FS300 Personal Radiation Detector

1. Precautions for equipment use

X- γ-β personal radiation detector is a precision instrument. Please pay attention to protection. The following suggestions will be beneficial to the maintenance of the instrument and prolong its service life.

● Try to keep dry during storage and use. Excessive humidity will cause damage to the instrument.

● There are glass products and fragile products inside the instrument. Do not drop, knock or vibrate violently, otherwise the detector will be damaged.

● If it is not used for a long time, please take out the battery and store it in a dry place.

● If the instrument cannot work normally, please do not disassemble the instrument by yourself.

● Please use standard AA 5 battery or AA 5 rechargeable battery.

● Without any modification or maintenance, the instrument may be damaged.

● If you suspect that the instrument may fail at work, please turn off the power of the instrument and evacuate from the dangerous place quickly.

Note: Please read the operation manual carefully. Failure to follow the manual may cause the instrument to fail to work normally. The company has the final right to interpret this manual. The company reserves the right to improve product performance and modify this manual without prior notice to the user.

2. Function overview

X- γ-β The radiation personal detector instrument has a built-in high-sensitivity geiger counter as a sensor, which is mainly used for monitoring X, γ And hard β The radiation of X-ray has the characteristics of fast response and wide measurement range. It can display the dose equivalent rate and cumulative dose in the workplace. When replacing the battery, the calendar, time and cumulative data can be saved permanently. Widely used in nuclear power plants, nuclear sewage, accelerators, isotope applications, industrial X, γ, β radioactive stone, marble, radioactive radiation, radioactive medical treatment, CT radiation, iodine 131, iodine 125, cobalt source treatment γ personnel in the fields of radiation, radiation laboratory and environmental monitoring around nuclear facilities shall conduct personal safety protection monitoring and radiation prompt.

3. Product features

- Monitoring X-rays γ Ray and hard β Ray.
- The instrument has high sensitivity and can measure background radiation.
- The equipment has built-in multi language operation interface.
- It can display the dose rate and cumulative dose, and monitor and alarm the three digit data of radiation time average at the same time.
- After power off, the data will not be lost.
- The equipment is equipped with dose alarm and particle alarm prompt, and the alarm sound can be turned on and off.
- No. 5 battery and rechargeable battery can be charged, and it can start up without battery charging.
- The instrument can freely set the dose rate alarm threshold and the amount of data.
- The two alarm modes of sound / light can be turned on and off, and the brightness of alarm light can be adjusted.

4. Technical indicators

1. Detection ray: γ 、 X and hard β radial
2. Detector: energy compensation GM tube (Geiger counter tube)
Three measuring range:
a、 Dose equivalent rate: 0.00 ~ 999 μSV / h (max. 1 msv / h)
b、 Average equivalence rate at 5 minutes: 99.0 μSv/h
c、 Cumulative dose equivalent: 0.00 μSv~99999 μSv/h（99.0 mSv）
3. Energy range: 30 keV ~ 1.5 MeV ⩽± 30% (for 137Cs)
4. Relative inherent error: ⩽± 10% (137Cs 1 msv / h)
5. Sensitivity: 80 cpm/ μSV / h (for Co-60)
6. Alarm threshold dose rate: the factory default setting is 0.50 μSV, the user can set the alarm data arbitrarily.
7. Measurement display: the dose rate is displayed every second
8. Protective alarm is less than 1 second.
9. Operating environment: temperature: - 15 ℃ ~ + 50 ℃

10.Relative humidity: ≤ 95% (+ 45 ℃)

11. Power supply: two No. 5 (AA) batteries can use No. 5 rechargeable battery.

12. Size and weight: 132 x 70 x 26 mm. The weight of the host does not include 140g battery.

13. The standby time of the equipment is about 4 days, and the power is 25 mA.

5. Key function description

[menu / OK] key: enter the parameter setting menu / confirm operation.

[back]: return to the upper menu from the lower menu.

[switch / power] key: turn on and off the instrument / light up the LCD.

[▼] key: down key / number item minus one.

[▲] key: up key / number item plus one.

