7 DESCRIPTION

7.1 PHYSICAL DESCRIPTION

The basic configuration of MiniSentry pedestrian (Figure 1) is equipped with:

- Footplate for each post with mounting hardware (x2),
- Primary detector post with MiniSentry Control unit,
- Top cross piece with attached elbows for pedestrian configuration,
- Secondary detector post,
- Power cable,
- Transport case?
- 91.5 cm (36 in) top cross piece kit for extended pedestrian configuration.

Depending on configuration, equipment can be added (see section 5) such as:

- Red / green light tower,
- Frisker probe and holder,
- Battery extension.

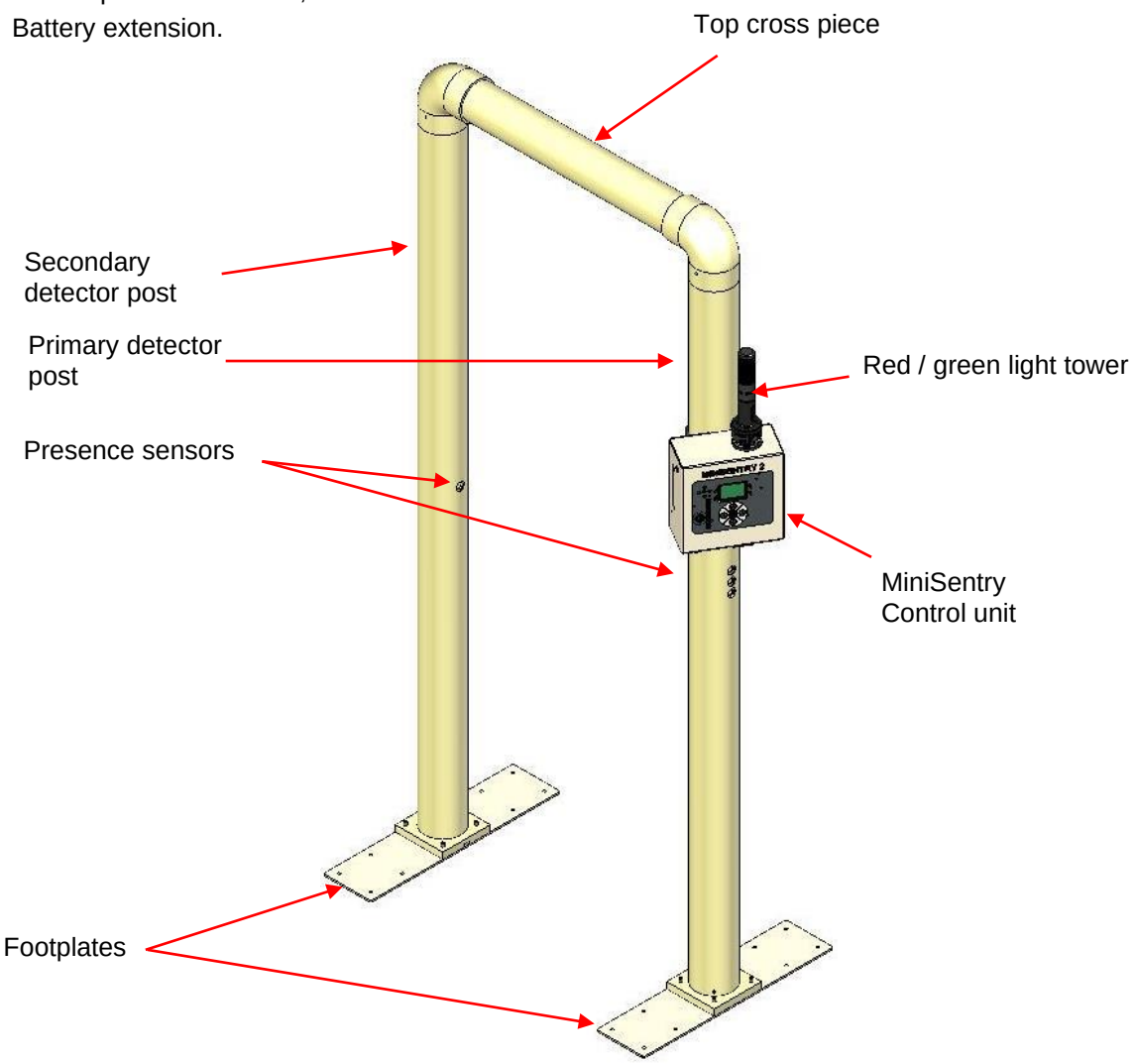


Figure 1 Pedestrian Configuration

7.3 MINISENTRY CONTROL UNIT

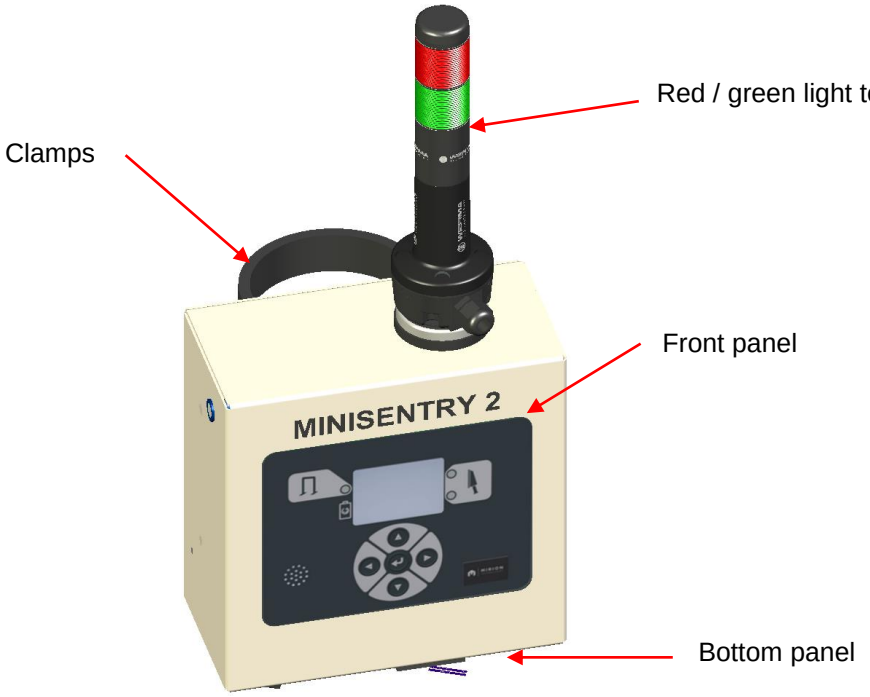


Figure 3 Controller module electronics

