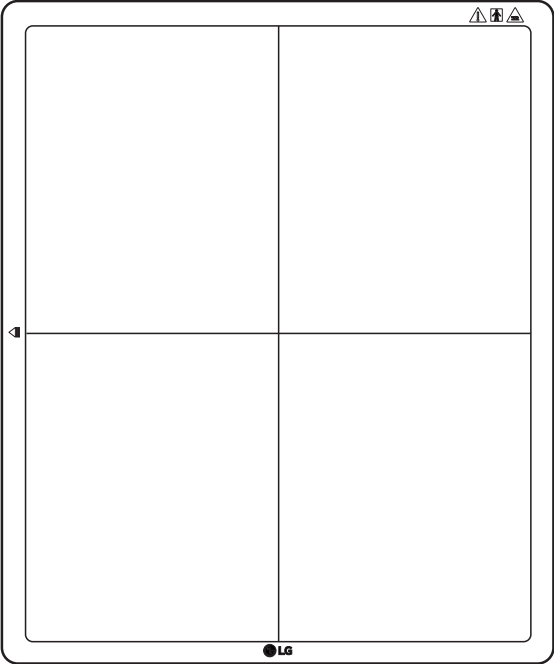


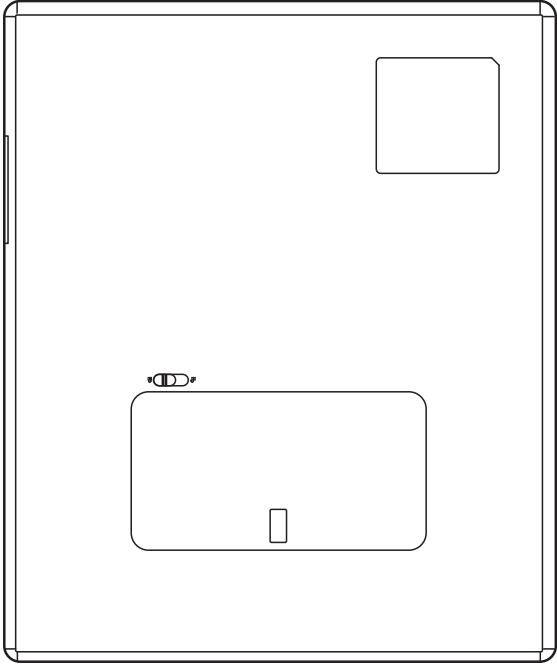
# PART NAME AND FUNCTION

## Detector

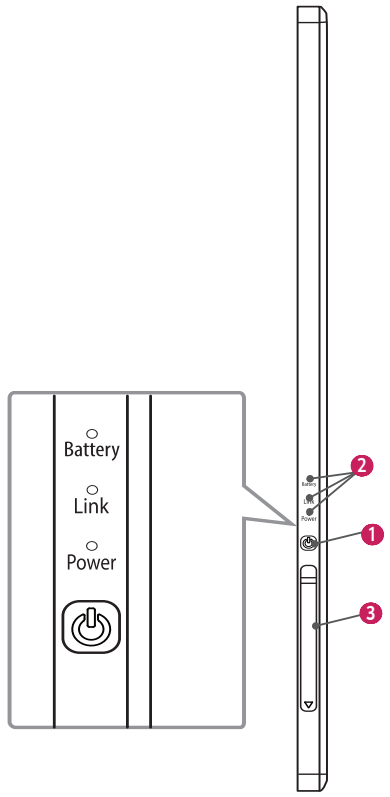
FRONT



BACK



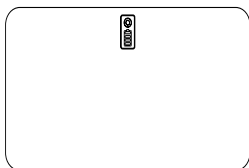
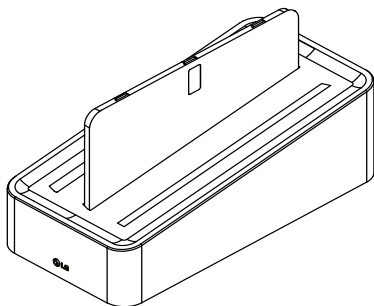
**SIDE**



- 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 staunts 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



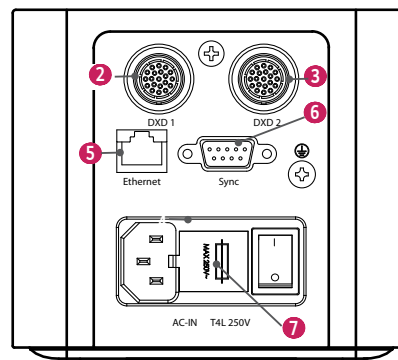
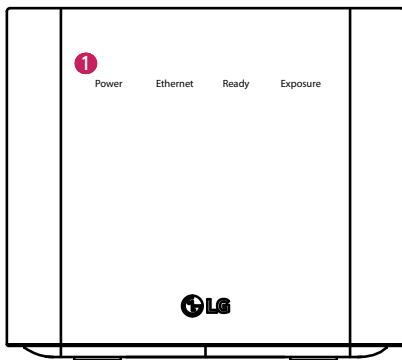
### ! NOTE

