



OWNER'S MANUAL

Flat Panel Digital X-ray Detector

Please read this manual carefully before operating your set and retain it for future reference.

17HK701G-W



CE0123

Printed in Korea

www.lg.com

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Please note that this information is for proper use and safety of the equipment. The following symbols may indicate a hazardous situation in which, if not needed, may result in serious injury or even death to the user or others, or damage to the equipment.

 WARNING	Indicates warning and safety instructions. If not adhered to, it could result in death or serious injury to the user or others.
 CAUTION	Indicates a hazardous situation which, if not heeded, may result in minor or moderate injury to the user or others, or damage to the equipment.

For users in the United States

- United State federal law restricts this equipment to be used by or on the order of a physician.
- Since the X-ray exposure condition can be changed depending on the age, gender and bone density of the patient, in case of Pediatric, X-ray exposure condition can be changed by expert's judge. For further information, please refer to FDA Pediatric X-ray Imaging webpage. <http://www.fda.gov/radiation-emittingproducts/radiationemittingproductsandprocedures/medicalimaging/ucm298899.htm>

For users in other countries

- This equipment is to be used by or on the order of a licensed person under the related laws for each country.

WARNING

- To avoid the risk of electric shock, this equipment must only be connected to a supply mains with protective earth.
- Do not modify this equipment without authorization of the manufacturer.

Intended use

- The Flat Panel Digital X-ray Detector 17HK701G-W is indicated for digital imaging solution designed for general radiographic system for human anatomy. It is intended to replace film or screen based radiographic systems in all general purpose diagnostic procedures. Not to be used for mammography.

Target Population
<ul style="list-style-type: none"> • No limitation
Target Disease and Target Area
<ul style="list-style-type: none"> • Bone fractures and breaks • Scoliosis (abnormal curvature of the spine) • Non-cancerous and cancerous bone tumors • Lung problems, such as pneumonia and lung cancer • Heart problems, such as heart failure • Breast cancer



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SAFETY PRECAUTION

Please read these safety precautions carefully before using the product.

WARNING

- Do not leave any material that may cause fire in the vicinity of the detector.
- Please clean foreign material using dry cloth.
- Using any adapter or cable other than those provided with the product may result in malfunction.
- Unauthorized disassembly or reassembly of the product may result in electric shock or malfunction of the product.
- Be careful when handling the detector. Do not drop or knock the product.
- If the product emits smoke or strange odors during use, turn off the power immediately and remove the plug.
- For your safety, when cleaning the detector, turn off the detector and unplug the power cable.
- If the product is defective, do not attempt to repair it yourself. Instead, contact the Supplier
- Always use the detector on a flat surface to prevent bending or damage.
- Make sure that the connecting parts of the detector are out of reach of patients.
- Do not apply excessive weight to the detector.
 - The detector may be damaged if the entire surface of the detector is subjected to a weight of 150 kg or more.
 - The detector may be damaged if the center of the detector is subjected to a weight of 100 kg or more.

CAUTION

- Always use the detector in places that meet the following environmental requirements.

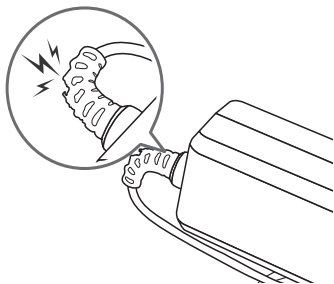
Item	Min.	Max	Units
Temperature (Storage)	-20	60	°C
Temperature (Operation)	10	35	°C
Humidity (Storage)	0	90	% , Non-condensing, Relative Humidity
Humidity (Operation)	0	80	
Pressure (Storage)	50	106	kPa
Pressure (Operation)	70	106	kPa

- Do not use the detector in the following places:
 - Places that are damp or in direct sunlight
 - Dusty places
 - Hot and humid places
 - Frozen places
 - Unstable places, such as those subject to severe vibrations or noise
 - Places with devices that generate a strong magnetic field
 - Any other place that may compromise the lifespan or performance of the detector
- Do not spray detergents, etc. onto the detector. Always wear gloves when cleaning the detector

Precautions for Using the AC adapter

Do not use the AC adapter when it is in an excessively bent position.

If the AC adapter cable is used for long periods while bent, it could cause internal wiring to become severed and cause electrical shocks or start a fire.



Integrated Adapter

Precautions for Using the Battery

This product can be battery-powered. When you are using this product for the first time after purchase, install batteries in the product and plug it into power to charge the batteries.

- The battery is a consumable component. Its usable capacity reduces gradually over long-term use.
- For battery replacement, please make sure to contact the designated manufacturer.
- Please refer to the manual for instructions on how to remove and replace the battery.
- Always use batteries approved and certified by manufacturer.
 - Failure to do so may cause a fire or explosion.
- Do not store the product in an enclosed space (bags, etc.) with the power on repeatedly or for long periods.
 - Overheated batteries may cause fire.
- Do not expose the product to flames.
 - This may result in explosion or fire.
- Keep the product away from metallic objects, such as car keys and paper clips, when storing or moving.
 - Excess current may cause a rapid temperature increase, resulting in fire or burns.
- Contact the manufacturer if the battery leaks or emits an odor.
 - Otherwise, it may cause explosion or fire.
- Do not recharge the product using a power supply or circuit other than the one supplied with the product.
 - This may damage the battery or cause a fire

