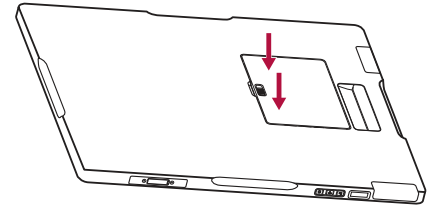
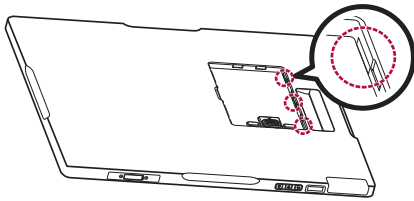
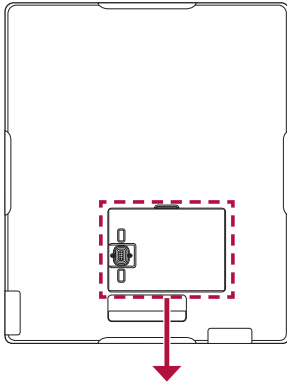


Number	Port	Description
2	DXD 1	Connects the Control Box to the Detector A. This connector supplies power (24 V \pm 2.1 A) to the Detector and transmits the X-ray generator's sync signal and Ethernet image data.
3	DXD 2	Connects the Control Box to the Detector B. This connector supplies power (24 V \pm 2.1 A) to the Detector and transmits the X-ray generator's sync signal and Ethernet image data. The Control Box supports connection to up to two detectors. One is for a bucky stand and the other is for a table (bed). Hospital X-ray examination rooms are typically equipped with both bucky stand and table type detectors. This makes it more convenient and efficient to use the detectors.
4	AC-IN	Connects the AC power cord.
5	Ethernet	An Ethernet port to transmit images/commands between the Detector and a PC.
6	Sync	Synchronizes the Detector and X-ray generator.
7	Fuse	Control box power fuses are 4 A, 250 V to Type T fuse. Power rating: T4L 250 V

ASSEMBLING BATTERY

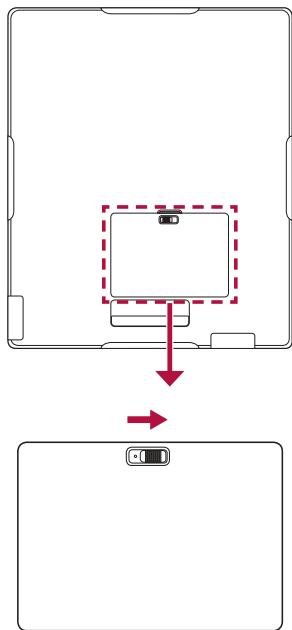


1 Check the direction of the holes located inside the detector.

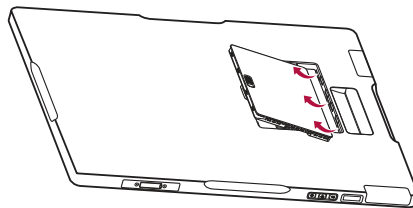
2 Align the battery, and slide it into the holes inside the detector.

3 Press the other side to assemble the battery.

REMOVING BATTERY



1 Slide the battery lock button in the direction shown in the figure.



2 Remove the battery by lifting it in the direction shown in the figure.

Battery Hot-Swap

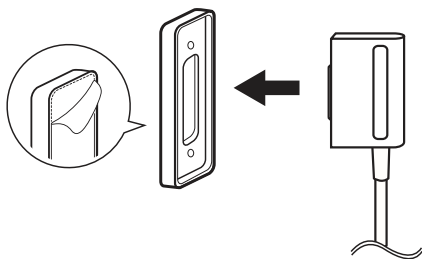
The detector is equipped with a hot-swappable battery. Hot-Swap is activated for one minute after the battery is removed from the detector.

NOTE

- The detector will turn off if charged battery is not inserted on time.
- Data collection and calibration functions are not available during a Hot-Swap.

HOW TO USE MAIN CABLE HOLDER

- 1 Clean the wall before attaching the holder to it.
- 2 Attach the main cable holder using adhesive tape on the back.
- 3 Store the main cable of the detector in the holder.



! NOTE

- The strength of the adhesive may be weakened depending on the environment. Avoid attaching the holder too high on the wall.
- Ensure that the holder is firmly fixed on the wall.
- Avoid storing anything other than the main cable.

