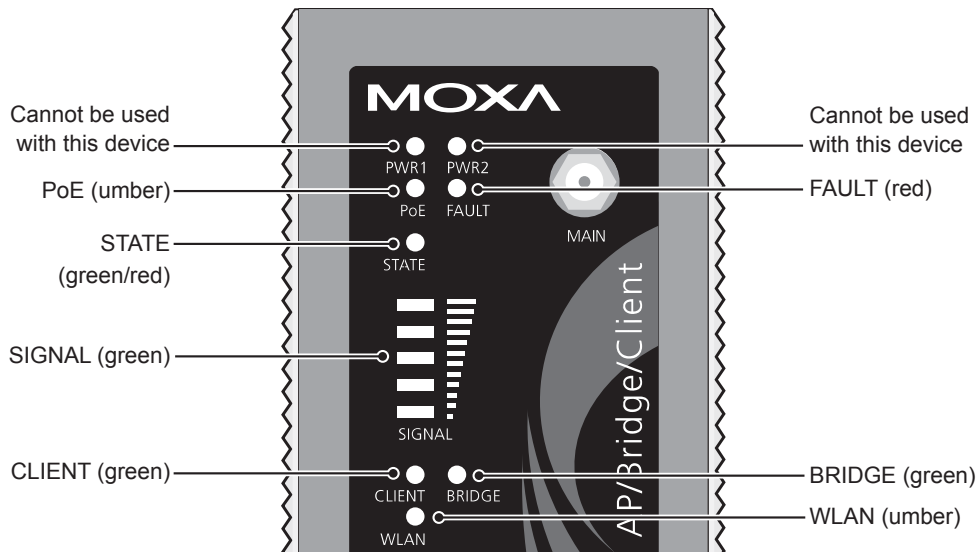
Error : Error LED (orange)

Display pattern	Status
	Shutdown condition or operating normally
	Error occurred

Charge : Feeding LED (blue)

Display pattern	Status
	Shutdown condition or standing by for insertion of the AeroDR Detector Battery charged during AeroDR Detector insertion
	AeroDR Detector battery charging

4.1.5 AeroDR Access Point



LED	Lighting color	Lighting pattern	Status
PoE	Umber	On	Power is being supplied.
FAULT	Red	Flashing	Error is occurring.
STATE	Green/ Red	Green/on	Lights when operation preparation is completed.
		Red/on	Error is occurring.
SIGNAL	Green	On	Signal strength of wireless. (Only in client mode)
BRIDGE	Green	On	Operating in bridge mode.
CLIENT	Green	On	Operating in client mode.
WLAN	Umber	On	Operating in wireless LAN mode. (Normal)