- 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%

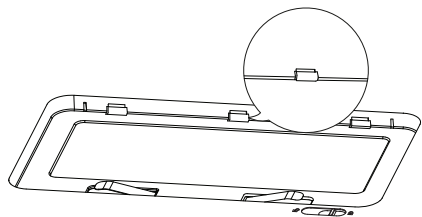
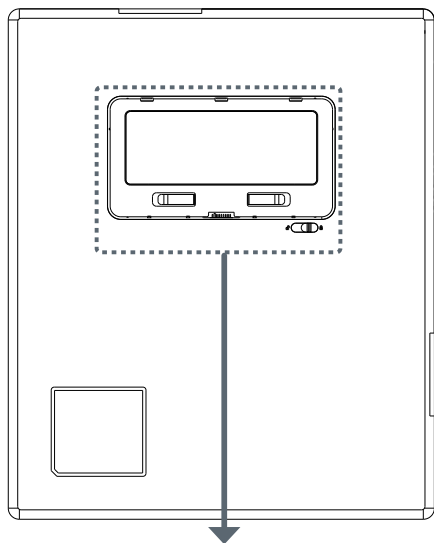
# Control Box



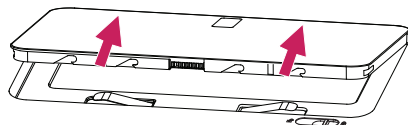
No.	LED Indicator	LED Color	Status
1	Power	Green	Power normal operation
		Off	Power off (AC power cord no connection or Power error)
	Ethernet	Green	Ethernet normal operation
		Green blink	On data communication
		Off	Ethernet disconnected
	Ready	Green	Ready signal from X-ray generator is active
		Off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

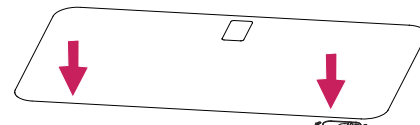
# BATTERY ASSEMBLY



1 Check the battery mounting hole direction.

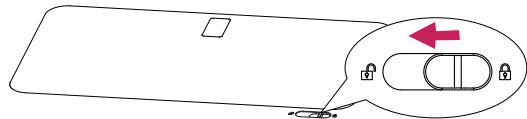
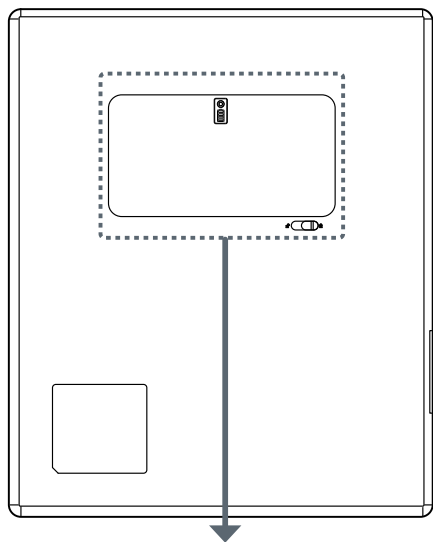


2 Insert into the hole on the side with the indicator.

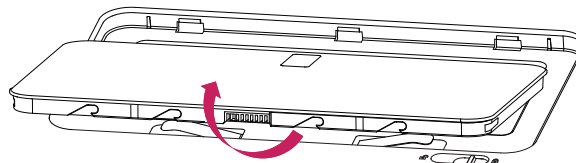


3 Press the opposite side to secure the battery indicator.

# 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 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

Item	Specification	Units
Model	14HK701G	
Sensor type	Amorphous Silicon with TFT	
Scintillator Type	Csi:TI	
Total Pixel Matrix	2500 x 3052	Pixels
Total Pixel Area	350 x 427.28 (13.7 x 16.8)	mm (inch)
Pixel Pitch	140	um
Effective Pixel Matrix	2488 x 3040	pixels
A/D Conversion	16	bits
Data Transfer	802.11 a/b/g/n/ac Wireless LAN, typ. 150Mbps Gigabit Ethernet typ. 500Mbps	
Image Transfer	6 (wireless), 3 (wired)	sec
Energy range	40 ~ 150	kVp
MTF	Typ. 89% at 0.5 lp/mm	%
DQE	Typ. 72% at 0.1 lp/mm	%
Dimension	384.0 x 460.0 x 15.2 (15.1 x 18.1 x 0.59)	mm (inch)
Weight	Typ. 2.95 (6.5)	kg (lbs)
Window material	Carbon Fiber	
Trigger mode	Manual Mode Auto Mode (Auto Exposure Detection)	

