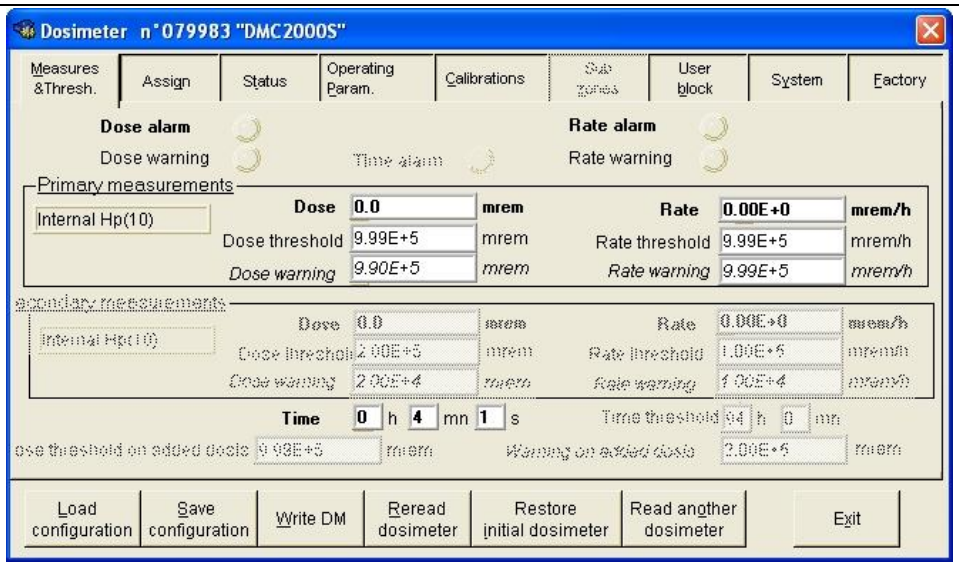
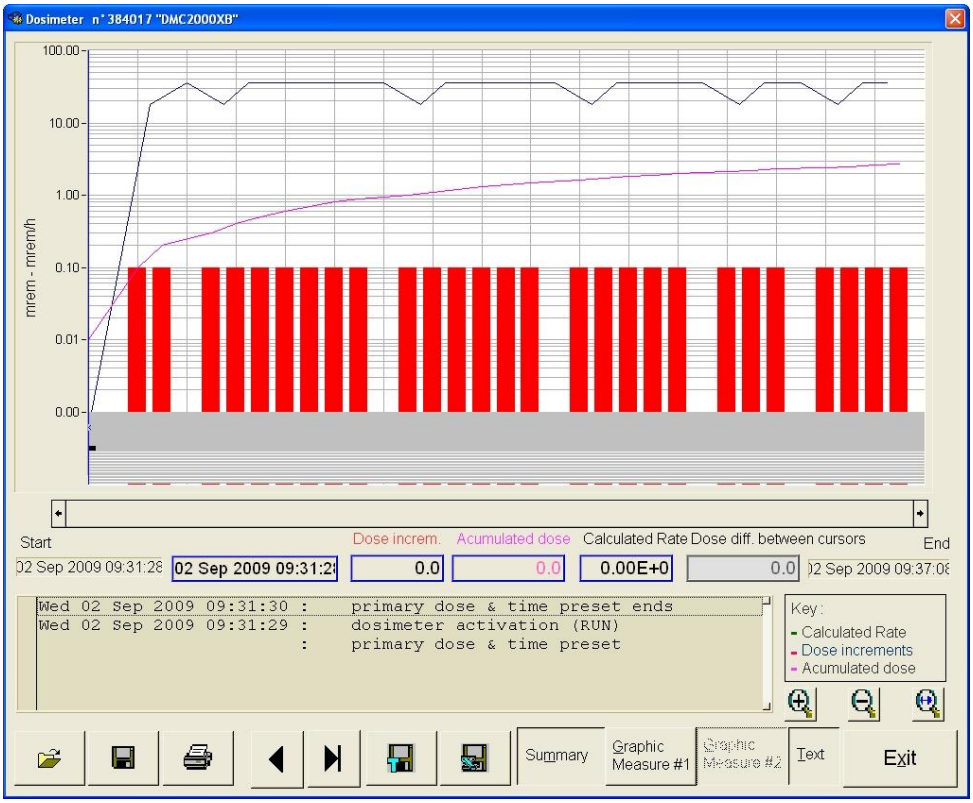
DosiMass

Dosimeter Maintenance and Setup Software

User's Manual





Information

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Record of revisions

Ind.	Date	Compiled by	Origin and description of revision	Revised pages
A	16/06/99	JP. Huriaux	Original MGPI document # 16-00140, based upon MGPSA document # 117905AA	First edition
	06/15/2001		Revised to reflect changes for DosiMass / Dosinet Versions	
B	14/05/03	J. Perez	Application of the new MGPI template Updated according to DEV N°12511	All
C	15/07/03	J.Perez	DEVS 13420, added information relative to the new readers LDM220 and LDM210 and complementary information for the installation procedure.	p1, p3, p, p5, p9, p39, p59, p95, p102
D	13/11/2003	D. Chatron	DEV 13516 /REV 6614, modification of the installation screens for the dosimeter configuration.	
E	22/11/2004 24/05/2005	P. Sabaton D. Chatron	DEV 14231 / REV 6897 Modification of configuration screens	§ 2.1 §3.2.1.1, §3.4.6.3, §4.3, §5.2.4, §5.2.8, §5.3.8, §9.4, §9.7, §9.8, §9.9, §9.9.1, §9.9.2, §9.10, §9.11, §9.12
F	30/09/2006	G. BOISLEUX	DEV 15330 DEVS 15401 Modification of configuration screens	§2.3.2 §2.4.1 §3.4 §3.4.2.3 §5.2.8 § 9.11 §0§11.1
G	17/10/2006	L.Miserazzi	DEVS 15401	§5.2.2, §5.2.4, §5.2.7, §5.2.8, p64, p67, p72, p73, p73, p75, p75, §9.2.2
H	10/09/2009	D. Chatron	Update of screens DEV 17363	§2.1, §2.2.4.1, §2.3, §3.4.3.1, §3.4.6.2, §4.2, p65, p67, §5.2.8, p76, p87, p102, p120
J	20/06/2011	P.Martin	DEVS 18869 Update after software evolution of Neutron dosimeters (V4.2)	§ 4.3.2, P53 §0, P62
K	12/09/2011	D. Chatron	DEVN 19261 Update installation for windows 7	§1.3.1, §1.3.2, §1.4, §2.1, §2.3 Installation of the Software, §2.4.1

Table of Contents

1. Overview

1.1 Synopsis

This Manual provides users with the information required to ensure effective use of the DOSIMASS Dosimeter software. The software has been designed for use with:

- the DMC2000 dosimeter and the LDM2000, and the LDM20002XX Dosimeter readers, operating
- under a Windows PC-based computing environment.

This Manual also provides all of the information necessary to use this software with the previous generation of products (DMC-100 / DMC-90 dosimeters and LDM101 / LDM91 /LDM2000 readers).
For information regarding the use of this software under other hardware platforms or operating environments, please contact MGP Instruments.
For more information concerning the Dosimeter and Dosimeter readers, please consult the designated User's Manuals (see *Reference Documents noted below*).

Note:
This document is designed for users who possess a good working knowledge of the computing environment on which the DOSIMASS Dosimeter software has been installed. This includes general working knowledge of functions such as the use of a mouse, access to menus, and file system management (opening, saving and closing files). The user should consult the appropriate User Manuals for information on the respective operating systems.

1.2 Reference Documents

For information regarding equipment compatible with the DOSIMASS Dosimeter software, refer to the User's Manuals listed below:

- DOSIVIEW Software User's Manual 117 331
- DMC2000 Dosimeter User's Manual 115 170
- DMC2000 GN User's Manual 132 616
- LDM2000 Reader User's Manual 115 373
- DMC100 Dosimeter User's Manual 46 846
- LDM101 Reader User's Manual 122 865
- LDM91 Reader User's Manual 38 655
- LDM210-220 readers user's manual 127 356
- LDM230 readers user's manual 129 799

1.3 Conventions

Symbols "■" and "□":

These symbols are used for the descriptions and details:

The symbol "■" corresponds to the first level of detail.

The symbol "□" corresponds to the second level of detail.

For legibility purpose these symbols are aligned vertically.

1.3.1 Operating System

For reasons of convention, all references to the Microsoft Windows version (98, NT or Seven) of the Operating System will only be used if a feature / is specific to that operating system.

1.3.2 Screen Captures

In order to facilitate the use of the DOSIMASS Dosimeter software, this Manual contains screen captures.

The majority of screen captures present in this Manual were generated from the "Windows XP" Operating System environment. Minor differences may appear on the screen captures that correspond to other environments.

Note:
*Unless otherwise specified, the screen copies presented in this Manual correspond to the highest level of user access. For further information on the management of access levels, consult the section entitled "**Access Levels**," page **31** and **Administration Menu** page **35.***

1.3.3 Function Selection via Menu

In order to increase the readability of this Manual, selecting a function from the Menu of an application operating under Windows will be indicated in the following manner:

From the main menu, select Menu_Function, Menu_Sub_Function, Supplementary_Function, Supplementary_Sub _Function, etc.

For example: «In order to print a document, select «File ***/Print***.»

1.3.4 Terminology

This Manual employs a number of terms that are specific to the field of ***Dosimetry***. In order to avoid making the Manual overly complex, most of these terms are explained in detail in the Glossary, which is located at the end of the document.

1.3.5 Advisories, Reminders and Notes

Throughout this Manual, the user will find additions to the text entitled ***Advisory***, ***Reminder*** or ***Note***. These additions are used for the following:

Advisory*:*
the advice contained in these sections will aid the user in working more efficiently. Shortcuts are provided wherever possible, as well as time saving tips

Reminder:
the reminders review information already provided elsewhere in the Manual and will help the user avoid redundant

Warning:
These remarks highlight very important points, exceptions and specific information.

1.4 Software Description

The DOSIMASS Dosimeter software:

DOSIMETER **M**AINTENANCE **A**ND **S**ET-UP **S**OFTWARE is software specifically adapted to the configuration and operation of the ***DMC2000*** Dosimeter family.

The DOSIMASS Dosimeter software is delivered with a CD-ROM that contains:

- DOSIMASS DM: # 723
- DOSINET: # 734
- This user's manual

This software is compatible with numerous platforms (PC-based, workstations) and Operating Systems (Windows 98, Windows 2000, Windows XP, Windows NT, -Advanced Server, Workstation, Vista and Windows 7).

1.4.1 Features

The DOSIMASS Dosimeter software offers the following features:

- **Individual configuration** of the Dosimeters; including:
  - *Readout and display of the actual Dosimeter parameters;*
  - *Modification of the Dosimeter parameters;*
  - *Downloading of the Dosimeter parameters from a file; and,*
  - *Saving the Dosimeter parameters into a file.*
- Multiple configuration of the Dosimeters in lots;
- Simplified Controlled Area entrance/exit functions;
- **Troubleshooting** Diagnostics and Dosimeter **Repair**;
- **Readout** of Dosimeter event history.

1.4.2 Compatibility with previous generation products

The dosimetry DOSIMASS software is compatible with the following previous generation products:

- Dosimeter models DMC100, DMC90, DM9X
- Dosimeter reader models LDM101, LDM91
- Additionally it provides all the functionalities of previous generation programs (see below).

1.4.3 Compatibility with DMC_MANAGER, DMC_USER and DMC_HISTO Software

The features of the previous generation software are supported by the current version of the DOSIMASS Dosimeter Software.

DMC_MANAGER Features	**Corresponding Features of the DOSIMASS Dosimeter Software**
Dosimeter parameter changing or loading	Individual configuration of a Dosimeter (Dosimeter Menu / Single Configuration)
Operation, display of the Events History	Events History Operation Feature (Dosimeter Menu / Events History)
Initialization of a Dosimeter from a Command file	Individual Configuration of a Dosimeter (Dosimeter Menu / Single Configuration)
Modification of the Dosimeter calibration coefficients	Individual Configuration of a Dosimeter (Dosimeter Menu / Single Configuration / Calibrations)
Readout of a Dosimeter EEPROM	Individual Configuration of a Dosimeter (Dosimeter Menu / Single Configuration / Factory)
Dosimeter Transition IN/OUT of a Controlled Area	Enter/Exit Function (Dosimeter Menu / Entrance / Exit)
Read and write of messages in Manual Mode with the Dosimeter	Individual Configuration of a Dosimeter (Dosimeter Menu / Single Configuration) Note: for the user, the Message Management feature is transparent.
Dosimeter parameter change	Individual configuration of a Dosimeter (Dosimeter Menu / Single Configuration)
Dosimeter readout (status)	Individual configuration of a Dosimeter (Dosimeter Menu / Single Configuration / Status)
Modification of the Dosimeter Efficiency Coefficient	Individual Configuration of a Dosimeter (Dosimeter Menu / Single Configuration/ Calibrations)

DMC_MANAGER Features	Corresponding Features of the DOSIMASS Dosimeter Software
Dosimeter 'Transition to Pause'	Individual Configuration of a Dosimeter (Dosimeter Menu / Single Configuration/ Assignment)
Dosimeter Transition IN/OUT of a Controlled Area in automatic mode	Enter/Exit Function (Dosimeter Menu / Entrance/Exit)
Operation and Display of the Events History Feature	Events History Operation Function (Dosimeter Menu / Events History)

1.4.4 Configurations

The DOSIMASS Dosimeter Software can be used in the following configurations:

1.4.4.1 DMC2000 with Hands free readers

This standard configuration consists of using the DMC2000 with a Hands free readers.

In this type of configuration, the data exchange is performed in «***hands-free***» mode. All of the parameters of the DMC2000 can be transmitted.

1.4.4.2 DMC2000 with LDM101

This configuration enables the use of the DMC2000 with an LDM101 Infra-red reader, equipped with a specific adapter (DMC2000 sleeve).

In this type of configuration, the data exchange is carried out in «***infrared***» mode. The majority of DMC2000 parameters can be transmitted.

1.4.4.3 DMC-100, DMC-90, DM9X with LDM101

This configuration ensures total compatibility with these products.

In this configuration, the data exchange is conducted in «***infrared***» mode. The majority of Dosimeter parameters can be transmitted.

1.4.4.4 DMC2000, DMC-100, DMC-90, DM9X with LDM91

These configurations require the use of an LDM91 operating in «***transparent***» mode in lieu of the LDM101. Note that, in order for the LDM91 reader to function in «***transparent***» mode, it must be equipped with internal firmware version (example: 532B).

These configurations react exactly as the two previous configurations. As such, they are not detailed in the pages that follow.

For additional information on the LDM91 and its operation in «***transparent***» mode, consult the User's Manual.

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2. DosiMass hardware Installation and Set-up

The installation and commissioning of the DOSIMASS consists of the following successive steps:

- Install the hardware configuration (connect the PC to the Dosimeter reader);
- Install the software onto a PC
- Configure and establish the links between the PC and the Dosimeter reader.

2.1 Required Hardware Configuration

When using the DOSIMASS Dosimeter Software with a PC, the latter must possess a minimum of the following:

- INTEL Pentium 233MHz PC compatible
- hard drive capacity >= 4Gbytes
- Working memory RAM >= 128 Mega-bytes
- 1 available serial communication port configured for use with Microsoft Windows (98/ME, NT, 2000, XP, Vista or Windows 7)
- SVGA display 800 x 600 resolution
- TCP/IP protocol for Windows
- "Laser-jet" type printer
- PC compatible mouse or pointing device
- a Software program CD-ROM, MGP Instruments Part Number 116949 contains the following software modules:
  - *DOSIMASS (DM): Number 723*
  - *DOSINET: Number 734*

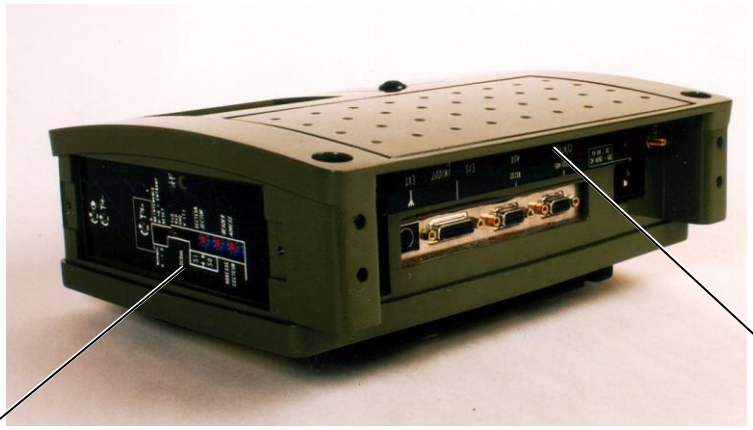
To be able to use all the DOSIMASS functions, key in the licence number respecting: upper case, lower case and hyphens, when installing the software on the PC.

2.2 Hardware Installation

The hardware installation consists of physically connecting the PC to the Dosimeter reader and then configuring and establishing the link between the two entities.

The following paragraphs will review the procedures relative to the installation of an LDM2000 and an LDM101.

2.2.1 Hardware Configuration with an LDM2000



2.2.1.1 Connecting the PC to the LDM2000

The physical connection between the PC and the LDM2000 consists of connecting the COM1 serial port to the ***RS232/485*** port of the reader (see the illustration, above) using a DB9 type serial communication cable.

Note:
When using a serial port other than COM1, a DOSINET software configuration is required. (Consult the section entitled "Selection of another serial port," page 123.)

For additional information regarding the specific type of cable, contact MGP Instruments.

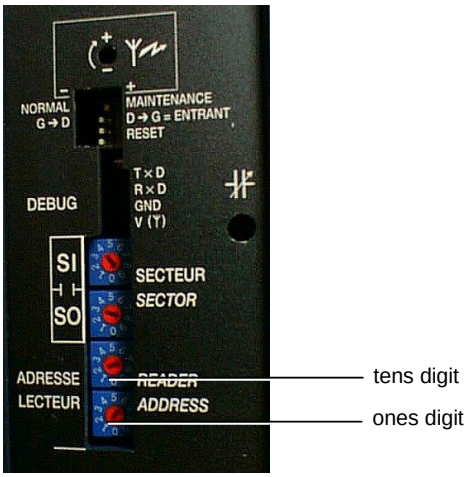
2.2.1.2 Selecting the Address of the LDM2000

Each LDM2000 is identified by an address that is defined by digits from **00** to **99**. This address is used in the context of a centralized Dosimetry system.

In the context of the utilization with the DOSIMASS Dosimeter software, the value of this address must be equal to <<**01**>>.

In order to program this address (refer to the illustration below):

- Remove the side protection plaque by unscrewing the 2 attachment screws;
- Using a small screwdriver, position:
  - *the ones digit position to <<**1**>> using the lower coding wheel;*
  - *the **tens digit** position to <<**0**>> using the upper coding wheel.*



2.2.2 Hardware Configuration with an LDM101

2.2.2.1 Connecting the PC to the LDM101

- Connect the COM1 serial port to the LDM101 serial port using the standard serial cable supplied with the reader. This cable is equipped with a 9-pin male connector (DB9) and a 9-pin female connector (DB9).
- Connect the electrical cord to the outlet adapter using a 5-prong DIN connector at the back of the LDM101.
- Plug the electrical cord into an outlet.

Note:
when using a serial port other than COM1, a DOSINET software configuration is required. (Consult the section entitled "Selection of another serial port," page 123.)

2.2.2.2 Selecting the Address of the LDM101

Each LDM101 is identified by an address that is defined by digits from **0** to **7**.

In the context of the utilization with the DOSIMASS Dosimeter software, the value of this address must be equal to <<**0**>>.

Typically, each LDM101 is delivered with a pre-programmed address of <<**0**>>.

In the case of problems associated with this address, consult the LDM101 Technical Manual or an MGP Instruments representative.

2.2.3 Device Configuration with LDM210

2.2.3.1 Connecting the PC to the LDM

- Connect the PC COM1 serial port to the LDM2xxserial port using the supplied standard 9 pin DB9-M/F cable.
- Connect the power cord located in the back of the LDM.
- Connect the power unit to the AC supply.

Note:
In case another serial port is used, it would be necessary to change the DOSIMASS configuration (see "Selection of another serial port," page 123.)

2.2.3.2 Select the address of the LDM

All LDM210 readers are identified by address **1**.

In DOSIMASS, the user setting for this address should be set to **« 1 »**.

2.2.4 Device Configuration with LDM220

2.2.4.1 Connecting the PC to the LDM

Do not connect the LDM2xx to the PC.

Connect the cable of the reader to the USB port of the PC only after having installed DosiMass software and USB driver of the LDM 220.

If the USB driver is not installed, refer to the LDM210/220 and LDM230 user's manuals.

2.2.4.2 Select the address of the LDM

All LDM220 readers are identified with address **1**.

In DOSIMASS, the user setting for this address should be set to **« 1 »**.

2.2.5 Installation of the TCP/IP Protocol

The TCP/IP Protocol must be installed on the PC before any other operations can be performed using the DOSIMASS Dosimeter software.

When using a PC equipped with a LAN network card, or an existing INTERNET modem access, this protocol is already installed.

If TCP/IP is not installed, the procedure to follow for the installation of this protocol is reviewed in the section entitled "Appendix 2: Installation of the TCP/IP Protocol" page 125

2.3 Installation of the Software

The **DOSIMASS Dosimeter** software is delivered with a CD-ROM that contains the **DOSINET** Software.

Note:
During the installation of DOSIMASS DM, DOSINET software installation is done automatically. (DOSINET is essential for the LDM 2000).

The installation procedure consists of inserting and executing the installation program « ***Setup DosiMass-DM 1.13.0 (S).exe*** » into the reader and following the directives issued in the following sections.

Once the installation is finished, the array of installed software modules is accessible in several ways:

- Using the icons placed on the file located on the desktop;

- Using the Windows « **Start** » menu; and / or
- Using Windows « **Explorer** » to select the executable files placed in the installation directories.

Note:
Using Windows « Explorer » to select the executable files placed in the installation directories

Each installation is valid for:

- A specific type of Dosimeter Reader (LDM2000 or LDM101, LDM2XX); and

- A specific language used (French or English)

All subsequent modifications (changing the type of Reader used) typically requires a new installation.

If the use of the DOSIMASS Dosimeter software is desired with two different types of readers, then it is recommended that the application be installed twice and the installer must specify two different installation directories.

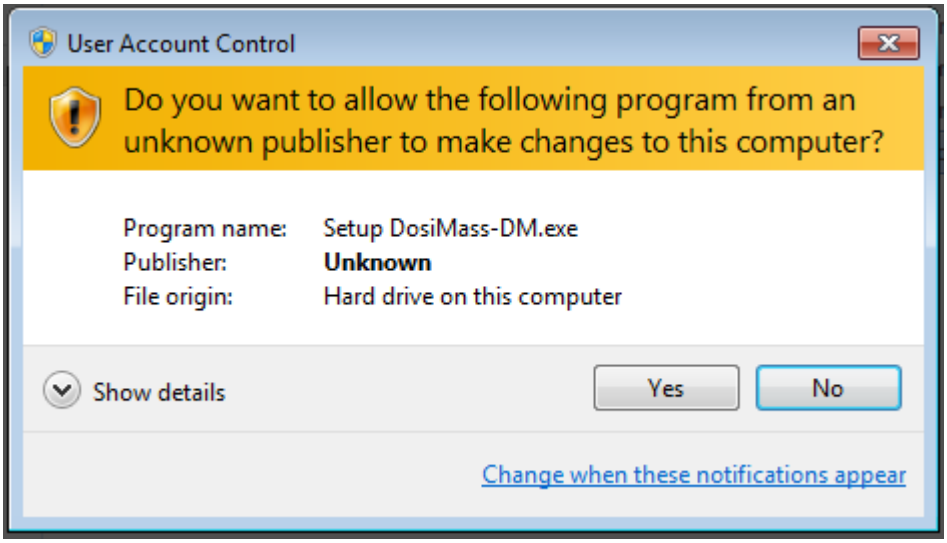
2.3.1 Installation Start-up

Advisory:
before beginning the installation procedure, the user is advised to quit all other applications in progress

In order to install the **DOSIMASS Dosimeter software** the user should execute the following instructions:

1. Insert the DOSIMASS Dosimeter Software Installation CD-ROM; and,
2. Using Windows Explorer, execute the ***Setup DosiMass-DM 1.13.0 (S).exe*** installation program, which is accessible from the main directory of the CD-ROM reader, by double clicking on the corresponding file.

With Vista or Seven, a screen control appears, click on "**Yes**" to authorize the installation.

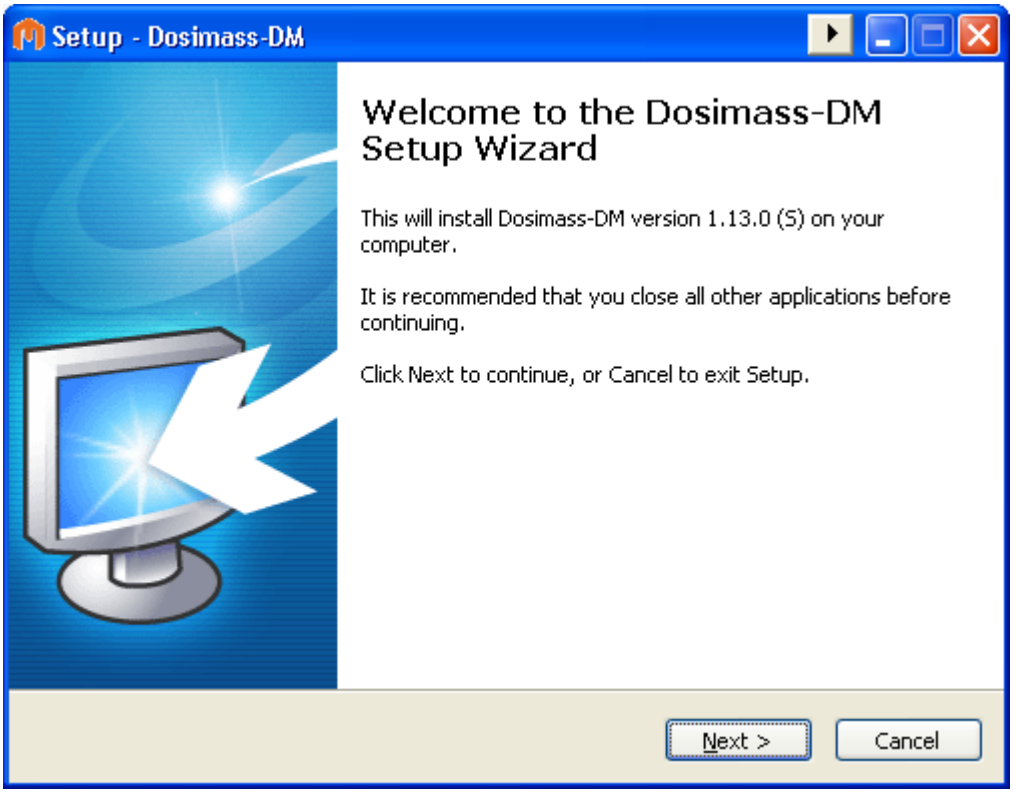


The following window is displayed:

2.3.2 Language Choice

1. Select the preferred language using the drop down window;
2. Validate the selection of the preferred language by clicking on **OK**.

