

**INSTALLATION AND OPERATING
INSTRUCTIONS FOR THE**

rad-DX™

RADIATION DETECTION SYSTEM



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1 Introduction

The Rad-DX is a security and inspection system that detects emissions from radioactive material. The Rad-DX system can operate as a stand-alone detector or as part of a larger rad-DX network monitoring a building or facility.

2 System Components

There are several configurations available for a Rad-DX system. Four styles are available: black with LCD, black without LCD, white with LCD, and white without LCD.



Figure 1: Rad-DX Versions - black and white, LCD and non-LCD

Other hardware components included with each Rad-DX include:

| | |
|---|---|
|  <p>Mounting Bracket</p> |  <p>USB Cable</p> |
|  <p>Wire Nuts and Mounting Screws</p> |  <p>“Pigtail” Wire Harness</p> |
|  <p>Power Cable (black or white depending on color of Rad-DX)</p> | |

Table 1: Additional Rad-DX Hardware



3 Networking Options Overview

Your Rad-DX can operate in a variety of configurations. Each Rad-DX unit can function as a stand-alone unit or form part of a radiation detector network with other Rad-DX units. Configuration options are:

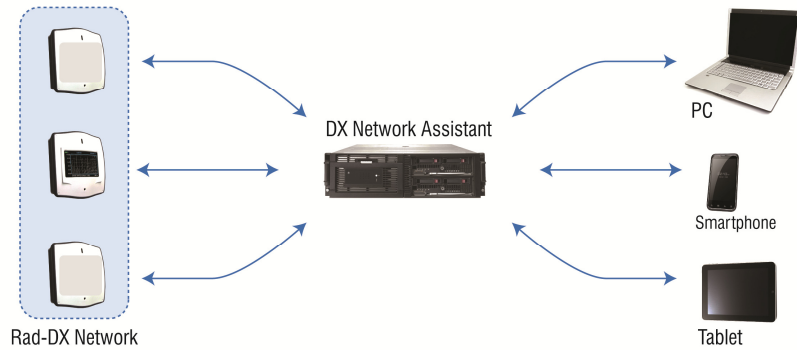
Stand-Alone Operation: The Rad-DX can be controlled and monitored via the touch-screen LCD on the unit.

D-tect Cloud Network: The D-tect Cloud Network is the easiest method to control and monitor a network of Rad-DX detectors. It also allows the detectors to be monitored via smartphone, tablet, or PC. Setting up your Rad-DX unit within the Cloud Network will require a PC with an internet connection. All information sent over the Cloud is SSL encrypted.

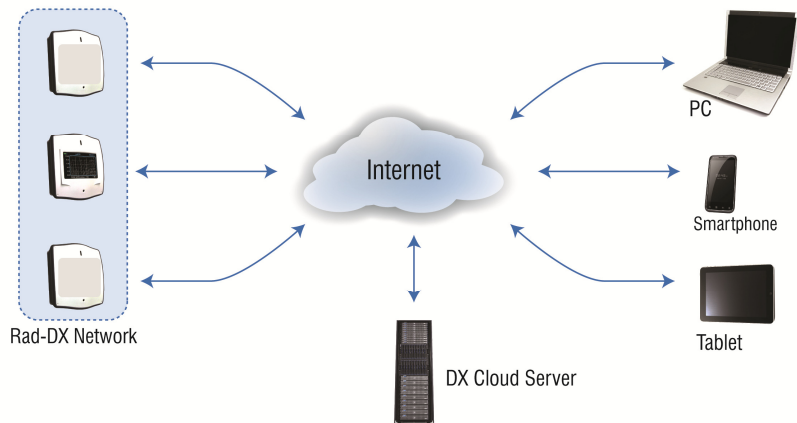
DX Network Assistant Appliance: Our Rad-DX Assistant appliance allows a RAD-DX network to operate behind a firewall that blocks access to the internet. The DX Network Assistant is a computer pre-loaded with all the software needed to control and monitor a network of Rad-DX detectors. Installation of the network is quick and very easy. Locate the DX Network Assistant anywhere in your facility.

DX Networking Options

DX Network Assistant



DX Cloud Server



4 Monitoring and Controlling the DX Using the LCD Screen

The Rad-DX can operate in a stand-alone mode with information displayed on the LCD display. Options for the Rad-DX, such as display types and radiation units, can be set up by the following process:

1. Connect the Rad-DX device to a power source, either with the A/C plug or wiring it directly to the junction box (see Physical Installation, Section 6.1)
2. The following screen will appear on the LCD screen as the Rad-DX boots.



3. The Dose Rate Screen will appear on the LCD screen after loading is complete.
4. The red lines indicate the touch zone areas of the screen types below.
 - Touching the total dose location will reset the total dose to zero.
 - To change the time frame on the Bar Graph and Line Graph screens, touch the time period to toggle between 1 minute, 6 minute, and 30 minute time frames.
 - To change the units on the screen, touch the unit text. The units will automatically use metric prefixes (nano, micro...) depending on the currently measured dose rate.
5. To toggle through the different screens, touch anywhere else on the screen.

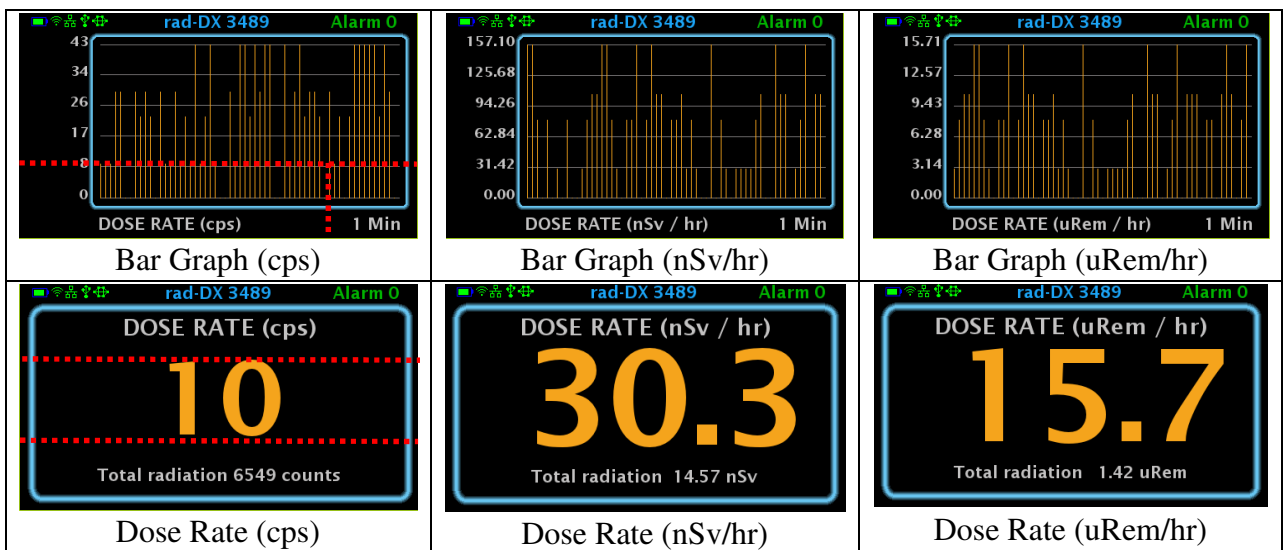


Table 2: LCD Screen Shots: Dose Rate and Bar Graph (CPS, nSv/hr, and uRem/hr)

