User's manual

Setting Device for NRF50

Introduction

This User's Manual is organized to provide a brief description of setting device for electronic personal dosimeter NRF50. If there are some requirements or improvements about this setting device, please contact Fuji Electric representative.

Also, in the event of any malfunctions or other problems, contact Fuji Electric representative immediately.

Safety Precaution

	**Do not use, if smoke, unusual odor or abnormal noise exists.**
	**Do not plug into the outlet that is not designated.**
	**Do not use power cable other than provided.**
	**Do not disassemble, repair or alter the Dosimeter Setting Device.**
 Attention	
	**Use dosimeter with power ON.** May lose data if power turned OFF.

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1 . Overview

1 . 1 Overview

This setting device consists of hardware and software. It has a function of data communication to dosimeter (Model: NRF50) by infrared or USB to read set value and dose information from dosimeter, and a function of writing set value changed on the PC display. Trend data read from dosimeter can be exported as a plain text.

This software is designed to correspond with Microsoft® Windows® operating system.

1 . 2 Sample unit package

(1)	Configuration software installation CD	1
(2)	User's manual	1
(3)	Infrared (IR) setting device	1
(4)	USB cable	1

2 . Specification

2 . 1 Basic specification

Basic function :

1. Read set value and dose information from dosimeter
2. Write set value into dosimeter
3. Display a table of trend data

Peer : Electronic Personal Dosimeter (NRF50)

Temperatures : 0 to 40 °C

Humidity : 30 to 85 %RH

2 . 2 Required environment

The following hardware and software are required.

(1) Hardware

One set of PC/AT compatible platform and peripheral (hereinafter, PC) that meet the following specifications

・CPU	:	Pentium 1GHz, or greater
・Memory	:	1G Byte, or greater
・Hard Drive	:	Free disc space of 20 MB, or greater
・Display	:	Resolution 1024 × 768, or greater
・Communications Interface	:	USB× 1 ch
・Others	:	Mouse and keyboard

(2) Software

The PC mentioned in (1) should have the following software installed.

・Operating system	:	Windows® 7, 8.1 (32/64bit)

Notes)

* **Microsoft®**, **Windows®**, **Windows logo®**, **Windows Start logo®** are either registered trademarks or trademarks of Microsoft Corporation in the United States and/or other countries.
* Screen shot(s) reprinted with permission from Microsoft Corporation.

3 . Device structure

3 . 1 IR setting device

Structure of IR setting device is shown below

Parts	Description
USB connector	Connect to USB port of PC
IR head	Powered from USB port of PC. Other power supply is not necessary.

3 . 2 USB cable

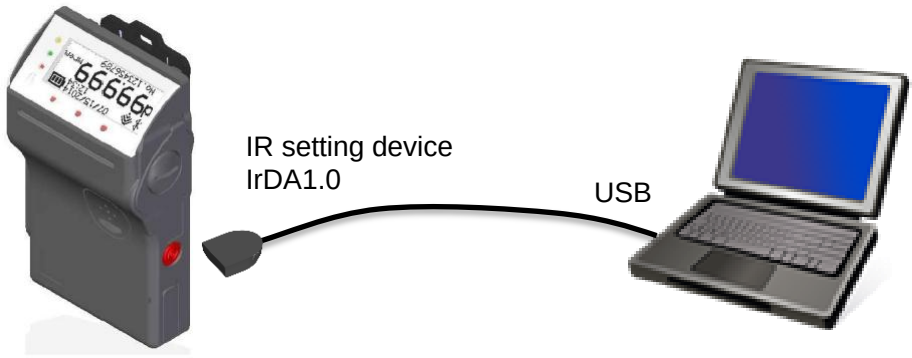
Structure of USB is as shown below

⚠ Attention	USB cable may be easily pulled depending on the shape of micro-B plug.

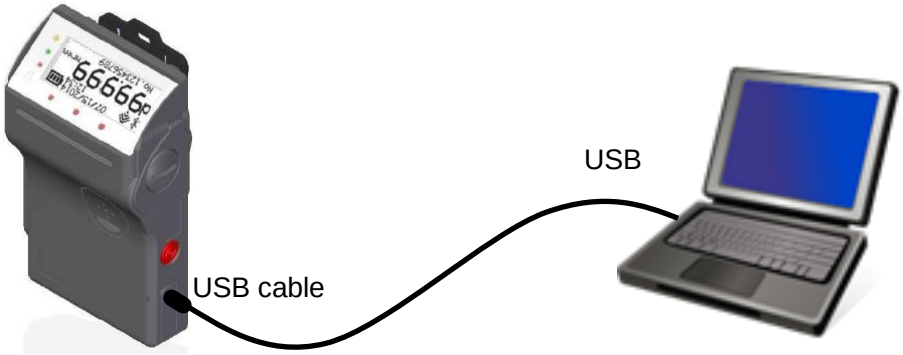
4 . Descriptions and setting-ups

4 . 1 System configuration

This software is used in the following configuration. Configurations for IR connection and USB connection are common.



* IR reception is located at lower left on the back of dosimeter.

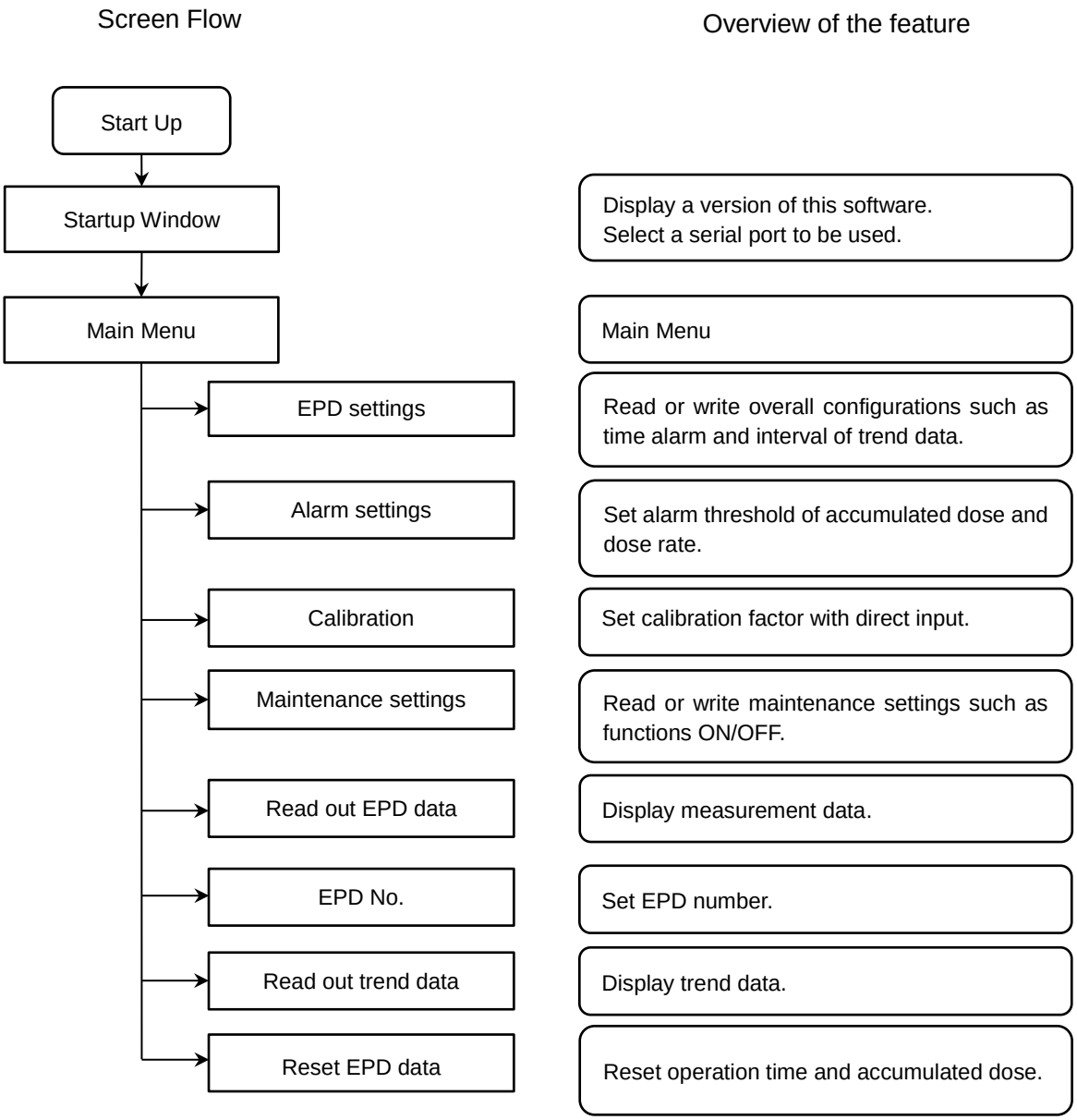


* While connecting USB, IR device does not work.