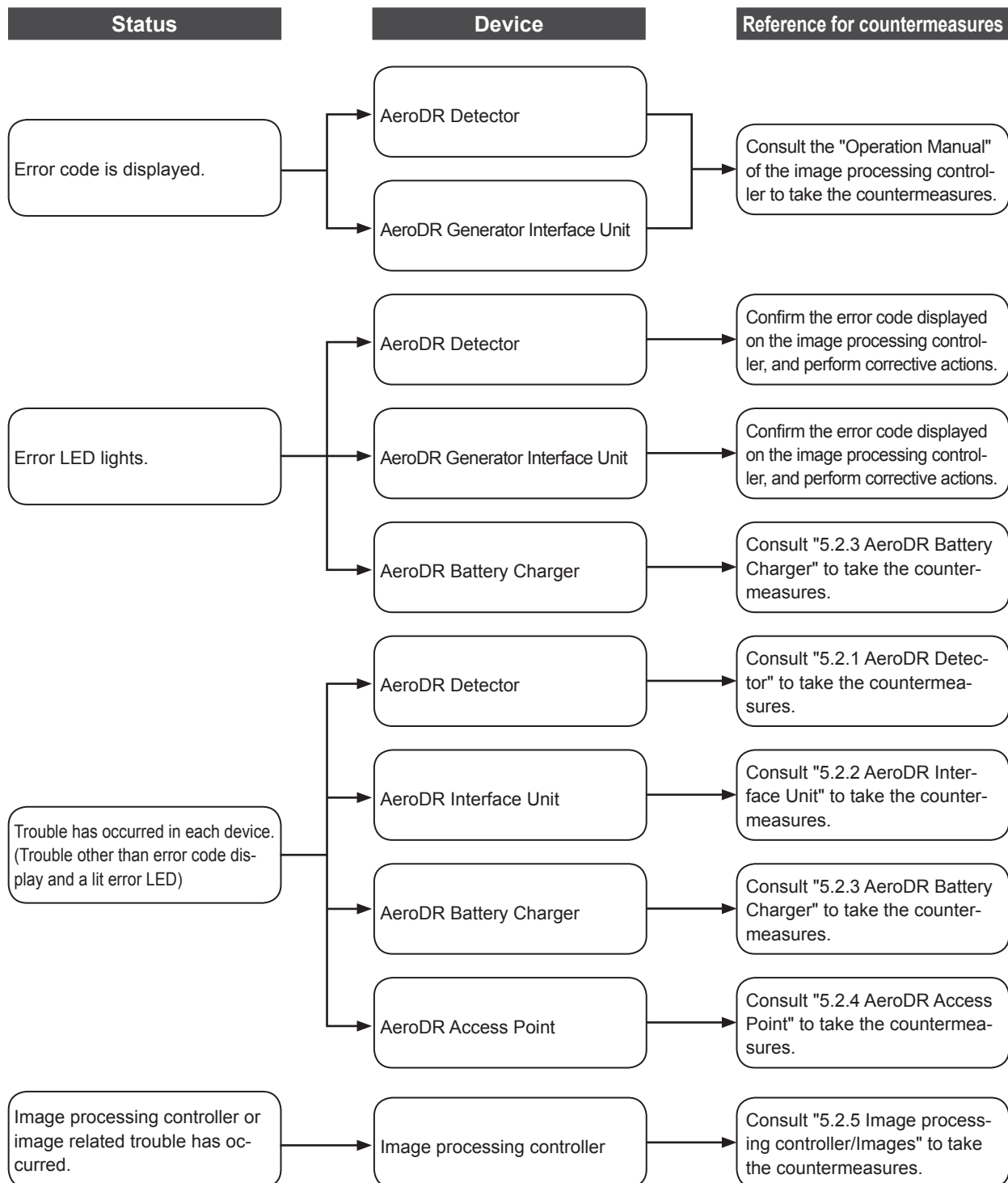
Chapter 5

Troubleshooting

This chapter describes problems that may occur and error codes that may be displayed, and how to resolve each of them.

5.1 • Support flow during trouble

If the following problems occur with any of these devices, consult the respective references for countermeasures.



5.2 • Various problems and countermeasures

If the following problems occur with any of these devices, consult the respective references for countermeasures.



- After performing countermeasures, if the problem does not go away, contact Konica Minolta technical representatives.

5.2.1 AeroDR Detector

Status	Error description	Corrective actions
The AeroDR Detector does not start up.	Power does not go on even when the power switch is pressed for 2 seconds or longer.	The battery might be out. Charge it by inserting the AeroDR Detector into the AeroDR Battery Charger for more than 2 minutes, or connect it to a wired cable for more than 6 minutes. Then start it.
The AeroDR Detector does not shut down.	Power does not go off even when the power switch is pressed for 5 seconds or longer.	It is not possible to shut down while exposing. Shut down after exposure is ended.
The status LED (green) is lit, and the busy/error LED (orange) flashes rapidly. ("Ready" is not displayed on the image processing controller)	System error is occurring.	If a busy/error LED (orange) continues to flash after 10 minutes has elapsed, shut down the AeroDR Detector. Or, when "Ready" is not displayed on the image processing controller, restart it.
When the AeroDR Detector is placed on a smooth surface, the AeroDR Detector is not stably attached to the smooth surface.	AeroDR Detector is warped.	If the AeroDR Detector is still warped even after the detector is placed on a smooth surface, contact Konica Minolta technical representatives.
	The protective cover is deformed.	Contact Konica Minolta technical representatives.
The AeroDR Detector will not go into the wall stand or table.	AeroDR Detector is warped.	If the AeroDR Detector is still warped even after the detector is placed on a smooth surface, contact Konica Minolta technical representatives.
	The protective cover is deformed.	Contact Konica Minolta technical representatives.
The AeroDR Detector cannot be inserted in the AeroDR Battery Charger.	Foreign material is in the wired connection connector of the AeroDR Detector.	Refer to "6.1.2 Cleaning" and remove the foreign material.
	Foreign material is in the bottom of the AeroDR Battery Charger.	
The AeroDR I/F Cable cannot be connected to the AeroDR Detector.	Part of the wired connection connector of the AeroDR Detector is deformed.	Contact Konica Minolta technical representatives.
	The spring connector of the AeroDR I/F Cable is deformed.	
	Foreign material is in the wired connection connector of the AeroDR Detector.	Refer to "6.1.2 Cleaning" and remove the foreign material.
	Foreign material is in the spring connector on the AeroDR I/F Cable.	
The shockwatch changes color to red.	Possible excessive shock to AeroDR Detector.	Contact Konica Minolta technical representatives.
Only wired connection with the AeroDR Detector cannot be used.	The wired cable is not connected properly.	Check that the wired cable is properly connected to the AeroDR Detector.