SAFETY INFORMATION

Safety Standard

Medical Device Classification

Classification by protection type against Electric Shock	Class I equipment
Classification according to the degree of protection against ingress of water or particulate matter	IP41 (Rating for when the main cable is not attached)
Mode of operation	Continuous Operation
Environment of Use	This equipment is not suitable for use in the presence of flammable anesthetic or oxygen.
Applied Part	Type : BF Type, Location : Front of Detector (only for effective area)

NOTE

- Additional equipment connected to medical electrical equipment must comply with the respective IEC or ISO standards (e.g. IEC 60950-1 for data processing equipment).
- Furthermore all configurations shall comply with the requirements for medical electrical systems (see clause 16 of the 3.1Ed. of IEC 60601-1, respectively).
- Anybody connecting additional equipment to medical electrical equipment configures a medical system and is therefore responsible that the system complies with the requirements for medical electrical systems.
- Attention is drawn to the fact that local laws take priority over the above mentioned requirements.
- If in doubt, consult manufacturer.

Regulations

Safety and Electromagnetic Compatibility Information

This equipment has been tested and found to comply with the limits for medical devices in IEC 60601-1-2. These limits are designed to provide reasonable protection against harmful interference in a typical medical installation.

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Note : This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment.

This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions manual, may cause harmful interference to radio communications.

Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

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

This device comply with RF exposure requirements.

Canadian Compliance

This radio transmitter has been approved by Industry Canada to operate with the antenna types listed below with the maximum permissible gain and required antenna impedance for each antenna type indicated. Antenna types not included in this list, having a gain greater than the maximum gain indicated for that type, are strictly prohibited for use with this device.

Under Industry Canada regulations, this radio transmitter may only operate using an antenna of a type and maximum (or lesser) gain approved for the transmitter by Industry Canada. To reduce potential radio interference to other users, the antenna type and its gain should be so chosen that the equivalent isotropically radiated power (e.i.r.p) is not more than that necessary for successful communication.

This device complies with Industry Canada license-exempt RSS standard(s).

Operation is subject to the following two conditions:

(1) this device may not cause interference, and (2) this device must accept any interference, including interference that may cause undesired operation of the device.

Le présent émetteur radio a été approuvé par Industrie Canada pour fonctionner avec les types d'antenne énumérés ci-dessous et ayant un gain admissible maximal et l'impédance requise pour chaque type d'antenne.

Les types d'antenne non inclus dans cette liste, ou dont le gain est supérieur au gain maximal indiqué, sont strictement interdits pour l'exploitation de l'émetteur.

Conformément à la réglementation d'Industrie Canada, le présent émetteur radio peut fonctionner avec une antenne d'un type et d'un gain maximal (ou inférieur) approuvé pour l'émetteur par Industrie Canada. Dans le but de réduire les risques de brouillage radioélectrique à l'intention des autres utilisateurs, il faut choisir le type d'antenne et son gain de sorte que la puissance isotrope rayonnée équivalente (p.i.r.e.) ne dépasse pas l'intensité nécessaire à l'établissement d'une communication satisfaisante.

Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes :

(1) l'appareil ne doit pas produire de brouillage, et (2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

This device can be operated in at least one Member State without infringing applicable requirements in the use of radio spectrum.

This device is compliant with the RED article 10.10 requirement because the information is available on the package. (This device is restricted to indoor use only within the 5.15 ~ 5.35GHz Band.)

Electro-Magnetic Compatibility Information

Electro-Magnetic Emissions

This EUT is intended for use in the electromagnetic environment specified below.

The customer or the user of the EUT should assure that it is used in such an environment.

Immunity Test	Compliance	Electromagnetic Environment – Guidance
RF Emissions CISPR 11	Group 1	The EUT uses RF energy only for its internal function. Therefore, its RF emissions are very low and are not likely to cause any interference in nearby electronic equipment.
RF Emissions CISPR 11	Class A	The EUT is suitable for use in all establishments, 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	A	
Voltage fluctuations/ Flicker emissions IEC 61000-3-3	Complies	

Electro-Magnetic Immunity


This EUT is intended for use in the electromagnetic environment specified below. The customer or the user of the EUT should assure that it is 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	± 8 kV contact ± 2 kV, ± 4 kV, ± 8 kV, ± 15 kV air	± 8 kV contact ± 15 kV 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	± 2 kV 100 kHz repetition frequency	± 2 kV 100 kHz repetition frequency	Mains power quality should be that of a typical commercial or hospital environment.
Surge Line-to-line IEC 61000-4-5	± 0,5 kV, ± 1 kV	± 1 kV	Mains power quality should be that of a typical commercial or hospital environment.
Surge Line-to-ground IEC 61000-4-5	± 0,5 kV, ± 1 kV, ± 2 kV	± 2 kV	
Voltage dips IEC 61000-4-11	0 % UT; 0,5 cycle At 0°, 45°, 90°, 135°, 180°, 225°, 270° and 315°	0 % UT; 0,5 cycle At 0°, 45°, 90°, 135°, 180°, 225°, 270° and 315°	Mains power quality should be that of a typical commercial or hospital environment. If the user of the EUT image intensifier requires continued operation during power mains interruptions, it is recommended that the EUT image intensifier be powered from an uninterruptible power supply or a battery.
	0 % UT; 1 cycle and 70 % UT; 25/30 cycles Single phase: at 0°	0 % UT; 1 cycle and 70 % UT; 25/30 cycles Single phase: at 0°	
Voltage interruptions IEC 61000-4-11	0 % UT; 250/300 cycle	0 % UT; 250/300 cycle	
RATED power frequency magnetic fields (50/60Hz) IEC 61000-4-8	30 A/m	30 A/m	Power frequency magnetic fields should be at levels characteristic of a typical location in a typical commercial or hospital environment.