7.3.1 Front panel

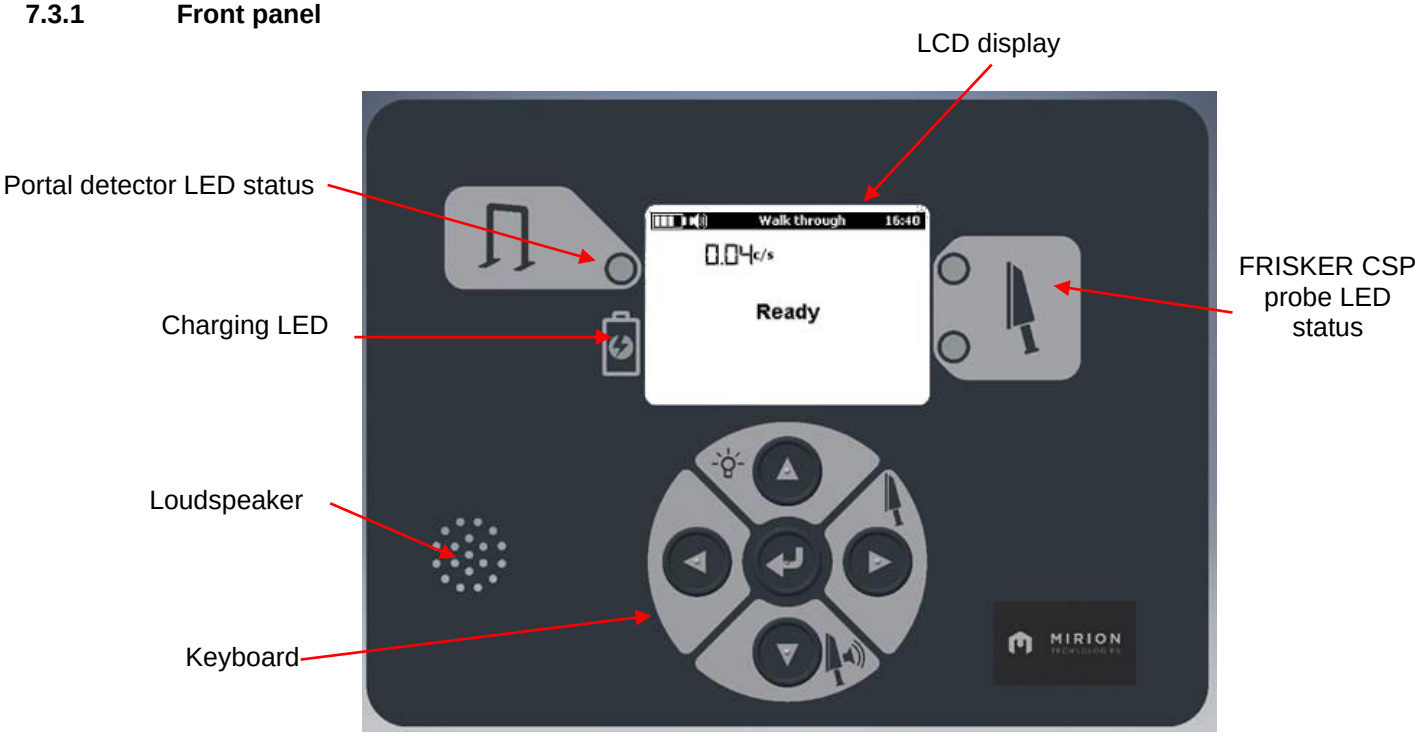


Figure 4 MiniSentry-2 - Front panel

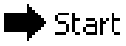
7.3.2 Keyboard and menu bar functions

The keyboard, equipped with five keys, allows:

	Main menu entry / exit Validation key (See table below)
	Back left arrow in the menus
	Right arrow of selection in the menus On / Off from the Frisker probe screen
	Down navigation arrow in the menus On / Off from simulated sound of the Frisker probe
	Arrow up menu navigation On / Off from the backlight

Corresponding keyboard keys with screen information

Keys	Bottom screen	Function
	Select	Selection key
	Edit	Edit key
	Back	Return key to previous menu
	Collapse	Close a folder
	Confirm	Validate a setting
	Save	Save a data
	Back	Back left arrow or cancel
	Cancel	
	Left	Move the selection to the left
	-	Decrease a level

Keys	Bottom screen	Function
		Increment a level
		Move the selection to the right
		Export Log files
		Save a data
		Start a measurement
		Navigation down arrow Decrease Value (In value edition)
		Decrease a value
		Arrow up navigation Increment Value (In Value Edition)
		Increment a value

7.3.3 Charging indicator

The indicator lights  up green, orange, or red to indicate the status of the batteries and power supply:

External power supply 110 - 240 Vac	Optional External	*Internal Li-Ion*	Charging LED indicator
Plugged	-	-	
Not plugged	> 25%	-	 pulse
Not plugged	>5% and <25%	-	 pulse
Not plugged	<5%	-	 pulse
Not plugged	Not present or flat	*Low bat*	 Blink