Continued on the next page

5.2 Various problems and countermeasures

Status	Error description	Corrective actions
Only wireless connection with the AeroDR Detector cannot be used.	There is an error in the AeroDR Access Point.	Check that the Ethernet cable is properly connected to the AeroDR Access Point.
	The AeroDR Detector and AeroDR Access Point are being used under poor conditions. <ul style="list-style-type: none"> • Wireless does not connect • Wireless communication terminates • Cycle time is extended 	Check the installation location of AeroDR Detector and AeroDR Access Point. When performance is noticeably lower than at the initial installation of this device, it is possible that the installation environment/usage environment have changed.
AeroDR Detector wired connection connector is heated up.	AeroDR Detector wired connection connector is heated up immediately after charging with AeroDR Battery Charger.	This is caused by charging and is not a malfunction.
Charging sometimes takes longer.	Charging takes longer when the battery is over discharged.	It takes time for internal components to start. Because it is not abnormal, wait a bit.
Battery LED (blue) flashes fast.	Usage time with the battery has gotten shorter.	It could be that the charging function of the battery has deteriorated. It can be replaced with a new battery for a fee if necessary.
	The number of images that can be exposed has decreased.	
	The charging time has gotten shorter.	
No image is acquired.*	No image appears after X-ray exposure.	(1) Check the following items. <ul style="list-style-type: none"> • Did you perform exposure in "Ready" status? • Are the exposure conditions correct? • Was X-ray output lowered? • Was X-ray voltage set to a lower value? (2) Set the sensitivity setting of the image processing controller to "High" before exposure. If the setting was already at "High", increase the voltage of the X-ray and perform exposure.
Reading has automatically started.*	The machine starts reading the image without X-ray exposure.	(1) Check the following items. <ul style="list-style-type: none"> • Was the AeroDR Detector subjected to strong shocks or vibrations while "Ready" was displayed? • Is the sensitivity setting of the image processing controller correct? (Is the sensitivity setting of the image processing controller [High]?) (2) Use caution to prevent strong shocks or vibrations and restart exposure.
Exposure was performed in a condition other than when the exposure with the image processing controller was possible.*	Exposure was performed when "Ready" was not displayed on the image processing controller. Consequently, a correct image was not acquired.	Wait for one minute or more before starting the next exposure.
	Exposure was performed when "Ready" was not displayed.	Wait for 30 seconds or more before starting the next exposure.

* Troubleshooting in the Aero Sync mode.



- If the exterior or protective cover is damaged extensively, or in the event of the AeroDR Detector being dropped or subjected to shock, contact Konica Minolta technical representatives.

5.2.2 AeroDR Interface Unit

Status	Error description	Corrective actions
Power LED (green) does not light.	AC power not supplied.	Make sure the power cable is connected correctly.
Feeding1/2 LED (blue) does not light.	Feeding1/2 LED (blue) does not light even when connecting the AeroDR Detector.	Make sure that the AeroDR I/F Cable is connected correctly.
Communications are down between devices, and power LED (green) is off.	The power switch is not on. Or, the power cable is not connected.	Make sure the power switch of the AeroDR Interface Unit is on. Or, make sure the power cable is connected correctly.
The AeroDR Detector is being used with wired connection, but it is not recognized on the image processing controller, and feeding1/2 LEDs (blue) are off.	The AeroDR I/F Cable is not connected.	Make sure that the AeroDR I/F Cable is connected to the AeroDR Detector properly.
Battery is not charging while the AeroDR Detector is used with wired connection (the battery level on the battery level display of the image processing controller does not increase), and feeding1/2 LEDs (blue) are off.		