4.1 Explanation of Networking Icons on the LCD Touch Screen

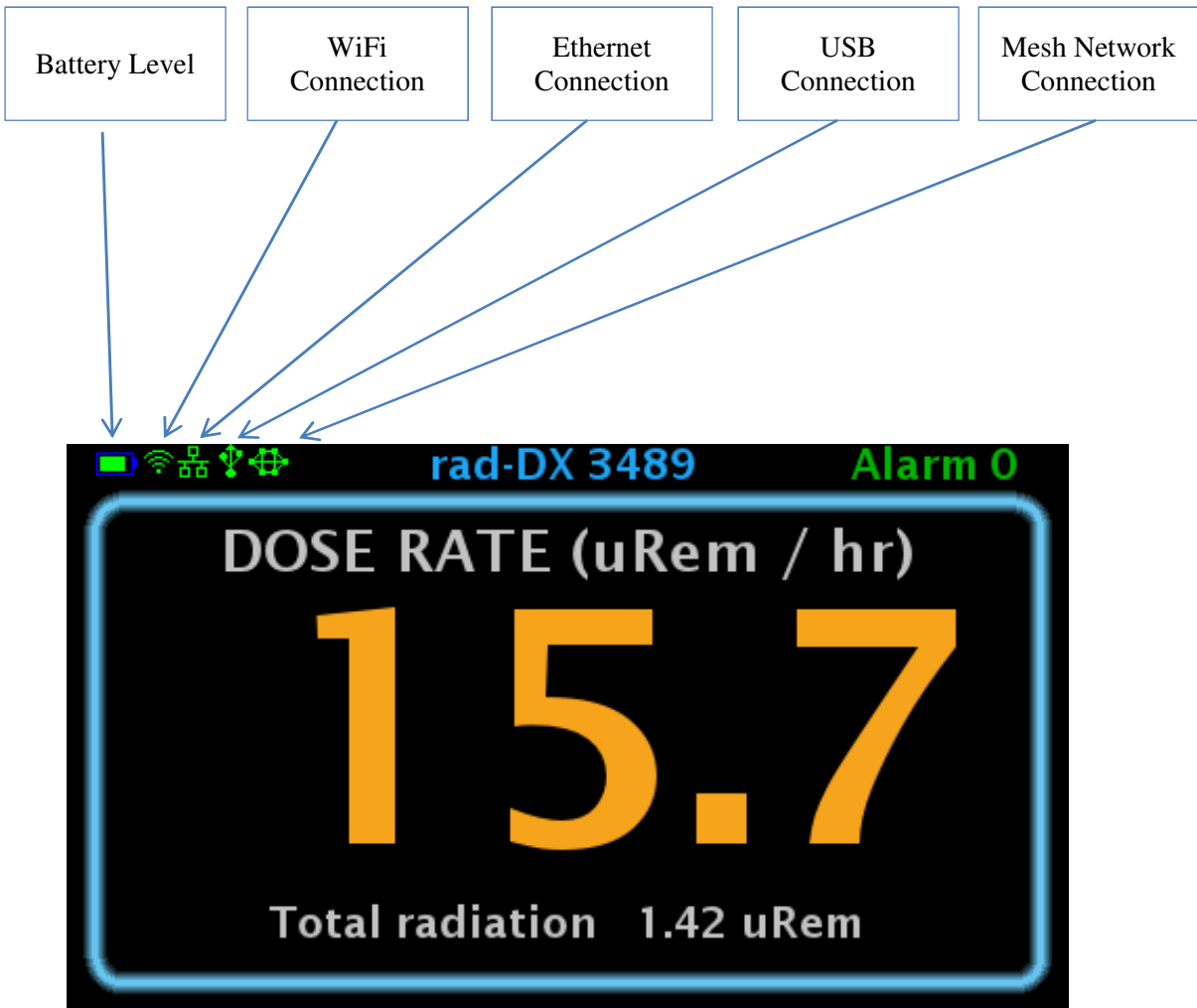


Figure 2: LCD Screen

The appearance of any network connection icon indicates that the device is currently connected via the referenced connection.

5 Monitoring and Controlling the Rad-DX in a Network Using the DX Dashboard

The DX Dashboard software is used to monitor and control a Rad-DX network. It runs on either the D-tect Cloud server or the DX Network Assistant (if you've installed it at your facility). Using the DX Dashboard, you can access your Rad-DX network using any web-enabled device (smartphones, tablets, PCs). You will be asked for your user name and password to allow access to your network (see Section 6.2).

5.1 Signing In

If your network is on the D-tect Cloud Network, go to <https://dx.dtectsystems.com> on your smart device or computer's internet browser and enter your user name and password. If your network is local, go to the URL of your DX Network Assistant and enter your user name and password.

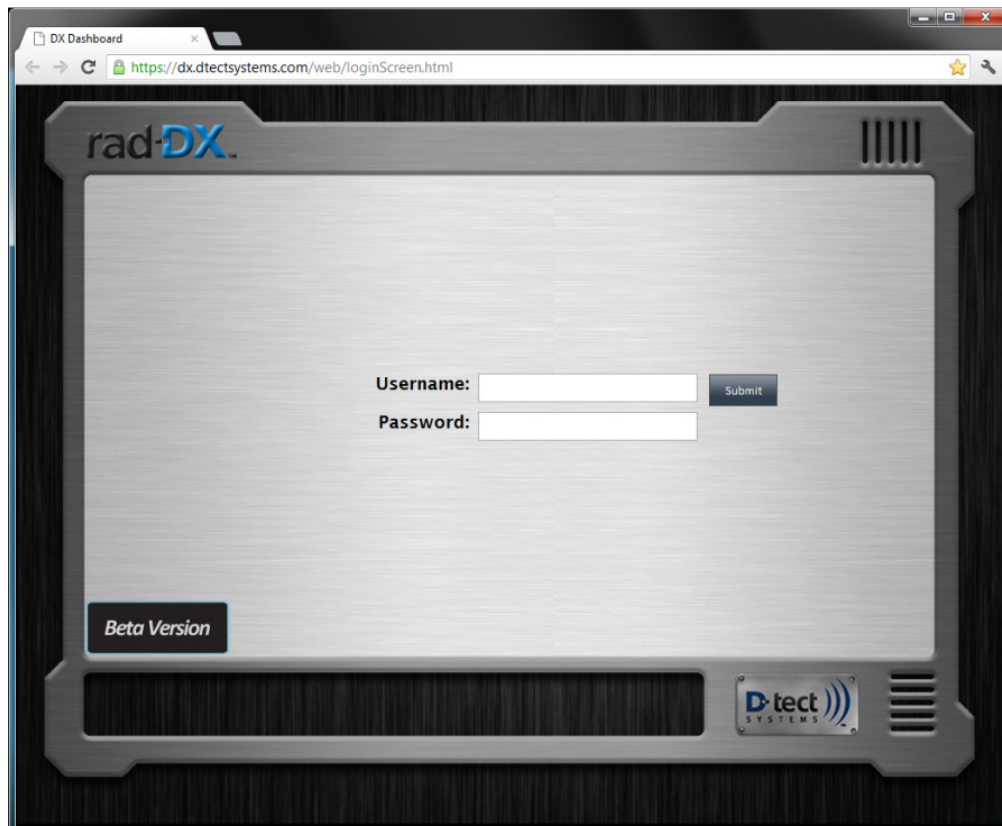



Figure 3: Rad-DX Sign-in Screen

5.2 Home Screen

When you open the DX Dashboard on a PC, smartphone, or tablet and log in, the Home screen will be the first displayed. The Home screen will show a map or a blueprint and where the Rad-DX units are located. (See Section 5.2.2 to upload a map or blueprint)



Figure 4: Application Home Screen with one alarming device icon and five normal device icons

During normal operation, each Rad-DX device in the network will appear as a small blue button. For the real-time dose rate measurement and device settings, click the button for the detector you want to see. A grey device window will pop up containing information about the unit. To access a graph of the current detection values, click on the white Radiation Level Graph button at the bottom left of the screen (see Section 5.3). To change the settings on the device, click the white gear Device Configuration button (see Section 5.4) at the bottom right of the screen (see Figure 5). To see a summary of all detectors, click the  button found in the top left (see Figure 6).

| | | |
|--|--|--|
|  Normal (non-alarming) device |  Alarming device |  Non-operational or disconnected device |
|--|--|--|