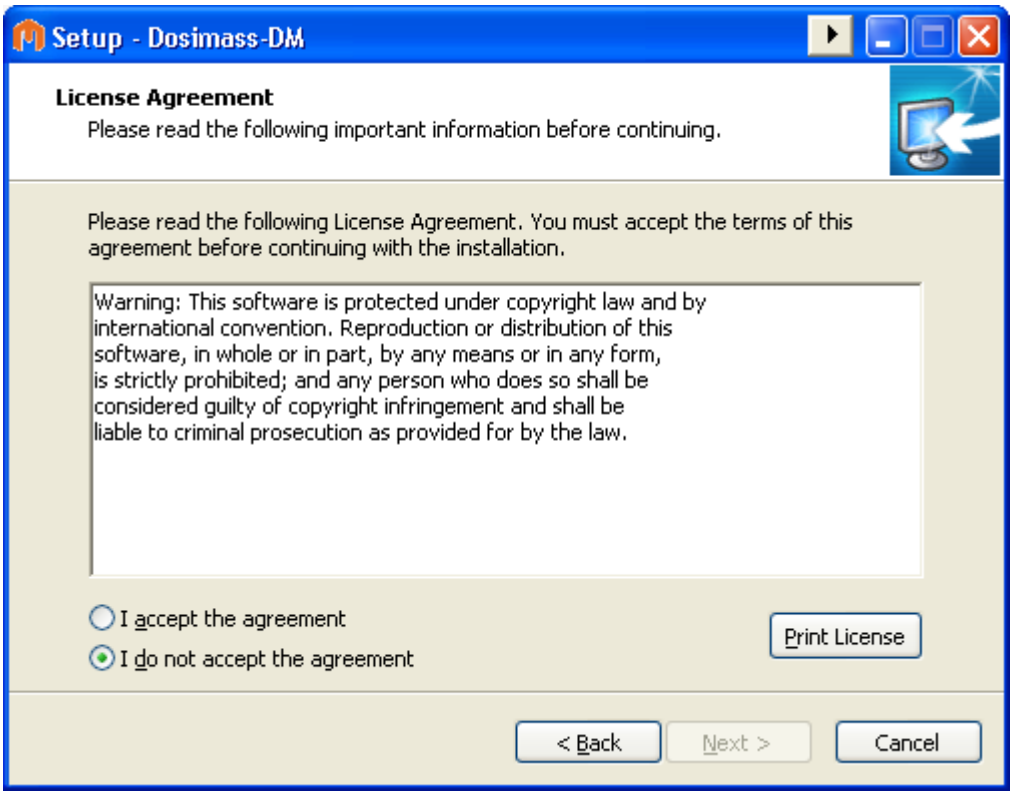
Once the choice made, the following windows appears



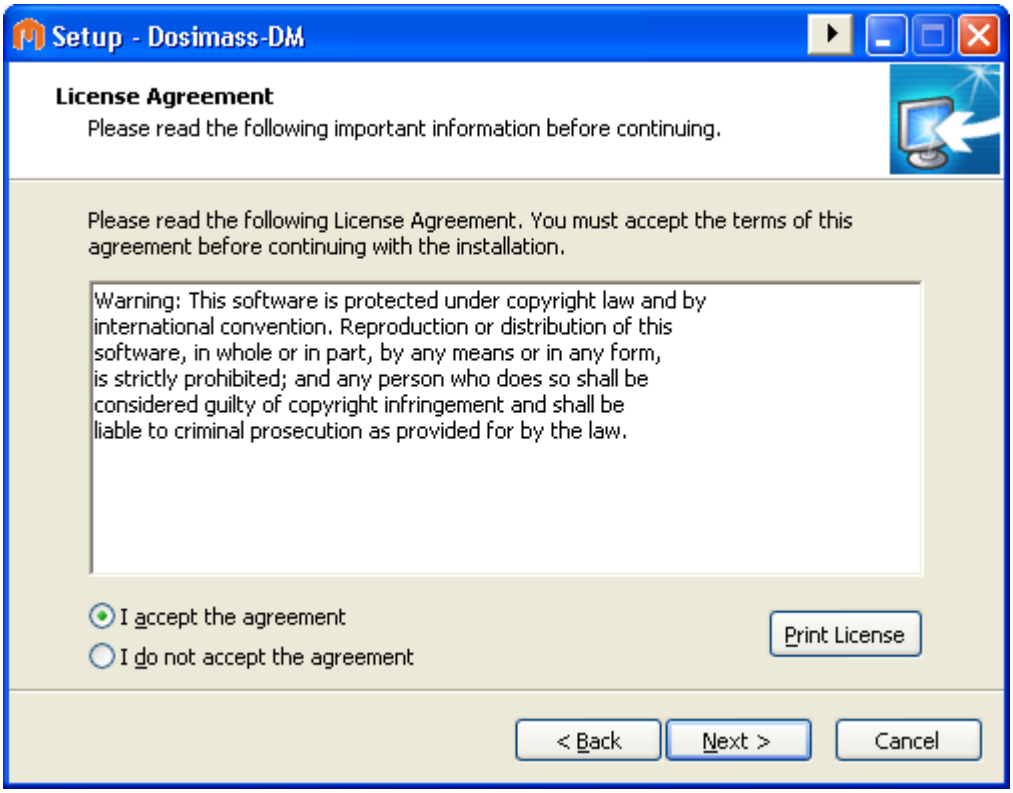
If the user did not shut down all applications prior to commencing the installation procedure, then it is recommended that the user do so at this time. If the user exits at this point, then the installation procedure must be reinitiated from the beginning.

- To quit the installation procedure, click on ***Cancel***;
- To continue the installation procedure, click on ***Next***.

Note:
*during the installation procedure, numerous windows that contain a "**back**" button will appear. This option allows the user to return to the previous window and modify the parameters or cancel the parameter modifications that were initially selected*

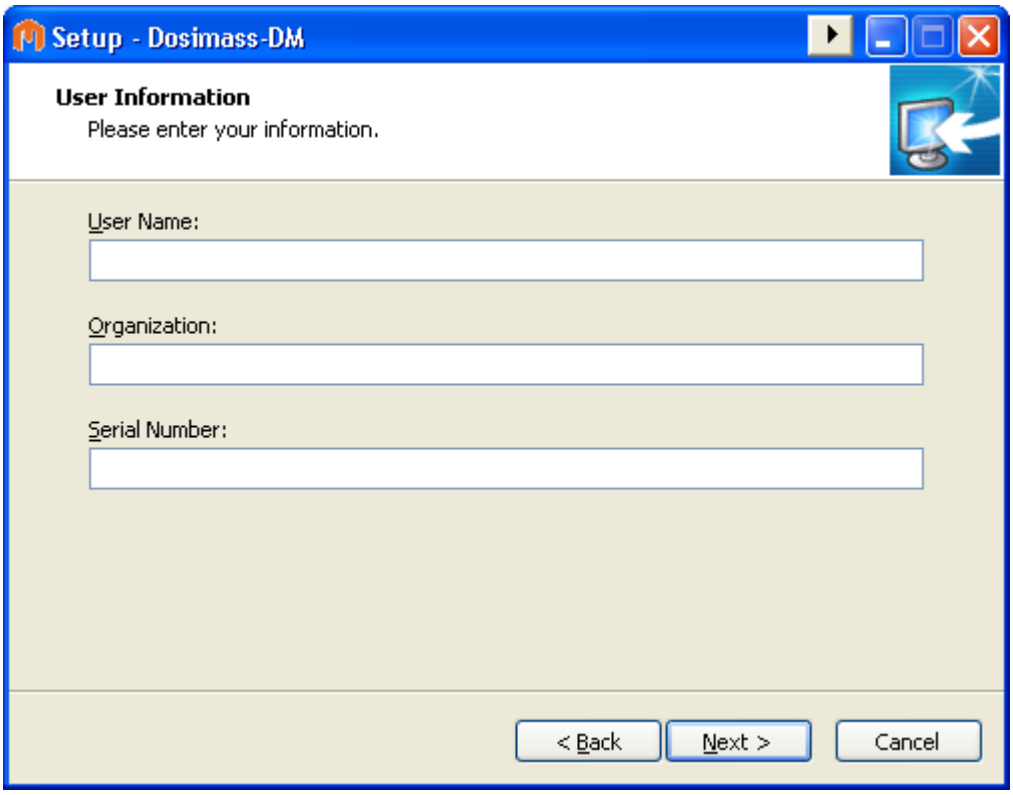


In order to continue installation, you must check "**I accept the agreement**", you could also print the license.



- Click on ***Next*** after accept the terms of the contract.

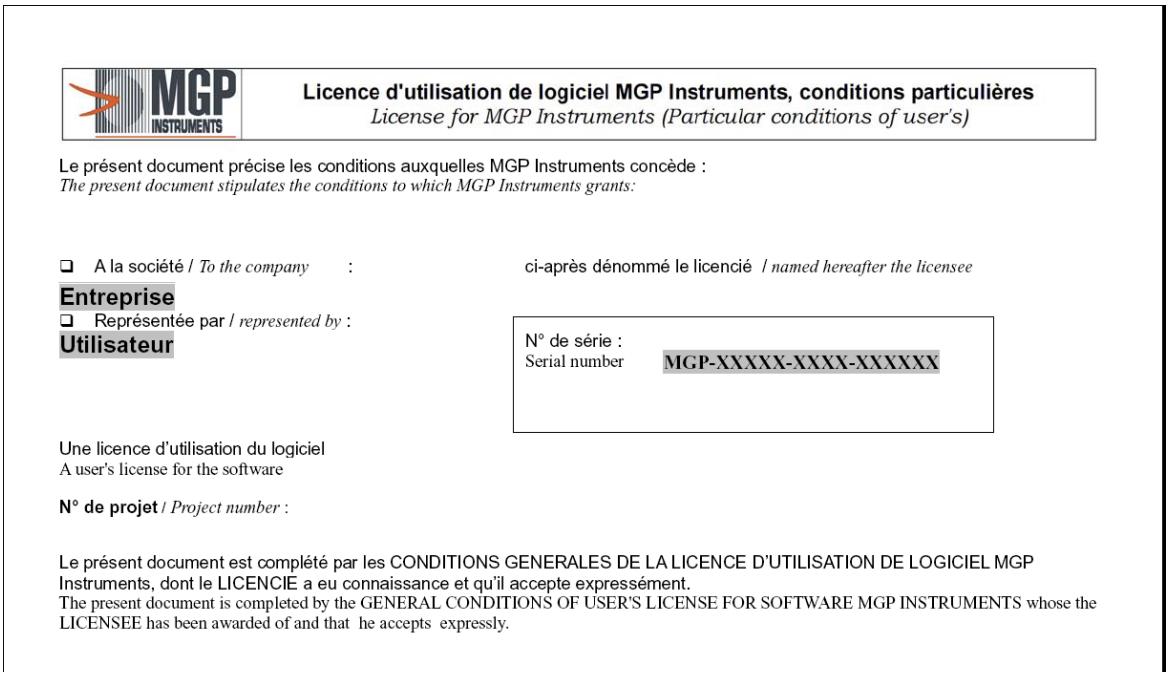
The following window appears:



2.3.3 Registration of the Serial Number

This operation is necessary for the software to operate.

The following fields must be filled with the user's license software was given to you (see below):



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- ***User Name***: user name,
- ***Company Name***: name of the company,

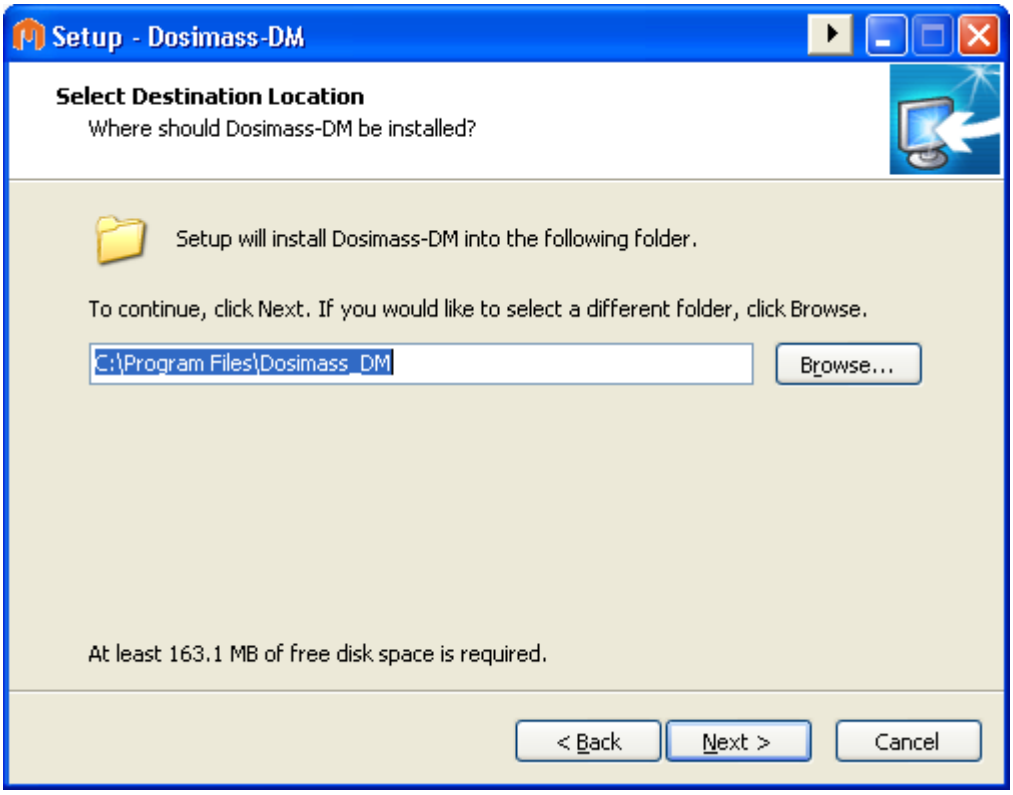
- ***Serial Number***: serial number provided with the software CD-ROM and the key. This number is mandatory before the software can function.

Fill all the fields mentioned in the user license (must respect upper and lower case characters.)

After entering all the information in the required fields, click on ***Continue.***

Note:
If there is no user license, any serial number can be used (i.e.: « 012345 »), Dosimass_DM will work normally but it will display the following message on start up:

The following window appears:



2.3.4 Choice of Installation Folder Location

Using the window pictured above, the user can specify an installation folder other than that proposed as default. This possibility allows the user to conduct several installations using the same PC:

- One installation for the use of the hands free reader
- One installation for LDM210/220

- One installation for the use of the LDM101

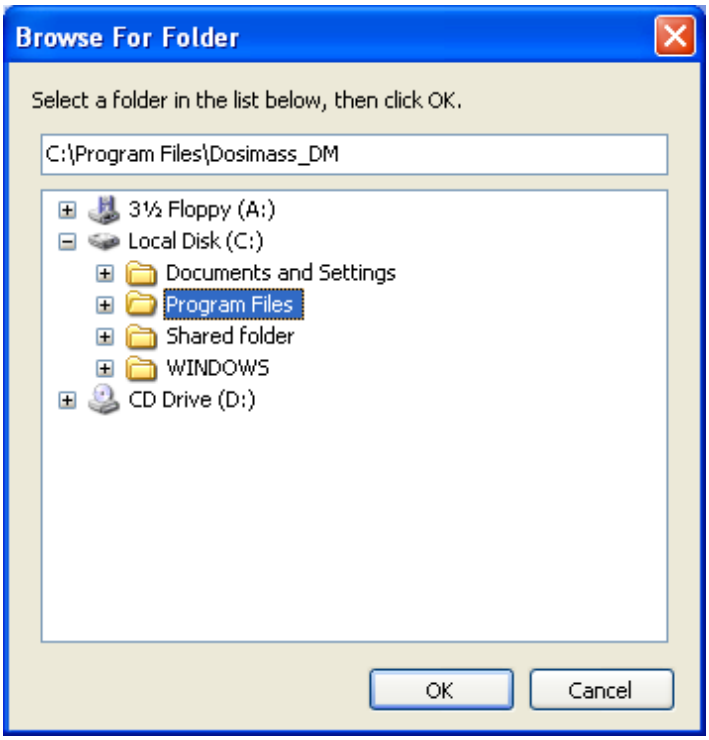
In order to select the default installation folder location and continue the installation procedure:

- Click on ***Next***. (Subsequent steps in the procedure are reviewed in the next section § 2.3.5)

In order to customize the installation folder location and continue the installation procedure:

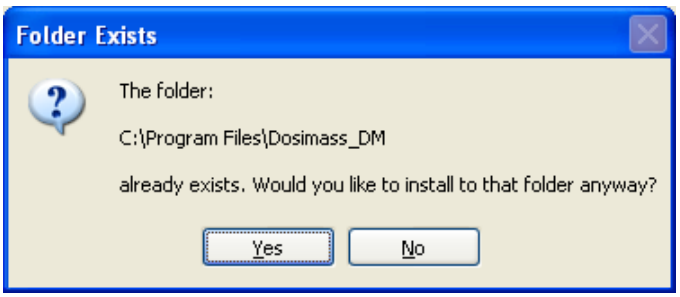
- Click on ***Browse***.

The following window will appear:



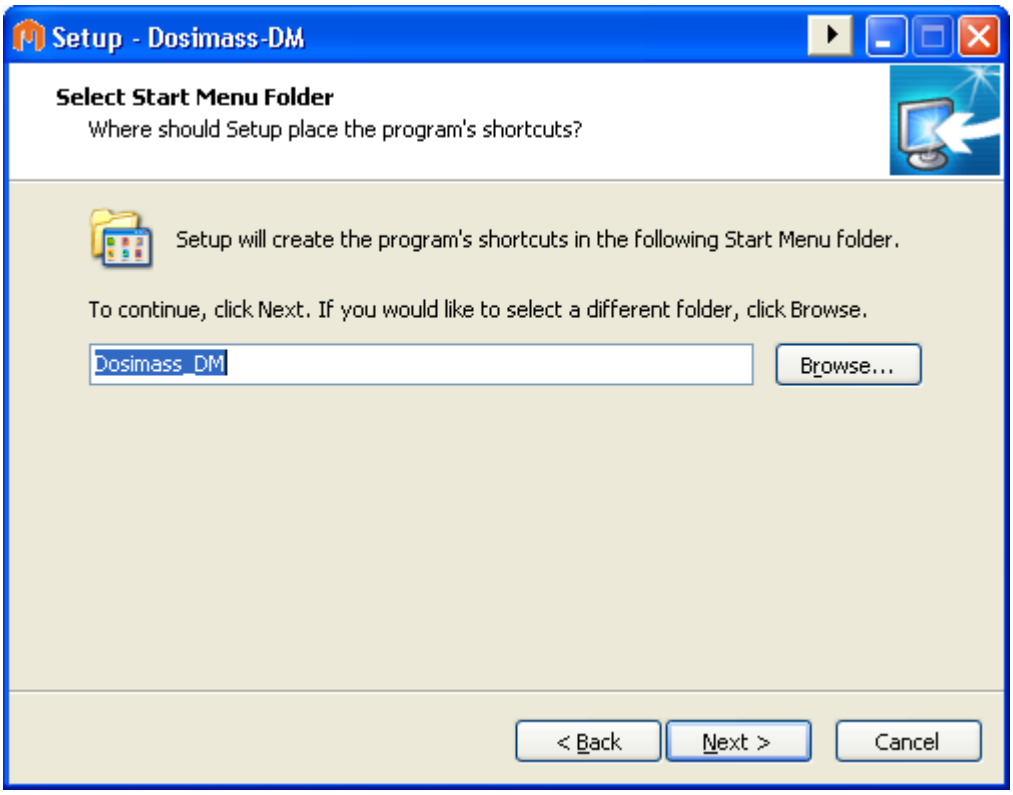
- Select the name of the new installation folder.
- Click on ***OK***.

If the software is already installed, the following message will appear:



- Click on "***Yes***

The following window appears:



By default, the folder will be called ***DOSIMASS***.

To apply another name:

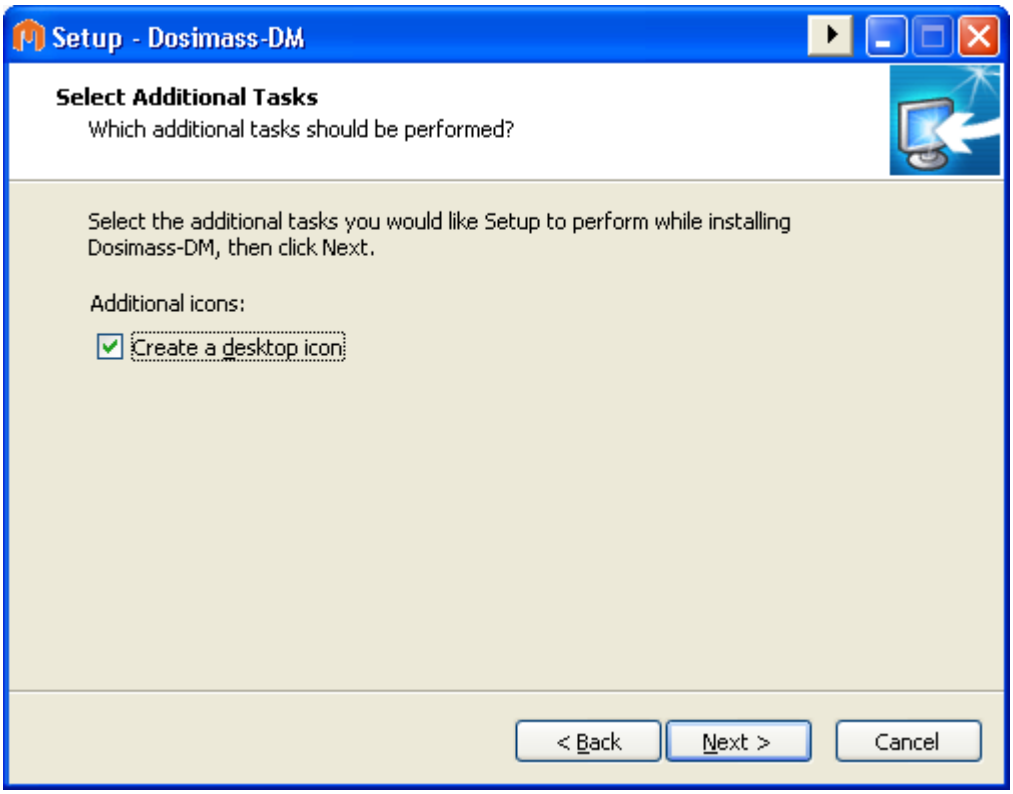
- Select the new name in the section entitled **Program Folders** (consult the following window).

Note:
the user can also select an existing program file. This allows the user to regroup all of the software from the same manufacturer. The user must simply highlight the folder name in the Existing Folder section and double click on the folder name in order to activate the selection.

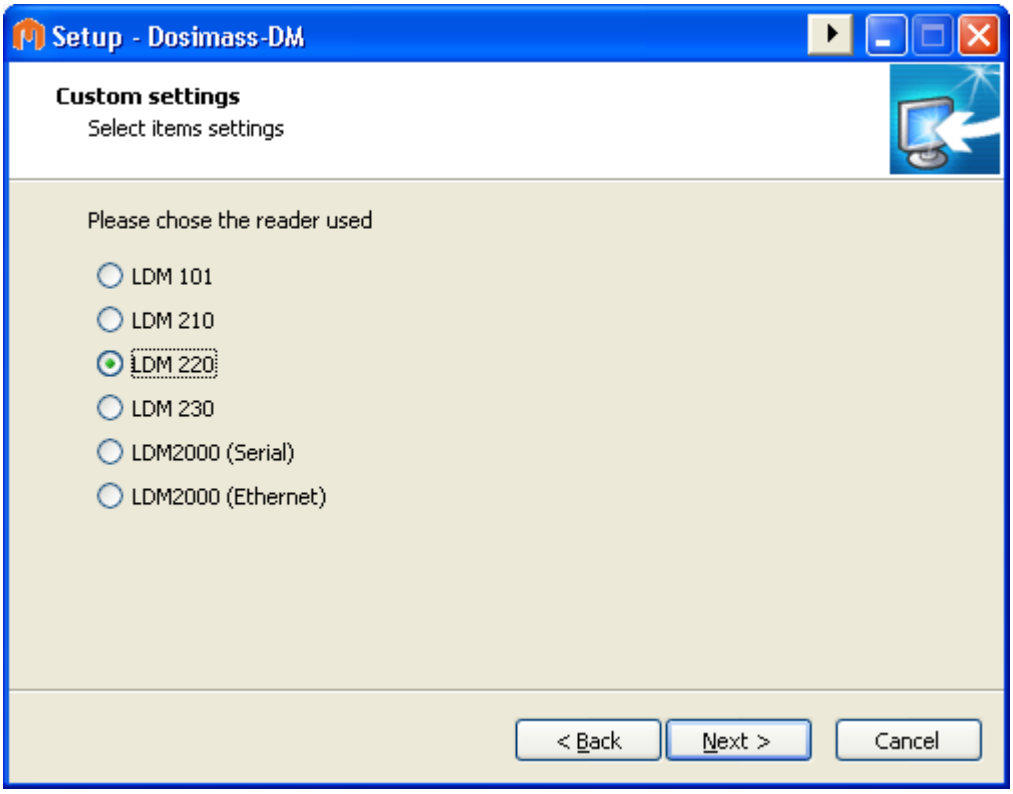
- Click on Next in order to continue the installation procedure in the selected folder, which is indicated in the ***Destination Folder*** section.

