FUJIFILM

FDR ES

(DR-ID1270)

Operation Manual

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This Operation Manual describes details on how to operate the DR-ID1270 and cautions to be observed when operating it.
After reading this manual, store it nearby the DR-ID1270 so that you can see it whenever necessary.

FUJIFILM Corporation

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Introduction

DR-ID1270 is an X-ray equipment which acquires a general radiograph from the indirect-conversion flat panel sensor.

Indications for use (for U.S.)
The Wired/Wireless FDR ES (DR-ID1270) flat panel sensor system is intended to capture for display radiographic images of human anatomy. It is intended for use in general projection radiographic applications including pediatric and neonatal exams wherever conventional film/screen or CR systems may be used. It is not intended for mammography, fluoroscopy, tomography, and angiography applications.

Intended Use (for European Union and other countries.)
The Fujifilm DR-ID1270 provides digital image capture for radiographic examinations. It is intended for use in general projection radiographic applications wherever conventional screen-film systems or CR systems may be used. DR-ID1270 is a device that provides images, which diagnostic image process is not implemented, to image collecting console. It is not designed for mammography, fluoroscope, tomography or angiography.

Note : The above statements were determined by applicable medical device regulations which vary throughout the world. These statements are subject to revision when additional clearance or approval is obtained.

DR-ID1270 consists of flat panel sensors (DR-ID1271SE/DR-ID1272SE/DR-ID1273SE/DR-ID1274SE/DR-ID1275SE), software for the control cabinet.

DR-ID1271SE, DR-ID1272E, DR-ID1273SE, DR-ID1274SE and DR-ID1275SE :
Wireless communication mode or wired communication mode is available. When used in wireless communication mode, an access point and battery pack (optional) are required.
Each flat panel sensor complies with IEC 62220-1 (MEDICAL ELECTRICAL EQUIPMENT - CHARACTERISTICS OF DIGITAL X-RAY IMAGING DEVICES -) as a general X-ray radiography equipment.

The detector of flat panel sensors features 150 micron pixel pitch, a wide 16-bit dynamic range and exposure times up to 3.8 seconds.

This Operation Manual includes descriptions of matters necessary when using the DR-ID1270 such as the equipment overview, operation procedures and precautions to observe, as well as daily inspections and maintenance.

Accompanying documents were originally drafted in the English language.

Installation may only be conducted by authorized service personnel.

CAUTIONS

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2. **The information contained in this manual may be subject to change without prior notice.**
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This system is classified as a medical device under EC Directive 93/42/EEC.

Process waste correctly, as stipulated by local law or any regulations that apply.

Caution : Rx Only in the United States (Federal law restricts this device to sale by or on the order of a physician.)

Open-Source Software Contained in This Product

This product contains third party's software that is made available as open source software or free software.

This software is provided "as is" with no warranty of any kind as to its merchantability or fitness for any particular purpose.

For the information on open source software contained in this product, please see the attached DVD. Source codes for certain type of open source software used in this product are available at delivery cost.

If you would like to receive such source codes, please contact FUJIFILM dealer or the service representatives at the agency from which you purchased this product. (Please be noted that any inquiries concerning the contents of source codes should be directed to original licensors of open source software.)

Note : FUJIFILM has successfully performed verification and validation testing on all third party software and has confirmed its suitability to be used in this system.

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Chapter 1 For Safe Operation

1.1 Safety

Before using the DR-ID1270, read this section thoroughly to ensure that you use the product properly.

Electric Shock Warnings and Cautions

WARNING

This product is internal power supply equipment.
To avoid electric shocks, users should always take the following precautions:
- **Do not open any covers when it is not necessary.**
- **Install the equipment in a location where it will not be exposed to water.**

WARNING

Do not touch the patient's body while touching the control cabinet and the image processing unit. Otherwise, the patient may receive an electric shock.

WARNING

Do not use a multiple tap connector or extension cable for powering the devices constituting the system. Otherwise, fire or electric shock may occur due to the electrical load exceeding the allowable limit.

WARNING

Observe the following precautions when using the cables.
- **Do not touch the plug and connector with wet hands. Otherwise, electric shock may result, causing death or severe injury.**
- **Hold the plug or connector when removing the cable.**
  Pulling the cable or carrying by holding it may damage the cable, causing fire or electric shock.
- **Do not damage or remodel the cable.**
  Do not place a heavy object on the cable or lay it under the flat panel sensor. Do not step on, pull, forcibly bend, or bundle the cable. Otherwise, fire or electric shock may result.
- **Do not use the flat panel sensor for the radiographic examination stand if its cable becomes overloaded. Otherwise, the cable may be damaged, causing fire or electric shock.**

WARNING

Do not turn on the system with dew condensation on the flat panel sensor. Otherwise, fire or electric shock may result.

WARNING

Do not use the equipment in a location where metal particles could come into the equipment. This may cause an electric shock.

WARNING

Do not disassemble or remodel the equipment. Otherwise, fire or electric shock may result. Keep away from the parts inside the product, which may cause electric shock. If you touch them accidentally, death or severe injury may result.

WARNING

Do not hit or drop the equipment or subject it to severe shock. Otherwise, the equipment may be damaged. If the damaged equipment is used, fire or electric shock may result.
In addition, do not apply strong pressure onto the flat panel sensor.
If applied, the flat panel sensor deforms and the waterproof function may be compromised.

WARNING/AVERTISSEMENT

Do not use the flat panel sensor without the battery packs. If the battery packs are not attached, an electric shock may result.

N'utilisez pas le détecteur à panneau plat sans les batteries. Si les batteries ne sont pas connectées, un choc électrique risque de se produire.

WARNING

Make sure to use the optional parts recommended by us. Failure to use the optional parts recommended by us may result in damage to the equipment and/or electric shock and injury.

CAUTIONS

As the cables of the equipment are long, be careful not to entangle the cables during use. Also, be careful not to trip over the cables. Falls could result in injury.

CAUTIONS

Do not store magnetic media near the DR system and control cabinet. Otherwise, magnetism generated by the equipment may cause the data to be lost.

CAUTIONS

Keep the equipment away from patient's body fluids, chemicals, water, etc.
Otherwise, it may become damaged, causing fire or electric shock.
If necessary, protect the flat panel sensor by covering it with a disposable bag.

Explosion Warnings

WARNING

Because this equipment is not explosion-proof, do not use combustible and explosive gases near the equipment.

WARNING

Flammable gasses may stay in the room after disinfection. If you turn the system on just after disinfection, ensure that the room is well ventilated before powering on the system.

Warnings for Abnormalities

WARNING

If any of the following occurs, immediately turn off the power of each unit, unplug the power cable from the outlet, and then contact our official dealer or FUJIFILM Representative.

- **When smoke, strange odor, or abnormal sound is present.**
- **When a foreign object (such as a metal object) or liquid enters the product.**
- **When the equipment is dropped or hit and is damaged.**

Avertissements relatifs aux anomalies

AVERTISSEMENT

Si l'une des conditions répertoriées ci-après se produit, mettez immédiatement chaque unité hors tension, débranchez le cordon d'alimentation de la prise secteur, puis contactez notre revendeur agréé ou notre représentant FUJIFILM.

- **En cas de présence de fumée, d'une odeur étrange ou d'un bruit anormal.**
- **En cas de pénétration d'un corps étranger (comme un objet métallique) ou d'un liquide dans le produit.**
- **En cas d'endommagement de l'équipement suite à une chute ou à un impact.**

Installation Precautions

CAUTIONS

Do not install the equipment in a location with the following conditions.

- **Where the temperature changes sharply.**
- **Close to heat sources such as a heater.**
- **Where the equipment may be exposed to water due to water leakage or ingress.**
- **Where corrosive gas may be generated.**
- **Where there is excessive dust.**
- **Where the equipment is subject to frequent or excessive vibration/shock.**
- **Where the equipment is exposed to direct sunlight.**
- **Where there is no ventilator.**

CAUTIONS

When the power supply unit is installed, be sure to use the Retaining bracket for MP or fixing metal fittings to prevent its overturning.

CAUTIONS

Use the equipment on a flat place. If the equipment falls, it may cause damage to the equipment or personal injury.

CAUTIONS

When you move the equipment, place it in the cassette storage box of a mobile X-ray unit or hold it by hand to prevent it from falling. If the cart is used to move the equipment, place it horizontally.

CAUTIONS

For veterinary or mobile applications, contact our official dealer or FUJIFILM Representative.

CAUTIONS

When the devices are used outdoors in wireless communication mode, contact our official dealer or FUJIFILM Representative.

CAUTIONS/ATTENTION

Do not place any object in a place where removal of the power cable is prevented.

Ne placez aucun objet à un emplacement gênant le débranchement du câble d'alimentation.

CAUTIONS

To ensure optimal image quality, it is recommended that you do not use the flat panel sensor near devices (motor, transformer, switching supply, etc.) that generate electromagnetic noise.

CAUTIONS

To ensure optimal image quality, it is recommended that you do not place the cables (power cable, communication cable, etc.) of the equipment near devices (motor, transformer, switching supply, etc.) that generate electromagnetic noise and their cables.

CAUTIONS

Do not install the power supply unit in a place where it may be contacted inadvertently. In addition, take care not to make contact with the power supply unit except when operating the main switch. If the fan inside the power supply unit malfunctions, the power supply unit may become hot, causing injury.

Connection Instructions

WARNING

Make sure that the devices to be connected to the equipment are authorized for connection.

WARNING

Connect the panel unit DR-ID1270 only to the access point, image processing unit or the control cabinet.

Precautions on External Network Connection

CAUTIONS

When a setting of the network to which the equipment is connected has been changed, check that the change does not affect the system operation and take measures if necessary. The setting change may include the following:

- **Change of connection destination**
- **Addition of devices**
- **Removal of devices**
- **Update of devices**
- **Upgrade of devices**

Warnings and Cautions on Network

WARNING

Make sure to use the optional parts and networks recommended by us. Failure to use the optional parts and networks recommended by us may result in damage to the equipment and/or electric shock and injury.

CAUTIONS

Connect to the Ethernet Network of 100BASE-TX or 10BASE-T prescribed in the IEEE standard 802.3. Do not connect telephone lines to LAN connector. Only UTP-type straight LAN cables of 4-pair Category 5 cable (CAT 5E) or higher are appropriate for connection to this connector.

CAUTIONS

After connecting this system to the network with other systems,confirm that the other systems are not affected. If they are affected, take countermeasures such as network separation.

System Isolation Instructions

WARNING

To ensure complete system isolation, never install any unauthorized items.
When it is necessary to install authorized optional items, contact our official dealer or FUJIFILM Representative.

WARNING

Keep the products other than those used for patients out of their reach to ensure appropriate system isolation.
For details on the products that can be installed in the patient environment, see “2.1.1 System Configuration”.

WARNING

In normal use, have a patient take a proper positioning for exposure. The operator should operate the system in a place where safety from radiation is ensured. The operator should also make sure before exposure that no one but the patient is in the exposure area and the operating area of the system.

Software Precautions

CAUTIONS

Do not install additional software to the system. Do not uninstall any of the software preinstalled in the system.
The system is preinstalled with the appropriate software. If other software is installed or if the existing software is uninstalled, various operational errors may result.

Disinfection Instructions

WARNING

Confirm that the respiratory density of disinfectant including solvent is under legal regulation. Certain disinfectants may damage health. When using a disinfectant, follow instructions supplied by the manufacturers.

WARNING

Do not use the following disinfectants or sterilizers at the time of disinfection. Quality, performance and safety of the equipment cannot be assured.

- **Chloric disinfectant which is strongly corrosive to metals and rubber parts.**
- **Disinfectant whose uses on metals, plastics, and coating are forbidden according to the instructions supplied with the disinfectant.**
- **Formalin gas and disinfectant sprays that may get inside the equipment.**

Disinfectant ethanol is recommended for disinfection. Carefully read the instructions and cautions supplied with the disinfectant before use.
For details on the disinfectant, contact a FUJIFILM dealer or the service representatives at the agency from which you purchased the disinfectant.
For details of the ultraviolet sterilizers, see the each operation manual of DR-ID1271SE/ DR-ID1272SE/DR-ID1273SE/DR-ID1274SE/DR-ID1275SE, Power supply unit or Power box.

CAUTIONS

If the sensor unit of the flat panel sensor is not disinfected, it may lead secondary infection. Clean the sensor unit of the flat panel sensor with ethanol for disinfection, etc. for each patient to prevent infection.

Precautions for Charging the Battery Pack

CAUTIONS

- **Use the battery charger recommended by FUJIFILM Corporation.**
  For details on operations, refer to the instruction manual for the battery charger.
- **Do not charge the battery pack near fire or under strong sunshine. If the built-in protection mechanisms are activated by a high temperature, the battery pack cannot be charged. Also, if the built-in protection mechanisms are damaged, the battery pack may be charged with extremely high current and voltage, and abnormal chemical reactions may occur inside the battery pack, causing it to overheat, emit smoke, explode or ignite.**
- **To charge the battery pack, be sure to use the designated battery charger and to observe the charging conditions specified by FUJIFILM Corporation. If the battery pack is charged in other conditions (temperature or voltage/current higher than specified, remodeled battery charger, etc.), the battery pack may be overcharged or charged with extremely high current, and abnormal chemical reactions may occur inside the battery pack, causing it to overheat, emit smoke, explode or ignite.**
- **Immediately stop charging the battery pack, if charging is not completed within the specified time. Otherwise, the battery pack may overheat, emit smoke, explode or ignite.**
- **Do not use the flat panel sensor near the power cable.**
- **Do not use a faulty or broken battery charger or AC adapter.**
- **Note that the flat panel sensor cannot be charged by using the SE communication cable that connects the flat panel sensor and the access point (optional).**

Battery Pack Instructions

⚠ WARNING

- **Battery pack requires regular checkup and replacement. Battery capacity begins to wane after a period of time.**
- **If this equipment is not in use for while, store it with the battery pack removed. Not removing the battery pack may cause malfunction.**

⚠ CAUTIONS

Observe the following precautions when using the battery pack (optional).

- **The battery pack (125Y200011) is used with the flat panel sensor. Do not use them in other combinations.**
- **Charge the battery pack only with the designated battery charger. If the battery pack is charged under the charging conditions (voltage, current and charging method) different from those specified by FUJIFILM Corporation, the battery pack may emit smoke, ignite, explode or leak fluid.**
- **Store the battery pack in a cool and dark place. Recharge the stored battery pack every six months or every year. Otherwise a decrease in battery capacity or other problems may result.**
- **Do not leave the removed battery pack in the car or other places exposed to high temperature. If the battery pack is used or stored in a place where it is exposed to high temperature, the battery pack may emit smoke, ignite, explode or leak fluid.**
- **Use or store the battery pack only in the environmental conditions specified by FUJIFILM Corporation. If the battery pack is used or stored in a place where it is exposed to high temperature, the battery pack may emit smoke, ignite, explode or leak fluid.**
- **When disposing of the battery pack, consult our official dealer or FUJIFILM Representative.**
- **Do not disassemble or remodel the battery pack. The battery pack is equipped with built-in safety and protection mechanisms. If they are damaged, the battery pack may overheat, emit smoke, explode or ignite.**
- **Be careful not to drop the battery pack. The patient may be injured.**
- **Do not touch the terminal of the battery pack directly. There is a risk of electric shock.**
- **Do not connect the positive (+) and negative (-) terminals with a wire or any metal object. Do not carry or store the battery pack together with metal objects such as necklaces or hairpins. Otherwise, the battery pack may short-circuit and overcurrent may flow, causing the battery pack to overheat, emit smoke, explode or ignite. Metal objects such as necklaces or hairpins may also become hot.**
- **Do not throw the battery pack into fire or expose it to excessive heat. Otherwise, its insulator may melt, its gas release vent or safety mechanisms may be damaged, and/or its electrolyte may catch fire, causing the battery pack to overheat, emit smoke, explode or ignite.**
- **Do not use or leave the battery pack in a place where it is exposed to high temperature (80°C or higher), such as fire or a heater. If the resin separator is damaged due to heat, the battery pack may short-circuit, causing it to overheat, emit smoke, explode or ignite.**
- **Do not immerse the battery pack in water or seawater, and do not allow it to become wet. If the built-in protection mechanisms are damaged, the battery pack may overheat, emit smoke, explode or ignite.**
- **Do not pierce the battery pack with a nail, hit it with a hammer, or step on it. Otherwise, the battery pack may be damaged or deformed and short-circuit, causing it to overheat, emit smoke, explode or ignite.**
- **Do not subject the battery pack to strong impact or throw it. If the built-in protection mechanisms are damaged, the battery pack may be charged with extremely high current and voltage, and abnormal chemical reactions may occur inside the battery pack, causing it to overheat, emit smoke, explode or ignite.**
- **Do not use an apparently damaged or deformed battery pack. Otherwise, the battery pack may overheat, emit smoke, explode or ignite.**
- **Do not solder the battery pack directly. Otherwise, its insulator may melt, or its gas release vent or safety mechanisms may be damaged, causing the battery pack to overheat, emit smoke, explode or ignite.**

- **Do not reverse the positive (+) and negative (-) terminals. Otherwise, the battery pack may be reverse-charged during charging. As a result, abnormal chemical reactions may occur inside the battery pack, or extremely high current may flow during discharging, causing it to overheat, emit smoke, explode or ignite.**
- **The battery pack has a predetermined polarity. If you cannot connect the battery pack to the battery charger or other equipment, do not connect the battery pack forcefully. Make sure that the terminals are correctly oriented. If the battery pack is connected in reverse, it will be reverse-charged, and abnormal chemical reactions may occur inside the battery pack, causing it to overheat, emit smoke, explode or ignite.**
- **Do not connect the battery pack to an electrical outlet or cigarette lighter socket in a car. Overcurrent may flow to the battery pack due to high voltage applied, causing the battery pack to overheat, emit smoke, explode or ignite.**
- **Do not use the battery pack for equipment other than those specified. Otherwise, the guaranteed performance will be reduced and/or the service life will be shortened. Depending on the equipment to which the battery pack is connected, extremely high current may flow, causing the battery pack to be damaged, overheat, emit smoke, explode or ignite.**
- **If the electrolyte leaked from the battery pack enters the eyes, do not rub them. Wash the eyes immediately with clean water such as tap water, and consult a doctor. Otherwise, eye injury may result.**
- **Do not use the battery pack in combination with a primary battery such as a dry battery or other battery of a different capacity, type and/or brand. Otherwise, the battery pack may be overcharged during charging, and abnormal chemical reactions may occur inside the battery pack, causing it to overheat, emit smoke, explode or ignite.**
- **Do not put the battery pack in a microwave oven or high-pressure container. Otherwise, the battery pack may be rapidly heated or damaged, causing it to overheat, emit smoke, explode or ignite.**
- **If the battery pack leaks or emits an unusual odor, remove it from fire immediately. Otherwise, the leaked electrolyte may catch fire, causing the battery pack to overheat, emit smoke, explode or ignite.**
- **If you notice an unusual odor, heat, discoloration, deformation or any other abnormality during use, charging or storage, remove the battery pack from the equipment or battery charger, and stop using it. Otherwise, the battery pack may overheat, emit smoke, explode or ignite.**
- **Do not use the battery pack exposed to a strong magnetic field of an MRI system, etc.**
- **Do not use the battery pack immersed in liquid.**

Warnings for Pediatric Use

⚠ WARNING

- **If the exposure conditions for average-size adults are applied to children, it may cause excessive radiation exposure.**
- **Studies show that children are more radiosensitive than adults (i.e. children are at higher risk of developing cancer compared to adults exposed to the same dose of ionizing radiation). Accordingly, in pediatric use, special attention needs to be paid to avoid unnecessary exposure.**
- **Based on the clinical application, pathological conditions of the patient, patient size, and anatomical imaging region, adjust the exposure conditions to use the minimum amount of radiation necessary to obtain appropriate medical images.**
- **An additional filter can also be used for children to reduce unnecessary exposure further.**
- **If children cannot be exposed at an appropriate dose with the AEC, do not use the AEC.**
- **Adjust the exposure conditions to minimize the X-ray exposure time to avoid repeated exposure due to body movement.**
- **Refer to the following FDA's Pediatric X-ray Imaging webpage for Image Gently digital radiography materials and the resources. (for U.S.)**
  http://www.fda.gov/Radiation-EmittingProducts/RadiationEmittingProductsandProcedures/MedicalImaging/ucm298899.htm

Other Warnings and Cautions

⚠ WARNING

No modification of this equipment is allowed.