6. Basic operation method

1. Power on

Prepare two No. 5 batteries; After installing the battery, press and hold the start button on the panel for 3 seconds, and the device screen will light up. After the instrument is started, the current data volume is changing, indicating that the instrument is in the normal detection state
The LCD screen is shown in Figure 1 below:
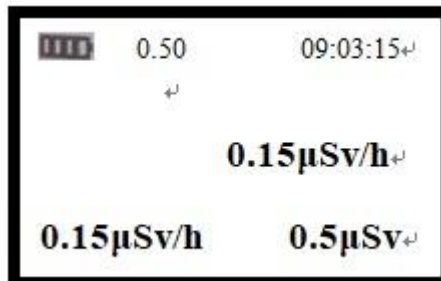
(Figure 1)

2. Shutdown

Press and hold the [switch / power] key for 3 seconds, and the instrument will shut down automatically.

3. Measurement

After the instrument is turned on, it enters the measurement state. During measurement, it can be placed on the hand, clothes pocket, waist clip, backpack and other places. There are three kinds of measured values of this instrument: one is dose rate, and the unit can be μSv/h。 Second, it

can display the average data volume in 5 minutes. Third, it can display the cumulative value of dose rate in a long time, that is, the cumulative dose. The cumulative measurement is based on 10 μ SV is a measurement. When the cumulative quantity of the instrument reaches 10 usv, the number and unit of the instrument will change from 10.00usv to 0.01msv, and the background will be 10 μ After the s measurement reaches 10 micro West volts, the number will rise by one digit, that is, it will become 0.02 msv milliwest volts, which is converted into 10 usv = 0.01 msv. When the cumulative measurement is cleared, the unit of our instrument is measured by USV micro West volts, which can be accumulated to 99.0 msv at most, and the shutdown data will not be cleared.

When the current measured value exceeds the set alarm threshold, the instrument will alarm according to the set alarm mode, and the equipment exceeds the standard dose μ The SV / h unit will directly become an over standard display, indicating that the radiation exceeds the standard.

4. Function description of LCD screen detection interface:
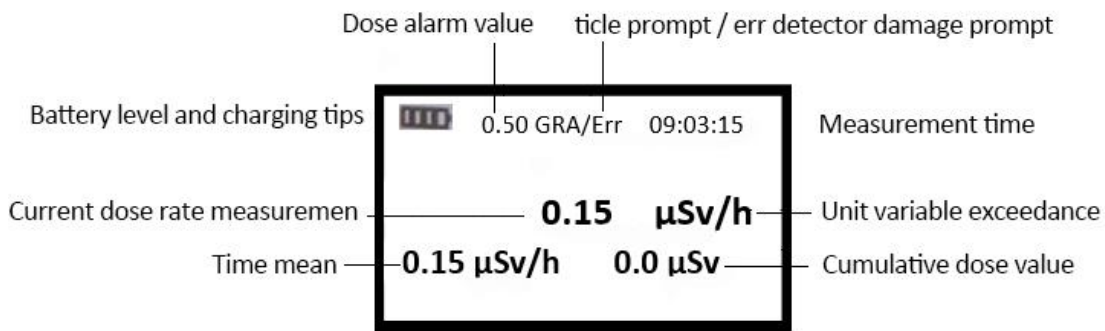
(Figure 2)

Prompt: If gra is displayed on the screen as particle alarm prompt, if err is displayed, it indicates that the sensor has been damaged.

7. Parameter setting

The parameters of the instrument that can be modified by the user include: alarm setting, system clock, alarm mode and display setting. The corresponding parameters can be modified through the keyboard.
Enter parameter setting status.
In the measurement state, press the [menu / OK] key to enter the menu selection screen; As shown in the figure below:

1. Alarm setting
2. System clock
3. Alarm mode
4. Display settings

(Figure 3)

Press [▼] or [▲] to move the cursor to select the item to be set.

After selecting the item to be set, press the [menu / OK] key to set the parameters of this sub item. If you want to exit the parameter setting, press the [return / back] key. If you press the [return / back] key, the instrument will return to the superior menu without saving the current option.