SPECIFICATION AND DIMENSION OF EACH PART

Specifications are subject to change without notice.

The symbol ~ means alternating current, and the symbol = = = means direct current.

Specifications

Detector

Item	Specifications
Model	14HQ901G
Sensor Type	Oxide TFT
Scintillator Type	CsI:Tl
Total Pixel Matrix	2560 x 3072 pixels
Total Pixel Area	358.4 mm x 430.08 mm
Pixel Pitch	140 um
Effective Pixel Matrix	2520 x 3032 pixels
A/D Conversion	16 bits
Data transmission	802.11 a/b/g/n/ac Wireless LAN Standard, 150 Mbps Wired Gigabit Ethernet Standard, 500 Mbps
Cycle time	Typ. 4.5 Sec (Wired) Typ. 5 Sec (Wireless)
Image Transmission	Typ. 1.5 Sec (Wired) Typ. 2 Sec (Wireless)
Image Save	Stores up to 200 images
Semi-dynamic mode	5fps @ 140 um (full FOV)
Energy Range	40 kVp ~ 150 kVp
MTF	Typ. 84 % @ 0.5 lp/mm
DQE	Typ. 78 % @ 0.1 lp/mm

Item	Specifications
Size (Width x Height x Depth) (mm)	384.0 x 460.0 x 15.6
Weight (kg)	Typ. 3.0
Window Materials	Carbon Fibre
Trigger Mode	Manual Mode Auto Mode (Auto Exposure Detection)
Power Consumption	Typ. 38 W
Wireless	Standard: 802.11 a/b/g/n/ac compliance Peak Mode: 867 Mbps Frequency: 2.4 GHz / 5 GHz Bandwidth: 20 MHz / 40 MHz / 80 MHz MIMO: 2 x 2
Rating	24 V = = = 2.1 A
Applied part	Type: BF Location: The front side of the Detector (Effective area only)

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.
- Images can be saved by the X-ray generator while the power of the detector is turned on without connecting to a PC. To produce images, X-ray is irradiated at intervals of more than 10 seconds. Check and load the saved images from LG Acquisition Workstation Software.

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

- Sensor Type: a-Si TFT, X-ray conditions

	Adult			
	SID (inch / cm)	Tube Voltage (KV)	Tube Current (mA)	Tube Current x Time (mAs)
Chest P-A	72 inch / 182.8 cm	110 KV	320 mA	3.2 mAs
C-spine LAT	72 inch / 182.8 cm	75 KV	200 mA	20 mAs
L-spine A-P	40 inch / 101.6 cm	70 KV	250 mA	25 mAs
Abdomen A-P	40 inch / 101.6 cm	75 KV	320 mA	20.48 mAs
Pelvic A-P	40 inch / 101.6 cm	70 KV	250 mA	25 mAs
Wrist A-P	40 inch / 101.6 cm	50 KV	250 mA	5 mAs
Elbow A-P	40 inch / 101.6 cm	55 KV	250 mA	5 mAs
Shoulder AP	40 inch / 101.6 cm	65 KV	200 mA	8 mAs
Foot A-P	40 inch / 101.6 cm	50 KV	250 mA	5 mAs
Ankle A-P	40 inch / 101.6 cm	55 KV	100 mA	6.4 mAs
Knee A-P	40 inch / 101.6 cm	60 KV	100 mA	8 mAs

- Sensor Type: Oxide TFT, X-ray conditions

	Adult			
	SID (inch / cm)	Tube Voltage (KV)	Tube Current (mA)	Tube Current x Time (mAs)
Chest P-A	72 inch / 182.8 cm	110 KV	320 mA	2.56 mAs
C-spine LAT	72 inch / 182.8 cm	75 KV	200 mA	16 mAs
L-spine A-P	40 inch / 101.6 cm	70 KV	250 mA	20 mAs
Abdomen A-P	40 inch / 101.6 cm	75 KV	250 mA	16 mAs
Pelvic A-P	40 inch / 101.6 cm	70 KV	250 mA	20 mAs
Wrist A-P	40 inch / 101.6 cm	50 KV	200 mA	4 mAs
Elbow A-P	40 inch / 101.6 cm	55 KV	200 mA	4 mAs
Shoulder AP	40 inch / 101.6 cm	65 KV	200 mA	6.4 mAs
Foot A-P	40 inch / 101.6 cm	50 KV	200 mA	4 mAs
Ankle A-P	40 inch / 101.6 cm	55 KV	100 mA	4.8 mAs
Knee A-P	40 inch / 101.6 cm	60 KV	100 mA	6.4 mAs

