

Flat Panel Sensors

DR-ID1271SE

DR-ID1272SE

DR-ID1273SE

DR-ID1274SE

DR-ID1275SE

Operation Manual

3rd Edition : July 2018

For Safe Operation

**System
Configuration
(Product Overview)**

Basic Operation

**Daily Inspection and
Maintenance**

Appendix

**Maintenance and
Inspection**

Introduction

The indirect-conversion flat panel sensor is a device which acquires a general radiograph. The flat panel sensor is a component of DR-ID1270.

Available flat panel sensor is DR-ID1271SE/DR-ID1272SE/DR-ID1273SE/DR-ID1274SE/DR-ID1275SE.

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 flat panel sensor 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.



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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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Maintenance and Inspection

Chapter 1 For Safe Operation

1.1 Safety

Before using the flat panel sensor, 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 install the battery pack 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 flat panel sensor or subject it to severe shock. Otherwise, the flat panel sensor may be damaged. If the damaged flat panel sensor 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 FUJIFILM Corporation. Failure to use the optional parts recommended by FUJIFILM Corporation may result in damage to the flat panel sensor and/or electric shock and injury.

For details on the precautions for using the optional parts recommended by FUJIFILM Corporation, see the Operation Manual for the optional parts.



CAUTIONS

Keep the flat panel sensor 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 the flat panel sensor is not explosion-proof, do not use combustible and explosive gases near the flat panel sensor.



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 remove the battery pack, 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, retirez immédiatement la batterie, 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**

Use the flat panel sensor on a flat place. Otherwise, the flat panel sensor may fall down, causing damage to the flat panel sensor or personal injury.

**CAUTIONS**

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

Connection Instructions

**WARNING**

Make sure that the devices to be connected to the flat panel sensor are authorized for connection.

**WARNING**

When the flat panel sensor is used in wired communication mode, connect it only to the devices specified by our official dealer or FUJIFILM Representative.

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 equipment other than those used for patients out of their reach to ensure appropriate system isolation.



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 at the time of disinfection. Doing so may damage the flat panel sensor and quality, performance and safety of the flat panel sensor 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 flat panel sensor.

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.



CAUTIONS

If flat panel sensor is not disinfected, it may lead secondary infection. Be sure to disinfect with ethanol after use.



CAUTIONS

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.

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.
- For details on the operation, refer to the “FDR D-EVO II FDR ES Battery Pack Operation Manual”

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 flat panel sensor. Otherwise, personal injury 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 flat panel sensor, 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.

Contraindications and Prohibitions

No contraindications present.

Classification

- According to the type of protection against electrical shock
Internal power supply equipment
- According to the degree of protection against electrical shock
Type B applied part
- According to the degree of protection against harmful ingress of water
IP00 (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 or the DR-ID1270MC	20m (65.6 ft)	Cat5e or more, UTP type and straight cable
	Between the Power box and the Image processing unit *	2m (6.56 ft)	

* When the distance between the Power box and the DR-ID 1200MC or the DR-ID1270MC 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 1270MC.

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. 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.
RF emissions CISPR 11	Class B		
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			
<p>The DR-ID1270 is intended for use in the electromagnetic environment in which radiated RF disturbances are controlled.</p> <p>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.</p>			
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
<p>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.</p>			
<p>NOTE 1: At 80 MHz and 800 MHz, the separation distance for the higher frequency range applies.</p> <p>NOTE 2: These guidelines may not apply in all situations. Electromagnetic propagation is affected by absorption and reflection from structures, objects and people.</p>			