2.3.5 Installation Wrap-up

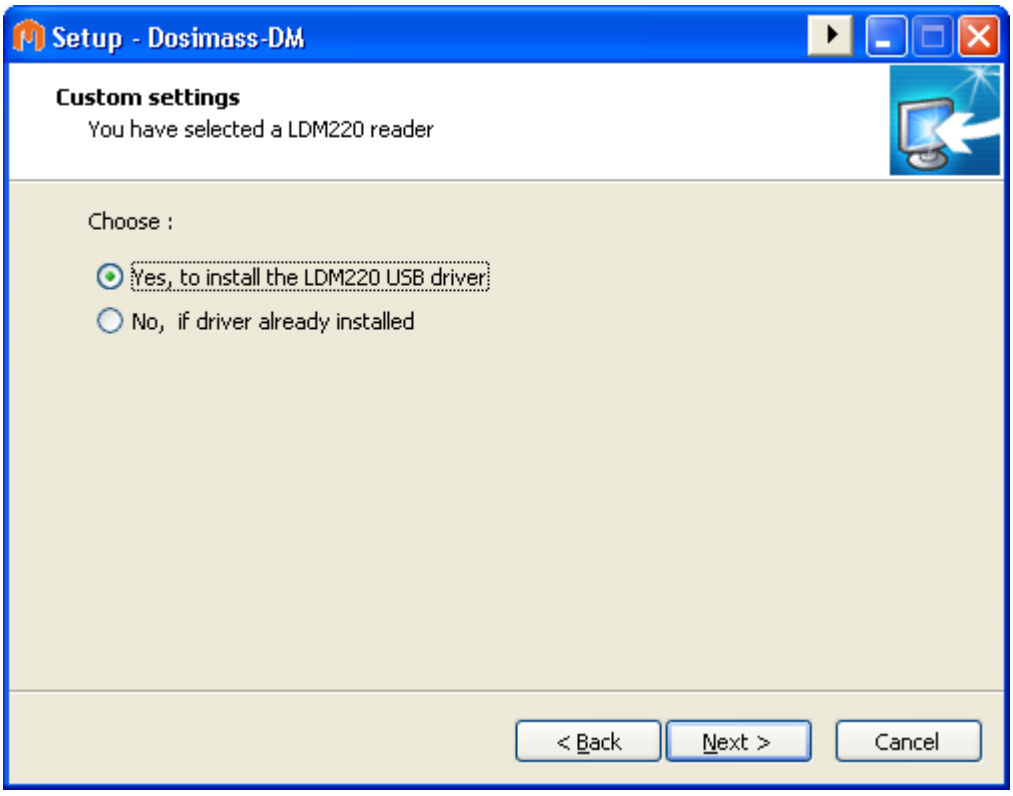
The window displayed above enables the customization of the start-up folder for the DOSIMASS Dosimeter Software. This folder will automatically be placed in the Windows program folder. It will contain all of the icons corresponding to the different software modules. These icons will allow the user to start the different software modules using a simple double click of the mouse.



2.3.6 Installation customization

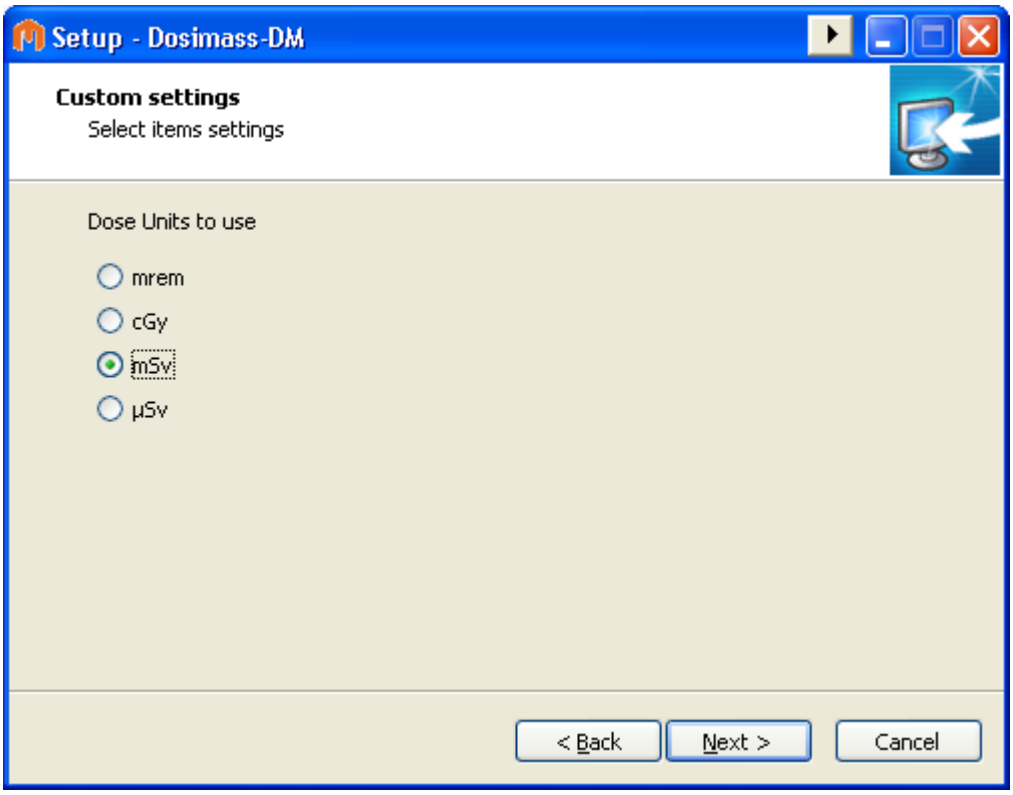


After the selection of the reader used, the following window appears:



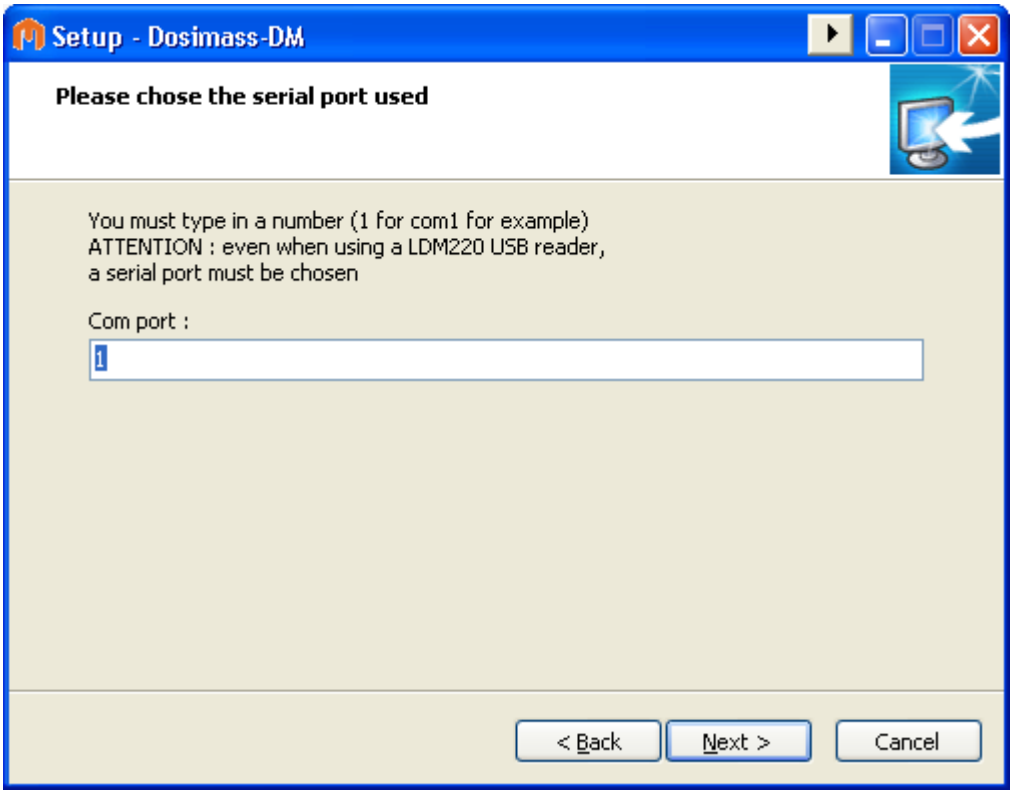
- Click on "***Next***"

Choose the unit desired



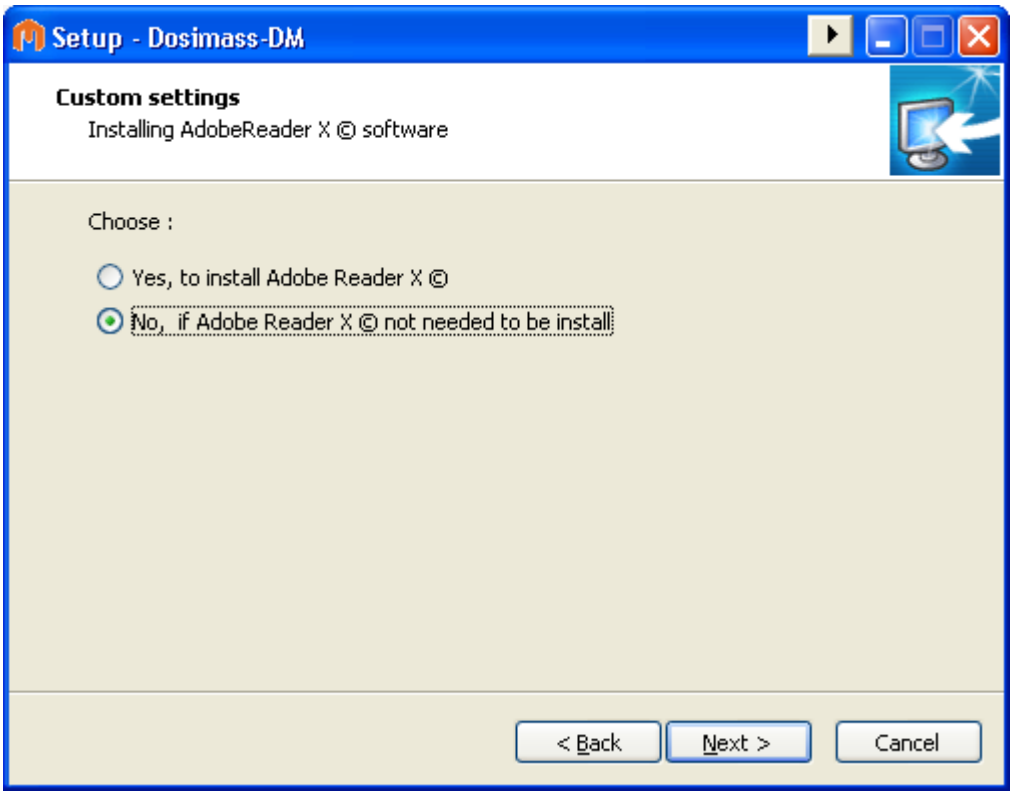
- Click on "**Next**"

And choose the serial port used

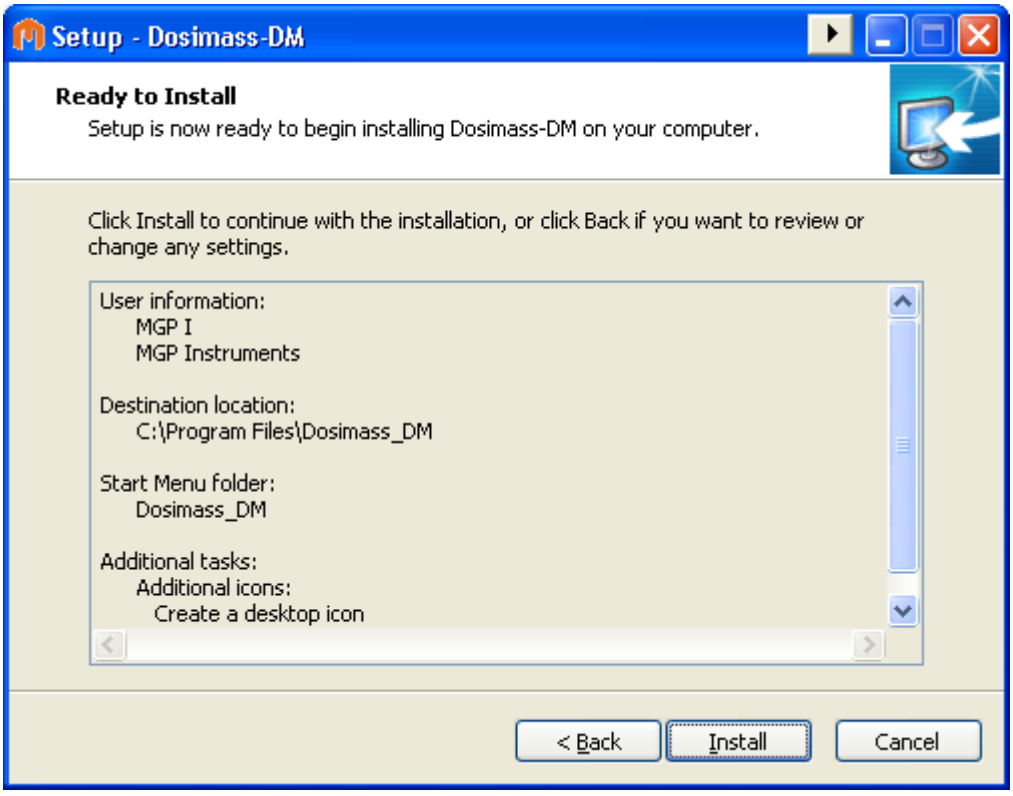


Note:
If you don't know the serial port to choose, you could modify it after by Dosimass_DM 's Configuration Menu

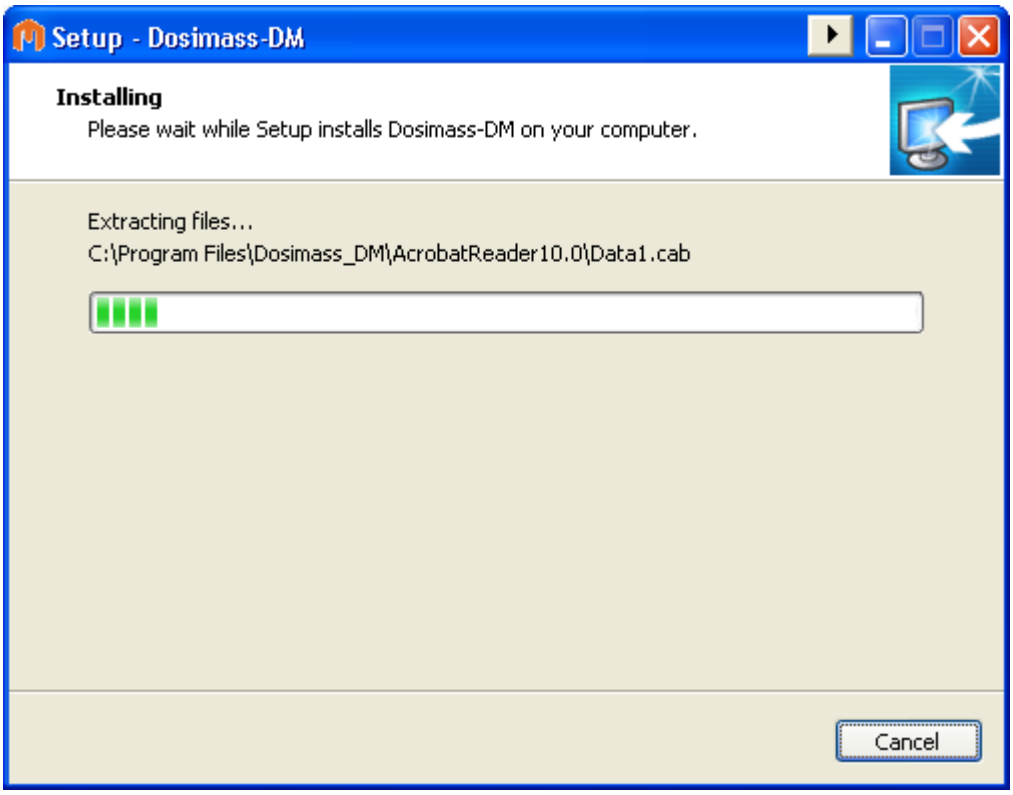
- Possibility to install or not, AdobeReader to read the pdf files.



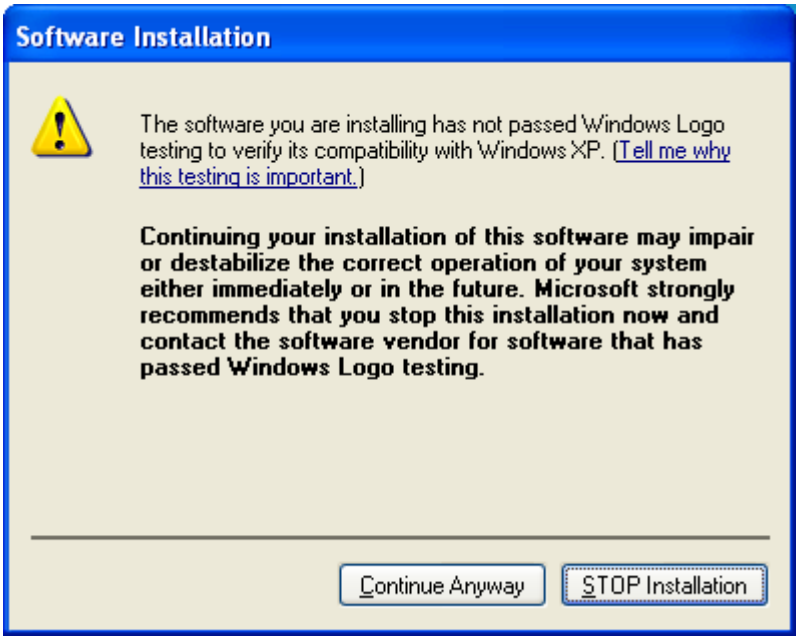
- Display of installation summary screen:



- Click on "***Install***" button
- The installation of files will now begin. Status windows will appear, providing a progress report on the downloading of the files to the PC disk.

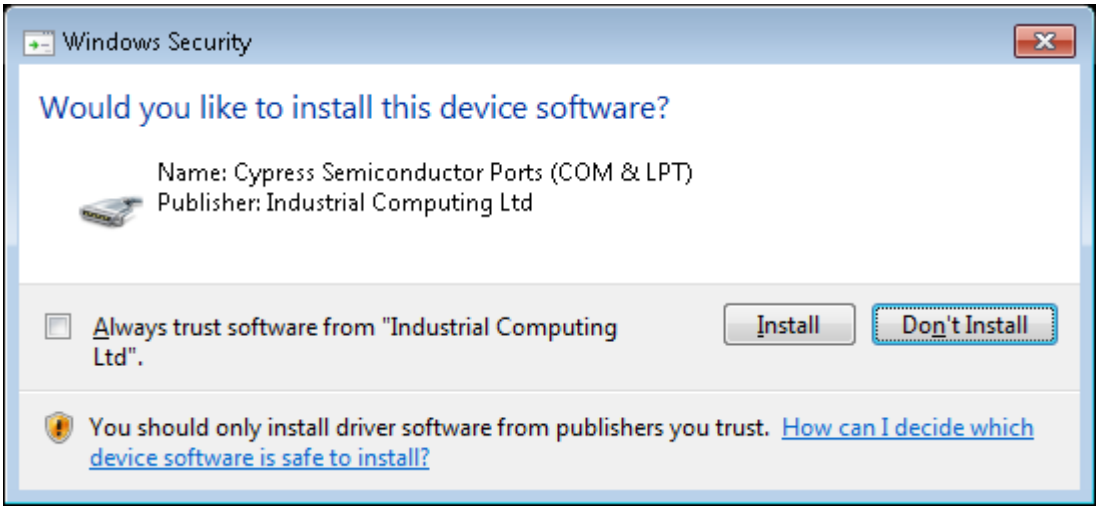


2.3.6.1 LDM220 driver installation (under XP)



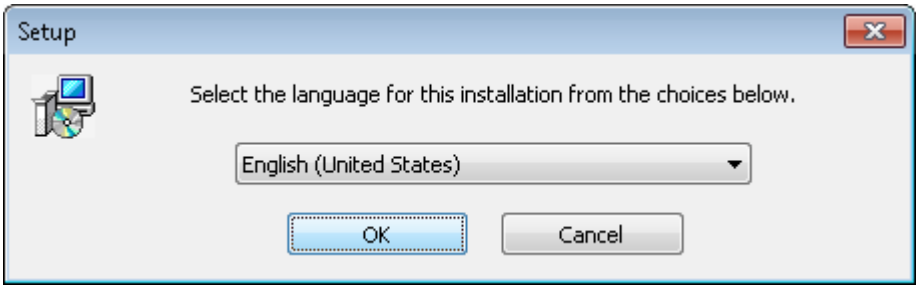
- Click on '***Continue Anyway***" to install the driver

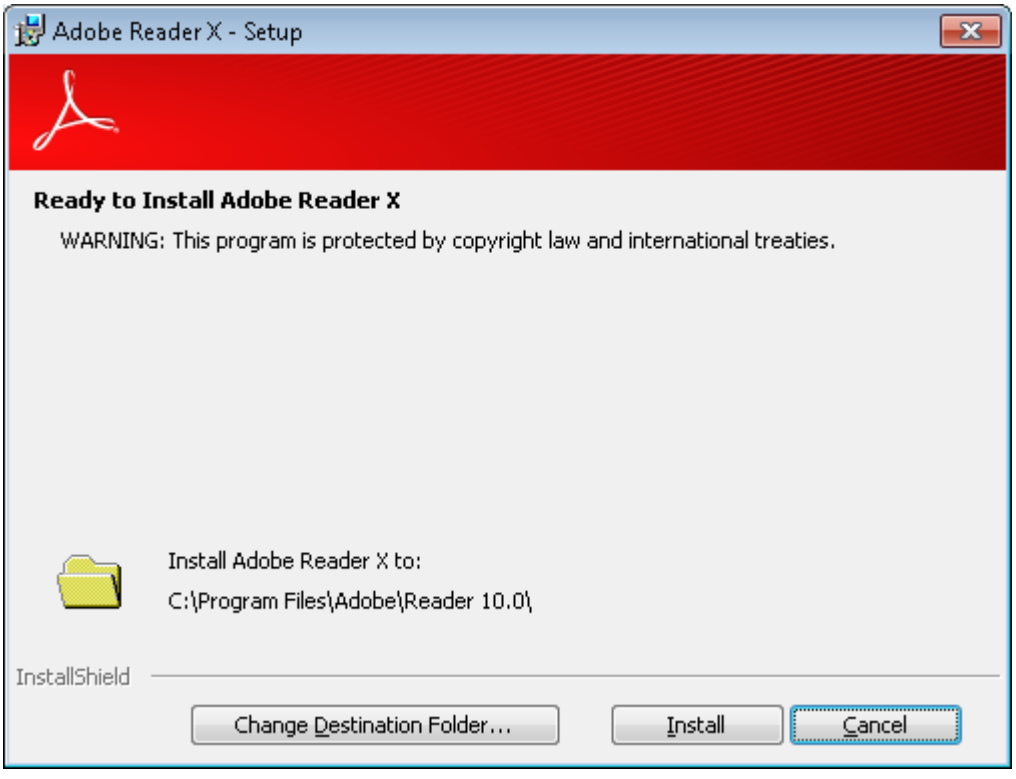
2.3.6.2 LDM220 driver installation (under Seven)



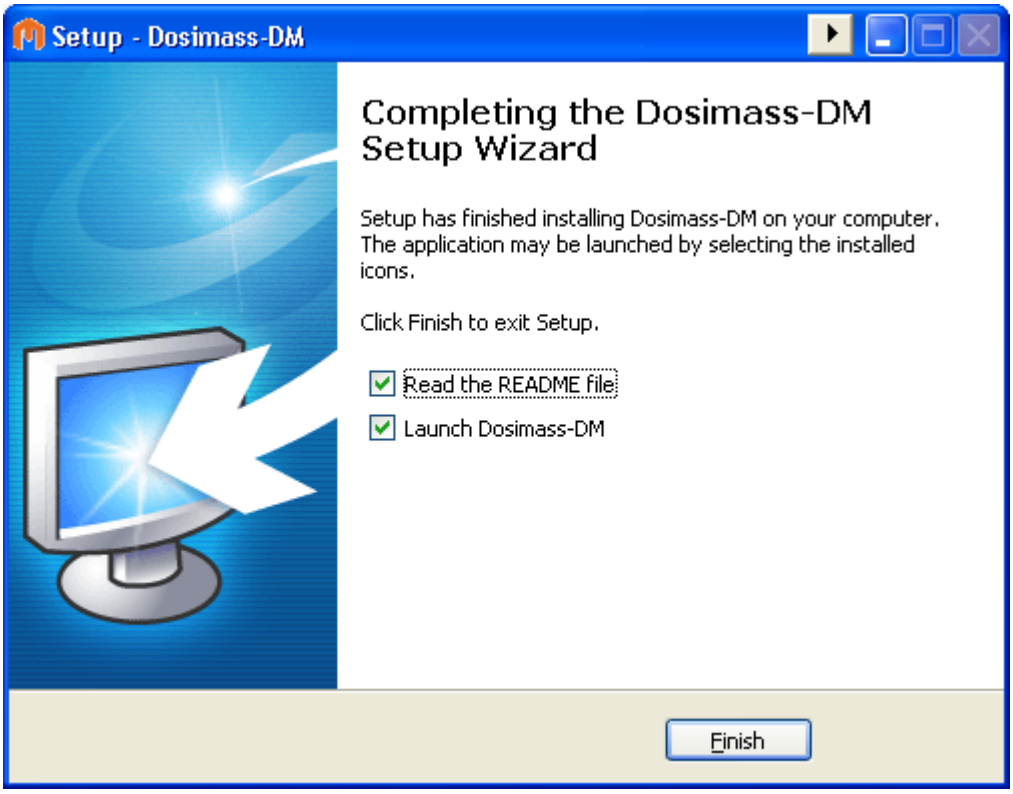
- Click on "**Install**" to install the driver

2.3.6.3 Adobe reader X installation



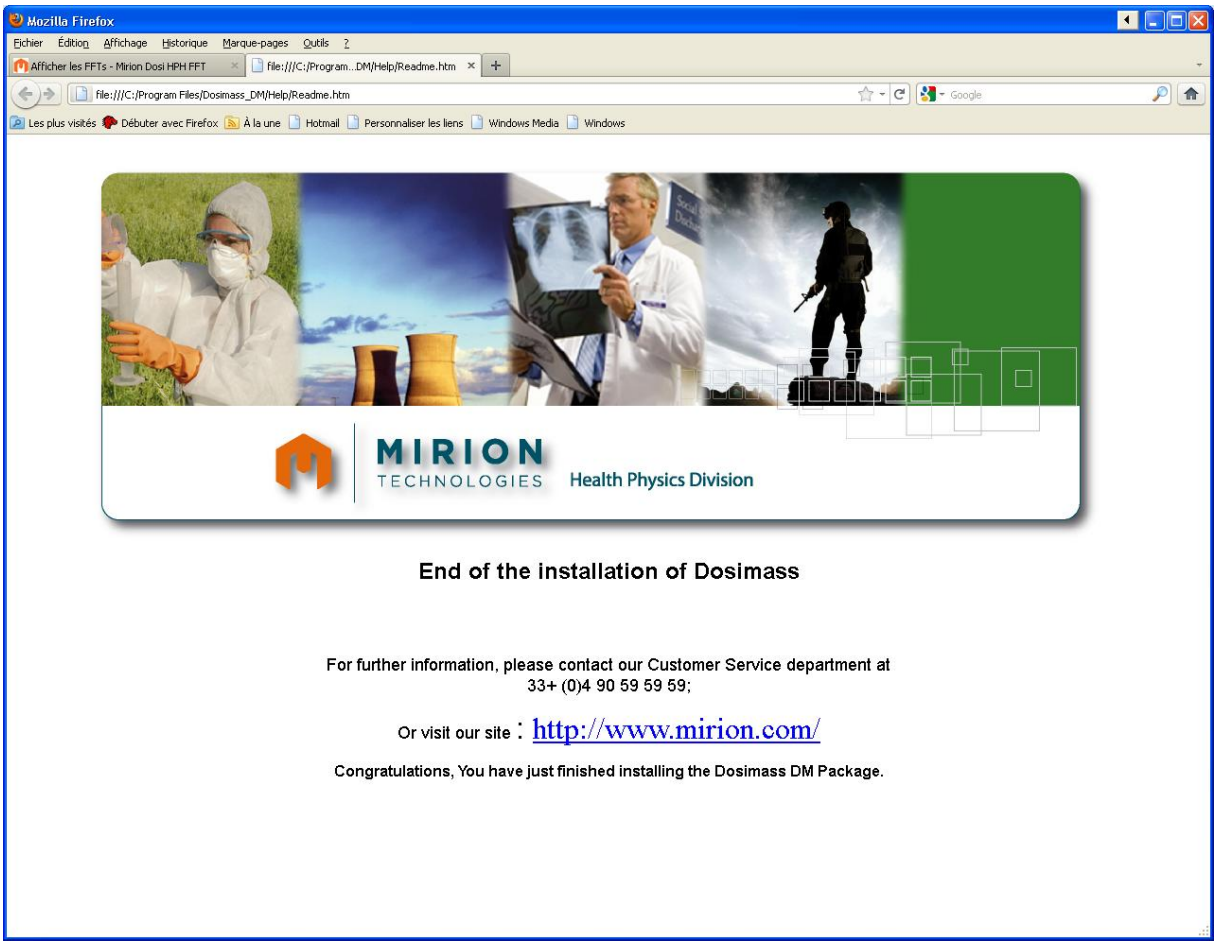


2.3.7 End oh the installation



In this case, a ***Readme.doc*** file will open automatically in the web browser (e.g., internet explorer). This file contains supplementary information that is accessible directly from the PC. It can be found in the installation directory that was previously selected.