Table 3: Device Icons

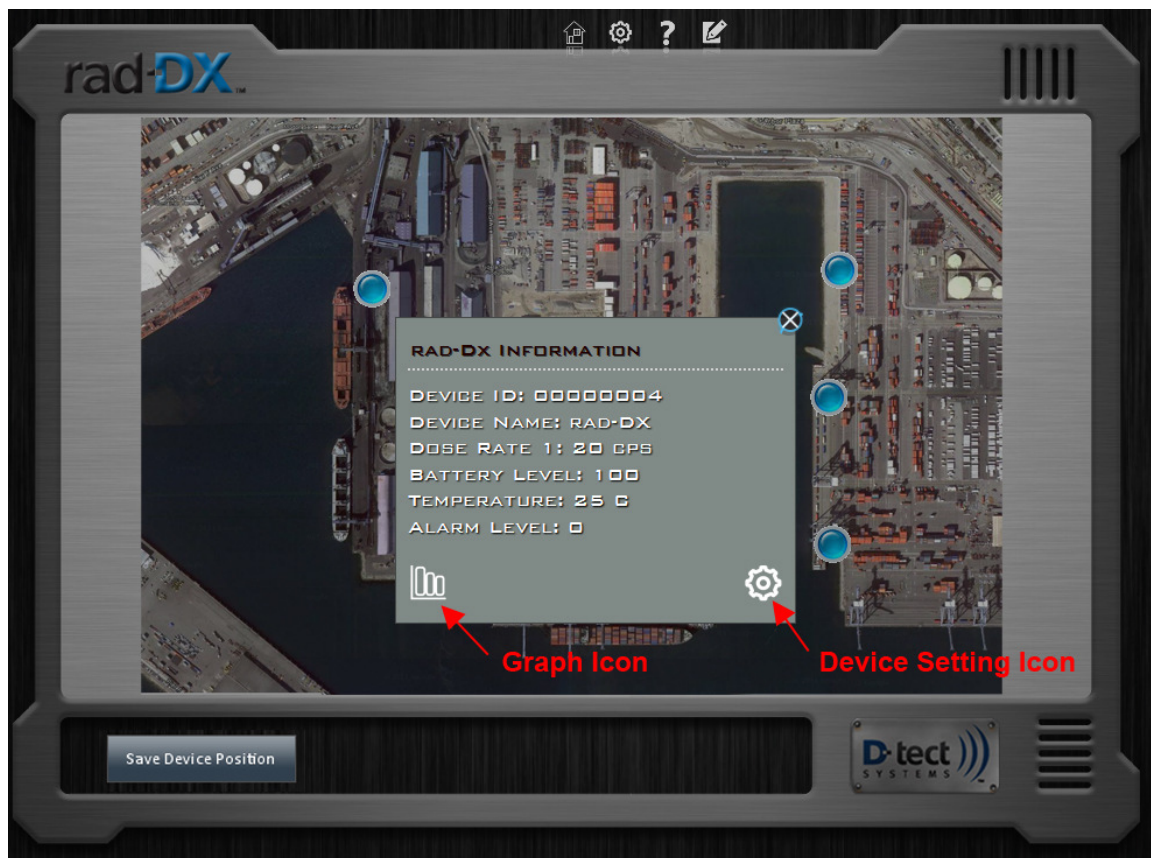


Figure 5: Device Window containing information about a specific Rad-DX device. The Radiation Level Graph button (see Section 5.3) and Device Configuration button (Section 5.4) are labeled.

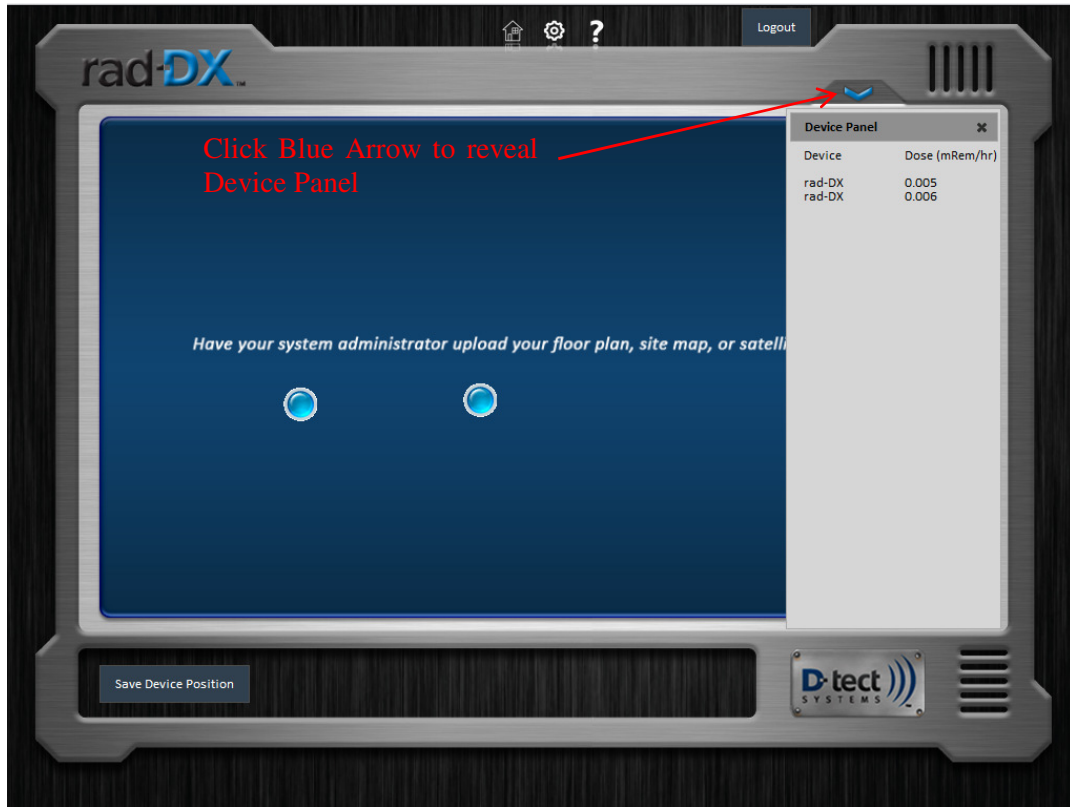


Figure 6: The Device Panel reveals a list of all Rad-DX detectors with dose rate information.

5.2.1 Home Screen Buttons

At the top of the Home screen there are three buttons.




| | | |
|---|---|--|
|  |  |  |
| Home | Settings | Help |
| Section 5.2.1 | Section 5.2.2 | Section 5.2.3 |

Table 4: Additional Rad-DX Hardware

5.2.2 Settings Button

| Application Tab Options | Function |
|-------------------------|--|
| Upload Image | Allows user to upload floor plan, site map, or satellite image |

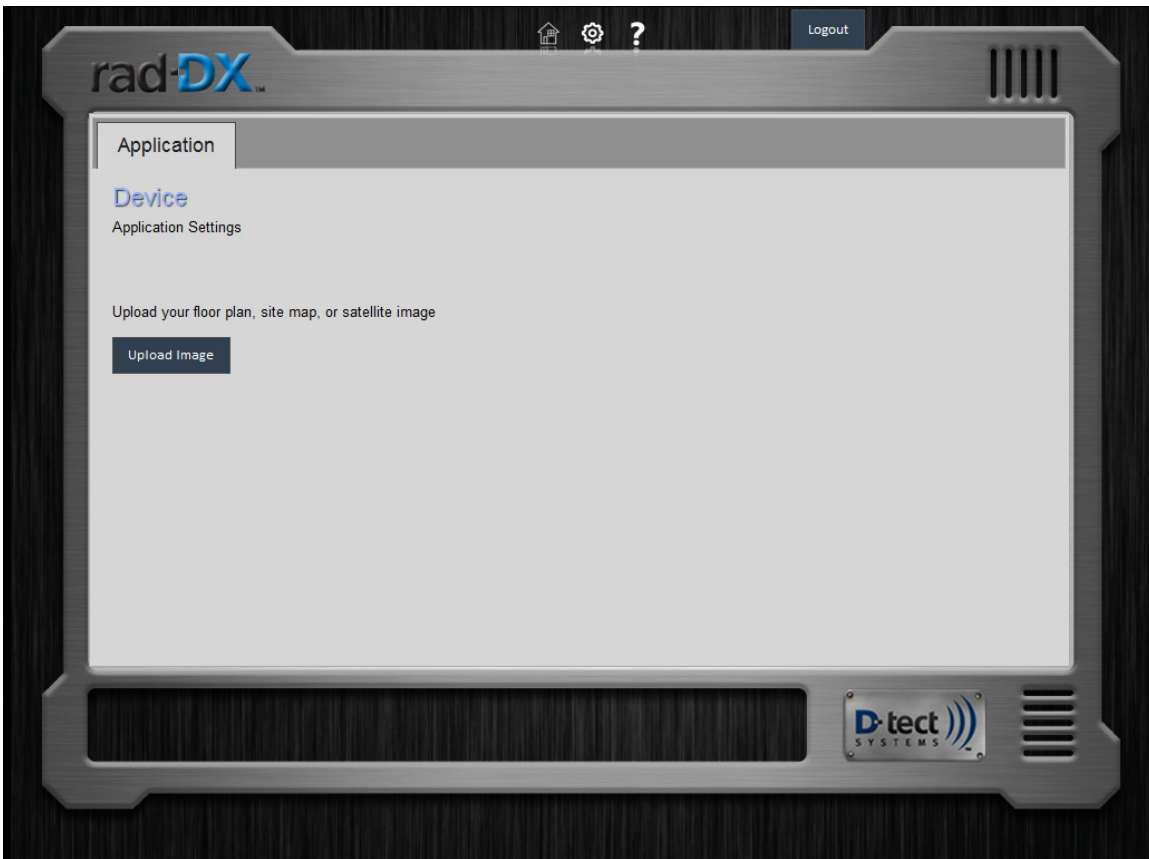


Figure 7: Application Tab

To Upload a Map or Blueprint

Any map or blueprint in jpeg, bmp, png, or tif formats can be uploaded. To upload the map or blueprint of your location:

1. Select the Settings icon on the top of the Home screen.
2. Select the Upload Map/Blueprint button.

5.2.3 Help Button

The Help screen will provide information similar to this manual to explain features and functions.