Item	Specification	Units
Power consumption	Typ. 27.5	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: 2X2 2.4GHz WLAN (2412~2472MHz) : 18.048dBm 5GHz WLAN(5180~5700MHz) : 20.535dBm 5.8GHz WLAN(5745~5825MHz) : 13.737dBm	
Rating	24V --- 2.1 A Typ. 4000 mAh (Battery: LBQ7222L)	
Applied part	Type : BF Type, Location : Front of Detector (only for effective area)	



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
Angle 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 (lb)
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 (lb)
Input	19 V $\overline{\text{---}}$ 3.42 A	
Output Normal voltage	8.7	VDC

## Battery Charger Adapter

Item	Spec	Units
Model	DA-65J19	
Manufacturer	Asian Power Devices Inc. (APD)	
Size	134.0 x 59.8 x 31 (5.2 x 2.3 x 1.2)	mm (inch)
Weight	Typ. 335 (0.7)	g (ib)
Input	100-240 V ~, 50-60 Hz, 1.5-0.7 A	
Output	19 V --- = 3.42 A	
Class	I	
Cable length	1500 (59)	mm (inch)

## Control Box

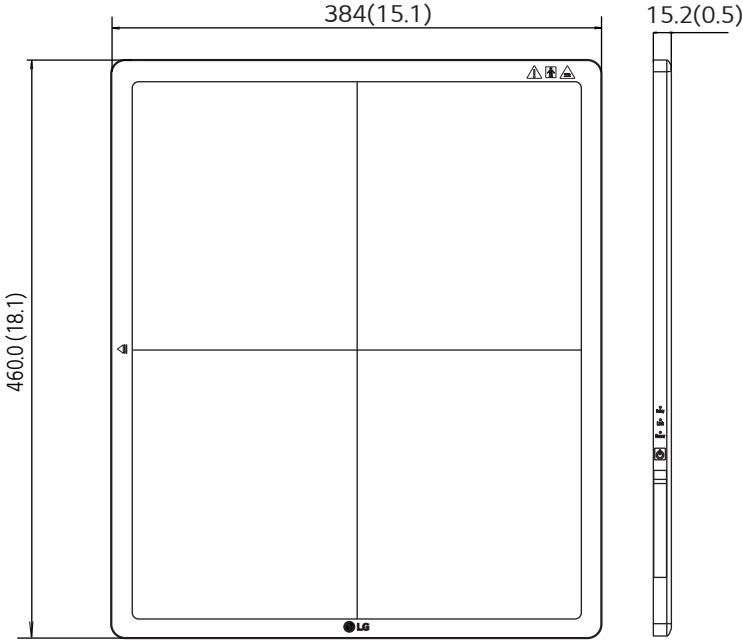
Item	Desc.	Specification	Units
Model	LG Control Box	LG Control Box	
Size		125.0 x 255.0 x 109.8 (4.9 x 10.0 x 4.3)	mm (inch)
Weight		Typ. 1.3 (2.8)	kg (lb)
Input	AC Power	100-240 V ~, 50/60 Hz, 1.4-0.7 A	
Output	DXD 1	24 V --- = 2.1A, Trigger signals, Ethernet data for Detector A.	
	DXD 2	24 V --- = 2.1A, Trigger signals, Ethernet data for Detector B. 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.	
	Ethernet	Transmission image/command between the detector and PC	
	Sync	Transmission control signals between the detector and X-ray generator	

## Cables

Item	Length	Units	Qty
Main cable	1 (39.3)	m (inch)	1
LAN cable (optional)	10 (393.7)	m (inch)	1
Power cord (110 V or 220 V)	1.5 (59.0)	m (inch)	2
Trigger cable (Optional)	15 (590.5)	m (inch)	1