NOTE

- UT is THE A.C mains voltage prior to application of the test level.

Immunity Test	IEC 60601-1-2 Test Level	Compliance Level	Electromagnetic Environment – Guidance
Conducted disturbances induced by RF fields IEC 61000-4-6	3 V 0,15 MHz – 80 MHz 6 V in ISM bands between 0,15 MHz and 80 MHz 80 % AM at 1 kHz	3 V 0,15 MHz – 80 MHz 6 V in ISM bands between 0,15 MHz and 80 MHz 80 % AM at 1 kHz	<p>Portable and mobile RF communications equipment should be used no closer to any part of the EUT, including cables, than the recommended separation distance calculated from the equation applicable to the frequency of the transmitter.</p> <p>Recommended separation distance:</p>
Radiated RF EM fields IEC 61000-4-3	3 V/m 80 MHz – 2,7 GHz 80 % AM at 1 kHz	3 V/m 80 MHz – 2,7 GHz 80 % AM at 1 kHz	$d = \left[\frac{3,5}{V_1} \right] \sqrt{P}$ $d = \left[\frac{3,5}{E_1} \right] \sqrt{P} \quad 80 \text{ MHz to } 800 \text{ MHz}$ $d = \left[\frac{7}{E_1} \right] \sqrt{P} \quad 800 \text{ MHz to } 2.7 \text{ GHz}$ <p>Where P is the maximum output power rating of the transmitter in watts(W) according to the transmitter manufacturer and d is the recommended separation distance in meters(M).</p> <p>Field strengths from fixed RF transmitters as determined by an electromagnetic site survey, should be less than the compliance level in each frequency range.</p> <p>Interference may occur in the vicinity of equipment marked with the following symbol:</p> 

! NOTE

- At 80 MHz and 800 MHz, the higher frequency range applies.
 - These guidelines may not apply in all situations. Electromagnetic propagation is affected by absorption and reflection from structures, objects and people.
- 1 Field strengths from fixed transmitters, such as base stations for radio (cellular/cordless) telephones and land mobile radios, amateur radio, AM and FM radio broadcast and TV broadcast cannot be predicted theoretically with accuracy. To assess the electromagnetic environment due to fixed RF transmitters, an electromagnetic site survey should be considered. If the measured field strength in the location in which the EUT is used exceeds the applicable RF compliance level above, the EUT should be observed to verify normal operation. If abnormal performance is observed, additional measures may be necessary, such as re-orienting or relocating the EUT.
 - 2 Over the frequency range 150 KHz to 80 MHz, field strengths should be less than [V1] V/m.










Test specifications for ENCLOSURE PORT IMMUNITY to RF wireless communications equipment










Test frequency (MHz)	Band ^{a)} (MHz)	Service ^{a)}	Modulation ^{b)}	Maximum power (W)	Distance (m)	IMMUNITY TEST LEVEL (V/m)
385	380 – 390	TETRA 400	Pulse modulation ^{b)} 18 Hz	1,8	0,3	27
450	430 – 470	GMRS 460, FRS 460	FM ^{c)} ± 5 kHz deviation 1 kHz sine	2	0,3	28
710	704 – 787	LTE Band 13, 17	Pulse modulation ^{b)} 217 Hz	0,2	0,3	9
745						
780						
810	800 – 960	GSM 800/900, TETRA 800, iDEN 820, CDMA 850, LTE Band 5	Pulse modulation ^{b)} 18 Hz	2	0,3	28
870						
930						
1720	1700 – 1990	GSM 1800; CDMA 1900; GSM 1900; DECT; LTE Band 1, 3, 4, 25; UMTS	Pulse modulation ^{b)} 217 Hz	2	0,3	28
1845						
1970						
2450	2400 – 2570	Bluetooth, WLAN, 802.11 b/g/n, RFID 2450, LTE Band 7	Pulse modulation ^{b)} 217 Hz	2	0,3	28
5240	5100 – 5800	WLAN 802.11 a/n	Pulse modulation ^{b)} 217 Hz	0,2	0,3	9
5500						
5785						




! NOTE

- If necessary to achieve the IMMUNITY TEST LEVEL, the distance between the transmitting antenna and the ME EQUIPMENT or ME SYSTEM may be reduced to 1 m. The 1 m test distance is permitted by IEC 61000-4-3.
 - a) For some services, only the uplink frequencies are included.
 - b) The carrier shall be modulated using a 50 % duty cycle square wave signal.
 - c) As an alternative to FM modulation, 50 % pulse modulation at 18 Hz may be used because while it does not represent actual modulation, it would be worst case.