7.4 BOTTOM PANEL

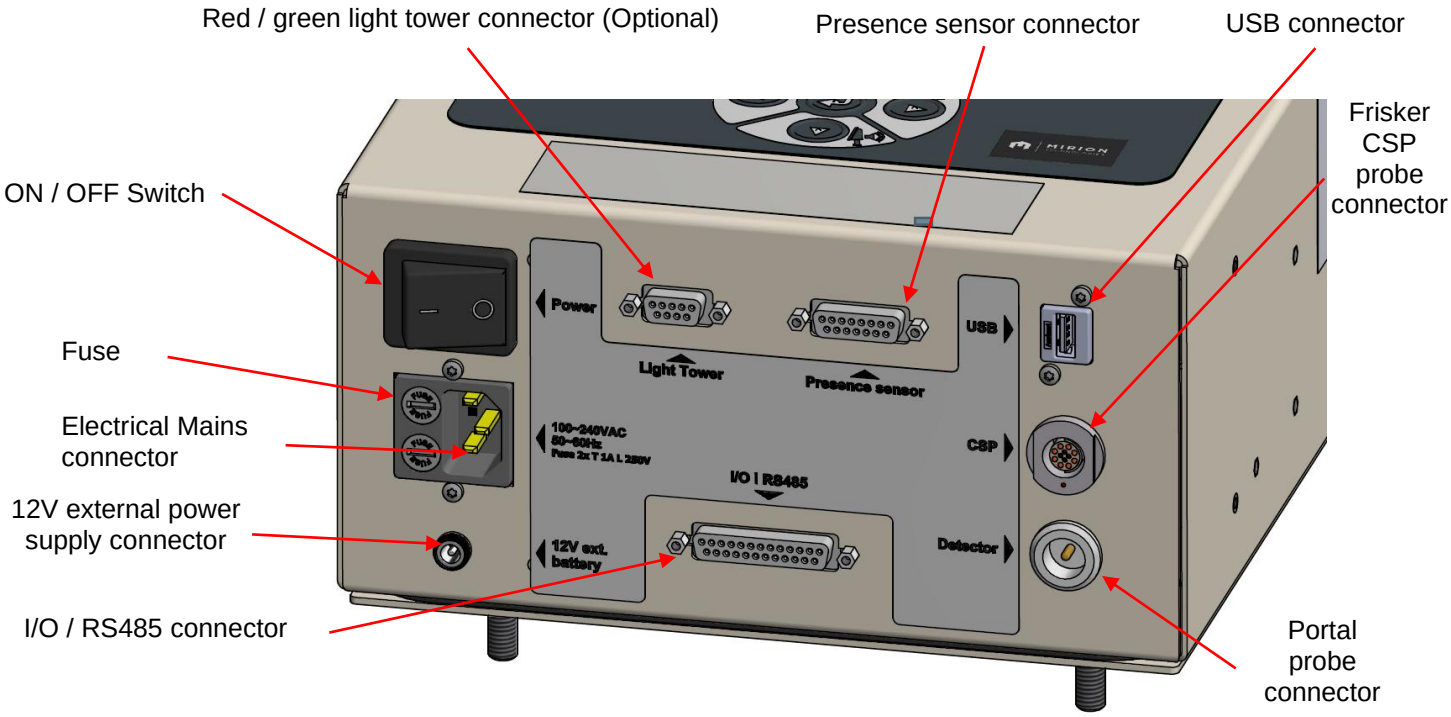


Figure 5 Bottom panel

8 Operation

8.1 MEASURE MODES

The MiniSentry Portable Portal Monitor provides three different operational modes. Those modes are :

- « **Enter-Wait** » (stand and count),
- « **Walk through** »,
- « **Count-Rate** ».

The « **Enter-Wait** » and « **Walk through** » modes are suitable for pedestrian traffic while the « **Count-Rate** » mode is used primarily for vehicle traffic.

For higher sensitivity or in higher background applications, the « **Enter-Wait** » mode will provide better results but provides lower throughput since each measurement takes longer.

The « **Walk through** » mode provides higher throughput at a lesser sensitivity, but still meets the United States Federal Emergency Management Agency (FEMA) guidelines at normal backgrounds.

In the « **Count-Rate** » mode the MiniSentry continuously measures while the photo-sensor indicates that the portal is occupied.

Figure 6 MiniSentry Assembled (Pedestrian Version).

8.5 WALK-THROUGH MODE

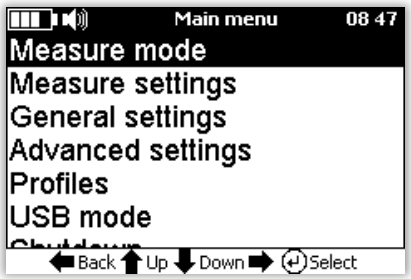
The Walk-Through mode provides for the highest throughput of traffic by allowing pedestrians to walk non-stop through the portal. Count times are adjustable from 1 to 5 seconds.