⚠ CAUTIONS

Install the system in accordance with what is provided by IEC 60601-1:2005 + A1:2012 Chapter 16. Contact our official dealer or FUJIFILM Representative for installation (except the flat panel sensor) of the system.

⚠ CAUTIONS

Do not hit or drop the equipment. Otherwise, injury or damage to images, etc. may result.
If the flat panel sensor is subjected to an impact, the internal sensor may also be damaged, causing image artifacts, etc.
Artifacts may appear immediately after an impact is applied or after some time has passed.

⚠ CAUTIONS

Be sure to inspect the system periodically.
To assure optimum performance of the equipment, it is necessary to systematically perform maintenance and inspection. For information on maintenance and inspection, contact our official dealer or FUJIFILM Representative.

⚠ CAUTIONS

Do not perform maintenance and inspection while the equipment is used for a patient.

⚠ CAUTIONS

The institution where the equipment is installed is responsible for its use and maintenance. In addition, this equipment should not be used by persons other than doctors or suitably trained staff.

⚠ CAUTIONS

Be careful not to expose the flat panel sensor to X-ray without a subject.

⚠ CAUTIONS

Although the flat panel sensor conforms to IPX3, no warranty is given as to the prevention of water intrusion in the flat panel sensor. If the flat panel sensor is splashed with water, wipe off moisture and ensure that the flat panel sensor is completely dry before use.

⚠ CAUTIONS

Do not hit or scrape the flat panel sensor against sharp objects. If the damaged flat panel sensor is continuously used, personal injury may result.

Contraindications and Prohibitions

No contraindications present.

Classification

- According to the type of protection against electrical shock
  Internally powered equipment (when only the flat panel sensor is used)
  Class 1 equipment (when connected to the power supply unit and power box)
- According to the degree of protection against electrical shock
  Type B applied part
- According to the degree of protection against harmful ingress of water
  IPX0 (The flat panel sensor conforms to IPX3)
- According to the degree of safety of application in the presence of a flammable anesthetics mixture with air or with oxygen or nitrous oxide.
  Equipment not suitable for use in the presence of a flammable anesthetics mixture with air or with oxygen or nitrous oxide.
- According to the mode of operation
  CONTINUOUS OPERATION

1.2 Electromagnetic Compatibility (EMC)

1.2.1 DR-ID1270

This equipment has been tested and found to comply with the limits for medical devices to the IEC 60601-1-2 (EN 60601-1-2), Medical Device Directive 93/42/EEC.
These limits are designed to provide reasonable protection against harmful interference in a typical medical installation.
This equipment 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 the vicinity.
However, there is no guarantee that interference will not occur in a particular installation.
If this equipment does cause harmful interference to other devices, which can be determined by tuning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving device.
- Increase the separation between the equipment.
- Connect the equipment into an outlet on a circuit different from that to which the other device(s) are connected.

If the problem cannot be solved with the above measures, stop using this equipment and consult the manufacturer, our official dealer or FUJIFILM Representative for help.

⚠ WARNING

- **Do not place devices generating electromagnetic wave near this equipment.**
- **If a device(s) other than those specified is connected, predetermined EMC performance cannot be guaranteed.**

Further Information for IEC 60601-1-2 (EN 60601-1-2)

1. Medical electrical equipment needs special precautions regarding EMC and needs to be installed and put into service according to the EMC information provided in the accompanying documents.
2. Portable and mobile RF communications equipment can affect medical electrical equipment.
3. Information regarding the cable affecting EMC is as follows.

Name	Connected Device	Maximum Length	General Specification
Network Cable	Between the Power supply unit and the DR-ID 1200MC	20m (65.6 ft)	Cat5e or more, UTP type and straight cable
	Between the Power box and the DR-ID 1200MC*	2m (6.56 ft)	

* When the distance between the Power box and the DR-ID 1200MC is 2 meters or more, install a commercially available HUB. In that case, use a cable with a maximum length of 2 meters between the Power box and HUB, and a cable with a maximum length of 20 meters between HUB and the DR-ID 1200MC.

4. The use of optional items, transducers and cables other than those specified, with the exception of transducers and cables sold by FUJIFILM Corporation as replacement parts for internal components, may result in increased emissions or decreased immunity of the DR-ID1270.
5. The DR-ID1270 should not be used adjacent to or stacked with other equipment.
   If adjacent or stacked use is necessary, the DR-ID1270 should be observed to verify normal operation in the configuration in which it will be used.
6. Basic performance of the equipment and the system
   After image data are acquired from the flat panel sensor, data correction is performed by the control cabinet, and the image is saved in and displayed on the image processing unit.
7. Test items (Tables 1 to 4)

Table 1

Guidance and manufacturer's declaration - electromagnetic emissions			
The DR-ID1270 is intended for use in the electromagnetic environment specified below. The customer or the user of the DR-ID1270 should assure that they are used in such an environment.			
Emissions test	**Compliance**		**Electromagnetic environment - guidance**
RF emissions CISPR 11	Group 1		The DR-ID1270 uses RF energy only for their internal function. Therefore, their RF emissions are very low and are not likely to cause any interference in nearby electronic equipment.
RF emissions CISPR 11	Class B		The DR-ID1270 is suitable for use in all establishments, including domestic establishments and those directly connected to the public low-voltage power supply network that supplies buildings used for domestic purposes.
Harmonic emissions IEC 61000-3-2	Complies	Class B	
Voltage fluctuations/ flicker emissions IEC 61000-3-3	Complies		

Table 2

Guidance and manufacturer's declaration - electromagnetic immunity			
The DR-ID1270 is intended for use in the electromagnetic environment specified below. The customer or the user of the DR-ID1270 should assure that they are used in such an environment.			
Immunity test	**IEC 60601-1-2 test level**	**Compliance level**	**Electromagnetic environment - guidance**
Electrostatic discharge (ESD) IEC 61000-4-2	±6kV contact ±8kV air	±6kV contact ±8kV air	Floors should be wood, concrete or ceramic tile. If floors are covered with synthetic material, the relative humidity should be at least 30%.
Electrical fast transient/burst IEC 61000-4-4	±2kV for power supply lines ±1kV for input/output lines	±2kV for power supply lines ±1kV for input/output lines	Mains power quality should be that of a typical commercial or hospital environment.
Surge IEC 61000-4-5	±1kV line(s) to line(s) ±2kV line(s) to earth	±1kV line(s) to line(s) ±2kV line(s) to earth	Mains power quality should be that of a typical commercial or hospital environment.
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 40% U_T (60% dip in U_T) for 5 cycles 70% U_T (30% dip in U_T) for 25 cycles <5% U_T (>95% dip in U_T) for 5 s	<5% U_T (>95% dip in U_T) for 0.5 cycle 40% U_T (60% dip in U_T) for 5 cycles 70% U_T (30% dip in U_T) for 25 cycles <5% U_T (>95% dip in U_T) for 5 s	Mains power quality should be that of a typical commercial or hospital environment. If the user of the DR-ID1270 requires continued operation during power mains interruptions, it is recommended that the DR-ID1270 be powered from an uninterruptible power supply or a battery.
Power frequency (50/60Hz) 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 a.c. mains voltage prior to application of the test level.			

Table 3

Guidance and manufacturer's declaration - electromagnetic immunity			
The DR-ID1270 is intended for use in the electromagnetic environment specified below. The customer or the user of the DR-ID1270 should assure that they are used in such an environment.			
Immunity test	**IEC 60601-1-2 test level**	**Compliance level**	**Electromagnetic environment - guidance**
Conducted RF IEC 61000-4-6	3 Vrms 150 kHz to 80 MHz	3 Vrms	Portable and mobile RF communications equipment should be used no closer to any part of the DR-ID1270, 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 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 metres (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: 
Radiated RF IEC 61000-4-3	3 V/m 80 MHz to 2.5 GHz	3 V/m	
NOTE 1: At 80 MHz and 800 MHz, the higher frequency range applies. NOTE 2: These guidelines may not apply in all situations. Electromagnetic propagation is affected by absorption and reflection from structures, objects and people.			
a Field strength from fixed transmitters, such as base stations for radio (cellular/cordless) telephones and land mobile radios, amateur radio, AM and FM radio broadcast and TV broadcast cannot be predicted theoretically with accuracy. To assess the electromagnetic environment due to fixed RF transmitters, an electromagnetic site survey should be considered. If the measured field strength in the location in which the DR-ID1270 is used exceeds the applicable RF compliance, the DR-ID1270 should be observed to verify normal operation. If abnormal performance is observed, additional measures may be necessary, such as reorienting or relocating the DR-ID1270. b Over the frequency range 150 kHz to 80 MHz, field strength should be less than 3 V/m.			

Table 4

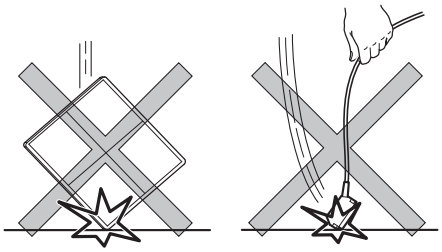
Recommended separation distances between Portable and mobile RF communications equipment and the DR-ID1270			
The DR-ID1270 is intended for use in the electromagnetic environment in which radiated RF disturbances are controlled. The customer or the user of the DR-ID1270 can help prevent electromagnetic interference by maintaining a minimum distance between portable and mobile RF communications equipment (transmitters) and the DR-ID1270 as recommended below, according to the maximum output power of the communications equipment.			
Rated maximum output power of 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	7.3
100	12	12	23
For transmitters rated at a maximum output power not listed above, the recommended separation distance *d* in metres (m) can be estimated using the equation applicable to the frequency of the transmitter, where *P* is the maximum output power rating of the transmitter in watts (W) according to the transmitter manufacturer.			
NOTE 1: At 80 MHz and 800 MHz, the separation distance for the higher frequency range applies. NOTE 2: These guidelines may not apply in all situations. Electromagnetic propagation is affected by absorption and reflection from structures, objects and people.			

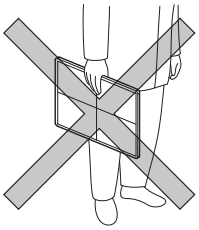
1.3 Precautions in Using the DR-ID1270

This section describes the precautions in using the DR-ID1270.

1.3.1 Handling

Handle the flat panel sensor carefully since they are manufactured with precision.
If the flat panel sensor or the SE communication cable is hit or dropped or is subjected to severe shock, it may be malfunction.
Be aware of dropping the devices could result in injury or device breakage also may cause injury.
If the front and rear of the flat panel sensor are subject to impact by a projection, it may be damaged.
Do not apply strong pressure onto the flat panel sensor.
If applied, the flat panel sensor deforms and the waterproof function may be compromised.
Do not pull the cable of the flat panel sensor (wired communication mode).
Also, do not pull the flat panel sensor with something caught by the cable.
Make sure that the cable is not trapped under the wheels of a stretcher or wheelchair.
In addition, be careful not to catch the cable when using or storing it.
Otherwise, the cable will be damaged, causing fire, electric shock or communication failure.
Do not hold the flat panel sensor in one hand when carrying it.
Hold it in both the hands or under the arm.
When carrying or storing the flat panel sensor, remove the battery pack from it.





If a seal that covers a screw peels from the side surface of the flat panel sensor, contact a FUJIFILM dealer. If the seal is not attached, artifacts caused by discharge of static electricity may appear.

To ensure optimal image quality, it is recommended that you do not use the flat panel sensor near devices (motor, transformer, switching supply, etc.) that generate electromagnetic noise.

To ensure optimal image quality, it is recommended that you do not place the cables (power cable, communication cable, etc.) of the equipment near devices (motor, transformer, switching supply, etc.) that generate electromagnetic noise and their cables.

Make sure that no liquid enters the flat panel sensor from around the battery section. In addition, when attaching the battery pack, make sure that the waterproof packing attached to the connector terminal of the flat panel sensor is aligned properly. Otherwise, the flat panel sensor may be damaged.
Do not use a multiple tap connector or extension cable for powering the devices constituting the system.

Up to five flat panel sensors can be connected. If you intend to use six or more flat panel sensors, only the first five that were connected to the image processing unit can be used. For this reason, when six or more flat panel sensors are registered, be careful not to use a wrong one, as you may confuse which flat panel sensor is connected.
Before making an exposure, make sure that the flat panel sensor identification lamp on the flat panel sensor to be used and the panel icon selected on the screen of the image processing unit are the same color.

When a flat panel sensor is communicating with a power supply unit or access point in a room, if the flat panel sensor is moved to another room where there is another power supply unit or access point, communication between the flat panel sensor and the device in the first room may still be established. To establish communication between the flat panel sensor and a device in the second room, connect the flat panel sensor to the device with the cable. The flat panel sensor is recognized and wireless communication becomes available.

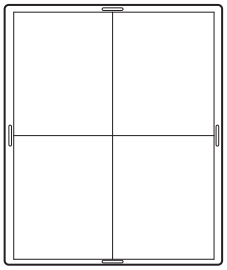
Do not place the cable terminal on the floor, as doing so may cause infection.
Also, clean the cable and the terminal periodically.

Do not insert the flat panel sensor into a CR reader unit.

1.3.2 Before Exposure

The use of an air-conditioner may dramatically changes the temperature of the room where the system is installed. This may cause dew condensation on the system, resulting in quality problems. When an air-conditioner is used, change the temperature gradually to avoid temperature variation in order not to cause dew condensation.

If an exposure is made with the front and rear of the flat panel sensor facing the other way round, not only the re-exposure is required but electric parts of inside the equipment may be damaged.

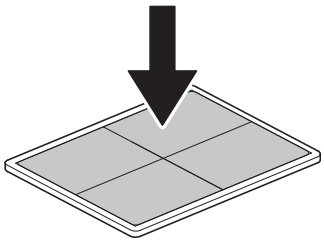


Exposure plane of the flat panel sensor

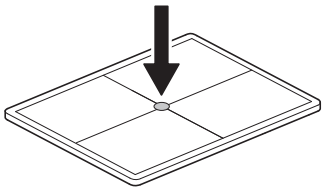
1.3.3 During Exposure

Before making an exposure, make sure that exposure conditions most appropriate for this system are set.

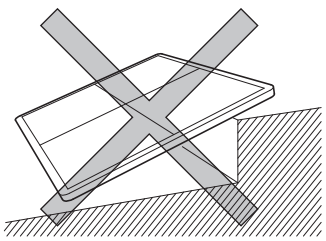
Do not apply an excessive force to the exposure plane.
The sensor inside the flat panel sensor may be damaged, and it may not be possible to make an exposure properly.



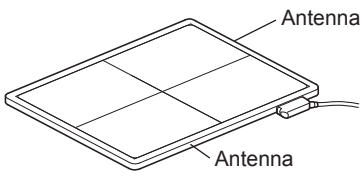
<Load restriction>
Entire surface load : DR-ID1271SE, DR-ID1272SE, DR-ID1273SE, DR-ID1274SE and DR-ID1275SE : 300kg (661.5 lb)
Local load : DR-ID1271SE, DR-ID1272SE, DR-ID1273SE, DR-ID1274SE and DR-ID1275SE : 120kg (264.6 lb) / ø40mm (1.6 in.) (Based on FUJIFILM measurement specifications)



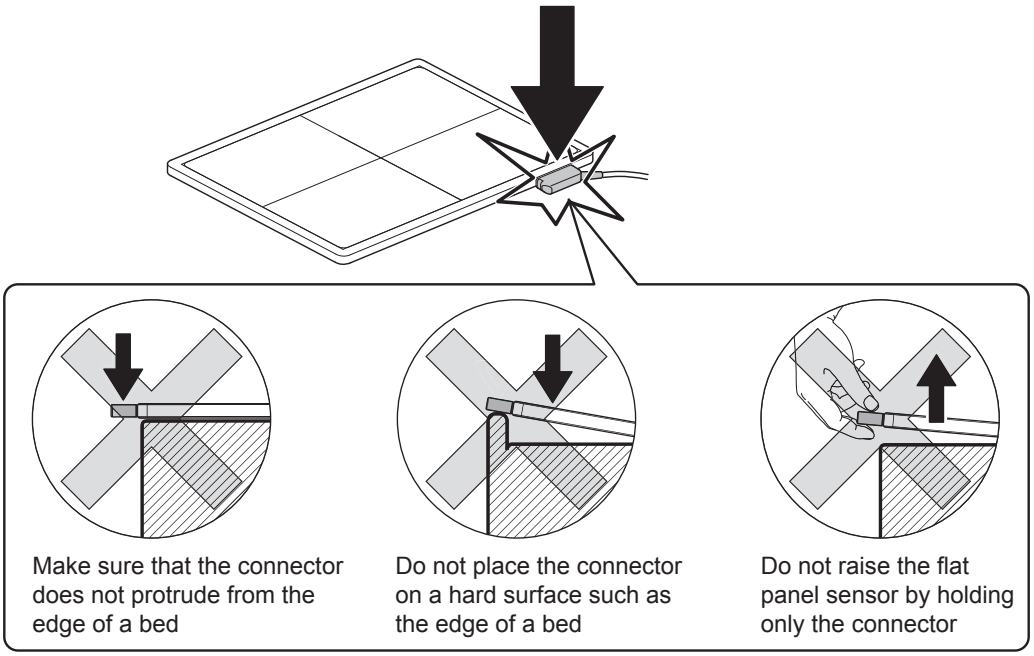
Use the flat panel sensor on a flat floor or platform.
When an excessive force is applied to the unit when it is tilted, the sensor inside the flat panel sensor may be damaged.



Do not place a metal plate, etc., which blocks radio waves, before the antenna. Otherwise, data may not be sent correctly from the flat panel sensor.