5.2.3 AeroDR Battery Charger

Status	Error description	Corrective actions
Status LED (green) does not light.	AC power not supplied.	Make sure that the power cable is connected correctly.
Error LED (orange) is on.	-	Contact Konica Minolta technical representatives.
When the AeroDR Detector is set, the error LED (orange) lights.	AeroDR Detector was inserted the wrong way.	Check the insertion orientation of the AeroDR Detector.
	The AeroDR Detector is not set correctly.	Make sure that the AeroDR Detector is set correctly.
Although the AeroDR Detector is inserted, charging does not start, and the status LED (green) is out.	AC power not supplied.	Make sure that the power cable is connected correctly.
Although the AeroDR Detector is inserted, it cannot be registered, and the status LED (green) is flashing.	The Ethernet cable is disconnected.	Make sure that the Ethernet cable is connected correctly.

5.2.4 AeroDR Access Point

If a problem occurs in the AeroDR Access Point, contact Konica Minolta technical representatives.

5.2.5 Image processing controller/Images

Status	Error description	Corrective actions
Transverse (noise) has gotten into all images acquired from the AeroDR Detector.	The wired cable is not connected properly.	Connect the wired cable spring connector unit horizontally to the wired connector of the AeroDR Detector.
Operation is normal, but problems can be seen with exposure images.	It has been occurring frequently since a certain time.	Perform calibration.
	There is trouble in only 1 image.	Check the exposure method and image processing.
Cannot expose with the image processing controller.	The image processing controller does not become Ready.	Check the image processing controller start up.
	The icons of devices used on the image processing controller are not displayed.	Confirm that the icon of the device to be used is displayed on the system monitor screen. When the icon of the device is not displayed, check that the device to be used is started. Or, check that the Ethernet cable is properly connected.

5.3 • Types of error codes and recognition methods

5.3.1 Types of error codes

The initial letters have been decided for each type of error code. When an error message has been displayed, check the error description and countermeasures listed in the "Operation Manual" of the image processing controller.

Types	Initial letters	Description
Communication errors	C2	An error has been caused in communications.
Software errors	C3	An error has been caused in the image processing controller.
AeroDR Detector errors	F	An error has been caused in the AeroDR Detector.
AeroDR Generator Interface Unit errors	G	An error has been caused in the AeroDR Generator Interface Unit.
AeroDR Stitching System errors	S	An error has been caused in the AeroDR Stitching System.
REGIUS errors	Numerical value	An error has been caused in the REGIUS series.

Chapter 6

Maintenance

This chapter describes the items that require periodic maintenance.

6.1 • Maintenance and inspection items

This chapter describes the inspections and cleaning required in order to maintain the use of this device in an optimum condition.

6.1.1 Maintenance schedule

The maintenance and inspection items that the user should perform are as follows.

Maintenance task	Maintenance interval
Checking and cleaning the surface of the AeroDR Detector	Weekly
Checking for external damage to the AeroDR Detector	Weekly
Cleaning the spring connectors of the AeroDR I/F Cable and AeroDR UF Cable	Weekly
Cleaning the wired connection connectors of the AeroDR Detector and AeroDR UF Cable	Weekly
Cleaning the AeroDR Battery Charger	Weekly
Full charge of the AeroDR Detector	Monthly
Offset calibration	Every 3 months
Gain calibration	Every 3 months

IMPORTANT

- To ensure optimum use of this device, be sure to perform periodic maintenance.
- The above task intervals are estimates and vary according to usage.
- You do not need to perform offset calibration when using the AeroDR Detector in Aero Sync mode.