While in operation the MiniSentry is continuously counting for 250 ms time intervals and storing the results in a delay buffer. When the person being measured breaks the photo-sensor beam, the MiniSentry halts any background count updates. In the walk-through mode the counts in the buffer that occurred in one half of the specified count time before the photo-sensor beam was broken are added to the counts that occur for one half of the specified count time after the photo-sensor beam was broken. This results in a measurement interval that is centered on the moment that the beam was first broken, providing the best measurement as the person walks through the portal. The front of the person is thus counted as they approach the monitor, and their back is counted as they leave the monitor. Thus, in addition to the time that the individual is in the portal they are also monitored during that enter end exit time during which any contamination present would significantly affect the count rate in the detectors.

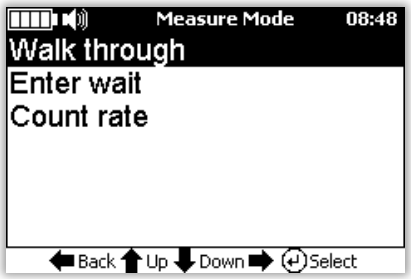
If the « **Walk through** » mode is not selected after a power on then:

1. Press the key  to access the main menu.

Note: The « **Measure Mode** » line is selected by default. If necessary, press the  or  keys to select the line.

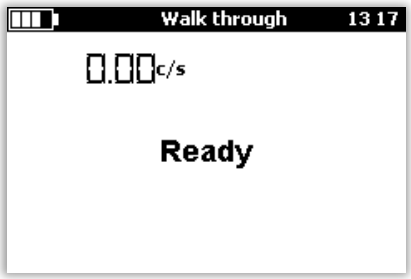


2. Press the key  or  to display the « **Measure Mode** » and press the key  to select the line « **Walk through** ».

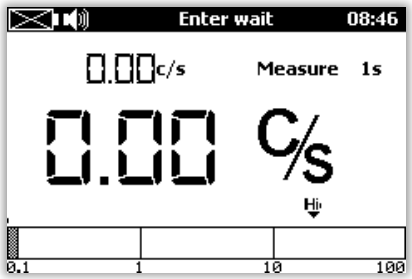


3. Press the  key to start the measurement mode. The following screen appears with background measurement (or not according to the **« Walk through settings** »):

The MiniSentry system is ready with the blue beacon on.



The user must walk slowly through the gate without stopping.



The user leaves the portal and the Minisentry-2 is ready for another measure with the blue beacon on.

8.5.1 Before measurement

- The background noise is updated while no presence is detected.
- A blue beacon triggers when the measure is ready to be performed.
- If the background noise is not valid and a presence is detected in the gate, a message is displayed telling the person to leave, and the LEDs blinks purple.

8.5.2 During measurement

- The measurement time is between 1 and 5 seconds (according to the **« Walk through settings** ») while the user is going through the gate.
- Background noise is subtracted from the measure if it is set.
- The measurement time start when the user triggers the detector (e.g. if the measurement time is set to 1 second, the device adds 0.5 seconds before detection and 0.5 seconds after detection).

8.5.3 After measurement

- According to setting, the device triggers an alarm if the measure reaches an alarm threshold with beacon (Optional) and status LED lighting red and a sound alarm. The alarm is activated until the alarm process clears the alarm.
- If the result is negative, the green beacon (Optional), LEDs and result display shall stay in place until either another person walk through the gate, or the result timeout time is reached.

8.6 ENTER-WAIT MODE

The « **Enter Wait** » mode is used to perform a body measurement.

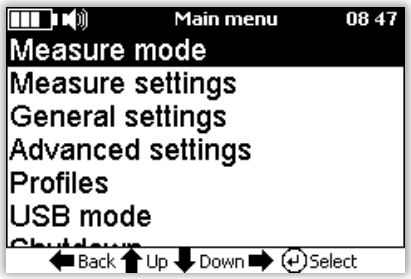
The « **Enter-Wai**t » mode requires the person being measured to step into the portal, break the photo-sensor beam, remain in that location until the measurement has completed, and exit when the indication of the end of the count time results in either a “clean” or “contaminated” message and audible indication. Moving out of the portal before the count cycle is complete will result in a “**Measure Failed**” message and audible indication. The count time and alarm level for this mode can be set independently of other modes (as is also the case for the other modes). It supports a minimum count time of 1 second, and a maximum count time of 60 seconds. This mode is useful to obtain better sensitivity by requiring a longer count time while the person is centered in the portal.