This Readme.doc file can be printed from the open file (using the ***File / Print*** option via the main Menu).



2.3.8 Installation Complete

After rebooting the PC, the installation of the DOSIMASS Dosimeter Software is complete.

Generally, all of the parameters required for the operation of the DOSIMASS Dosimeter and DOSINET Software are automatically configured during the software installation procedure (configuration of the link between the PC and the reader).

If the constraints relative to the reader address and the choice of serial port were not respected, then the following parameters must still be modified. Consult the procedures listed below:

- **Address of the Dosimeter reader**: see the section entitled "Exchange," page 39.
- **Selection of a Serial Port:** (COM1, COM2, COM3, COM4): see the section entitled "Selection of another serial port," page 123.

Note:
Since all of the parameters required for the configuration of the DOSIMASS Dosimeter and DOSINET software are accessible from the setup menu, it is highly recommended that NO manual modifications be made to any files contained in the Installation directories

2.3.9 Access to the DOSIMASS Software Modules

Once the installation is complete, the DOSIMASS Software modules are accessible as follows:

- Using the ***Windows Desktop*** environment:

The user simply double-clicks the ***DOSINET*** icon in order to start the DOSINET module.

- Directly from the Folder in the ***Programs*** File:

The user selects ***Start*** / **Programs** / ***DOSIMASS*** / ***DOSINET*** in order to activate the DOSINET module.

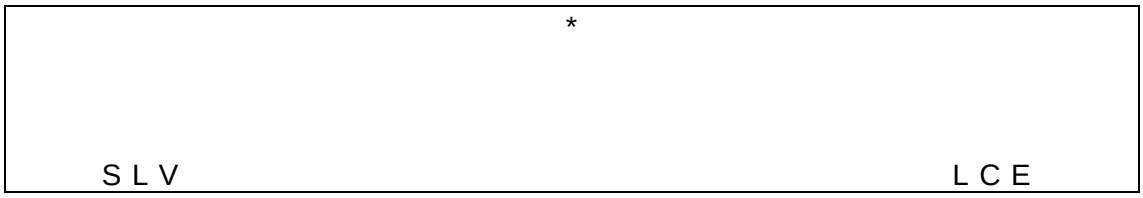
- Using the ***Windows Explorer*** tool by direct selection of the executable files that were placed in the installation folders.

2.4 Start-up of the DOSIMASS Dosimeter Software

This section provides the procedure required in order to start-up the DOSIMASS Dosimeter software once the installation is complete

Before initiating the **DOSIMASS Dosimeter software** start-up, the user must verify that the hardware has been correctly installed, including:

- Ensure that the connection cord between the PC and the Dosimeter reader is correctly installed.
- Switch the power button of the Dosimeter reader to the «***On***» position (for the LDM2000101);
- If using the LDM2000, verify that the reader's display panel appears as follows:



Note:
The elements of the displayed message have the following meaning:

SLV: The LDM2000 reader is in «Slave » mode

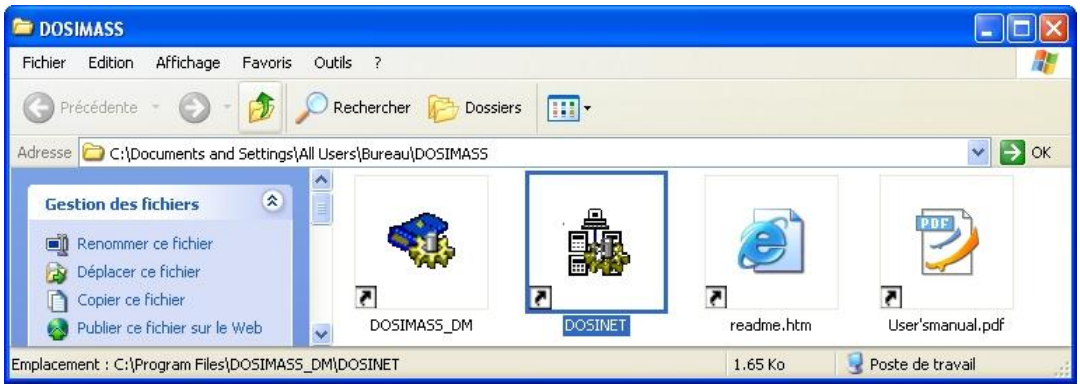
LCE: The LDM2000 reader is in « local » mode: it proceeds to access controls on local criteria and locally stores the data on the viewed passages.

For further information regarding various reader displays, refer to the LDM2000 User's Manual

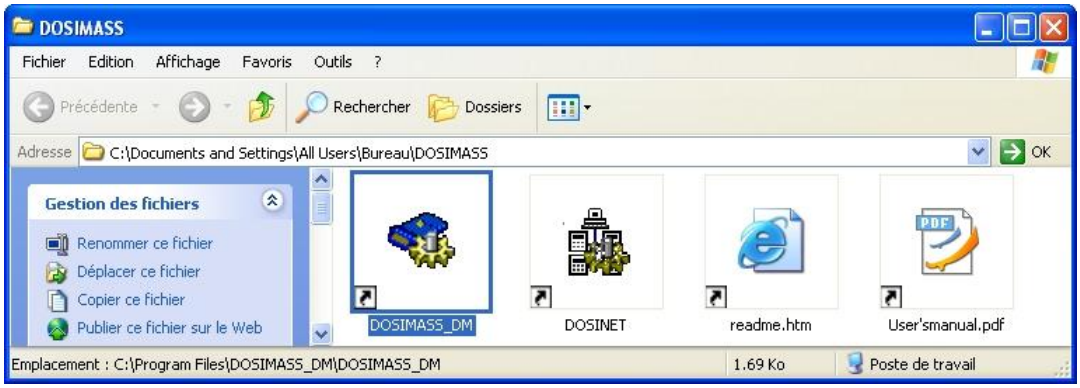
2.4.1 Start-up using *Windows* Desktop

Note:
Using the start-up folder placed on the Desktop (entitled DOSIMASS by default)

- Double click on the corresponding icon.

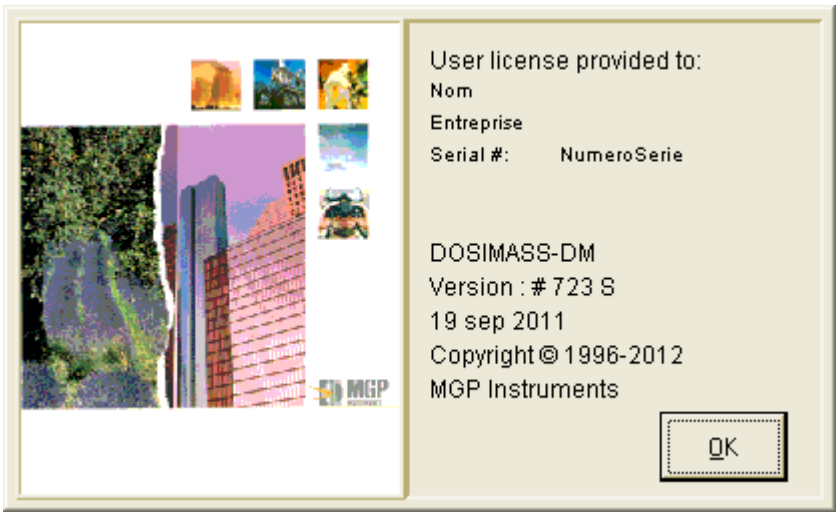


- Double click on the icon that corresponds to the DOSINET software in order to establish the link with the Dosimeter reader LDM101 or LDM2000 not Ethernet. For the others readers LDM2000210, LDM2000220 or LDM2000 Ethernet the DOSINETsoftware should not be launched.



- Double click on the icon that corresponds to the DOSIMASS Dosimeter software in order to activate the software.

The following window appears:



This window contains information relative to the license granted to the user, the number and index number of the software version and the date that the software was published.

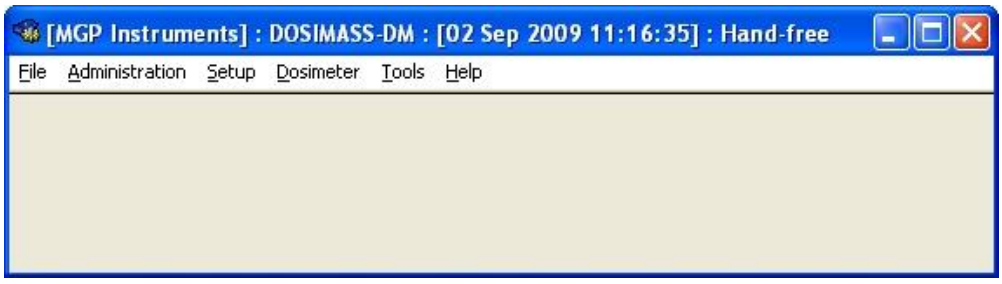
This information can also be found in the main menu of the DOSIMASS Dosimeter software, by selecting the following option: ***Help*** / ***About DOSIMASS-DM.***

- Click on **OK**.

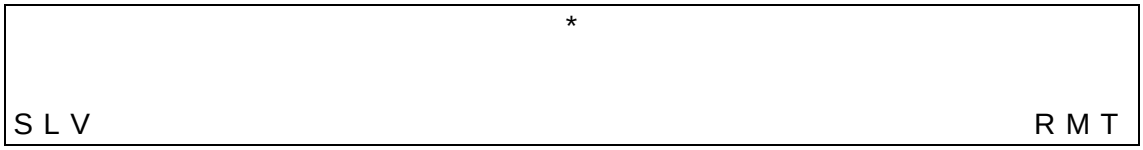
If the software has not been registered or the serial number is incorrect, the following message is displayed:

- Click on OK to access the main window

The main window of the **DOSIMASS Dosimeter** software will appear.



- When using the LDM2000, verify that the reader display panel appears as follows:



***Note**:*
The elements of the displayed message have the following meaning:
S L V: The LDM2000 reader is in « Configuration » or « Slave » mode

RMT: The LDM2000 reader is in « Remote » mode: it acts as a reader station controlled by Dosimass Software

For further information regarding various reader displays, refer to the LDM2000 User's Manual.

If «**SLV**» is not displayed on the bottom, left-hand side of the display, then the connection between the PC and the reader is not operational. If this is the case, then the user must determine that the hardware has been installed correctly by verifying the following:

- The COM1 port of the PC is used for the hands free reader connection.
- The physical address of the reader is set at <<**1**>>.
- The cable is indeed a DB9 type serial communication cable.

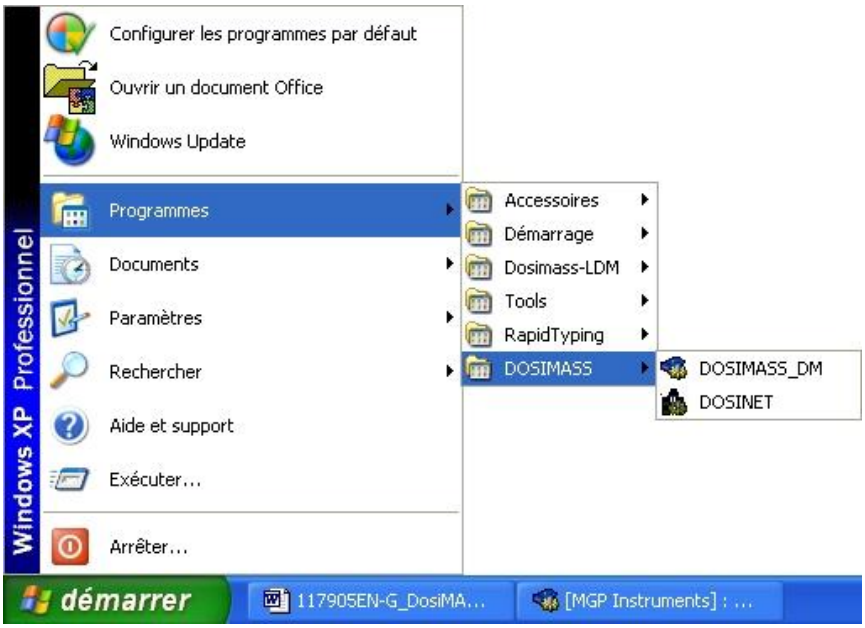
For additional information, consult the section entitled "Hardware Configuration with an LDM2000***" page 8.***

2.4.2 Start-up using the *Windows «Start»* Menu Bar

The user can also start the DOSIMASS Dosimeter software using the ***Windows Start*** menu bar (consult the illustration provided below):

Select ***Start / Programs / DOSIMASS / DOSINET*** in order to setup the connection with the Dosimeter reader LDM2000101 or LDM2000 not Ethernet. For the others readers LDM2000 and LDM20002XX Ethernet the software should not be launched.

Select ***Start / Programs / DOSIMASS / DOSIMASS-DM*** in order to start the DOSIMASS Dosimeter software.



2.5 Shutdown of the Software Modules

The procedure below indicates how to shutdown the array of software modules (***DOSIMASS Dosimeter*** and ***DOSINET***).

In certain cases, the shutdown of the entire array of software modules can prove necessary in order to reboot the system, for example, following a hardware installation modification.

2.5.1 Shutdown of the DOSIMASS Dosimeter Software Module

- From the main menu, select ***File / Exit***.

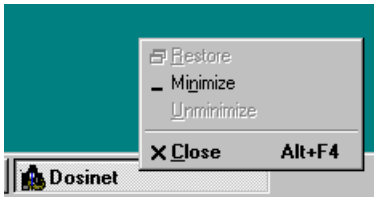
The following window will appear:

- Click on ***Exit***.

2.5.2 Shutdown of the DOSINET Software Module

- From the ***Windows*** taskbar at the bottom of the screen, right-click on the DOSINET task box.

The following pop-up menu will appear:



- Click on ***Close*** (using the left mouse button).

3. General Overview

3.1 Introduction

This chapter is designed to facilitate access to the entire set of DOSIMASS Dosimeter software functions.

As such, the following information will be presented:

- Access levels to the different information;
- Presentation of the main screen;
- General description of all of the functions accessible from the menu; and,
- Operating principles of the software using the keyboard.

3.2 Access Levels

Access to certain features is only permitted if the user possesses the required access level authorization.

Selection of an access level can be carried out by providing the following information:

- the user name; and,
- the associated password.

The parameter default values for each access level are reviewed below.

Note:
Refer to section Administration Menu page 35 for adding, deleting or modifying users, passwords and access level authority. Users are strongly encouraged to establish new passwords to prevent unauthorized access to dosimeter parameters.

While using the DOSIMASS Dosimeter software, the **current access level** appears between **brackets** in the title bar of the main menu, except for that of the lowest access level.

3.2.1 Operator Level

Note:
The Operator level is the default access level at the start-up of the DOSIMASS Dosimeters software.

Other than the ***Log-Out*** and ***Account Management*** functions in the Administration menu, the entire array of DOSIMASS Dosimeter software functions are accessible at the ***Operator*** level with the following restrictions:

- certain fields are not displayed

- most of the displayed information cannot be modified.

Note:
The operator has access to the following parameters of the dosimeters:
- Measurements and Thresholds (dose and rate settings only)
- Assignment
- Operating parameters
Refer to chapter "**Dosimeter Parameters**" page 59

3.2.1.1 Default Value of the Access Parameters

- User Name: «**operator**»
- Associated Password: «**operator**»

Note:
if the system detects no action from the user (using either the keyboard or the mouse) for more than the configured number of seconds then the DOSIMASS Dosimeter software automatically reverts to this default access level. Refer to § 3.4.2.4 Login in Time Out Ctrl+t. Factory settings = 10 min.gcdukzgdu

3.2.2 Supervisor Level

The entire array of functions of the DOSIMASS Dosimeter software, excluding the ***Account Management*** function in the ***Administration*** menu, is accessible at the Supervisor level, with the following restrictions:

- Only the modification of the information relative to the internal operation parameters (factory settings) of the Dosimeter is restricted.

3.2.2.1 Default Value of the Access Parameters

- User Name: «**supervisor**»
- Associated Password: «**supervisor**»

3.2.3 Administrator Level

This level provides access to all the functions excluding the ***Configuration*** and ***Dosimeter*** menu functions.

This is the only level that is authorized to access the ***Account Management*** function from the ***Administration*** menu. This function allows the user to manage the users and their associated access authorization levels.

3.2.3.1 Default Value of the Access Parameters

- User Name: «**administrator**»
- Associated Password: «**administrator**»

3.2.4 Manufacturer (Factory) Level

The ***Manufacturer*** level of authorization has access to the entire array of the DOSIMASS Dosimeter software functions excluding the ***Account Management*** function in the ***Administration*** menu.

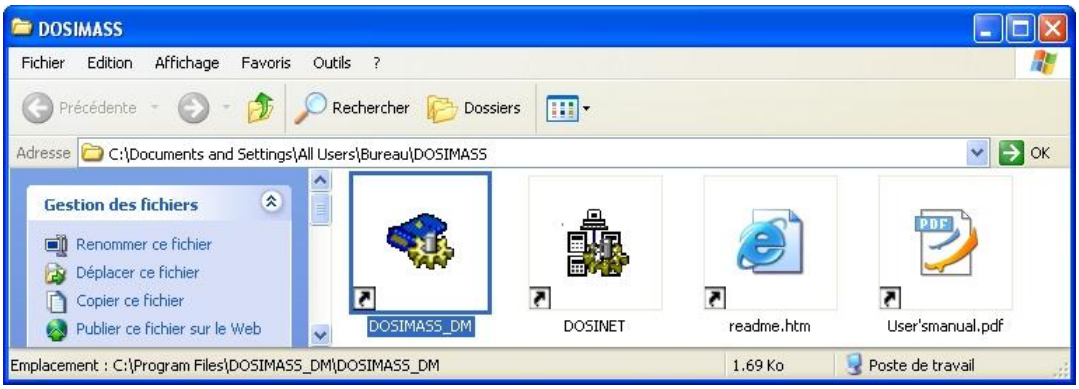
3.2.4.1 Default Value of the Access Parameters

- User Name: «**mgpi**»
- Associated Password: «**mgpi**»

Safety Alert: *The Factory / Manufacturer level of authorization provides access to the Manufacturing parameters of the Dosimeter, more specifically, the calibration parameters. Only MGPI experts are permitted to modify these parameters, and then only under controlled circumstances, since this could cause a malfunction in the operation of the Dosimeters.*

3.3 Main Screen

Note:
the main screen of the DOSIMASS Dosimeter software is primarily accessible by activating the corresponding icon (DOSIMASS-DM). For additional information concerning the start-up of the software, see Start-up of the DOSIMASS Dosimeter Software*, page 26.*



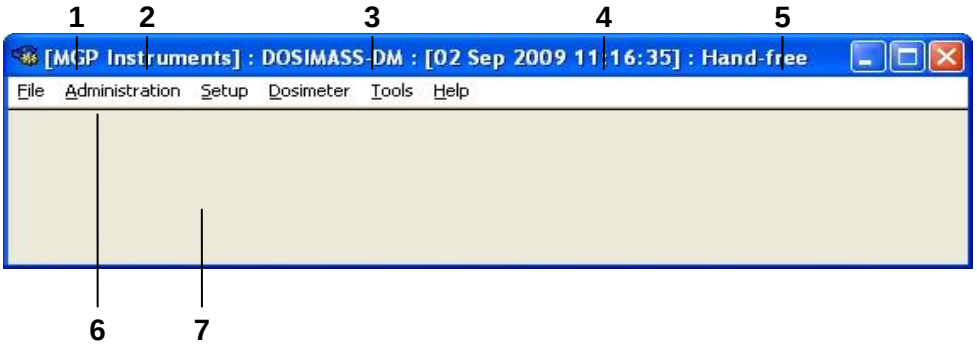
The main screen is comprised of a window that contains the following elements (see the diagram, below):

- A title bar (**1**), which contains the following information:
  - *Current access level (**2**), in this case, Manufacturer level;*
  -

Note:
when the current access level is Operator, no access level information is displayed.

  - *Name of the software (**3**), in this case DOSIMASS Dosimeter;*
  - *Date and time (**4**);*
  - *Communication operating mode (**5**):*
    *- «**Hands-Free**» in the case of an LDM2000, LDM2XX*
    *- «**Infrared**» in the case of an LDM101 or an LDM91.*

- A menu bar (**6**) which provides access to the array of available functions
- A blank area (**7**) that is designed to house the windows relative to the different functions.



3.4 Functions Accessible from the Menu Bar

The array of functions of the DOSIMASS Dosimeter software is accessible using the menu bar (see below). These functions are accessible using the mouse or the keyboard.

Note:
access to certain functions is only authorized if the user has the appropriate level of access defined by the password (for more information, consult the section entitled Access Levels, page 31)

The list of primary functions is reiterated below:

- Exit the application (***File*** menu); and,
- On-line help function and information about the software version (***Help*** menu).

3.4.1 File Menu Ctrl+Q

This menu allows the user to exit the DOSIMASS Dosimeter software.

In order to exit the DOSIMASS Dosimeter software:

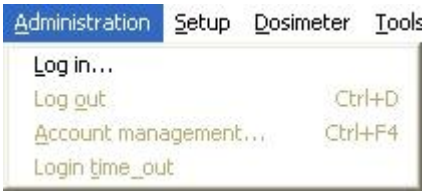
From the main menu, select ***File / Exit***.

The following window will appear:

Click on ***Exit*** or press enter.

3.4.2 Administration Menu

This menu provides access to the functions that allow the user to manage the different access levels.



For more information on the different access levels, see ***Access Levels***, page 31.

3.4.2.1 Identification

This function enables all users to identify themselves in order to obtain the access level allocated by the Administrator (consult the section entitled ***Account Management*** on the next page).

- Using the main menu, select ***Administration/Identification***.

The following window will appear:

- Type in the User Name in the section entitled ***User ID***.
- Type in the Associated Password in the section entitled ***Password***.

Note:
*for security reasons, when typing the password entry, the alphanumeric characters are replaced by the * symbol.*

- Click on ***OK***.

The main screen will be displayed. The access level appears in the left-hand side of the title bar. If no access level indication appears, then the selected access authorization level is set at the default, or ***Operator*** access level.

Note:
in case of identification fault, (e.g., incorrect parameters), the current access level (e.g., Supervisor) is accessible by clicking on Delete.

3.4.2.2 Log-Out *Ctrl+D*

This function allows the user to return to the ***Operator*** access level.

Note:
if the system detects no action from the user (using either the keyboard or the mouse) for more than a configurable delay (manufacturer configuration: 10 min. by default), then the DOSIMASS Dosimeter software automatically reverts to this default access level.

- Using the main menu, select ***Administration / Log-out***, or use the keyboard hot-keys (*Ctrl+D*).

The main screen will be displayed. No access level indication will appear in the title bar.

3.4.2.3 Account Management Ctrl+F4

This function allows the user to add, modify and delete different users and their access levels and is accessible only to the Administrator.

Using the main menu, select ***Administration / Account Management***,

The following window will appear:

Note:
regardless of the operation to be conducted (addition, modification, deletion of a user), begins by typing the User Name in the section entitled User ID.

Add a New User

- Type in the User Name in the section entitled User ID.

When the cursor moves into the following sections, ***Password 1*** and ***Password 2***, the characters are automatically masked by the <<*>>symbol if the User ID already exists.

- Type the password corresponding to the new user in the section entitled ***Password 1***; and,
- Type the same password into the section entitled ***Password 2***.

Note:
the two passwords must be identical, which allows the system to ensure that the password typed in the section entitled Password 1 was input with no typographical errors. In case there is a discrepancy between the two passwords, the user must input the two passwords again.

- Select the corresponding access level in the drop-down menu, from among the following:
  - *Operator;*
  - *Supervisor;*
  - *Administrator; or,*
  - *MGP Instruments.*
- Click on ***Insert*** in order to register the new user account.
- Click on ***Exit*** when the Account Management session is terminated, or continue on to another task.

Modify an Existing User

This function allows the Administrator to modify the password or the access level of an existing user.