Symbols

Symbols	Descriptions
	Refer to instruction manual/ booklet
	Alternate current
	Direct current
	Protective earth (Ground)
	Stand-by Symbol.
	Off (power : disconnect from the main switch)
	On (power : connect from the main switch)
	Warning
	Caution

Symbols	Descriptions
	UL classified mark of medical equipment with respect to electrical shock, fire and mechanical hazards only in accordance with ANSI/AAMI ES60601-1 (2005) + AMD 1 (2012), CAN/CSA-C22.2 No. 60601-1 (2014)
	Manufacturer
	Date of manufacture
	BF applied part
	Serial number
	Non-ionizing radiation
	WEEE : Waste Electrical and Electronic Equipment
	Authorized representative in the European community.
	The Official Mark Of Europe Certificate

Symbols	Descriptions
	Temperature limit
	Humidity limitation
	Pressure limitation
Rx ONLY	For the customers in the U.S.A. Caution Federal law (United States of America) restricts this device to sale by or on the order of a licensed healthcare practitioner.
IPN ₁ N ₂	Ingress of protection

Warning

WARNING: To avoid the risk of electric shock, this equipment must only be connected to a supply mains with protective earth.



Connection

Do not connect the detector with anything other than specified. Otherwise, it may result in fire or electric shock.

To avoid the risk of electric shock, this detector must only be connected to supply mains with protective earth.



Handling

Always be sure to keep checking the condition of the system and the patient to ensure they are normal during the use of the detector. If any problem is found, take appropriate measures, such as stopping the operation of the detector, as required.

Never disassemble or modify the detector as it may result in fire or electric shock.

Also, since the detector incorporates parts that may cause electric shocks and other hazardous parts, touching them may cause death or serious injury.

Do not hit or drop the detector. The detector may be damaged if it receives a strong jolt, which may result in fire or electric shock if the detector is used without being repaired.



The operator must not touch connectors of the detector and the patient simultaneously.



The product has lower breaking capacity type. So do not install at the building power system prospective short-circuit current exceeding 35 A.

Caution



Environment of Use and Storage

Do not install the detector in a location with the conditions listed below. Otherwise, it may result in failure or malfunction, cause fire or injury.

- Close to facilities where water is used.
- Where it will be exposed to direct sunlight.
- Close to air-conditioner or ventilation equipment.
- Close to heat source such as a heater.
- Prone to vibration
- Insecure place.
- Dusty environment.
- Saline or sulfurous environment.
- High temperature or humidity.
- Freezing or condensation.

Do not place the storage case in a location with the conditions listed below.

- Where the cable of the detector unit will be strongly pulled when the detector is put into the case, otherwise, the cable may be damaged, resulting in fire or electric shock.
- Where someone might get their foot caught in the cable of the detector.

Handling

For safety reasons, be sure to turn off the power of each equipment when detector is not used.

Location of Cables

Make sure all cables are located so that they cannot be stepped on, tripped over, or otherwise subjected to damage or stress.



Maintenance and Inspection

If the detector is defective, do not disassemble the detector randomly. Maintenance of the detector should be done by a manufacturer.

Do not install the ME Equipment in a location without easy disconnect accessibility.

If you have any problem when change the IT-Network, Don't action and please contact the manufacture.

MANUFACTURER will make available on request circuit diagrams, component part lists, descriptions, calibration instructions, or other information that will assist SERVICE PERSONNEL to repair those parts of ME EQUIPMENT

Indications

The device is intended to capture for display radiographic images of human anatomy including both pediatric and adult patients. This device is used for generating diagnostic images by converting x-rays into electronic signals. Excluded from the indications for use are mammography.

Contraindications

The device is designed to be integrated into a complete X-ray system by qualified system integrator.

The device is not intended to be used as a primary barrier to X-rays.

Before using the X-ray system please refer to the regulation in force in your area concerning paediatric patients, pregnant women and anyone with health issues that contraindicate the use of X-rays. Investigate and make sure of this condition before starting the exposure.

Clinical Risks and Benefits

There is always a slight chance of cancer from excessive exposure to radiation. However, the benefit of an accurate diagnosis far outweighs the risk.

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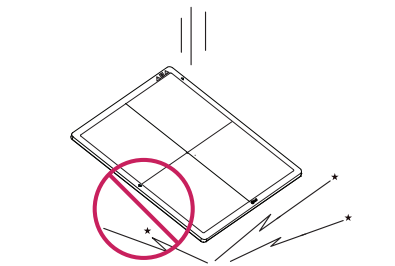
WIRELESS 99

SAFETY INFORMATION

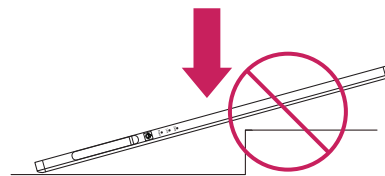
Preparing

- Connect the cables to the corresponding connectors. Otherwise, the detector may malfunction or be damaged.
- The power supply provided by LG is designed for the LG detector. If you need to use a different type of the power supply, please contact us for further information.

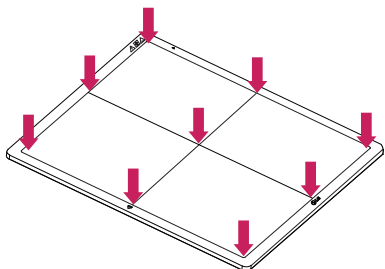
Handling



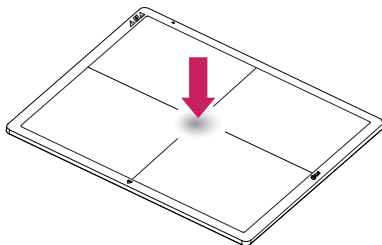
- Handle the detector carefully since the detector may be damaged when it is hit, falls, or receives a strong impact.