! NOTE

- In the case of the Oxide TFT X-ray condition table, it is only applicable to 14HQ901G-B and 17HQ901G-B models. If the condition table is applied to other models, the desired image may not be obtained.
- Regarding paediatric dosage, it should be much less than for an adult. The certified radiologist should pay special attention to paediatric X-ray dosage levels.

CAUTION

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

Item	Min	Max	Unit
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

GRID

Item	Recommended Specifications
SID	100 cm / 130 cm / 150 cm / 180 cm
Size	384 x 460 mm
Ratio	10:1
Frequency	215 Line / Inch
Inter Spacer	AL

Battery

Item	Specifications
Model	LBS7222E
Size (Width x Height x Depth) (mm)	112.2 x 158 x 8.4
Weight (kg)	Typ. 0.2
Output Nominal voltage	Typ. 7.7 V ---
Operating Temperature	10 °C - 35 °C
Charging Time	When charged using the detector, Typ. 4 hours When two batteries are charged using the charger, Typ. 3 hours
Capacity	Typ. 4725 mAh, Min. 4300 mAh
Battery Performance	Typ. 8 hours (90-second shooting cycle, battery fully charged)

NOTE

- The capacity of the battery pack decreases as the usage period increases.
 - The longer the period of use, the higher the possibility that the detector's operating time has become shorter.
 - The battery pack can be replaced at the end of its life. To obtain a replacement, please contact the manufacturer.

Battery Charger

Item	Specifications
Model	LG Battery Charger
Size (Width x Height x Depth) (mm)	268.4 x 54.9 x 186.9
Weight (kg)	Typ. 0.52 (excluding the battery)
Input	19 V --- 3.42 A
Output Nominal voltage	8.7 V ---

Battery Charger Adapter

Item	Specifications
Model	DA-65J19
Manufacturer	Asian Power Devices Inc. (APD)
Size (Width x Height x Depth) (mm)	134.0 x 59.8 x 31
Weight (kg)	Typ. 0.34
Input	AC 100-240 V~ 50-60 Hz, 1.5 A-0.7 A
Output	19 V --- 3.42 A
Classification by protection type against Electric Shock	Class I equipment
Cable Length (m)	1.5

Control Box

Item	Specifications
Model	LG Control Box
Size (Width x Height x Depth) (mm)	125.0 x 109.8 x 255.0
Weight (kg)	Typ. 1.3
Input	AC 100-240 V~ 50/60 Hz, 1.4-0.7 A
Output	DXD 1 24 V --- 2.1 A, Trigger Signal, Ethernet Data from the detector A.
	DXD 2 24 V --- 2.1 A, Trigger Signal, Ethernet Data from the detector B.
	Ethernet An Ethernet port to transmit images/commands between the detector and a PC.
	Sync Synchronizes the detector and X-ray generator.

Cables

Item	Length	Qty
Main Cable	7 m	1
LAN Cable (Optional)	10 m	1
Power Cord (110 V or 220 V)	1.5 m	2
Trigger Cable (Optional)	15 m	1

Wireless module (LGSBWAC93) Specifications

Wireless LAN (IEEE 802.11a/b/g/n/ac)	
Frequency Range	Output power (Max.)
2400 to 2483.5 MHz	20 dBm
5150 to 5350 MHz	23 dBm
5470 to 5725 MHz	23 dBm
5725 to 5850 MHz	13.98 dBm

- As band channels can vary per country, the user cannot change or adjust the operating frequency. This product is configured for the regional frequency table.
- * IEEE 802.11ac is not available in all countries.

ENVIRONMENTAL REQUIREMENT

PC System Requirements

PC Specifications	
CPU	Intel i5
RAM	8 GB
Disk capacity	500 GB or more recommended
Network Card	Dual Ethernet 100/1000 Mbps
OS	Windows 7/8.1/10 (64 bit)
Monitor	Min Resolution 1920 x 1080
AP	Cisco models recommended (e.g. Linksys EA9200)

INSTALLING CALIBRATION SOFTWARE

How to Install

Launch the installation file of Calibration Software. After the installation file is launched, follow the instructions displayed on the screen to complete the installation.

