

8.0 Safe-EPD Dosimeter

8.1 Technical data

STS Safe-Series Field Survey Instruments



| Instrument Name | STS | | Safe-EPD Dosimeter |
|---|---|--------------------------|-------------------------|
|  | Description | | |
| | <p>The STS Safe-EPD simulator is a simulated generic Electronic Personal Dosimeter designed to aid the tuition of workers in the nuclear industry in safe practices and in understanding the accumulation of dose over time but without exposure to radiation .</p> <p>The instrument operates using an STS radio frequency detection head which detects the presence of a simulated radiation field with the resultant reading displayed on the LCD Display. The instrument will work simultaneously with the Survey-Safe to provide a complete training experience. Set-able alarm levels, background and chirp rates allow the user to create their own specific training environment.</p> | | |
| Dimensions (mm) | 75H | 66W | 32D |
| Weight (KG) | 0.15KG | | |
| Construction | Moulded Plastic Case | | |
| Controls | Surface mounted pushbuttons | Suitable for gloved use | |
| Buttons | Side - On/Off | Front –Menu Scroll | Pin Hole – Setup access |
| Display Type | Digital | 2 Line 16 character | |
| Backlight | Yes | | |
| Battery | 2 x AAA 1.5V cells | | Battery life 10 hrs+ |
| Detector | STS radio frequency Detector | | |
| Audio Output | Yes | Alarm and chirp rate | |
| Alarm Thresholds | Yes (1 Rate & 2 Dose Alarm levels) | Set in Admin menu | |
| LED | Red Led | Chirp and alarm response | |
| Functionality | Dose display | Rate Display | |

| | | | |
|---------------------------------|--|-------------------------|--|
| Background | Level set in user menu | | |
| Operating & Storage Temperature | Operating temp 0 to +30C | Storage temp 0C to +40C | |
| Warm up time | 10 seconds | | |
| Available Sources | Safe-MiniSource | | |
| Additional Information | <p>The STS Safe-EPD is not designed to be intrinsically safe and therefore should not be used in hazardous environments. The units are not waterproof and contain delicate and sensitive electronics which may be caused to fail if exposed to moisture. Units should be stored in a clean and dry environment, batteries should be removed if storing for more than 4 weeks.</p> <p>Instrument response will be affected by environmental conditions such as the presence of large reflective surfaces, substantial metal structures and variable wall thicknesses.</p> | | |

Factory Default Settings

Background:

3: 150 nSv/hr

Rate Alarm:

2: 100 uSv/hr

Chirp Dose:

3: 500 nSv

Dose Threshold 1:

2: 500 uSv

Dose Threshold 2:

2: 10 mSv

Available settings via Menu

Background: 1: 0 nSv/hr, 2: 50 nSv/hr, 3:150 nSv/hr, 4: 500 nSv/hr

Rate Alarm: 1: 20 uSv/hr, 2: 100 uSv/hr, 3: 500 uSv/hr, 4: 1 mSv/hr

Chirp Dose: 1: 0 nSv, 2: 150 nSv, 3: 500 nSv, 4: 1 uSv

Dose Threshold 1: 1:100 uSv, 2: 500 uSv, 3: 1 mSv, 4: 5 mSv

Dose Threshold 2: 1: 5 mSv, 2: 10 mSv, 3: 20 mSv, 4: 100 mSv

8.2 Operational Controls



Scroll through Menu
Acknowledge Alarm

Menu Option
Select



Pocket/Belt
Clip

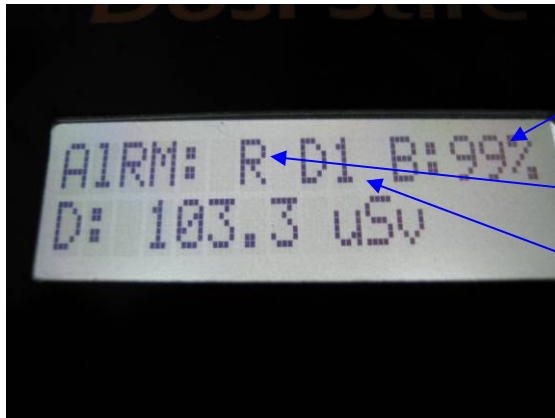
Battery Access

On/ Off
Press and
hold to
turn off

To turn the unit on briefly press the on button. To turn the unit off press and hold the on button for 2 seconds.