Fig. 4-1 System configuration

4 . 2 Configuration software

Functions overview of setting software is shown below:



EPD settings	See 5.4 EPD settings
Alarm settings	See 5.5 Alarm settings
Calibration	See 5.6 Calibration
Maintenance settings	See 5.7 Maintenance settings
Read out EPD data	See 5.8 Read out EPD data
EPD No.	See 5.9 EPD No.
Read out trend data	See 5.10 Read out trend data
Reset EPD data	See 5.11 Reset EPD data

4．3 Setting up

Setup the hardware first, then the software.

[IR setting device driver setups]

Installer is automatically launched, when CD attached in IR setting device (ACT-IR224UN-LN96-LE) is inserted. If not launched automatically, perform the following file.

driver¥ACT-IR224UN-DriverInstaller_v1210-20100408.exe

[USB driver setups]

Install by downloading CP210x USB to UART Bridge VCP Drivers from the following URL.

http://www.silabs.com/products/mcu/Pages/USBtoUARTBridgeVCPDrivers.aspx

[Software setups]

(1) Insert the setting software installation CD in the CD-ROM drive on PC.
(2) Launch ”**Setup.exe**” file.
(3) Install according to the instructions.

5 . Operational instruction

5 . 1 Start the configuration software

(1) Double-click the icon

Fig. 5- 1 Icon of configuration software

(2) Configuration software is launched, then, the startup window will be indicated.

Fig. 5- 2 Startup window

⚠ Attention	For IR(USB) COM port number, serial port number is assigned following serial port number on your PC (COM1,COM2) (e.g. : from COM3)

(3) Click [Start] button. Menu display appears.

* If wishing to finish, click [Exit] button, then Confirmation display appears to finish the program.

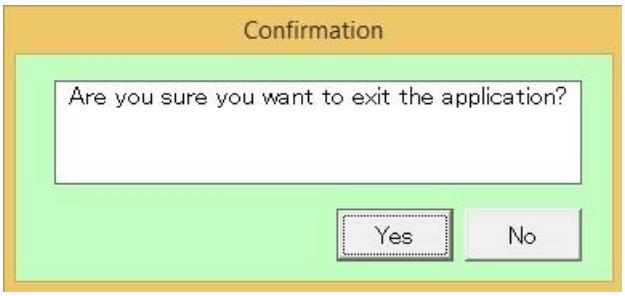


Fig. 5- 3 Confirmation display for finishing program

⚠ Attention		**Use dosimeter with power ON.** Data may be lost, if turned OFF.

5 . 2 Screen interface

The fields and buttons on the following screen are common to all windows.

See the following sections for details of each window.

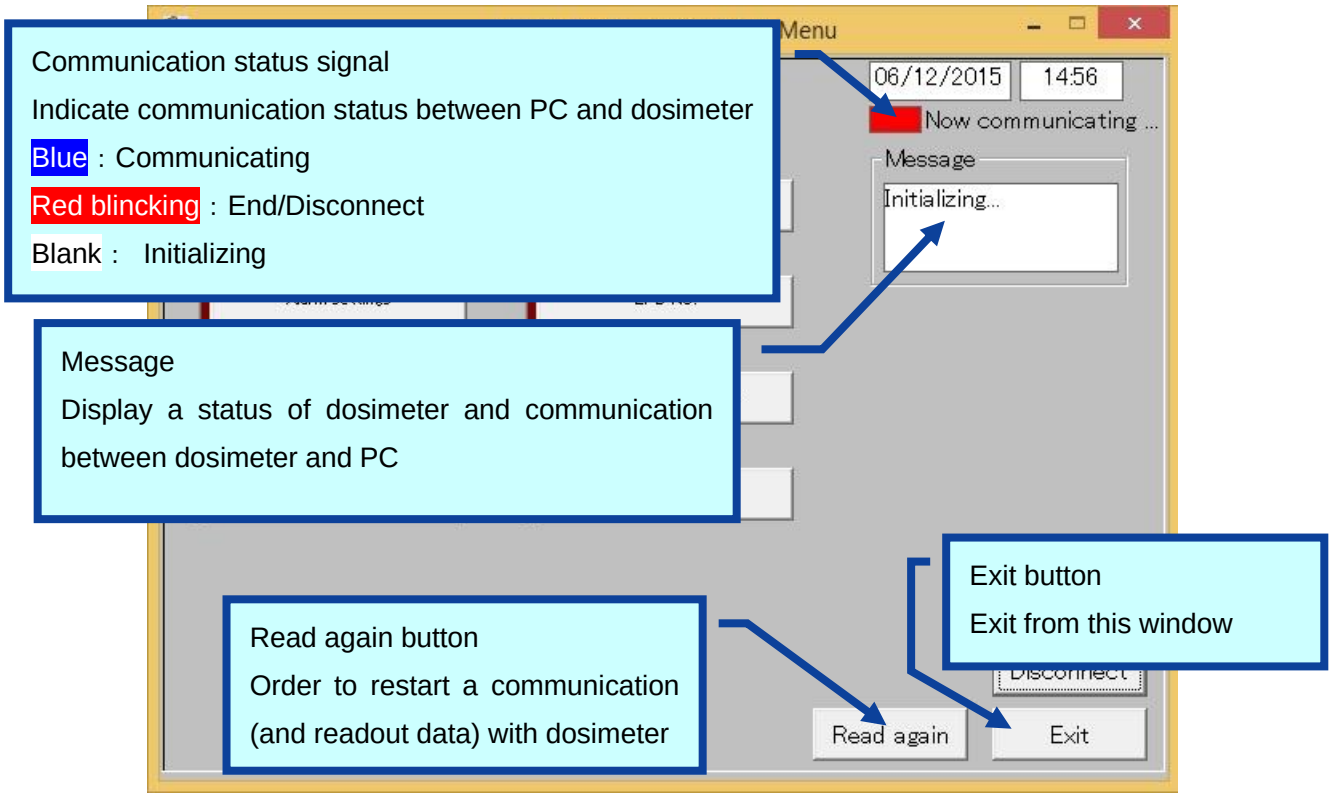


Fig. 5- 4 Common messages and layout of menu window

These messages are indicated in the Message box. Message severity is as follows;

Severity	Messages	Descriptions
1	LOW Battery	Dosimeter's battery power is critically low.
2	Please put EPD correctly	Communication with dosimeter has not been established.
3	Processed Successfully	Communication between setting device and dosimeter has been established.
4	Initializing…	In the process of establishing communication between setting device and dosimeter.

* Features on the menu will function only when dosimeter is in communication. If communication status sign is Red blincking, put EPD correctly, and then click【**Read again**】button to start/resume Data communication and confirm communication sign is Blue.