How to Uninstall

To remove Calibration Software from your PC, read and follow the steps below:

Uninstall in the Control Panel

- 1 Click and launch Control Panel in your Start menu.
- 2 Select Programs and Features in Control Panel.
- 3 Select [LG DXD Calibration] from the list of the installed programs.
- 4 Select the [Delete] button when the screen for installation and uninstallation of the program appears.
- 5 Follow the on-screen prompts for proceeding uninstallation and click the [Next] button to complete uninstallation.

Uninstall using the Installation File

Launch the installation file of Calibration Software and follow the instructions on the screen for uninstallation to complete the operation.

NOTE

- To uninstall the program using the installation file, make sure to run the installation file of the same version as the software installed in the PC.

CONNECTION TYPE

Connection of X-ray Generator - Detector

Select the trigger mode according to the image acquisition method.

- Auto mode: The detector automatically detects and acquires X-ray images.
- Manual mode: The detector recognizes the X-ray generator signals and acquires images.

Connection of Detector - PC

The status of the connection between the detector and a PC

- Wired Mode: The wired connection between the detector and a PC through the Control Box
- Wireless (STA) mode: The wireless connection between the detector and a PC through a wireless AP
- Wireless (AP) mode: Wireless connection between the detector and a PC through the Soft AP function

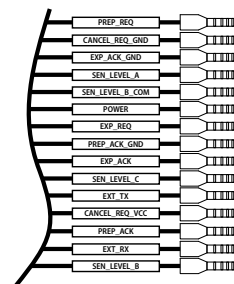
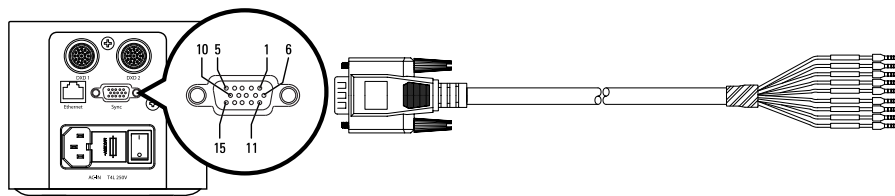
Network Connection Mode

Select the network connection mode using  (Wired/Wireless Connection button).

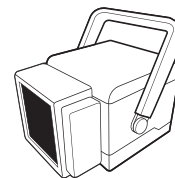
- Press  (Wired/Wireless Connection button) for at least one second to switch between the following connection modes, in respective order: Ethernet/Station/AP mode.

Trigger Cable

The trigger cable is connected to the control box and X-ray Generator. It can only be used in manual mode, and not in automatic mode.