USER accessible Menu:
Dose Display:

Battery Level
Percentage



Rate Alarm Triggered:
R – Rate Alarm

Dose Alarm Triggered:
D1 - Dose Alarm
D2 - Final Dose Alarm

Rate Display:



To view the user selectable menu items use the scroll key to move through the Home menu, the Home menu will loop through DOSE, RATE, and Admin Menu screens.

ADMINISTRATOR accessible Menu:



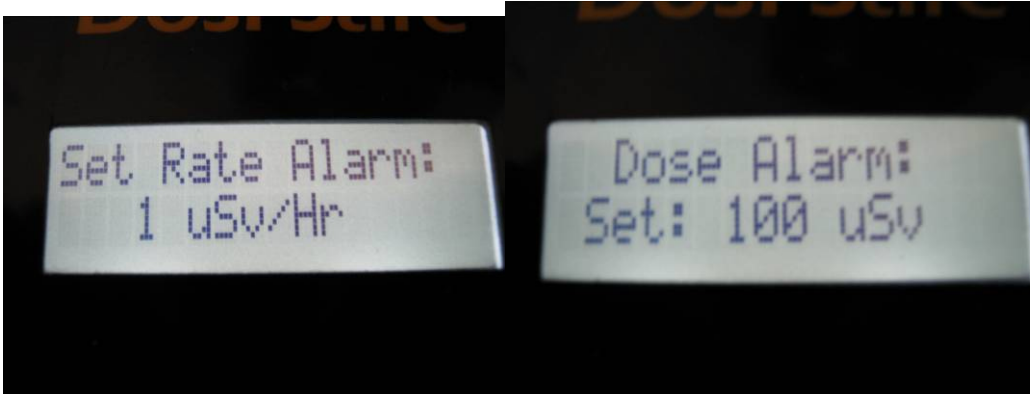
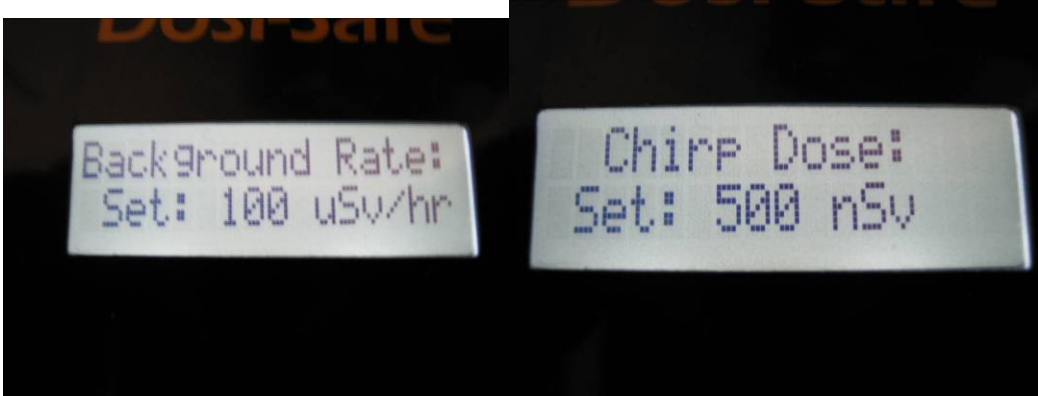
To enter the Admin menu, press until the screen shows Administrator Menu.

