

Safe Training Systems Ltd

SMF4 Portable Fluorimeter Operating Guide V.2.03



Instrument Controls

- The SMF4 has two control pads, an alphanumeric keypad and a navigation keypad
- To select the required letter from the alphanumeric keypad press the key once for the first letter, twice for the 2nd etc. Please note that the 0 key if pressed twice will display a space.
- The navigation keypad is used to move between the menus using the up & down arrows, and to move within menu items by using the left and right arrows.



Instrument Information

- When the instrument is first powered on the battery icon is displayed, the home screen will then appear and the battery charge status may show almost empty. The instrument will then make an assessment of the battery charge remaining and display the actual charge status after a couple of minutes. When the charger is connect the home screen will display CHARGING, when the battery is fully charged the instrument will turn itself off. Please note that with the charger connected you cannot turn off the instrument until unplugged.
- The SMF4 has built in battery saving software to facilitate the longest possible use between charges. The instrument will therefore power down after a period of 10 minutes of inactivity. If the instrument is in a logging mode this will continue unaffected. In order to wake the instrument press the on/off key – the home screen will then be displayed. The instrument will also turn off the backlight after a period of 5 minutes of inactivity – to wake the instrument press the down arrow key.
- It should be noted that whilst in logging mode the instrument set up cannot be changed, i.e. the logging interval, sensitivity, time/date, upload or delete data functions will not operate. To change any of these functions press Stop Logging, change the required parameter and then press start logging to resume.

Start up Screen

The start up screen is displayed briefly on power up and displays the following information:

- Serial Number
- Software version no.
- Time
- Date



Home Screen

After the start up screen is displayed the Home screen appears. This screen displays the following information:

- Counts reading
- Sensitivity setting
- Battery status icon
- Menu icon
- Charging (if connected to the charger, note the battery icon is not displayed when charging)



Software Revision

- If your instrument is version 2.03 or greater the instrument will have 2 additional items displayed on the Home screen.
 - 1) the temperature of the instrument is displayed in degrees Centigrade (this is also output in the data log against each record).
 - 2) The sample number generated each time the instrument is triggered is displayed to indicate that the sample has been logged to the instruments memory.

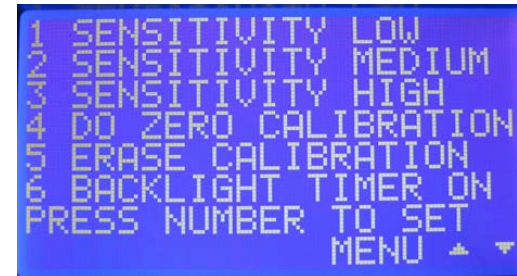


Menu Operations

There are 3 menu screens accessed from the Home screen by using the down arrow on the navigation key pad.

The menus allow setting of the following options:

- Set Sensitivity - High/Med/Low
- Zero Calibration - On/Off
- Backlight timer - On/Off
- Logging - Start time & Interval
- Upload & delete data log
- External Logging – On/Off
- Location & Reference
- Time & Date
- Set Backlight intensity



```
1 SENSITIVITY LOW
2 SENSITIVITY MEDIUM
3 SENSITIVITY HIGH
4 DO ZERO CALIBRATION
5 ERASE CALIBRATION
6 BACKLIGHT TIMER ON
PRESS NUMBER TO SET
MENU ▲ ▼
```



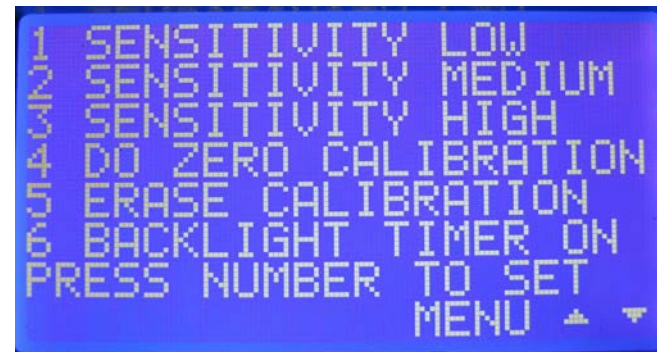
```
1 START TIMED LOGGING
2 LOG START TIME/DATE
3 LOGGING INTERVAL
4 UPLOAD DATA LOG
5 DELETE DATA LOG
6 EXTERNAL LOGGER OFF
PRESS NUMBER TO SET
MENU ▲ ▼
```



```
1 SET LOCATION
2 SET REFERENCE
3 SET TIME/DATE
4 BACKLIGHT LOW
5 BACKLIGHT MEDIUM
6 BACKLIGHT HIGH
PRESS NUMBER TO SET
MENU ▲ ▼
```