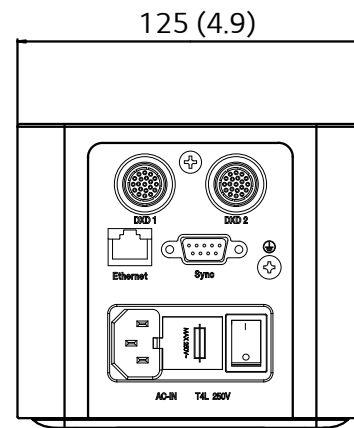
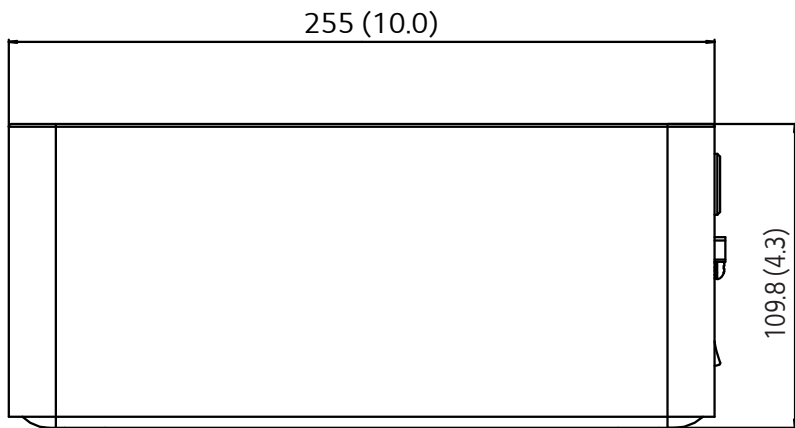
# DIMENSION (UNIT: mm/inch)

## Detector

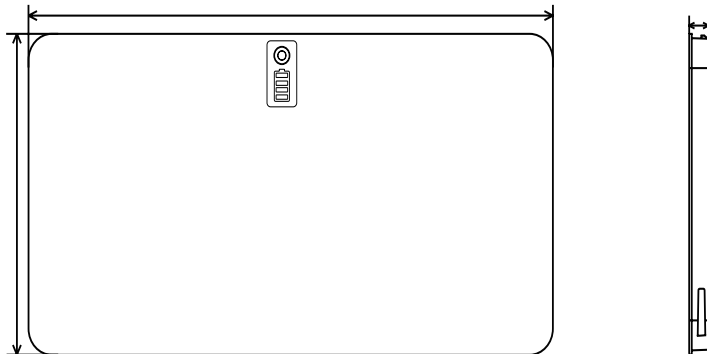


## Control Box

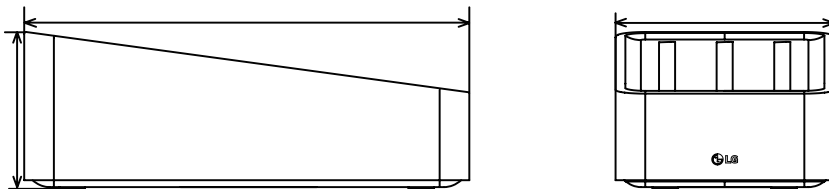
ENGLISH



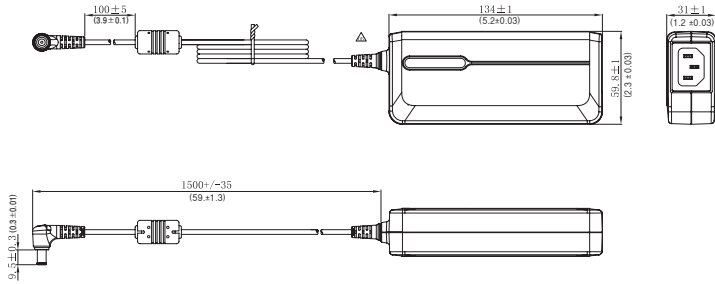
## Battery



## Battery Charger



## Battery Charger Adapter



## ENVIRONMENTAL REQUIREMENT

### PC system requirement

PC Specification	
CPU	intel i5
Memory	4 GB
Disk capacity	At least 10 GB, 500 GB recommended
Network card	dual ethernet 100/1000 bps
OS	Windows 7/8.1/10(32bit, 64bit)
Monitor	Min. Resolution 1280x720

# INSTALLING CALIBRATION SOFTWARE

## How to install

Run the calibration software installation file. Once the installation file has been executed, follow the installation instructions on the screen.

## How to delete

You can delete the Calibration Software in the following ways:

### Deleting from the Control Panel

- 1 Select Control Panel from the Start menu.
- 2 Select Programs and Features in Control Panel.
- 3 Select the LG DXD Calibration on the lists.
- 4 When the program installation and deletion screen appears on the screen, select the **Delete** button.
- 5 Follow the deletion instructions on the screen and click the **Next** button to proceed.

### Deleting with the installation file

- 1 Run the calibration software installation file, then follow the deletion instructions on the screen.

### **NOTE**

- When using the installation file to delete the program, the **installation file** must be the same version as the current software.

# CONNECTION TYPES

### X-ray Generator and Detector

Select Trigger Mode in accordance with the acquisition method.

