Instruction Manual

Dosimeter Setting Device

For Electronic Personal Dosimeter

Dose-i

(Unit:rem, Version:1.06 English)

Fuji Electric Co., Ltd.

Foreword

Thank you for purchasing the Dosimeter Setting Device; a product by Fuji Electric Co., Ltd. This User's Manual is intended to provide the descriptions of system configuration, procedures for software installation, functions, and operational instructions for proper use of this product. Please read this manual carefully before operating.

Notes on Safety

	**Do not use the Setting Device if any smoke, odor, or noise is present.**
	**Do not insert cable connector to wrong port.**
	**Do not use cables other than provided.**
	**Do not disassemble, repair, or alter the Dosimeter Setting Device.**
 **CAUTION**	
	**Do not turn off the dosimeter during use.** **Measurement data may be lost when power is turned off.**

Table of Contents

1. Introduction

1.1 Overview

The Dosimeter Setting Device displays and updates the operation parameters in Electronic Personal Dosimeter via infrared data communication interface with the dosimeter.

The measurement trend data can be read out from the dosimeter by this Setting Device.

The software of the Dosimeter Setting Device is based on the Microsoft® Windows® operating system.

1.2 Product Package

(1) PC software (supplied as CD)	1
(2) Infrared communication cable	1
(3) Instruction manual (This document)	1

2. Mechanical Characteristics

2.1 General

(1) Basic functions:

a. Reading out operation parameters and measurement data from dosimeters

b. Displaying trend data as data table or graph on the screen and downloading as EXCEL sheet

c. Writing operation parameters to dosimeters

(2) Communicate with : Electronic Personal Dosimeter Dose-i

(3) Temperatures : 0 to 40°C

(4) Humidity : 30 to 85%

(5) Power supply : DC4.5 to 6.0 V (supplied from connected computer)

2.2 Required Environment

The following requirements are applied to (1) hardware and (2) software, respectively.

(2) Hardware

Personal Computer (hereinafter, PC) that meet the following specifications

- CPU : 2GHz, or more
- Memory : 1GB, or more
- Hard Drive : Free disc space of 20 MB, or more
- Display : Resolutions 800 × 600, or more
- Communications Interface : USB × 1ch
- Others : Mouse and keyboard

(2) Software

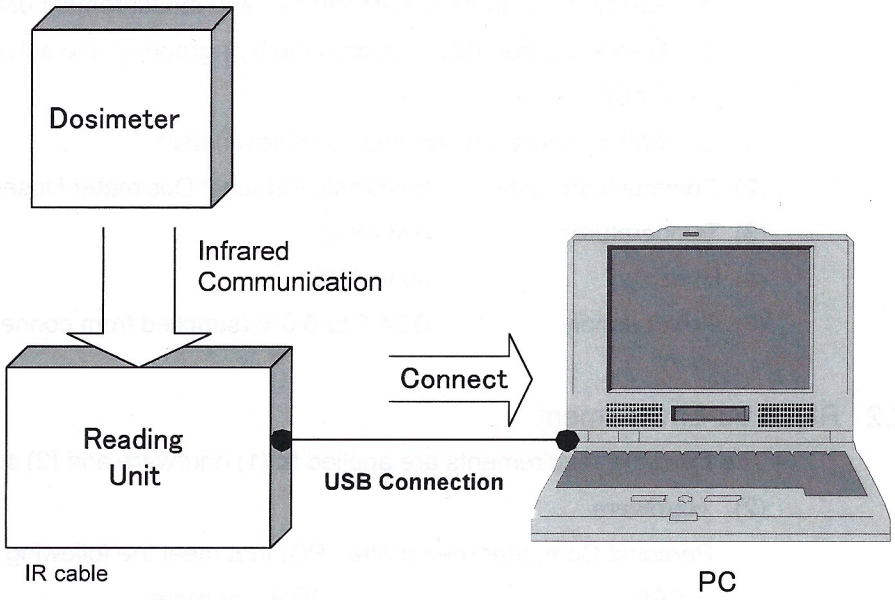
The PC mentioned in (1) should have the following software installed.

- Operating system : Windows® 8/8.1/10 operating system
- Others : Microsoft® Office (EXCEL)

3. System Configuration and Installation

3.1 System Configuration

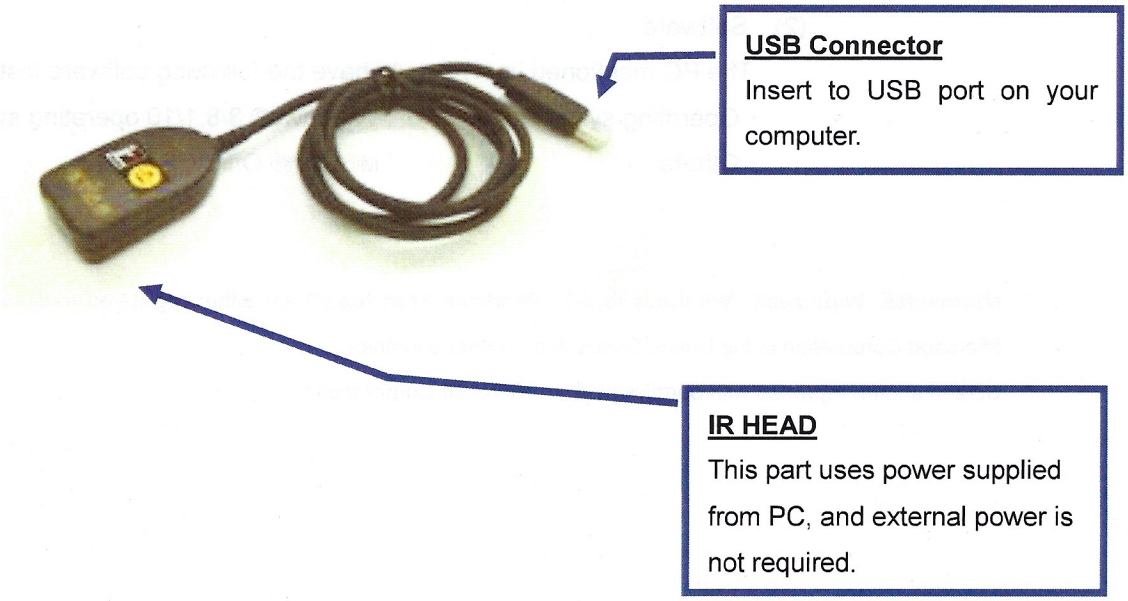
Dosimeter setting device are consist of infrared communication cable (hereinafter "IR cable") and PC which installed the dosimeter setting device software.



System Configuration

3.2 Product Configuration

The configuration of the IR cable



IR Cable Configuration

3.3 Installation and Setup

Driver for IR cable and dosimeter setting device software are needed for using this software.

3.3.1 Installation procedure for IR cable driver

The installation procedure for IR cable driver is

(1) Insert the driver CD attached to IR cable into the CD-ROM drive of PC,

(2) and install according to installation manual.

3.3.2 Installation procedure for dosimeter setting device software

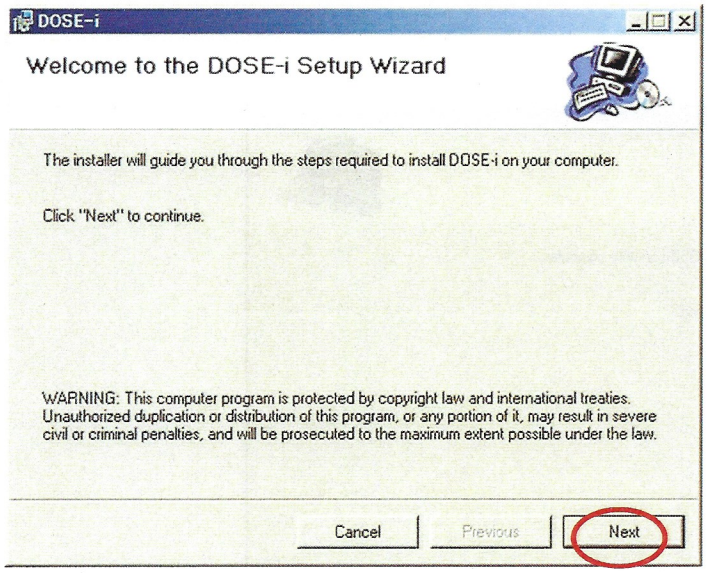
The installation procedure for dosimeter setting device software is as follows.

(1) Insert the installation CD into the CD-ROM drive of PC.