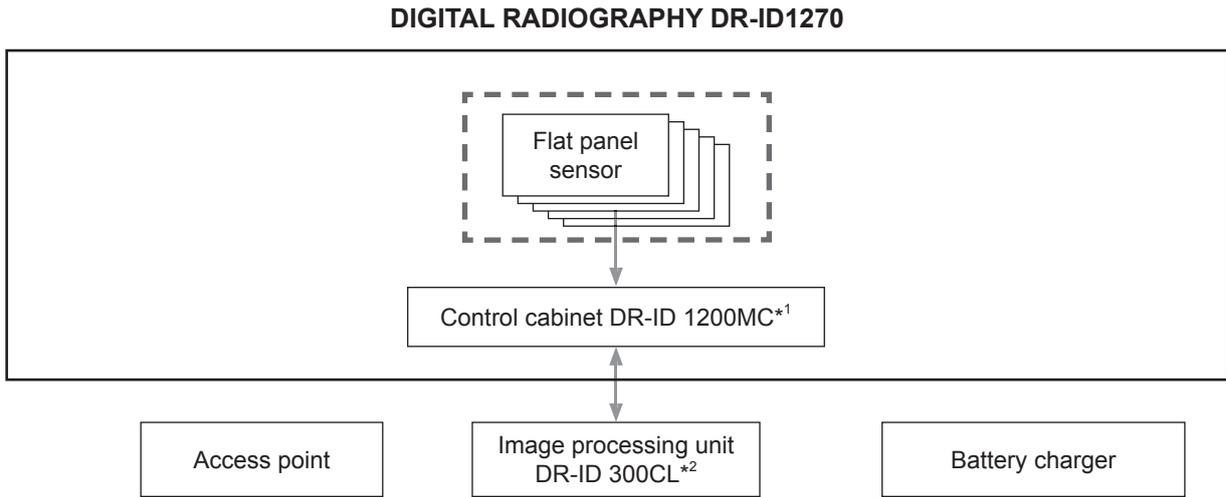


For Safe Operation

Chapter 2 System Configuration (Product Overview)

2.1 Flat Panel Sensor

2.1.1 System Configuration



- The products in  can be installed in patient environment.
- Up to five flat panel sensors can be connected.

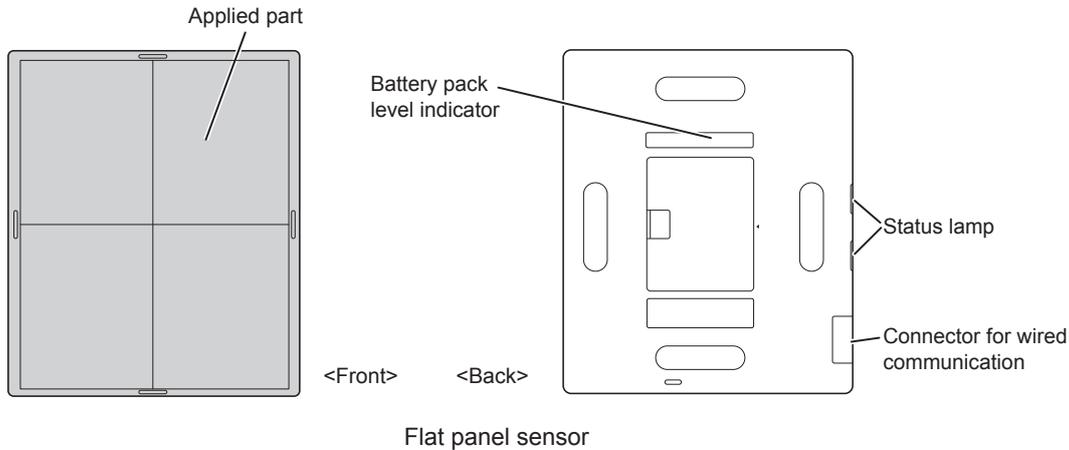
*1 The DR-ID1270MC can be used instead of the DR-ID 1200MC. When using the DR-ID1270MC, the image collecting console must be used instead of the image processing unit DR-ID 300CL.

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

2.2 Names and the Functions

Names and the functions of the flat panel sensor are described below.

* Exposure plane is shown in this figure.



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

Connector for wired communication	Only the dedicated power supply unit specified by our official dealer or FUJIFILM Representative can be connected.
-----------------------------------	--

Name	Description							
	Indicates the equipment status by LEDs.							
	<table border="1"> <tr> <td rowspan="3">READY (Green)</td> <td>On</td> <td>Exposure possible</td> </tr> <tr> <td>Blinks for 1.0 second</td> <td>During exposure sequence</td> </tr> <tr> <td>Off</td> <td>Not ready</td> </tr> </table>	READY (Green)	On	Exposure possible	Blinks for 1.0 second	During exposure sequence	Off	Not ready
	READY (Green)		On	Exposure possible				
			Blinks for 1.0 second	During exposure sequence				
Off		Not ready						
<table border="1"> <tr> <td rowspan="2">POWER (Blue) (The power on/off state of the flat panel sensor is displayed.)</td> <td>On</td> <td>Power ON</td> </tr> <tr> <td>Off</td> <td>Power OFF</td> </tr> </table>	POWER (Blue) (The power on/off state of the flat panel sensor is displayed.)	On	Power ON	Off	Power OFF			
POWER (Blue) (The power on/off state of the flat panel sensor is displayed.)		On	Power ON					
	Off	Power OFF						
<table border="1"> <tr> <td rowspan="2">ERROR (Orange)</td> <td>Blinks for 1.0 second</td> <td>Error occurred</td> </tr> <tr> <td>Off</td> <td>Normal</td> </tr> </table>	ERROR (Orange)	Blinks for 1.0 second	Error occurred	Off	Normal			
ERROR (Orange)		Blinks for 1.0 second	Error occurred					
	Off	Normal						
<table border="1"> <tr> <td rowspan="2">LINK (White)</td> <td>On</td> <td>Connected</td> </tr> <tr> <td>Off</td> <td>Communication not possible.</td> </tr> </table>	LINK (White)	On	Connected	Off	Communication not possible.			
LINK (White)		On	Connected					
	Off	Communication not possible.						