5 . 3 Main menu

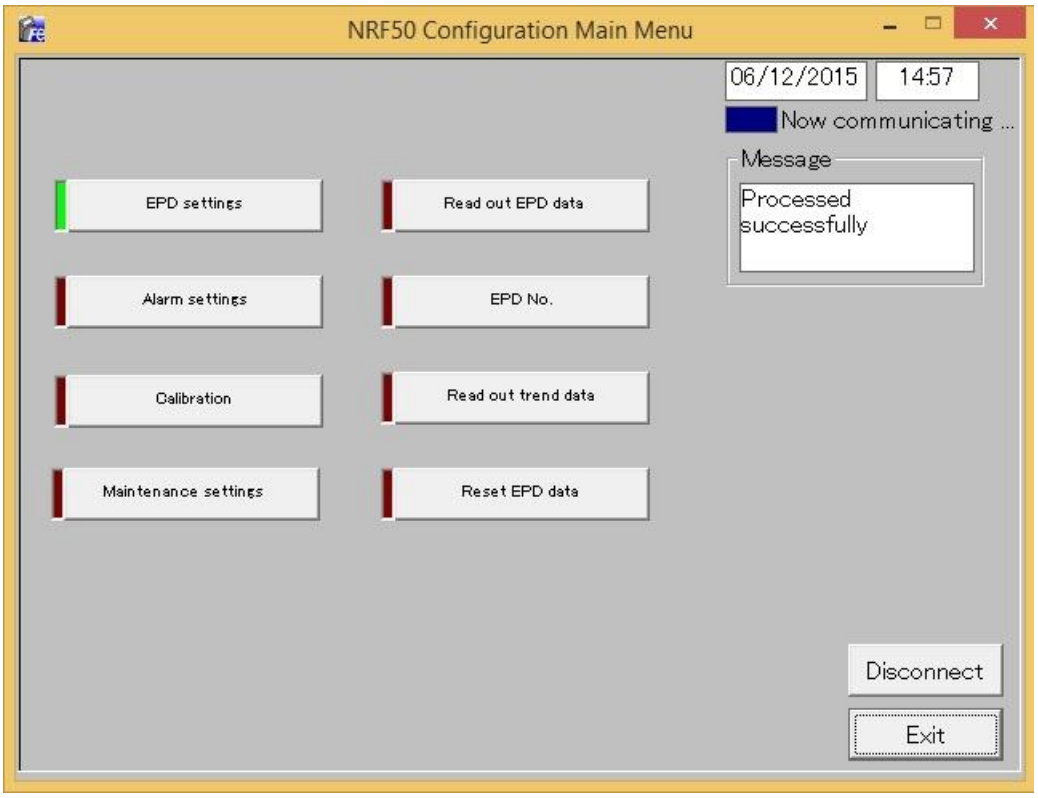


Fig. 5- 5 Main menu window

- All functions performed via data communication with dosimeter are listed.
- Select one function to go to window of the function selected.

<Menu button>

EPD settings	Go to the next window ：Fig.5-6
Alarm settings	Go to the next window ：Fig.5-7
Calibration	Go to the next window ：Fig.5-8
Maintenance settings	Go to the next window ：Fig.5-9
Read out EPD data	Go to the next window ：Fig.5-10
EPD No.	Go to the next window ：Fig.5-11
Read out trend data	Go to the next window ：Fig.5-12
Reset EPD data	Go to the next window ：Fig.5-15

<Command Button>

Read again (*)	Re-start communication with a dosimeter. If it starts communication by establishing connection, it processes data read out automatically. **(*)**This is indicated while communication is not established.
Disconnect	Finish the communication with dosimeter. After disconnect, “Read again” button is indicated.
Exit	Close the current window.

5 . 4 EPD settings

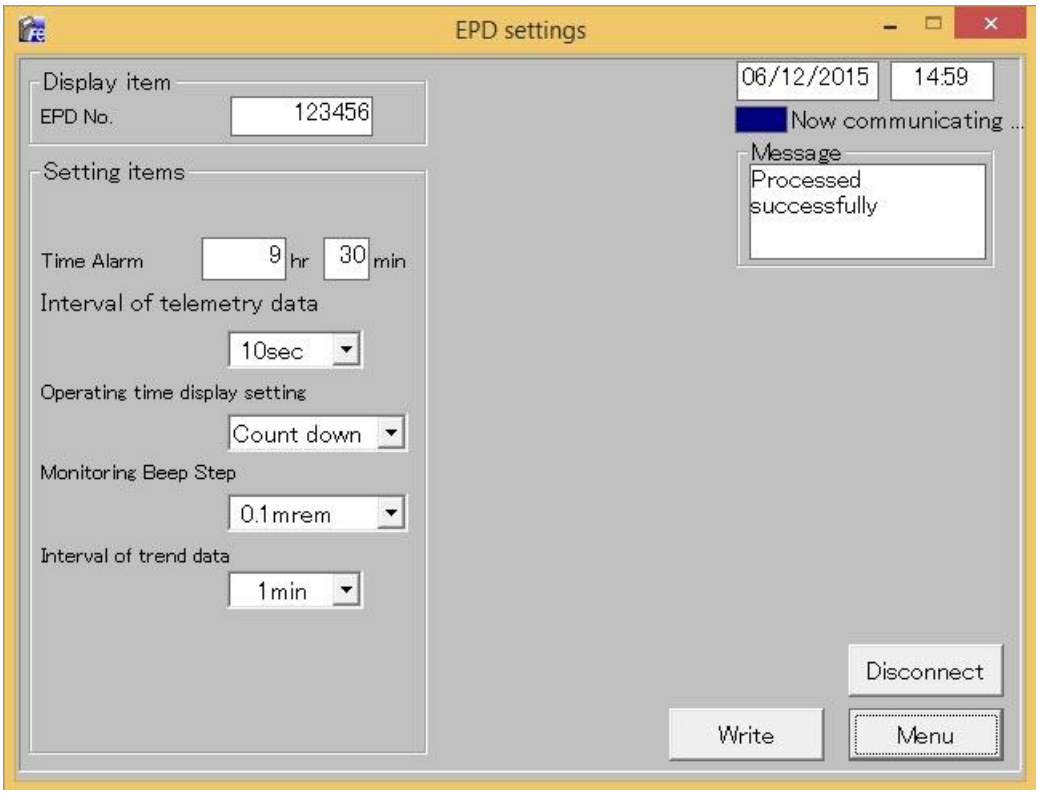


Fig. 5- 6 EPD settings window

- Configuration read out from dosimeter is displayed.
- Data can be changed and writing to dosimeter can be processed (value can be updated).

<Display item>

Item	Definition / Range and unit of functions	
EPD No.	Dosimeter Number	000001 to 999999

<Setting items>

Items	Definition / Range and unit of functions	
Time Alarm	Alarm wetting of operating time	1 min to 99 hour 59 min
Interval of telemetry data	Telemetry data transmission interval of telemetry	2 sec / 4 sec / 10 sec / 30 sec / 1 min
Operating time display setting	Display setting of operating time	Count down / Count up
Monitoring Beep Step	Beep activating intervals	OFF / 0.01 mrem / 0.02 mrem / 0.1 mrem / 1 mrem / 10 mrem
Interval of trend data	Trend data record interval	10 sec / 30 sec / 1 min / 5 min / 10 min / 30 min / 60 min / 90 min / 24 hour

<Command Button>

Read again (*)	Re-start communication with a dosimeter. If it starts communication by establishing connection, it processes data read out automatically. **(*)**This is indicated while communication is not established.
Write	Write to the communicating dosimeter so that data currently indicated is updated.
Disconnect	Finish the communication with dosimeter. After disconnect, “Read again” button is indicated.
Menu	Go back to Menu window: **Fig.5-5**