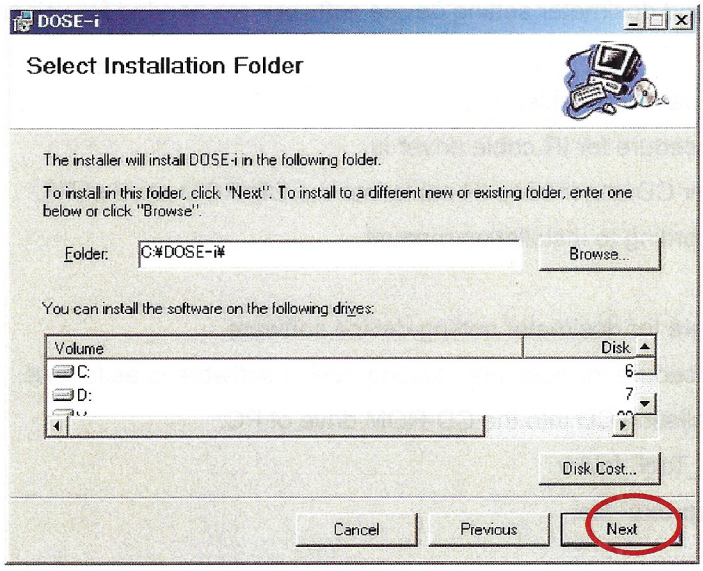
(2) Click "DOSE-i_Tool" folder.

(3) Execute "**Setup.exe**" file.

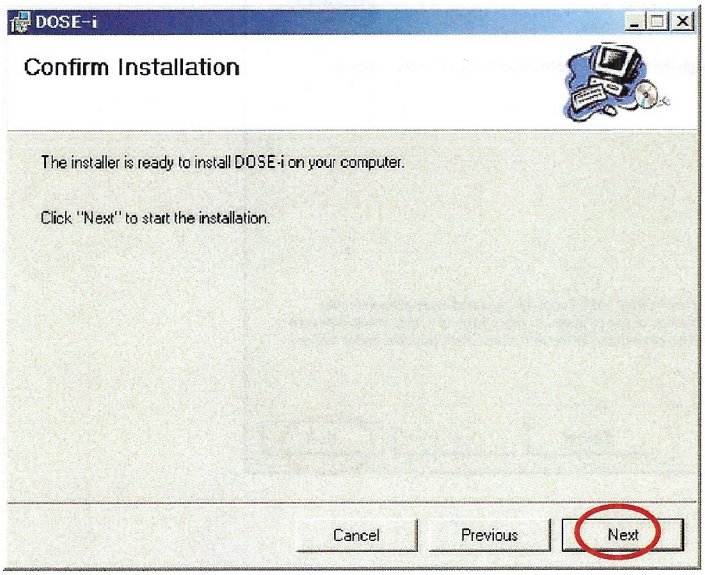
Click "Next".



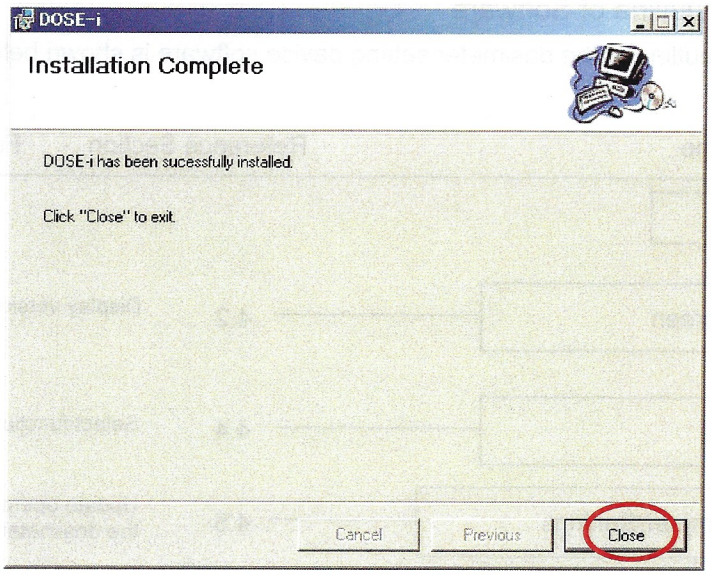
Choose an installation directory, and then click "**Next**".



Click "Next".



Click “Close”.



3.3.3 Hardware setup procedure

The Hardware setup procedure is as follows.

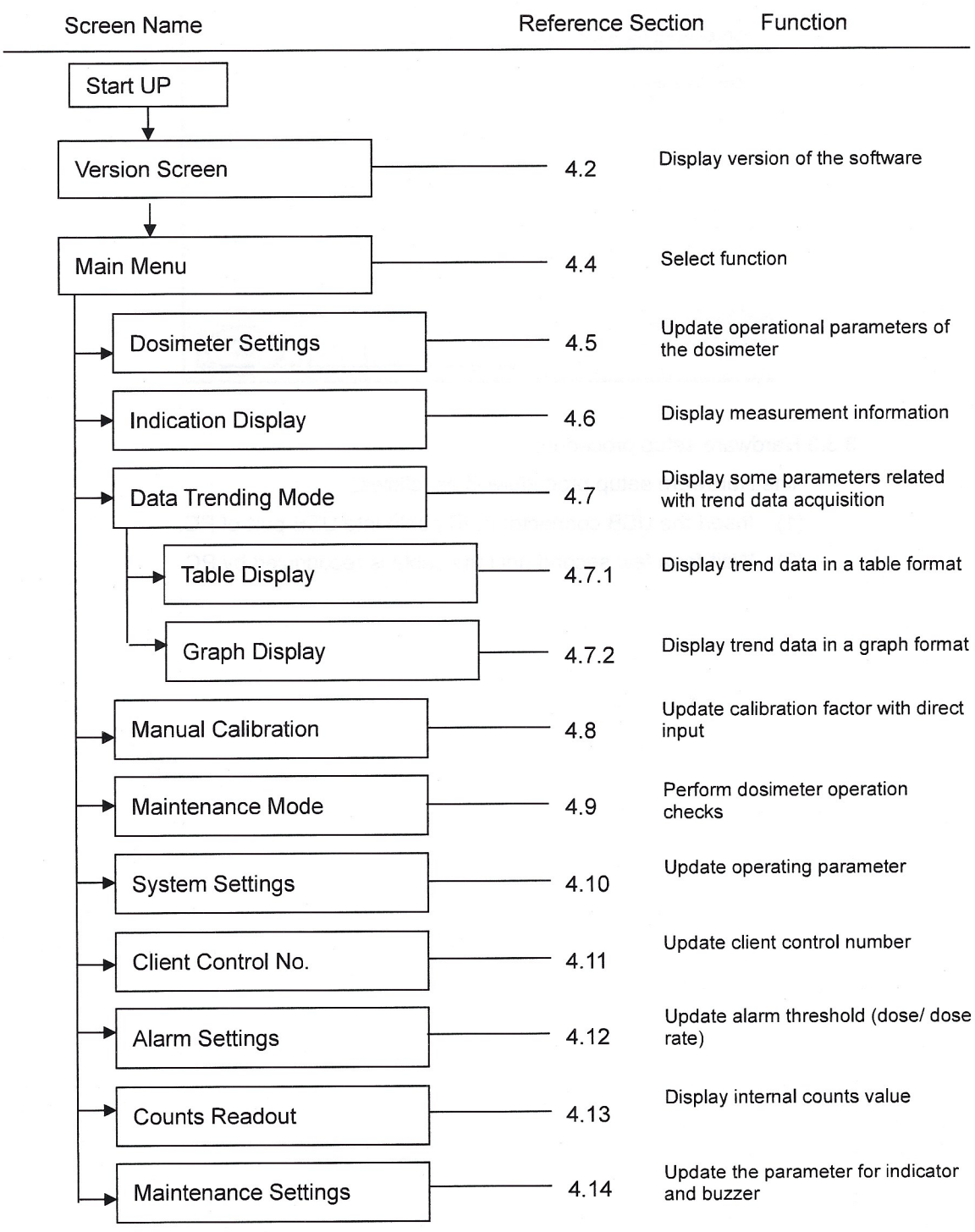
(1) Insert the USB connector of IR cable into USB port of PC.

(2) Wait for a few second until the cable is recognized by PC.