- Auto Mode : Detector detects the image obtained after the X-ray.
- Manual Mode : Detector acquires image by pressing generator exposure switch.

### Connection of Detector - PC

The connection mode used between the detector and PC.

- Wired Mode: Uses the Control Box to connect the detector to a PC.

### Mode of connecting Network

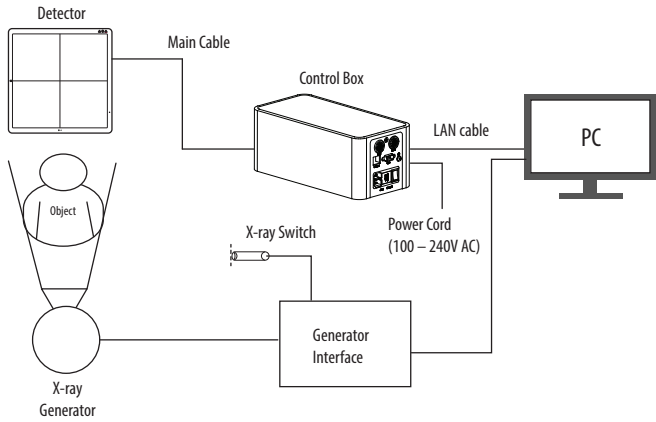
Wired or wireless modes are set automatically depending on whether or not the main cable is connected when the detector is turned on.

- 1 If the main cable is connected when the power is turned on: Wired mode.
- 2 If the main cable is not connected when the power is turned on: Wireless mode.
- 3 If the cable is disconnected while in wired mode: Switches to wireless mode.
- 4 If the cable is connected while in wireless mode: Maintains wireless mode. (charging)

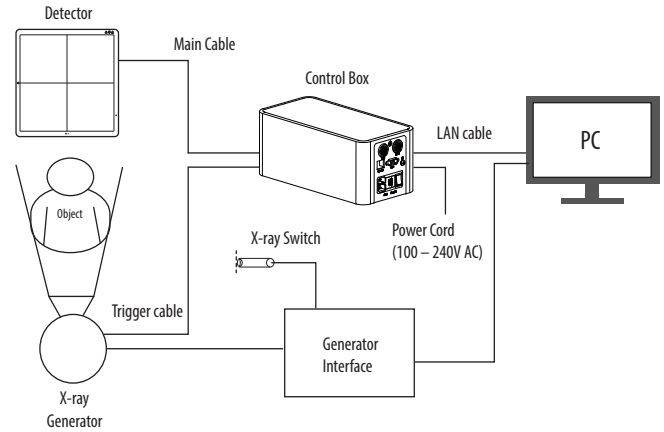
Mode	Generator - Detector	Detector - PC
Case 1	Auto Mode	Wired Mode
Case 2	Manual Mode	Wired Mode
Case 3	Manual Mode	Wired Mode
Case 4	Manual Mode	Wireless Mode