- Use the detector on a flat surface to prevent it from being bent. If you put the detector on an uneven surface, the detector may be damaged.
- Check the detector daily to make sure it is working properly. Condensation may occur in the detector when a low room temperature goes up rapidly. In this case, wait until the condensation disappears before performing the exposing operation. If you use the detector when there is still condensation, the device may not function properly. If you want to use an air conditioner, the room temperature should be raised or lowered slowly so that there is no temperature difference between the room and detector to prevent condensation. Maintain the recommended room temperature.
- Do not use the detector near equipment that emit strong magnetic fields. Otherwise, image noises or artifacts may occur.
- Make sure the connector does not come in contact with patients.
- The connector is used for connection with external devices and must conform to the IEC standard.
- Do not apply excessive force to the detector. Doing so may damage the device.



Overall load: 150 kg (330.6lb) on the window of the detector



Partial load: 100 kg (220.4lb) on a 40 mm (1.5 inch) diameter

Disinfection and Cleaning

- Do not spray disinfectant or cleaning agents on the detector.
- Before cleaning the detector, make sure to turn off the power and unplug the power cable from the AC outlet.
- Do not use any flammable chemicals such as thinner, benzene, etc. when cleaning the device. Otherwise, this may result in fire or electric shock.
- Wear waterproof gloves to prevent disinfectants or cleaning agents from reaching your hands.

OPEN SOURCE SOFTWARE NOTICE INFORMATION

To obtain the source code under GPL, LGPL, MPL, and other open source licenses, that is contained in this product, please visit <http://opensource.lge.com>.

In addition to the source code, all referred license terms, warranty disclaimers and copyright notices are available for download.

LG Electronics will also provide open source code to you on CD-ROM for a charge covering the cost of performing such distribution (such as the cost of media, shipping, and handling) upon email request to opensource@lge.com. This offer is valid for three (3) years from the date on which you purchased the product.

GENERAL DESCRIPTION

Overview

Flat Panel Digital X-ray Detector can generate images of any part of the body, and designed for a faster approach to digital radiography systems.

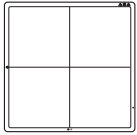
This model utilize a combination a amorphous silicon TFT and high performance scintillator, along with a pixel pitch 140 um and 3.6 lp/mm of resolution, assure sharp and high contrast image quality.

17HK701G is X-ray imaging acquisition device that is based on flat-panel. This device should be integrated with an operating PC and a X-ray generator. It can do to utilize as digitalizing X-ray images and transfer for radiography diagnostic. Data transmission between detector and PC is possible by wire (cable) or wireless.

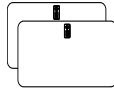
Product Component

- Detector: 17HK701G
- Control Box : LG Control Box
 - AC power cord for Control Box
- Battery Charger : LG Battery Charger
 - 2 Battery packs
 - AC Power adapter for Charger : 65 W
 - AC Power cord for AC Power adapter
- Cable
 - Main Cable : Detector and Control Box link cable (Supply DC power, Ethernet data, control signals of X-ray generator)
 - Trigger Cable: X-ray generator to Control Box, transmit control signal between detector and X-ray generator. (Optional)
 - LAN cable: Control Box to PC, exchanges Ethernet data between PC and detector. (Optional)
- CD: User's manual, Calibration Software
- User's manual(book type), Inspection Report

Basic Accessories



Detector 1 EA



Battery 2 EA



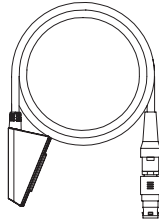
AC Power cord for AC Power adapter



Inspection Report 1EA



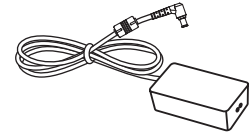
Installation CD 1 EA



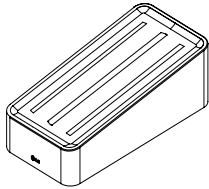
Main cable 1EA



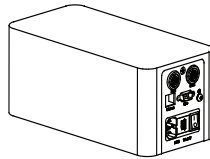
Manual 1 EA



AC Power adapter 1 EA



Charger 1 EA

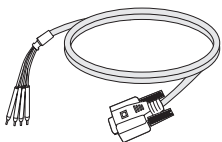


Control Box 1EA

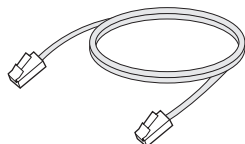


AC Power cord for Control Box 1EA

Optional Accessories



Trigger Cable 1EA



LAN cable 1EA

- Optional accessories can not be included in accordance with production suffix.

CAUTION

- Need to use the authorized components about the below accessories. Unauthorized components may be cause of the damage and malfunction of the product.