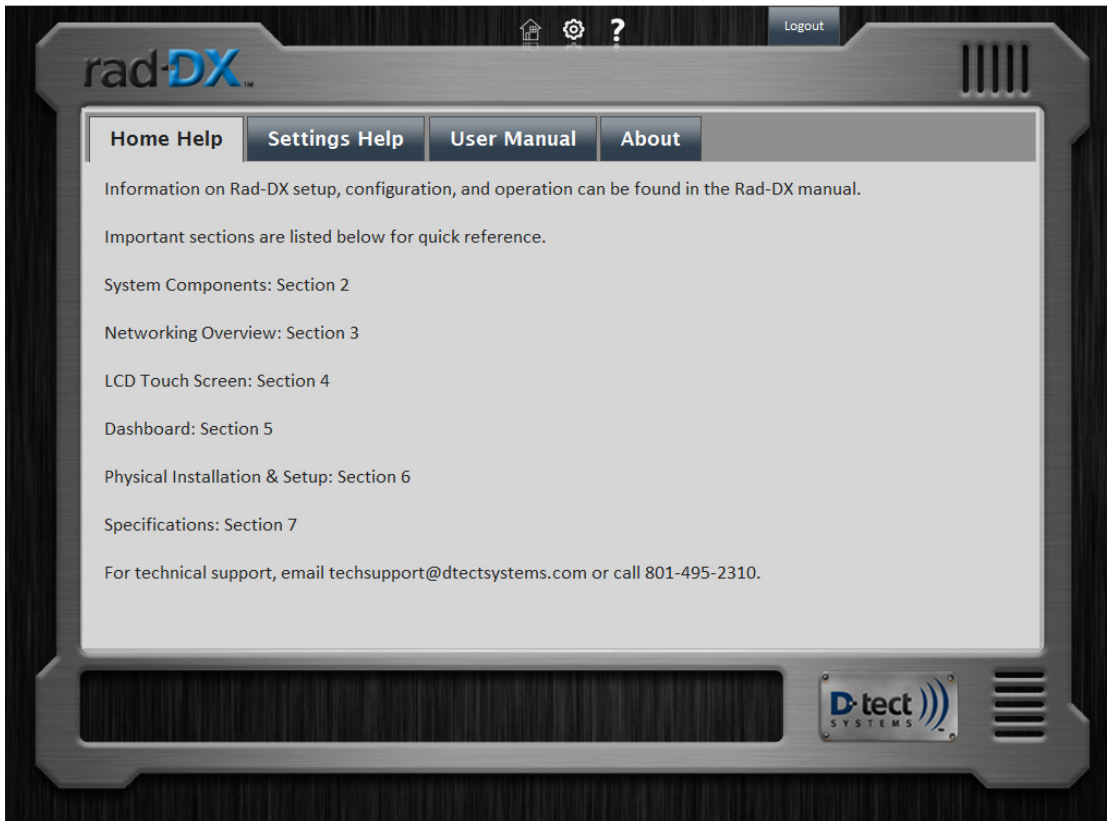


Figure 8: Help Screen

5.3 Radiation Level Graph Button

To see a graph of the current dose rate detected by the unit, follow these steps:

1. Access the Home Screen on DX Dashboard
2. Click on the Rad-DX icon to access the gray Device Configuration Window
3. Click on the small white Graph Icon on the bottom right of the Device Configuration Window
4. The graph will display recent dose rate readings detected by the unit
5. The user may change the Radiation units at the top of the screen from mRem/hr to $\mu\text{Sv/hr}$ to CPS by clicking directly on the current radiation unit being displayed.
6. The user may change the time zone by clicking on the dropdown menu to select the desirable time zone.

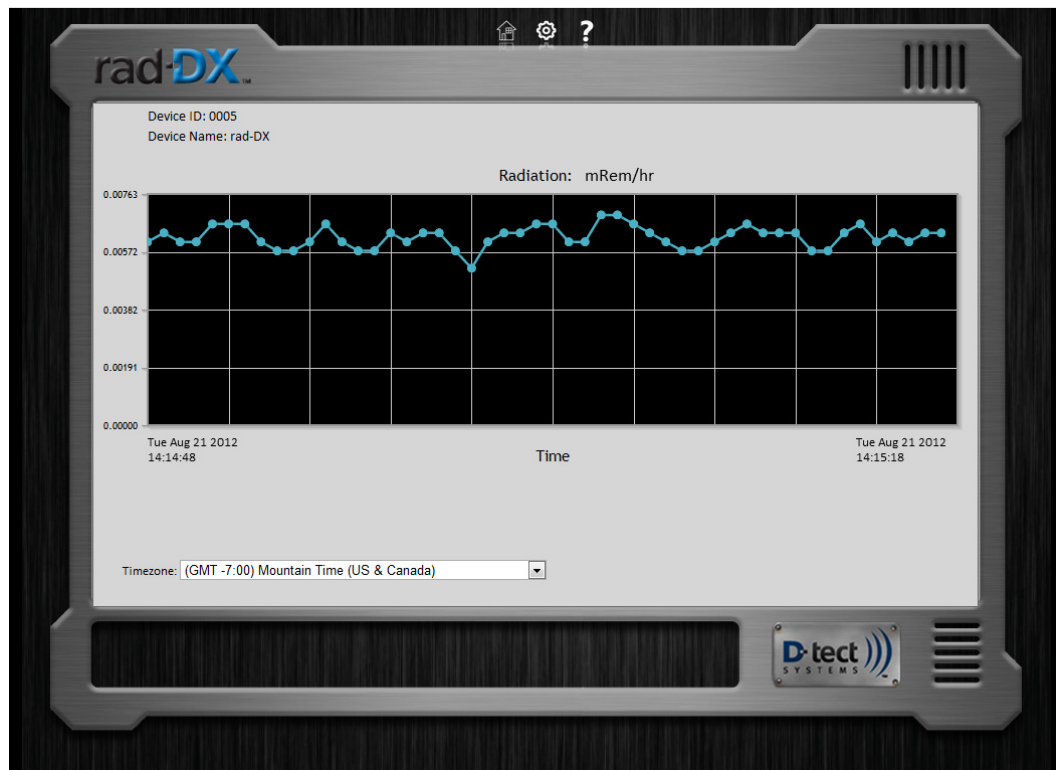


Figure 9: Radiation Graph

5.4 Device Configuration Button

To configure a specific Rad-DX device, select the corresponding blue icon on the Home Screen. A small grey box will pop up with information on the device. Click the Device Settings Icon (small white gear) at the bottom right of this box to access the configuration settings. The following tabs allow customization in these areas:

5.4.1 Device Tab

| Device Tab Options | Function |
|-----------------------------|--|
| Device Type | Lists the D-tect Systems device that the application manages |
| Device Name | Allows the user to assign names to different devices in the network |
| Device ID of Gateway Rad-DX | Lists the gateway Rad-DX unit that is currently connected to the assistant or cloud. |
| PC Host Server URL | The URL address of the PC receiving data from the Gateway Rad-DX device |
| Port Number | Lists the Port Number |



Figure 10: Device Tab

5.4.2 Properties Tab

The user can make display changes to the LCD screen on the device in the Properties Tab.

| Properties Tab Options | Function |
|------------------------|---|
| Radiation Units | Changes Radiation Units displayed (mRem/hr - μ Sv/hr - CPS) |
| Time Scale | Changes the graph scale |
| Touch Screen | Enables/disables touch screen on device |
| Audio Alarm | Allows user to disable/enable the audio alarm |
| LCD Display | Changes available screen view |
| Timezone | Sets time zone for device |
| Daylight Savings Time | User must check when daylight savings time adjustment is required |