# Detector and PC (Wired mode)

## Auto Mode

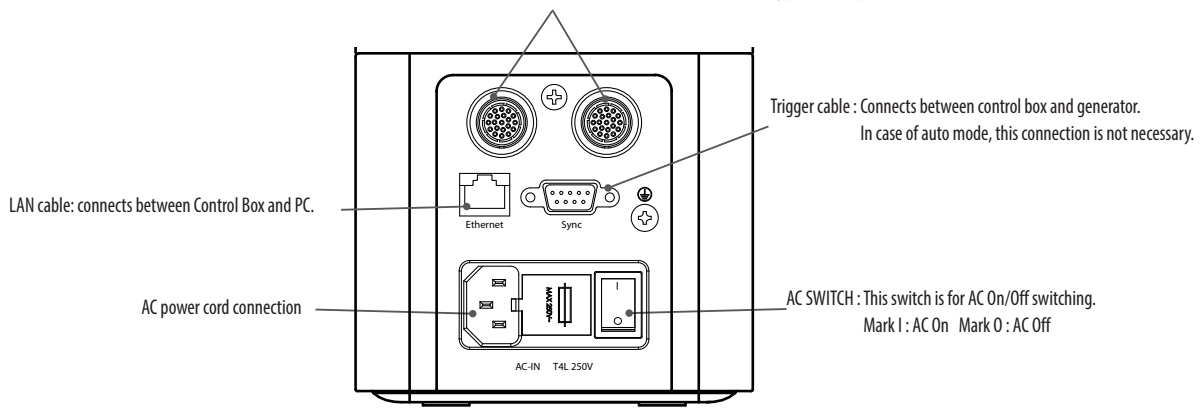


## Manual Mode



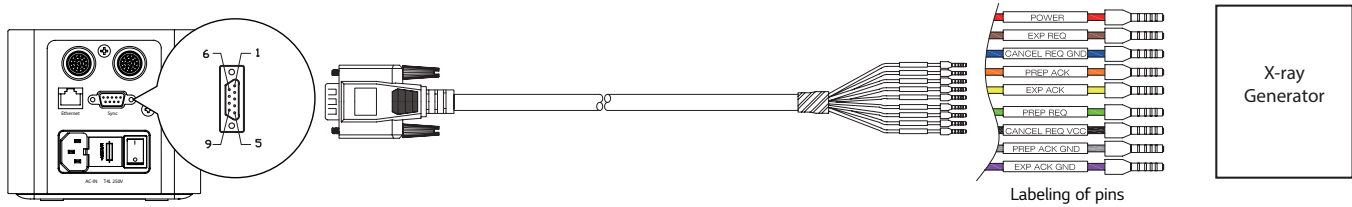


Main cable : Connects between Control Box and detector.  
2 detectors can be connected, in case of 1 detector, connection of any port is acceptable.



# Trigger Cable

- Trigger cable is connected between control box and x-ray generator.

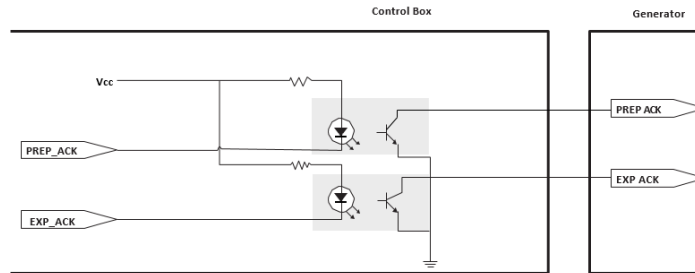
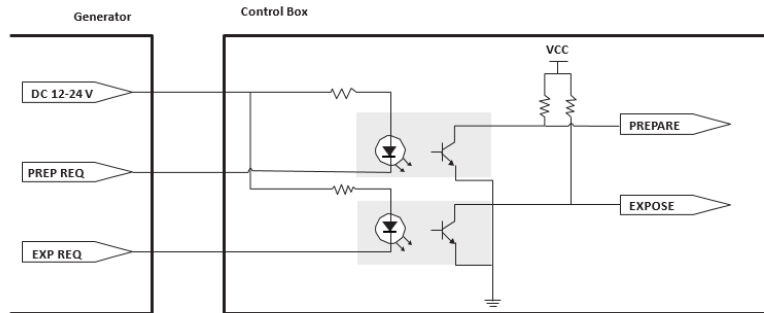


NC : No Connection

No.	COLOR	Description	
1	RED	DC 12~24V $\overline{\overline{\text{---}}}$ of signals	Use
2	BRN	Expose signal from generator to Control Box	Use
3	BLU	CANCEL REQ GND	NC
4	ORG	Prepare Acknowledge signal from Control Box to generator	Use
5	YEL	Expose Acknowledge signal from Control Box to generator	Use
6	GRN	Prepare signal from generator to Control Box	Use
7	BOK	CANCEL REQ VCC	NC
8	GRY	PREP ACK GND	NC
9	VIO	GND of signals	Use

Trigger cable and X-ray generator connection is implemented by expert of X-ray system manufacture. Description of each pin is common language of this industry.