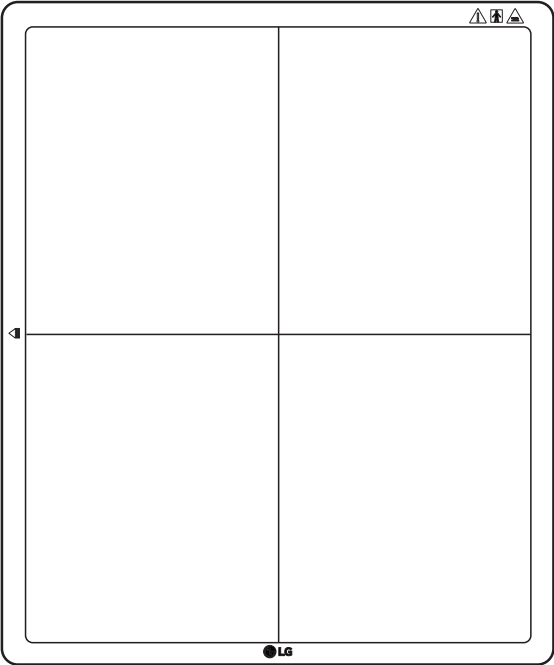
Component	Standard
LAN CABLE	More than CAT5E Standard
Power Cord	US – Approved Medical grade regulation Others – Approved country safety regulation

The AC/DC adaptors and etc. except the upper components need to be used only supplied by manufacturer.

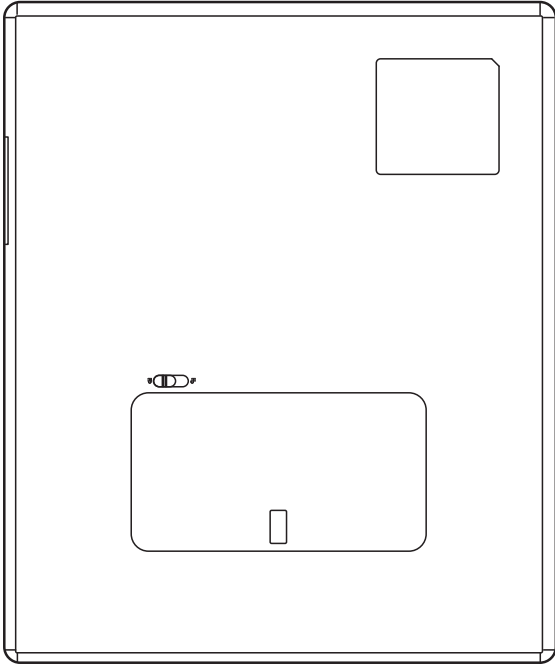
PART NAME AND FUNCTION

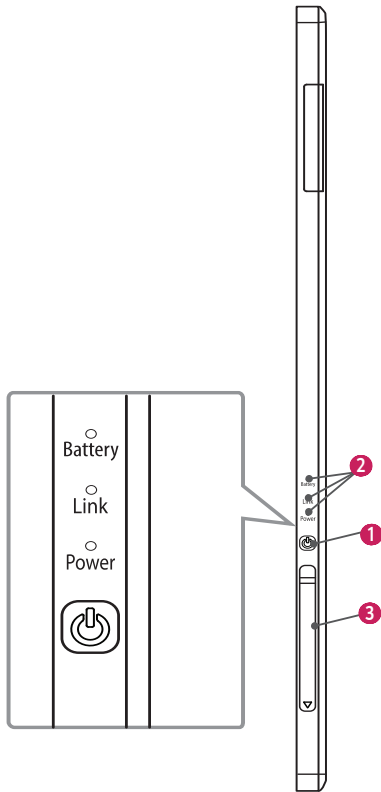
Detector

FRONT



BACK

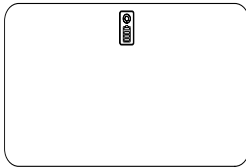
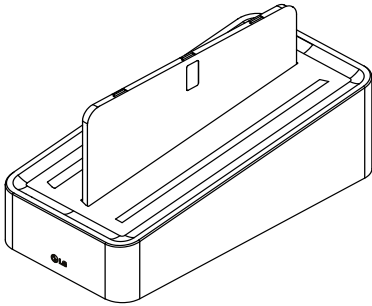


SIDE

1	Power Button: Power on/off switch (On : press over 1 sec, Off : press over 5 sec)
2	LED Indicator: Indicating detector's status
3	Connection to main cable

LED	LED Color	Status
Battery	Green	Battery is more than 30% charged.
	Orange	Battery charging starts is 10 ~ 30%.
	Orange Blinking	Battery is less than 10 % charged.
Link	Green	Ethernet/WIFI connection
	Off	Ethernet/WIFI no connection
Power	Green	Power On
	Green Blinking	Sleep mode
	Off	Power Off

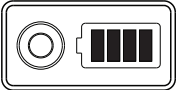
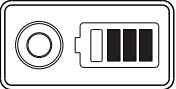
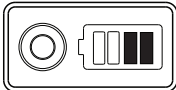
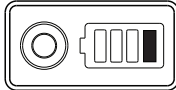
Battery and Charger