4. Operational Instructions

4.1 Functional Outline of Software

Functional outline of the dosimeter setting device software is shown below:

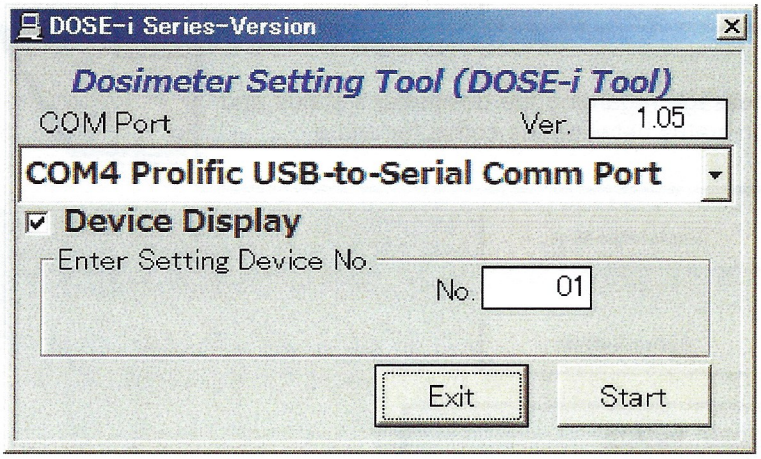


4.2 Starting the Software Operation

(1) Select the icon [DOSE-i]

Software icon

(2) The software starts running, then the Version scree will appear.
Select the right COM port that IR cable is connected with and click “Start”.

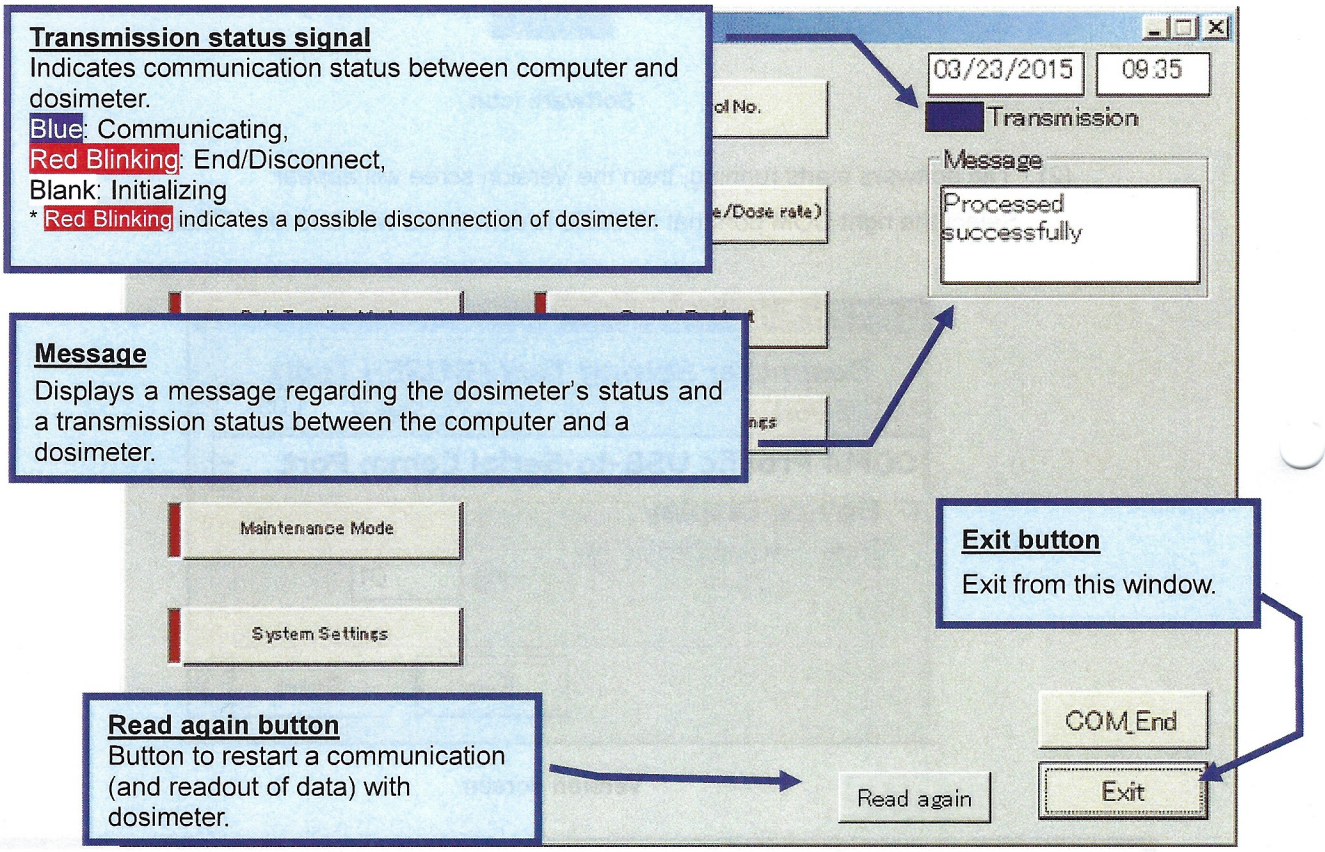


Version screen

⚠ **CAUTION**	For COM port number that IR cable is connected with, please check the correct COM port number by device manager function on the PC.

4.3 Screen Interface

The fields and buttons on the following screen are common to all Screens. See the following sections for details of each Screen.



Common features of the menu screen (functions and layout)

The following messages will be indicated in the Message box.

Severity	Messages	Descriptions
1	LOW Battery	Dosimeter's battery power is critically low.
2	Please place Dosimeter into Reader	Communication with dosimeter has not been established yet.
3	Maintenance mode	Dosimeter is in Maintenance mode.
4	Processed Successfully	Communication between the setting device and dosimeter has been established.
5	Initializing...	In the process of establishing communication between the setting device and a dosimeter.

* **Note:** Features on the menu will function only when the dosimeter is in communication. If "Transmission" is Red Blinking, place/replace the dosimeter, and then click "Read again" button. Data communication will be started/resumed, and "Transmission" will become Blue.

4.4 Main Menu

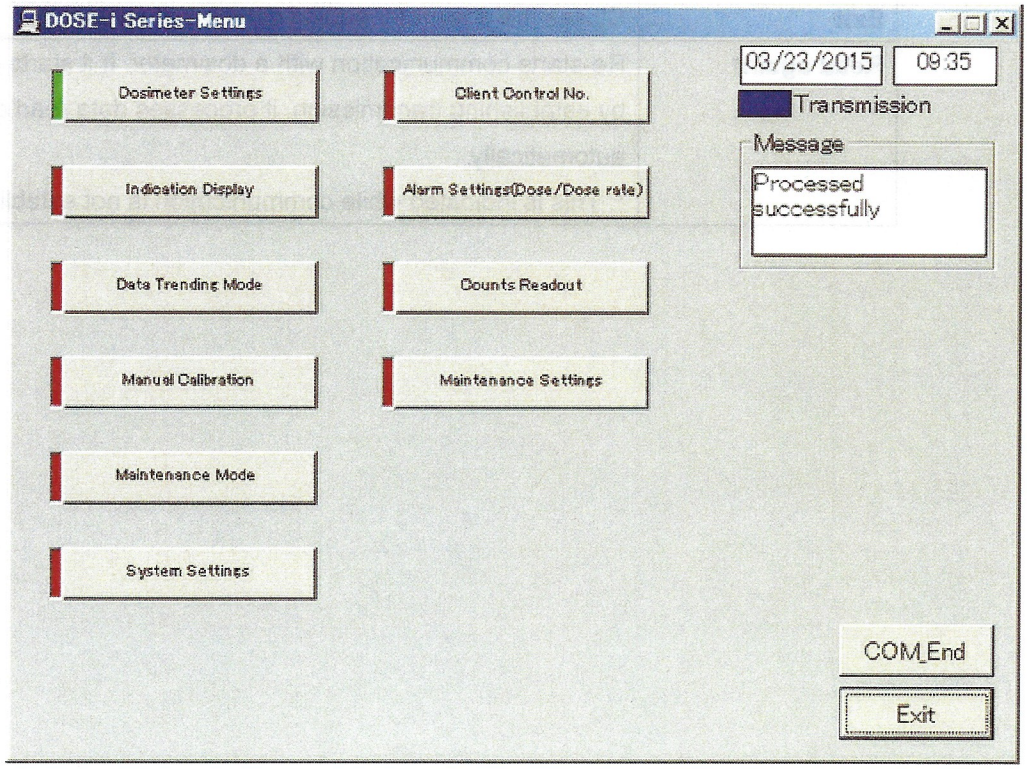


Fig. 4-1 Main Menu Screen

-- All functions that are performed via data communication with dosimeters are displayed.

-- Turned into green by first click and go to the screen of the selected function by second click.