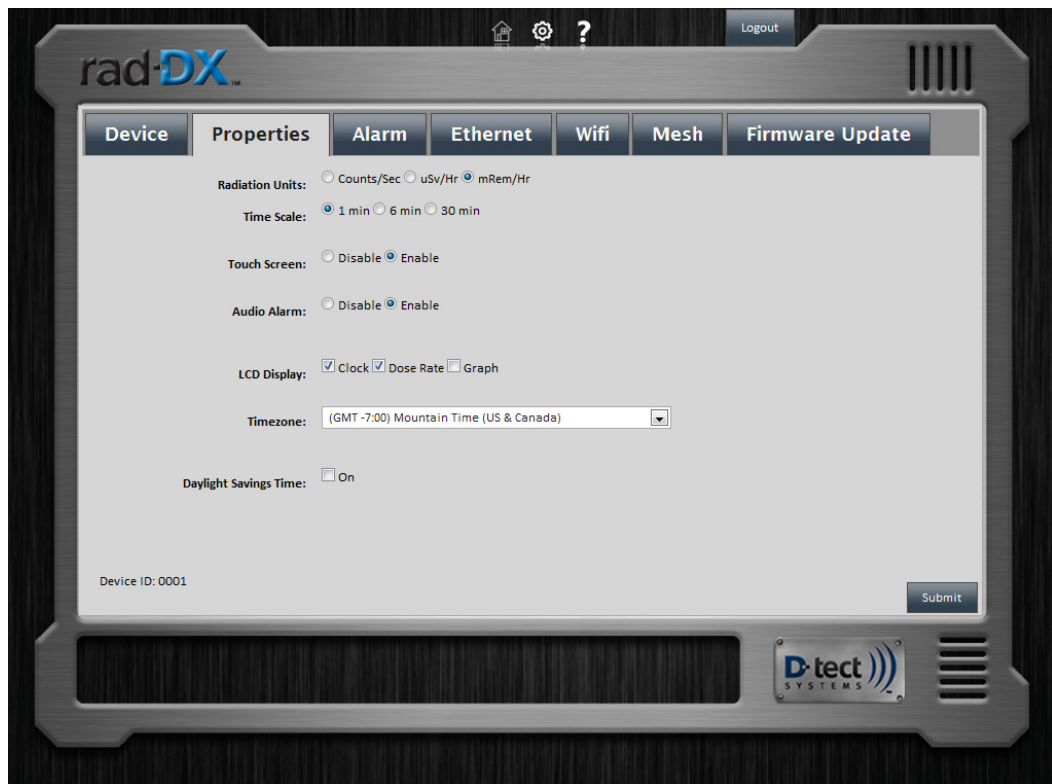


Figure 11: Properties Tab

5.4.3 Alarm Tab

The user can select the radiation level that sets off an alarm. There is a scale of alarm levels from 1-9 that can be selected. This allows personnel not familiar with radiation units to be trained to respond to simple alarm levels. To change these levels, click on the device icon on the home screen, accessing the grey device window. Click on the white gear icon at the bottom right to open the screen below. Under the Alarm tab, the alarm levels can be entered. The units for alarm levels are in mRem/hr, μ Sv/hr, and counts per second.

| Alarm Tab Options | Function |
|------------------------------|--|
| Radiation Units: | Changes Radiation Units displayed (mRem/hr - μ Sv/hr - CPS) |
| Radiation Alarm Levels (1-9) | With units set on the Settings tab, these variable alarm levels are set by the user with 1 as the lowest alarm level and 9 as the highest. These levels should all be set above background levels to minimize false positive readings. |
| Email Address | User may add email addresses to send notifications when alerts occur. The user may add multiple email addresses by separating each email address with a comma, e.g. johndoe@gmail.com,janedoe@gmail.com. |

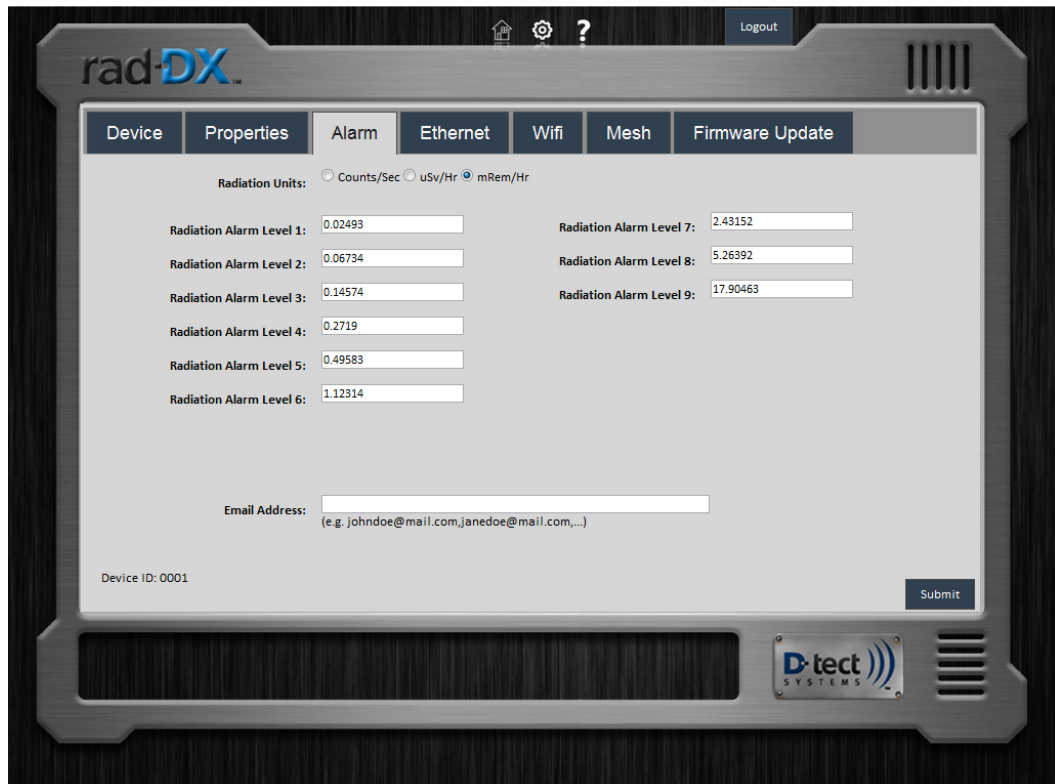


Figure 12: Alarm levels are listed and editable under the Alarm Tab

5.4.4 Ethernet Tab

| Ethernet Tab Options | Function |
|-------------------------------|---|
| Ethernet: on/off | Turns Ethernet communications on or off |
| Enable DHCP | Enables or disables DHCP coverage |
| Device IP Address (static IP) | Lists the static IP address set by the user when setting up the Rad-DX network for the first time |
| Subnet Mask | Lists the subnet mask |
| Gateway | Lists the gateway IP address |
| Primary DNS | Lists the primary DNS address |
| Secondary DNS | Lists the secondary DNS address |



Figure 13: Ethernet Tab

5.4.5 WiFi Tab

| WiFi Tab Options | Function |
|--------------------------|---|
| WiFi: on/off | Turns WiFi communications on or off |
| SSID | Lists the Service Set ID number of the WLAN device in communication |
| Security Type | Sets the wireless security type |
| Wireless Security Key | The WiFi key required to communicate over the system |
| Wireless Encryption Type | Sets the wireless encryption type |
| Enable DHCP | Enables or disables DHCP |
| Device IP Address | Lists the static IP address set by the user when setting up the Rad-DX network for the first time |
| Subnet Mask | Lists the subnet mask address |
| Gateway | Lists the gateway IP address |
| Primary DNS | Lists the primary DNS address |
| Secondary DNS | Lists the secondary DNS address |



Figure 14: WiFi Tab

5.4.6 Mesh Tab

| Mesh Tab Options | Function |
|------------------|--|
| Mesh | <p>Allows user to configure device to communicate via D-tect Sensor Net. Not all devices support mesh communication. You may be required to download an updated firmware version to establish a mesh network.</p> <p>Note: The mesh settings are view-only in the current release.</p> |

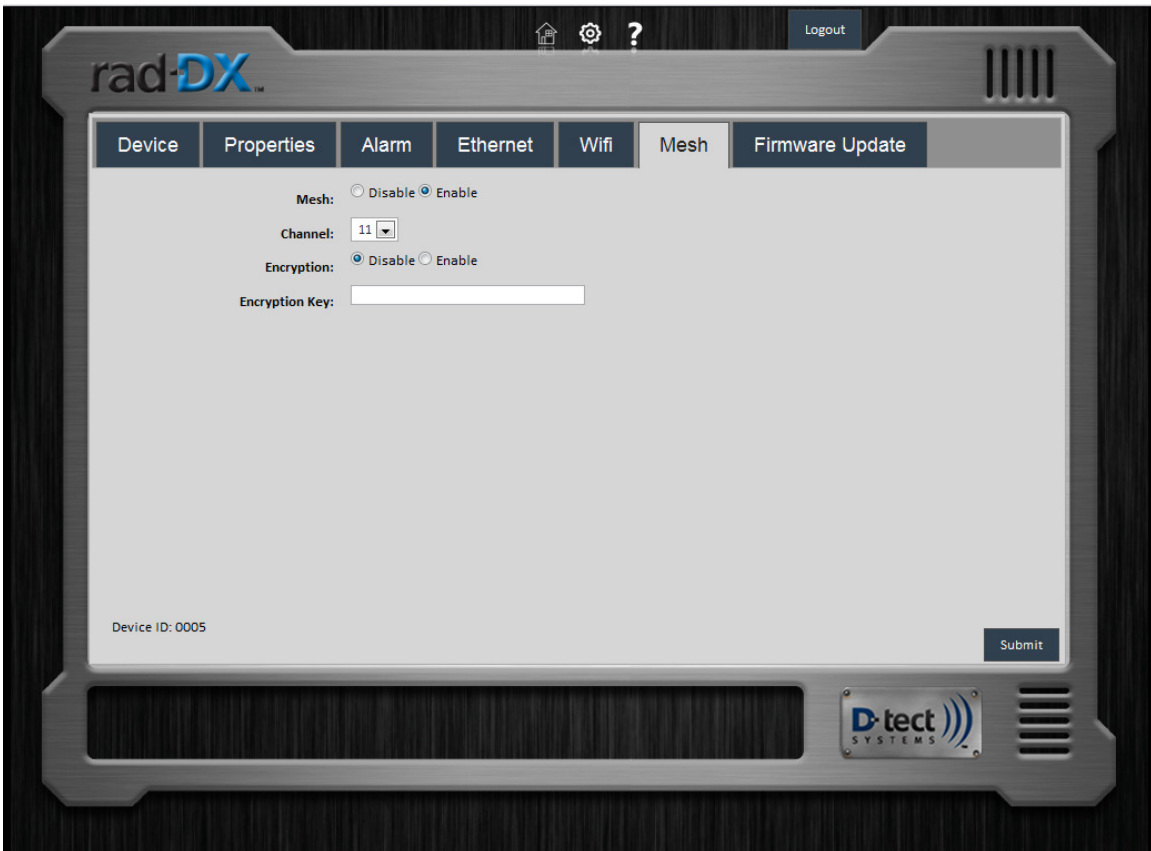


Figure 15: Mesh Networking Tab

5.4.7 Firmware Update Tab

| Firmware Update Tab Options | Function |
|-----------------------------|--|
| Choose file | Browse to find the firmware update file (the file name will end in .tgz). Then click the Send button to start the firmware update. This will take several minutes. The update file is first transferred to the Rad-DX unit. Then the Rad-DX unit will show "Updating Device" on the LCD screen (if present). The top-center blue light will eventually flash quickly. The unit will automatically reboot and rejoin the network when the update is complete. |