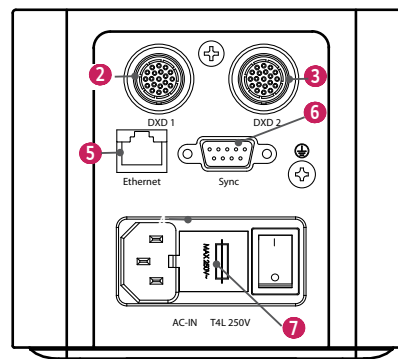
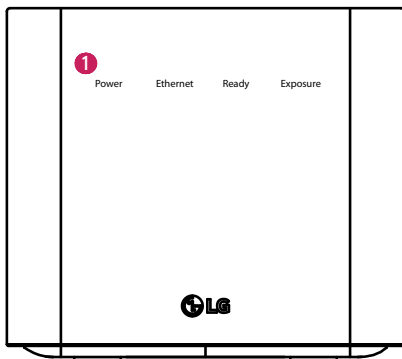
! NOTE

- Battery: Li-ion polymer battery (Charging time - Typ. 4 Hrs)
- Battery pack itself shows the remaining battery percentage.
- Battery charger: 3 ports cradle type
- LED Indicator: Following LEDs are located to each battery - 3 batteries.

LED Indicator	Status
Green	Completion of charging
Orange	On charging
Orange Blinking	Error (Connection error, etc)

Battery Remain Indicator	Battery Level
	75 ~ 100%
	50 ~ 75%
	25 ~ 50%
	0 ~ 25%

Control Box

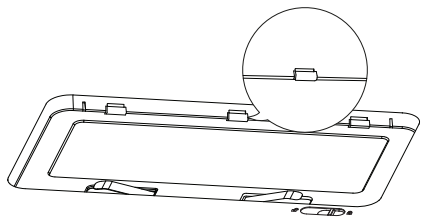
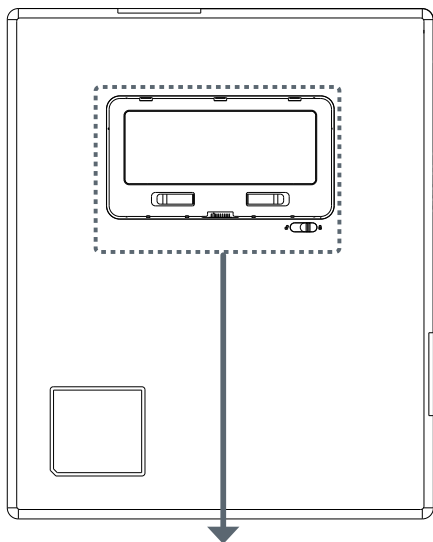


No.	LED Indicator	LED Color	Status
1	Power	Green	Power normal operation
		Off	Power off (AC power cord no connection or Power error)
	Ethernet	Green	Ethernet normal operation
		Green blink	On data communication
		Off	Ethernet disconnected
	Ready	Green	Ready signal from X-ray generator is active
		Off	Ready signal from X-ray generator is inactive
		Orange blink	Error
	Exposure	Orange	Exposure signal from X-ray generator is active
		Off	Exposure signal from X-ray generator is inactive
		Orange blink	Error

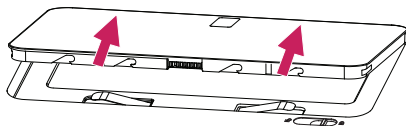
No.	LED Indicator	LED Color	Status
2	DXD 1	None	Connecting the Control Box and the detector A. This connector supply power (24 V $\overline{--}$ = 2.1 A) to the detector, transmits X-ray synchronization signals and Ethernet image data.
3	DXD 2		Connecting the Control Box and the detector B. This connector supply power (24 V $\overline{--}$ = 2.1 A) to the detector, transmits X-ray synchronization signals and Ethernet image data. Control Box supports 2 Detector connection. Usage is, one is for bucky stand, the other is for table (bed). Generally, X-ray room of hospital installs 2 detectors, bucky stand and table type, it's for more convenient and efficient working environment. These 2 detectors are not operated simultaneously, control box selects the operating detector by AWS command.
4	AC IN		Connects AC power cord
5	Ethernet		Ethernet port to transmit image/command between the detector and PC
6	Sync		This is to synchronize the detector and X-ray generator
7	Fuse		Control box power fuses are 4A, 250V to Type T fuse. Power rating: T4L 250V

BATTERY ASSEMBLY

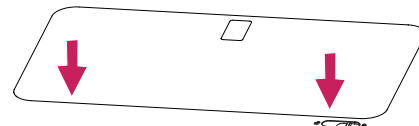
ENGLISH



1 Check the battery mounting hole direction.

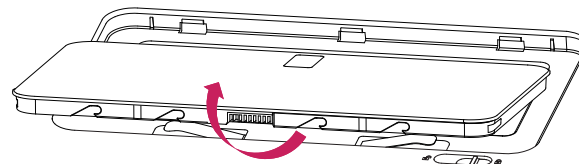
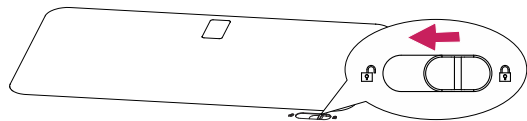
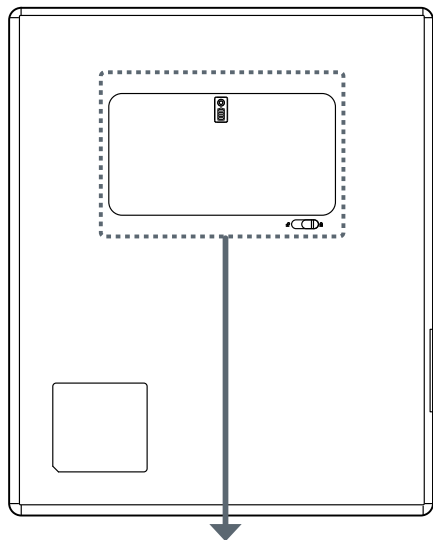


2 Insert into the hole on the side with the indicator.



3 Press the opposite side to secure the battery indicator.

REMOVING THE BATTERY



1 Push the battery lock button in the direction of the picture.

2 Remove the battery by lifting it in the direction of the picture.

SPECIFICATION AND DIMENSION OF EACH PART

The product specifications are subject to change without prior notice for product improvements.