Background subtractions can be disabled, and alarm threshold level can be set as rate or standard deviation. Using rate alarm, the measure count time requires reaching the alarm Threshold with a wrong alarm coefficient is computed automatically (see « **Enter Wait** » settings).

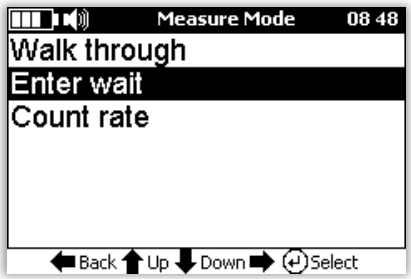
If the « **Enter wait** » mode is not selected after a power on then:

1. Press the key  to access the main menu.

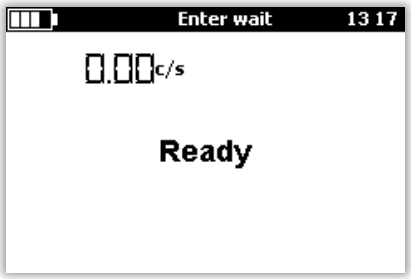
Note: The « **Measure Mode** » line is selected by default. If necessary, press the  or  keys to select the line.



2. Press the key  or  to display the « **Measure Mode** » and press the key  to select the line « **Enter wait** ».



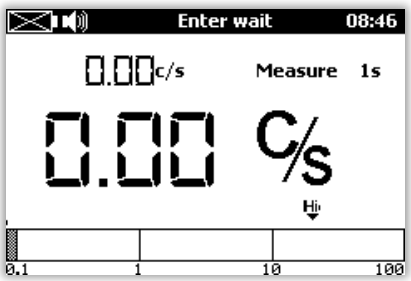
3. Press the  key to start the measurement mode. The following screen appears with background measurement (or not according to the **« Enter wait settings** »):



or

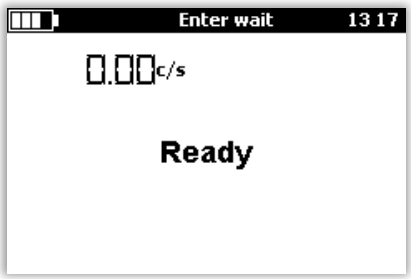
The MiniSentry system is ready with the blue beacon on.

The user walks up to the gate and stop for a set amount of time until the measure is done when the blue beacon is on.



or

The user leaves the portal, and the Minisentry-2 is ready for another measure with the blue beacon on.



8.6.1 Before measurement

- The device continuously updates the background noise while no presence is detected.
- The device triggers a blue beacon when the measure is ready to be performed.
- If the background noise is not valid and a presence is detected in the gate, the device shall display a message telling the person to leave, and the LEDs blinks purple.
- If no presence is detected, the device displays the current background noise, as well as its unit and its remaining calculation time if applicable.

8.6.2 During measurement

- The measurement time is set by the user in the « **Measure settings** » when a presence is triggered.
- A countdown shows the remaining measurement time.
- Background noise is subtracted from the measure.

8.6.3 After measurement

- According to setting, the device triggers an alarm if the measure reaches an alarm threshold with beacon (Optional) and status LED lighting red and a sound alarm. The alarm is activated until the alarm process clears the alarm.
- If the result is negative, the green beacon, LEDs and result display stays in place until the result timeout time is reached.

8.7 COUNT-RATE MODE

The « **Count rate** » mode is primarily used for vehicle applications or any other application where the occupation interval of the portal may be extended. The « **Count rate** » mode allows the MiniSentry-2 to monitor continuously if the photo-sensor beam is broken, using an averaging algorithm to calculate the current count rate. This algorithm adapts the measure integration time according to current fluctuation to get an accurate value: If measure counts are stable the integration time increase constantly, but if abnormal fluctuation is detected the integration time is decreased.

If background is enabled, the background rate is subtracted from the average count rate to yield the net measure. The measure is compared to the alarm level (either rate alarm or standard deviation). This net count rate is compared to the alarm count rate (also a net value) and an alarm is generated if background exceeds the threshold.

24 DECONTAMINATION AND CLEANING

MiniSentry-2 are easily decontaminable.

The Monitor have an IP54 protection rating which protects them from dust deposits and splashing and splashing water.

Do not use stripper, wax, or corrosive solvents to clean the front of the unit, use only a soft, dry or damp cloth.