<Menu Button>

Dosimeter Settings	Goes to the next Screen: Fig. 4-2
Indication Display	Goes to the next Screen: Fig. 4-3
Data Trending Mode	Goes to the next Screen: Fig. 4-4-1
Manual Calibration	Goes to the next Screen: Fig. 4-5
Maintenance Mode	Goes to the next Screen: Fig. 4-6
System Settings	Goes to the next Screen: Fig. 4-7
Client Control No.	Goes to the next Screen: Fig. 4-8
Alarm Settings	Goes to the next Screen: Fig. 4-9
Counts Readout	Goes to the next Screen: Fig. 4-10
Maintenance Settings	Goes to the next Screen: Fig. 4-11

<Command Button>

COM_End	Finishes the communication with a dosimeter.
Exit	Closes the dosimeter setting device software.
Read again*	Re-starts communication with a dosimeter. If it starts communication by establishing transmission, it processes data read out automatically. *: This is indicated while communication is not established.

4.5 Dosimeter Settings

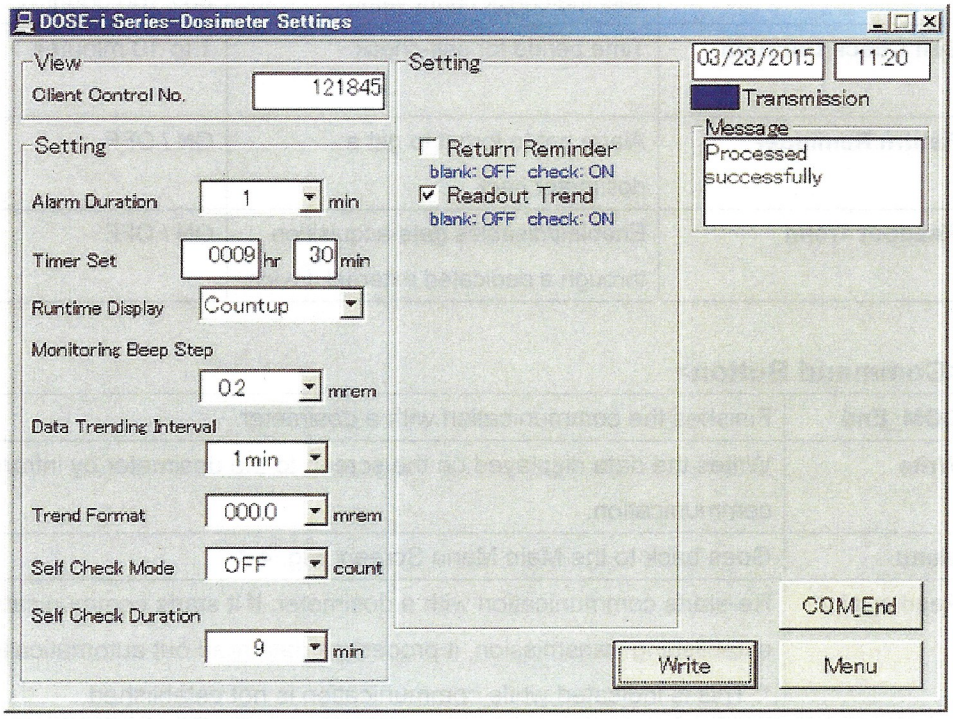


Fig. 4-2 Dosimeter Settings Screen

-- Display the operational parameters which are read out from the dosimeter.

-- Write the edited settings data to the dosimeter by click "Write" button.

<View>

Name	Definition, range and unit of the functions	
Client Control No.	Dosimeter ID. number	000001 to 999999

<Setting>

Name	Definition, range and unit of the functions	
Alarm Duration	Alarm duration length	1 to 9 min
Timer Set	Alarm threshold for operation time	0000h:01min to 9999h:59min
Runtime Display	Mode selection for indicating operation time	Count down / Count up
Monitoring Beep Step	Beep activation intervals according to the dose increment.	OFF / 0.1 / 0.2 / 1 / 10 mrem
Data Trending Interval	Data Trending intervals	15 sec/ 30 sec/ 1 min/ 5 min/ 10 min/ 30 min/ 60 min/ 90 min
Trend Format	Shifts the decimal point for data trending	000.0 / 0000 mrem

Self Check Mode	Enables/disables self-check, and sets the check count value	OFF / 1 / 3 / 5 / 10 / 20 / 40 / 80 / 100 count
Self Check Duration	Time period for self-check	1 to 10 minutes
Return Reminder	Alarm not to forget to get a dosimeter back	ON / OFF
Readout Trend	Enables/disables data acquisition through a dedicated external device.	ON / OFF

<Command Button>

COM_End	Finishes the communication with a dosimeter.
Write	Writes the data displayed on the screen to the dosimeter by infrared communication.
Menu	Goes back to the Main Menu Screen: Fig. 4-1
Read again*	Re-starts communication with a dosimeter. If it starts communication by establishing transmission, it processes data read out automatically. *: This is indicated while communication is not established.

4.6 Indication Display

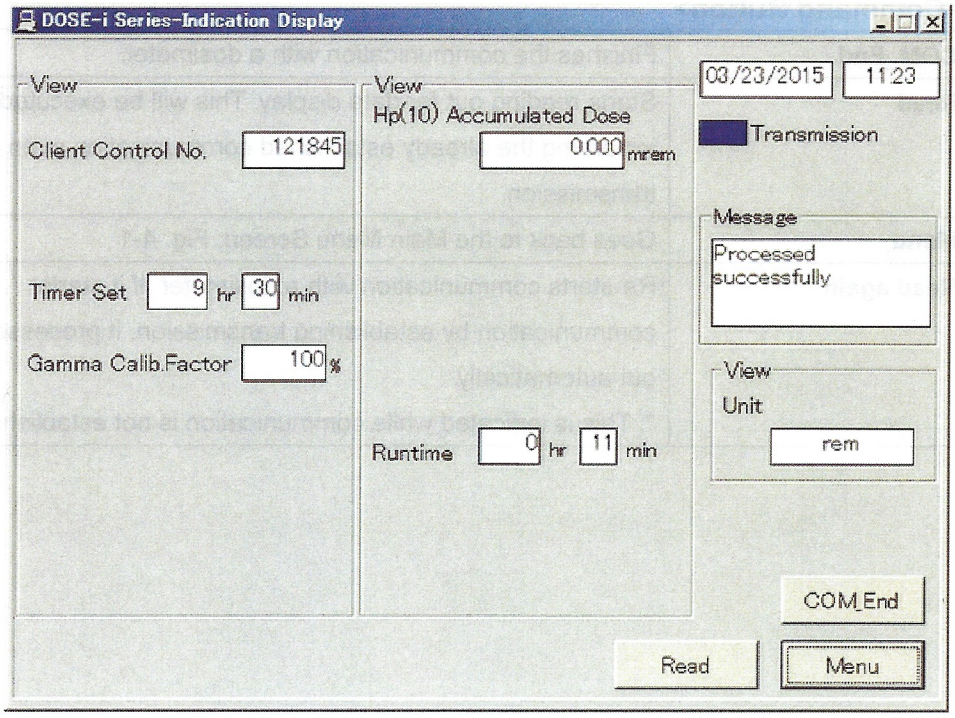


Fig. 4-3 Indication Display Screen

-- Display the measured values read out from the dosimeter.

<View>

Name	Definition, range and unit of the functions	
Client Control No.	Dosimeter ID. number	000001 to 999999
Timer Set	Alarm threshold for operation time	0000 h : 01 min to 9999 h : 59 min
Gamma Calib. Factor	Calibration Factor for gamma-ray	Gamma : 60 to 140%
Hp(10) Accumulated Dose	Accumulated dose of gamma-ray	0.000 to 999999.999 mrem
Runtime	Operation time of the dosimeter	0000 h : 00 min to 9999 h : 59 min

<Command Button>

COM_End	Finishes the communication with a dosimeter.
Read	Starts reading out for data display. This will be executed from initializing the already established communication even during transmission.
Menu	Goes back to the Main Menu Screen: Fig. 4-1
Read again*	Re-starts communication with a dosimeter. If it starts communication by establishing transmission, it processes data read out automatically. *: This is indicated while communication is not established.