5 . 5 Alarm settings

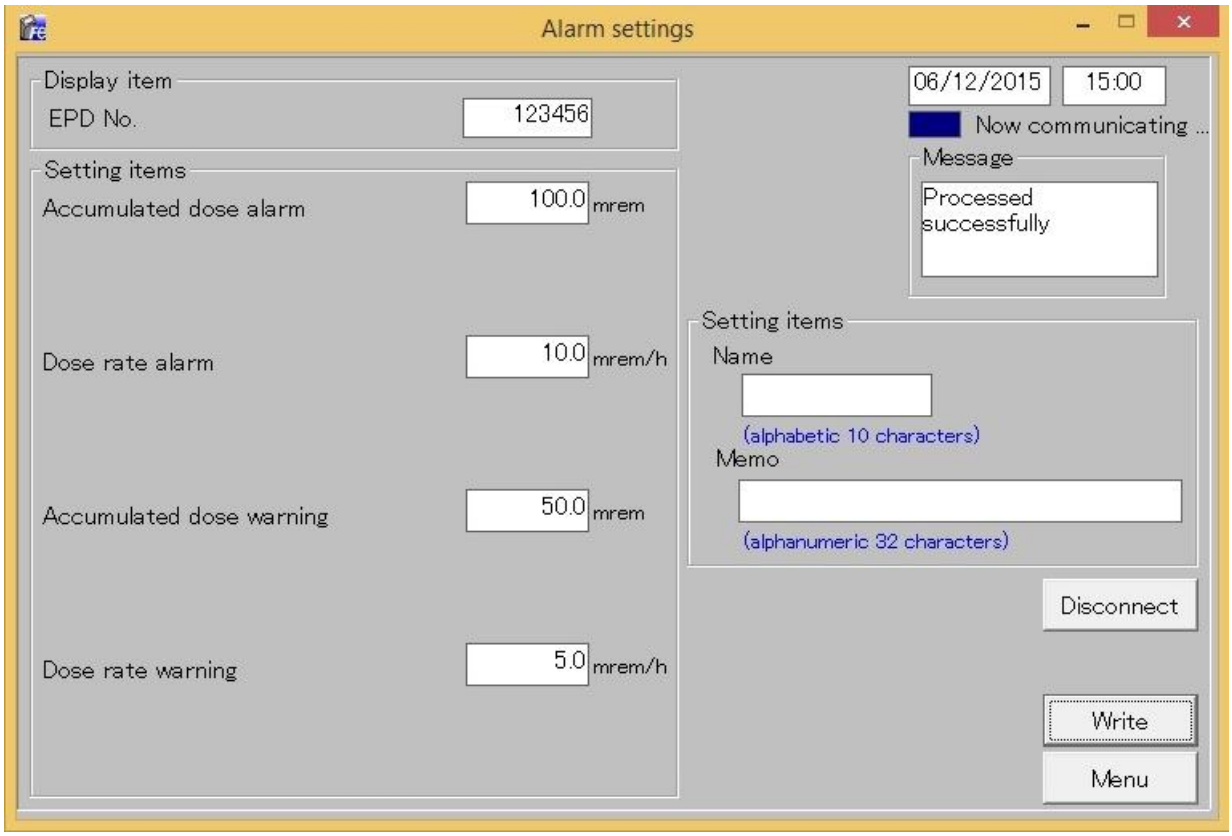


Fig. 5- 7 Alarm settings window

- Accumulated dose alarm threshold (alarm, warning(pre alarm)) and dose rate alarm threshold (alarm, warning(pre alarm)) that are readout from dosimeter, and name and memo are indicated.
- Writing to dosimeter (update) can be performed by entering accumulated dose alarm threshold, dose rate alarm threshold, name and memo.

<Display item>

Item	Definition / Range and unit of functions	
EPD No.	Dosimeter Number	000001 to 999999

<Setting items>

Items	Definition / Range and unit of functions
Accumulated dose alarm threshold	0.0 to 999999.9 mrem
Dose rate alarm threshold	0.0 to 999999.9 mrem/h
Accumulated dose warning (pre alarm) threshold	0.0 to 999999.9 mrem
Dose rate warning (pre alarm) threshold	0.0 to 999999.9 mrem/h
Name	NNNNNNNNNN (10 capital alphabetical characters)
Memo	32 alphanumeric characters

<Command Button>

Read again (*)	Re-start communication with a dosimeter. If it starts communication by establishing connection, it processes data read out automatically. **(*)**This is indicated while communication is not established.
Write	Write to the communicating dosimeter so that data currently indicated is updated.
Disconnect	Finish the communication with dosimeter. After disconnect, “Read again” button is indicated.
Menu	Go back to Menu window: **Fig. 5-5**

5 . 6 Calibration

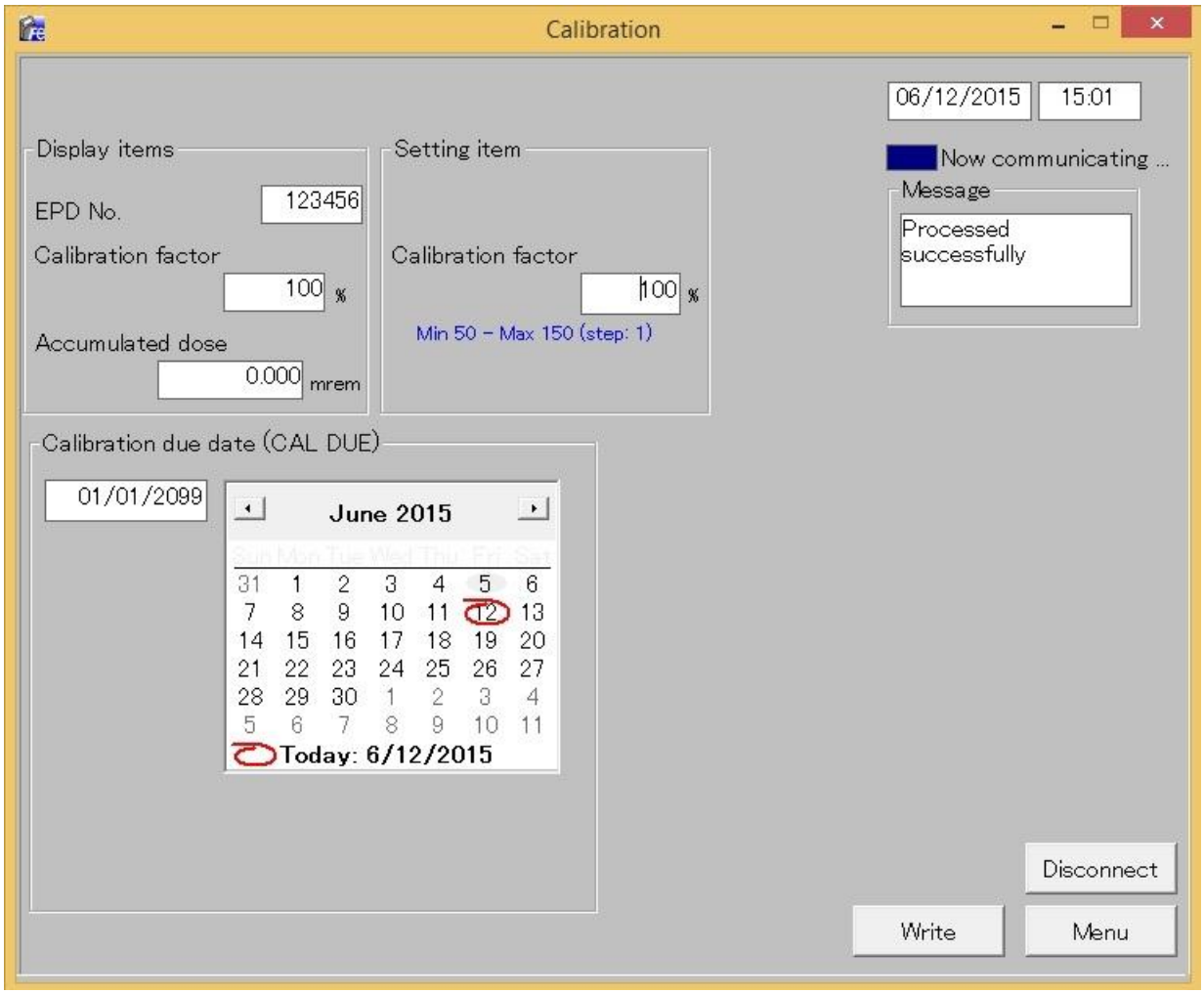


Fig. 5- 8 Calibration window

- Preview accumulated dose and calibration factor read out from a dosimeter.
- Write the calibration factor to the dosimeter directly.