- Type in the name of the existing user in the section entitled ***User ID***.

When the cursor moves into the following sections, ***Password 1*** and ***Password 2***, the characters are automatically masked by the <<*>>.

- Type the new password corresponding to the existing user in the section entitled ***Password 1***; and,
- Type the same password into the section entitled ***Password 2***.

Note:

the two passwords must be identical, which allows the system to ensure that the password typed in the section entitled Password 1 was input with no typographical faults. In case there is a discrepancy between the two passwords, the user must input the two passwords again.

Select the corresponding access level in the drop-down menu, from among the following:

- *Operator;*
- *Supervisor;*
- *Administrator; or,*
- *MGP Instruments.*

- Click on ***Modify*** in order to register these modifications to the existing user account.
- Click on ***Exit*** when the Account Management session is terminated, or continue on to another task.

Delete an Existing User

- Type in the name of the existing user in the section entitled ***User ID***.

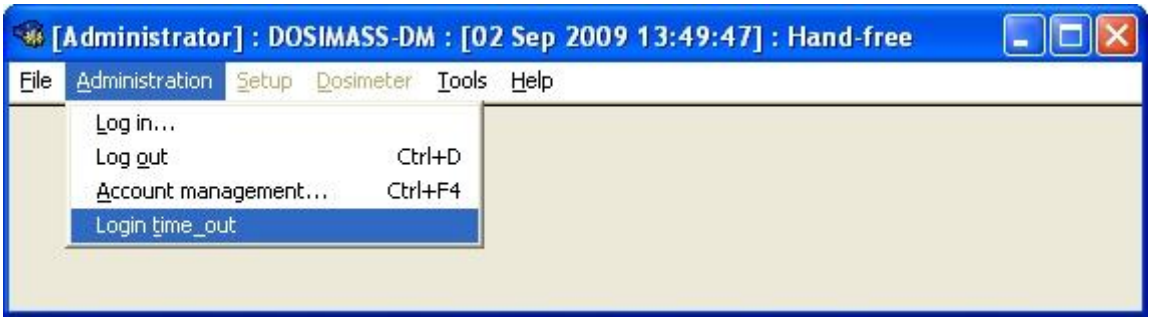
- Click on ***Delete***.
- Click on ***Exit*** when the Account Management session is terminated, or continue with another task.

3.4.2.4 Login in Time Out Ctrl+t

The software uses a time out function for security purposes. If a user is logged in for longer than a set time the system will log them off. This time out value is configurable by the Administrator.

After logging in under the Administrator account the « log in time out » option is available.

Select the Login time out.



The time out delay can be set up to 9999 seconds. The change will take effect after you restart DosiMass.

3.4.3 Set Up Menu

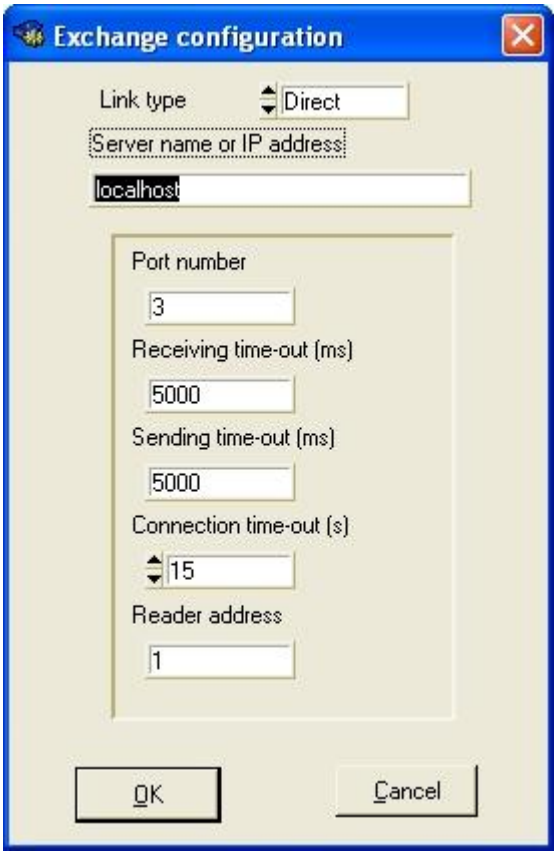
This menu provides access to the configuration functions of the DOSINET and DOSIMASS Software modules.

3.4.3.1 Exchange

This function enables the user to configure the EXCHANGE, and more specifically, the Dosimeter reader address.

- From the main menu, select ***Configuration / Exchange***.

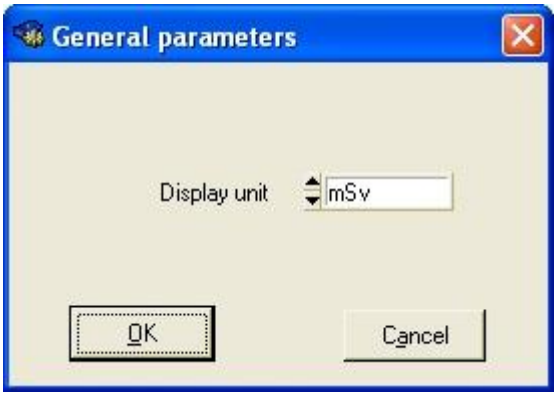
The following window will appear:



Important note:
At the time of the installation, the entire array of EXCHANGE parameters is optimized. It is highly recommended that NO modifications be made to the parameters that are accessible via this window. The only exception to this recommendation concerns the Reader Address, and this exception applies only in the event that the reader address does not correspond to the recommended values (See the section "Selecting the Address of the LDM2000 page 8 or Selecting the Address of the LDM101, page 9)

- Input the actual physical address of the Dosimeter reader into the field entitled ***Plug Number*** (***Reader Address***).
- Click on ***OK*** in order to validate the input value.
- From the main menu, select Configuration / General Parameters.

The following window will appear:

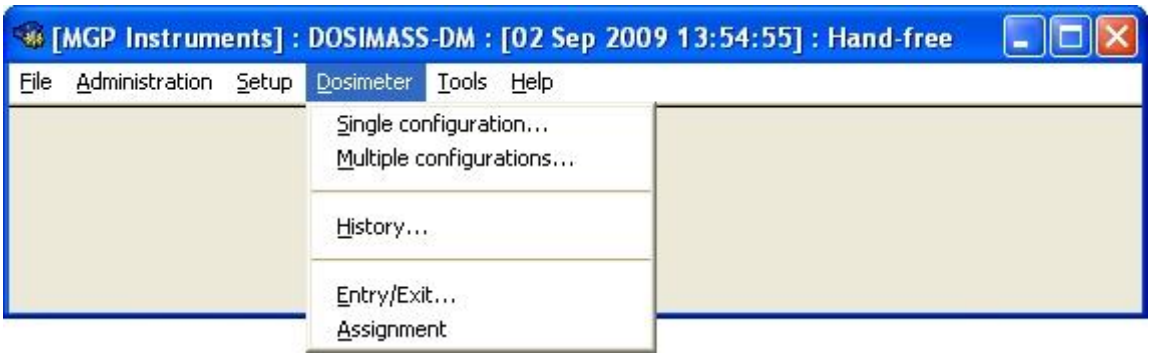


- Select the measurement display units from among the following:
  - *mrem;*
  - *mSv;*
  - *µSv,*
  - *cGy.*
- Validate the selection by clicking on ***OK***.

Attention:
Changed display unit of Dosimass_DM does not alter the display unit of dosimeter. To change the display of dosimeters, see section 5.2.4 Operating Parameters

3.4.4 Dosimeter Menu

This menu provides access to the primary functions of the DOSIMASS Dosimeter Software.



3.4.4.1 Single Configuration

This function enables the individual configuration of each Dosimeter.

This process can be broken down into several basic functions:

- Readout and Display of the entire parameter array of a Dosimeter;
- Modification of the Dosimeter parameters;
- Downloading the Dosimeter parameters from a file; and,
- Saving the Dosimeter parameters to a file.

Given the high degree of importance attached to this function, two chapters are dedicated to this subject.

Configuration of a Dosimeter, page 49

This chapter provides the information required for access to the Configuration window and allows the user to become proficient in the entire array of functions (read/write of parameters, downloading and saving parameter files).

Dosimeter Parameters, page 59

This chapter presents the description of the primary parameters, which are accessible while browsing through the different sections contained within the Configuration window.

This function is accessible from the main menu, by selecting ***Dosimeter/Single Configuration***.

3.4.4.2 Multiple Configurations

This function enables the multiple configurations of Dosimeters using the Configuration files.

A separate chapter is dedicated to the explanation of this function (see ***Multiple Configuration of the Dosimeters***, page 89).

This function is accessible from the main menu, by selection ***Dosimeter/Multiple Configurations***.

3.4.4.3 Events History

This function allows a user to recover the Events History stored in the Dosimeters for immediate use or for use at a later date, by saving the data in Events History files.

A separate chapter is dedicated to the explanation of this function (see ***Operation of the Events History Menu Option***, page ***101***).

This function is accessible through the main menu, by selecting ***Dosimeter/Events History***.

3.4.4.4 Entry/Exit

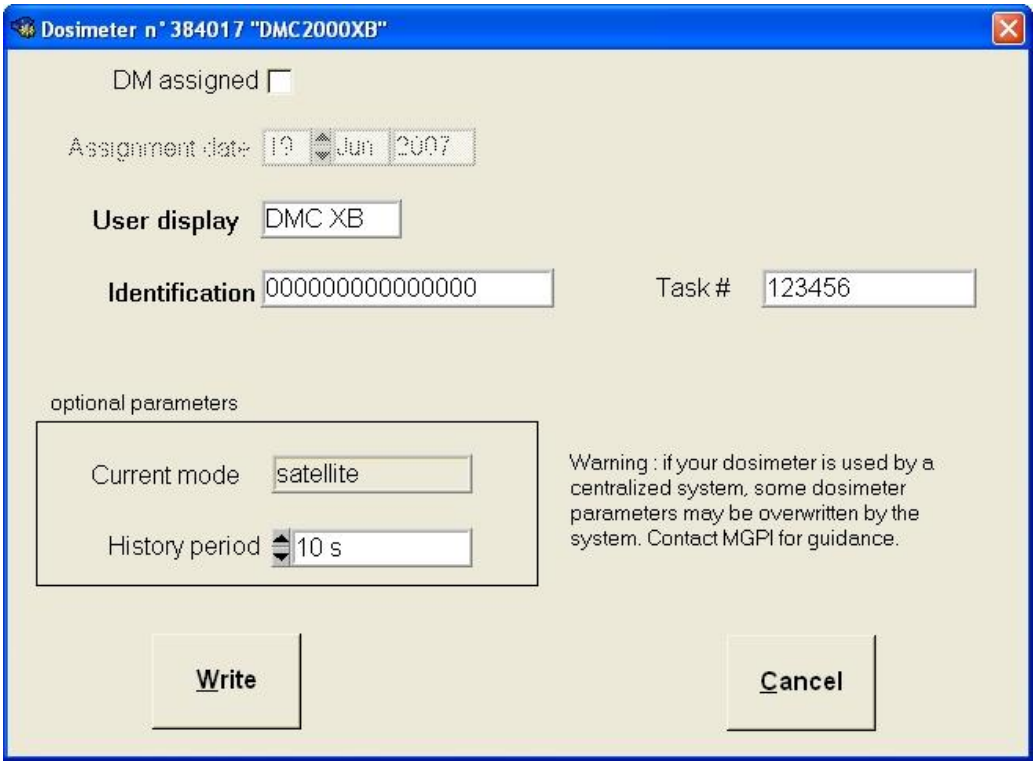
This function enables the rapid configuration of all Dosimeters during the Entry/Exit into/from a controlled area.

A separate chapter is dedicated to the explanation of this function (see ***Entry into a Controlled Area***, page 91 and ***Exit from a Controlled Area***, page 93).

This function is accessible through the main menu, by selecting ***Dosimeter/Entry/Exit***.

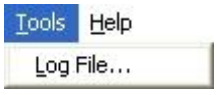
3.4.4.5 Assignment

This function allows allocating a dosimeter to a user with specific information about the user saved to the dosimeter's internal memory. Allocation information included: a customized display message, user's identification and task code. The historical interval setting may also be defined.



3.4.5 Tools Menu

This menu provides access to the Log File (DosiMass Event Log).



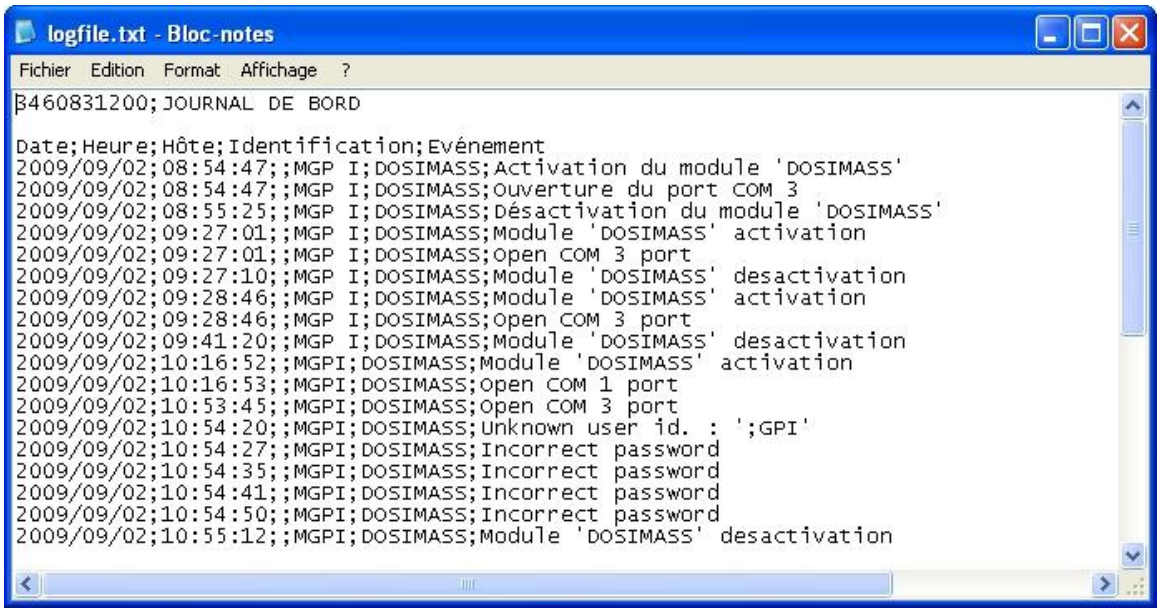
3.4.5.1 Event Log

The Event Log is a file that continuously records all of the events relative to software operations onto the hard disk of the PC (e.g., client connection messages, problems encountered at the time of the connection setup, activation/deactivation, etc.).

These events are clearly identified by a label and are time/date-stamped. If the need arises, these records will facilitate a joint problem analysis by the user and MGP Instruments.

In order to access this function, activate the ***Tools****/Event Log* option from the main menu.

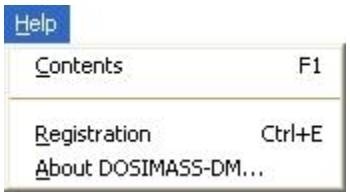
This Event Log opens using a *Windows* application.



Note:
this Event Log is saved in a text file entitled "logfile.txt" and maintained under the Installation sub-directory entitled "DOSIMASS_DM."

3.4.6 Help Menu

This menu provides access to the on-line help feature and provides information relative to the DOSIMASS Dosimeter software.



3.4.6.1 Contents

This function provides access to the on-line help feature, if available.

3.4.6.2 Registration

This function allows entering the registration information of the software.

The following registration window will appear:

Enter the appropriate data exactly as mentioned in the user license (must respect upper and lower case characters for proper registration).

- Fill the three fields and validate by clicking on the **Ok** button

Note:
See § 2.3.5 and § 2.3.3 about information on fields to filling

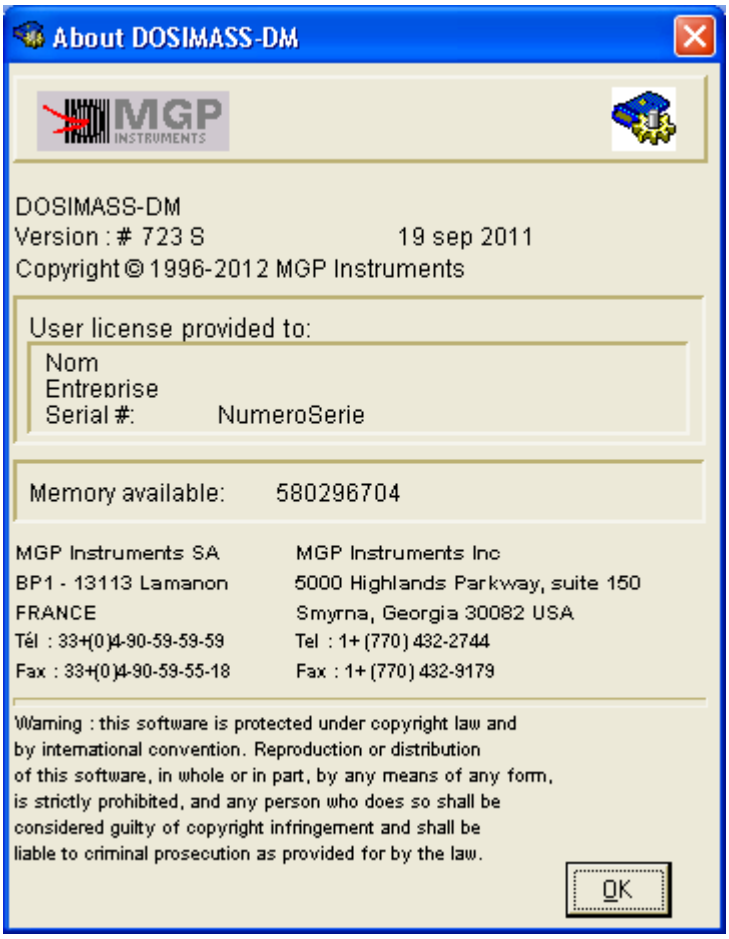
3.4.6.3 About DOSIMASS-DM

This function allows access to information concerning the DOSIMASS Dosimeter software, including:

- License granted to the user;
- Number and version index of the Software; and,
- Issuance date.

In order to access this function from the main menu, select ***Help/About DOSIMASS-DM***.

The following window will appear:



3.5 Use of the Keyboard

Full use of the DOSIMASS Dosimeter software is possible using only the PC keyboard.

3.5.1 Conventions

In the following section, the key designation is as follows:

- DOWN Arrow Key: navigation key for moving downward on the screen;
- RIGHT Arrow Key: navigation key for moving to the right on the screen;
- ENTER Key: validation key (enter key on main keyboard or number pad keyboard);
- LEFT Arrow Key: navigation key for moving to the left on the screen;
- UP Arrow Key: navigation key for moving upwards on the screen;
- SHIFT Key: activation key for uppercase characters; and,
- TAB Key: activation key for tabulation.

3.5.2 Software Initialization

3.5.2.1 DOSINET Initialization

- Access the *Windows* ***Start*** menu by simultaneously pressing the ***CTRL+ESC*** buttons;
- Press repeatedly on the **UP** arrow key until the ***Programs*** function is highlighted;
- Press the **RIGHT** arrow key so that the program groups are displayed;
- Press repeatedly on the **UP** or **DOWN** arrow keys until the **DOSIMASS** program groups is highlighted;
- Press on the **RIGHT** arrow key so that the software modules are displayed;
- Press the **UP** or **DOWN** key in order to select the **DOSINET** option.

3.5.2.2 DOSIMASS Dosimeter Software Initialization

Follow the same procedure listed above; however, select the DOSIMASS-DM option instead of the DOSINET option.

3.5.3 Selecting a Function from the Main Menu

- Simultaneously press on the ALT and the underlined letter of a menu function (e.g., press ***ALT+m*** in order to select the ***Administration*** function).
- Press on the underlined letter of the executable function (or select this function using the UP or DOWN arrow key followed by ENTER when the correct function has been selected).

3.5.4 Navigation within a dialog box or a window

3.5.4.1 Navigation

In order to navigate within a dialog box or a main window, several methods exist.

- Press repeatedly on the TAB key in order to move in a one direction (press ***ALT+TAB*** to move in the opposite direction) within a particular section, or to access a specific button or any other element.
- Simultaneously press the ALT key and the underlined letter of the section, button or element in question.

Note:
in certain cases, pressing on the ALT key and the underlined letter will activate the function.

3.5.4.2 Activation of an Element

- In order to activate the function that corresponds to the selected element, press the ENTER key.

3.5.4.3 Input of a Numeric Value

- Input the numeric value directly using the keyboard (e.g., .001 or 1E-3); or,
- Press the UP arrow key in order to increase the current value; or,
- Press the DOWN arrow key in order to decrease the current value.

3.5.4.4 Input of an ON/OFF Value

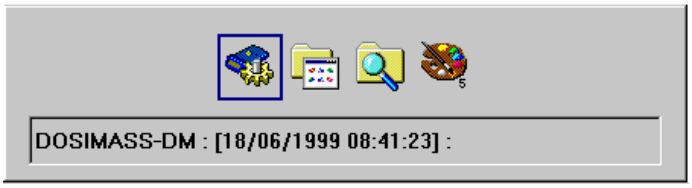
- Press the ENTER key in order to switch the input value from ***ON*** to ***OFF***, and vice-versa.

3.5.4.5 Select a List Item

- Press on the DOWN arrow key in order to display the proceeding element in the list; or,
- Press on the UP arrow key in order to display the preceding element in the list.

3.5.5 Locating the DOSIMASS Dosimeter Software

If, by accidental manipulation, the software disappears, press repeatedly on the ***ALT+TAB*** keys in order to select the DOSIMASS_DM icon, then release the keys (see the illustration below).



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4. Configuration of a Dosimeter

4.1 Introduction

This chapter provides the procedure that allows a user to configure a Dosimeter.

As such, it provides the information that enables access to the Configuration window and allows a user to become proficient in the entire array of related functions (read/write parameters, downloading and saving parameter files, etc.).

It does not review the description of the accessible Dosimeter parameters. This information is provided in a later chapter ("Dosimeter Parameters," page 56).

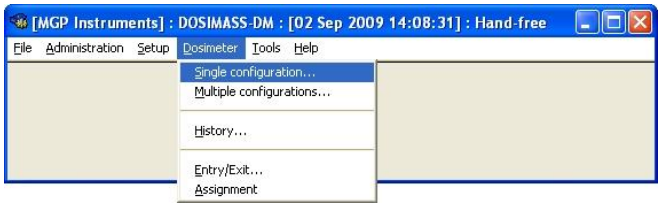
This chapter can be broken down into the following elements:

- Access to the Configuration window;
- Description of the Configuration window;
- Readout and display of the entire array of parameters of a Dosimeter;
- Modification of these parameters;
- Downloading Dosimeter parameters from a file; and,
- Saving Dosimeter parameters to a file.

4.2 Access to the Configuration Window

The procedure is as follows:

- Access the main screen of the DOSIMASS Dosimeter software by following the procedure detailed in the section entitled ***Start-up of the DOSIMASS Dosimeter Software*** page ***26***.
- From the main menu, select Dosimeter/Single configuration.



Note:
It is imperative that only one dosimeter be present in the field of the antenna of the reader (refer to the user's Manual to get information for the range of Hands free and the privileged orientations of the dosimeters).

One of the following windows will appear:

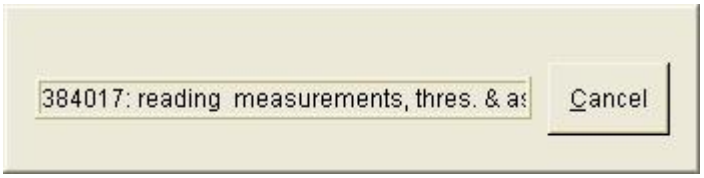
When using a Dosimeter with a Hands free reader:

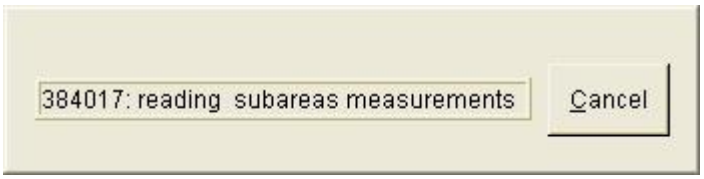
- Move the Dosimeter to within close range of the Hands free reader (immediate proximity).

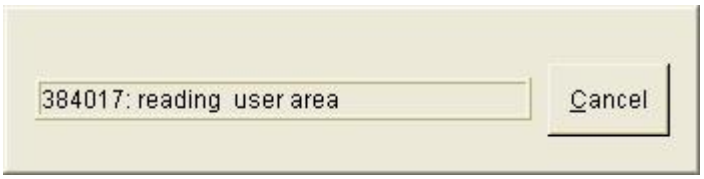
When using a Dosimeter with an LDM101 reader:

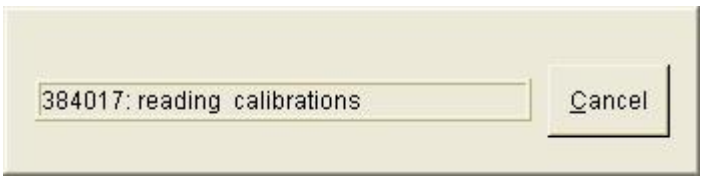
- Insert the Dosimeter into the LDM101.

The following windows will appear sequentially. These windows indicate the number of the Dosimeter being read and the type of parameter in the process of being read in the EEPROM memory of the Dosimeter.