4.7 Data Trending Mode

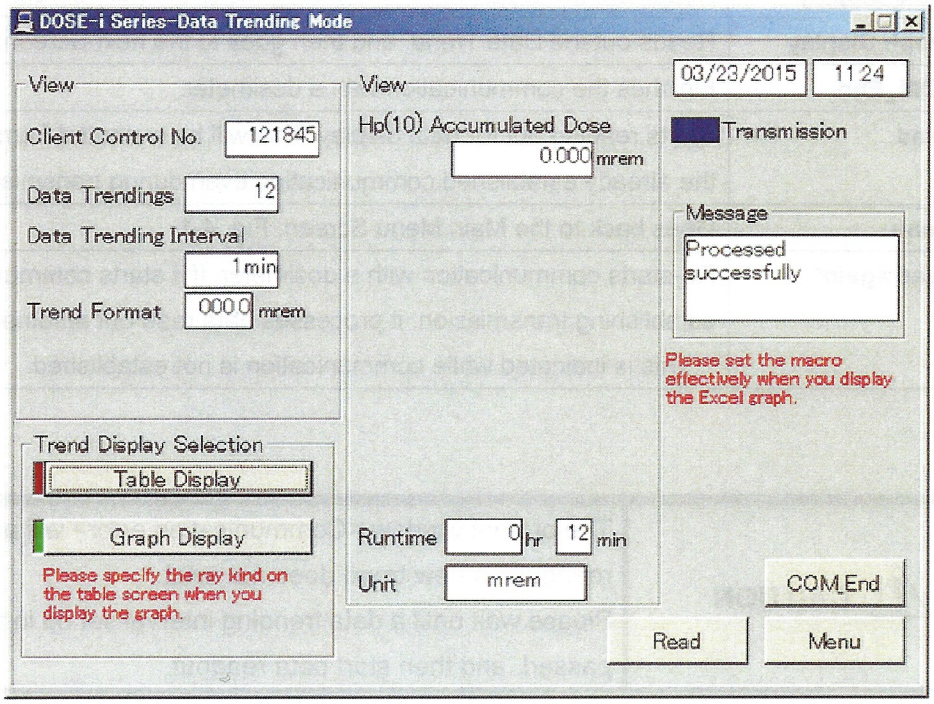


Fig. 4-4-1 Data Trending Mode Screen

-- Display the trend setting data read out from the dosimeter.

-- Select the display type of data trend.

<View>

Name	Definition, range and unit of the functions	
Client Control No.	Dosimeter ID. number	000001 to 999999
Data Trendings	Number of trend data stored	1 to 600
Data Trending Interval	Interval of data trending	15 sec/ 30 sec/ 1 min/ 5 min/ 10 min/ 30 min/ 60 min/ 90 min
Trend Format	Shifts the position of decimal point for data trending	000.0 / 0000 mrem
Hp(10) Accumulated Dose	Accumulated dose of gamma-ray	0.000 to 999999.999 mrem
Runtime	Operation time of the dosimeter	0000 h : 00 min to 9999 h : 59 min
Unit	Measurement unit	mSv, mrem

<Command Button>

Table Display	Reads out the Data Trend, and then goes to the next Screen: Fig. 4-4-2
Graph Display	Reads out the Data Trend, and then goes to the next Screen: Fig. 4-4-3
COM_End	Finishes the communication with a dosimeter.
Read	Starts reading out for data display. This will be executed from initializing the already established communication even during transmission.
Menu	Goes back to the Main Menu Screen: Fig. 4-1
Read again*	Re-starts communication with a dosimeter. If it starts communication by establishing transmission, it processes data read out automatically. *: This is indicated while communication is not established.

⚠ **CAUTION**	The prompt window <Communication error> will appear during data readout if a new trend does not exist. Please wait until a data trending interval set up in the dosimeter has passed, and then start data readout.

4.7.1 Table Display

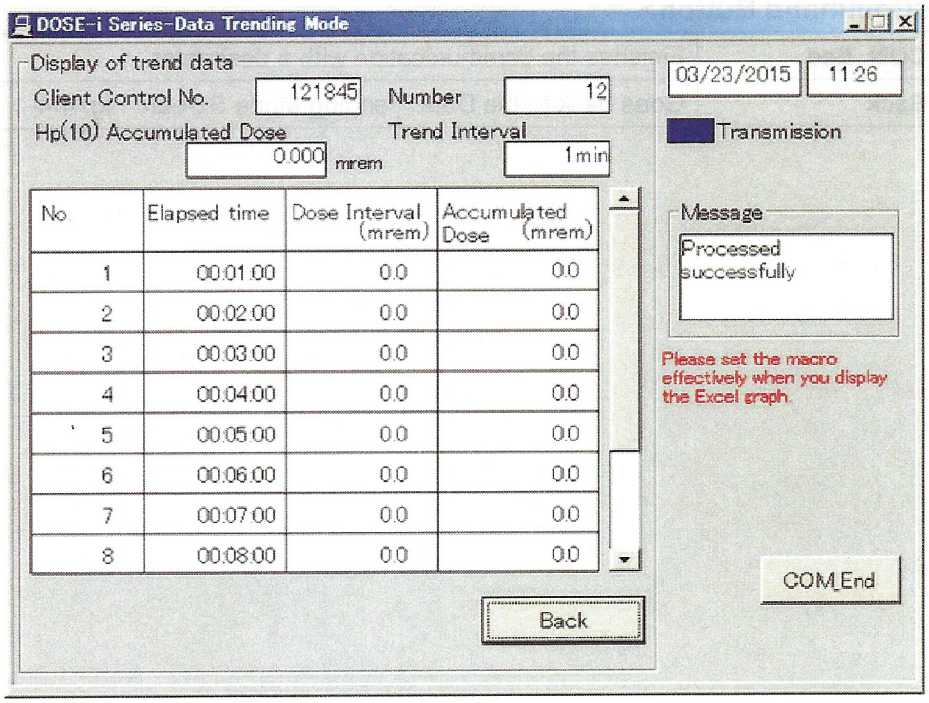


Fig. 4-4-2 Table Display Screen

-- Display the Trend data read out from a dosimeter in table.

<View>

Name	Definition, range and unit of the functions	
Client Control No.	Dosimeter ID. number	000001 to 999999
Hp(10) Accumulated Dose	Accumulated dose of gamma-ray.	0.000 to 999999.999 mrem
Number	Number of trend data stored	1 to 600
Trending Interval	Interval of data trending	15 sec/ 30sec/ 1 min/ 5 min/ 10 min/ 30 min/ 60 min/ 90 min
Elapsed Time	Elapsed time	00:00:00 to 99:99:99
Dose Interval	Dose per trend interval duration	0 to 9999 mrem or 0.0 to 999.9 mrem
Accumulated Dose	Accumulated value of dose	0.0 to 999999.9 mrem

<Command Button>

COM_End	Finishes the communication with a dosimeter.
Back	Goes back to the Data Trending Mode Screen: Fig. 4-4-1

4.7.2 Graph Display

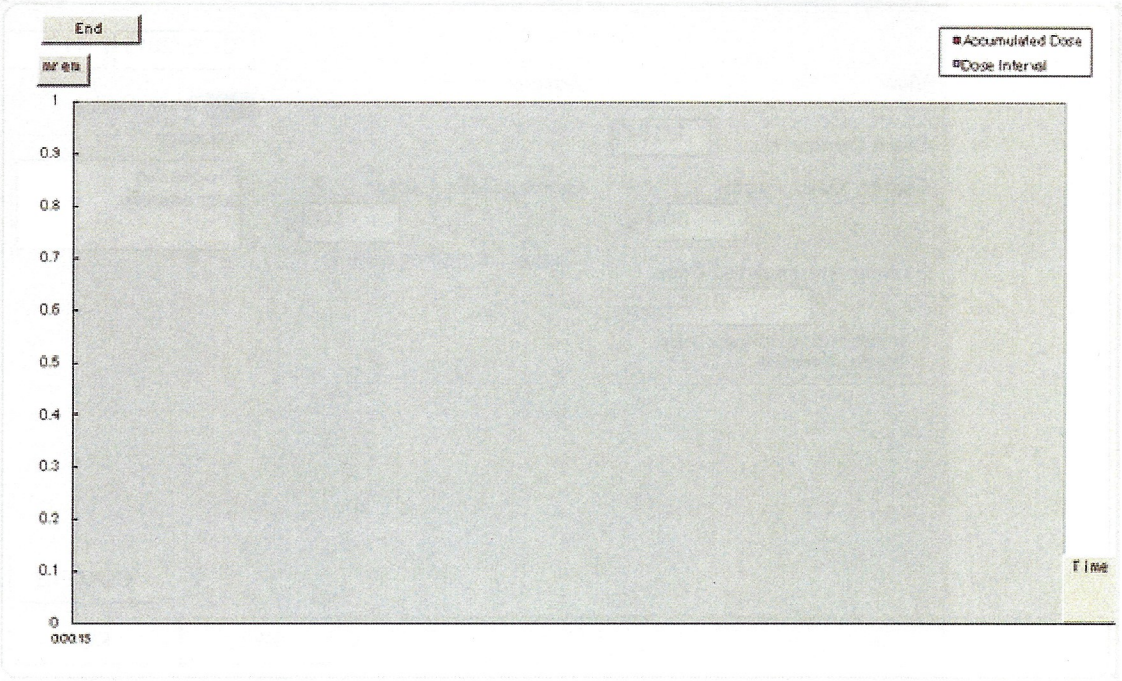


Fig. 4-4-3 Graph Display Window

-- Display the trend data read out from a dosimeter in EXCEL window.