# Block diagram of Trigger Cable connection

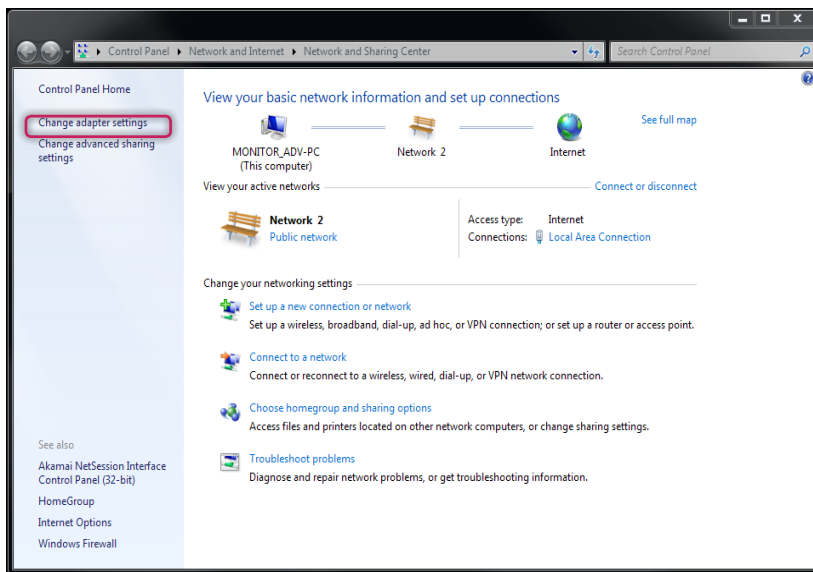


## MAKING CONNECTIONS - Wired Connection

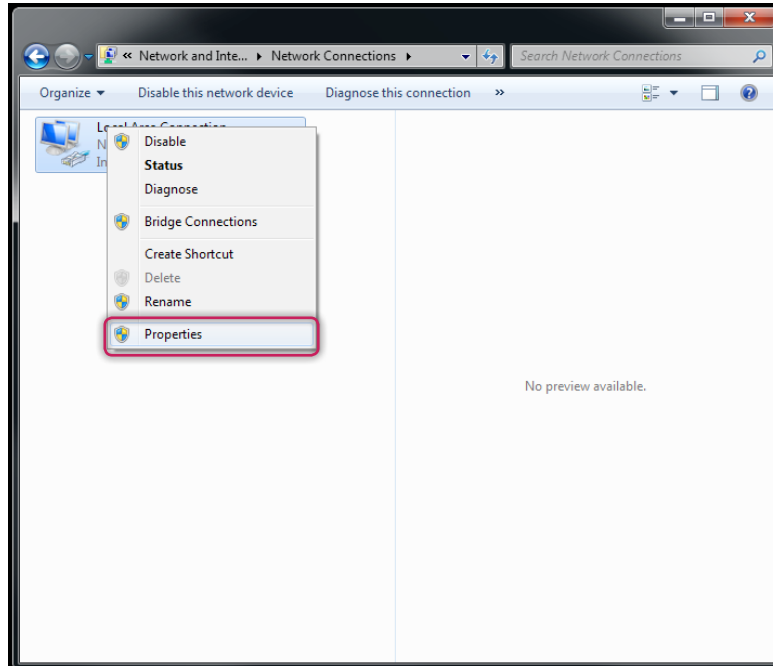
- 1 Connect the PC to the control box using a LAN cable. Connect the detector to the control box using a Main cable.
- 2 Configure the PC settings as below.

1 Open the **Network and Sharing Center** and Click the **Change adapter settings**.

(Control Panel > Network and Internet > Network and Sharing Center > Change adapter settings)

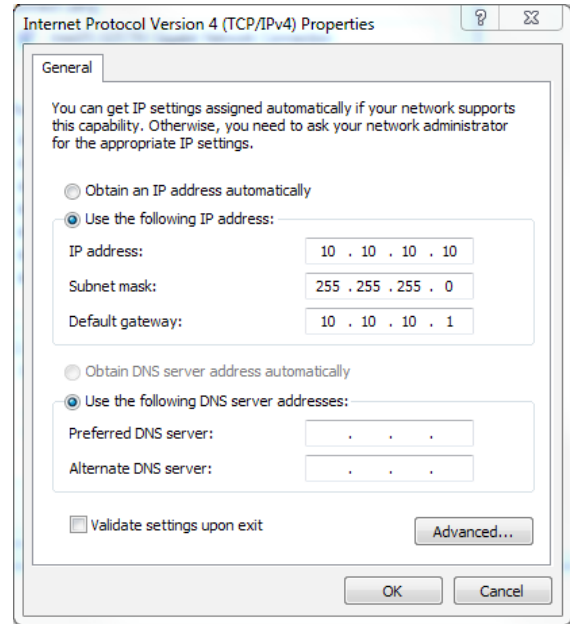
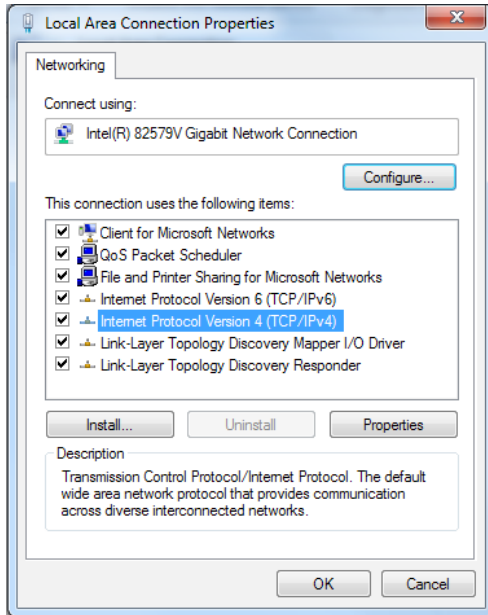