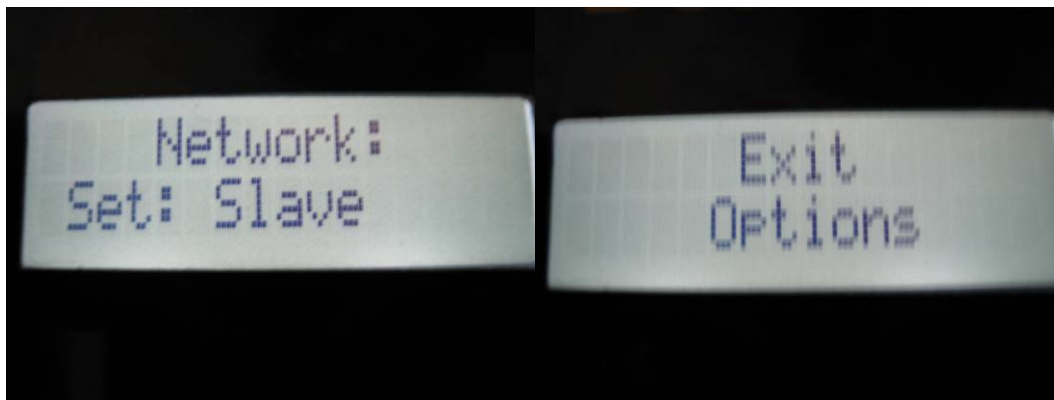


Use a paper clip to activate the Admin Menu through the access hole





In the Administration Menu there will be various setting available for selection:





For all the menu items it is possible to select a value from four preset levels. To do this first

scroll  to the desired menu option and then enter the option by pressing the

paper clip . you can then scroll through the various available levels using the  .
To set the desired level press the paper clip.

To exit the options menu, press paper clip at the Exit Menu screen (if you leave the dosimeter for a period of time(15s) it will revert back to the user menu default).

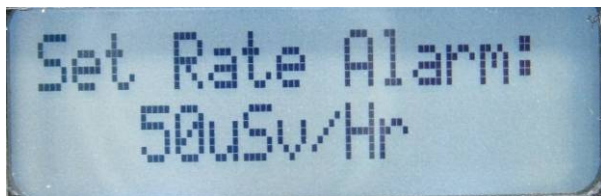
In this case it is the Rate Alarm level, currently the level is set at 1uSv/Hr



To change the level Press the paper clip the display will then display Set Alarm Level: as below



To choose from a preset level use the scroll button to choose the new desired level, in this case 50uSv/Hr



To save this new value press paper clip- the screen will now update to show Alarm Level: Set : in this case at 50uSv/Hr as below.



Here is a breakdown on each of the menu options:

- Background Rate – This determines the dose rate level when there is no source present. This is used to create an environment with a constant dose rate level.
- Rate Alarm – This Alarm determines the dose rate level to which any great increase in dose rate will trigger an audio alarm. This alarm will have a frequency of 1 tone every second.
- Chirp Dose – An audible beep every time set dose is accumulated.
- Dose Alarm: The first dose alarm. The instrument will alarm once the accumulated dose reaches this threshold.

- Final Dose Alarm: The final dose alarm. The instrument will alarm once the accumulated dose reaches this threshold.
- Sound – This determines the initial audio state of the device upon turning on.
- Network – This determines the network type of this instrument. There are two states: Master and Slave. The Master instrument will control the addition of any new instruments into the Radiation simulation network. There must always be one Master instrument switched on to control this network. The Slave units do not have this controlling function, but will join any radiation simulation networks upon turning on. (This radiation network technology is common to all SAFE-Series instruments.) After initial configuration, the devices will remember the set up and use this the next time they are turned on until such time as the set up is manually changed.

The Network Status of the instrument is shown upon boot up as shown:



Audible Alarms:

The Dosimeter has 3 audible alarms.

Chirp Dose – The Dosimeter will give one single short beep for each incremental amount of dose received ie Set at 50nSv will beep at the first 50, then after a further 50 etc.

Rate Alarm – The Dosimeter will give an intermittent alarm beep when the rate alarm threshold is exceeded. This Alarm will have an audible intermittent sound until acknowledged

by pressing the  button.

Dose Alarm – The Dosimeter will give a continuous broken beep when the dose alarm threshold is exceeded. This Alarm will continue until acknowledged by pressing the

 button.

Final Dose Alarm – The Dosimeter will give a continuous beep when the final dose alarm threshold is exceeded. This Alarm will continue until acknowledged by pressing the

 button.

8.3 Maintenance

The **Safe-EPD** does not contain any user serviceable parts and as such no repair or adjustment should be attempted as this will both invalidate the warranty and lead to potential damage of the circuit.

The batteries are accessed through the panel on the side of the instrument. The **Safe-EPD** uses 2 alkaline AAA cells, professional or long life cells are recommended for best performance. Batteries should be removed when not in use for prolonged periods and partially discharged cells should never be mixed with new cells.

ENSURE CELLS ARE CORRECTLY FITTED – Observe the polarity markings on the case, the + sign indicates that the cell should be placed with the positive terminal facing the battery door aperture.