<Display items>

Items	Definition / Range and unit of functions	
EPD No.	Dosimeter Number	000001 to 999999
Calibration factor	Calibration factor read out from a dosimeter	50 to 150 %
Accumulated dose	Accumulated dose of Hp(10)	0.0 to 999999.9 mrem

<Setting item>

Item	Definition / Range and unit of functions	
Calibration factor	Calibration factor for Hp(10)	50 to 150 % (Step：1)

<Calibration due date>

Item	Definition / Range and unit of functions	
Calibration due date	Setting of calibration due date by selecting the date from calendar.	MM/DD/YYYY

<Command Button>

Read again (*)	Re-start communication with a dosimeter. If it starts communication by establishing connection, it processes data read out automatically. **(*)**This is indicated while communication is not established.
Write	Write to the communicating dosimeter so that data currently indicated is updated.
Disconnect	Finish the communication with dosimeter. After disconnect, “Read again” button is indicated.
Menu	Go back to Menu window: **Fig. 5-5**

5 . 7 Maintenance settings

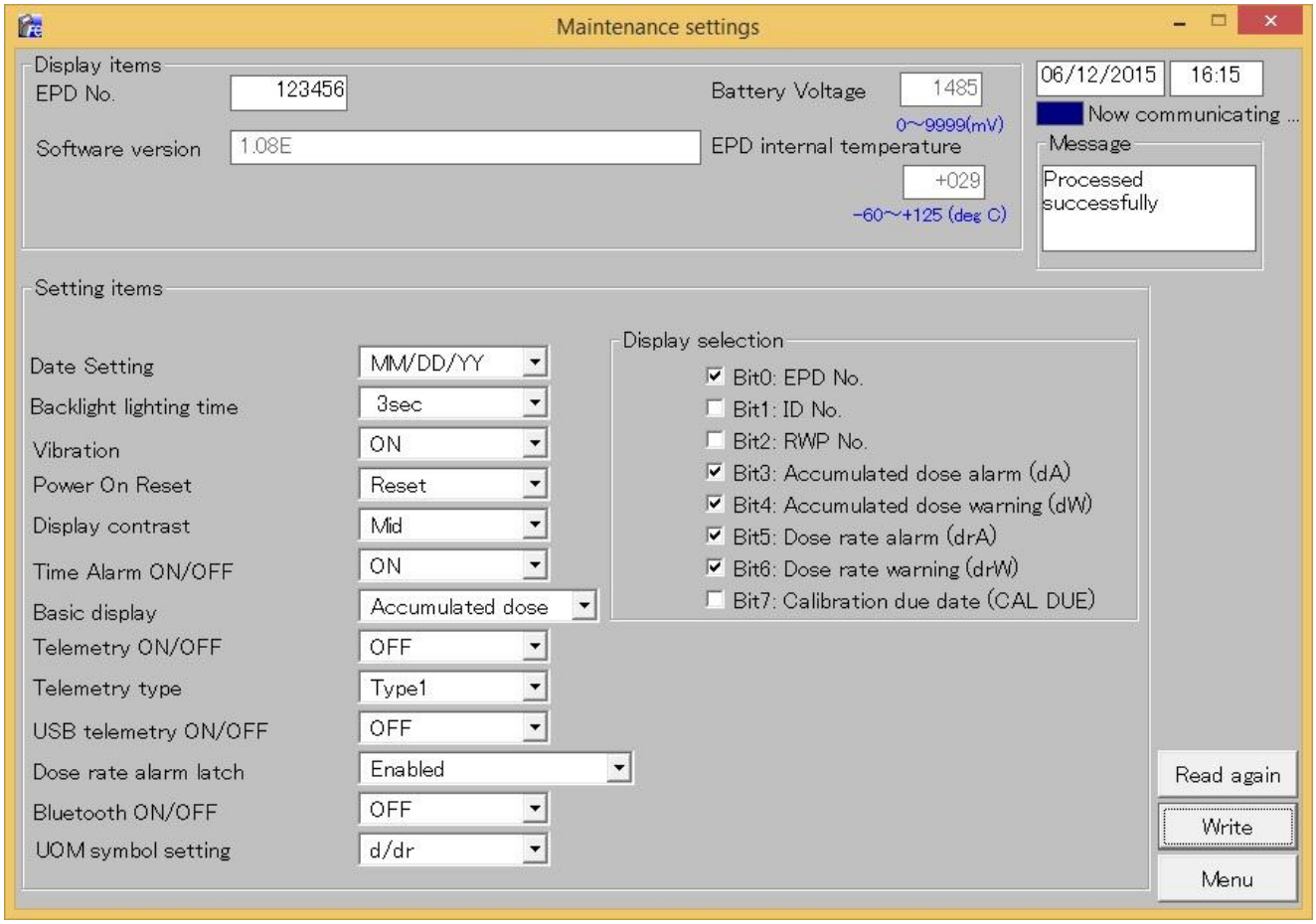


Fig. 5- 9 Maintenance settings window

<Display items>

Items	Definition / Range and unit of functions	
EPD No.	Dosimeter Number	000001 to 999999
Software version	Software version number is indicated	*.***
Battery Voltage	Battery voltage is indicated	0 to 9999 (mV)
EPD internal temperature	Inside temperature of dosimeter is indicated	-60 to +125 (deg C)

<Setting items>

Items	Definition / Range and unit of functions	
Date Setting	Setting of date indication	YY/MM/DD / DD/MM/YY / MM/DD/YY
Backlight lighting time	Set a lighting time of backlight Backlight is turned on by operating a button If button operation is not performed for a preset time, it turns off automatically	3sec / 10sec / 30sec / 60sec / Continuity
Vibration	Set ON/OFF for vibrator function	OFF / ON
Power On Reset	Reset of EPD data such as accumulated dose, when Power On	Reset / Continuity
Display contrast	Set a contrast of display	Low / Mid / Hi
Time Alarm ON/OFF	Set ON/OFF of time alarm	OFF / ON
Basic display	Set a display during Power On	Accumulated dose dose rate
Telemetry ON/OFF	Set ON/OFF for telemetry communication	OFF / ON
Telemetry type	Set a data format for telemetry communication	Type1 (48byte) / Type2 (29byte) / Type3 (64byte)
USB telemetry ON/OFF	Set ON/OFF for telemetry via USB communication	OFF / ON
Dose rate alarm latch	Alarming is continued for 10 seconds after cancellation of dose alarm	OFF / ON
Bluetooth ON/OFF	Set ON/OFF for telemetry via Bluetooth communication	OFF / ON
UOM symbol setting	Setting of unit of measurement symbol	D/DR / d/dr
Display selection	Display selection of each number indicating display	Check:Show, Blank:Hide

<Command Button>

Read again (*)	Re-start communication with a dosimeter. If it starts communication by establishing connection, it processes data read out automatically. **(*)**This is indicated while communication is not established.
Write	Write to the communicating dosimeter so that data currently indicated is updated.
Disconnect	Finish the communication with dosimeter. After disconnect, “Read again” button is indicated.
Menu	Go back to Menu window: **Fig. 5-5**

