OPERATING MANUAL
Of
RDmini-Ⅰ X/ γ Alarm Dosimeter

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1. GENERAL INFORMATION

The X γ Alarm Dosimeter RDmini-Ⅰis intended for monitoring the strength of radiation field （dose rate）and cumulative dose equivalent. It will give sound and light alarm while the field strength is over the threshold or sound and light while the CDE (cumulative dose equivalent) value is over a preset value. Some measurement data can be storage in and transfer to PC by USB.

2. Specifications

(1) Detector type: Si probe
(2) Dose rate range of X γ radiation: 1μGy/h~1Gy/h
(3) CDE range: 1μSv~10Sv
(4) 3 Levels of DER(dose rate) alarm
(5) 3 Levels of accumulative dose alarm and dose Increment tips which can be set by user
(6) Energy response: <±30%（50keV~1.3MeV）
(7) Angle response: < ±20%（0°～75°） Cs-137(662keV)
(8) Relative intrinsic error: <±10% (1mSv/h，Cs-137)
(9) Ambient conditions for operation: -10℃~+40℃; 40%~90%RH (@35℃)
(10) Power: a 3.6V/150mAh rechargeable lithium battery.
Time of continuous operation>200h.
(11) Size: 50×30×15 mm
(12) Weight: <40g

3. GENERAL CONTROL INFORMATION

Two control buttons for the instrument operation are located on the left of the front panel of the detector: M (Mode) and S(Select) ,
A R&G LED on the top indicates work mode and 3 red LEDs on right indicate the 3 Levels of DER, 3 Levels of accumulative dose alarm , and 3 levels of dose increment (see segment 5.1).

4. OPRATION MODES

The detector provides the following operation modes:

- Standby mode
- Measuring mode
- Threshold setting mode
- Communicating mode

Switching between the different operating modes as shown in Figure 1:
The detector enters the Standby mode just after being switched on and initialization. When long-press M(Mode) button, the operation mode will be switched between standby mode and measuring mode; When long-press S(Select) button, the operation mode will be switched between standby mode and communicating mode; When long-press M(Mode) and S(Select) button, the operation mode will be switched between standby mode and threshold setting mode.

The buzzer will sound once after a mode switch and the LED will give the corresponding indication.

NOTE: long-press means keeping pressing for more than 4 seconds.

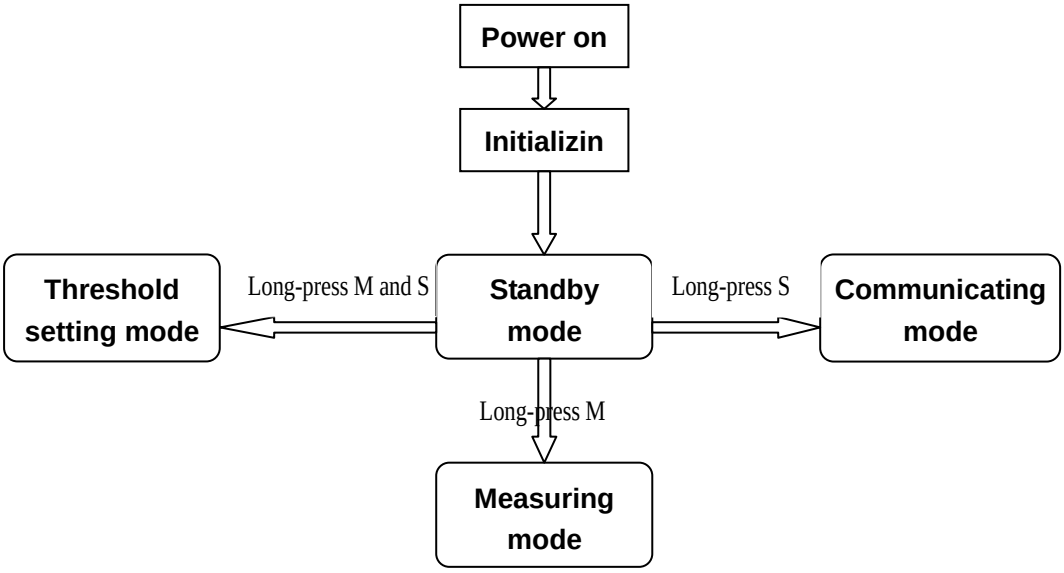

Figure 1: Switching between the different operating

4.1. Standby Mode

In the mode, the detector is preparing for work, all the LEDs do not flash and buzzer does not ring. Equipment is in power save mode.