When the SE communication cable is connected to the flat panel sensor to make an exposure on a bed, follow the precautions below. Otherwise a load may be applied locally to the SE communication cable connectors, causing damage to the flat panel sensor.



1.3.4 During Cleaning

To clean the outer surfaces, use a cleaning cloth tightly wrung out of commercially available ethanol.

CAUTIONS

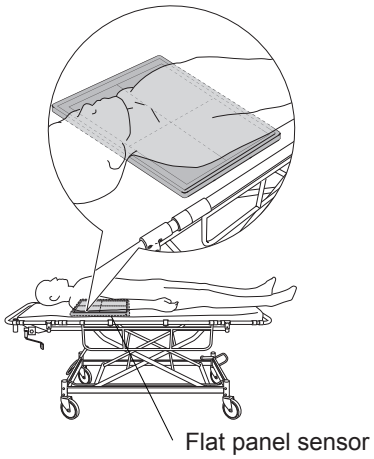
- **Be sure to turn off the power before cleaning each part of the device.**
- **Do not use an excessive amount of ethanol, as doing so may allow the liquid to enter from the gap on the outer surfaces, resulting in the damage to the flat panel sensor, or cause the labels to come off.**
- **Do not use a solvent such as thinner or benzine, as it corrodes the outer surfaces.**
- **For other available disinfectants, consult our official dealer.**
- **Use dehydrated ethanol or ethanol diluted with purified water.**

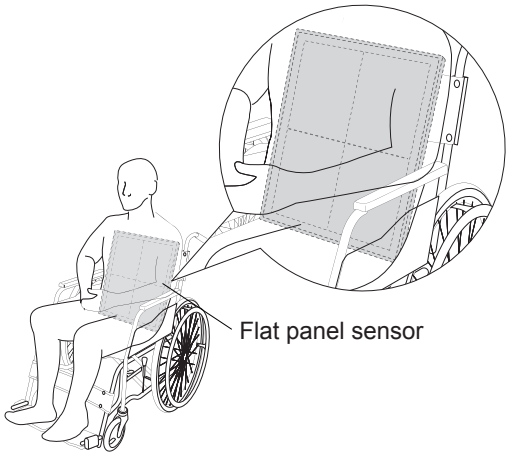
1.3.5 Storage

When the flat panel sensor and the image processing unit are not in use, store them in a place where they do not fall or drop.

1.3.6 Precautions Related to the Load Applied to the Flat Panel Sensor

If excessive load is applied to the flat panel sensor, use it on a flat floor or platform.
When making an exposure for the patient in a wheelchair or adjustable bed or on a stretcher, the flat panel sensor may be deformed (slightly warped).



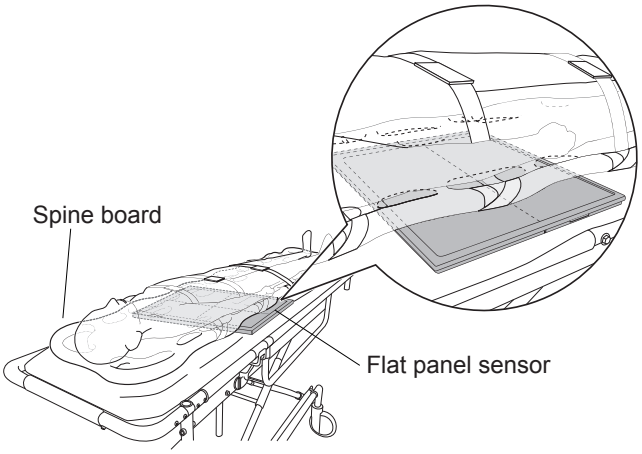


In case that the flat panel sensor is deformed, make sure that X-ray images are not adversely affected before continuing the use of the flat panel sensor.

The precautions below must also be observed when making an exposure.

- Do not have the patient stand on the flat panel sensor.
- Do not place the hard devices such as spine board on the flat panel sensor.

Excessive load is applied locally and the flat panel sensor may be damaged.



Even when the flat panel sensor is used on a flat floor or platform, it may be damaged if the applied load exceeds the limit.

1.3.7 Radio Waves

Wireless specifications for the flat panel sensor and access point are as follows.

	Flat panel sensor	Access point (optional)
Wireless specification	IEEE802.11n	IEEE 802.11n
Transmit frequency	5.2, 5.3, 5.6, 5.8, 2.4 GHz	5.2, 5.3, 5.6, 5.8, 2.4 GHz
Modulation	OFDM	OFDM
Frequency tolerance	±20 ppm	±20 ppm
Data transfer rate	35 Mbps	35 Mbps
Transfer power	17 dBm or less	15.91 dBm or less

For wireless specifications of the image processing unit, see “DR-ID 300CL Operation Manual”.

CAUTIONS

- **Transmit frequencies available vary, depending on the country.**
- **Radio waves available outdoors vary, depending on the country where the system is used.**
  (For Canada)
  Radio waves in the 5.2GHz and 5.3GHz frequency band can be used indoors only.
  (For U.S.)
  Radio waves in the 5.2GHz frequency band can be used indoors only.
- **When radio waves in the 5.3GHz and 5.6GHz frequency bands are selected, the DFS function will operate.**
- **When the DR-ID1270 and any other wireless equipment are operating on the same frequency channel in a hospital, it may take time to show an image on the image processing unit monitor.**

CAUTIONS

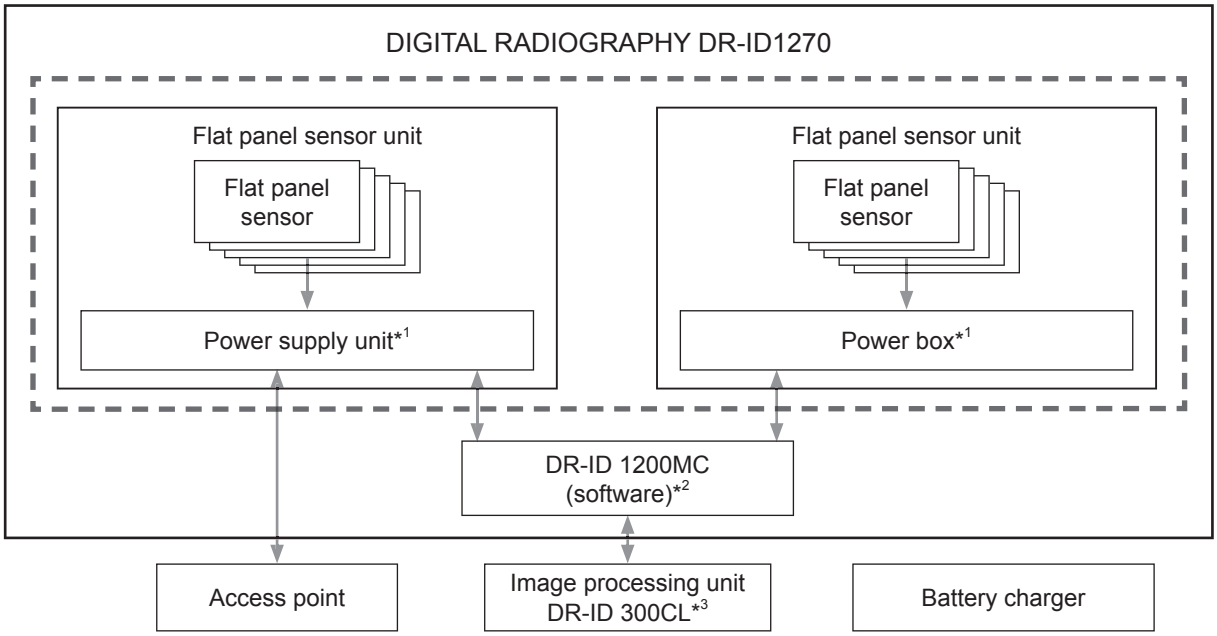
The available scientific evidence does not show that any health problems are associated with using low power wireless devices. There is no proof, however, that these low power wireless devices are absolutely safe. Low power Wireless devices emit low levels of radio frequency energy (RF) in the microwave 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. DR-ID1271SE/DR-ID1272SE/DR-ID1273SE/DR-ID1274SE/DR-ID1275SE has been tested and found to comply with FCC/IC radiation exposure limits set forth for an uncontrolled environment and meets the FCC radio frequency (RF) Exposure Guidelines and RSS-102 of the IC radio frequency (RF) Exposure rules.

Les connaissances scientifiques dont nous disposons n’ont mis en évidence aucun problème de santé associé à l’usage des appareils sans fil à faible puissance. Nous ne sommes cependant pas en mesure de prouver que ces appareils sans fil à faible puissance sont entièrement sans danger. Les appareils sans fil à faible puissance émettent une énergie radioélectrique (RF) très faible dans le spectre des micro-ondes lorsqu’ils sont utilisés. Alors qu’une dose élevée de RF peut avoir des effets sur la santé (en chauffant les tissus), l’exposition à de faibles RF qui ne produisent pas de chaleur n’a pas de mauvais effets connus sur la santé. De nombreuses études ont été menées sur les expositions aux RF faibles et n’ont découvert aucun effet biologique. Certaines études ont suggéré qu’il pouvait y avoir certains effets biologiques, mais ces résultats n’ont pas été confirmés par des recherches supplémentaires. DR-ID1271SE/DR-ID1272SE/DR-ID1273SE/DR-ID1274SE/DR-ID1275SE a été testé et jugé conforme aux limites d’exposition aux rayonnements énoncées pour un environnement non contrôlé et respecte les règles les radioélectriques (RF) de la FCC lignes directrices d’exposition et d’exposition aux fréquences radioélectriques (RF) CNR-102 de l’IC.

Chapter 2 System Configuration (Product Overview)

2.1 DR-ID1270

2.1.1 System Configuration



- The products in ⬚ can be installed in patient environment.
- Up to five flat panel sensors can be connected. Up to two flat panel sensors can be connected to one power supply unit in wired communication mode. Up to one power supply units can be used.
- The DR-ID1270 consists of the flat panel sensor DR-ID1271SE, DR-ID1272SE, DR-ID1273SE, DR-ID1274SE, DR-ID1275SE and DR-ID 1200MC.
- When the power supply unit is used, the system can be operated in conjunction with the X-ray equipment, and it can be used for exposures in wired mode.
- When the Power supply unit is used, up to two flat panel sensors can be connected to one power supply unit in wired communication mode. Up to two power supply unit can be used. When the flat panel sensors are used with three to four different techniques, two power supply units are required.
- When the Power box is used, only one flat panel sensor can be connected to one power box in wired communication mode. Up to three power boxes can be used in one system.
- For the Power supply unit and Power box, a maximum of five devices can be connected.

*1 The power supply unit and the power box are optional products. The system can be configured without using these products.

*2 The DR-ID 1200MC can be installed in the image processing unit DR-ID 300CL.

*3 For detail specification of image processing unit, please refer to “DR-ID 300CL Operation Manual”.

2.1.2 Features of the DR-ID1270

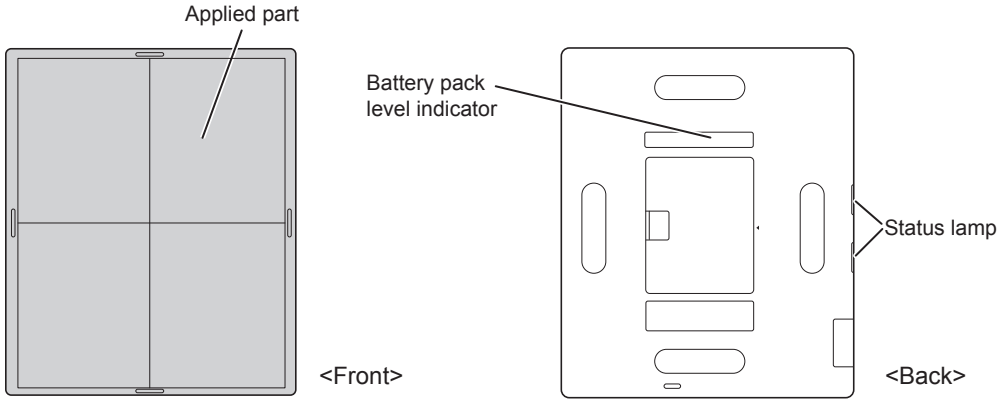
This section describes the main features of the DR-ID1270.

1 Light-weight, thin and roundish design of the flat panel sensor facilitates lifting and enhances operability, for example, when it is set under a patient lying on a bed.
2 By utilizing FUJIFILM's proprietary ISS (Irradiation Side Sampling) method, vapor deposition technique of CsI scintillator, particle blend technique of GOS scintillator, and also noise reduction IC, images with high sensitivity and high sharpness are obtained even in low-density areas.
3 After an X-ray irradiation process is completed, the exposed image appears on the monitor of the image processing unit in about one second at the shortest. In addition, since images are compressed with our unique compression technology (CIP) during communication, exposures can be made efficiently at short intervals.
4 The flat panel sensor has sleep mode. This power-saving design almost eliminates the need of replacing the battery pack. In addition, since a removable battery pack is adopted, it can be replaced even if the battery runs down.
5 The optional battery charger assist smooth exposure operations. The system can be used even in an emergency since only 3 minutes of charge time are required to make about 30 exposures.
6 Extended Image Readout enables a long exposure for up to ten seconds (except for DR-ID1275SE).
7 Since the external dimensions and thickness of the flat panel sensor are the same as those of existing cassette for general exposure (compliant with ISO 4090), the flat panel sensor can be loaded onto the exposure stand that has been used. In addition, since operation on battery power and wireless communication are available, one flat panel sensor can be used for multiple devices such as upright type and supine-position type radiography devices.
8 The flat panel sensor has the X-ray automatic detection function (SmartSwitch).
With this function, the flat panel sensor detects even a small amount of X-ray precisely to start an exposure without connecting it to the X-ray device.
9 The flat panel sensors can be used in the 2.4GHz and 5GHz frequency bands. They can also be used outdoors. * Use them in the appropriate frequency band according to the radio law of each country.
10 By using a notebook computer as the image processing unit, and also by using the optional FUJIFILM access point together with the image processing unit, the combination can be used as a mobile system for rounds, since the need of carrying cables is eliminated. In addition, exposures can also be made outdoors depending on the frequency band of radio wave.
11 Up to 100 flat panel sensors can be registered. Among the registered flat panel sensors, up to five flat panel sensors can be used.
12 Since the flat panel sensor can be shared with multiple systems, the number of flat panel sensors can be optimized.
13 As the flat panel sensors do not require calibration by the user, an exposure procedure can be started immediately without complex processes.

2.2 Unit Names and the Functions

Unit names and the functions of the DR-ID1270 are described below.

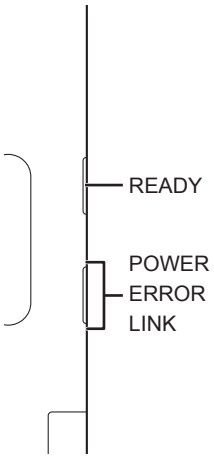
* Exposure plane is shown in this figure.



Flat panel sensor

Name	Description
Flat panel sensor	The DR-ID1271SE and DR-ID1272SE incorporate a GOS indirect panel. The DR-ID1273SE, DR-ID1274SE and DR-ID1275SE incorporate a CsI indirect panel.

Battery pack level indicator

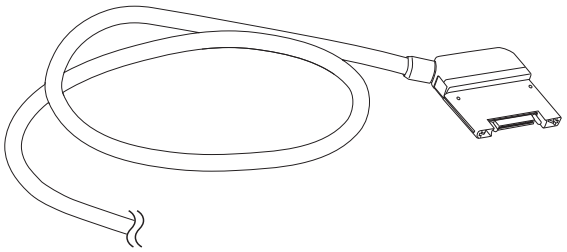
Name	Description		
Status lamp	Indicates the equipment status by LEDs.		
	READY (Green)	On	Exposure possible
		Blinks for 1.0 second	During exposure sequence
		Off	Not ready
	POWER (Blue) (The power on/off state of the flat panel sensor is displayed.).	On	Power ON
		Off	Power OFF
	ERROR (Orange)	Blinks for 1.0 second	Error occurred
		Off	Normal
	LINK (White)	On	Connected
		Off	Communication not possible.

* When the battery pack is not attached, all LEDs are off.

HINT

For details on the battery pack level indicator, see “3.1.8 Lamp Indications on the Flat Panel Sensor”.

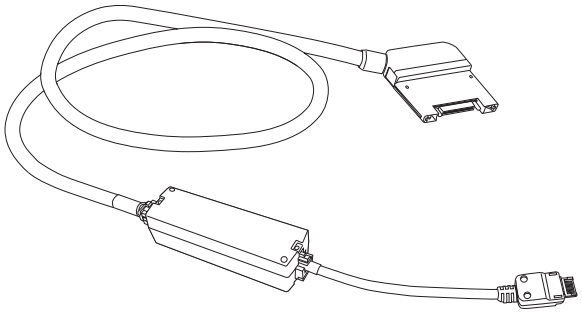
■ SE cable



Name	Description
SE cable	A cable that connects the flat panel sensor and the power supply unit. This cable is used for adding the second and subsequent flat panel sensors,changing over the connection between the flat panel sensors, and other usages. Cable length: Approx. 10m (32.8 ft), Approx. 20m (65.6 ft)

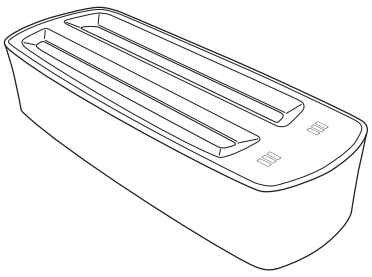
For other options, refer to the respective operation manuals.

■ SE communication cable



Name	Description
SE communication cable	A cable used for connecting the flat panel sensor and the optional access point. This cable is used for wired communication if wireless communication is not available. In addition, this cable is used for registering or recognizing the flat panel sensor. Cable length: Approx. 1m (3.3 ft)

■ Battery charger (Optional)



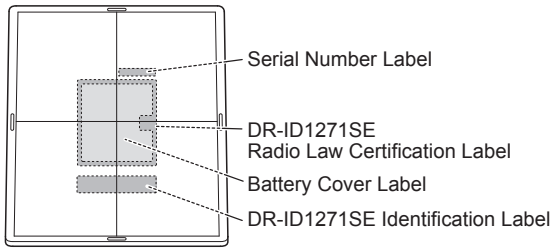
Name	Description
Battery charger	Charges the battery pack for the flat panel sensor. Two packs can be charged at the same time.
Charge status indicator LED	Indicates charge status.

2.3 Locations of Labels and Signs

Locations of labels and signs affixed to the DR-ID1270, and the relevant safety signs are shown below.