<Command Button>

End	Closes this Graph Display window.

4.8 Manual Calibration

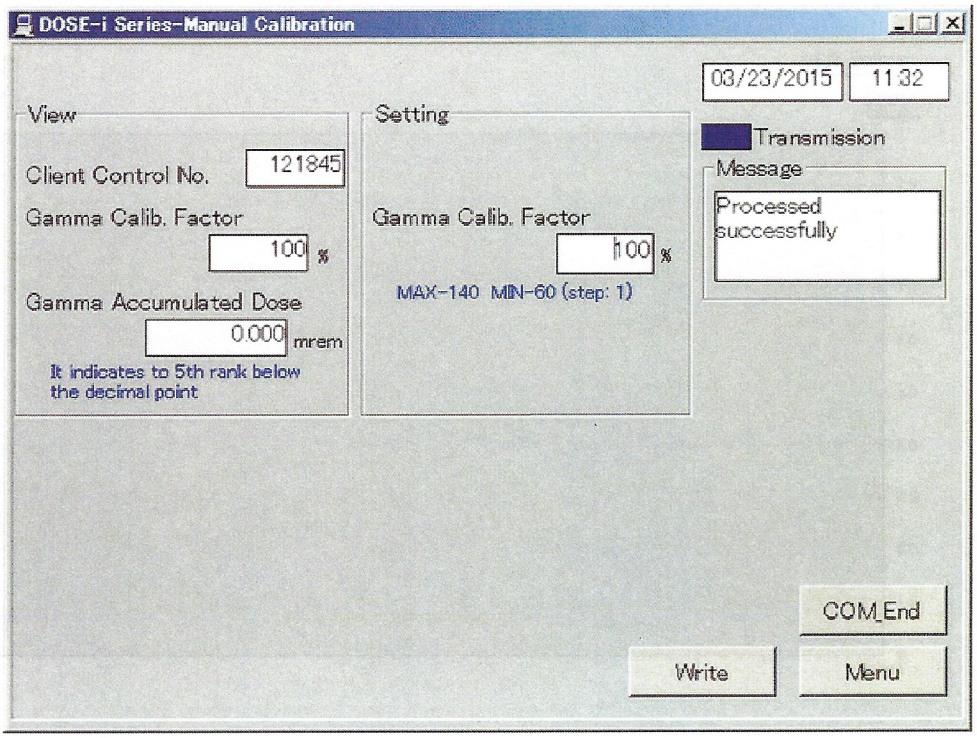


Fig. 4-5 Manual Calibration Screen

-- Display accumulated dose and calibration factor read out from the dosimeter.

-- Write the edited calibration factor to the dosimeter by clicking "Write" button.

<View>

Name	Definition, range and unit of the functions	
Client Control No.	Dosimeter ID. number	000001 to 999999
Gamma Calib. Factor	Calibration factor read out from a dosimeter	60 to 140% (1 Pitch)
Gamma Accumulated Dose	Accumulated dose	0.000 to 999999.999 mrem

<Setting>

Name	Definition, range and unit of the functions	
Gamma Calib. Factor	Calibration factor for gamma-ray	60 to 140% (1 Pitch)

<Command Button>

COM_End	Finishes the communication with a dosimeter.
Write	Writes the date displayed on the screen to the dosimeter by infrared communication.
Menu	Goes back to the Main Menu Screen: Fig. 4-1
Read again*	Re-starts communication with a dosimeter. If it starts communication by establishing transmission, it processes data read out automatically. *: This is indicated while communication is not established.

4.9 Maintenance Mode

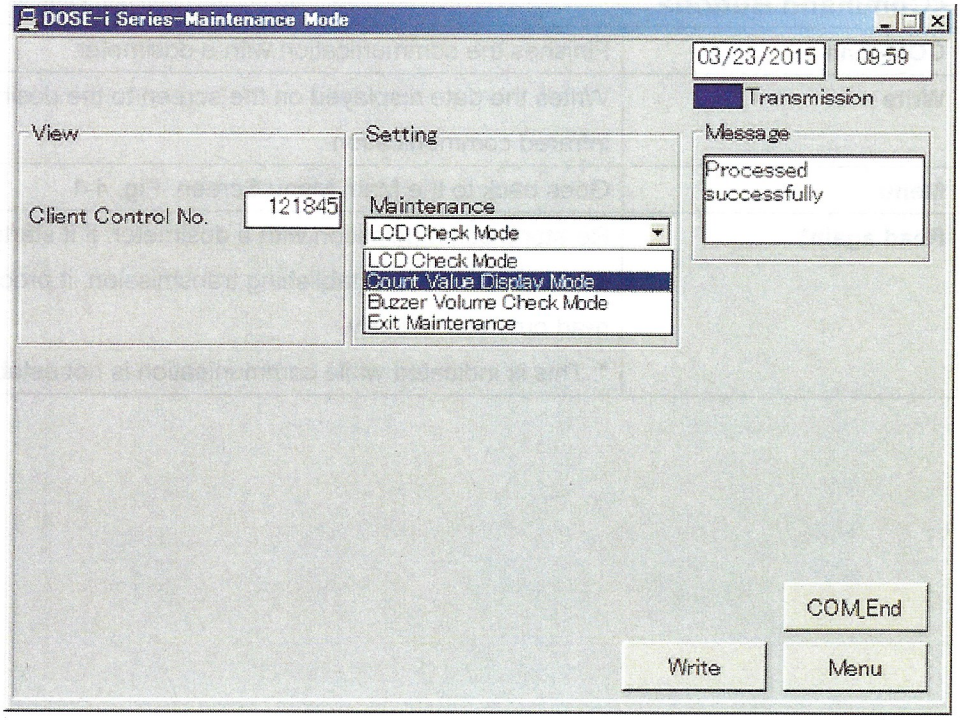


Fig. 4-6 Maintenance Mode Screen

-- To perform dosimeter maintenance and checking, select the preferred mode and write to a dosimeter.

<View>

Name	Definition, range and unit of the functions	
Client Control No.	Dosimeter ID. number	000001 to 999999

<Setting>

Name	Definition, range and unit of the functions
Maintenance	LCD Check Mode : Indication of all items on the LCD Count Value Display Mode : Indication of internal counter Buzzer Volume Check Mode : Activation of buzzer sound Exit Maintenance : Exit from maintenance mode

<Command Button>

COM_End	Finishes the communication with a dosimeter.
Write	Writes the data displayed on the screen to the dosimeter by infrared communication.
Menu	Goes back to the Main Menu Screen: Fig. 4-1
Read again*	Re-starts communication with a dosimeter. If it starts communication by establishing transmission, it processes data read out automatically. *: This is indicated while communication is not established.

4.10 System Setting

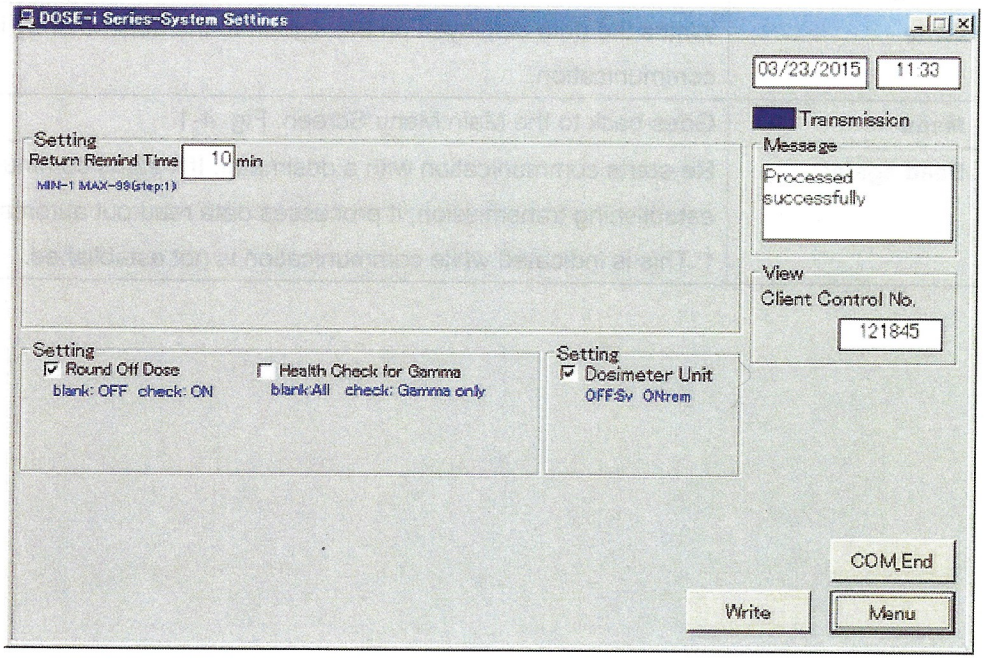


Fig. 4-7 System Setting Screen

-- Display the operating parameters which are read out from the dosimeter.