Figure 16: Firmware Update Tab

6 Installation and Set-up of your Rad-DX

6.1 Physical Installation

The Rad-DX is designed to be either wired and mounted to an electrical junction box or attached to a wall in close proximity to an outlet.

6.1.1 Junction Box Method

Mounting a Rad-DX unit directly to a junction box includes the following steps. Note that an electrician should complete the installation for quality of the installation and safety of the installer.

1. Connect the black wire from the “pigtail” wire harness to the black wire in the junction box. Connect the white wire from the wire harness to the white wire in the junction box.
2. Plug the wire harness into the back of the Rad-DX unit.
3. Mount the Rad-DX wall bracket onto the junction box using the screws included. If a non-standard junction box is being used, connect the wall bracket to the wall with drywall anchors or wood screws.
4. Press the Rad-DX completely onto the wall bracket and make sure it is secure. It will snap into place. The Rad-DX can be removed from the bracket by lifting the top tab with a flathead screwdriver.

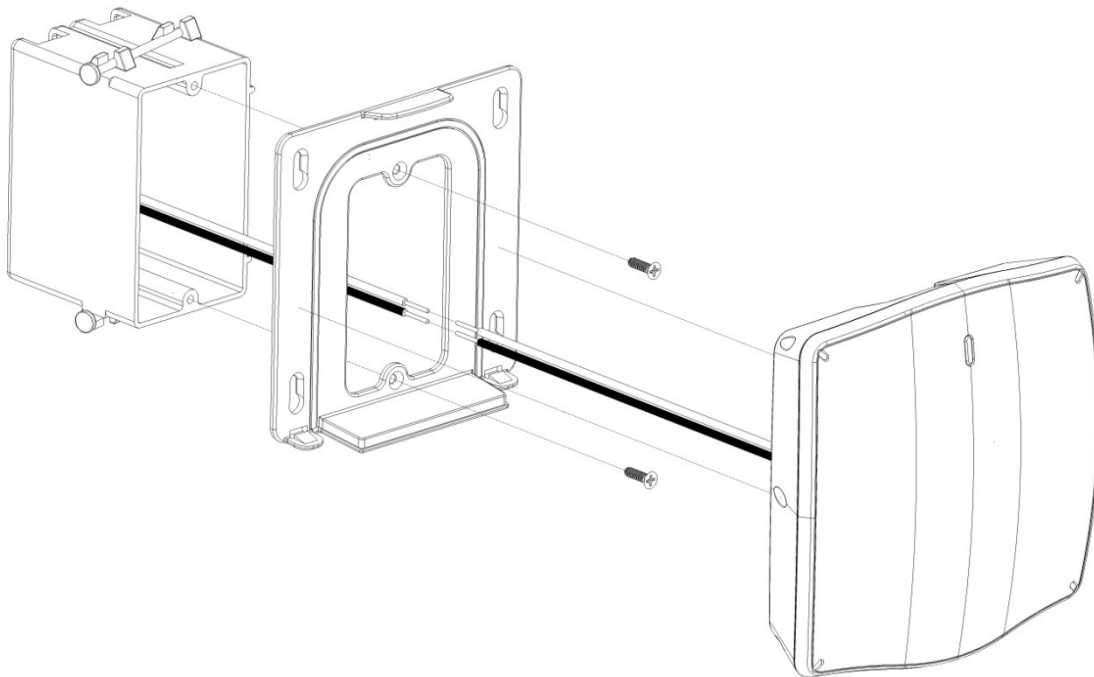


Figure 17: Junction Box Mounting Method

6.1.2 Plug-In Wall Mount Method

To power a Rad-DX unit with A/C power without connection to a junction box, follow these steps:

1. Mount the Rad-DX wall bracket to the wall using drywall anchors or wood screws.
2. Press the Rad-DX completely onto the wall bracket and make sure it is secure.
3. Connect the A/C power cord to the Rad-DX. Then plug this cord into a nearby outlet.
4. Note: the Plug-In Wall Method is meant for indoor installation: the IP65 rating does not apply to this method.