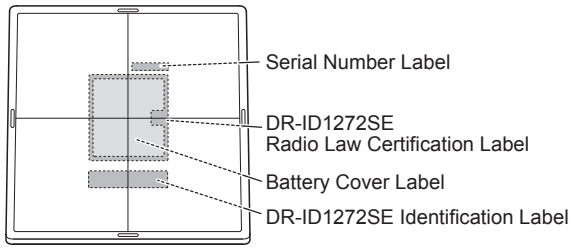
2.3.1 Locations of Labels

Flat panel sensor (DR-ID1271SE)



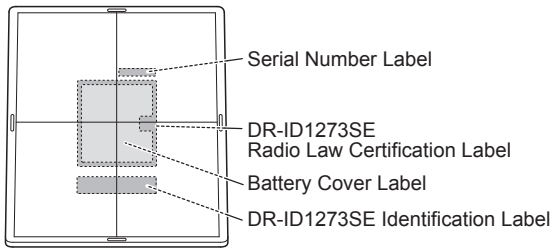
<Exposure plane>

Flat panel sensor (DR-ID1272SE)



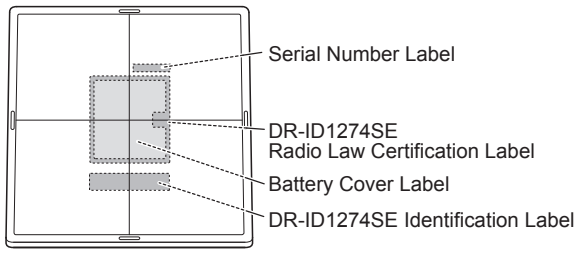
<Exposure plane>

Flat panel sensor (DR-ID1273SE)



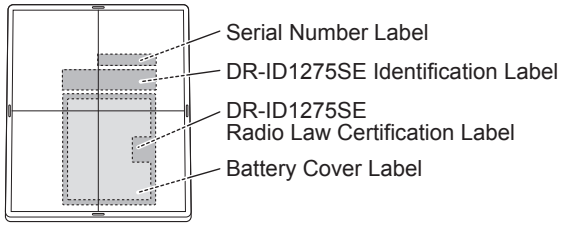
<Exposure plane>

Flat panel sensor (DR-ID1274SE)

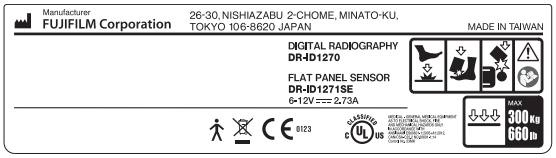


<Exposure plane>

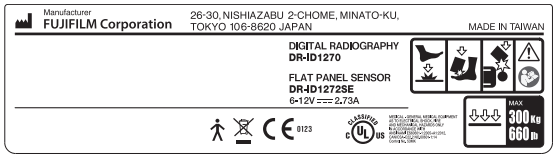
Flat panel sensor (DR-ID1275SE)



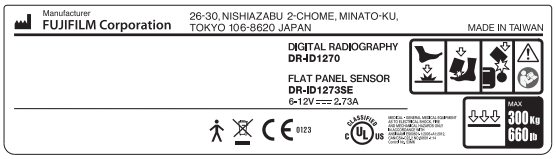
<Exposure plane>



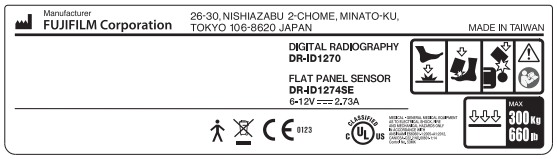
DR-ID1271SE Identification Label



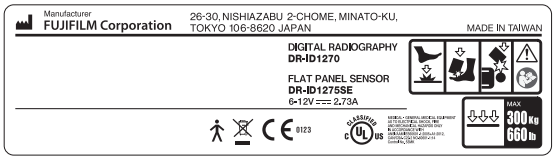
DR-ID1272SE Identification Label



DR-ID1273SE Identification Label

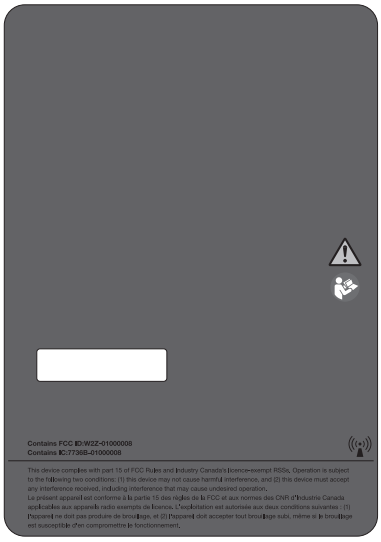


DR-ID1274SE Identification Label

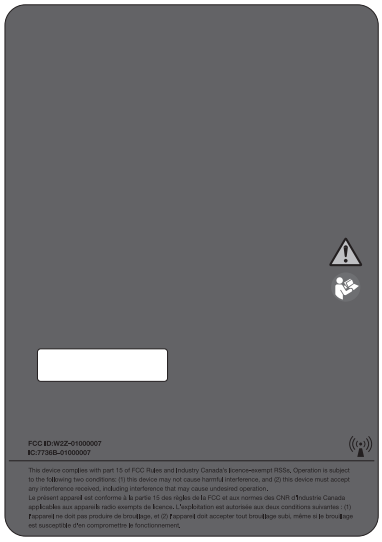


DR-ID1275SE Identification Label

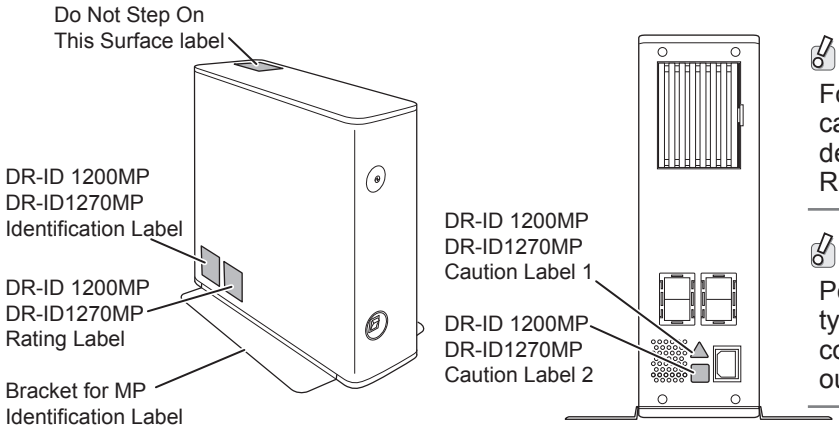
Serial Number Label



DR-ID1271SE/DR-ID1272SE/
DR-ID1273SE/DR-ID1274SE/
Radio Law Certification Label



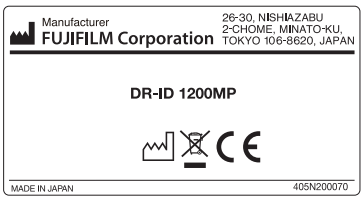
DR-ID1275SE
Radio Law Certification Label



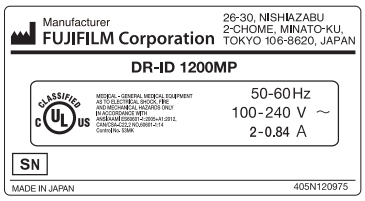
For the types of connectable cables, consult our official dealer or FUJIFILM Representative

Pour en savoir plus sur les types de câbles connectables, contactez notre revendeur agréé ou notre représentant FUJIFILM.

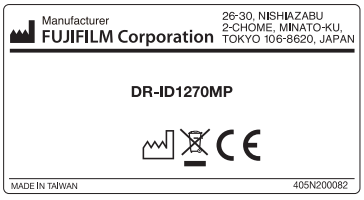
Power supply unit (DR-ID 1200MP/DR-ID1270MP)



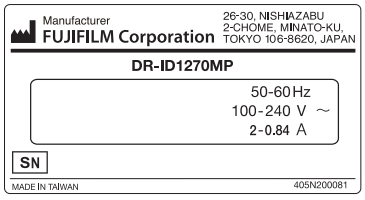
DR-ID 1200MP Identification Label



DR-ID 1200MP Rating Label



DR-ID1270MP Identification Label



DR-ID1270MP Rating Label

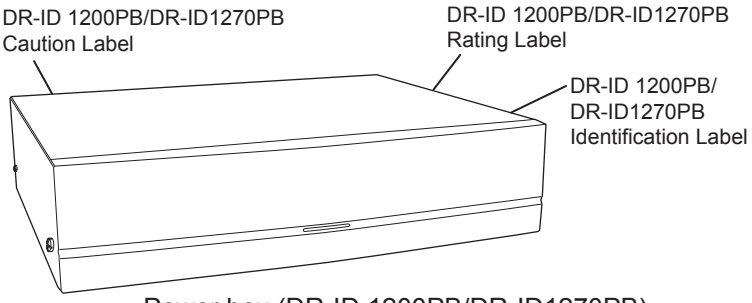
DR-ID 1200MP/DR-ID1270MP
Caution Label 1

DR-ID 1200MP/DR-ID1270MP
Caution Label 2

Do Not Step On This Surface label

FUJIFILM Corporation
899Y120214

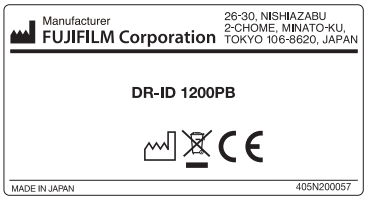
Bracket for MP Identification Label



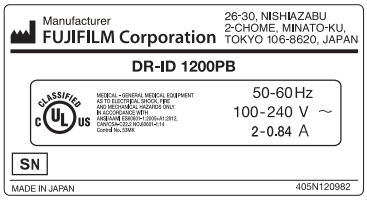
Power box (DR-ID 1200PB/DR-ID1270PB)

For the types of connectable cables, consult our official dealer or FUJIFILM Representative

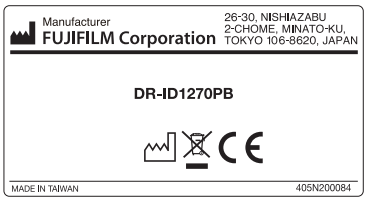
Pour en savoir plus sur les types de câbles connectables, contactez notre revendeur agréé ou notre représentant FUJIFILM.



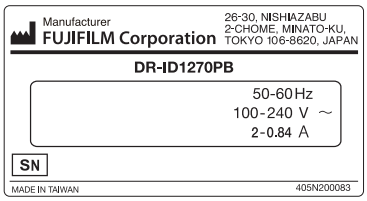
DR-ID 1200PB Identification Label



DR-ID 1200PB Rating Label



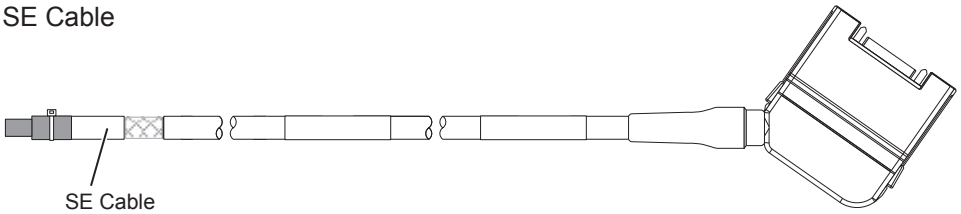
DR-ID1270PB Identification Label



DR-ID1270PB Rating Label

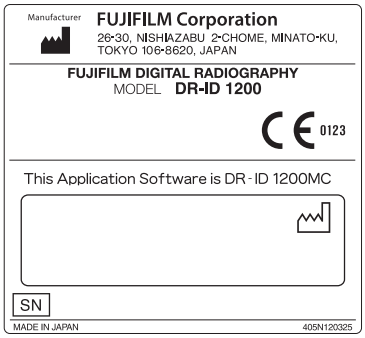
DR-ID 1200PB/DR-ID1270PB
Caution Label

SE Cable



SE Cable 10m
Identification Label

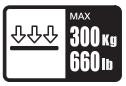
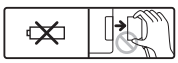
SE Cable 20m
Identification Label



DR-ID 1200MC Identification Label

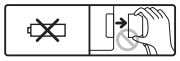
2.3.2 Safety and Other Symbols

The following safety symbols are used in the labels or on its body.

Symbol	Description
CE / CE 0123	CE marking
	Caution (See “2.3.1 Locations of Labels” (page 2-5).)
	OFF (To indicate disconnection from the mains, at least for mains switches or their positions, and all those cases where safety is involved.)
	ON (To indicate connection to the mains, at least for mains switches or their positions, and all those cases where safety is involved.)
	Protective earth (ground)
	Alternating current
	This symbol indicates that the equipment is a Type B Applied Part.
	Direct current
	Ready (To indicate the machine is ready for operation.)
	Electric energy
	General mandatory action sign
	This symbol indicates that this product is not to be disposed of with your household waste, according to the WEEE Directive and your national law. This product should be handed over to a designated collection point. Improper handling of this type of waste could have a possible negative impact on the environment and human health due to potentially hazardous substances that are generally associated with EEE. At the same time, your cooperation in the correct disposal of this product will contribute to the effective usage of natural resources. For more information about waste, please contact our official dealer or FUJIFILM Representative.
	Year of manufacture
	Caution for local load / Do not drop the flat panel sensor to the user/patient
	Entire surface load
	This symbol includes RF transmitters or indicates equipment that intentionally applies RF electromagnetic energy for diagnosis or treatment.
	Refer to Instruction Manual/Booklet
	No stepping on surface
	This symbol indicates that the part is not a battery. This symbol instructs the user not to disconnect the SE cable during use.

2.3.3 Symboles de sécurité et autres

Les symboles de sécurité suivants sont utilisés sur les étiquettes ou sur le corps de l'équipement.

Symbole	Description
CE / CE 0123	Marquage CE
	Attention (Voir « 2.3.1 Emplacement des étiquettes » (page 2-5).)
	HORS TENSION (Pour indiquer une déconnexion de l'alimentation secteur, au moins au niveau des interrupteurs secteurs ou leur position, et tous les cas dans lesquels la sécurité est en jeu.)
	SOUS TENSION (Pour indiquer une connexion à l'alimentation secteur, au moins au niveau des interrupteurs secteurs ou leur position, et tous les cas dans lesquels la sécurité est en jeu.)
	Protection via mise à la terre (masse)
	Courant alternatif
	Ce symbole indique que l'équipement est une pièce appliquée de type B.
	courant continu
	Prêt (Pour indiquer que la machine est prête à être utilisée.)
	Énergie électrique
	Symbole général d'action obligatoire
	Ce symbole indique que ce produit ne doit pas être mis au rebut avec les déchets ménagers, conformément à la directive DEEE et à la législation nationale en vigueur. Ce produit doit être remis à un centre de collecte approprié. Une manipulation incorrecte de ce type de déchet peut avoir un impact négatif sur l'environnement et sur la santé humaine, en raison des substances potentiellement dangereuses généralement associées aux EEE. Votre coopération pour la mise au rebut correcte de ce produit contribuera en outre à une utilisation efficace des ressources naturelles. Pour en savoir plus sur les déchets, contactez notre revendeur agréé ou notre représentant FUJIFILM.
	Année de fabrication
	Attention relative à une charge placée de façon localisée / Ne faites pas tomber le détecteur à panneau plat sur l'utilisateur/le patient
	Charge sur l'intégralité de la surface
	Ce symbole inclut les émetteurs RF ou indique un équipement émettant intentionnellement de l'énergie électromagnétique RF à des fins de diagnostic ou de traitement.
	Consultez le mode d'emploi
	Ne montez pas sur la surface
	Ce symbole indique que la pièce n'est pas une batterie. Ce symbole indique à l'utilisateur de ne pas débrancher le câble de branchement d'abonné pendant l'utilisation.

2.4 Installation Conditions

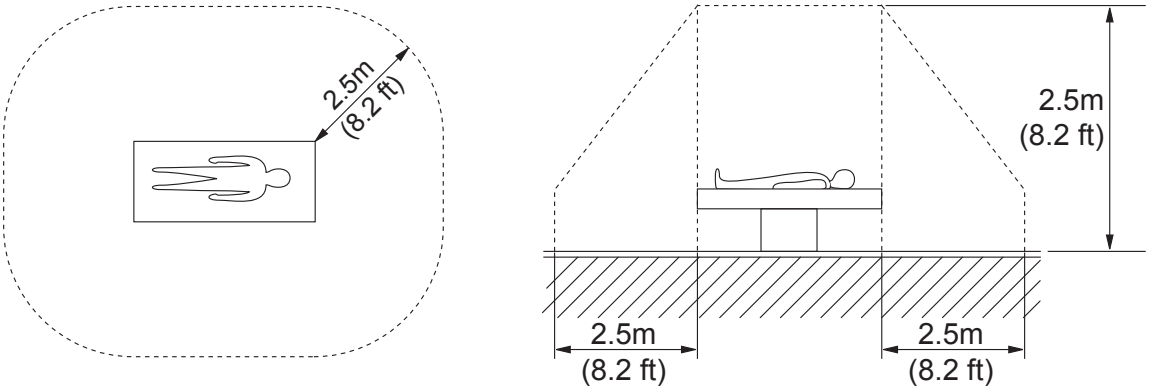
2.4.1 Definition of Patient Environment

For the products that can be installed in patient environment, see “2.1.1 System Configuration” (page 2-1).

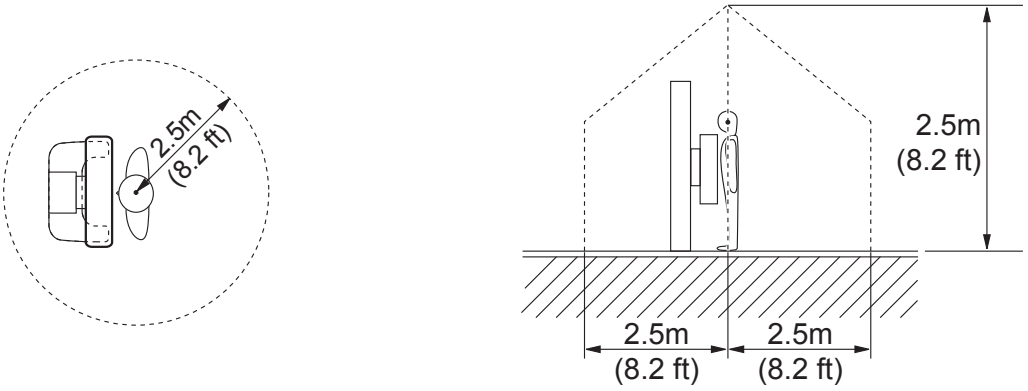
CAUTIONS

In the X-ray room, do not install the power supply unit, access point, image processing unit and battery charger (optional) in areas where the user could easily trip over them. Falls could result in injury.