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



HINT

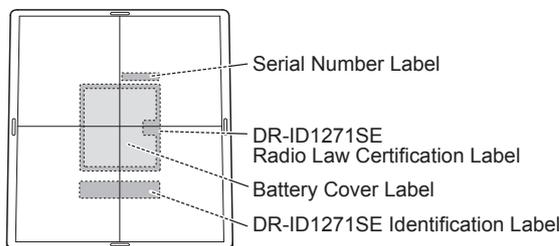
For details on the battery pack level indicator, see “3.1.6 Lamp Indications on the Flat Panel Sensor”.

2.3 Locations of Labels and Signs

Locations of labels and signs affixed to each flat panel sensor, and the relevant safety signs are shown below.

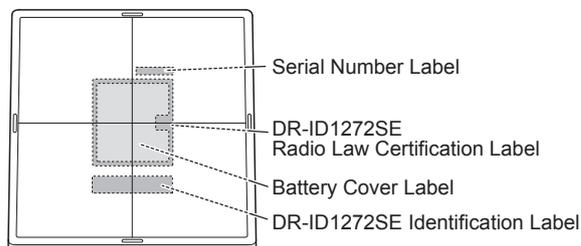
2.3.1 Locations of Labels

Flat panel sensor (DR-ID1271SE)



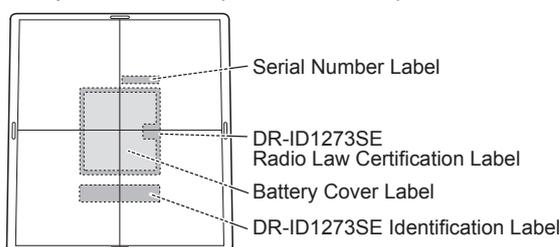
<Exposure plane>

Flat panel sensor (DR-ID1272SE)



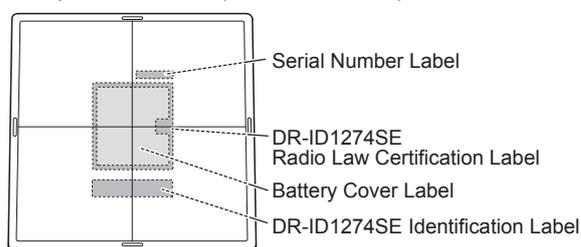
<Exposure plane>

Flat panel sensor (DR-ID1273SE)