Setting Sensitivity

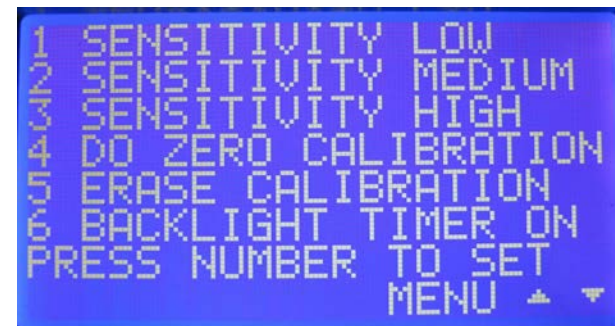
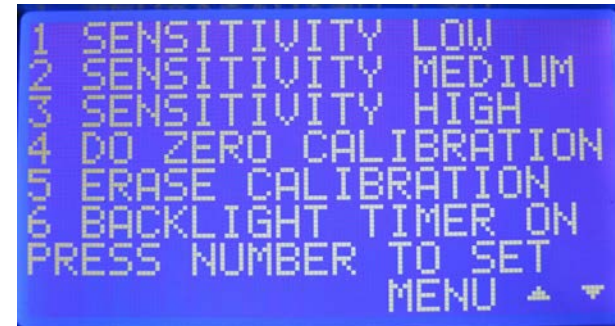
- The SMF4 offers a range of 3 sensitivities, HIGH, MEDIUM & LOW. This enables monitoring to be carried out in a variety of different conditions where the amount of contamination present may vary considerably.
- The Sensitivity level is selected from the main menu by pressing option 1. for LOW, 2. for MEDIUM and 3. for HIGH. The screen will then reset to the Home screen and the sensitivity will be displayed under the counts reading as below



Zero Calibration

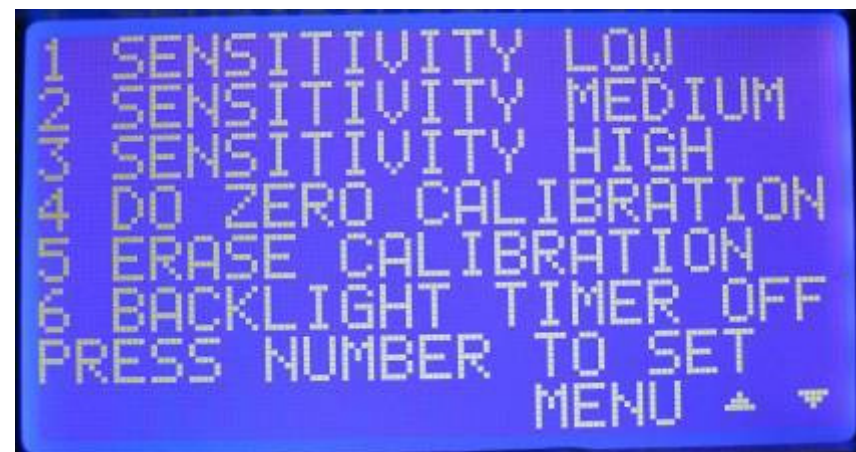
- The SMF4 has a zero calibration function to remove background from the count figure displayed. To use this function place a cell in the holder containing the background sample and press no.4 on the menu screen.
- The screen will return to the home screen and the counts display will read 0000. Subsequent readings will then be displayed having had the background subtracted.
- To remove the zero calibration press no.5 from the menu list – the Home screen will then appear and the next reading will not be adjusted for background.

(note- turning the instrument off does not remove the zero calibration)



Backlight

- The instrument has a backlight timer function to help maintain maximum battery life.
- To select the backlight from the main menu press 6, the display will show backlight timer on. The backlight will now turn off after 5 minutes operation – press any key to turn back on.
- To turn the backlight timer off (ie to have the backlight constantly on) select 6 again from the menu. The display will now show backlight timer off.
- Please note that to preserve battery life the SMF4 will automatically turn off after 10 mins of inactivity when the backlight timer is on. Press the ON key to activate the display.