■ Bed in a patient room or bed-type radiographic examination stand



■ Upright-type radiographic examination stand



2.4.2 Installation Precautions

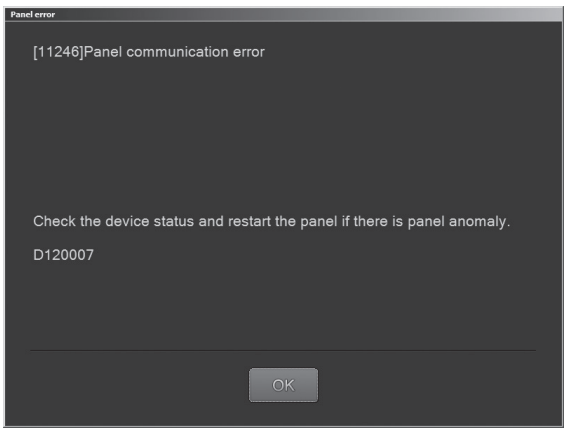
■ Using in an open space

Install the flat panel sensor, the access point and the image processing unit at a distance of less than 10m (32.8 ft) from each other. If any distance is over 10m (32.8 ft), a wireless communication error may occur.

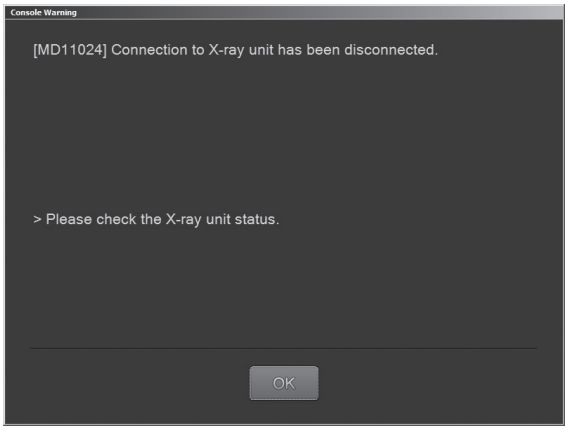
■ Using in an X-ray room

The access point should be installed in the X-ray room.

If the access point is not installed properly, wireless communication may become unstable.
If this happens, the messages below may appear.
These messages are only examples.



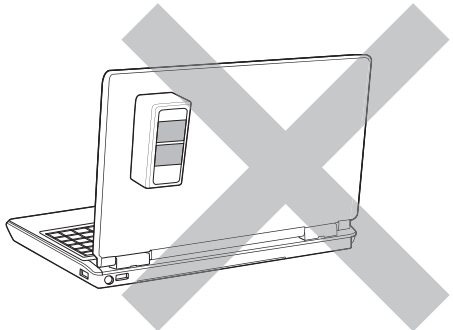
Example 1
Panel communication error



Example 2
Connection to X-ray unit has been disconnected.

2.4.3 Precautions for Installing the Access Point (Optional)

Install the optional access point in a place where the operation is not hindered.
When the access point is installed onto a personal computer, be sure that the label attached on the access point does not face the front side.



In addition, install the access point in an appropriate place to prevent it from colliding with a moving mobile X-ray unit. If any impact is applied to the optional access point, it may be damaged.

2.5 Wireless Specifications

1 Technical Specification : IEEE802.11n (protocol) , 2.4GHz, W52, W53, W56, W58 (frequency)

2 Intended environment : Room size of 10m x 10m x 3m (32.8 ft x 32.8 ft x 9.8 ft) (height) or less (general X-ray room)
(The electric shield does not exist excluding the installation stand or bed.)

3 Installation : Do not place devices generating electromagnetic wave (CT,MRI, diathermy, RFID etc.) near this equipment.
We recommend not to use any other wireless devices such as cellular/smart phones, portable phones, microwave ovens, WAPs, etc. within 2m (6.6 ft) of the wireless DR-ID1270 system.
When other wireless devices are used within 2m (6.6 ft), wireless data communication may be delayed.
(Data will not be lost; if a timeout occurs a retry can be performed after the cause of interference has been removed)
Do not cover the Flat Panel Sensor (DR-ID1271SE/DR-ID1272SE/DR-ID1273SE/DR-ID1274SE/DR-ID1275SE) with a shield such as a metallic plate as this will interfere with a wireless communication.

4 Information being transmitted : System Control Signal, (Img_req_CMD, etc..)
Image Data of the Flat Panel Sensor
Note: Patient Information is not transmitted by wireless interface of Access point

5 Wireless range : max. 10m (32.8 ft) from the Access point as tested. Actual range may vary.

6 Data transfer rate : 35Mbps (DR-ID1270 : between the Flat Panel Sensor and Console PC)
(This value is FUJIFILM measuring result of wireless module, and actual data rate may vary.)

7 Transfer Power : 17 dBm or less

8 Modulation : OFDM (Provided by IEEE802.11n)

9 Wireless Data Security : Wireless DR-ID1270 system (DR-ID1271SE/DR-ID1272SE/DR-ID1273SE/DR-ID1274SE/DR-ID1275SE) will be utilizing the IEEE 802.11n. The Wireless Access Point (WAP) has a feature that limits the maximum number of the Flat Panel Sensor per access point to ensure data integrity. Further the WAP has MAC Address Filtering (unique IP address) and Wireless LAN Segmentation to ensure handshaking with only the registered wireless DR-ID1270 Flat Panel Sensors (DR-ID1271SE/DR-ID1272SE/DR-ID1273SE/DR-ID1274SE/DR-ID1275SE).
In addition to the MAC address filtering, the wireless communication between DR-ID1271SE/DR-ID1272SE/DR-ID1273SE/DR-ID1274SE/DR-ID1275SE (Flat Panel Sensor) and access point is secured by WPA2-PSK encryption with AES (Advanced Encryption Standard). Data security feature will be enabled during installation by a FUJIFILM field service engineer.
No patient information is transmitted between DR-ID1271SE/DR-ID1272SE/DR-ID1273SE/DR-ID1274SE/DR-ID1275SE (Flat Panel Sensor) and access point., between access point and the console.

10 Handshaking/Pairing : The Wireless Access Point and DR-ID1271SE/DR-ID1272SE/DR-ID1273SE/DR-ID1274SE/DR-ID1275SE (Flat Panel Sensor) will be paired during installation by a FUJIFILM field service engineer to ensure one-to-one wireless connection. FUJIFILM field service engineer will measure the wireless transmission condition in the primary area, so the DR-ID1270 system can be used stable.

11 Frequency Tolerance : ±20ppm

Quality of Service (QoS)

Item	Standard	DR-ID1271SE/DR-ID1272SE/ DR-ID1273SE/DR-ID1274SE/ DR-ID1275SE	Unit	Remarks
Form of electric wave	Spectrum diffusion			
Center frequency	HT20	5180 - 5825 2412 - 2472	MHz	36ch,40ch,44ch,48ch W52
	HT40	5190 - 5795 2422 - 2462	MHz	38ch,46ch W52
Channel interval	IEEE802.11n	20(HT20) / 40(HT40)	-	
Transmission rate	IEEE802.11n	HT20 : MCS0-15 HT40 : MCS0-15	-	
Modulation	OFDM			
Output power		Power		
	Max	17	dBm	
Frequency Tolerance	- 20 ~ +20		ppm	MAX
Reception sensitivity PER : Packet Error Rate <10%	IEEE 802.11n (5GHz)	MCS0=-89	dBm	HT20
		MCS1=-86	dBm	
		MCS2=-83	dBm	
		MCS0=-86	dBm	HT40
		MCS1=-83	dBm	
		MCS2=-80	dBm	
	IEEE 802.11n (2.4GHz)	MCS0=-88	dBm	HT20
		MCS1=-85	dBm	
		MCS2=-82	dBm	
		MCS0=-85	dBm	HT40
		MCS1=-82	dBm	
		MCS2=-79	dBm	

For details on the wireless specification of the image processing unit, see the “Console Advance (DR-ID 300CL) Operation Manual”.

Chapter 3 Basic Operation

3.1 Preparing the Flat Panel Sensor

This section describes how to prepare the flat panel sensor.

3.1.1 Type of Flat Panel Sensor

DR-ID1271SE, DR-ID1272SE, DR-ID1273SE, DR-ID1274SE, DR-ID1275SE
The battery pack (optional) is required when the flat panel sensor is used in wireless communication mode.

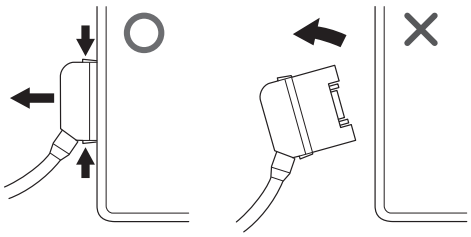
3.1.2 Number of the Connectable Flat Panel Sensors

To enable the flat panel sensor, its ID needs to be registered in advance by our official dealer or FUJIFILM Representative.
Up to a hundred flat panel sensors can be registered.
Up to five flat panel sensors can be connected. Up to two flat panel sensors can be connected to one power supply unit in wired communication mode. Up to one power supply units can be used.

3.1.3 Connecting/Disconnecting the Flat Panel Sensor Connector

1 Disconnect the connector.

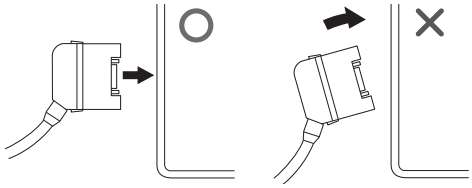
Press the latches on both sides of the connector.



Do not place the connecter on the floor.

2 Connect the connector.

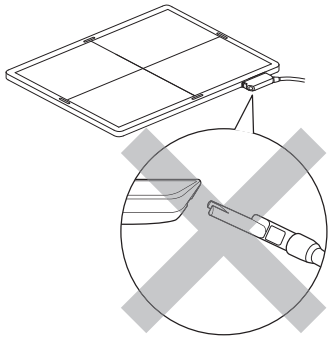
Press the connector into the insertion section.



Make sure that the latches on both sides are properly engaged when connecting the connector. If the connector is inserted incompletely, the power may turn off.

When multiple flat panel sensors are used, make sure that the READY lamp among the status lamps of the flat panel sensor to be used for an exposure is lit.

Connect/Disconnect the connector straight to the flat panel sensor. If connected/disconnected at an angle, the connector may be damaged.



3.1.4 Inserting/Removing the Flat Panel Sensor into/from the Radiographic Examination Stand

Follow the procedure below to insert/remove the flat panel sensor into/from the radiographic examination stand.

For details, see the Operation Manual for the radiographic examination stand

CAUTIONS

For the positioning at the time of inserting/removing the flat panel sensor, see the Operation Manual for the radiographic examination stand.

CAUTIONS

Make sure that the flat panel sensor is installed in the radiographic examination stand securely.

CAUTIONS

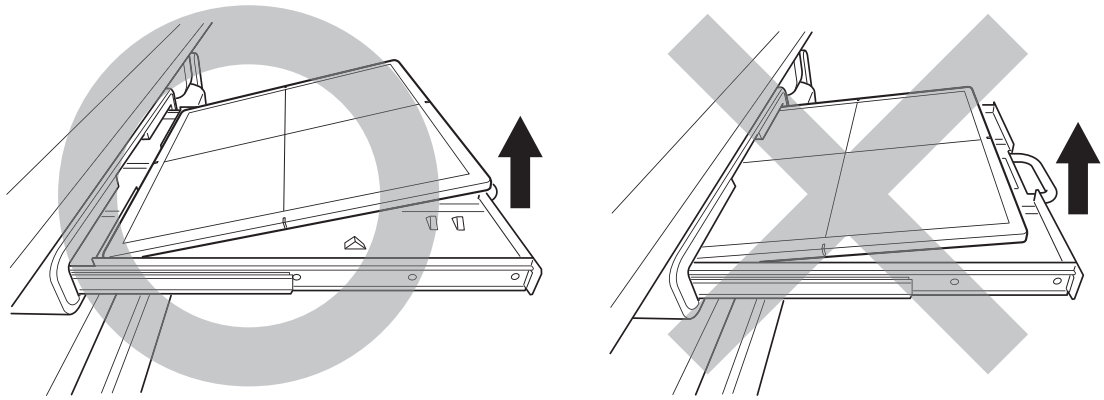
Be careful not to have your fingers caught when inserting/removing the flat panel sensor into/from the radiographic examination stand.

CAUTIONS

When pulling out/pushing in the tray of the radiographic examination stand after setting the flat panel sensor on it, be careful not to drop the flat panel sensor or damage the tray.

CAUTIONS

Before inserting/removing the flat panel sensor into/from the radiographic examination stand, pull out the tray completely. Otherwise, the flat panel sensor may be damaged.

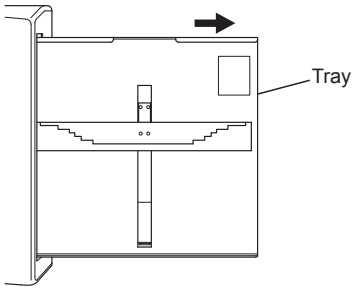


[1] Upright type

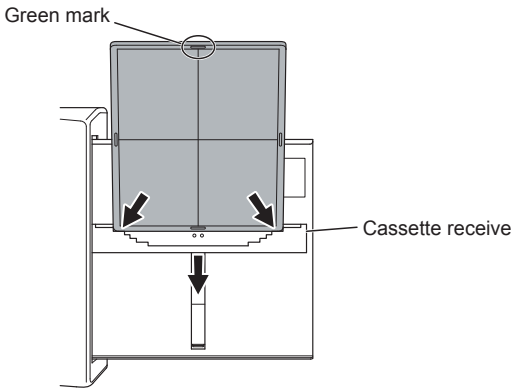
CAUTIONS

When inserting the flat panel sensor into the radiographic examination stand, direct the exposure plane toward the X-ray tube.

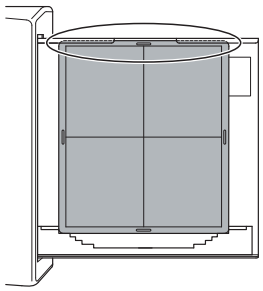
1 **Pull out the tray.**



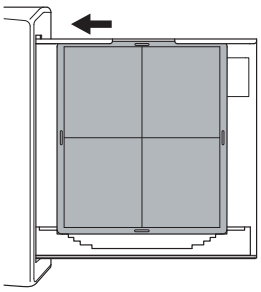
2 **Insert the flat panel sensor into the cassette receive with the green mark of the flat panel sensor up, and then move it downwards.**



3 **Set the flat panel sensor to the upper part of the tray.**



4 **Push the tray back into place after setting the flat panel sensor.**



5 **Remove the flat panel sensor after use.**

Pull out the tray, push the cassette receive downwards, and then remove the flat panel sensor.

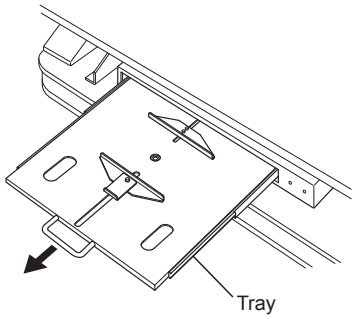
Push the tray back into place.

[2] Bed type

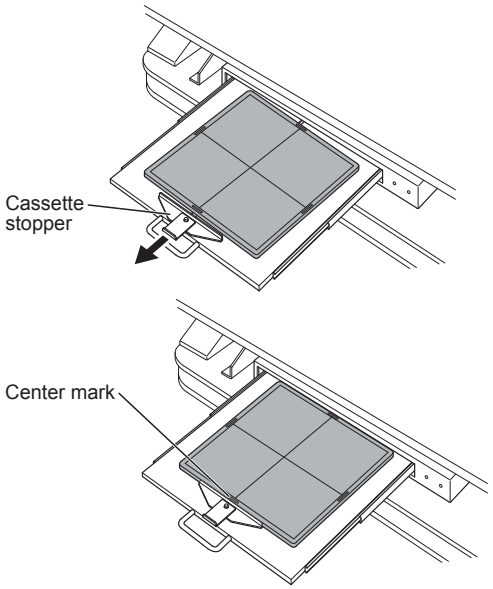
CAUTIONS

When inserting the flat panel sensor to the radiographic examination stand, direct the exposure plane upwards.

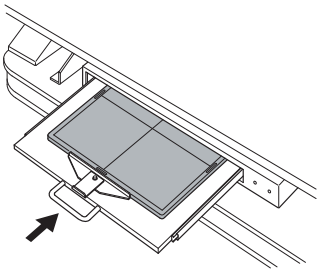
1 **Pull out the tray by using the handle.**



2 **Pull the cassette stopper, and set the flat panel sensor so that its center mark is aligned with the center of the stopper.**



3 **Push the tray back into place by using the handle after setting the flat panel sensor.**

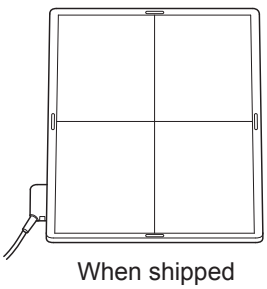


4 **Remove the flat panel sensor after use.**

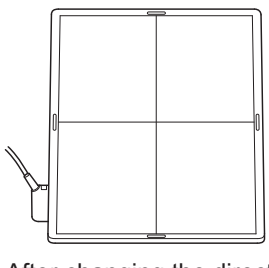
Hold the handle and pull out the tray. Remove the flat panel sensor while pulling the cassette stopper, and then push the tray back into place.

3.1.5 Changing the Direction of the Flat Panel Sensor Connector

The direction of the connector of the flat panel sensor can be changed, depending on how it is inserted into the radiographic examination stand.
To change the direction, contact our official dealer or FUJIFILM Representative.



When shipped



After changing the direction

3.1.6 Charging the Battery Pack for the Flat Panel Sensor

Charge the battery pack (optional) using the battery charger (optional).

CAUTIONS

Do not charge the battery pack other than those designated by FUJIFILM Corporation. If the battery pack is charged under the charging conditions (voltage, current and charging method) different from those specified by FUJIFILM Corporation, the battery pack may emit smoke, ignite, explode or leak fluid.

CAUTIONS

When setting the battery pack into the battery charger, make sure that the orientation of the battery pack is correct as shown in the figure in Step 1. If the battery pack is forcibly set in the wrong orientation, both the battery pack and the battery charger may be damaged and emit smoke, ignite, leak fluid or cause electric shock.

When the battery pack installed in the flat panel sensor is fully charged, it is possible to perform exposures for a maximum of approximately 500 images. However, the number varies depending on the usage conditions.

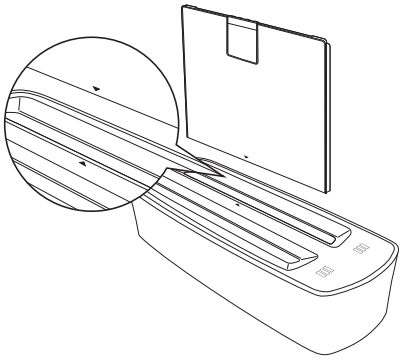
The capacity of the battery pack is displayed on the battery pack level indicator of the flat panel sensor and on the screen of the image processing unit.

When the remaining capacity of the battery pack of the flat panel sensor becomes less than approx. 10 minutes, a pop-up window appears on the image processing unit display, and exposure cannot be performed. If this happens, replace or charge the battery pack.

When the remaining capacity of the battery pack installed in the flat panel sensor becomes low, the battery pack level indicator is lit in orange and exposures cannot be performed. If this happens, connect the SE cable to the flat panel sensor to charge the battery pack.