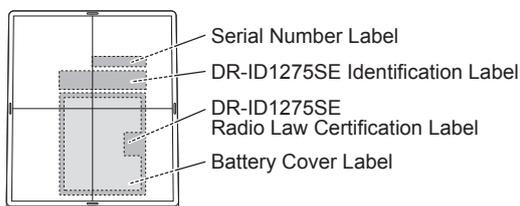
<Exposure plane>

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



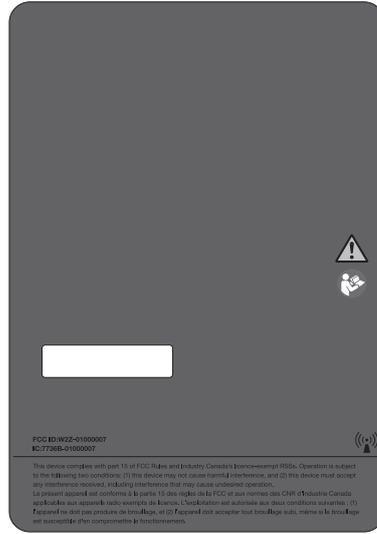
DR-ID1275SE Identification Label



Serial Number Label

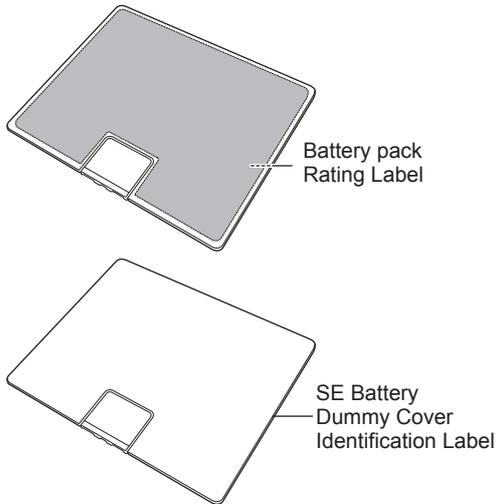


DR-ID1271SE/DR-ID1272SE/
DR-ID1273SE/DR-ID1274SE/
Radio Law Certification Label



DR-ID1275SE
Radio Law Certification Label

Battery pack (optional)



FUJIFILM Corporation
350Y120405

SE Battery Dummy Cover
Identification Label

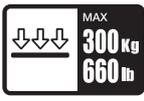
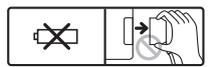


Battery Pack Rating Label

* The label varies, depending on the battery pack.

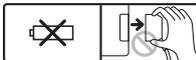
2.3.2 Safety and Other Symbols

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

Symbol	Description
	CE marking
	Protective earth (ground)
	Direct current
	This symbol indicates that the equipment is a Type B Applied Part.
	Ready (To indicate the machine is ready for operation.)
	Electric energy
	General mandatory action sign
	<p>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.</p> <p>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.</p> <p>At the same time, your cooperation in the correct disposal of this product will contribute to the effective usage of natural resources.</p> <p>For more information about waste, please contact our official dealer or FUJIFILM Representative.</p>
	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
	<p>UL certification mark</p> <p>The UL certification mark on this product indicates that this product meets the following standards.</p> <p>ANSI/AAMI ES60601-1:2005+A1:2012</p> <p>CAN/CSA-C22.2 NO. 60601-1:14</p>
	<p>This symbol indicates that the part is not a battery.</p> <p>This symbol instructs the user not to disconnect the SE cable during use.</p>

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
	Marquage CE
	Protection via mise à la terre (masse)
	courant continu
	Ce symbole indique que l'équipement est une pièce appliquée de type B.
	Prêt (Pour indiquer que la machine est prête à être utilisée.)
	Énergie électrique
	Symbole général d'action obligatoire
	<p>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.</p> <p>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.</p> <p>Votre coopération pour la mise au rebut correcte de ce produit contribuera en outre à une utilisation efficace des ressources naturelles.</p> <p>Pour en savoir plus sur les déchets, contactez notre revendeur agréé ou notre représentant FUJIFILM.</p>
	Année de fabrication
	<p>Attention relative à une charge placée de façon localisée /</p> <p>Ne faites pas tomber le détecteur à panneau plat sur l'utilisateur/le patient</p>
	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
	<p>Marque d'homologation UL</p> <p>La marque d'homologation UL figurant sur ce produit indique que le produit en question est conforme aux normes suivantes :</p> <p>ANSI/AAMI ES60601-1:2005+A1:2012</p> <p>CAN/CSA-C22.2 N° 60601-1:14</p>
	<p>Ce symbole indique que la pièce n'est pas une batterie.</p> <p>Ce symbole indique à l'utilisateur de ne pas débrancher le câble de branchement d'abonné pendant l'utilisation.</p>

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.

3.1.3 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.



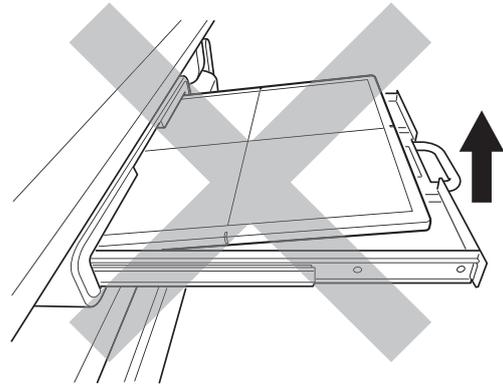
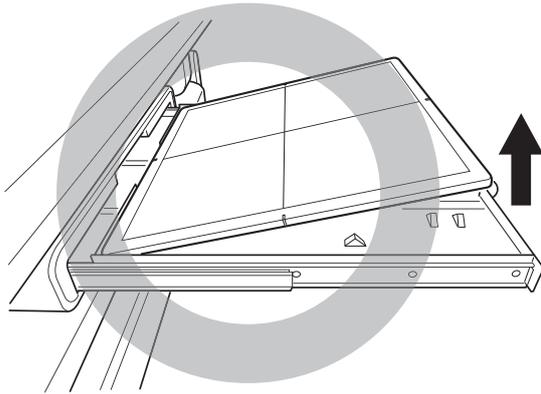
CAUTIONS

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.