Reference

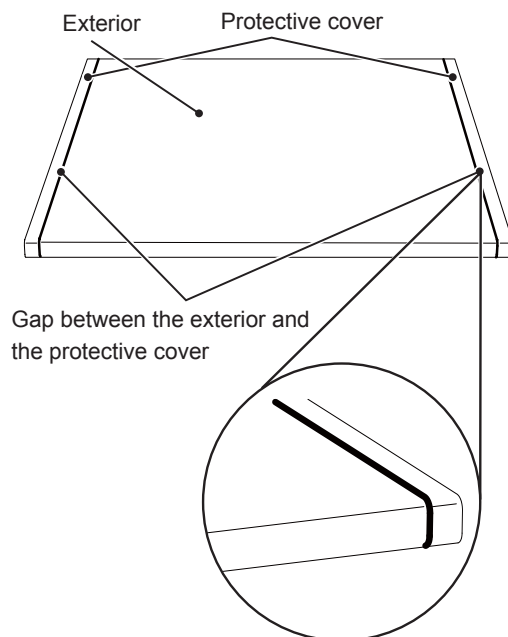
- For the offset calibration and gain calibration, refer to the "User Tool Operation Manual" or the "Operation Manual" of the image processing controller.

6.1.2 Cleaning

The cleaning methods of the respective devices are as follows.

● AeroDR Detector

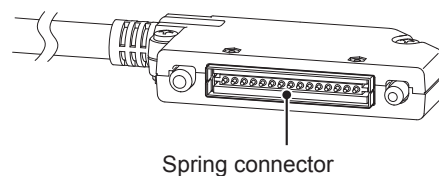
- Clean the exterior with a soft lint-free cloth dampened with a small amount of anhydrous ethanol and wrung well.
- To clean the gap between the exterior of the AeroDR Detector and the protective cover, remove dirt using a commercial plastic brush.



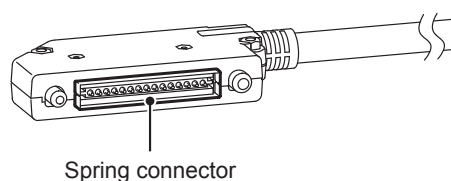
● Spring connector

- If foreign material has adhered to the spring connectors of the AeroDR I/F Cable and AeroDR UF Cable, remove it with a commercial plastic brush.

AeroDR I/F Cable



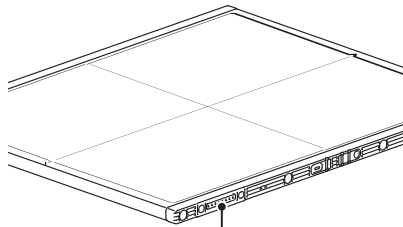
AeroDR UF Cable



● **Wired connection connector**

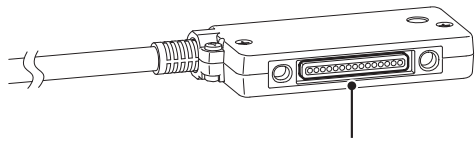
- If foreign material has adhered to the wired connection connectors of the AeroDR Detector and AeroDR UF Cable, remove it with a commercial plastic brush.

AeroDR Detector



Wired connection connector

AeroDR UF Cable

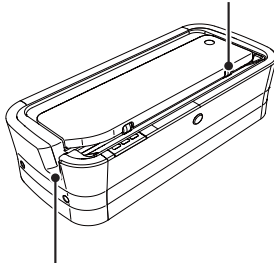


Wired connection connector

● **AeroDR Battery Charger**

- Clean dust on the insert table of the AeroDR Battery Charger with a soft cloth moistened with anhydrous alcohol or water.

AeroDR Detector insert table (front)



AeroDR Detector insert table (side)

IMPORTANT

- Be careful not to apply any cleaning chemical or liquid onto the spring connectors, the wired connection connectors, and the LEDs.
- Do not clean with sharp or hard metal objects. If you cannot remove stains, contact Konica Minolta technical representatives.
- Wear and deformation of the protective cover will occur with the AeroDR Detector due to the way it is handled. The protective cover can be replaced for a fee when the damage becomes extensive, so contact Konica Minolta technical representatives.

6.1.3 Disinfection of the AeroDR Detector

If bodily fluid or blood from a patient has contaminated the surface of the AeroDR Detector, disinfect with a soft lint-free cloth dampened with a small quantity of the following disinfectant and wrung well.

- Ethanol for disinfection
- Isopropanol for disinfection
- Commercial chlorine bleach, or 0.5% hypochlorite (10-fold dilution of household bleach)

IMPORTANT

- Bleach and hypochlorite are corrosive, so wash the bleach off well to avoid corrosion.
- Be careful not to apply any chemical for disinfection onto the wired connection connectors and the LEDs.