1 Set the battery pack in the battery charger.

When the battery pack is set, a buzzer sound is generated and the charge status indicator LED lights.
Two battery packs can be charged at the same time.



2 When battery charge is completed, remove the battery pack.

When battery charge is completed, the charge status indicator LED changes from blinking to lighting.

3.1.7 Installing/Removing the Battery Pack for the Flat Panel Sensor

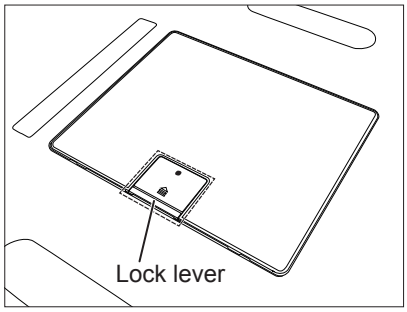
Follow the procedure below to install/remove the battery pack for the flat panel sensor.

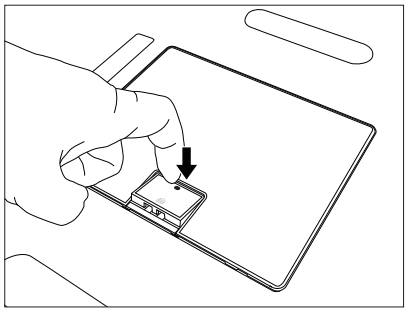
When installing/removing the battery pack, place the flat panel sensor on a flat place.

Do not remove the battery pack until a processed image appears in the window of the image processing unit after the exposure.

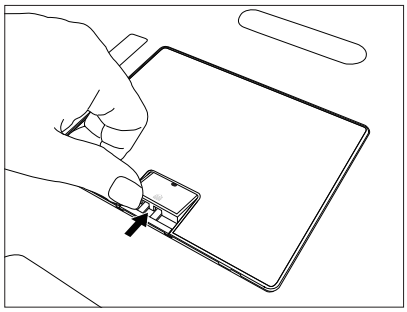
1 Remove the battery cover.

Place the flat panel sensor with the back side facing upward and press the "●" portion of the lock lever.





Slide the lock lever in the direction of the arrow to remove the battery cover.



2 Install the battery pack.

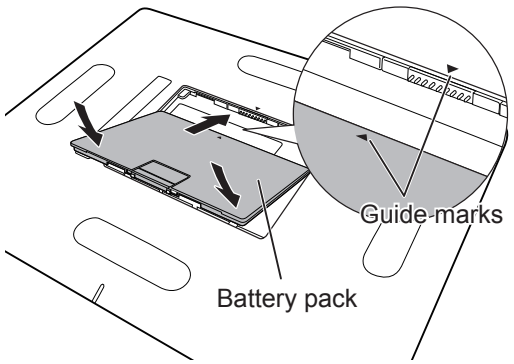
Slide the battery pack along the dent of the battery section of the flat panel sensor toward the connector terminal. Align the guide mark of the battery pack with that of the flat panel sensor, and push the battery pack in to install it.
Make sure that battery pack is securely installed.

When installing the battery pack, do not press the lock lever.

Pushing the battery pack in with the guide marks misaligned may damage the connector terminal.

When attaching the battery pack, make sure that the waterproof packing attached to the connector terminal of the flat panel sensor is aligned properly.

When the battery pack is installed in the flat panel sensor, the power is automatically turned on.

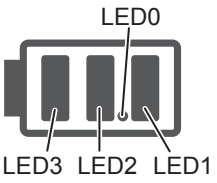


- To remove the battery pack, perform the same procedure as Step **1** (removing the battery cover).
- To install the battery cover, perform the same procedure as Step **2** (installing the battery pack).

3.1.8 Lamp Indications on the Flat Panel Sensor

This section explains the indications of the battery pack level indicator. For other lamp indications, see “2.2 Unit Names and the Functions”.

■ Battery pack level indicator



(When the battery pack is being charged)	
Fully charged	LED1, 2, 3: Lit in green
Available time: 60 minutes or more	LED3: Blinking in green, LED1, 2: Lit in green
Available time: 30 minutes or more but less than 60 minutes	LED2 : Blinking in green, LED1: Lit in green
Available time: Less than 30 minutes	LED1: Blinking in green
(When the battery pack is not charged)	
Available time: 60 minutes or more	LED1, 2, 3: Lit in green
Available time: 20 minutes or more but less than 60 minutes	LED1, 2: Lit in green
Available time: Less than 20 minutes	LED1: Lit in green
Available time: 10 minutes or less	LED0: Lit in orange

3.2 Starting Up and Shutting Down the System

This section explains how to start up and shut down the system. Operations are required on the power supply unit, power box, flat panel sensor and image processing unit.

The procedure below is an example of using the image processing unit DR-ID 300CL. For details on the image processing unit being used, see the Operation Manual provided with the personal computer.

3.2.1 Starting Up the System

(When only the flat panel sensor is used)

Make sure that the power cable is connected to the image processing unit.

1 Install the fully charged battery pack to the flat panel sensor.

2 When the optional access point is used, connect the access point to the image processing unit.

CAUTIONS

Use the optional access point by connecting it to the preset image processing unit and to the USB connector. Do not use the optional access point by connecting it to other image processing unit and/or USB connector.

3 After making sure below items are performed, press the power switch for the image processing unit. The initialization process starts.

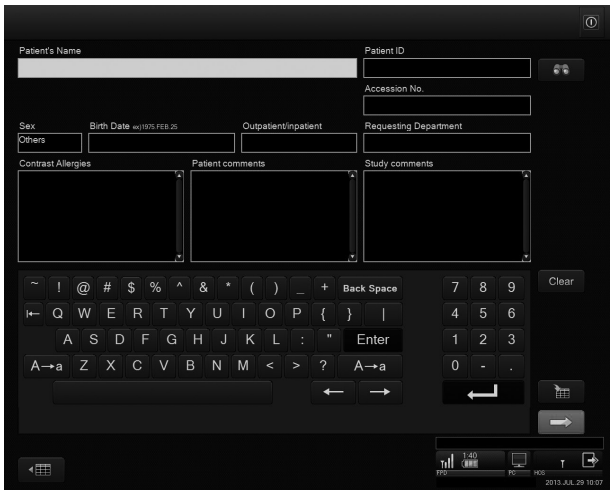
• All cables should be connected properly.
• No media should be inserted into the disk drive of image processing unit.
If the control cabinet is included in the system, the control cabinet starts up automatically.

CAUTIONS

If the power status LED of the control cabinet does not come on after turning on the image processing unit, turn on the control cabinet.

4 The Patient Information Input Screen below appears following the opening screen on the image processing unit monitor.

Patient Information Input Screen



CAUTIONS

An error occurs if the system is started up immediately after shutdown.
To restart the system including the control cabinet, make sure that the power status LED of the control cabinet is off, and then press the power switch for the image processing unit.

CAUTIONS

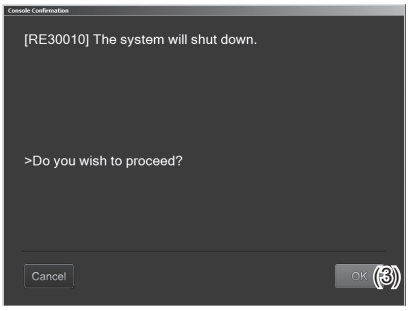
- **Do not connect/disconnect the flat panel sensor to/from the power supply unit or to/from the power box while the message "Calibrating..." is displayed in the connected devices status after the system startup. Otherwise, the system does not start up normally, resulting in an error.**
- **may be displayed in the connected devices status while information on radio wave strength is being acquired from the flat panel sensor.**

When the Power supply unit and Power box are used, refer to the respective operation manuals.

3.2.2 Shutting Down the System

(When only the flat panel sensor is used)

1 **Confirm that the equipment is not running. Touch the button at the upper right of the image processing unit display, and then the Shut Down button from the displayed menu. Touch the OK button in the displayed confirmation window.**
The image processing unit will shut down in a few minutes. If the control cabinet is included in the system, the control cabinet will also turn off automatically.



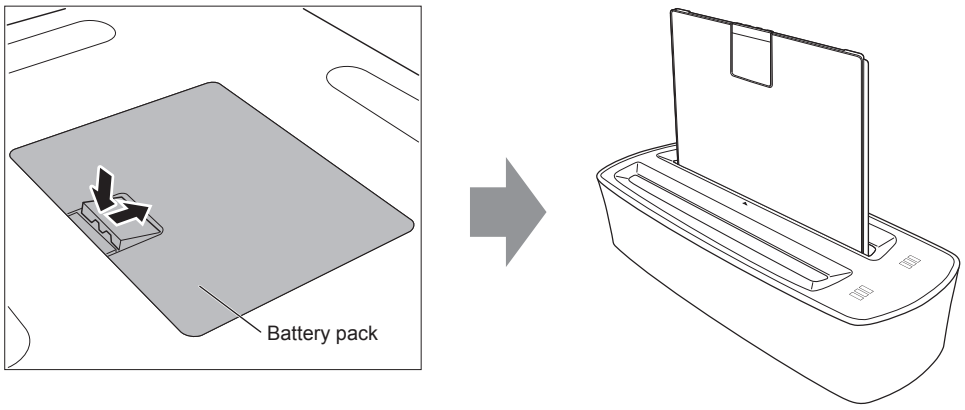
2 **Turn off the display as necessary.**

3 **Make sure that calibration of the flat panel sensor is completed.**

When completed, the READY lamp of the flat panel sensor turns off.

4 **When the optional access point is used, remove the access point from the image processing unit.**

5 **Remove the battery pack from the flat panel sensor. Set these battery packs in the battery charger.**



CAUTIONS

If the control cabinet is included in the system, do not turn off the control cabinet with the main switch. Shutdown operation may not be performed normally.

CAUTIONS

When the system is shut down, image quality adjustment is performed for obtaining optimal diagnostic images.
Do not disconnect the SE cable or SE communication cable until system shutdown when the flat panel sensor is used in wired communication mode.
Remove the battery pack after confirming system shutdown when the flat panel sensor is used in wireless communication mode.

When the Power supply unit and Power box are used, refer to the respective operation manuals.

3.3 Sleep mode

When sleep mode is enabled, if no operation is performed for about two minutes without an exposure menu registered, the flat panel sensor will enter sleep mode and the power state is changed to the power-saving state. Once an exposure menu is registered, sleep mode is canceled automatically. In addition, when the SE cable is connected to the flat panel sensor or power box, sleep mode is canceled automatically.

In sleep mode, the operating time of the battery pack becomes longer since the power is saved. If the flat panel sensor is being calibrated, or if it detects an impact, it may take longer time to enter sleep mode, or sleep mode may be canceled temporarily. When the setting of sleep mode needs to be changed, consult our official dealer or local representative.

Chapter 4 Daily Inspection and Maintenance

4.1 Daily User Inspection and Maintenance

During maintenance and inspection, strictly observe precautions contained in “Chapter 1 For Safe Operation” in this manual for you to use the DR-ID1270 under best conditions.

4.1.1 Periodical Inspection

Inspection Every Three Months

Once every three months, remove any dirt or dust accumulated in each part of the equipment using a vacuum cleaner or air duster, clean each part with a slightly moistened soft cloth and then wipe off any moisture with a dry cloth.

See “2.2 Unit Names and the Functions” (page 2-3).

CAUTIONS

Be sure to turn off the power before cleaning each part of the device.

No.	Unit	No.	Unit	No.	Unit
1	Flat panel sensor	2	Power supply unit	3	Power supply unit Air filter (1)

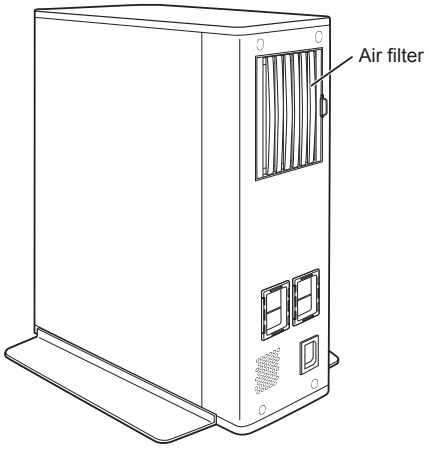
No.	Unit
4	Power box

CAUTIONS

Ensure sufficient space when cleaning the equipment on a table, etc.

Air filter

Clean the air filter on the rear of the power supply unit with a vacuum cleaner.
Remove the louver while pressing the lever on the right side, and then clean the air filter with a vacuum cleaner after detaching it from the louver.



Appendix A Specifications

A.1 Specifications

Specifications of the DR-ID1270 are shown below.

A.1.1 Reduced Equivalent (DR-ID1270)

Peak reduced equivalent on the front panel of the flat panel sensor: 0.5 mmAl

A.1.2 Power Supply Conditions

■ Flat panel sensor

Rated voltage: 6-12V ⎓
Input current : 2.73A

■ Power supply unit/Power box

Rated voltage: 100-240V~
Input current : 2-0.84A
Frequency : 50-60Hz

A.1.3 Environmental Conditions

■ Flat panel sensor/DR-ID1270MP/DR-ID1270PB

(1) Operating Conditions

Temperature : 15°C (15%RH) - 35°C (80%RH)
Humidity : 15%RH (15°C) - 80%RH (30°C) (no dew condensation)
Atmospheric pressure : 700hPa - 1060hPa

(2) Non-operating Conditions
(Environmental conditions under which power can be supplied)

Temperature : 5°C - 35°C
Humidity : 10%RH - 90%RH (no dew condensation)
Atmospheric pressure : 700hPa - 1060hPa

(3) Storage Conditions

Temperature : -30°C - 50°C
Humidity : 10%RH - 90%RH (no dew condensation)
Atmospheric pressure : 700hPa - 1060hPa

⚠ CAUTIONS

- **When the flat panel sensor is used in high temperature condition for long period of time, it may cause image artifacts and/or failure of the device.**
- **When using the DR-ID 1271SE, DR-ID 1273SE or DR-ID 1275SE, if the temperature is 37ºC and the humidity is 90% RH (no dew condensation), continuous use of 30 minutes or less is possible.**
  Using Manual Mode (energy saving mode) from the image processing unit when the temperature and humidity are the same allows up to 1 hour of continuous use.

■ Battery charger (optional)

(1) Operating Conditions

Temperature : 0°C - 35°C
Humidity : 10%RH - 85%RH (no dew condensation)

(2) Non-operating Conditions

(Environmental conditions under which power can be supplied)

Temperature : -20°C - 60°C
Humidity : 10%RH - 95%RH (no dew condensation)

CAUTIONS

Charge the battery pack in the operating environment.

A.1.4 Image Performance

Each flat panel sensor complies with IEC 62220-1 (MEDICAL ELECTRICAL EQUIPMENT - CHARACTERISTICS OF DIGITAL X-RAY IMAGING DEVICES -) as a general X-ray radiography equipment.
To ensure optimal image quality, it is recommended that you do not use the flat panel sensor near devices (motor, transformer, switching supply, etc.) that generate electromagnetic noise.

A.1.5 Load Restriction

Entire surface load :
DR-ID1271SE, DR-ID1272SE, DR-ID1273SE, DR-ID1274SE, DR-ID1275SE :
300kg (661.5 lb)
Local load :
DR-ID1271SE, DR-ID1272SE, DR-ID1273SE, DR-ID1274SE, DR-ID1275SE :
120kg (264.6 lb) / ø40mm (1.6in.) (Based on FUJIFILM measurement specifications)

CAUTIONS

Do not apply an excessive force to the exposure plane.
The sensor inside the flat panel sensor may be damaged, and it may not be possible to make an exposure properly.

A.1.6 Radio Waves

Wireless specifications for the flat panel sensor are as follows.

	Flat panel sensor
Wireless specification	IEEE802.11n
Transmit frequency	5.2, 5.3, 5.6, 5.8, 2.4 GHz
Modulation	OFDM
Frequency tolerance	±20 ppm
Data transfer rate	35 Mbps
Transfer power	17 dBm or less

CAUTIONS

- **Transmit frequencies available vary, depending on the country.**
- **Radio waves available outdoors vary, depending on the country where the system is used.**
- **When the DR-ID1270 and any other wireless equipment are operating on the same frequency channel in a hospital, it may take time to show an image on the image processing unit monitor.**

A.2 External View and Weight

The external view and weight of the DR-ID1270 are shown below.

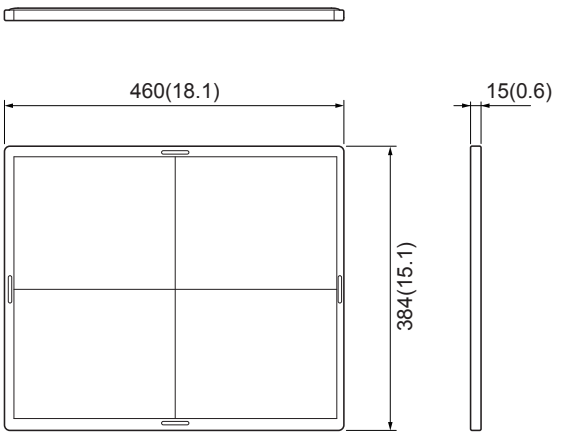
Specifications, dimensions and weight are subject to change for improvement without prior notice.

A.2.1 DR-ID1270

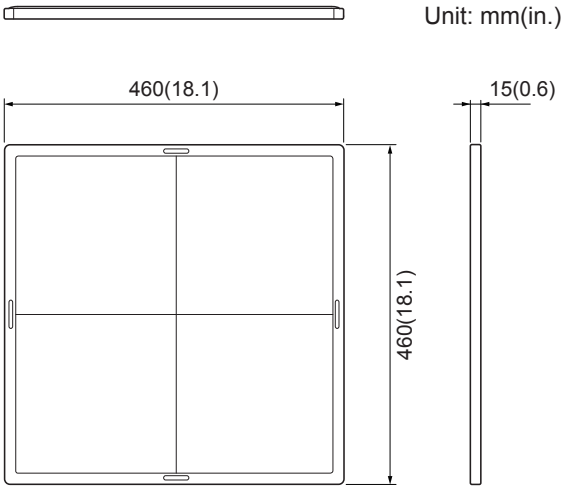
	Width (mm(in.))	Depth (mm(in.))	Height (mm(in.))	Weight (kg(lb))
Flat panel sensor (DR-ID1271SE)	460(18.1)	384(15.1)	15(0.6)	2.95(6.5)*1
Flat panel sensor (DR-ID1272SE)	460(18.1)	460(18.1)	15(0.6)	3.65(8.0)*1
Flat panel sensor (DR-ID1273SE)	460(18.1)	384(15.1)	15(0.6)	2.95(6.5)*1
Flat panel sensor (DR-ID1274SE)	460(18.1)	460(18.1)	15(0.6)	3.65(8.0)*1
Flat panel sensor (DR-ID1275SE)	328(13.0)	268(10.6)	15(0.6)	1.6(3.5)*1
Power supply unit	120(4.7)	388(15.3)*2	361(14.2)	8.7(19.2)
Power box	259(10.2)	205(8.1)*2	70(2.8)	3.2(7.1)*3

*1 The weight of the battery pack is included.
*2 Protrusions are excluded.
*3 The weight of the SE cable is included.