2 Right-click on Local Area Connection and enter **Properties**.

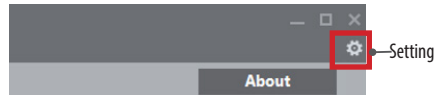


3 Select **Internet Protocol Version 4 (TCP/IPv4)**, then enter **Properties** to set the following IP address.

- IP address: 10.10.10.2 to 10.10.10.254 (Set it to an IP address other than 10.10.10.10.)
- Subnet mask: 255.255.255.0
- Gateway: 10.10.10.1

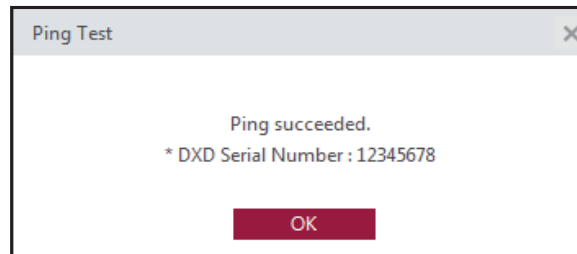


- 4 Run the LG DXD Calibration program. Go to **Settings > DXD > Connection&File Save**, enter DXD IP (10.10.10.100), then run the **Ping** to check the connection.



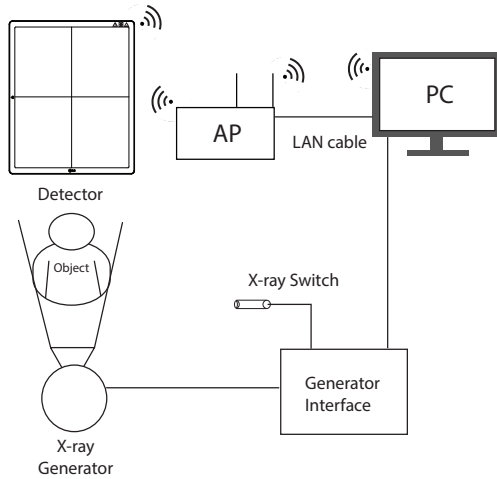
Calibration	User BPM	Validation	EI
DXD	Calibration SW	Firmware Update	
<b>Connection &amp; File Save</b>			
DXD Serial Number	<input type="text"/>		
DXD IP	<input type="text" value="10"/>	<input type="text" value="10"/>	<input type="text" value="100"/>
Timeout	<input type="text" value="5000"/> msec. (500~10000)	<input type="button" value="Ping"/>	
Save Location	<input type="text" value="C:\Users\heuser\Documents\LG"/>	<input type="button" value="Open"/>	
<input type="button" value="Apply"/>			

If following screen is popup after “ping” click, connection is successful, everything for system operation is ready.

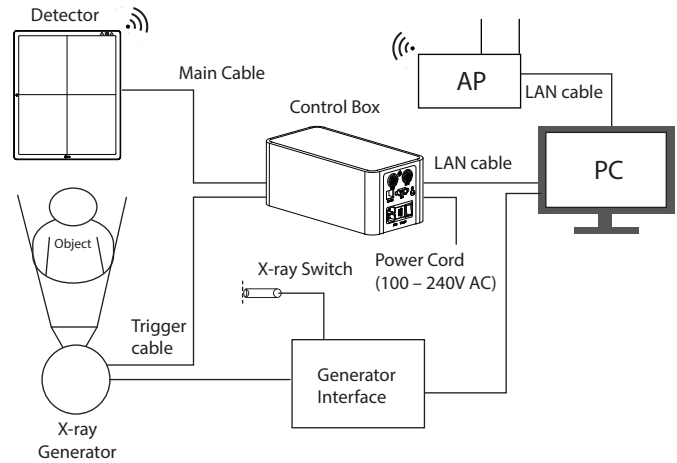


## Detector and PC (Wireless mode)

### Auto Mode



### Manual Mode



### ! NOTE

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



## MAKING CONNECTIONS-Wireless Connection

- 1 The Default Wireless Settings as below.
    - SSID : LGEDXD
    - Password : lgedxd2000
  - 2 It is possible to change the Wireless Settings using LG DXD Calibration Software.
    - Please see the Service manual ("Wireless AP configuration") for details.
  - 3 Please reboot the Detector after removing the main cable on Detector.  
(If the main cable is disconnected when the power is turned on: Wireless mode)
  - 4 PC settings and connection with Detector are same with wired Connection.  
Please refer to the "MAKING CONNECTIONS - Wired Connection".
- 
- Tip : Refer to Wireless AP Set Up Guide
    - "Supplement. Wireless AP Set Up Instruction (Model : Cisco Linksys EA9200)"