-- Write the edited operating parameter to the dosimeter by clicking "Write" button.

<View>

Name	Definition, range and unit of the functions	
Client Control No.	Dosimeter ID. number	000001 to 999999

<Setting>

Name	Definition, range and unit of the functions	
Return Remind Time	Reminder time not to forget to get the dosimeter back	1 to 99 min (1 Pitch)
Round Off Dose	ON/OFF of rounding off for accumulated dose	OFF / ON
Health Check for Gamma	Enables/disables failure check for gamma detector	OFF / ON
Dosimeter Unit	Switches display unit of the display between Sv and rem	OFF (Sv) / ON (rem)

<Command Button>

COM_End	Finishes the communication with a dosimeter.
Write	Writes the data displayed on the screen to the dosimeter by infrared communication.
Menu	Goes back to the Main Menu Screen: Fig. 4-1
Read again*	Re-starts communication with a dosimeter. If it starts communication by establishing transmission, it processes data read out automatically. *: This is indicated while communication is not established.

4.11 Client Control Number

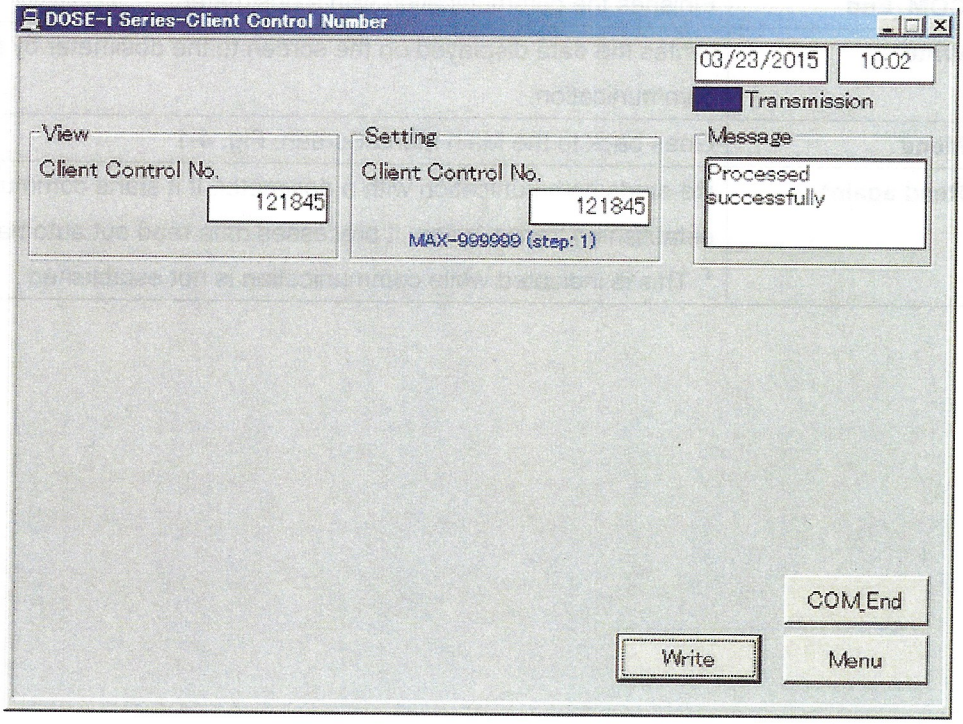


Fig. 4-8 Client Control Number Screen

-- Display the client control number which is read out from the dosimeter.

-- Write the edited client control number to the dosimeter by clicking "Write" button.

<View>

Name	Definition, range and unit of the functions	
Client Control No.	Dosimeter ID. number	000001 to 999999

<Setting>

Name	Definition, range and unit of the functions	
Client Control No.	Dosimeter ID. number	000001 to 999999

<Command Button>

COM_End	Finishes the communication with a dosimeter.
Write	Writes the data displayed on the screen to the dosimeter by infrared communication.
Menu	Goes back to the Main Menu Screen: Fig. 4-1
Read again*	Re-starts communication with a dosimeter. If it starts communication by establishing transmission, it processes data read out automatically. *: This is indicated while communication is not established.

4.12 Alarm Settings (Dose/Dose rate)

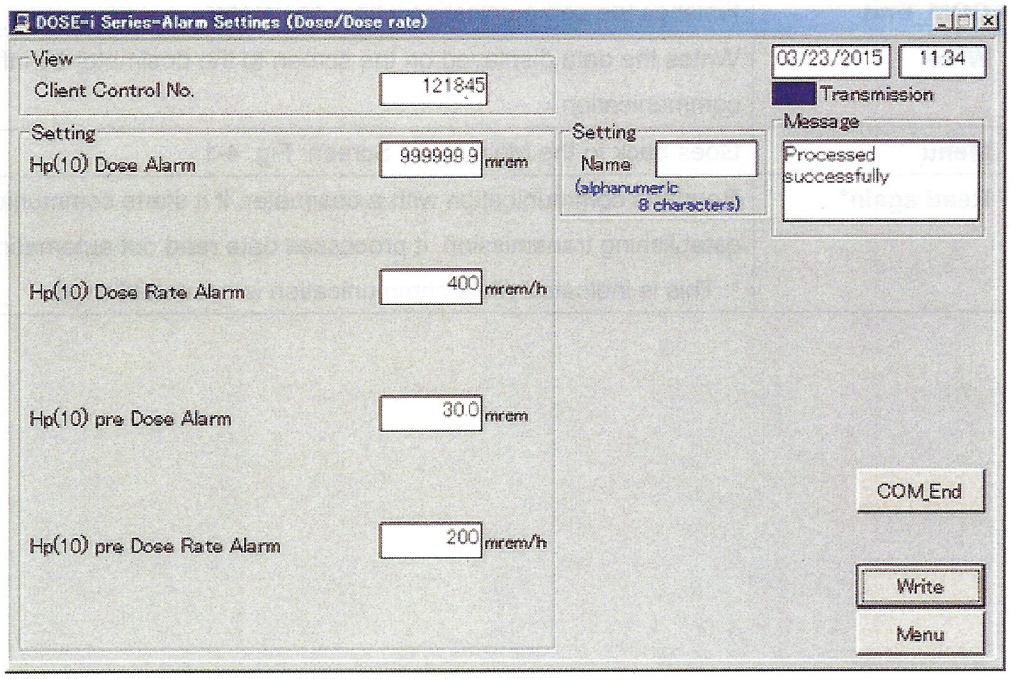


Fig. 4-9 Alarm Settings (Dose/Dose rate) Screen

-- Display the alarm thresholds which are read out from the dosimeter.

-- Write the edited alarm thresholds to the dosimeter by clicking "Write" button.

<View>

Name	Definition, range and unit of the functions	
Client Control No.	Dosimeter ID. number	000001 to 999999

<Setting>

Name	Definition, range and unit of the functions	
Hp(10) Dose Alarm	Hp(10) accumulated dose alarm threshold	0.1 to 999999.9 mrem
Hp(10) Dose Rate Alarm	Hp(10) dose rate alarm threshold	1 to 999999 mrem/ h
Hp(10) Pre Dose Alarm	Hp(10) accumulated dose pre alarm threshold	0.1 to 999999.9 mrem
Hp(10) Pre Dose Rate Alarm	Hp(10) dose rate pre alarm threshold	1 to 999999 mrem/ h
Name	User name	8 alphanumeric characters (capital) Note) Indicates up to 8 characters on dosimeter's display.

<Command Button>

COM_End	Finishes the communication with a dosimeter.
Write	Writes the data displayed on the screen to the dosimeter by infrared communication.
Menu	Goes back to the Main Menu Screen: Fig. 4-1
Read again*	Re-starts communication with a dosimeter. If it starts communication by establishing transmission, it processes data read out automatically. *: This is indicated while communication is not established.