Chapter 7

Specifications

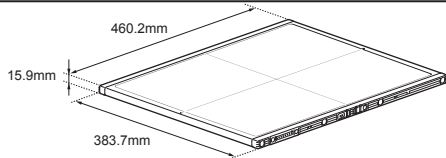
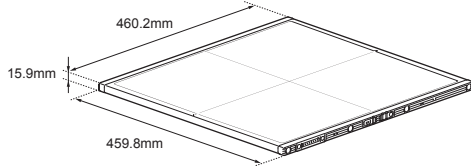
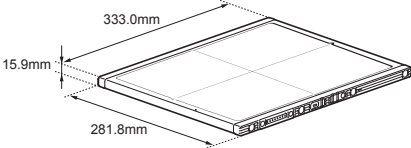
This chapter describes the specifications of this device.

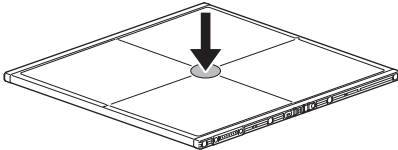
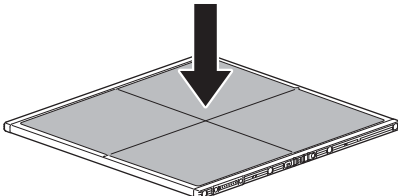
7.1 • Specifications

IMPORTANT

- The performance described below is nominal values and may vary depending on environment and frequency of use. (These are not to provide any guarantees.)
- All specification regarding battery is for a fully-charged battery.

7.1.1 AeroDR Detector

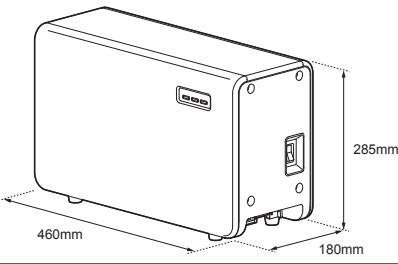
Item	Description
Product name (model name)	AeroDR 1417HQ (AeroDR P-11) AeroDR 1417S (AeroDR P-12) AeroDR 1717HQ (AeroDR P-21) AeroDR 1012HQ (AeroDR P-31)
Detection method	Indirect conversion method
Scintillator	CsI (Cesium Iodide)
External dimensions	<p>AeroDR 1417HQ/AeroDR 1417S 383.7(W)×460.2(D)×15.9(H)mm</p>  <p>AeroDR 1717HQ 459.8(W)×460.2(D)×15.9(H)mm</p>  <p>AeroDR 1012HQ 281.8(W)×333.0(D)×15.9(H)mm</p> 
Weight	AeroDR 1417HQ: 2.9kg AeroDR 1417S : 2.8kg AeroDR 1717HQ: 3.6kg AeroDR 1012HQ: 1.7kg
Pixel size	175 um
Image area size	AeroDR 1417HQ/AeroDR 1417S: 348.95×425.25mm (1,994×2,430 pixels) AeroDR 1717HQ: 424.9×424.9mm (2,428×2,428 pixels) AeroDR 1012HQ: 245.7×296.8mm (1,404×1,696 pixels)
AD conversion	16 bit (65,536 gradients)
Usable grid frequency	40lp/cm, 34lp/cm * For details, refer to " 3.2.3 Precautions for exposure".

Item	Description
Maximum patient weight	<p>Point load: 150kg@Φ40mm</p>  <p>Face load: 300kg@effective image area overall</p>  <p>* Deadweight, even when loaded on the AeroDR Detector, has no effect on images and the AeroDR Detector. The measurement method is based on KM standards.</p>
Communication	Dedicated wired Ethernet connection / wireless LAN (IEEE802.11a compliant)
Drive power	Dedicated power cable drive / battery drive
WLAN encryption	Wireless encryption method : AES Authentication method : WPA2-PSK
Dynamic range	4 digits
Required time for wired/wireless switching	Less than 2 seconds
Battery type	Lithium ion capacitor
Battery charging time empty to full	<p>AeroDR 1417HQ/AeroDR 1417S/AeroDR 1717HQ: Within 30 minutes (When using the AeroDR Battery Charger) Within 60 minutes (When using the dedicated wired cable)</p> <p>AeroDR 1012HQ: Within 30 minutes (When using the dedicated wired cable)</p>
Number of exposable images	<p>AeroDR 1417HQ/AeroDR 1417S: 200 images/5.5 hours AeroDR 1717HQ: 173 images/4.8 hours AeroDR 1012HQ: 132 images/3.7 hours</p> <p>* Under conditions that the interval between studies is five minutes and three images are captured in each study, assuming 20 seconds for each exposure to position a patient (when connected to the CS-7 image processing workstation).</p>
Battery duration in standby status	<p>AeroDR 1417HQ/AeroDR 1417S: Approx. 16 hours AeroDR 1717HQ: Approx. 15 hours AeroDR 1012HQ: Approx. 7.3 hours</p>
Battery expected lifetime	Above the AeroDR Detector Service life