Pin Label



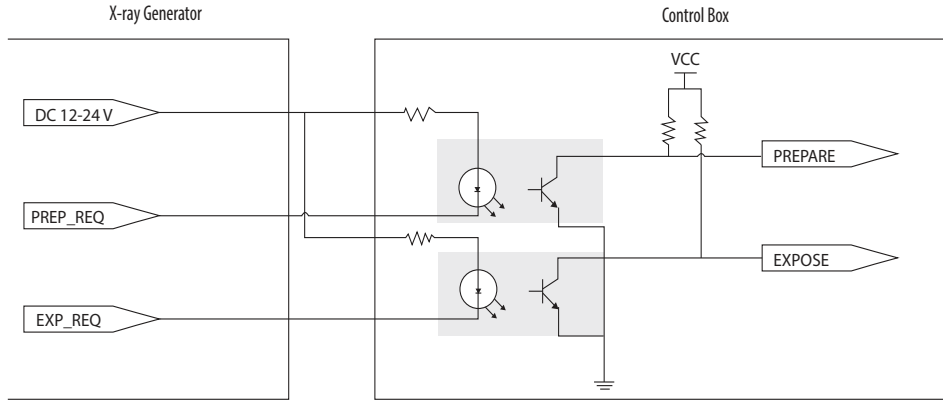
X-ray Generator

Number	Pin Label	Description
1	PREP_REQ	Prepare the signal from the X-ray generator to the control box.
2	CANCEL_REQ_GND	Cancel REQ ground.
3	EXP_ACK_GND	Signal ground
4	SEN_LEVEL_A	READY
5	SEN_LEVEL_B_COM	READY
6	POWER	Power: X-ray generator supply voltage (DC 12 V to 24 V)
7	EXP_REQ	Expose the signal from the X-ray generator to the control box.
8	PREP_ACK_GND	Prepare ground check.
9	EXP_ACK	Expose the acknowledgement signal from the control box to the X-ray generator.
10	SEN_LEVEL_C	READY
11	EXT_TX	READY
12	CANCEL_REQ_VCC	Cancel VCC request.
13	PREP_ACK	Prepare a confirmation signal from the control box to the X-ray generator.
14	EXT_RX	READY
15	SEN_LEVEL_B	READY

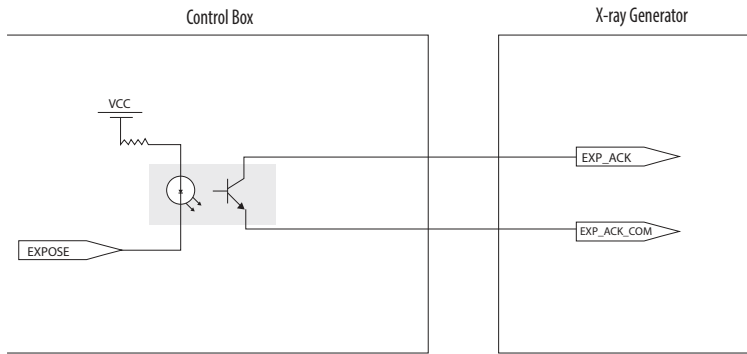
! **NOTE**

- Connection of trigger cable and X-ray generator is to be performed by qualified personnel. The description of each pin is in the common language for this industry.

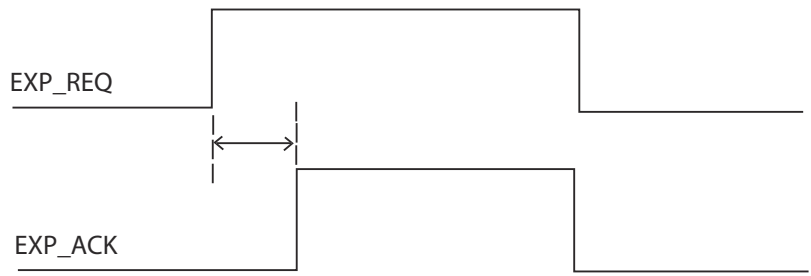
Block diagram of Trigger Cable connection



<Connection of X-ray Generator - Control Box>



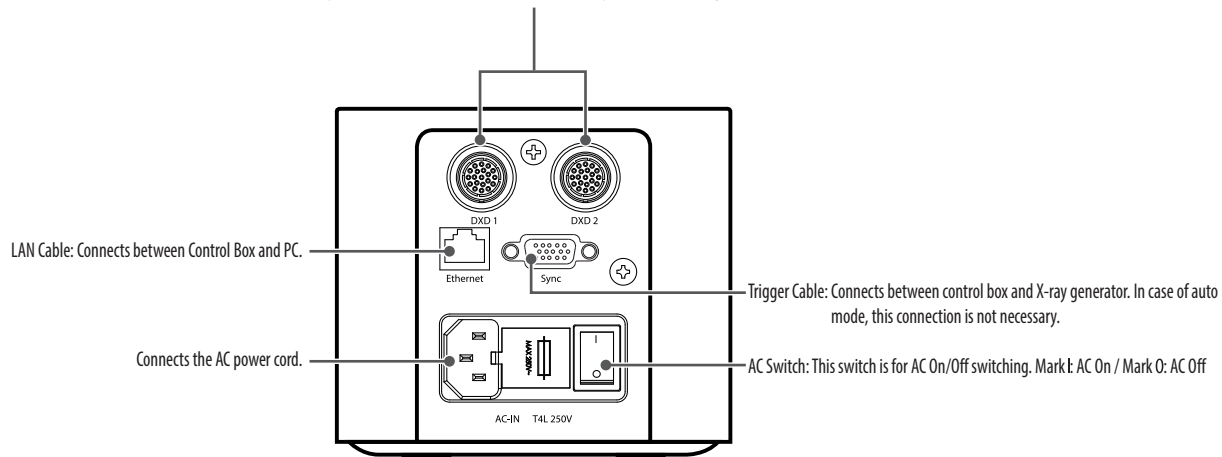
<Assembly Diagram>



<Timing Chart>

Main Cable: Connects the control box to the detector.