5 . 8 Read out EPD data

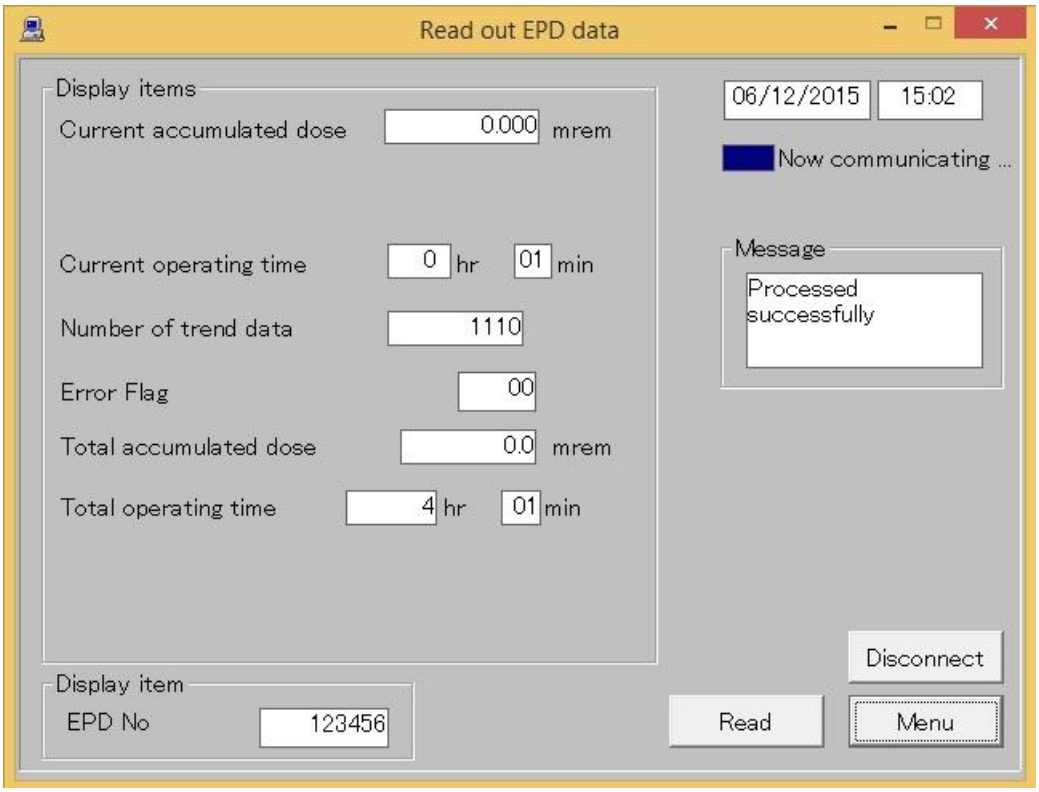


Fig. 5- 10 Read out EPD data window

- Measurement data read out from dosimeter is indicated.

<Display items>

Items	Definition / Range and unit of functions	
EPD No.	Dosimeter Number	000001 to 999999
Current Accumulated dose	Accumulated dose of Hp(10)	0.000 to 9999999.999 mrem
Operating time	Operation time of the dosimeter	0hr 00min to 99hr 59min
Number of Trend data	Number of trend data currently stored	0 to 4000

Items	Definition / Range and unit of functions	
Error Flag	Occurrence status of error This is indicated in Exist:1 Not exist:0 for each bit bit is indicated in hex	bit0: LOW Battery bit1: Calibration due expiration bit2: Memory failure bit3: Abnormal inner temperature bit4: RTC failure bit5: Communication error bit6: Detector failure bit7: 0 (reserved)
Total accumulated dose	Accumulated dose after previous Reset	0.0 to 9999999.9 mrem
Total operation time	Accumulated operation time after previous Reset	0hr 00min to 999999hr 59min

<Command Button>

Read again (*)	Re-start communication with a dosimeter. If it starts communication by establishing connection, it processes data read out automatically. **(*)**This is indicated while communication is not established.
Disconnect	Finish the communication with dosimeter. After disconnect, “Read again” button is indicated.
Menu	Go back to Menu window: **Fig. 5-5**

5 . 9 EPD No.

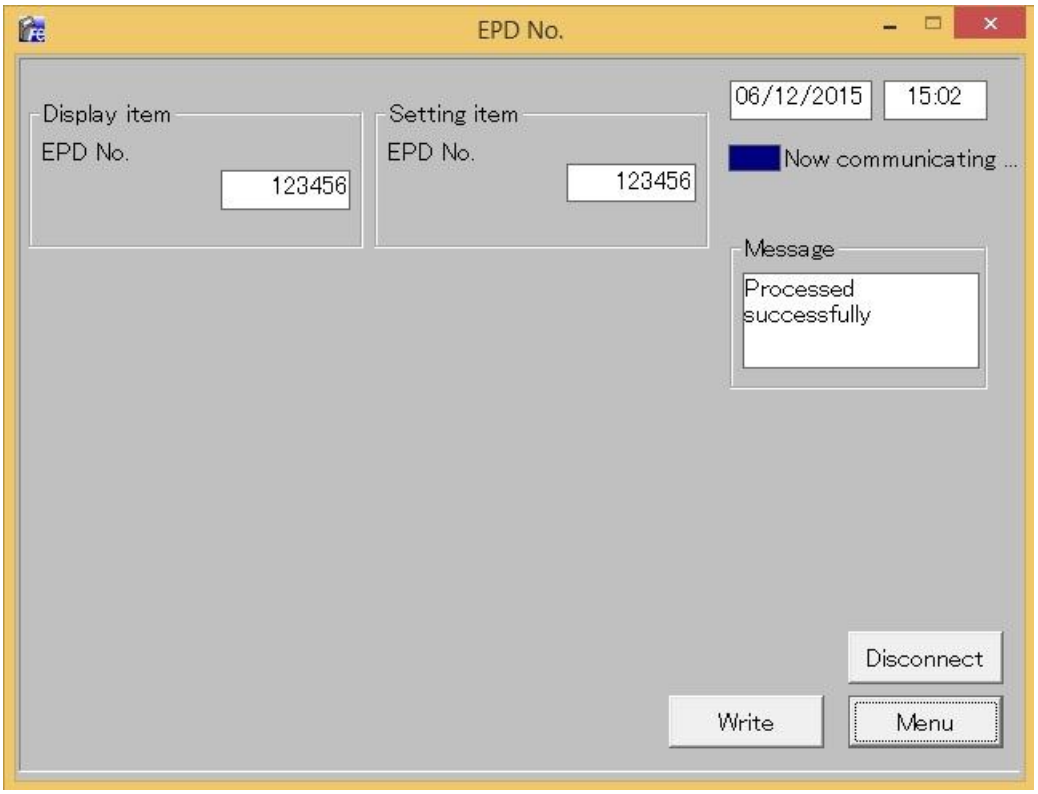


Fig. 5- 11 EPD No. window

<Display item>

Item	Definition / Range and unit of functions	
EPD No.	Dosimeter Number	000001 to 999999

<Setting item>

Item	Definition / Range and unit of functions	
EPD No.	Dosimeter Number	000001 to 999999

<Command Button>

Read again (*)	Re-start communication with a dosimeter. If it starts communication by establishing connection, it processes data read out automatically. **(*)**This is indicated while communication is not established.
Write	Write to the communicating dosimeter so that data currently indicated is updated.
Disconnect	Finish the communication with dosimeter. After disconnect, “Read again” button is indicated.
Menu	Go back to Menu window: **Fig. 5-5**