24.1 DECONTAMINATION PROCEDURE

Tools and ingredients:

- Lint-free clean cloth
- ALCATUM pre-impregnated towels
- Wipes impregnated with water SED (demineralized)
- Nitric acid diluted to 5%
- Sponge
- Vacuum

General precautions:

- MiniSentry-2 should be cleared of radioactive dust and liquid agent as soon as possible after detection.
- Tools, equipment, and work areas must be free of radioactive contamination.
- The user is responsible for conducting the surveys and the rapid decontamination of all objects and surfaces.
- Wearing protective clothing is mandatory during decontamination operations. Minimum requirements include wearing an NBC suit and two pairs of gloves (Triple Gloves are strongly recommended).

24.1.1 Procedure for non-fixed contamination

1. Before any operation, aspirate potentially contaminated dust and particles from the parts.
2. Wrap a towel impregnated with ALCATUM around the sponge and clean the parts by making several passes (at least two) from top to bottom then from left to right.
3. Rinse with SED water (wet wipes).
4. Check that the background noise has returned to normal.

Otherwise:

5. Clean the parts again,
6. Check that the background noise has returned to normal.

24.1.2 Operating mode for a fixed contamination

1. Before any operation, aspirate the dust and particles potentially contaminated on the parts.
2. Using a lint clean cloth, apply nitric acid diluted to 5% on the parts.
3. Let stand 15 minutes
4. Rinse with water (wet wipes) SED
5. Check that the background noise is again correct.

25 TROUBLESHOOTING

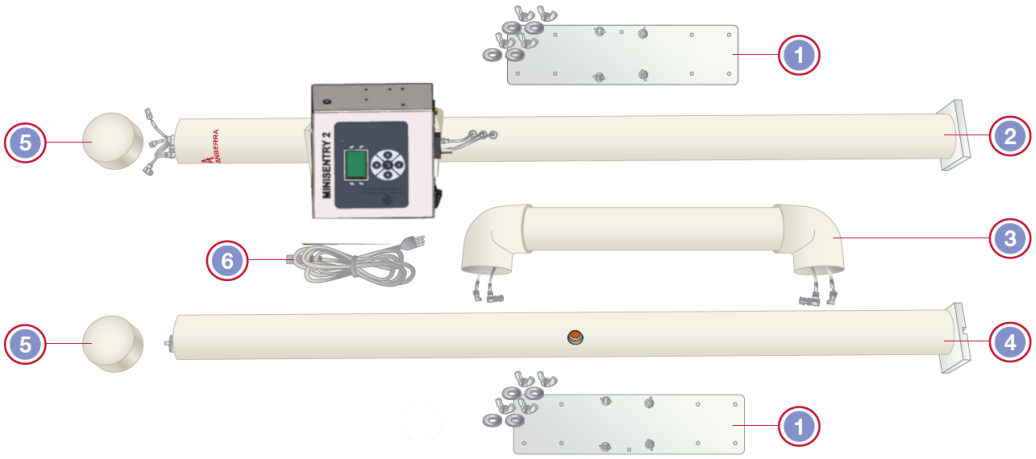
25.1 DAMAGE MOST LIKELY

The following table shows troubleshooting not requiring disassembly of the Minisentry 2

Symptom	Action
Minisentry-2 does not start	Connect the mains cable, USB or, depending on the option, the 12 VDC power supply.
Battery fault, flashing  symbol with audible alarm	Replace the internal battery  : Do not replace the battery with a battery or battery other than that recommended
External battery  blinking	Charge the external battery Replace the external battery
 Portal LED flashing purple	Use CSPS to see error details.
 2 Frisker LEDs flashing purple	Replace the probe cable Replace the probe
Difficulty erasing LOG files	Format the RAM (See § 8.10.7)

26 ASSEMBLY GUIDE, PEDESTRIAN CONFIGURATION

26.1 PART LIST



Item	Description
1	Footplate for each post with flat washers and wing nuts
2	Primary detector post with MiniSentry 2 Monitor
3	Top cross piece with attached elbows for pedestrian configuration
4	Secondary detector post
5	End caps (x2) for vehicle configuration needs and shipping
6	Power cord
-	Kit for Extended passage width (91.5 cm (36 in)) (Option)