Up to two detectors can be connected, and both ports can be used by one detector.




Trigger Cable: Connects between control box and X-ray generator. In case of auto mode, this connection is not necessary.

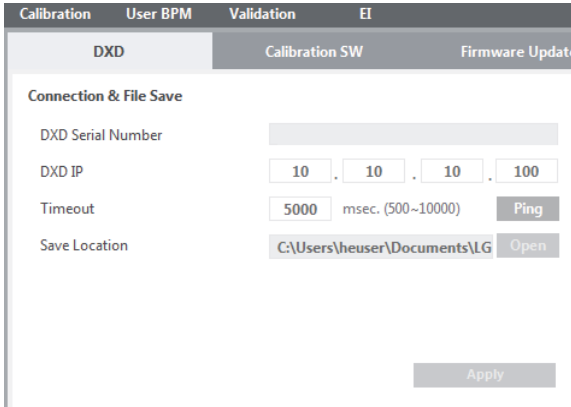
AC Switch: This switch is for AC On/Off switching. Mark I: AC On / Mark O: AC Off

Connect - Wired Connection

Use the LAN cable to connect a PC to the Control Box and connect the detector to the Control Box with the main cable. After connecting the cables, proceed to set up the PC as shown below.

- 1 Launch the [Network and Sharing Center] and click [Change adapter settings].
 - Control Panel > Network and Internet > Network and Sharing Center > Change adapter settings
- 2 Go to [Properties] in Local Area Connection.
- 3 Select [Internet Protocol Version 4 (TCP/IPv4)] and then click [Properties] to set the IP address as follows:
 - IP address: 10.10.10.2 ~ 10.10.10.254 (set an IP address other than 10.10.10.99, 10.10.10.100)
 - [Subnet Mask]: 255.255.255.0
 - [Default Gateway]: 10.10.10.1
 - Do not set up DNS.

- 4 Launch Calibration Software, go to  (Settings) > [DXD] > [Connection & File Save] and enter the detector's IP (10.10.10.100). Click the [Ping] button to check the connection.



Calibration	User BPM	Validation	EI
DXD	Calibration SW	Firmware Update	

Connection & File Save

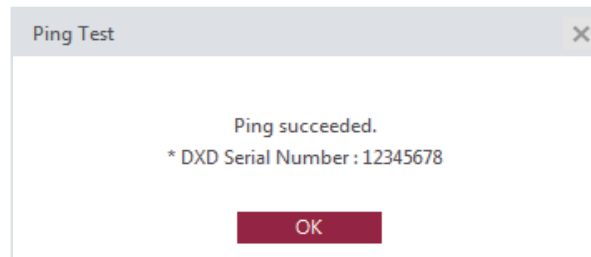
DXD Serial Number

DXD IP . . .

Timeout msec. (500~10000)

Save Location

- Press the [Ping] button. If connected successfully, the following pop-up will appear:



Connecting Detector to PC (Wireless Mode)

A: Detector

D: PC

B: AP

E: Object

C: LAN Cable

F: X-ray Switch

G: X-ray Generator

H: X-ray Generator Interface

I: Main Cable

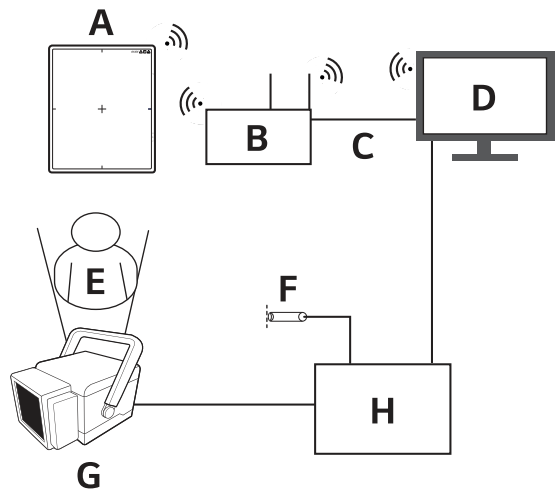
J: Control Box

K: Power Cord (AC 100-240 V~)