~ refers to alternating current (AC), --- refers to direct current (DC).

Specifications

Detector

Category	Specifications
Model	17HK701G
Sensor Type	Amorphous Silicon TFT
Scintillator Type	CsI:Tl
Total Pixel Matrix	3072 x 3072 pixels
Total Pixel Area	430.08 mm x 430.08 mm
Pixel Pitch	140 um
Effective Pixel Matrix	3060 x 3060 pixels
A/D Conversion	16-bit
Data transmission	802.11 a/b/g/n/ac Wireless LAN, Standard 150 Mbps Wired Gigabit Ethernet Standard 500 Mbps
Image Transmission	Wireless 3.5 sec (standard) Wired 2.5 sec (standard)
Energy Range	40 kVP ~ 150 kVP
MTF	89% at 0.5 lp/mm (standard)
DQE	72% at 0.1 lp/mm (standard)
Size (Width x Height x Depth)	460.0 x 460.0 x 15.4 (mm)
Weight	3.4 kg (standard)

Category	Specifications
Window Materials	Carbon Fibre
Trigger Mode	Manual Mode Auto Mode (Auto Exposure Detection)
Power Consumption	30.5 W (standard)
Wireless	Standard: Complies with 802.11 a/b/g/n/ac Peak Mode: 867 Mbps Frequency: 2.4GHz / 5GHz Bandwidth: 20 MHz / 40 MHz / 80 MHz MIMO: 2X2 2.4GHz WLAN (2412~2462MHz) : 17.428 dBm 5GHz WLAN(5180~5720MHz) : 18.885 dBm 5.8GHz WLAN(5745~5825MHz) : 12.447 dBm
Rating	24V --- 2.1 A
Mounting	Type: BF, Location: The front side of the detector (effective area only)

Detector has been tested with below table's X-ray condition. This table is only for reference. The legally certified radiologic expert should control X-ray dose.

	Adult			
	SID(Inch / Cm)	Tube Voltage(KV)	Tube Current (mA)	Tube Current*Time (mAs)
Chest P-A	72 Inch / 180 cm	120KV	250mA	2.5mAs
C-SPINE LAT	72 Inch / 180 cm	70KV	200mA	10mAs
L-spine A-P	40 Inch / 101.6 cm	75KV	320mA	20mAs
Abdomen A-P	41 Inch / 101.6 Cm	75KV	320mA	10mAs
Pelvic A-P	42 Inch / 101.6 Cm	70KV	320mA	16mAs
Wrist A-P	43 Inch / 101.6 Cm	55KV	100mA	2.5mAs
Elbow A-P	44 Inch / 101.6 Cm	55KV	100mA	3.2mAs
Shoulder AP	45 Inch / 101.6 Cm	70KV	200mA	6.4mAs
Foot A-P	46 Inch / 101.6 Cm	58KV	100mA	2.5mAs
Angkle A-P	47 Inch / 101.6 Cm	59KV	100mA	3.2mAs
Knee A-P	48 Inch / 101.6 Cm	58KV	100mA	6.4mAs

Regarding pediatric dose, it is much less than adult, the certified radiologic expert should pay attention especially for pediatric X-ray dose.

! NOTE

- Maximum wireless signal rate derived from IEEE standard specifications. Actual data throughput will vary. Network conditions and environmental factors, including volume of network traffic, building materials and construction, and network overhead, lower actual data throughput rate.
- Recommended Maximum operable distance: 2 m (From the Access Point)
- Wireless antennas: The module adopts the latest 802.11ac technology. The transmitter of the module is powered by host equipment (Detector). The antennas are 2 printed-dipole antennas.
- Wireless module: 802.11 a/b/g/n/ac USB2.0 module is implemented. It supports 2T2R (2 transmit 2 receive) MIMO technology, which delivers throughput up to 300 Mbps.

Battery

Item	Specification	Units
Model	LBQ7222L	
Size	204.1 x 10.5 x 7.8 (8.0 x 0.4 x 0.3)	mm (inch)
Weight	Typ. 240 (0.5)	g (ib)
Output Normal voltage	7.5	VDC
Operation Temp	10 - 35	°C
Charging time	Typ. 2.5	Hours
Capacity	Typ. 4000, min. 3850	mAh
Battery performance	1600 shots (cycle time 11s, with Full charged battery)	Images

Battery Charger

Item	Specification	Units
Model	LG Battery Charger	
Size	125 x 255.0 x 90.0 (4.9 x 10.0 x 3.5)	mm (inch)
Weight	Typ. 900 (1.9)	g (ib)
Input	19 V --- 3.42 A	
Output Normal voltage	8.7	VDC