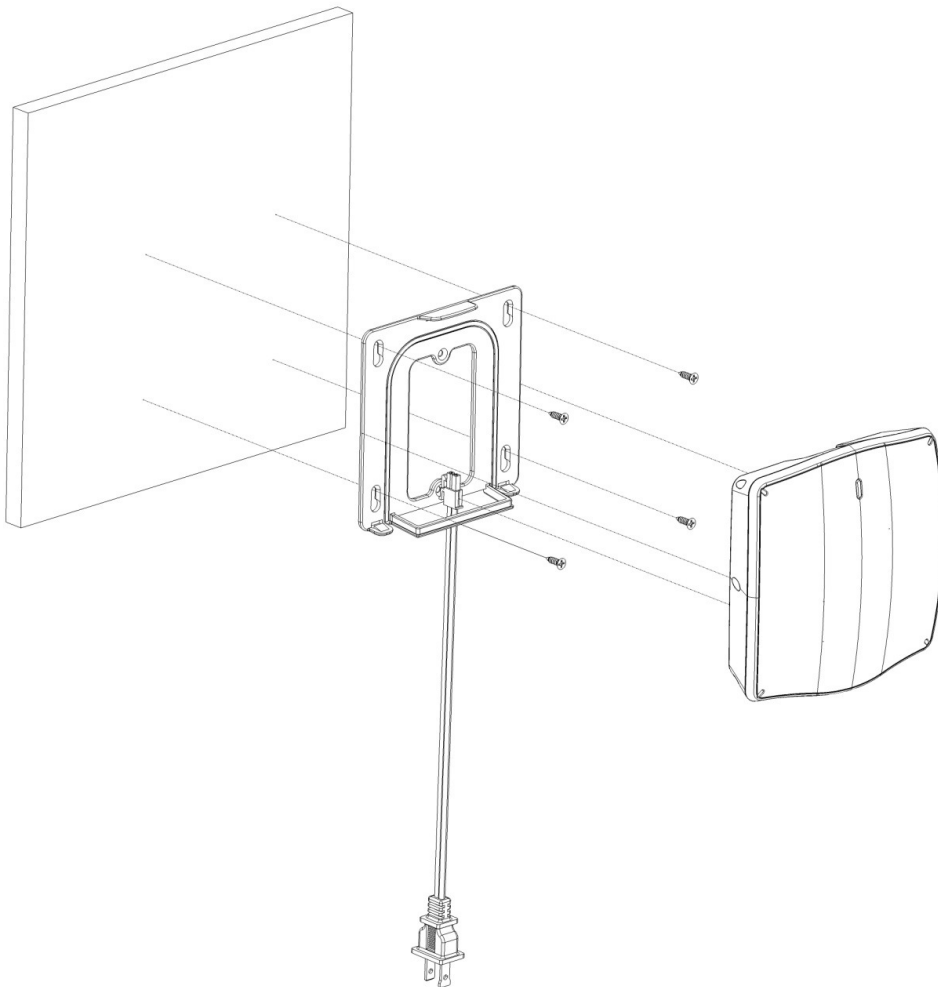


Figure 18: Plug-in Wall Mount Method

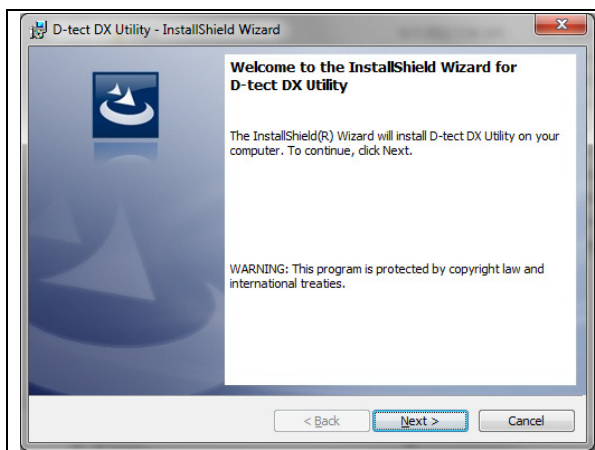
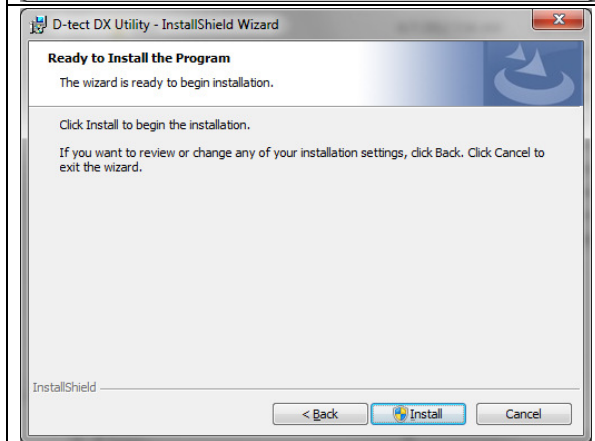
6.2 Installing a DX network using the D-tect Cloud Network

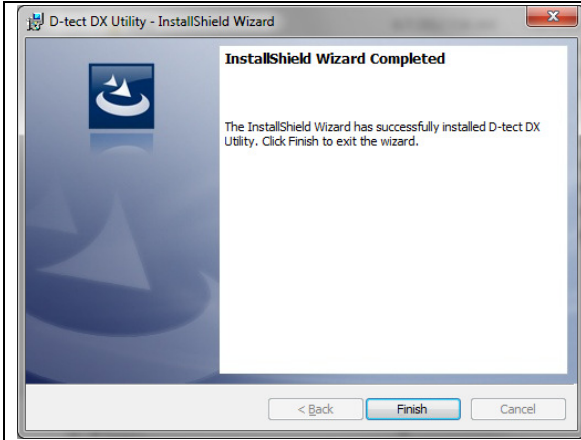
6.2.1 User Name and Password

To setup your DX Cloud Network go to http://www.dtectsystems.com/account_setup.html to complete and submit the form. In this form you will choose the user name(s) and password(s) to log into your DX Account. Once you have submitted the form you will receive an account confirmation email with a customer ID within 24 hours. Once you receive your confirmation email and customer ID proceed to the next section.

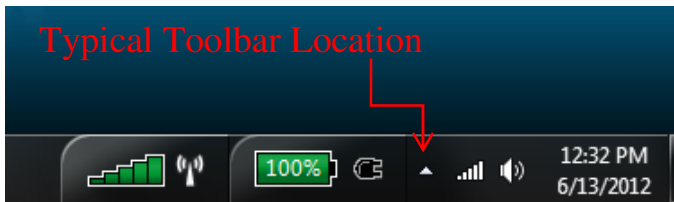
6.2.2 DX Utility Application Installation Instructions

1. Follow the Installation Link http://dx.dtectsystems.com/download/DtectDX_Installer.exe to download the DX Utility Application.
2. Complete the following steps to install and setup the D-tect DX Utility.

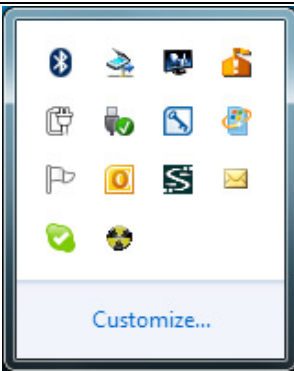
| | |
|---|--|
|  | <p>The D-tect DX Utility Setup Wizard appears. This will allow you to install the software necessary to operate and monitor your Rad-DX device.</p> <p>Click Next to continue.</p> |
|  | <p>Click Install to begin the installation process.</p> <p>The D-tect DX Utility window will pop up. Go to the next page.</p> |



Click Finish to close the Setup Wizard.



The DX Utility application is located in your toolbar, which is typically in the lower right hand portion of your Windows screen.



The DX Utility application is the round black and yellow icon in the toolbar as shown here.



Right click the yellow icon and select "Set Server"

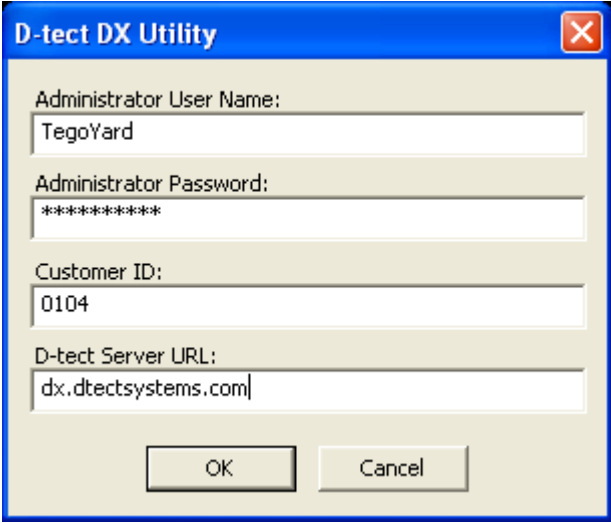
| | |
|---|---|
|  | <p>Enter the Administrator User Name, password, Customer ID and URL and click OK.</p> |
|---|---|

Table 5: Installing the D-tect DX Utility

3. Connect the power cable to the Rad-DX and the plug the power cable in to an outlet located in close proximity to your computer.
4. Connect your Rad-DX to the PC via the enclosed USB cable.
5. DX Dashboard will automatically open in your default internet browser. You can reach this website at the following address: <https://dx.dtectsystems.com>.

| | |
|---|-----------------------------|
|  | <p>D-tect DX Login Page</p> |
|---|-----------------------------|

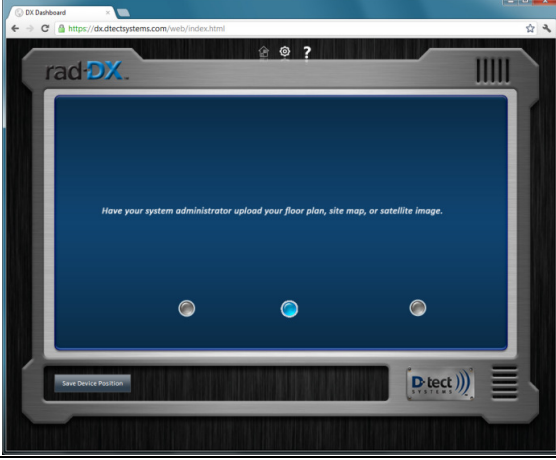
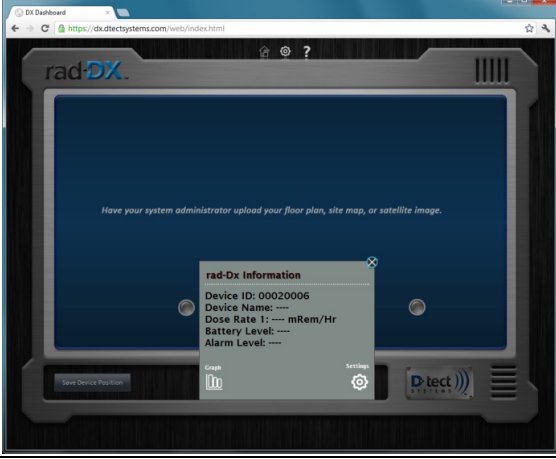

| | |
|---|---|
|  | <p>D-tect DX Homepage</p> <p>Your Rad-DX will appear in the page as a gray icon.</p> <p>You may click and drag the icon to a new location and click Save Device Position.</p> |
|  | <p>Click on the gray icon and a Rad-DX Information window will appear.</p> <p>Click on the Settings icon on the lower right portion of the window.</p> |
|  | <p>You are now in the Device Settings.</p> |

Table 6: Logging into DX Dashboard and Configuring Device Settings

6. Configure your Rad-DX to communicate with your existing WiFi or Ethernet network.

WiFi


1. Go to the WiFi tab under Device Settings (see above screen shots)
2. Turn on WiFi
3. Enter the SSID name of your network
4. Select the type of security your network uses
5. Enter your network password
6. Select your wireless encryption type
7. Select whether to enable DHCP. By default, DHCP is on. The remainder of the information fields can be left blank (it will be handled automatically)
8. If DCHP is disabled, fill out the remaining fields (a warning may pop up)
9. Press Submit. A window will pop up saying “Configuring... This may take a minute
10. A second window will pop up saying “Configuration Successful”
 - If a window pops up and says “Configuration Failed, check device, then check your Wi-Fi settings and submit again
11. Return to the Home Screen (the white home icon at the top of the page ). Your gray Rad-DX icon will turn blue, but this may take a couple of minutes
12. Once the Rad-DX icon turns blue disconnect the USB cable from the Rad-DX device



Table 7: Configuring a Rad-DX with a WiFi network

Ethernet


1. Go to the Ethernet Tab under Device Settings (see above screen shots)
2. Turn on Ethernet communication
3. Select whether to enable DHCP. By default, DHCP is on. The remainder of the information fields can be left blank (it will be handled automatically).
4. If DHCP is disabled, please enter your network IP, subnet mask, gateway, and primary and secondary DNS.
5. Press Submit. A window will pop up saying “Configuring... This may take a minute
6. A second window will pop up saying “Configuration Successful”
 - If a window pops up and says “Configuration Failed, check device, then check your Ethernet settings and submit again
7. Return to the Home Screen (the white home icon at the top of the page ). Your gray Rad-DX icon will turn blue, but this may take a couple of minutes
8. Once the Rad-DX icon turns blue disconnect the USB cable from the Rad-DX device



Table 8: Configuring a Rad-DX with an Ethernet network

Once your Rad-DX is communicating with your local network, you can monitor and configure your Rad-DX network via smartphone, tablet, or PC by going to <https://dx.dtectsystems.com> and entering your user name and password.