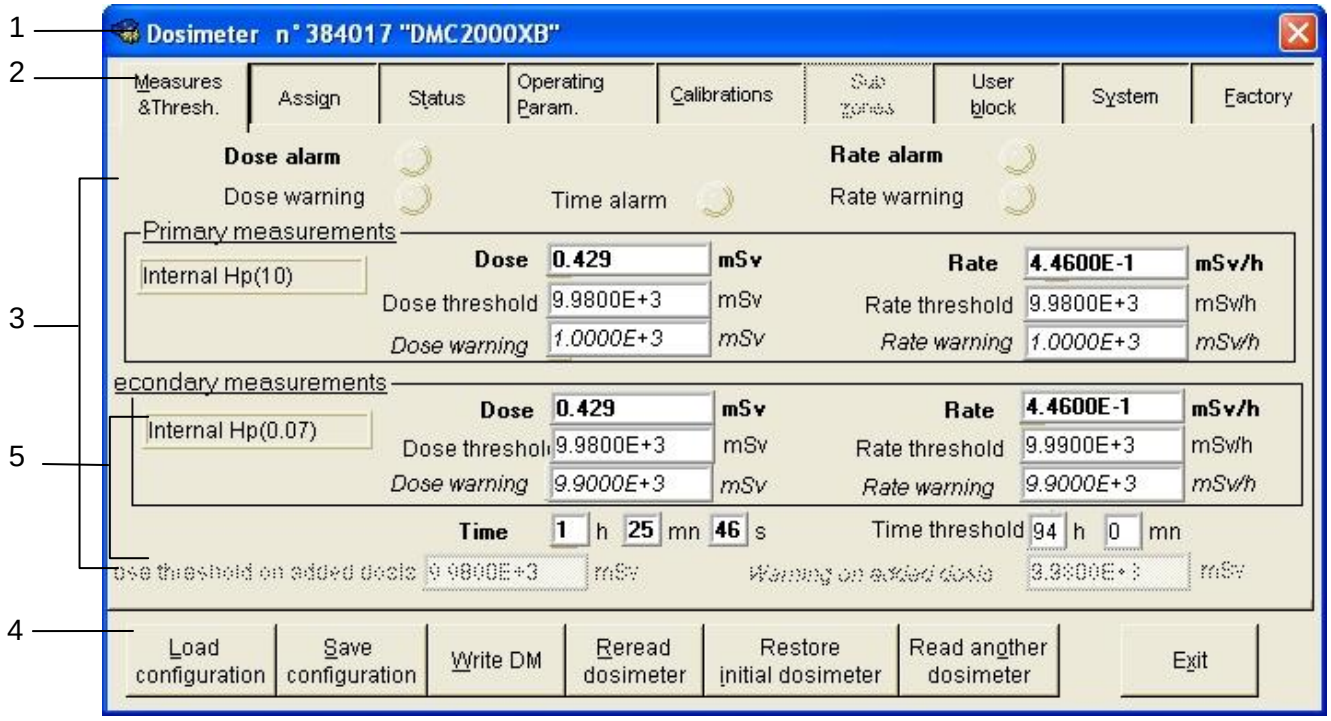




The Configuration window will automatically appear.

4.3 Configuration Window

After following the procedure outlined in the preceding section, the Configuration window will appear as shown below.



This window includes the following elements:

1. A title bar that includes the *Dosimeter number* and the *Dosimeter type*.
2. A series of tabs, which provide access to the different sections. These sections group Dosimeter parameters of similar type. The sections are identified by label. The use of the tabs allows a user immediate access to these parameters.
3. An area, which displays the entire array of parameters of similar type. The example provided above corresponds to the section entitled Measures and Thresholds pages 59, 78, and 83.
4. A series of function keys that enable the use of the Configuration window.
5. Only displayed when dosimeter is with secondary measurement.

4.3.1 Tabs

The different types of parameters regrouped under a single tab are as follows:

Measures &Thresh.

- Potential Activation of alarms and alerts.
- Measures and Threshold values relative to the principal measurements.
- Measures and Threshold values relative to the secondary Measurements.

Assign

- Parameters linked to:
  - *The activation and assignment of the Dosimeter;*
  - *The initialization conditions; and,*
  - *The Dosimeter Events History.*

Status	▪ Information linked to the operating state of the Dosimeter: ❑ *Operating mode;* ❑ *Dosimeter management;* ❑ *Battery status; and Internal operating fault s*
Operating Param.	▪ Parameters that enable the adaptation of the Dosimeter to the specific needs of the user.
Calibrations	▪ Parameters that relate to the calibration of the Dosimeter.
Sub zones	▪ Cumulative readings on dose and duration related to entry / exit periods in the sub zones.
User block	▪ Parameters that allow the customization of the Dosimeter display when in the 'pause' mode. ▪ Predefined messages for use as a «mini-pager.»
System	▪ Parameters linked to the internal operation of the Dosimeter.
Factory	▪ Information related to the Events History Index. ▪ Enables reading of the contents of the E2PROM.

4.3.2 Parameter Zone

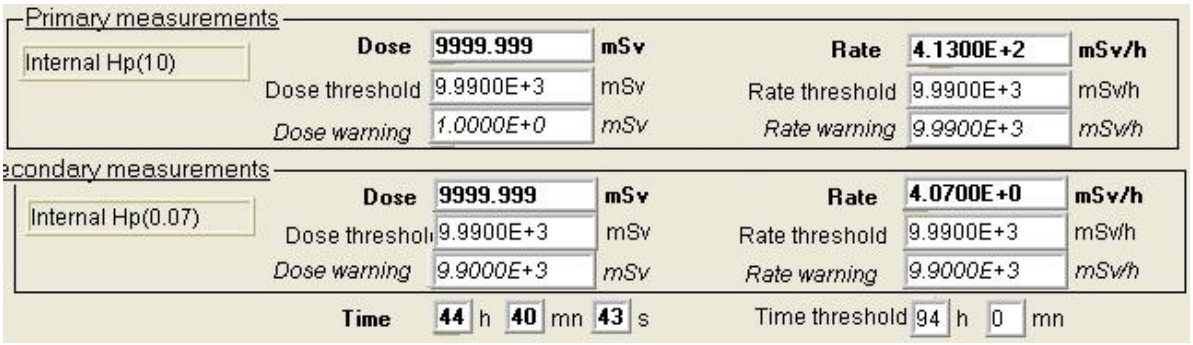
The parameter zone is used for:

- Displaying the parameter values of the read Dosimeter.
- Modifying these parameter values.

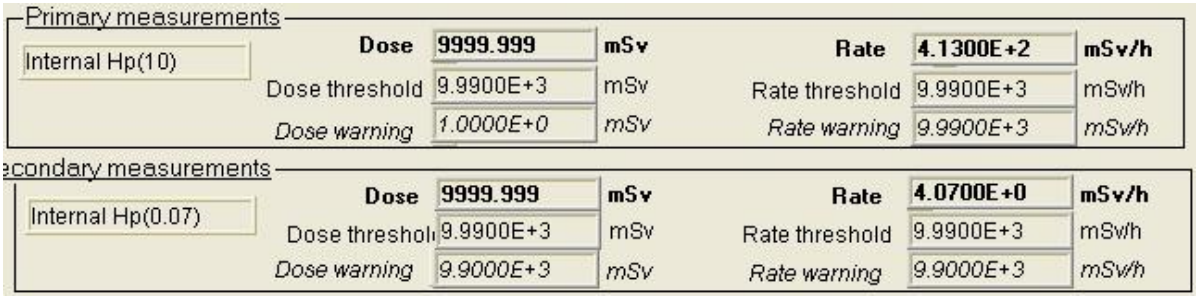
Each parameter is comprised of a label and a field that contains the corresponding value.

This field is represented using the following font and colors conventions:

- **White Background:**
  when the field's background is white, then this parameter can be modified.

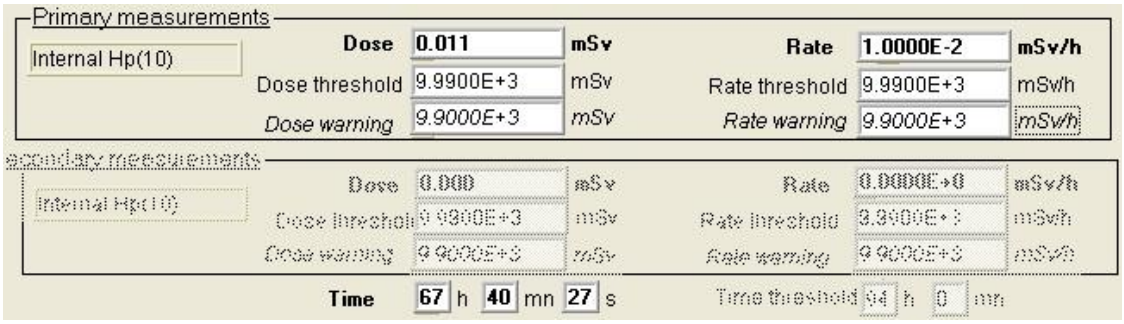


- **Gray Background:**
  when the field's background is the same color as the rest of the window (gray), then this parameter cannot be modified (i.e. user access level insufficient, parameter displayed in this section is read-only).



- **Speckled Background:**
  when the wording and the field's background appear speckled, and then this parameter cannot be transmitted in infrared mode. In fact, although it only exists in the memory of the Dosimeter, this parameter cannot be transmitted by the infrared exchange protocol. This ensures the compatibility of exchange with other types of Dosimeters.

  When the wording and the field's background appear speckled. It may also mean that the associated function is disabled, such as a disabled audible alarm.

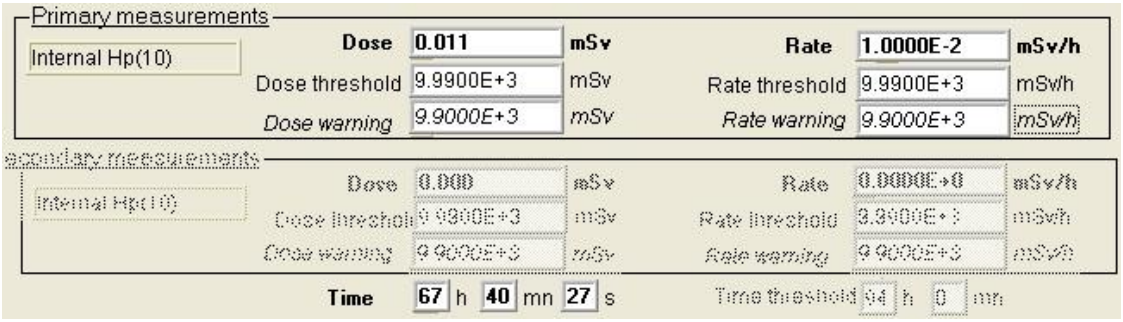


- **Red Border:**
  when the field's background is outlined in red, then the read values that correspond to this parameter are incoherent. This problem can be linked to an interruption in the transmission between the Dosimeter and the reader.

- **Alarms and Warnings:**
  certain parameters such as alarms and warnings are represented in the form of a light. When their respective colors are red and orange, then the corresponding alarms and alerts were activated during the last visit into the controlled area.

- Nonexistent Parameters:
  depending upon the type of Dosimeter in question, certain parameters do not exist. As such, these parameters are not displayed.

Note:
in the below example the secondary measurements are not shown



4.3.3 Function Keys

The function keys are located at the bottom of the Configuration window. The corresponding functions are activated a simple click.

Load configuration

This function key allows a user to select a configuration file that was previously defined and load the corresponding parameters onto the Configuration window.

Attention: after clicking on this key, the values displayed on all the sections of the Configuration window will replace those read previously directly from the Dosimeter.

To restore the initial configuration, see under the function key « Restore initial dosimeter »

Save configuration

This function key allows a user to save all of the parameters currently defined in the Configuration window directly into a configuration file so that they can be retrieved at a later date.

Write DM

This function key allows a user to load into the Dosimeter memory all of the parameters currently defined in the Configuration window.

Attention: if any parameters were modified in sections other than the current section, they will also be loaded into the Dosimeter memory.

Reread dosimeter

This function key allows a user to reread the Dosimeter in order to reload the whole set of its parameters in every tab of the configuration window.

Restore initial dosimeter	This function key allows the user to reinitialize the previously loaded parameters (at the time of the last Dosimeter reading or when the last configuration file was loaded). All of the modifications made since this last parameter loading will be canceled.
Read another dosimeter	This function key allows the user to read another dosimeter without restating the single configuration feature.
Exit	This function key allows the user to return to the main menu.

4.4 Display of Dosimeter Parameters

This function allows a user to view the entire array of parameters of a Dosimeter by simply clicking on the different tabs of the Configuration window (see the preceding section).

Access to this function can be carried out in two ways:

- From the main menu, by selecting Dosimeter/Single Configuration
- Directly from the Configuration window as follows:
  - *Place the Dosimeter in close proximity to the Hands free reader (in the case of the DMC2000) or insert the Dosimeter into the LDM101.*
  - *Click on* Read another dosimeter *or* Reread dosimeter
  - *The procedure is executed in the proceed the same as in the main menu. After the temporary phase of Dosimeter reading, the Configuration window will appear with the Dosimeter parameters.*

4.5 Modification of Dosimeter Parameters

This function allows the user to conduct selective modification of the parameters of a Dosimeter.

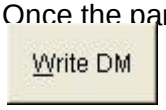
This function is accessible from the Configuration window (see Access to the Configuration Window page 49).

Reminder:
the modification of parameters is only possible for those users who have Supervisor level authorization and MGP Instruments.

The procedure is as follows:

- From the Configuration window, modify the parameters by inputting new values into the corresponding fields.

- Once the parameters are modified as desired, click on



All of the current parameters are stored into the Dosimeter memory.

Note:
If any parameters were modified in sections other than the current section, they will also be stored into the Dosimeter memory.

4.6 Downloading Parameters from a File

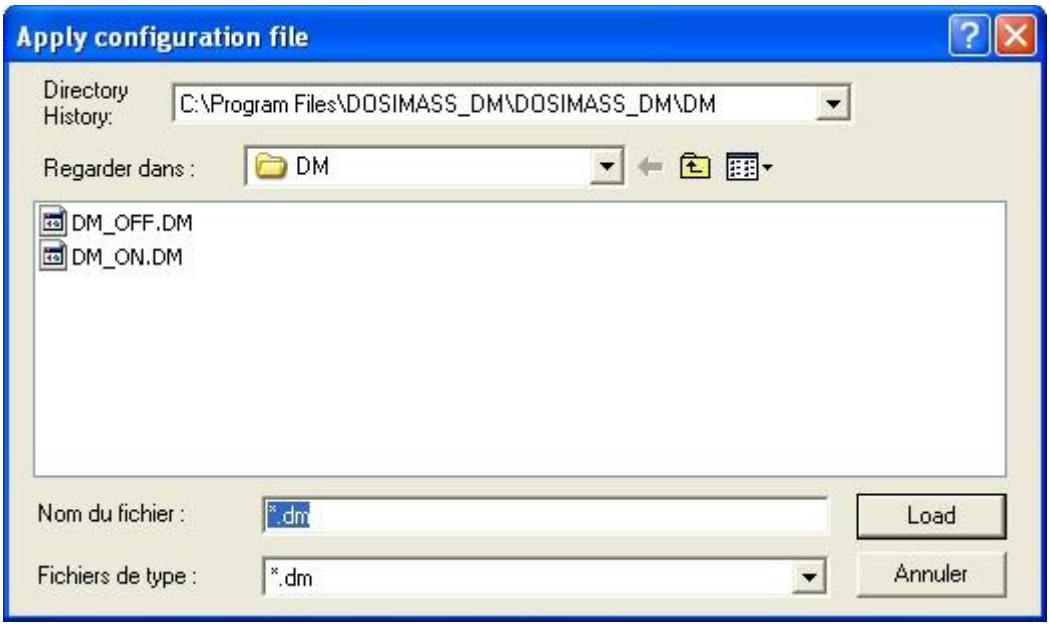
This function allows the user to select a previously defined Configuration File and to download the corresponding parameters into the Configuration window.

This function is accessible from the Configuration window (see Access to the Configuration Window, page 49).

The procedure is as follows:

- From the Configuration window, click on 

The following window will appear:



- Select the directory into which the configuration files are placed using the ***Browse*** scroll-down window feature.

All of the configuration files will be displayed (extension DM).

- Select the configuration file to be loaded; and,
- Click on ***Load***.

The window will disappear. The parameters contained in this configuration file will replace the values previously displayed in all of the sections of the Configuration window.

4.7 Saving Parameters to a File

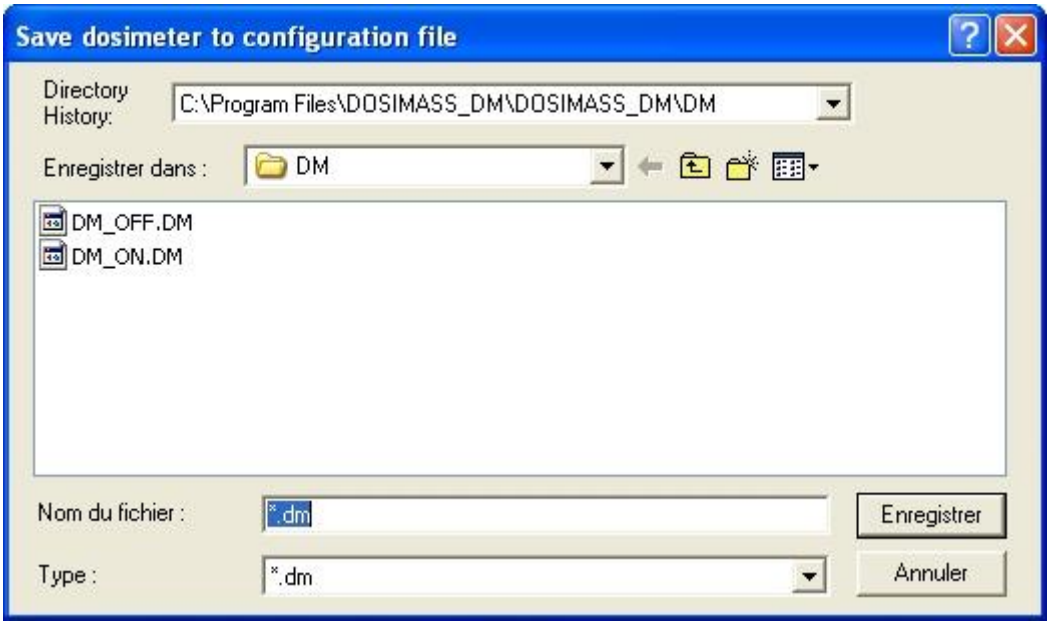
This function key allows the user to save the entire array of parameters defined in the Configuration window into a configuration file that can be retrieved at a later date.

This function is accessible from the Configuration window (see ***Access to the Configuration Window*** page 49).

The procedure is as follows:

From the Configuration window, click on 

The following window will appear:



- Using the ***Save As*** scroll-down window, select a directory into which the configuration files can be stored (***Dm*** is the directory that is proposed by default).
- In the ***File Name*** field, input the name of the file (configuration files with DM extensions).
- Click on ***Save***.

The new file includes all of the parameters contained in all of the sections of the Configuration window.

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5. Dosimeter Parameters

5.1 Introduction

This chapter provides a detailed view of the entire array of Dosimeter parameters accessible via the Configuration window.

The accessible information depends upon the selected configuration:

- DMC2000 with Hands free readers:
  - *All of the Dosimeter parameters are accessible.*
  - *Operation in «hands-free» mode.*

- DMC2000 with LDM101:
  - *All of the Dosimeter parameters which were previously accessible through the infrared communication are available to the DMC2000.*
  - *Operation in «infrared» mode.*

- DMC100 or DMC90 with LDM101:
  - *All of the Dosimeter parameters, applicable to these dosimeters, are accessible.*
  - *Operation in «infrared» mode.*

The remaining portion of this chapter is divided into three sections, which correspond to the three configurations mentioned above. Each section addresses the entire set of sections accessible in the Configuration window.

Note:
*the procedure for access to these parameters is presented in a previous chapter entitled "*Configuration of a Dosimeter*," page 49.*

5.2 DMC2000 with Hands free readers

This section provides a detailed description of the entire array of DMC2000 parameters that are accessible by exchange in «**hands-free**» mode with the LDM2000 and LDM2XX Dosimeter reader.

5.2.1 Measures and Thresholds

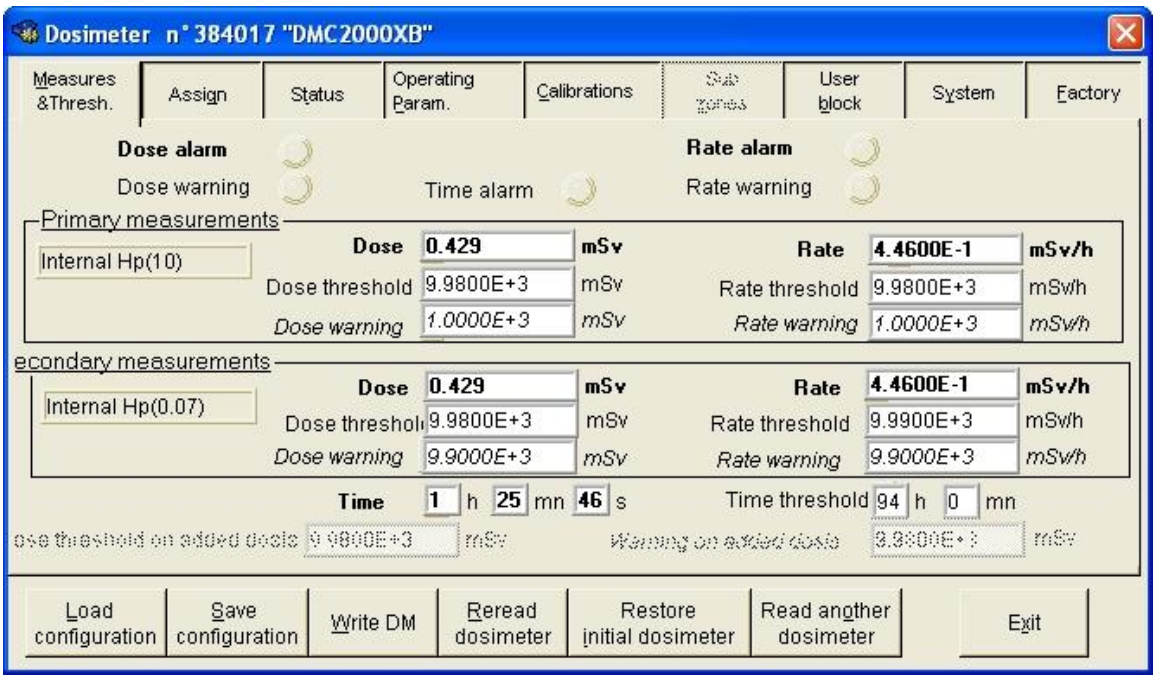
This section reviews measurement and threshold information provided below. This information is related to the last entry into the controlled area.

- Potential activation of alarms and alerts;
- Measurement and Threshold values relative to primary measures,
- Measurement and Threshold values relative to Secondary Measurements.

The following fields can also be accessed:

- To configure the Dosimeter with new thresholds;

To preset dose and duration values into the Dosimeter (according to the value of the ***Initialization Conditions***, which are defined in the **Assignment** section pages 42, 63, 79, 83).



5.2.1.1 Alarms and Alerts

The alarms and alerts that are produced during the last visit into a controlled area are signaled by red and orange colored lights that are located in the upper portion of the window (under the tabs). When a button remains gray, the corresponding alarm was not activated during the last visit.

- **Dose Alarm**: If the corresponding light is red, then the ***Dose Alarm*** was activated during the last entry into the controlled area.
- **Dose Warning**: If the corresponding light is orange, then the ***Dose Warning*** was activated during the last entry into the controlled area.
- **Nuclear flash detected (not shown)**: light used only for certain models of Dosimeter specifically used for military applications to flag detection by passive components of the dosimeter of a nuclear flash.
- **Time Alarm**: If the corresponding light is orange, then the Time ***Alarm*** was activated during the last entry into the controlled area.
- **Rate Alarm**: If the corresponding light is red, then the ***Rate Alarm*** was activated during the last entry into the controlled area.
- **Rate Warning**: If the corresponding light is orange, then the Rate Warning was activated during the last entry into the controlled area.

Note:
the display of alarms and alerts is produced regardless of the origin (i.e., either Primary or Secondary Measurements).

5.2.1.2 Primary and Secondary Measurements

Certain models of Dosimeter, (DMC2000XB, etc.) can simultaneously perform two different measurements: a primary and a secondary measurement. Other models such as DMC2000S can only carry out the primary measurement

Information relating to these two measurements is grouped in two different areas identified respectively by the labels **Primary Measurements** and **Secondary Measurements.**

The measurement and threshold values are expressed in units that are user-set at the time of the DOSIMASS Dosimeter software configuration, regardless of the units used by the Dosimeter itself (see ***General Parameters page 59***). The software makes the necessary mathematical conversions between radiological units.

The type of measurement; (Hp(10) or Hp(0,07), Gamma or Neutron, of the primary and secondary measurements depends on dosimeter configuration which is defined in system menu.

Primary Measurements:

This non-modifiable field provides the following information relative to the primary measures:

Measurement Origin:
- internal (the measurement is performed by the Dosimeter's internal detector); or,
- external (the measurement is carried out by an external detector that is linked to the Dosimeter).

Measurement Type:
- Hp (10); or,
- Hp (0.07).

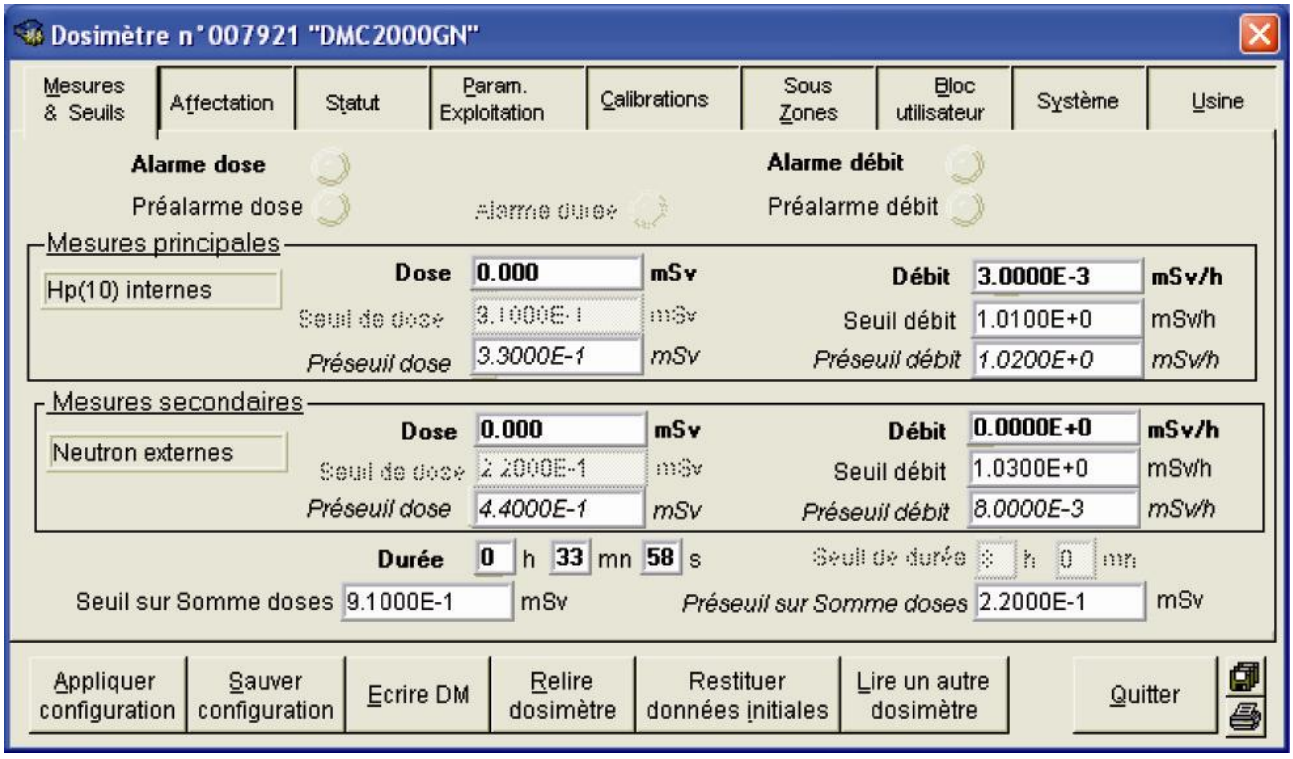
- **Primary Dose**: The dose that the Dosimeter accumulated during the last entry into the controlled area (for the primary measurement);
- **Primary Dose Threshold:** The dose alarm threshold (for the primary measurement);
- **Primary Dose Warning**: The dose alert threshold (for the primary measurement);
- **Time:** The duration of the last entry into the controlled area;
- **Primary Rate:** The maximum dose rate detected by the Dosimeter during the last entry into the controlled area (for the primary measurement);
- **Primary Rate Threshold**: The alarm threshold of the dose rate (for the primary measurement);
- **Primary Rate Warning**: The dose rate alert threshold (for the primary measurement);
- **Time Threshold**: The duration alarm threshold.