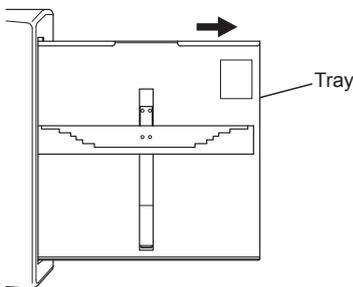
[1] Upright type



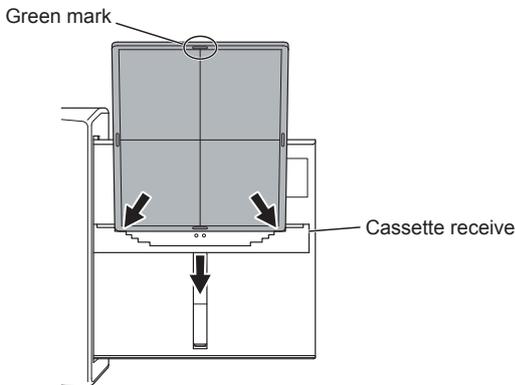
CAUTIONS

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

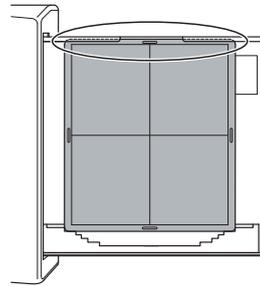
1 Pull out the tray.



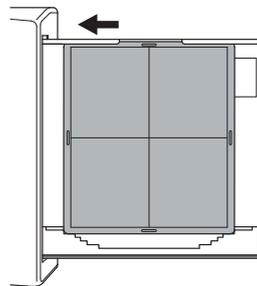
2 Insert the flat panel sensor into the cassette receive with the green mark of the flat panel sensor up, and then move it downwards.



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.

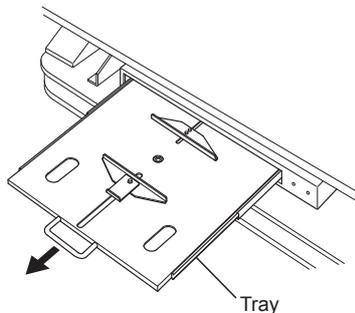
[2] Bed type



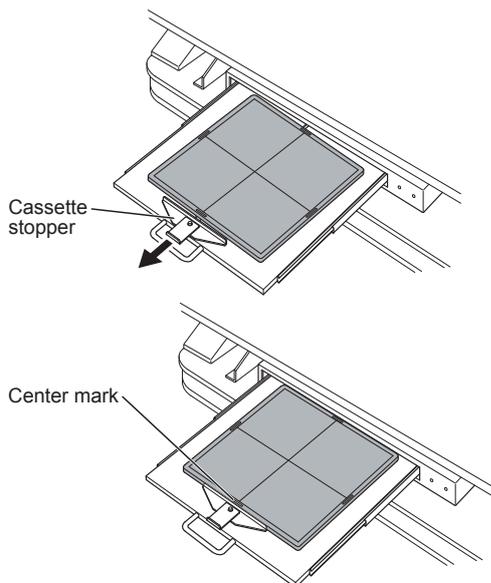
CAUTIONS

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

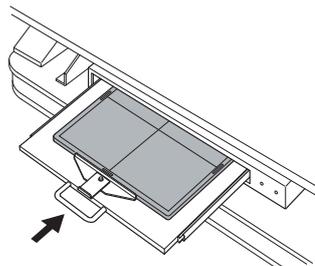
- 1 Pull out the tray by using the handle.



- 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.

3.1.4 Charging the Battery Pack for the Flat Panel Sensor

Use the battery charger recommended by FUJIFILM Corporation.

For details on operations, refer to the instruction manual for the battery charger.

3.1.5 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.