5．10　Read out trend data

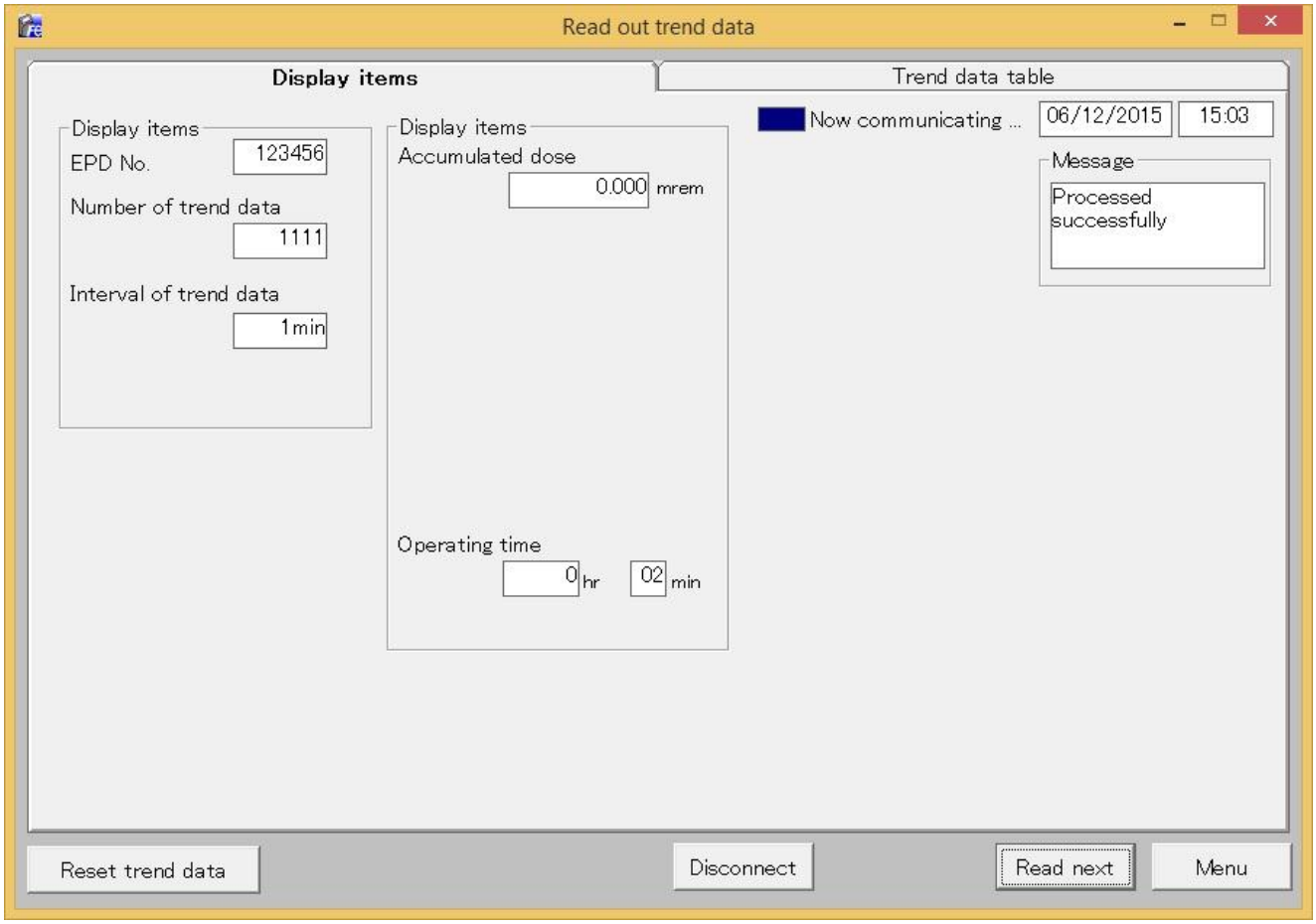


Fig. 5- 12 Read out trend data (display items) window

- Trend data (display items) read out from dosimeter is indicated.

<Display items>

Items	Definition / Range and unit of functions	
EPD No.	Dosimeter Number	EPD No.
Number of trend data	Number of trend data currently stored	0 to 4000
Interval of trend data	Trend data record interval	10 sec / 30 sec / 1 min / 5 min / 10 min / 30 min / 60 min / 90 min / 24 hour
Accumulated dose	Accumulated dose of Hp(10)	0.000 to 999999.999 mrem
Operating time	Operation time of the dosimeter	0hr 00min to 99hr 59min

<Command Button>

Reset trend data	Clear and reset trend data.
Read again (*)	Re-start communication with a dosimeter. If it starts communication by establishing connection, it processes data read out automatically. **(*)**This is indicated while communication is not established.
Read next	Starts reading out again for data display. This will be executed from initializing the already established communication even during transmission.
Disconnect	Finish the communication with dosimeter. After disconnect, “Read again” button is indicated.
Menu	Go back to Menu window: **Fig. 5-5**

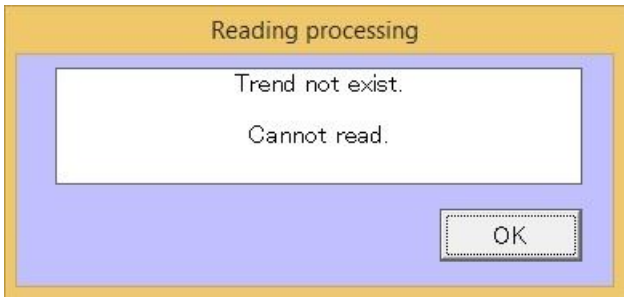


Fig. 5- 13 Error message window

⚠ Attention	The prompt window <Reading processing> will appear during data readout if a new trend does not exist. You need to wait until a data trending step given in the EPD settings window has passed, and then start data readout.

5 . 1 0 . 1 Trend data table

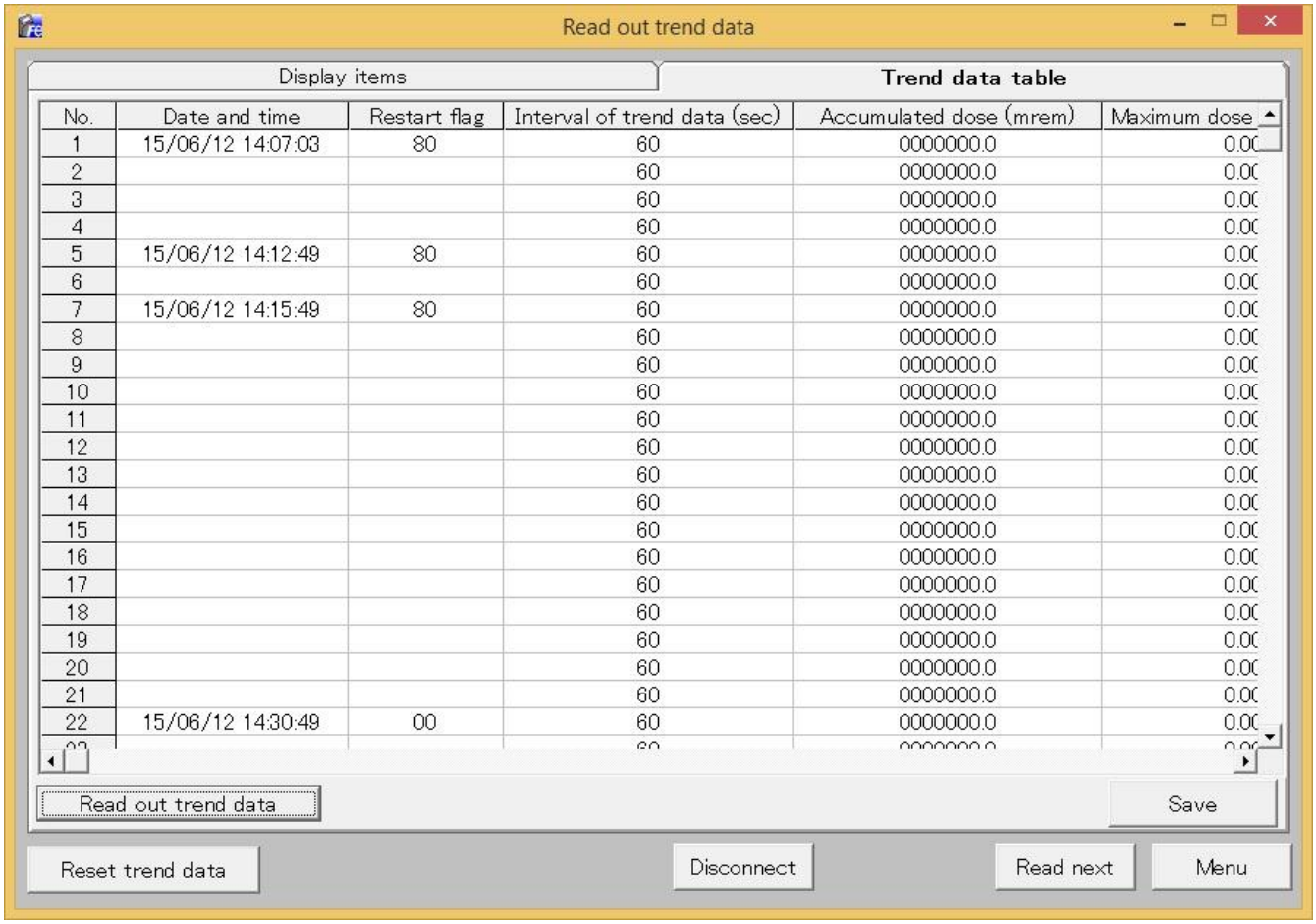


Fig. 5- 14 Read out trend data (trend data table) window

- Preview the trend data read out from the dosimeter.