4.2. Measuring Mode

In this mode, the detector will monitor the change of radiation field strength, The green LED flash once every five seconds. When the CDE or dose increment is over a preset value, the equipment will give alarm by LED and beep.

4.3. Threshold Setting Mode

In this mode, you can set the CDE and dose increment alarm value and clear the CDE .

In standby mode, long-press button M and S at the same time, after a beep the detector will enter the threshold setting mode, one of the five red LEDs is light indicates the corresponding CDE alarm threshold preset previously. You can select one of 3 levels of alarm threshold in the loop by pressing button M. Long-press the button M, the detector will enter the dose increment setting mode, you can select one of the 3 levels dose increment tips threshold in the loop, the corresponding red LED is light to give you the indicating. Long-press the button M, both the red and green LED will be light, detector enter clear CDE mode, long-press the button M, detector will clear CDE. Long-press M will return standby mode. Long-press M and S, detector will return back to the standby mode in any setting mode.

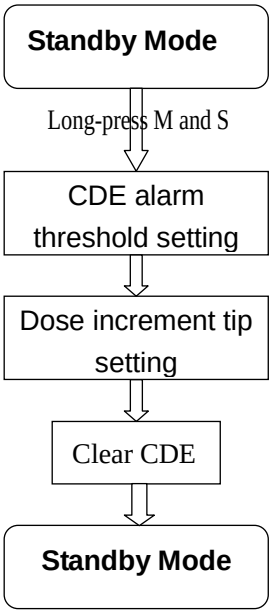

Figure 2. threshold value setting

4.4. **Communicating Mode**

When the equipment is in the standby mode, long-press button S, after a beep, detector will enter communicating mode, the top green LED is light. Then you can use the USB cable to connect detector to a PC and read measurement result by software.

5. **Alarm Indicating**

Various forms of alarm has its own corresponding Beeper and LED direction.

5.1. **DER Over Threshold Alarm**

There are 3 levels DER alarm threshold, when the detector value is over the threshold, a short beep will sounds every three seconds, and the corresponding LED will flash once every three seconds. You can mute the beep by press button M.

The relation of the threshold value and LED is following:

Table 1:

Alarm Level	DER Alarm threshold Balue （μGy/h）	Corresponding Red LED
1	1.5	1
2	10	2
3	100	3

5.2. **CDE Over Threshold Alarm**

when the CDE is over the preset threshold, two short beeps will sound and the corresponding LED will flash twice every three seconds. You can mute the beep by press button

M.

The relation of the CDE threshold value and LED is following:

Table 2:

Alarm Level	CDE Threshold Value（μSv）	Corresponding Red LED
1	500	1
2	1000	2
3	2000	3

5.3. **Dose Increment Tip**

when the Dose Increment is over the preset threshold, a short beep will sounds and the corresponding LED will flash once to give you a tip.

The relation of the Dose Increment threshold value and LED is following:

Table 3:

Tip level	Dose Increment Value （μ Sv）	Corresponding Red LED
1	0.1	1
2	1	2
3	10	3

5.4. **Low Power Alarm**

When the battery is to run out, the top red LED will be lit half a second once every three seconds. The detector can still work for only four hours in this condition.

5.5. **Detector Failure Alarm**

If the detector can not get signal within 20 minutes, there will be detector failure alarm. Two short beeps will sound and top red LED flash once every two seconds.