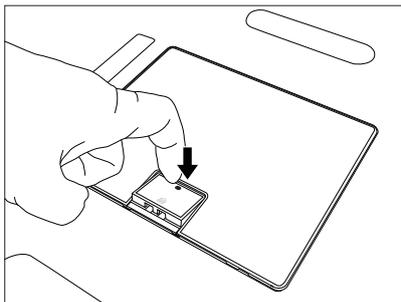
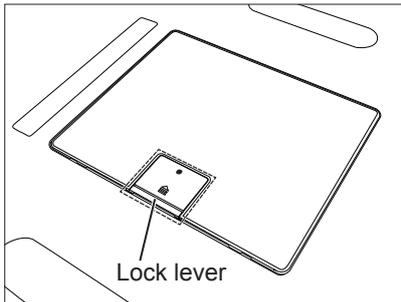
When installing/removing the battery pack, place the flat panel sensor on a flat place.



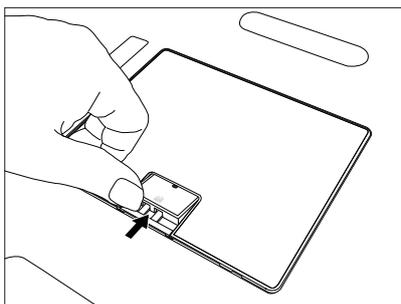
Do not remove the battery pack until a processed image appears in the window of the image processing unit after the exposure.

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.



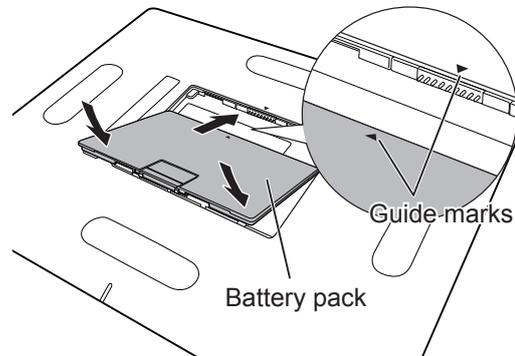
Pushing the battery pack in with the guide marks misaligned may damage the connector terminal.



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.

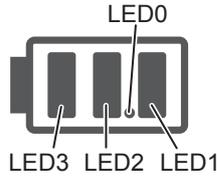


- To remove the battery pack, perform the same procedure as Step **1** (removing the battery cover).
- To install the battery cover, perform the same procedure as Step **2** (installing the battery pack).

3.1.6 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 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 Flat Panel Sensor

This section explains how to start up and shut down the Flat Panel Sensor.

3.2.1 Starting Up

- 1** Attach a fully charged battery pack to the flat panel sensor.

The POWER status lamp on the flat panel sensor is lit in blue.



Start up the flat panel sensor with the initial settings properly made by our official dealer or FUJIFILM Representative.

3.2.2 Performing an Exposure

- 1** When performing an exposure, make sure that the READY status lamp on the flat panel sensor is lit.

3.2.3 Shutting Down

- 1** Remove the battery pack from the flat panel sensor and set the battery pack in the battery charger.

The POWER status lamp on the flat panel sensor is lit.

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 flat panel sensor 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 Names and the Functions” (page 2-2).



CAUTIONS

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

No.	Unit
1	Flat panel sensor



CAUTIONS

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

4

Daily Inspection and Maintenance

Appendix A Specifications

A.1 Specifications

Specifications of the flat panel sensor are shown below.

A.1.1 Reduced Equivalent (Flat Panel Sensor)

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

A.1.2 Power Supply Conditions

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

A.1.3 Environmental Conditions

(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 - 80%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.

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) / \varnothing 40mm (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

The flat panel sensor uses the following types of radio waves.

	Flat panel sensor
Wireless specification	IEEE802.11n
Transmit frequency	5.2, 5.3, 5.6, 5.8, 2.4 GHz
Modulation	OFDM
Frequency tolerance	\pm 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 each flat panel sensor are shown below.