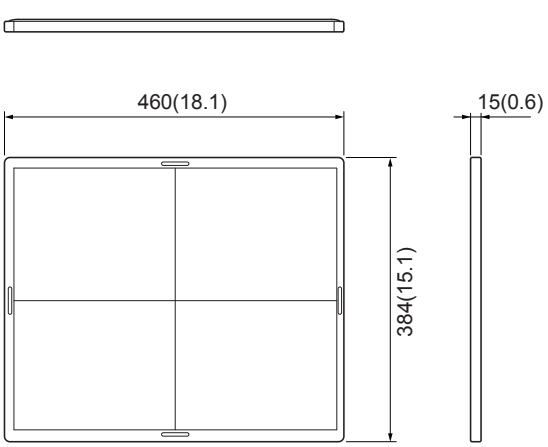
Unit: mm(in.)



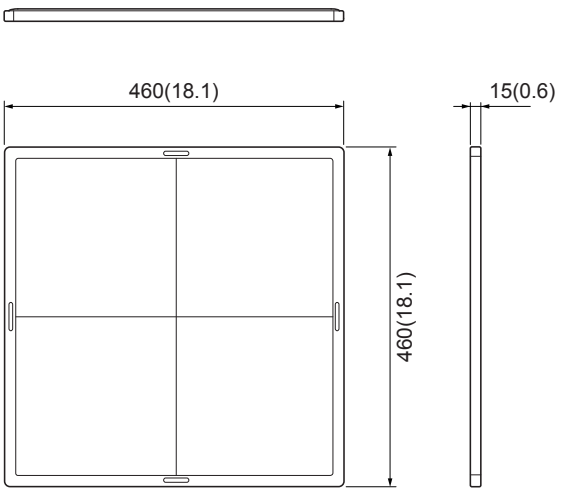
Flat panel sensor (DR-ID1271SE)



Flat panel sensor (DR-ID1272SE)

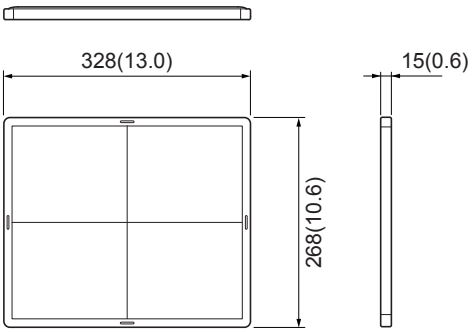


Flat panel sensor (DR-ID1273SE)

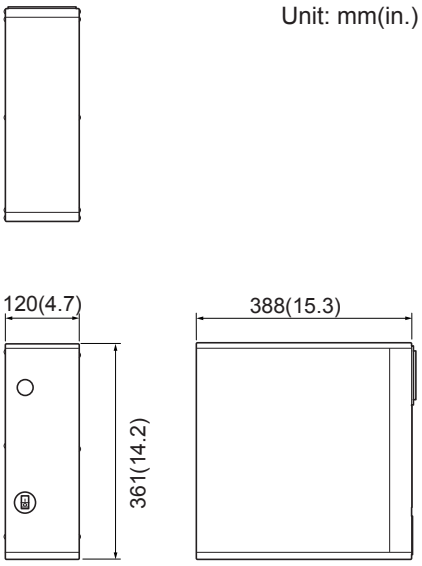


Flat panel sensor (DR-ID1274SE)

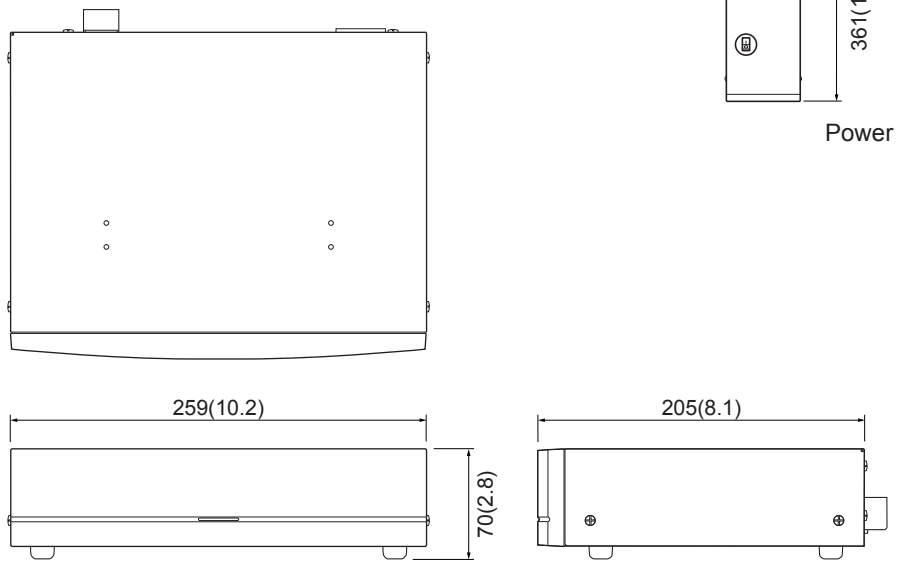
Unit: mm(in.)



Flat panel sensor (DR-ID1275SE)

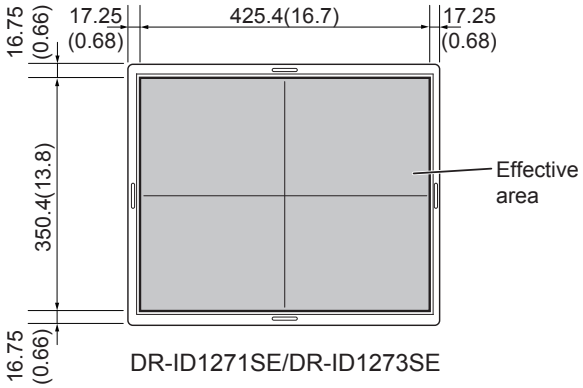


Power supply unit

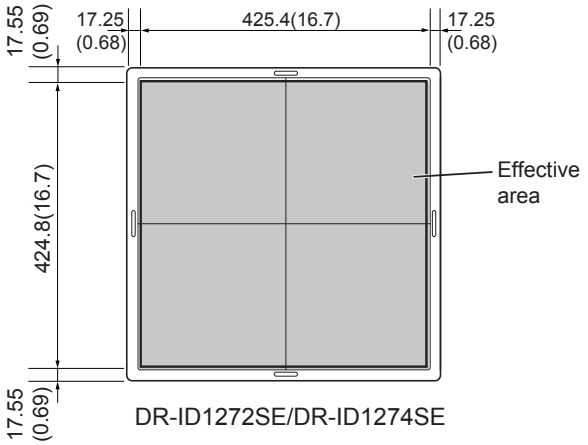


Power box

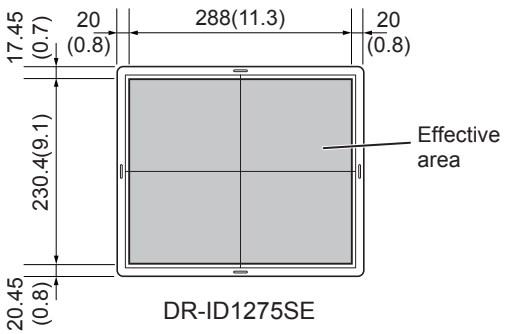
The effective area of the flat panel sensor is as shown in the figure below.



DR-ID1271SE/DR-ID1273SE



DR-ID1272SE/DR-ID1274SE

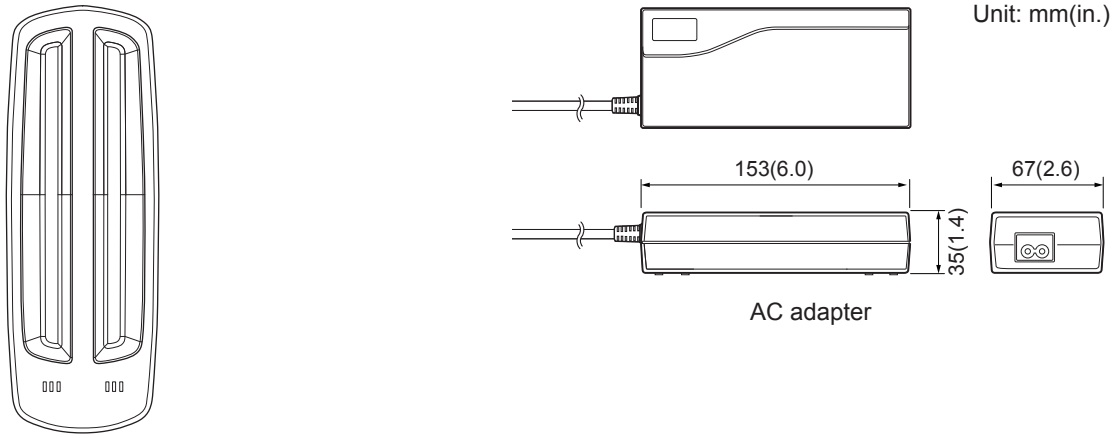


DR-ID1275SE

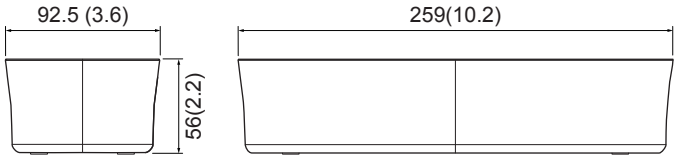
■ Battery charger (optional)

	Width (mm(in.))	Depth (mm(in.))	Height (mm(in.))	Weight (kg(lb))
Battery charger	92.5(3.6)	259(10.2)	56(2.2)	0.6(1.3)
AC adapter	153(6.0)	67(2.6)	35(1.4)	Approx.0.51(1.1)

Unit: mm(in.)



AC adapter



Battery charger

A.3 Characteristics

(1) Sensitometoric Response Characteristics and Dynamic Range
DR-ID1270 has a linear response against the exposure range where it can depict the clinical information.
The flat panel sensor covers a dynamic range of 0.088 - 88μGy at least at RQA5.

(2) Spatial Resolution Properties
A typical MTF value of DR-ID1271SE/DR-ID1272SE at 1cyc/mm, RQA5 is 0.75 (high sharpness mode) and 0.60 (standard sharpness mode).
A typical MTF value of DR-ID1273SE/DR-ID1274SE/DR-ID1275SE at 1cyc/mm, RQA5 is 0.80.
The level of uncertainty is estimated as less than ±10%

(3) DQE (Detective Quantum Efficiency)
Typical DQE value of DR-ID1271SE/DR-ID1272SE at 8.8μGy in 1cyc/mm is 0.31.
Typical DQE value of DR-ID1273SE/DR-ID1274SE/DR-ID1275SE at 8.8μGy in 1cyc/mm is 0.54.
The level of uncertainty is estimated as less than ±10%

(4) Display
To deliver the detector characteristics above, it is recommended to use a monitor with the following specifications:

- Image matrix size : Minimum 2336x2836 pixels (DR-ID1271SE/DR-ID1273SE)
- Image matrix size : Minimum 2832x2836 pixels (DR-ID1272SE/DR-ID1274SE)
- Image matrix size : Minimum 1536x1920 pixels (DR-ID1275SE)
- Gray scale: Minimum 12 bit
- DICOM calibrated

(5) Image Quality Evaluation
Fujifilm typically conducts reader studies that compare new DR-ID1270 detector models to chosen marketed devices. These studies, involving an assessment of image quality by board-certified radiologists, have demonstrated that the images acquired using the DR-ID1270 detectors are deemed to be of diagnostic capability. Additionally, reader studies have concluded that, when used in conjunction with FUJIFILM's recommended exposure conditions as a reference, both the GOS-based and CsI-based DR-ID1270 detectors can provide acceptable diagnostic capability and image quality at reasonably low dose levels typically used for pediatric use.

(6) Typical Patient Dose
As with any new product/application, Fujifilm provides applications training support to each customer to establish the dose levels that meet the image quality standards of the medical facility. As part of this training, we provide both recommended technique charts as well as guidance for optimizing AEC conditions for each detector type. When using any DR-ID1270 detector, typical patient dose levels should not exceed that of screen/film or Computed Radiography.

Appendix Z Precautions for Exposure

Z.1 Precautions for the Automatic X-ray Detection Function

Z.1.1 Precautions for Making an Exposure

1 The flat panel sensor cannot detect X-rays automatically unless Shot Ready (exposure ready status indicator) on the image processing unit, the READY lamp among the status lamps on the flat panel sensor is lit green. Even if the indicator is not lit green, radiation can be delivered but an image will not be output. Make sure that the indicator is lit green before making an exposure.

2 Check the tube current of the X-ray equipment in advance, and set exposure conditions based on the tube current by referring to the table below. If the conditions are not met, X-rays cannot be detected automatically and an image may not be acquired.

<table>
<tr><th>Tube current</th><th>Tube voltage</th><th>Exposure time</th><th>SID</th><th>Radiation field</th></tr>
<tr><td>More than 40 mA</td><td>Set the tube voltage according to the anatomical region and body thickness.</td><td rowspan="3">More than 1 ms (*3)</td><td>Set the SID according to the anatomical region.</td><td>Do not limit the radiation field to the bone region (*1) only.</td></tr>
<tr><td>More than 20 mA and less than 40 mA</td><td rowspan="2">Set the tube voltage to more than 50 kV according to the anatomical region and body thickness.</td><td colspan="2">Set the SID to 100 cm (39.4 in.) or less and do not limit the radiation field to the bone region (*1) only. Alternatively, set the SID according to the anatomical region and include the directly exposed area (*2).</td></tr>
<tr><td>More than 10 mA and less than 20 mA</td><td>100 cm (39.4 in.) or less</td><td>Include the directly exposed area (*2).</td></tr>
<tr><td>Less than 10 mA</td><td colspan="4">The automatic X-ray detection function cannot be used.</td></tr>
</table>

*1 When making an exposure, for example, for a finger or knee, set the radiation field to at least 6 cm × 10 cm (2.4 in. × 3.9 in.) for the former and at least 10 cm × 10 cm (3.9 in. × 3.9 in.) for the latter, so that the field is not limited to the bone region only.

*2 The areas of the flat panel sensor, which are directly exposed to X-rays that do not pass through the subject, must have a width of more than 3 cm (1.2 in.) from the subject.

*3 Depending on the X-ray equipment, the actual exposure time may differ from the set time. Before use, make sure that the flat panel sensor can detect X-rays automatically.

3 As illustrated below, if the subject whose thinnest part is at least 40 cm (15.7 in.) in thickness covers the entire surface of the flat panel sensor, it cannot detect X-rays automatically and an image may not be acquired. In this case, make an exposure for the region including the directly exposed area or switch to the High Sensitivity Mode. While the high sensitivity mode is being set, a shock might cause a blank image.

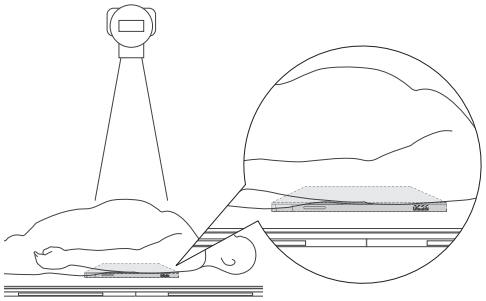


Figure of an exposure for the subject covering the entire surface of the flat panel sensor

4 When an exposure menu is registered and the system is ready for an exposure, the flat panel sensor enters X-ray detection mode. If an exposure is not made for a period of time while an exposure menu is registered, the operating time of the flat panel sensor's battery pack may be reduced to half. In addition, the battery pack cannot be charged with an exposure menu registered, even if the flat panel sensor has a wired connection. For these reasons, do not keep the system on standby, unless you make an exposure.

Z.1.2 Precautions Related to the X-ray Exposure Time

When delivering radiation, do not set the exposure time beyond the maximum limit specified for the flat panel sensor at the time of installation. Otherwise, vertical artifacts may appear in the image.

Z.2 Other Precautions

Z.2.1 Precautions for Exposure of a Subject in Relatively Large Contrast

1 Exposures using a contrast medium may cause artifacts around it.

2 When exposing a subject with any metal objects implanted, artifacts may appear around them.

3 For exposures with objects of large X-ray absorption, such as lead characters and metals for measurement, artifacts may appear around them. Place such objects outside a subject.

Z.2.2 Precautions for Flat Panel Sensor

Generally, when performing a high sensitivity exposure shortly after an exposure that the flat panel sensor excessively receives direct X-ray, the output image may contain image lags of the previous exposure. This phenomenon rarely occurs and does not occur insofar as normal sensitivity exposures are performed.
Exposures at longer intervals can reduce occurrences of this phenomenon. Also observe precautions as follows.

- Continuous high sensitivity exposures to vertebral body part (chest/lumbar spine) should be performed at longer intervals than normal exposures.
- A high sensitivity exposure shortly after a high-dose exposure should be performed at sufficiently long interval.
- When performing high-dose exposures repeatedly, do not use collimation of the radiation field, lead characters or metals for measurement at the same position.

Z.2.3 Precautions for Assuring the Radiation Field

CAUTIONS

- **It is important to read the following before using the DR-ID1270 digital detector clinically.**
- **Do not make the radiation field larger than the size of the flat panel sensor. Especially when the high tube voltage is set, the radiation field size should not be larger than the subject unless necessary.**

The DR-ID1270 is a digital X-ray detector designed for use both within and outside of a standard radiographic bucky. Radiation field can be set up to 14” × 17” (DR-ID1271SE/DR-ID1273SE), 17” × 17” (DR-ID1272SE/DR-ID1274SE) or 24 × 30cm (DR-ID1275SE), and this product may be used with the X-ray equipment in any situation where a film cassette may be used.
The collimator will open up to 14” × 17” (DR-ID1271SE/DR-ID1273SE), 17” × 17” (DR-ID1272SE/DR-ID1274SE) or 24 × 30cm (DR-ID1275SE), when the DR-ID1270 cassette is inserted in the bucky tray of the X-ray equipment with positive beam limitation (PBL).
Follow the X-ray system manufacturer’s instructions to assure the indicated field size matches and does not exceed the actual radiation field size for the available range of SIDs.

Z.2.4 Images Output When the X-ray Shot Switch is Operated Incorrectly

In case that you press the X-ray shot switch only momentarily after selecting exposure menus, sufficient X-ray dose may not be achieved. The output image contains image lags of the previous exposure occasionally.
If this happens, select exposure menus again, and then make an exposure.

Z.2.5 Precautions for Urgent Use

When you start a study before completion of the calibration at the time of startup, the operation will be in Urgent Use Mode. At this time, “Urgent use is possible” appears in the “Output Device Status window” of the image processing unit.