Note: in the parameter setting state of the instrument, pressing [menu / OK] means that the user wants to select the current option and enter the submenu of the option. If the option has no submenu, save the modified value of the current item and return to the superior menu. Pressing [return / back] means that the user gives up the current modified value and returns to the superior menu.

1. Alarm setting

In the menu selection screen (Figure 4), press [▼] or [▲] to select the second menu item "2. Alarm setting", and then press [menu / OK] to enter the option. At this time, the screen shown in the following figure is displayed.

```
1. Alarm setting
2. Dose alarm value
3. Delete dose
```
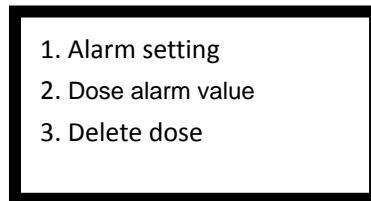
(Figure4)

Dose rate alarm value: press [▼] or [▲] in the screen (Figure 4) to select "I". dose rate alarm value", and then press [menu / OK] to enter the dose rate alarm value submenu. The factory default setting is 0.50 μSV / h alarm prompt, users can set their own desired alarm data freely and adjust the alarm value freely.2. Reset the cumulative dose: select the item in (Figure 4), press [menu / OK] to enter the deletion operation interface, press [▼] or [▲] to select "yes" or "no" to decide whether to delete the cumulative dose.

2. System clock

In the menu selection screen (Figure 5), press [▼] or [▲] to select the second menu item "2. System clock", and then press [menu / OK] to enter the option. At this time, the screen shown in the following figure is displayed:

```
System clock
Date: May 15, 2026
Time: 07:08:35
```
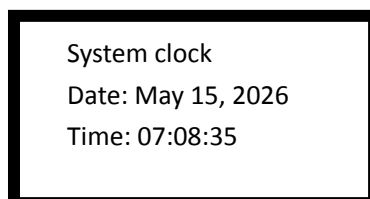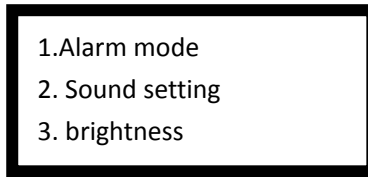
(Figure 5)

Press the [menu / OK] key on the screen in Figure 5, and "26" in "2026" flashes. At this time, press the [▼] or [▲] key to modify the value of "26". After modification, press the [menu / OK] key, and the instrument will save the year setting and make the month number flash; In the same way, when the value of "second" bit is set; Press [menu / OK] to save the settings and return to the upper menu.

3. Alarm mode

In the menu selection screen (Figure 6), press [▼] or [▲] to select the third menu item "3. Alarm mode", and then press [menu / OK] to enter the option. At this time, the screen shown in the following figure is displayed:

```
1.Alarm mode
2. Sound setting
3. brightness
```
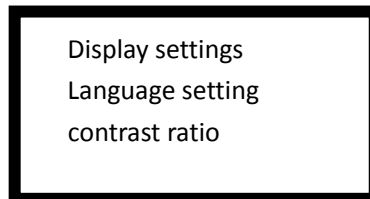
(Figure 6)

The sound alarm in Figure 6 can turn on and off the sound alarm prompt function, and the particle sound can also turn off and turn on the prompt. The screen light brightness can be adjusted by 0-20 digital brightness and turn off the light function, which can be selected by pressing [▼] or [▲].

4. Display settings

In the menu selection screen (Figure 7), press [▼] or [▲] to select the fourth menu item "4. Display setting", and then press [menu / OK] to enter the option. At this time, the screen shown in the following figure is displayed.

```
Display settings
Language setting
contrast ratio
```

(Figure 7)

Language: after selecting this item in the screen (Figure 7), press [menu / OK] to select multiple languages. Press [menu / OK] to confirm, and the menu will become the set language interface.

Contrast: select the sub item "contrast" in the screen (Figure. 7), press the [menu / OK] key to enter the sub item setting, and modify the value of contrast through the [▼] or [▲] keys to change the effect of LCD screen display.