<Display items>

Items	Definition / Range and unit of functions	
No.	Trend data No.	1 to 4000
Date and time	Time of trend data acquisition added per max. of 15 data	YY/MM/DD HH:MM:SS
Restart flag	Continue or Restart	00 : Continue 80 : Restart
Interval of trend data (sec)	Trend data record interval	10 / 30 / 60 / 300 / 600 / 1800 / 3600 / 5400 / 86400
Accumulated dose (mrem)	Accumulated dose of Hp(10)	0.0 to 999999.9

Items	Definition / Range and unit of functions	
Maximum dose rate (mrem/h)	Maximum dose rate in the interval of trend data	0.00E0 to 9.99E6
Error Flag	Occurrence status of error This is indicated in exist:1 not exist:0 for each bit 8bit is indicated in hex	bit0: LOW Battery bit1: Calibration due expiration bit2: Memory failure bit3: Abnormal inner temperature bit4: RTC failure bit5: Communication error bit6: Detector failure bit7: 0 (reserved)
Alarm Flag	Occurrence status of error This is indicated in exist:1 not exist:0 for each bit 8bit is indicated in hex.	bit0: Time alarm bit1: Emergency alarm bit2: Accumulated dose overload bit3: Dose rate overload bit4: Accumulated dose alarm bit5: Dose rate alarm bit6: Accumulated dose warning bit7: Dose rate warning

<Command Button>

Read out trend data	All stored trend data is read out.
Save	Stored trend data is all stored in a file.
Reset trend data	Clear and reset trend data.
Read again (*)	Re-start communication with a dosimeter. If it starts communication by establishing connection, it processes data read out automatically. **(*)**This is indicated while communication is not established.
Read next	Starts reading out again for data display. This will be executed from initializing the already established communication even during transmission.
Disconnect	Finish the communication with dosimeter. After disconnect, “Read again” button is indicated.
Menu	Go back to Menu window: **Fig. 5-5**

5 . 1 1 Reset EPD data

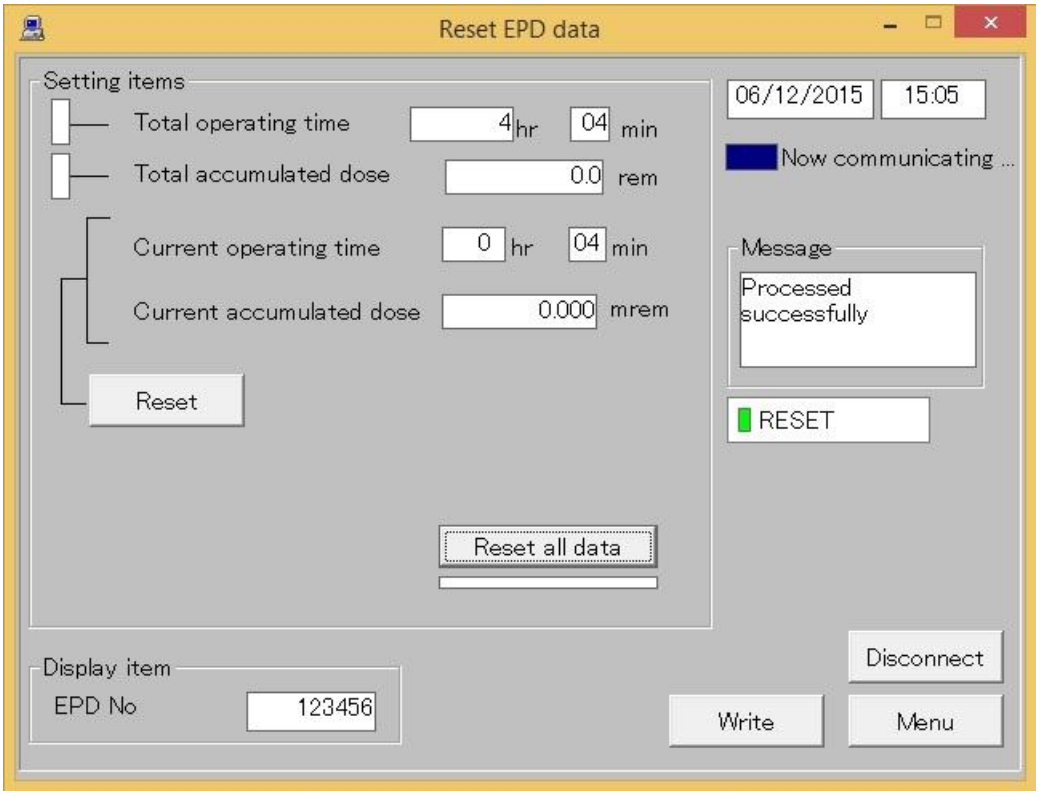


Fig. 5- 15 Reset EPD data window

<Display item>

Item	Definition / Range and unit of functions	
EPD No.	Dosimeter Number	000001 to 999999

<Command Button>

Read again (*)	Re-start communication with a dosimeter. If it starts communication by establishing connection, it processes data read out automatically. **(*)**This is indicated while communication is not established.
Total operating time	Total operation time. Added to Reset data by double-clicking a corresponding white box.
Total accumulated dose	Total accumulated dose. Added to Reset data by double-clicking a corresponding white box.
Reset - Current operating time - Current accumulated dose	Reset current operating time and accumulated dose data.
Reset all data	All data is added to Reset data.
Write	Reset of selected data is performed.
Disconnect	Finish the communication with dosimeter. After disconnect, “Read again” button is indicated.
Menu	Go back to Menu window: **Fig. 5-5**

6 . Troubleshooting

Response to message on pop up window

(1) Communication error

Indicates communication error between a computer and a Dosimeter Setting Device.

・During computer start up, processing, or error occurrence between a computer and a Dosimeter Setting Device

Error	Suggested Solution
<Establishing communication> Error message	Check the cable connection. Check the position of dosimeter and setting device.
<Status process> No response	Check the cable connection. Check the position of dosimeter and setting device.

・For communication error during data readout from dosimeter

Error	Suggested Solution
<Reading Process> Error message	Retry reading out.
<Reading Process> No response	Check the connection with cable.
<Reading Process> Trend not exist. Cannot read.	No Trend data. Create Trend data first, and then read out.

・For communication error during writing configurations to the dosimeter

Error	Suggested Solution
<Writing Process> Error message	Process reading out, first. Check the cable connection. Check the position of dosimeter and setting device.
<Writing Process> No response	Process reading out, first. Check the cable connection.

★ Please restart PC if the errors not listed in this section occurred.

(2) Internal error

Error detected inside a computer is indicated.

・At starting of writing / Occurrence of abnormality on configuration range:

Error	Suggested Solution
Input error of **** value. Re-enter the correct value.	Value of **** within the invalid range. Re-enter the value within the valid range

(3) Error during at communication start:

Errors detected by a computer internal check when attempted to write, or to readout trend data.

・When attempting writing process.

Error	Suggested Solution
No response	Start reading process, first.

・Error when attempted to reading out trend data

Error	Suggested Solution
No response	Cancel the trend data readout, then start regular reading process.

★ Please restart PC if the errors not listed in this section occurred.

7 . Abnormalities and response to alarms

Problem	Solution
Cannot establish communication.	May not connected properly. Check the cable connection. Please contact Fuji Electric if experiencing frequent communication errors.

8 . Maintenance

Check the Setting Device as specified below to ensure its performance.

To be checked:	Procedures
Infrared communication	Put close dosimeter to the IR Head and check the communication. Check every six months, or every time a communication error occurs.
USB communication	Connect USB cable to dosimeter and check the communication. Check every six months, or every time a communication error occurs

★ Your Comment ★

Dear customers,

Any comments/ requests/ suggestions regarding our instruction manual? Please feel free to contact us by filling out this form and give to our sales representative.

Document No	TN5A2294
Name of manual	Setting Device for NRF50 User's Manual

Date		/ /
Submitted by	Company	
	Dept	
	Name	

Page	Line	Description
		Comments, requests, questions, doubts (error, more info needed, terminology not consistent, typos) ……Put with ○

Manufacturer	Received by		Received date	/ /	Receipt #	