Logging

- The auto sampling function allows the instrument to be used to record a set of readings over a specified time period using a flow cell provided by the user.
- The instrument can capture up to 2000 records provided the memory has been cleared before sampling begins.
- To access the logging setup press the down arrow to access the first menu and then press the down arrow again to access the 2nd menu screen.
- There are 2 logging options, you may either set a logging interval and then manually start the log – or you may set an interval and a time and date for the instrument to start logging.



Manual Logging

- To start logging immediately, complete the following actions.
- From the 2nd menu screen select no.3 LOGGING INTERVAL.
- Enter the interval using the keypad and use the arrows to move the cursor to the next digit as required, press OK to save.
- If you wish to write the data immediately to a pc from the 2nd menu screen select no.6. The screen will change to show EXTERNAL LOGGER ON (note in this mode only the reading will be output to the pc).



```
1 START TIMED LOGGING
2 LOG START TIME/DATE
3 LOGGING INTERVAL
4 UPLOAD DATA LOG
5 DELETE DATA LOG
6 EXTERNAL LOGGER OFF
PRESS NUMBER TO SET
MENU ▲ ▼
```



```
LOGGING INTERVAL
00 HOURS 10 MINUTES
◀▶ TO MOVE CURSOR
OK TO SAVE
▲▼ TO EXIT
```



```
1 START TIMED LOGGING
2 LOG START TIME/DATE
3 LOGGING INTERVAL
4 UPLOAD DATA LOG
5 DELETE DATA LOG
6 EXTERNAL LOGGER ON
PRESS NUMBER TO SET
MENU ▲ ▼
```

Manual logging

- To set a location use the down arrow from the menu screen to reach the final (3rd) menu page. Select no. 1 and use the keypad to enter the location, press OK to save.
- To set a unique reference repeat as above selecting no.2 from the menu and press OK to save.
- To start the log running, select no.1- START TIMED LOGGING from the 2nd menu. (note you cannot manually trigger the device whilst in logging mode).
- To stop logging select No.1 again from the 2nd menu which will now show "STOP TIMED LOGGING"

```
1 SET LOCATION
2 SET REFERENCE
3 SET TIME/DATE

PRESS NUMBER TO SET
MENU ▲
```

```
SAMPLE LOCATION
OFFICE

◀▶ TO MOVE CURSOR
OK TO SAVE
▲▼ TO EXIT
```

```
SAMPLE REFERENCE
050810 12345

◀▶ TO MOVE CURSOR
OK TO SAVE
▲▼ TO EXIT
```

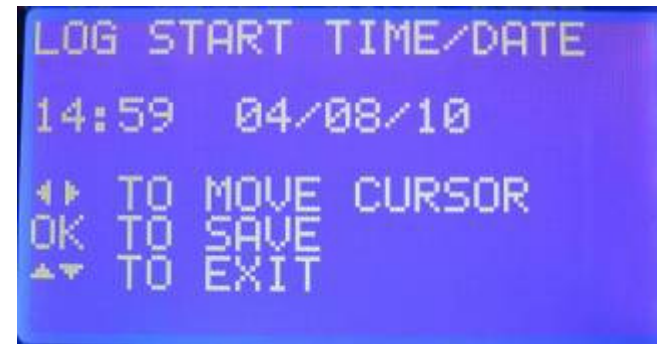
```
1 START TIMED LOGGING
2 LOG START TIME/DATE
3 LOGGING INTERVAL
4 UPLOAD DATA LOG
5 DELETE DATA LOG
6 EXTERNAL LOGGER ON
PRESS NUMBER TO SET
MENU ▲ ▼
```