4.13 Counts Readout

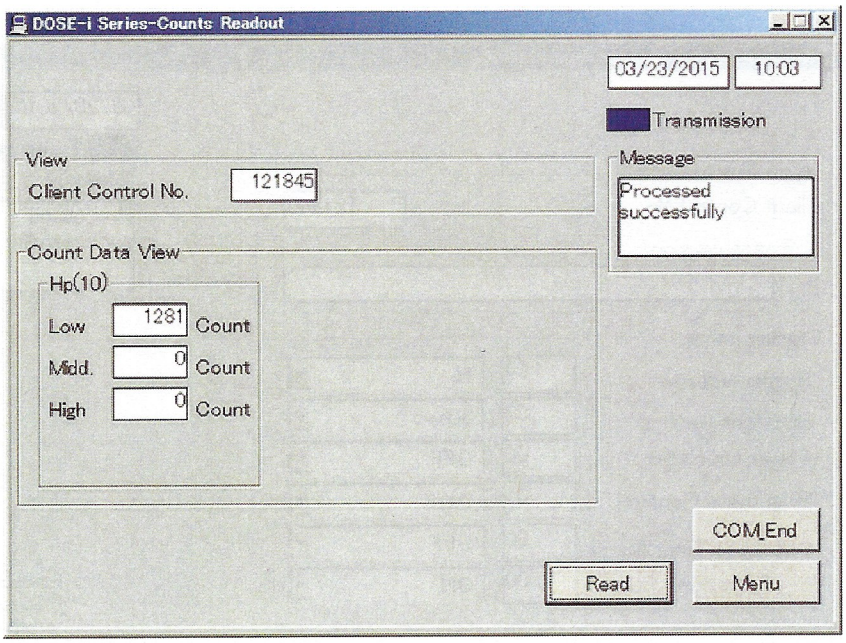


Fig. 4-10 Counts Readout Screen

-- Display the count values which are read out from the dosimeter.

<View>

Name	Definition, range and unit of the functions	
Client Control No.	Dosimeter ID. number	000001 to 999999
Hp(10) Low	Count of Hp(10) Low	000000 to 999999 count
Hp(10) Mid	Count of Hp(10) Mid	000000 to 999999 count
Hp(10) High	Count of Hp(10) High	000000 to 999999 count

<Command Button>

COM_End	Finishes the communication with a dosimeter.
Read	Starts reading out for data display. This will be executed from initializing the already established communication even during transmission.
Menu	Goes back to the Main Menu Screen: Fig. 4-1
Read again*	Re-starts communication with a dosimeter. If it starts communication by establishing transmission, it processes data read out automatically. *: This is indicated while communication is not established.

4.14 Maintenance Settings

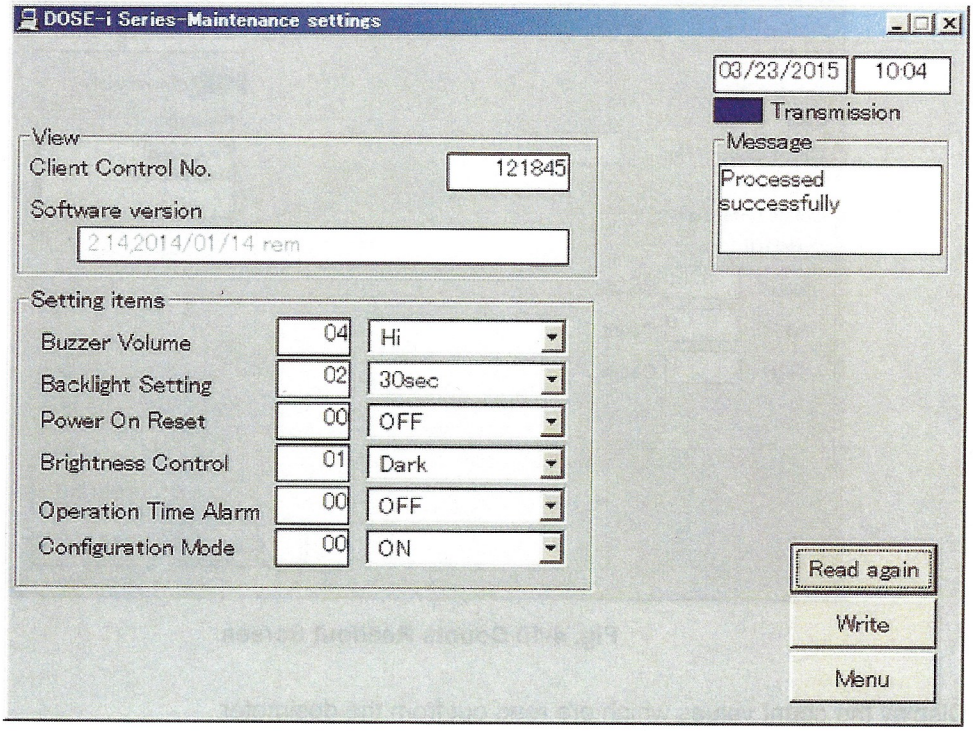


Fig. 4-11 Maintenance Settings Screen

-- Display the maintenance settings parameters which are read out from the dosimeter.

-- Write the edited setting data to the dosimeter by clicking "Write" button.

<View>

Name	Definition, range and unit of the functions	
Client Control No.	Dosimeter ID. number	000001 to 999999
Software version	Software version of dosimeter	N/A

<Setting>

Name	Definition, range and unit of the functions	
Buzzer Volume	Volume of dosimeter buzzer	Hi / Mid / Low / OFF
Backlight Setting	Backlight duration	Continuity / 10 sec / 30 sec / 60 sec
Power On Reset	If this is ON, accumulated dose value is reset when the power is turned off	ON / OFF (Reset / Not reset)
Brightness Control	Brightness of display	EL display: Dark / Middle / Bright LCD: Middle
Operation Time Alarm	Enables/disables operation time alarm	ON / OFF
Configuration Mode	Enables/disables of parameter configuration on dosimeter display	ON / OFF

<Command Button>

Read again	Re-starts communication with a dosimeter. If it starts communication by establishing transmission, it processes data read out automatically.
Write	Writes the data displayed on the screen to the dosimeter by infrared communication.
Menu	Goes back to the Main Menu Screen: Fig. 4-1

5. Troubleshooting

5.1 Errors and Solutions

(1) Communication error

Communication error between a computer and a dosimeter setting device

- During computer start up, processing, or data communication:

Error timing and error message	Suggested solution
<During establishing communication> "Reading unit, or cable abnormal"	Check the cable connection.
<During status process> "No response"	Check the cable connection.

- During data readout from a dosimeter:

Error timing and error message	Suggested solution
<During reading process or trend data acquisition> "Dosimeter Not Communicating"	Retry reading out.
<During reading process or trend data acquisition> "Dosimeter communication error"	Retry reading out.
<During reading process or trend data acquisition> "No response"	Check the IR communication cable. Check the connection with IR communication cable.
<During Trend data reading process> "Trend data does not exist"	There is no trend data. Create some trend data first, and then read out.

-During writing of operational parameters to the dosimeter.

Error timing and error message	Suggested solution
<During writing process> "Dosimeter Not Communicating"	Process reading out, first
<During writing process> "Dosimeter communication error"	Process reading out, first
<During 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:

- Errors detected by an internal check

- When a writing procedure starts, the input value error may appear.

Error message	Suggested solution
"Input Error of xxxx"	Re-enter the value within the valid range.

(3) Error when communication starts:

- Errors detected by PC when procedures to write parameters or to readout trend data started

- During attempting writing process.

Error message	Suggested solution
"Dosimieter Not Communicating" "Cannot write"	Start reading process, first.

- During attempting to read out trend data:

Error message	Suggested solution
"Dosimieter Not Communicating"	Cancel the trend data readout, and then start regular reading process.

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

6. Abnormalities

Problem	Solution
Cannot establish communication.	IR communication cable may not be connected properly. Check the cable connection. Please contact Fuji Electric if communication errors happen frequently.

7. Maintenance

Check the dosimeter setting device as specified below to ensure its performance.

Check item	Procedure
External Appearance	Visual check for any foreign objects such as dirt or dust in USB port. Check every six months, or every time communication error happens.
Cable connection	Check any looseness on connection of cables. Check every six months, or every time communication error happens.
Infrared communication	Put dosimeter close to the IR window of the cable and check the communication. Check every six months, or every time communication error happens.