Secondary Measurements:

this non-modifiable field provides the same type of information as the **Primary Measurement**, however, applicable to the Secondary Measurements if available (see above).

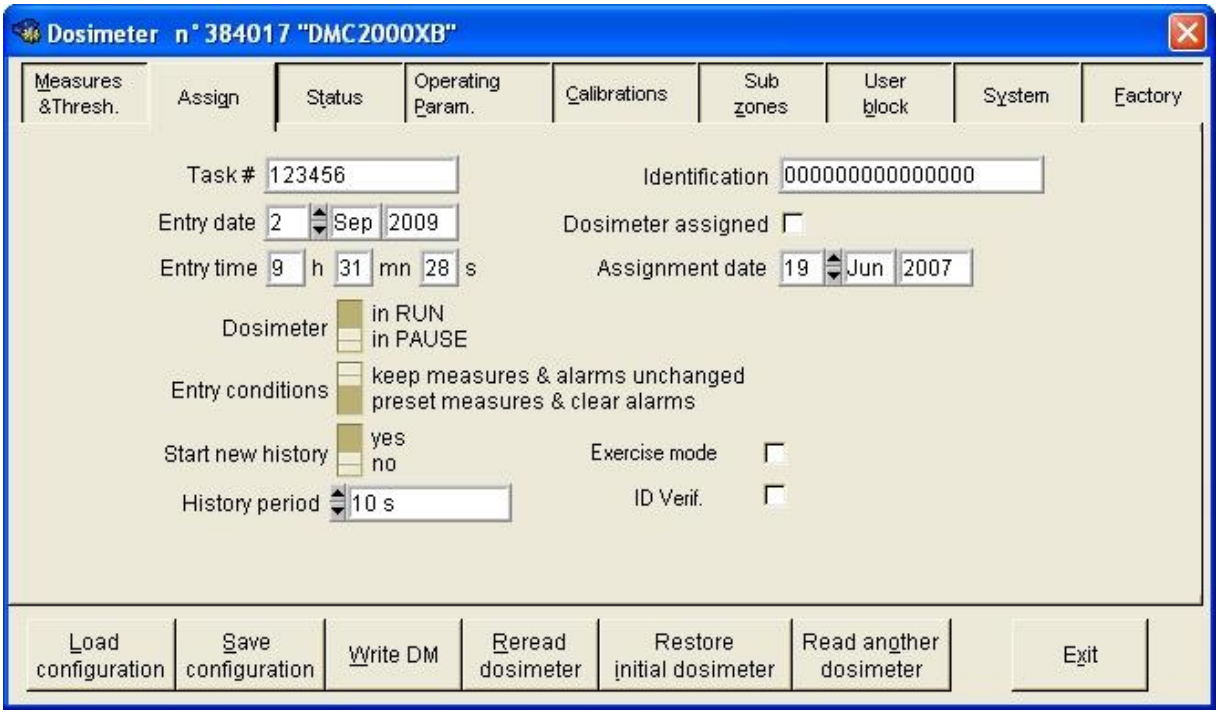
- **Secondary Dose**: The dose that the Dosimeter accumulated during the last entry into the controlled area (for the secondary measurement);
- **Secondary Dose Threshold**: The dose alarm threshold (for the secondary measurement);
- **Secondary Dose Warning**: The dose alert threshold (for the secondary measurement);

- **Secondary Rate**: The maximum dose rate detected by the Dosimeter during the last entry into the controlled area (for the secondary measurement);
- **Secondary Rate Threshold**: The alarm threshold of the dose rate (for the secondary measurement);
- **Secondary Rate Warning**: The dose rate alert threshold (for the secondary measurement);
- **For Neutron dosimeter equipped with V4.2 software**, the threshold doses of primary and secondary measurements are Speckled because not available.Two new Thresholds appear at the bottom of the window
  - *Sum doses threshold: corresponding to alarm dose threshold of global dose Hp(10), Gamma + Neutron sum dose.*
  - *Sum doses warning: corresponding to alarm dose warning of global dose Hp(10) Gamma + Neutron sum dose.*



5.2.2 Assignment

The ***Assignment*** section provides the parameters relative to the activation of a Dosimeter and its assignment to an individual.



- **Task Code**: a code that enables the identification between a Dosimeter and a task to be accomplished;
- **Entry Date**: this field must be provided in order to indicate the start date of the Events History when the Dosimeter is activated from the assignment tab
- **Entry Time**: this field must be provided in order to indicate the start time of the Events History when the Dosimeter is activated from the assignment tab
- **Identification**: an alphanumeric field that allows the identification of the wearer of the Dosimeter;
- **Dosimeter Assigned**: if this option is checked, the Dosimeter reads «ASSIGNED» instead of «PAUSE» when it deactivated;
- **Assignment date**: provides information regarding an assignment of the Dosimeter for information purposes.
- **Dosimeter in Run / in Pause**: this button allows the user to activate/deactivate the dosimeter from the assignment tab – note the entry date and time, indicated above, will be recorded in the histogram

CAUTION:
prior to activation of the Dosimeter from the assignment tab, the user must remember to input the Entry Date and Entry Time fields.

Entry Conditions:

- ***Unchanged Alarms and Measures****: this option enables the conservation of the cumulative dose and alarm status of the Dosimeter at the time of its activation. In order to maintain the cumulative dose, the* ***Autonomous Dose*** *parameter must not be in the* ***Reset to Zero*** *position (see the section entitled* ***Operating Parameters page 66****).*

- ***Preset measures and clear alarms****: this option enables the pre-positioning of the dose and duration values with the measurement values input in the* ***Measurement and Threshold*** *section page 78.*

Start New Events History: this option enables the user to begin a new Events History at the time of the activation of the Dosimeter from within the Assignment Tab or to continue with the Events History in progress. Please note if “No” is selected additional histogram events will be added to the existing histogram and may not reflect the actual date and time.

Events History Period: this parameter enables the definition of the specific time period of the Events History used for the calculation of the dose increments, including the following parameters:

- *10 seconds*
- *1 minute*
- *10 minutes*
- *1 hour*
- *24 hours*

Note:
*For further information on the histogram refer to Chapter "****Operation of the Events History Menu Option"*** *p* ***101***

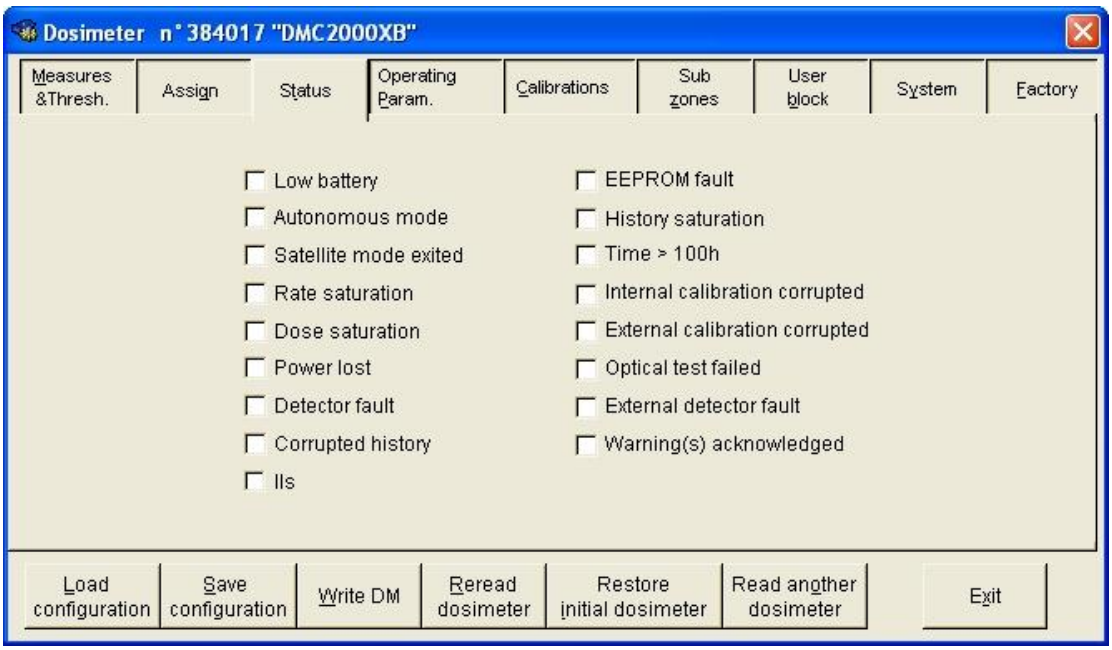
- **Exercise Mode**: this feature permits the dosimeter to be used in training and exercise mode, which permits the simulation of dose and rate profiles (with a reader designed for this purpose).

CAUTION:
activation of this mode will disable the radiological functions of the dosimeter. The DMC2000 screen will indicate “ext” when in this mode

- **ID Verif.:** wearer name display, after a controlled area entry. The identification will remain on the display for 30 seconds following entry**.** During this period the dosimeter is active and current dose and rate may be viewed by pressing the push button.

5.2.3 Status

This section provides access to the information recorded in the Dosimeter, relative to the status of the Dosimeter.



This information can be of the following types:

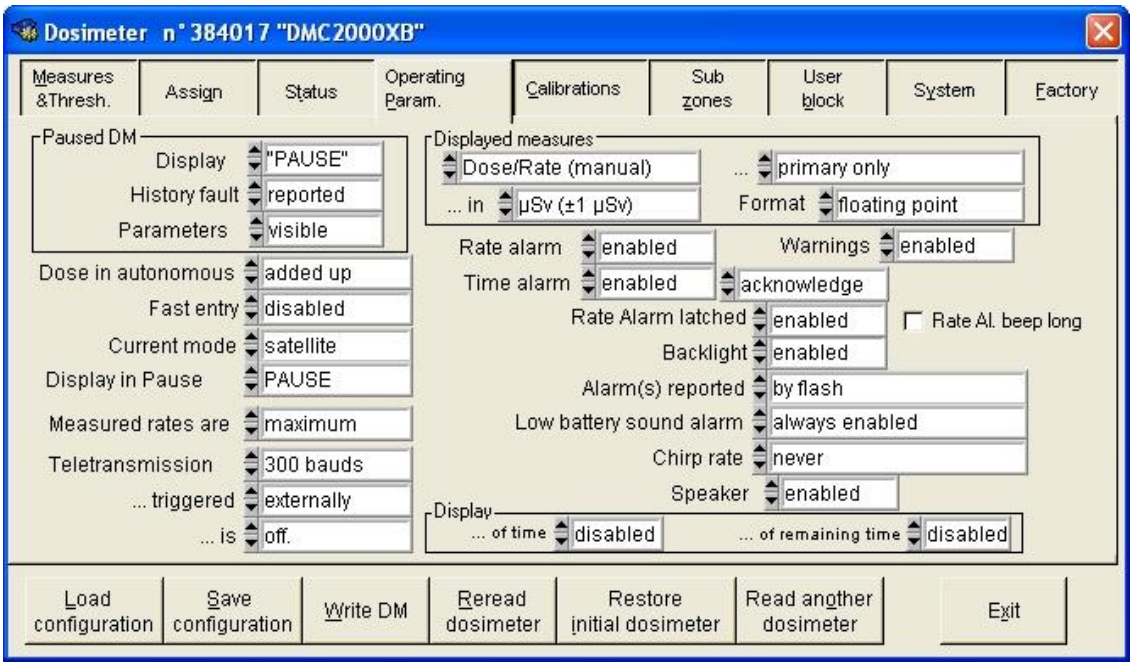
- Operating Mode:
  - *Autonomous; or,*
  - *Exit Satellite Mode.*
- Dosimeter Management:
  - *Rate Saturation; or,*
  - *Dose Saturation; or,*
  - *Events History Saturation; or,*
  - *Duration > 100 hours; or,*
  - *Warnings Acknowledged.*
- Battery Status:
  - *Battery Low; or,*
  - *Battery Loss.*
- Internal Dosimeter Error:
  - *Fault Detector; or,*
  - *Corrupted Events History; or,*
  - *Activated ILS:*
    this parameter indicates whether the ILS is activated (checkbox checked). The ILS is an internal magnetic switch that is activated using an external magnet typically resulting from the dosimeter being accessed through an LDM2000101 reader.
- EEPROM Fault (E2PROM Fault):
  - *Corrupted Internal Calibration; or, corrupted calibration*
  - *Corrupted External Calibration; or, corrupted program*
  - *Optical Test Fault or,*
  - *External Detector Fault.*

For more information concerning the appropriate action to take, specifically regarding internal faults, consult the Dosimeter User's Manual.

Note:
For the DMC2000 dosimeters please refer to #15170 user's manual.

5.2.4 Operating Parameters

The section entitled Operating Parameters provides access to the operating parameters. These parameters enable the adaptation of the operating mode to conform to the specific needs of the user.



- Paused DM
  - ***displays****: this parameter enables the definition of the Dosimeter display when it is in "pause" mode.*
    - ***PAUSE***: this message is displayed unless the Dosimeter is Assigned (consult this parameter under the ***Assignment*** section).
    - *User Display: the message defined in the User Display field is displayed (consult* this parameter under the section entitled ***User Block***);
  - *History Fault:*
    - *Reported in Pause: when the Dosimeter is deactivated, all of the faults relative to the Events History are indicated on its display;*
    - *Not Reported: in this case, faults are not shown.*
  - *Parameters:*
    - *Visible in Pause: when the Dosimeter is deactivated, pressing the Selection button enables the visualization of the parameters on its display;*
    - *Invisible: the Dosimeter's parameters are not visible from the display.*
- **Dose in Autonomous**: a feature that is only valid for a Dosimeter used in autonomous mode.
  - ***Added up****: when the Dosimeter is activated, the value of the previous dose measurement is retained.*
  - ***Reset to Zero****: when the Dosimeter is activated, the value of the dose measurement is reset to zero.*

- Fast Entry:
  - ***Disabled****: normal activation mode.*
  - ***Enabled****: Emergency Activation (or Fast Entry) Mode. This option enables the deferred activation of the Dosimeter. This is done in order to activate it at a future time, in case of an emergency, simply by pushing on the selection button. When this option is selected, Dosimeter displays* ***Enter*** *message on the display.*
- **Current Mode**: this enables the definition of the operating mode of the Dosimeter from among the following:
  - ***Autonomous****: autonomous mode;*
  - ***Satellite****: satellite mode.*
- Display in Pause:
  - ***PAUSE****: (civil mode) when the Dosimeter is deactivated*
  - ***REPOS****: (military mode) when the Dosimeter is deactivated*
- **Measured rates are**: this parameter defines the type of rate displayed in the ***Primary*** and ***Secondary Rate*** fields, which are found in the ***Measurement and Threshold*** section.
  - ***Maximum****: the rate retained in memory and displayed after exit is the maximum dose rate measured during the last entry into the controlled area;*

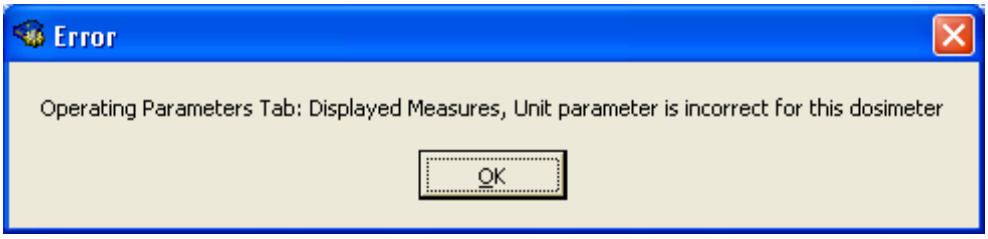
WARNING:
In normal operation the measured rates are typically set to maximum.

  - ***Instantaneous****: the displayed rate is the current rate measured since the last display update.*

Note:
In both cased while the dosimeter is in « run mode » the rate will be displayed according to the radiological conditions present.

- **Teletransmission at**: parameter linked to the serial data transmission (using transmitter/receiver, please consult mgpi)
  - ***…triggered****: parameter to determine the data transmission mode.*
    Externally: requires a request from an external device to initiate a data send.
    Periodically: the dosimeter will transmit a packet of data every three to five seconds.
  - ***…is****: enables or disables serial data output.*
- **Displayed Measures**: defines the measurement display mode (when the Dosimeter is activated).
  - *….: display of Primary or Secondary Measurements.*
  - *…in: display unit to choose in a list (millirem, etc)*

WARNING:



This message appears when the dosimeter is configured with a µSv display unit with a resolution of 1µSv, whereas this version of Dosimeter does not support this option.

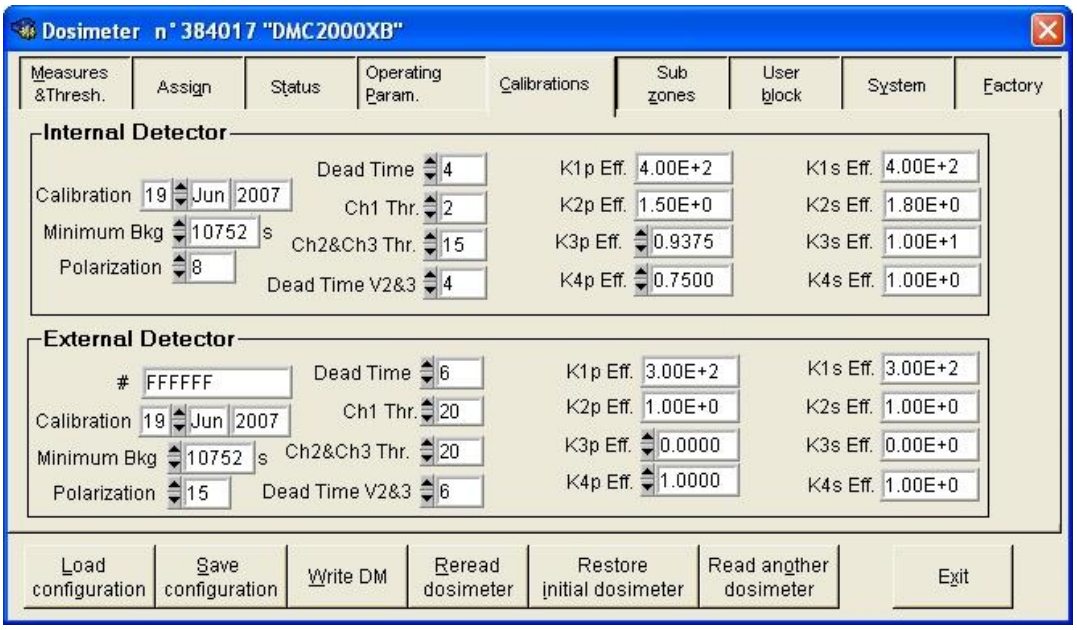
- *Display Format: Defines display format of measurements and the number of digits in the display range*

- **Rate Alarm**: enables or disables the dose rate alarm.
- **Time Alarm**: enables or disables the time alarm. Also provides the user with the option to acknowledge the time alarm.
- **Warning**: enables the validation or invalidation of warnings.
- **Rate Alarm Latched:** Once the rate threshold is exceeded this feature keeps the dosimeter in alarm state (audible and visual indications active) until the dosimeter is turned off (applicable to firmware versions V2.7 or greater).
- **Rate Al. Beep long**: if yes the beep rate is longer
- **Backlight**: enables or disables the backlight function on DMC-100 dosimeters.
- **Alarm(s) reported**: enables or disables the LED flash during alarm.
- **Low battery sound alarm**: enables or disables audible beeps during “bA LO” alarms.
- **Chirp rate**: allows the user to choose the frequency of audible beeps as dose is accumulated by the Dosimeter.
- **Speaker**: enables or disables the speaker.
- **Time Display**: Allows the current time in “HH:mm” when you press the push button in run mode – the time display feature simulates an internal clock by recording the start time from the host computer and using a counter to increment the hours and minutes (Note that feature is only supported in DMC2000 firmware V2.7 and above)
- **Remaining time**: Allows displaying the remaining time before the time alarm or the dose alarm is triggered. The display of Remaining time before dose alarm is triggered is a calculated value based on time in area, accumulated dose and dose rate measured in real time. (Applicable to firmware versions V2.A or greater)

5.2.5 Calibrations

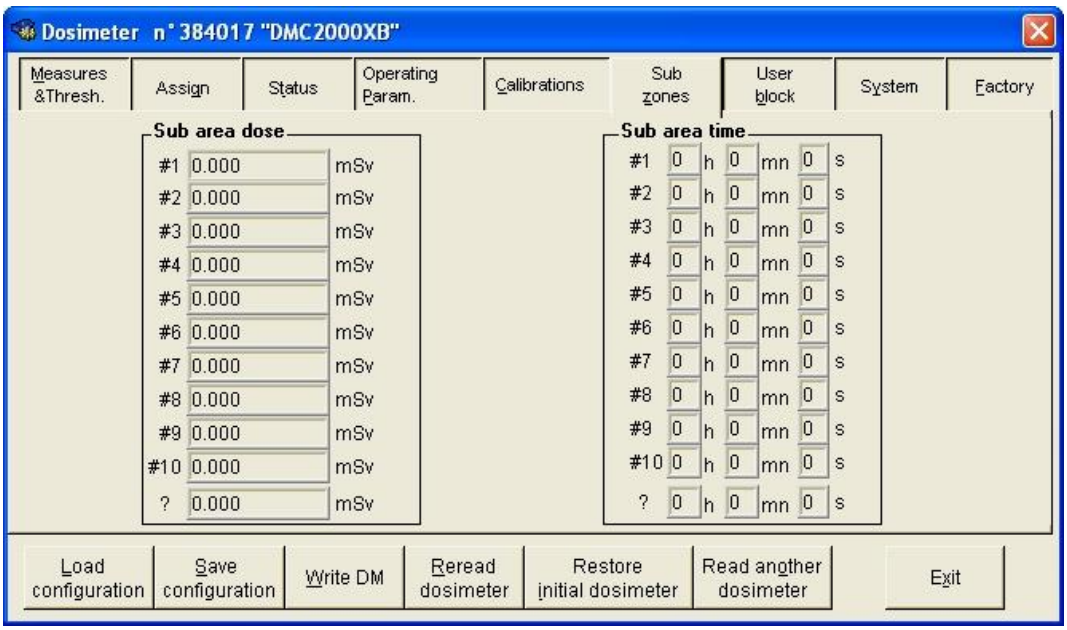
The section entitled Calibrations provides access to the parameters related to the calibration of the Dosimeter. Details are specific to the dosimeter type used. All dosimeters are calibrated at the MGPI factory – contact MGPI prior to adjustment of any of the below indicated set points.

Note:
These parameters effect the internal operation of the Dosimeter and are determined during an approved calibration process. MGP instruments recommends that any modification of these parameters only be performed by certified personnel, following specific MGPI training. Inappropriate modifications of these parameters may seriously impair operation and accurate response of the dosimeter. MGP Instruments will not assume liability for modifications to these parameters made either without specific advice or not under immediate supervision.



5.2.6 Sub-zones

The section entitled ***Sub-zones*** provides the cumulative totals of the dose and duration data relative to each entry into a sub-zone in which an LDM2000 stamped the Dosimeter.



Sub-zone Operating Principles

A controlled area may be divided into several smaller areas called ***Sub-Zones*** (up to 10). An LDM2000 Dosimeter reader is placed at the boundary of these sub-zones, and is configured so that it can “stamp” Dosimeters (i.e. Marker mode).

When a Dosimeter passes by an LDM2000 reader while entering a sub-zone, the reader stamps its internal memory. This Marking records a code related to the reader address and, subsequently, the geographic location of the passage, inside the Dosimeter. When the Dosimeter passes by another reader, the new Marking allows the determination of the sub-zone in which the Dosimeter is now located. The increase in dose and the duration of the entry into this sub-zone are recorded directly into the Dosimeter.

Note:
A sub-zone entry is determined by two distinct detections of a DMC2000 by the same LDM2000 or by two readers with identical marker zone addresses

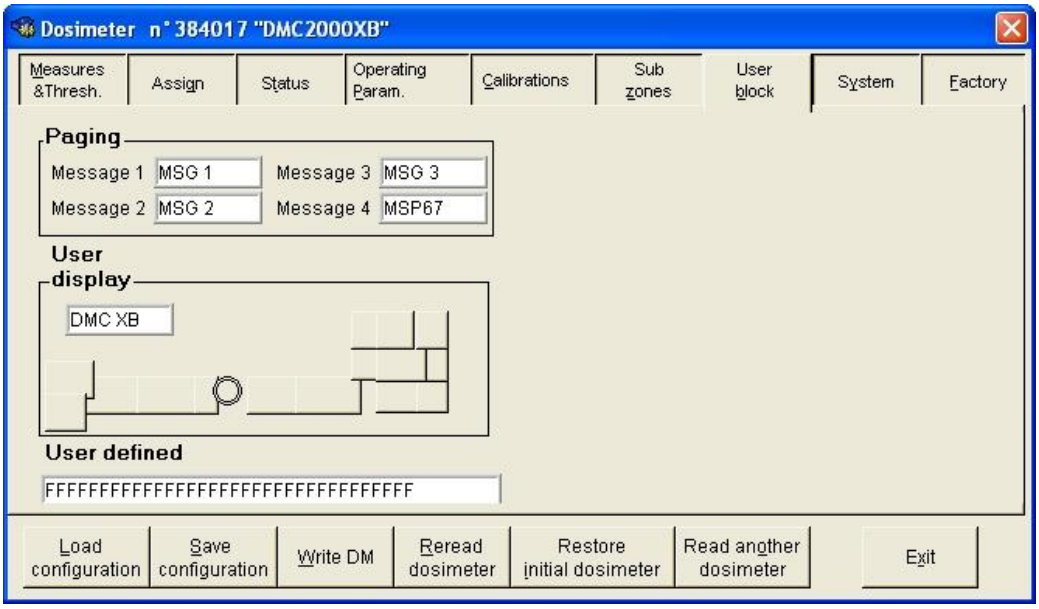
For each sub-zone, these values are accumulated in the fields associated to each sub-zone:

- Dose SZ1 to Dose SZ10: for the dose,
- Duration SZ1 to Duration SZ10: for the duration.