Timed Logging

- To set a timed logging sequence repeat the procedure for manual logging but DO NOT use the START TIMED LOGGING option.
- Instead from the 2nd menu screen select no.2 -LOG START TIME/DATE.
- The desired time and date can now be set using the keypad, press OK to save.
- The Home screen will now show that logging is on and the interval selected.
- The SMF4 may be turned off, the logging will start, and continue, without the display being on.
- To stop logging select no.1 -STOP TIMED LOGGING from the 2nd menu screen
- Please note that the SMF4 will also write the data to its internal memory until such time as the available memory is used up, therefore after a data logging exercise it will be necessary to clear the memory ready for the next sampling procedure.



```
1 START TIMED LOGGING
2 LOG START TIME/DATE
3 LOGGING INTERVAL
4 UPLOAD DATA LOG
5 DELETE DATA LOG
6 EXTERNAL LOGGER OFF
PRESS NUMBER TO SET
MENU ▲ ▼
```



```
LOG START TIME/DATE
14:59 04/08/10
◀▶ TO MOVE CURSOR
OK TO SAVE
▲▼ TO EXIT
```



```
1 STOP TIMED LOGGING
2 LOG START TIME/DATE
3 LOGGING INTERVAL
4 UPLOAD DATA LOG
5 DELETE DATA LOG
6 EXTERNAL LOGGER OFF
PRESS NUMBER TO SET
MENU ▲ ▼
```

Upload and Delete data

- To download the data from the SMF4 connect the RS232 cable to the USB adapter and connect to the PC which has had the terminal programme set up.
- From the 2nd menu select No.6 to turn on - EXTERNAL LOGGER.
- Connect to the SMF4 via the terminal programme and ensure that you can receive data.
- On the 2nd menu screen select No. 4 -UPLOAD DATA LOG.
- The screen will now show how many records there are to download, press OK to start the download.
- Once downloaded the screen will revert to the Home screen.
- To delete the data from the SMF4 select no.5 - DELETE DATA LOG. The number of files to be deleted will be displayed. Select OK to permanently delete the internal stored files. The screen will revert to the Home screen on completion.



```
1 START TIMED LOGGING
2 LOG START TIME/DATE
3 LOGGING INTERVAL
4 UPLOAD DATA LOG
5 DELETE DATA LOG
6 EXTERNAL LOGGER OFF
PRESS NUMBER TO SET
MENU ▲ ▼
```



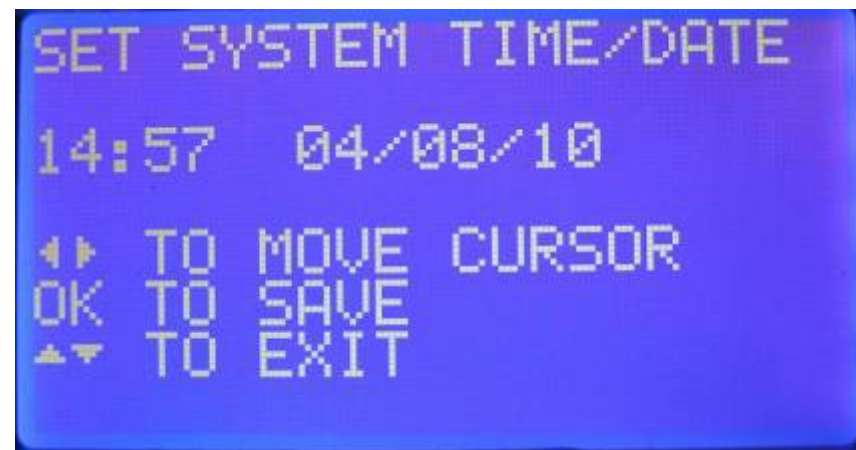
```
UPLOAD DATA TO PC
0161 RECORDS TO SEND
0.1 SECOND PER RECORD
OK TO START
▲▼ TO EXIT
```



```
DELETE ALL RECORDS
0161 TO DELETE
OK TO DELETE
▲▼ TO EXIT
```

Set Time and Date

- To set the internal clock select option 3 from the 3rd menu screen.
- Use the keypad to enter the time in 24 hour format, the > arrow on the navigation keypad moves the cursor between digits.
- The date is set for UK format of DD/MM/YY.
- Once completed press OK to save, the screen will return to the menu.



Set Backlight intensity

- To select the intensity of the backlight go to the 3rd menu screen as shown opposite.
- The desired backlight level can be selected by pressing 4 (low), 5 (medium) or 6 (high) as light conditions dictate.

(please note that the backlight has a significant drain on the battery so where possible the low (4) option should be used)