You are now ready to unplug your Rad-DX from the computer and mount it (See Physical Installation, Section 6.1).

7 Specifications

| | |
|---------------------|--|
| Radiation Detectors | One 6 cm ³ CsI scintillation crystal with a PMT |
| Communication | D-tect SensorNet mesh network, WiFi, Ethernet, USB |
| Power | 120/240V AC, 50/60 Hz |
| Backup Power | Lithium-ion battery |
| Measurement Range | 1 μ R/hr to 100 mR/hr *Air-kerma dose conversion 1 R = 0.876 REM for per ANSI +N42 32-2006. |
| Energy Response | 59 keV – 2 MeV |
| Display | LCD 4.3" Color TFT / Resolution 480 x 272 / Touch Screen |
| Units | Rem/hr, Sv/hr, CPS |
| Audible Alarm | Piezoelectric buzzer |
| Alarm Volume | > 98dB |
| Humidity | < 95% (non-condensing) |
| Dimensions | 5.97" x 5.92" x 1.75" (15.2 cm x 15 cm x 4.4 cm) |
| Weight | Non-LCD version: 0.5 lb (0.2 kg) LCD version: 0.65 lb (0.3 kg) |
| Environment | IP65 rated for indoor/outdoor operation |

Table 9: Rad-DX Specifications

8 Compliance Requirements

This device complies with part 15 of the FCC rules and Industry Canada ICES-003. 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.

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.

IMPORTANT! Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.

IMPORTANT! Tous les changements ou modifications pas expressément approuvés par la partie responsable de la conformité ont pu vider l'autorité de l'utilisateur pour actionner cet équipement.

This Class B digital apparatus complies with Canadian ICES-003.

Cet appareil numérique de la classe B est conforme à la norme NMB-003 du Canada.

Note: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential 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 radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning 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 antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.



FCC Radiation Exposure Statement

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 20cm between the radiator and your body.

For Industry Canada

Important Note:

Radiation Exposure Statement:

This equipment complies with IC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 20cm between the radiator and your body.

Note Importante: (Pour l'utilisation de dispositifs mobiles)

Declaration d'exposition aux radiations:

Cet équipement est conforme aux limites d'exposition aux rayonnements IC établies pour un environnement non contrôlé. Cet équipement doit être installé et utilisé avec un minimum de 20 cm de distance entre la source de rayonnement et votre corps.

9 Technical Support

Phone: 801-495-2310

Email: techsupport@dtectsystems.com



Warranty for D-tect System Products

1. What this Warranty Covers and for How Long

D-tect Systems ("D-tect Systems") warrants this device (the "Product") against defects in materials and workmanship under normal use for a period of two years from the date of purchase. This warranty extends to the first end-user purchaser only, and is not transferable. This warranty does not extend to other ancillary and/or consumable products including but not limited to batteries, calibration sources, straps, and shipping cases. D-tect Systems, at its option, will at no charge either repair, replace or refund the purchase price of any Products that do not conform with this warranty. Repair may include the replacement of parts with functionally equivalent reconditioned or new parts. Replacement may include providing a functionally equivalent Certified Reconditioned/Pre-owned or a new Product. Products that have been repaired or replaced are warranted for the balance of the original warranty period or for 90 days from the date that the repaired or replaced Product is received by you, whichever is longer. All Products for which replacements have been provided will become D-tect Systems property.

2. Other Warranty Conditions

This warranty is D-tect Systems' complete warranty for the Product. D-tect Systems assumes no obligation or liability for changes to this warranty unless made in writing and signed by an officer of D-tect Systems.

If D-tect Systems agrees to perform services requested and approved by the customer that are not included in either the Limited or Extended Warranty, these services will be billed to the customer at D-tect Systems' standard prices and terms.

D-tect Systems does not warrant any installation, maintenance, or service that it did not perform. SERVICE WORK PERFORMED BY SERVICE CENTERS NOT AUTHORIZED BY D-TECT SYSTEMS TO PERFORM SUCH WORK WILL VOID THIS WARRANTY.

3. What This Warranty Does Not Cover

- a. Defects or damage resulting from: collision of the Product with hard surfaces, contact with water, rain or extreme humidity, contact with sand, dirt or the like, contact with extreme heat or cold, spills of food or liquid, improper testing, operation, maintenance, installation, adjustment; or any alteration or modification of any kind.
- b. Normal "wear and tear" of the Product such as scratches, scuffs, and marks on the LCD, case and other external features.
- c. Cracked or broken displays, buttons, or damage to other externally exposed parts caused by abnormal use and/or abuse of the Product.
- d. Products disassembled or repaired in such a manner as to adversely affect performance or prevent adequate inspection and testing to verify any warranty claim.
- e. Products on which serial numbers or date tags have been removed, altered or obliterated.

4. How to Get Warranty Service

To get warranty service, please contact your distributor or D-tect Systems at www.dtectsystems.com.

You will receive directions on how to mail the Product to D-tect Systems. All Products shipped to D-tect Systems must be shipped with freight and insurance prepaid. Along with the Product you must include a receipt, bill of sale, or some other comparable proof of purchase, a written description of the problem and, most importantly, your



address and telephone number. If additional information is needed, please contact D-tect Systems at the web address indicated above.

5. General Provisions

THIS IS THE COMPLETE WARRANTY FOR THIS PRODUCT BY D-TECT SYSTEMS AND SETS FORTH YOUR EXCLUSIVE REMEDIES. THIS WARRANTY IS GIVEN IN LIEU OF ALL OTHER EXPRESS WARRANTIES. IMPLIED WARRANTIES, INCLUDING WITHOUT LIMITATION THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, ARE GIVEN ONLY IF SPECIFICALLY REQUIRED BY APPLICABLE LAW. OTHERWISE, THEY ARE SPECIFICALLY EXCLUDED. IN NO EVENT SHALL D-TECT SYSTEMS BE LIABLE FOR DAMAGES IN EXCESS OF THE PURCHASE PRICE OF THE PRODUCT OR FOR ANY INDIRECT, INCIDENTAL, SPECIAL OR CONSEQUENTIAL DAMAGES ARISING OUT OF THE USE OR INABILITY TO USE THE PRODUCT, TO THE FULL EXTENT THESE DAMAGES MAY BE DISCLAIMED BY LAW.

6. Patent and Software Provisions

D-tect Systems will defend at its own expense, any suit brought against you to the extent that it is based on a claim that the Products infringe a United States patent. D-tect Systems will pay those costs and damages finally awarded against you in any such suit which is attributable to any such claim. The defense and payments by D-tect Systems are conditioned on the following: (a) that you will notify D-tect Systems promptly in writing any notice of the claim; and (b) that D-tect Systems will have sole control of the defense of the suit and all negotiations for its settlement or compromise; and (c) should the Products become, or in D-tect System's opinion be likely to become, the subject of a claim of infringement of a United States patent, that you will permit D-tect Systems, at its option and expense, either: to procure for you the right to continue using the Products or parts; to replace or modify them so that they become non-infringing; or to grant you a credit for such Products or parts as depreciated and accept their return. The depreciation will be an equal amount per year over the lifetime of the Products, accessories, battery or parts as established by D-tect Systems.

D-tect Systems will have no liability to you with respect to any claim of patent infringement which is based upon the combination of the Products or parts furnished under this limited warranty with software, apparatus or devices not furnished by D-tect Systems. D-tect Systems will have no liability for the use of ancillary or peripheral equipment or software not furnished by D-tect Systems which is attached to or used in connection with the Products. The foregoing states the entire liability of D-tect Systems with respect to infringement of patents by the Products, accessories, batteries or any parts of them.

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