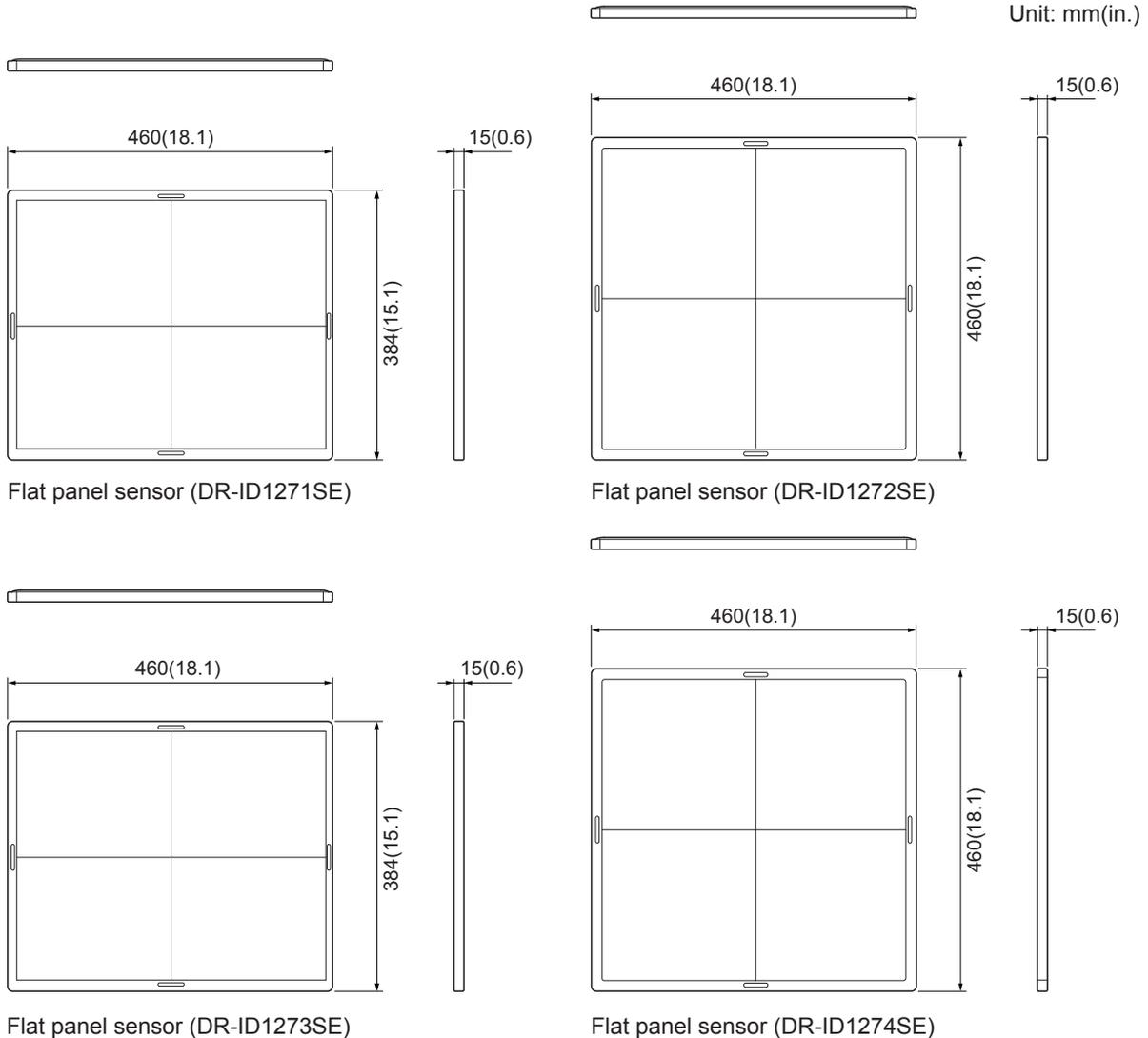


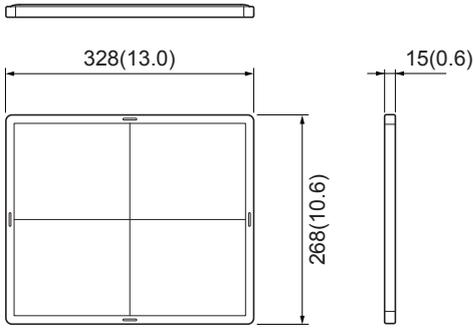
Specifications, dimensions and weight are subject to change for improvement without prior notice.

A.2.1 Flat Panel Sensor

	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

*1 The weight of the battery pack is included.