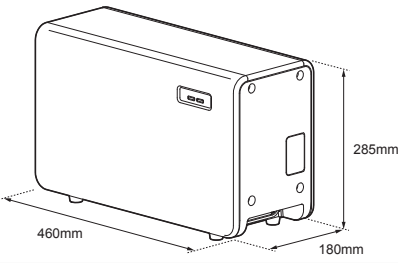
7.1.2 AeroDR Interface Unit

Item	Description
Product name (model name)	AeroDR Interface Unit (AeroDR B-1)
Amount of connectable AeroDR Detectors	Wired connection: Up to 2 Wireless connection: Up to 4 AeroDR Access Point is necessary when operating wireless.
Power requirements	AC 100/110/115/120/200/220/230/240 V ± 10%, single phase 50/60 Hz
Power consumption	With the AeroDR Detector connected : Approx. 80 VA (100-240 V) Without the AeroDR Detector connected: Approx. 33 VA (100-240 V)

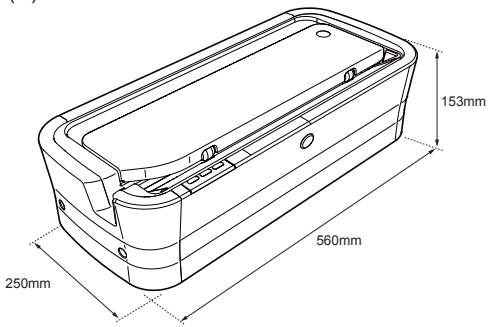
7.1 Specifications

External dimensions	460(W)×180(D)×285(H)mm 
Weight	11.5 kg

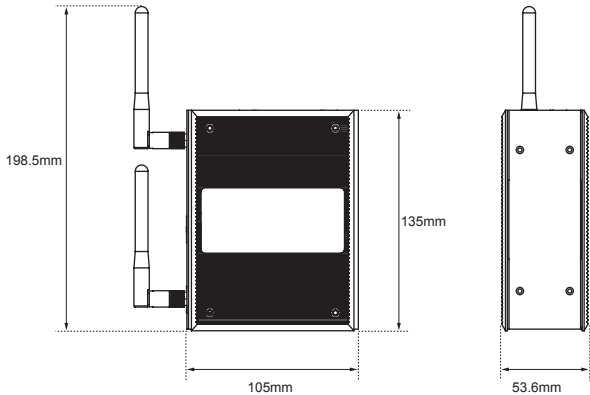
7.1.3 AeroDR Generator Interface Unit

Item	Description
Product name (model name)	AeroDR Generator Interface Unit (AeroDR X-1)
Power supply	Supplied from the AeroDR Interface Unit via the Ethernet cable.
External dimensions	460(W)×180(D)×285(H)mm 
Weight	7.3 kg