- There is no guarantee that the image taken in Urgent Use Mode can be used for diagnostic purposes. Vertical artifact could appear in the image, if the temperature difference is large from the previous shutdown of the system. Check the image quality before use.
- Move from the Study Screen to the Patient Information Input Screen immediately after exiting Urgent Use Mode, so that the calibration will start over automatically.

Z.2.6 Precautions Related to Continuous Operation

If you plan to continuously run the system for over 24 hours, perform post-operation check, and then restart the system.
Otherwise, calibration will not be performed normally, and image quality cannot be guaranteed as a result.

Z.2.7 Precautions Related to Grid

Depending on the type of the grid used, its stripes may appear in the image after making an exposure. To avoid such moire effects, sway the grid from side to side, or use the Grid Pattern Removal Processing Software in conjunction with the grid with 40 lines.

Z.2.8 Precautions during Calibration

Observe the following when the READY status lamp on the flat panel sensor is blinking or when the message “Calibrating...” is displayed on the image processing unit.

- Do not subject the flat panel sensor to shock.
- Do not deliver radiation.
- Do not connect/disconnect the flat panel sensor to/from the power supply unit or power box.

Z.2.9 Precautions for Exposing the Flat Panel Sensor to X-ray

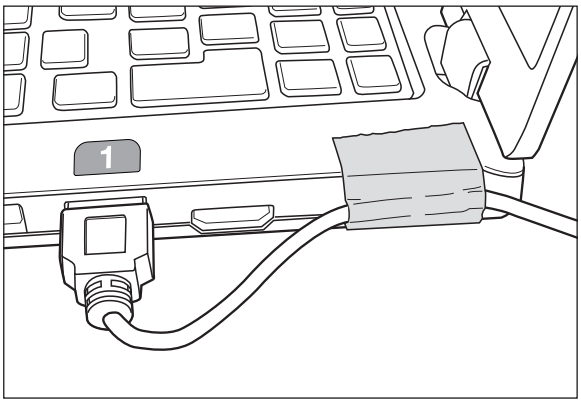
When you expose the flat panel sensor to X-ray at any other time except during radiography, artifacts could appear in the image. If artifacts appeared in the image due to X-ray irradiation, perform a test X-ray radiography after waiting for more than 2 minutes and then restart exposure after confirming that the artifacts disappear.

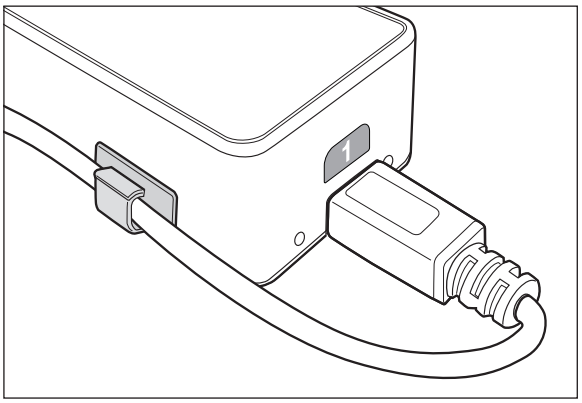
Z.2.10 Precautions for Extended Image Readout

If any impact is applied to the flat panel sensor while an image is being acquired with Extended Image Readout, artifacts may appear in the image. Before removing the flat panel sensor from the radiographic examination stand, be sure to check the acquired image on the image processing unit. In addition, note that when Extended Image Readout is enabled, the system cannot be used in an emergency since the system start-up time becomes longer.

Z.2.11 Precautions for Using the Access Point

When making an exposure with the access point, do not remove the USB cable until the image appears on the image processing unit and ShotReady lights green.
Also, with the supplied Velcro tape and clamp or by other means, secure the USB cable before use to prevent it from being disconnected accidentally.





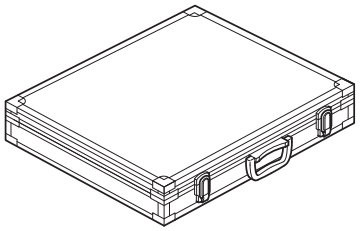
Appendix O Use of Optional Items

O.1 Optional Items

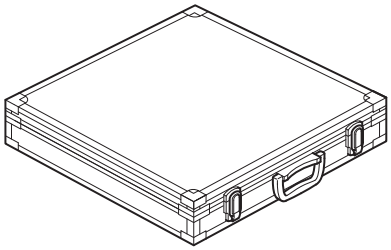
Name	Description
SE storage case*	A case used for carrying and storing the flat panel sensor. ◐ For the external view and precautions, see “O.2 Using the SE Storage Case” (page O-2).
Battery pack*	A battery pack for the flat panel sensor. ◐ For precautions, charging and installing/removing, see pages 1-7, 1-8, 3-5 and 3-6.
Battery charger*	A battery charger for the battery pack. ◐ For precautions, external view and charging, see pages 1-7, 1-8 and 3-5.
Power supply unit*	A device supplying power to the flat panel sensor and connecting between the flat panel sensor and the control cabinet. ◐ For the external view and precautions, see “O.3 Power Supply Unit” (page O-3).
Power box*	A device supplying power to the flat panel sensor and connecting between the flat panel sensor and the control cabinet. ◐ For the external view and precautions, see “O.4 Power Box ” (page O-3).
Magnetic clamp for flat panel sensor cable*	A clamp for fixing the SE cable to the radiographic examination stand, etc.
SE communication cable*	A cable used for connecting the flat panel sensor and the optional access point. This cable is used for wired communication if wireless communication is not available. In addition, this cable is used for registering or recognizing the flat panel sensor. Cable length : Approx. 1m (3.3 ft)
Access point*	An access point used for wireless communication between the flat panel sensor and the image processing unit. ◐ For the external view and precautions, see “O.5 Access Point” (page O-4).

* Accessories: Extra facilities to the DR-ID1270 which easily can be mounted by the user.

O.2 Using the SE Storage Case



SE storage case for 35
(DR-ID1271SE/DR-ID1273SE)

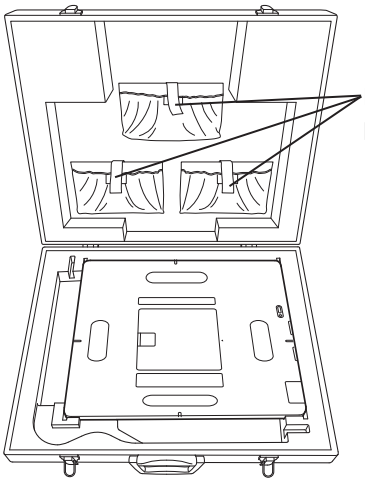


SE storage case for 43
(DR-ID1272SE/DR-ID1274SE)

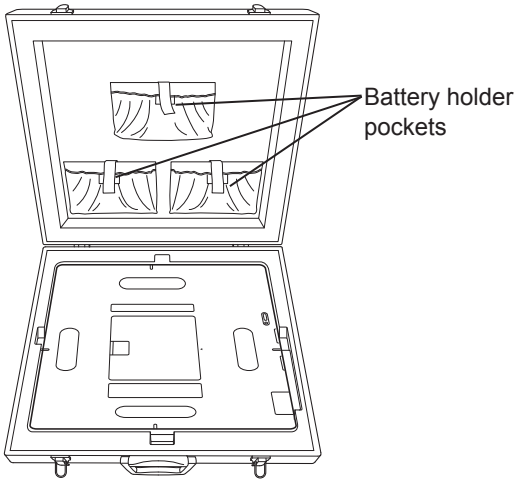
CAUTIONS

- **Do not store the SE storage case in a location with the following conditions.**
  - **Where the SE storage case is exposed to direct sunlight.**
  - **Where the temperature and humidity change dramatically.**
  - **Where there is excessive dust.**
  - **Where chemicals are stored.**
  - **Where the SE storage case may be exposed to water due to water leakage or ingress.**
- **Store the flat panel sensor and the cable properly in the SE storage case. Otherwise, they may be caught under the case lid and damaged.**
- **Do not connect the flat panel sensor to the SE cable or SE communication cable while it is stored in the SE storage case.**
- **Do not store anything other than the flat panel sensor in the SE storage case.**
- **Carefully carry the SE storage case when the flat panel sensor is inside.**
- **The SE storage case and/or the flat panel sensor inside may be damaged if the case is subject to an impact.**
- **Do not open/close the SE storage case in a location where there is excessive dust or dirt.**
- **Do not put the SE storage case on an unstable place. If it falls or drops, personal injury may result.**
- **Be careful not to have your hand or an object caught when closing the SE storage case.**

When storing the flat panel sensor in the SE storage case, place it with the exposure plane down. For details, see the illustrations below.

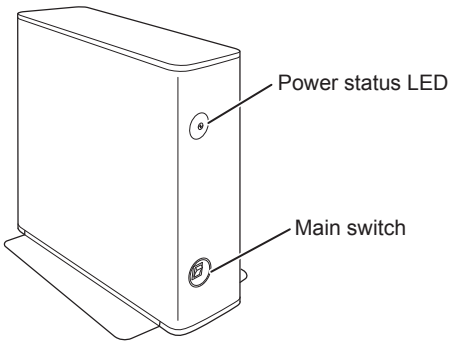


SE storage case for 35
(DR-ID1271SE/DR-ID1273SE)



SE storage case for 43
(DR-ID1272SE/DR-ID1274SE)

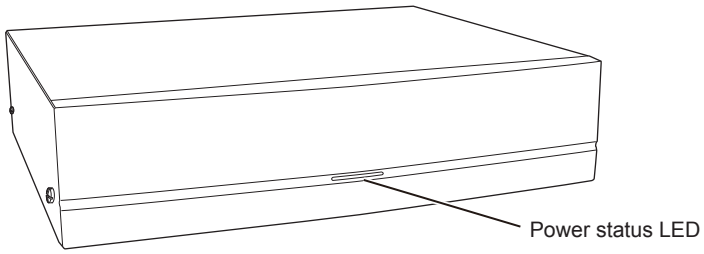
O.3 Power Supply Unit



Power supply unit

Name	Description
Main switch	Supplies the power to the flat panel sensor and the inside of the power supply unit.
Power status LED	Displays ON/OFF of the power supply unit.

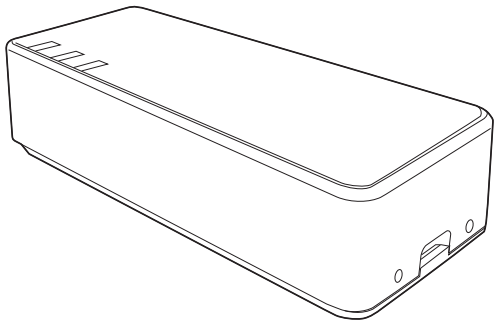
O.4 Power Box



Power box

Be sure to connect the LAN cable (2m) supplied with this product to the power box. If a longer cable is required, connect the other end of the LAN cable supplied with this product to a HUB, and connect an additional LAN cable via the HUB.

O.5 Access Point



Precautions for Use

CAUTIONS

- **The Access Point incorporates a wireless device that complies with the technical standards. Do not disassemble or modify the Access Point.**
  In addition, do not remove the name plate attached to this product. If the name plate is not attached, use of this product is prohibited.
- **Use of the Access Point is allowed in the area of purchase.**
- **Make sure that there are no shielding materials between the Access Point and the communication device. For example, if there is a metal plate or concrete wall between them, wireless communication may not be available. In addition, do not cover the plane with the status lamps.**
- **Do not use the Access Point near the following devices.**
  - Industrial, scientific and medical equipment such as a microwave oven, pacemaker, etc.
  - Local private radio stations for mobile object identification used in factory production lines, etc. (radio stations requiring a license)
  - Specified low power radio stations (radio stations requiring no license)
- **Do not use the Access Point near radios, televisions, mobile phones or PHS phones as far as possible. If these devices are placed near the wireless LAN products, audio or video noise may occur due to electromagnetic waves generated from the wireless LAN products including the Access Point.**
- **Do not use the Access Point near a heat source. In addition, do not cover the ventilation holes.**
- **Do not allow the Access Point get wet or dusty.**
- **Take care not to trip over the cable. If the cable is disconnected or almost disconnected, wireless communication may not be established.**
- **Do not subject the Access Point to severe shock (by dropping it, etc.).**
- **When using the Access Point, place it at least 20cm (7.9in.) away from the body.**
- **To supply power to the Access Point, connect it to the FUJIFILM-specified personal computer supporting USB 3.0.**
- **Use the Access Point by connecting it to the preset image processing unit and to the USB connector.**
- **Directly connect the Access Point and the image processing unit only with the supplied USB cable. Do not use a hub for connection.**
- **Do not delete or change the USB driver installed in the image processing unit.**
- **Do not place the supplied Velcro tape over the Access Point Product Label and Access Point Radio Law Certification Label.**

Precautions for LAN Connection

CAUTIONS

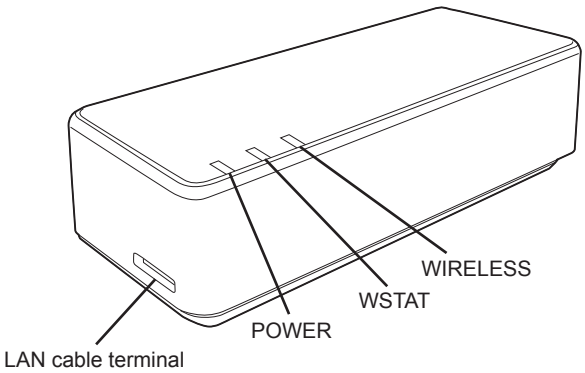
- **For the LAN connection, use the dedicated LAN conversion cable. In addition, when connecting or disconnecting the LAN conversion cable, be sure to hold the connector portion. If it is connected or disconnected while holding the cable, the cable may be broken.**
- **Radio waves available outdoors vary, depending on the country where the system is used. (For Canada) Radio waves in the 5.2GHz and 5.3GHz frequency band can be used indoors only. (For U.S.) Radio waves in the 5.2GHz frequency band can be used indoors only.**
- **When radio waves in the 5.3GHz and 5.6GHz frequency bands are selected, the DFS function will operate.**
- **When the Access Point and a personal computer is connected using the USB cable, do not connect the Access Point and the personal computer via the LAN connection.**

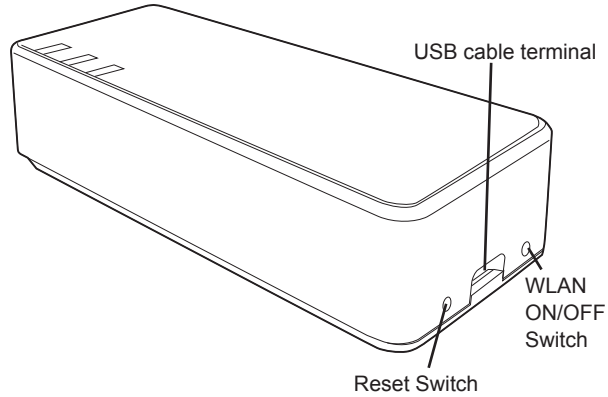
Precautions for Using the DFS (Dynamic Frequency Selection) Function

CAUTIONS

- **The Access Point supports the DFS function conforming to IEEE 802.11n. When radio waves in the 5.3GHz and 5.6GHz frequency bands are selected, the channel may be changed automatically in order to avoid interference to weather radar, etc.**
- **Even during start-up, the Access Point checks if there are any radar waves. While the check is in progress, communication with the Access Point is not available.**
- **If a radar wave is detected, the radar wave is monitored for a specified time (about 1 minute)*. While monitoring the radar wave, wireless communication is not available. In addition, about 30 minutes are required until the channel in which a radar wave was detected becomes available. * 10 minutes for the 120 to 128 channels in Europe**

Lamps





● Status lamp

POWER	Green	Blinks	Start-up in progress
	Green	On	Start-up completed
	Red	Blinks	USB communication error
WIRELESS	Green	On	5GHz band
	Orange	On	2.4GHz band
	Off		Wireless LAN OFF
WSTAT	Green	Data transmission in progress	
	Red	DFS is active	

● Wireless LAN Switch

When wireless LAN is OFF: Press and hold this switch for more than 3 seconds to turn ON wireless LAN.
When wireless LAN is ON: Press and hold this switch for more than 3 seconds to turn OFF wireless LAN.

● Restart Switch

The Access Point restarts when this switch is pressed after the Access Point starts up. (Do not press this switch during the start-up process. If pressed, wireless communication may not be established.)

For details of the access point, see “Access point Operation Manual”.

Maintenance and Inspection

1 Maintenance and Inspection Items Assigned to Specified Dealer

For periodical inspection of the equipment and necessary arrangements, consult our official dealer or local representative.

Periodical Maintenance

Make sure that the periodical maintenance and inspection assigned to our official dealer or FUJIFILM Representative are performed as specified.

Maintenance and Inspection Items Assigned to Specified Dealer

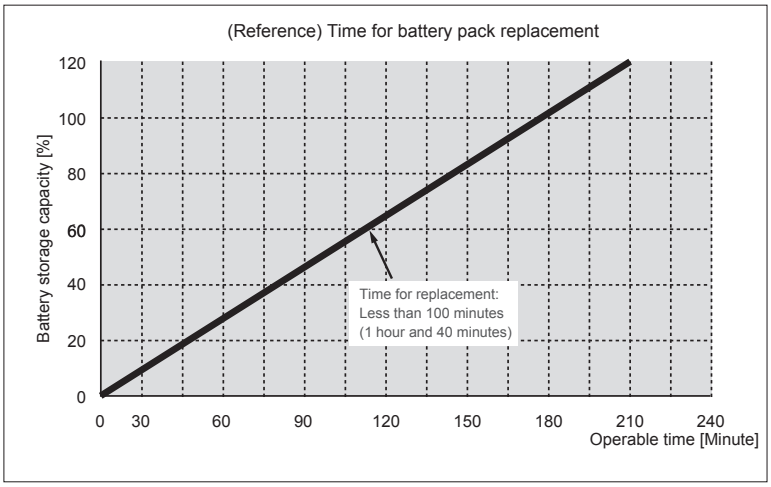
Periodical Maintenance and Inspection Items	Period
Checking of the image	Every year
Checking of the operation record by referring to the error log	Every year
Checking of the units	Every 2 years

Main Periodical Replacement Parts

Name of Periodical Replacement Parts	Period
Relay (optional)	Every 1 years (Number of exposures : 90,000)

* It is recommended that the battery pack be replaced, if the battery storage capacity becomes lower than 60%.
  The battery pack should be replaced when the operable time is less than the following.
  - DR-ID1271SE/DR-ID1272SE/DR-ID1273SE/DR-ID1274SE/DR-ID1275SE :
    100 minutes (1 hour and 40 minutes)

  * Refer to the operable time displayed on the image processing unit when the battery pack is fully charged and no exposure menu is registered.
  * Depending on the usage environment, etc., the displayed time is slightly different from the actual operable time.



The cycles of periodical maintenance and inspection and of parts replacement differ depending on the usage and the daily operation time.
For details, contact our official dealer or FUJIFILM Representative.

FUJIFILM

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FUJIFILM Corporation

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CE 0123

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