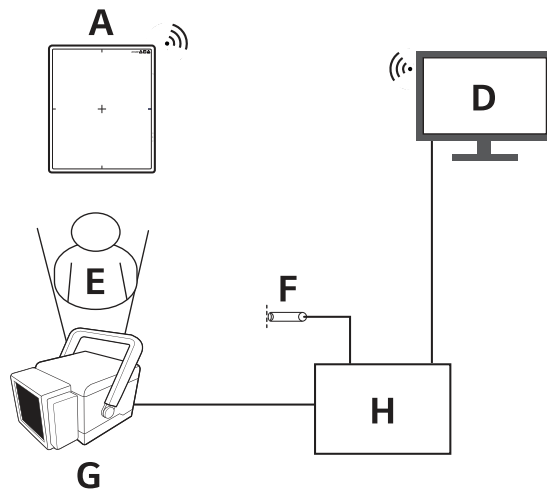
L: Trigger Cable

Auto Mode

1. Station mode (for the use of external AP)



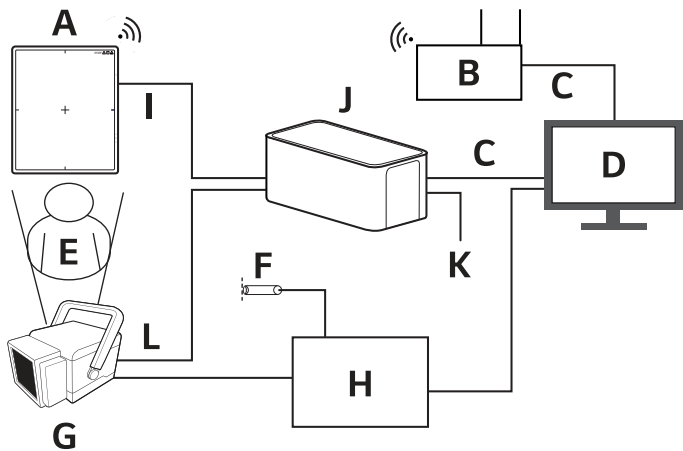
2. AP mode (for the use of detector internal AP)




! NOTE

- Please install the AP and Detector as near as possible without obstacles in between them.

Manual Mode



Making connections-Wireless connection

- 1 The wireless factory default settings are as follows:
 - Station mode (connection via external AP)
 - SSID: LGEDXD
 - AP mode (connection via detector AP)
 - SSID: LGEDXD_SOFTAP
- 2 It is possible to change the Wireless Settings using LG DXD Calibration Software.
 - Please see "Wireless AP Settings" for details.
- 3 Press  (Wired/Wireless Connection button) for at least one second to switch between the following connection modes, in respective order: Ethernet/Station/AP mode.
- 4 The Connection method as below.
 - Station mode
 - PC settings and connection with Detector are same with wired Connection.
 - AP mode
 - Enter [Wi-Fi] under PC Settings, and enter [Show available networks].
 - Attempts are made to connect after checking the DXD wireless AP SSID, which is shown as the research result (the initial value is LGEDXD_SOFTAP). Enter the password to connect.
 - If the ping test fails despite the wireless connection being complete, please enter the IP address as follows:
 1. Launch the [Network and Sharing Center] and click [Change adapter settings].
 - (Control Panel > Network and Internet > Network and Sharing Center > Change adapter settings)
 - Select a network adapter.
 2. Go to [Properties] in Local Area Connection.
 3. Select [Internet Protocol Version 4 (TCP/IPv4)] and then click [Properties] to set the IP address as follows:
 - IP address: 10.10.10.2 ~ 10.10.10.254 (set an IP address other than 10.10.10.99, 10.10.10.100)
 - [Subnet Mask]: 255.255.255.0
 - [Default Gateway]: 10.10.10.1
 - Do not set up DNS.

! NOTE

- Refer to the wireless access point setup guide.
 - "Wireless Access Point Setup Guide (Model: Cisco Linksys EA9200)"



The model and serial number of the product are located on the back and on one side of the product. Record them below in case you ever need service.

Model

Serial No.

WARNING: This equipment is compliant with Class A of CISPR 32. In a residential environment this equipment may cause radio interference.