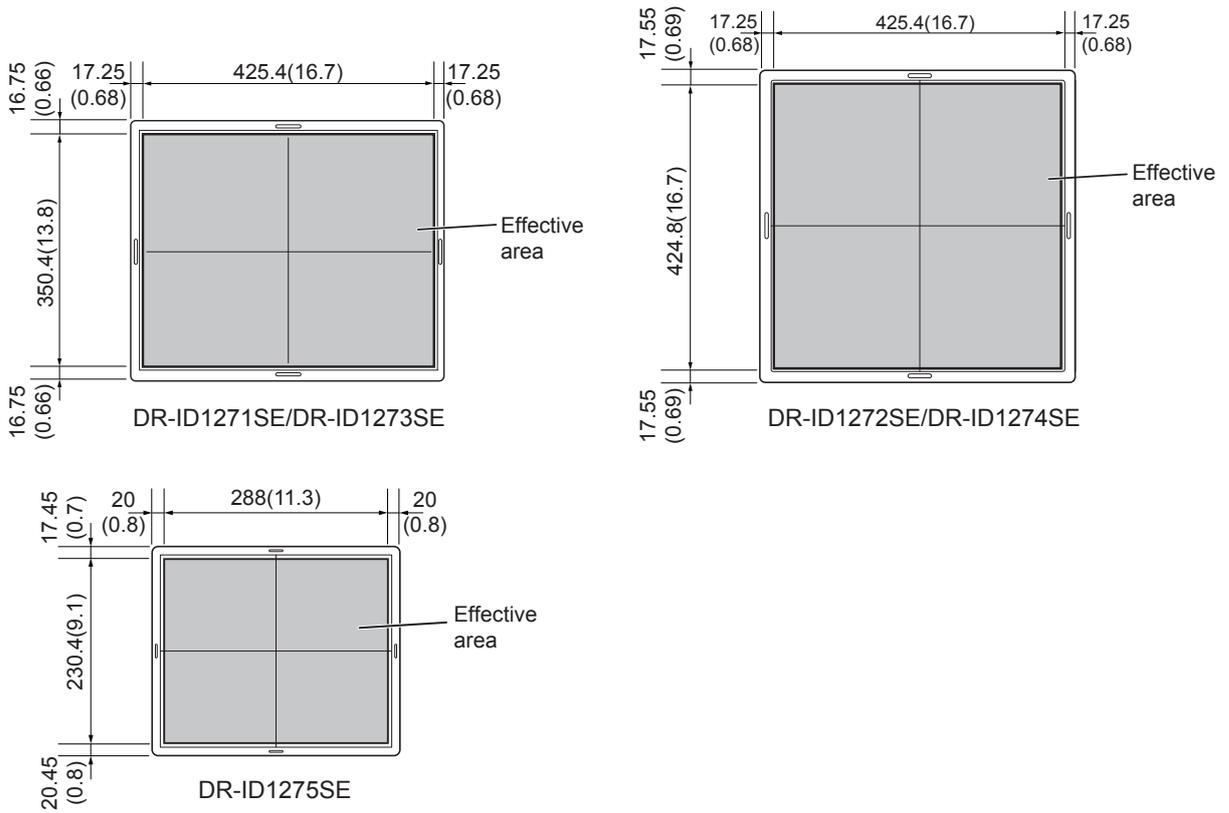




Flat panel sensor (DR-ID1275SE)



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



Appendix O Use of Optional Items

O.1 Optional Items

Name	Description
Battery pack*	A battery pack for the flat panel sensor. ▶ For precautions, charging and installing/removing, see pages 1-5, 1-6, 3-3 and 3-4.

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



Appendix O Use of Optional Items

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 flat panel sensor	Every 2 years

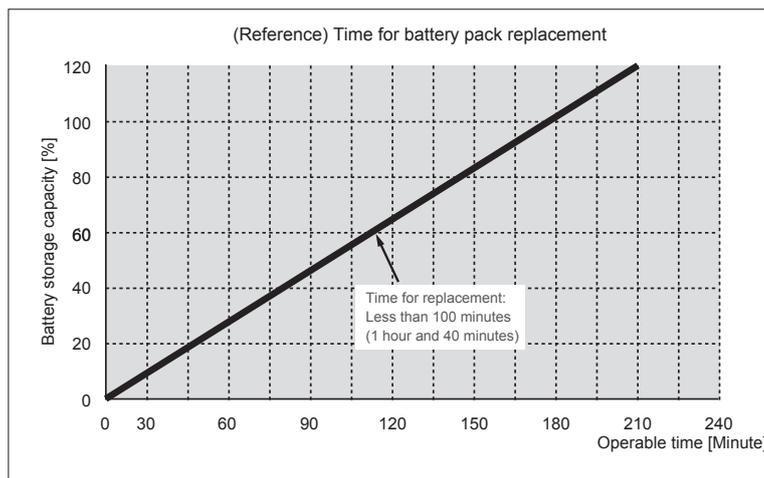
* It is recommended that the battery pack be replaced, if the battery storage capacity becomes lower than 60%.

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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