

mini rad-D FAQ



When I calibrate (i.e. turn on) my mini and then go on patrol, there are several spots where it always goes off, even though there is no radiation source visible. Is there a problem and can the mini be adjusted to stop doing this?

If you turn the mini on in a quiet radiation area and then walk by higher-levels of natural radiation, the mini will detect the increase in natural radiation background. High level natural radiation can be found near some large rocks, or in some building that use stone (like granite), or near some ceramics that use powdered stone. Increased elevation also increases natural radiation (large increases such as mountains). The mini is functioning normally in detecting this increase in natural levels of radiation. The mini can be adjusted to raise the background sensitivity level so that it does not alarm on natural levels of radiation. See "Adjusting my mini's sensitivity" below.

Why does the mini "recalibrate" as I travel to and from work?

When the mini is turned on, it calibrates itself to the natural radiation background. When the mini notices the background has reduced, it will recalibrate itself to improve the sensitivity. When you are going to work, at some point the mini detects that it's in a lower natural background environment and recalibrates itself to ensure maximum detector sensitivity. You often see a reduced background count and a recalibration if you take the mini into a car or truck.

Should I "recalibrate" the mini as I travel around the country and experience "1's & 2's" in some locations?

You can detect some 1's and 2's from natural sources as you roam with the mini. The mini is performing normally and does not need recalibrating. See "Adjusting my mini's sensitivity" below.

Will the mini still be sensitive if I travel from an area of high natural radiation to an area of low radiation? Do I need to recalibrate? What about the other way around, low to high?

The mini will still be sensitive if you travel from an area of high natural radiation to low. If the change in levels is significant, the mini will automatically recalibrate itself to maintain maximum sensitivity. If you travel from a low radiation area to a high, the mini will probably give you "1"s and "2" periodically. Simply turn the mini off and on again to recalibrate, and the "1"s and "2" due to natural background will go away.

Is there any way to permanently set the sensitivity higher to adjust for constant high background levels, (around an X-Ray machine, etc).

The mini contains an Adjustment Switch that allows you to manually adjust the lowest level sensitivity of the detector. This should not be casually adjusted, since it reduces the highest sensitivity of the detector. Usually, this switch is adjusted at the factory or by your tech support. And you want to keep track of which mini's have what settings. Otherwise you could have 50 mini's, each with different sensitivity settings.

Is there any ongoing maintenance procedures or parts need for the mini?

No.

Will changing the internal background switch affect all levels of sensitivity of the mini?

No, it only changes the lower levels of detection. Significant amounts of radioactive material will still be detected at the same level.

Adjusting my mini's sensitivity

We recommend you have your staff technician or armorer perform the adjustment, and keep track of what level the unit has been adjusted to. After the first time, a technical can adjust a unit in two minutes.

Tools:

- A good, directable light source
- A 2 mm blade screwdriver, about 4" long (standard computer/jeweler screwdriver)
- A small philips screwdriver

Procedure:

- 1) Turn off the mini.
- 2) Open the battery door with the small phillips
- 3) Remove the batteries
- 4) Look between the two battery stops at the back of the battery compartment and you'll see a small 16-position switch. You'll need a bright light to see down that far.
- 5) With the 2 mm screwdriver, turn the switch clockwise to raise the value.
- 6) Log the switch setting for that serial number.
- 7) Replace the batteries and close the door.
- 8) Turn the unit on and use it normally.

We recommend adjusting the switch in 2-position steps and then using it for a while. If it still isn't to the desired level of sensitivity, adjust it further. Once a single mini is configured and tested for an area, the other mini's can be set to the same level.

If I know the setting on the adjustment switch that I prefer, do I have to change all the mini's or can it be done by D-Tect Systems before delivery?

We will adjust the minis to your desired level before delivery. We can also ship you a mini in advance and allow you to experiment and determine if any adjustment to the sensitivity level is desired.

Can the mini tell me when radiation levels are hazardously high?

Yes. The mini displays an alarm level of '1' through '9'. This value tells you the number of photons being measured at the detector. The point where the displayed alarm goes from an '8' to a '9' is equivalent to a dose rate of at least 2 mrem/hour. To determine whether the detected radiation source is at a hazardous level, you need to find the range from the source where the Mini display switches from an '8' to a '9'. Once the range is known, it is easy to determine an approximate dose rate on a reference card. (See Figure 1)

Alarm Level Equivalents (figure 1)

Alarm Level	MRem/Hr	uSv/Hr
1	0.035	0.35
2	0.04	0.40
3	0.055	0.55
4	0.065	0.65
5	0.1	1.00
6	0.2	2.00
7	0.35	3.50
8	0.6	6.00
9	1.1	11.00