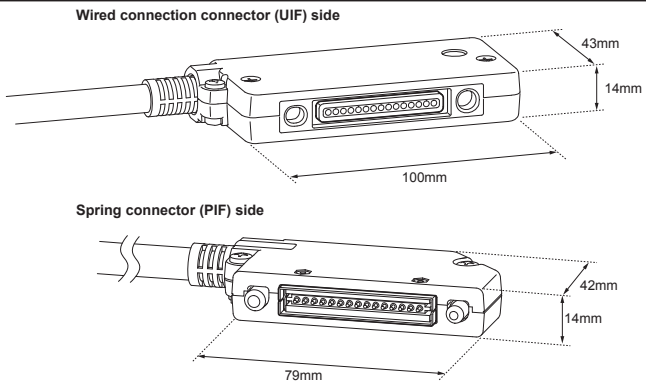
7.1.4 AeroDR Battery Charger

Item	Description
Product name (model name)	AeroDR Battery Charger (AeroDR D-1)
Battery charging system	Automatic charging
Power requirements	AC 100/110/115/120/200/220/230/240 V ± 10%, single phase 50/60 Hz
Power consumption	Charging: Approx. 161 VA (100-240 V) Standby : Approx. 25 VA (100-240 V)
External dimensions	560(W)×250(D)×153(H)mm 
Weight	7.2 kg

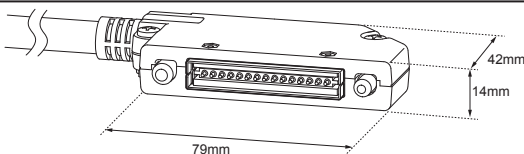
7.1.5 AeroDR Access Point

Item	Description
Product name (model name)	AeroDR Access Point (AeroDR C-1)
External dimensions	53.6(W)×135(H)×105(D)mm (without antenna) 
Weight	850g

7.1.6 AeroDR UF Cable

Item	Description
Product name	AeroDR UF Cable
Cable length	2m/5m
External dimensions	

7.1.7 AeroDR I/F Cable

Item	Description
Product name	AeroDR I/F Cable
Cable length	10m/20m
External dimensions	

7.1.8 AeroDR XG Cable



















Item	Description
Product name	AeroDR XG Cable Set 100V AeroDR XG Cable Set 120V AeroDR XG Cable Set 220V AeroDR XG Cable Set 230V AeroDR XG Cable Set 240V AeroDR XG Cable Set DC24V

7.1.9 AeroDR S-SRM Cable

Item	Description
Product name	AeroDR S-SRM Cable GEX1 AeroDR S-SRM Cable CPX1 AeroDR S-SRM Cable PKX1 AeroDR S-SRM Cable DEX1 AeroDR S-SRM Cable HIX1 AeroDR S-SRM Cable TOX1 AeroDR S-SRM Cable PHX1 AeroDR S-SRM Cable DEX2 AeroDR S-SRM Cable TOX2 AeroDR S-SRM Cable TOX3 AeroDR S-SRM Cable TOX4 AeroDR S-SRM Cable NC AeroDR S-SRM Cable QTX1 AeroDR S-SRM Cable ARX1

- AeroDR S-SRM Cable is subject to change without notice.

7.1.10 General AeroDR SYSTEM

Item	Description					
Recommended storage and usage environment conditions	When operating	<table border="1"> <thead> <tr> <th>Temperature</th> <th>Humidity</th> </tr> </thead> <tbody> <tr> <td>10 to 30°C </td> <td>35 to 80% RH (ensure no water condensation) </td> </tr> </tbody> </table>	Temperature	Humidity	10 to 30°C 	35 to 80% RH (ensure no water condensation) 
	Temperature	Humidity				
	10 to 30°C 	35 to 80% RH (ensure no water condensation) 				
When not operating	<table border="1"> <thead> <tr> <th>Temperature</th> <th>Humidity</th> </tr> </thead> <tbody> <tr> <td>-10 to 40°C </td> <td>20 to 90% RH (ensure no water condensation) </td> </tr> </tbody> </table>	Temperature	Humidity	-10 to 40°C 	20 to 90% RH (ensure no water condensation) 	
Temperature	Humidity					
-10 to 40°C 	20 to 90% RH (ensure no water condensation) 					
In storage/transport	<table border="1"> <thead> <tr> <th>Temperature</th> <th>Humidity</th> </tr> </thead> <tbody> <tr> <td>-20 to 60°C* </td> <td>20 to 90% RH (ensure no water condensation) </td> </tr> </tbody> </table> <p>* However, performance warranty period when storing at 60°C is 6 months after packing.</p>	Temperature	Humidity	-20 to 60°C* 	20 to 90% RH (ensure no water condensation) 	
Temperature	Humidity					
-20 to 60°C* 	20 to 90% RH (ensure no water condensation) 					
Classification	Safety IEC60601-1 Class I					
Operation mode	Continuous operation					



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