In the case where, for an undetermined reason, certain stampings were not executed, the visit into certain sub-zones cannot be determined. In this case, the cumulative dose and duration data that correspond to these undetermined sub-zones are stored into the Dose **SZ?** and **Duration SZ?** Fields**.**

5.2.7 User Block

The section entitled User Block allows the customization of the Dosimeter display at rest and the pre-definition of messages, which could be displayed successively one by one during a passage in front of a reader.

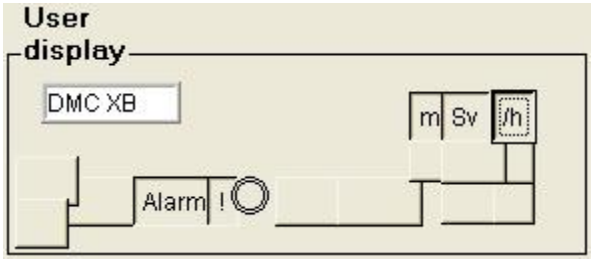


- **Paging**: this input field allows the definition of four alphanumeric messages. These messages can be presented on the Dosimeter display during the passage in front of a reader configured for this purpose. This feature, generally used in the context of a centralized Dosimeter system, enables the transmission of warning messages to the individuals wearing the Dosimeter.

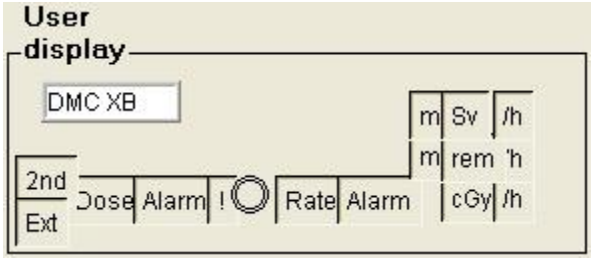
- **Flash Measurements (not shown)**: the group of parameters in this zone is related to dosimeters specifically used for military applications (nuclear flash). They are not used or displayed by the DMC2000.
- **User Area**: parameters to be coded in hexadecimal that can be used for any purpose when stored in the dosimeter

User defined: memory allocated in the Dosimeter where the user can store any ASCII message.

- **User Display**: an alphanumeric message of up to six characters constantly displayed on the Dosimeter display when it is deactivated (as long as the corresponding option has been selected. When assigned the User Display information is also presented on the display in the run mode and is accessed by pushing the function button.
- **Segment Zones**: by simply clicking on each of the segments, this field allows the selection of the display segments to be shown at the same time as the message recorded in the ***User Display field***.



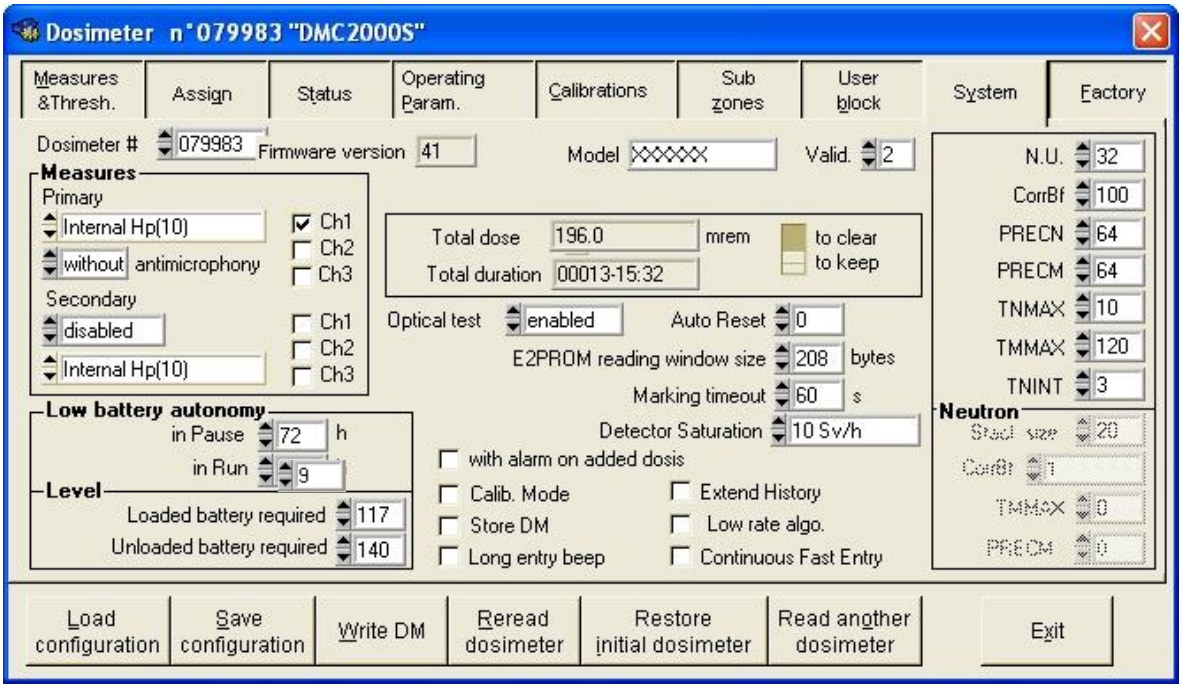
Example 1: several segments are selected.



Example 2: all of the segments are selected.

5.2.8 System

The section entitled System provides access to the information relative to the internal operating mode of the Dosimeter.



- **Dosimeter:** Hardware identification number for the Dosimeter (serial number). This number is assigned at the time of the manufacturing of the Dosimeter and enables manufacturer after sales servicing. This number is also marked on the identification sticker of the Dosimeter.

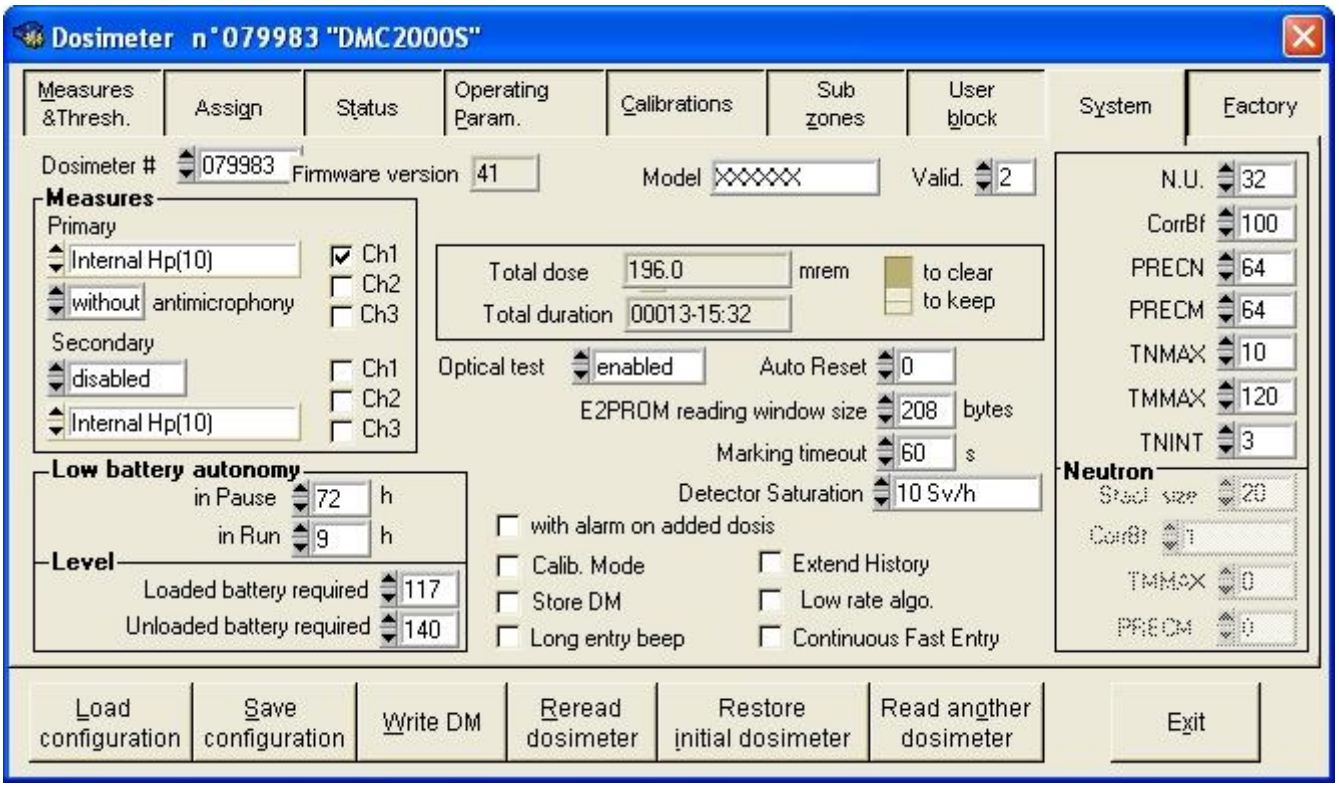
Note:
the Dosimeter numbers are assigned in a series of numbers that are dependent upon the type of Dosimeter

- **Model**: an MGP Instruments code that defines the entire set of options and factory settings requested by the client for the delivery of the Dosimeter. The model is replaced by the checksum when the function checksum is validated (valid=1).
- **Firmware Version**: the number that enables the clear identification of the software version internal to the Dosimeter.
- **Cheksum**: applicable to firmware from versions V3.7
  - *Calib: checksum of calibration parameters (internal and external).*
  - *Valid: enables or not the program checksum function.*
    - **Value 1:** The program checksum is controlled and checked. Both program and calibration parameters checksum are displayed on the dosimeter. The screen is displayed as below:

- **Value ≠ 1:** The program checksum is not controlled and checked. The screen is displayed as below:

Note:
The calibration parameter checksum control is always done (independent of the program checksum validation). But if the program checksum is not enable (Valid ≠ 1), the checksum parameter is not displayed.

System screen is:



- **Primary Measurements**: this section regroups the parameters that enable primary measurement configuration.
  - *Hp(10) / Hp (0.07): type of measurement conducted by the detector.*
  - *Internal/External:*
    - ***Internal***: the measurement is conducted using the internal Dosimeter detector
    - ***External***: the measurement is carried out using an external detector that is linked to the Dosimeter.
  - *With/Without antimicrophony: This factory parameter depends on the type of ASIC used in the dosimeter and must not be changed by the customer.*
  - ***Ch1, Ch2, Ch3****: measurement channels to validate in function of the measurement type (i.e., Hp(10) extended measurement requires that both Ch1 and Ch2 must be validated).*
  -
  -

Note:
DMC2000S: Ch1 only (Hp(10) >= 60 keV)

DMC2000X: Ch1 and Ch2 (Hp(10) >= 20 keV)

DMC2000XB: Ch1,Ch2 and Ch3 (Hp(10) >= 20 keV, Hp(0.07) >= 250 keV)

- **Secondary Measurements**: this section regroups the parameters that enable secondary measurement configuration:
  - ***Enabled / disabled****: select the* ***enabled*** *option so that the main measures are activated.*
  - ***Hp(10) / Hp (0.07):*** *same signification as for that of primary measures.*
  - ***Internal/External****: same signification as for that of primary measures.*
  - ***CH1, CH2, CH3:*** *measurement channels to validate in function of the measurement type.*
- Low battery autonomy
  - ***in PAUSE****: operating time remaining for an* ***inactive*** *Dosimeter once the battery level indicator reads* ***Battery Low****.*
  - ***in RUN****: operating time remaining for an* ***active*** *Dosimeter once the battery level indicator reads* ***Battery Low****.*
- Level
  - ***Loaded battery required level****: the minimal power level required to allow the operation of an inactive Dosimeter during a limited time defined by the parameter* ***Battery Autonomy Low*** *(DM deactivated). MGP Instruments expresses this power level in internal units for a deactivated Dosimeter.*
  - ***Unloaded battery required level****: the minimal power level required to allow the operation of an activated Dosimeter, during a limited time defined by the* ***Battery Autonomy Low*** *(DM activated). MGP Instruments expresses this power level in internal units for an activated Dosimeter.*
- **Total Dose**: total radiation dose measured by the Dosimeter since its first initialization (TID).
  - *To Clear: allows the total dose indication to be reset to zero (this option allows the implementation of this reset to zero during a detector change).*
  - *To Keep: no reset to zero of the total dose.*
- **Total duration**: Total duration integrated by the dosimeter since its first initialization
- **Optical Test**: allows the validation of the optical test device (photon emitter).
- **Auto-reset**: the dosimeter resets the dose to zero each time the threshold time is exceeded (value 21 = active auto-reset).
- **E2PROM reading window size**: size in bytes of the data block transmitted during the E2PROM reading (see tab ***Factory*** page 51).For the DMC2000 Dosimeter, the recommended value (most efficient) is 208 bytes for the DMC 100 the recommended size is 16
- **Marking timeout**: time delay during which a reader cannot conduct a second, consecutive reading of the same Dosimeter. This delay allows the reader to avoid redundant readings when a Dosimeter inadvertently happens to remain within proximity, of a hands free reader, for an extended period of time.
- **Detector Saturation**: defines a saturation threshold for the detector.
- **Store DM**: Allows the dosimeter to be placed in a state of maximum power conservation for extended shelf life. When enabled, with a magnet the dosimeter will present a blank display in Pause and the hands free circuit is disabled. The dosimeter may be turned on

by passing a magnet over the ILS switch. Note this feature is only operable through an infra-red reader.

- **Calib Mode**: This is an MGP factory parameter for use in calibration (allows access to the number of pulses instead of the dose). In run the Dosimeter will toggle between displayed dose (or rate) and the word « CALIB » to indicate this mode is active (applicable to firmware versions 2.7 or greater)
- **HF Disable**: Permits the disabling of the hands free circuit (applicable to firmware versions 2.7 or greater)

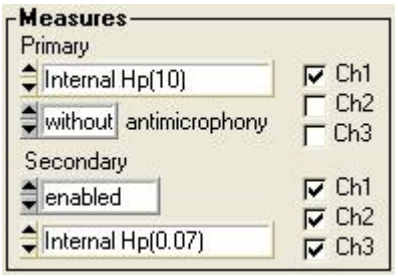
Note:
once disabled this can only be reset by using an LDM91/101 infra-red reader.

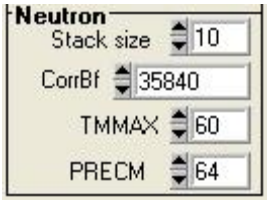
- **3 seconds "Bip" EZ**: the dosimeter bips three times when entering the zone.
- **Extended histogram**: contains more information concerning the dosimeter. In particular, parameter's modification.
(when selected) will approx. doubles storage capacity for DMC2000 S (applicable to firmware 3.4 and above)
- **Fast permanent entry**: the dosimeter enters the zone by pushing the push button (fire brigade mode).
The option to turn "On (Run)" and "Off (Pause)" the dosimeter at the push of a single button has been added. This feature is used for "Fast entry" when "Autonomous Mode" is enabled. Note, following an alarm condition or fault code you are prevented from again turning the dosimeter "On" to preserve the information / alarm condition details. You will need to use a reader to re-enable fast entry mode.

  Example: For an autonomous dosimeter configured for "Continuous fast Entry mode", each time you place the dosimeter in "Pause" manually, the dosimeter will display "ENTER" waiting for a press on the push button to back go to "Run". This feature supports simple "autonomous mode" use, yet preserves data the event data in the event of an alarm condition.
- **Low Rate Algo**: Low rate algo allow the dose rate display in µSv/h (0.1 mRem/h) typically for environmental monitoring purposes. To obtain the counting accuracy required, with the detector type used, a longer response time is needed. Therefore this feature is not recommended to be activated for personnel monitoring (applicable to firmware versions 2.7 or greater)
- These are a group of factory parameters used in the measurement processing the dose rate algorithm (these values are factory set and must not be modified):
  - *NMLIN /N.U*
  - *Corr BF*
  - *CNM MAX / PRECN*
  - *NATLIM / PRECM*
  - *N MAX / TN MAX*
  - *M INT / TM MAX*
  - *CNM INT / TN INT*

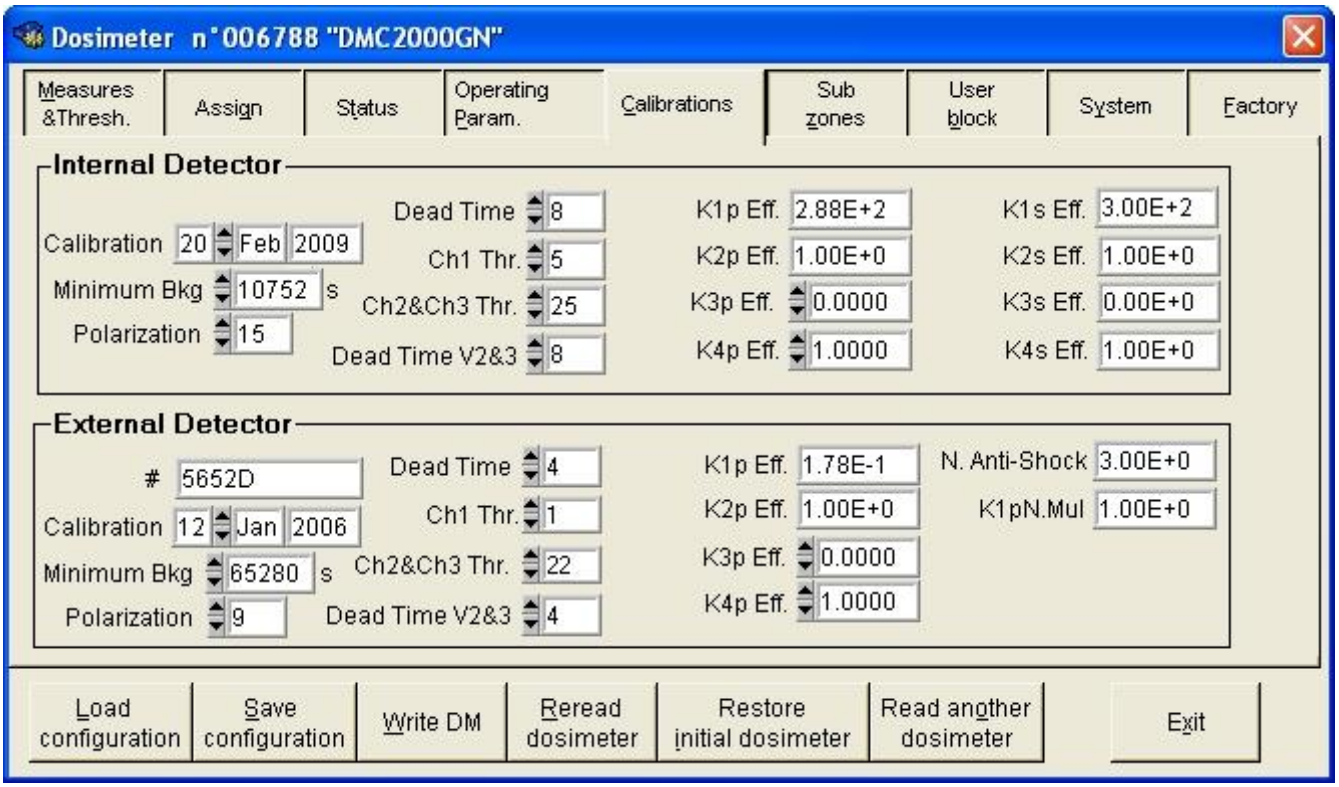
- Neutron:
  - *Stack size, CorrBf, TMMAX, PRECM, neutron calculation algorithm parameters*

If on the section "Measures", neutron are available (see below) neutron section is not Speckled.



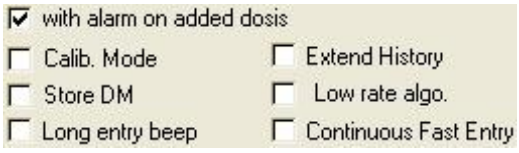


Another modification is done: coefficients K1s, K2s, K3s et K4s are not showing on calibration screen

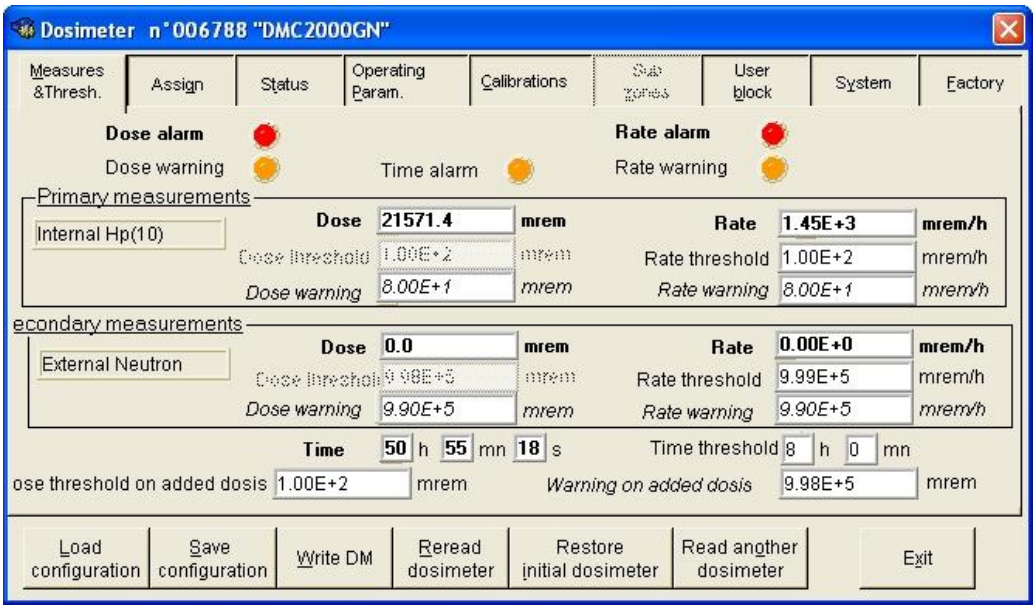


Moreover, from the version 4.0, the DMC2000 GN has the ability to trigger alarms on the sum of the measurement.

This function is enabled in System tab:

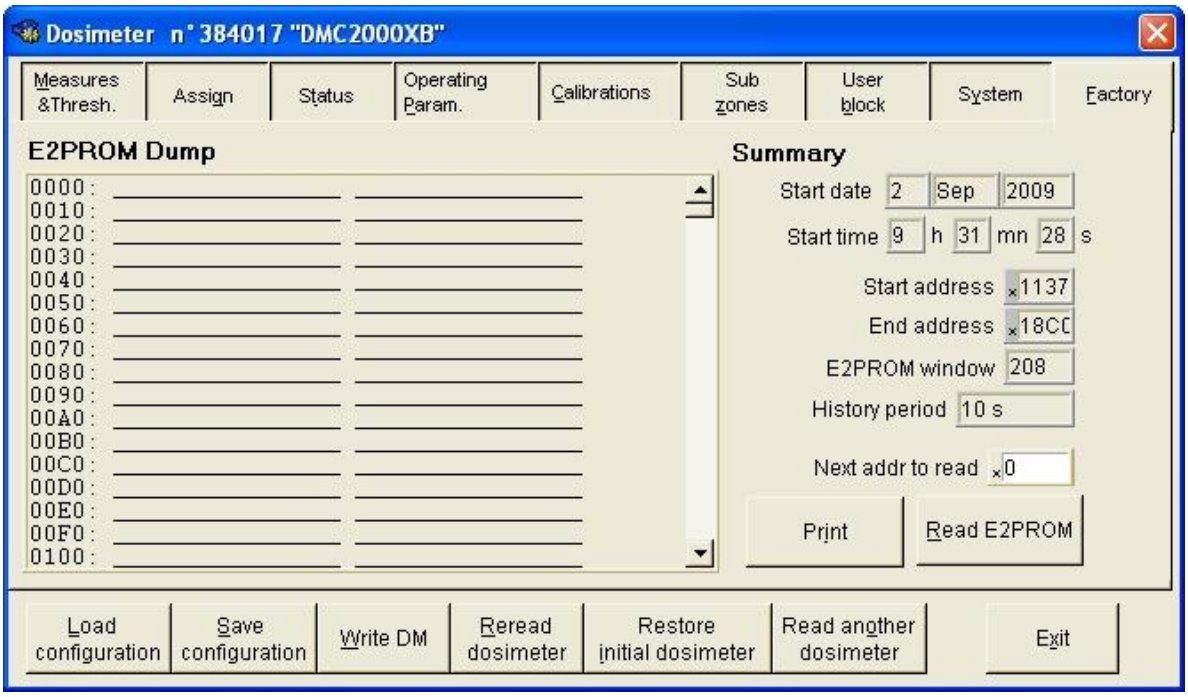


This selection causes a change in the tab Measures & Thresholds:



5.2.9 Factory

The ***Factory*** tab allows a user to visualize a summary of the most recent Events History and to read the entire contents of the E2PROM of the Dosimeter.



- **Summary**: this section regroups the entire array of information (non-modifiable) relative to the most recent Events History and a field that allows the user to select the address from the beginning of the E2PROM readout.
  - ***Start Date****: of the most recent Events History.*
  - ***Start Time****: of the most recent Events History.*
  - ***Start Address****: start address (in hexadecimals) of the E2PROM memory where the most recent Events History is stored.*
  - ***End Address****: end address (in hexadecimals) of the E2PROM memory where the most recent Events History is stored.*

- ***E2PROM Window****: the size in bytes of the data block that was transmitted during E2PROM readout. This value is programmable in the* ***E2PROM Window Size*** *field of the System section page 72*
- ***Events History Period****: the most recent Events History period. (See chapter "Dosimeter Parameters", § "Assignment" p. 63 (parameter adjustable "histogram period")*
- ***Next Address to Read****: address (in hexadecimals) of the start of the E2PROM readout. By default, this address is positioned on the start address of the most recent Events History.*

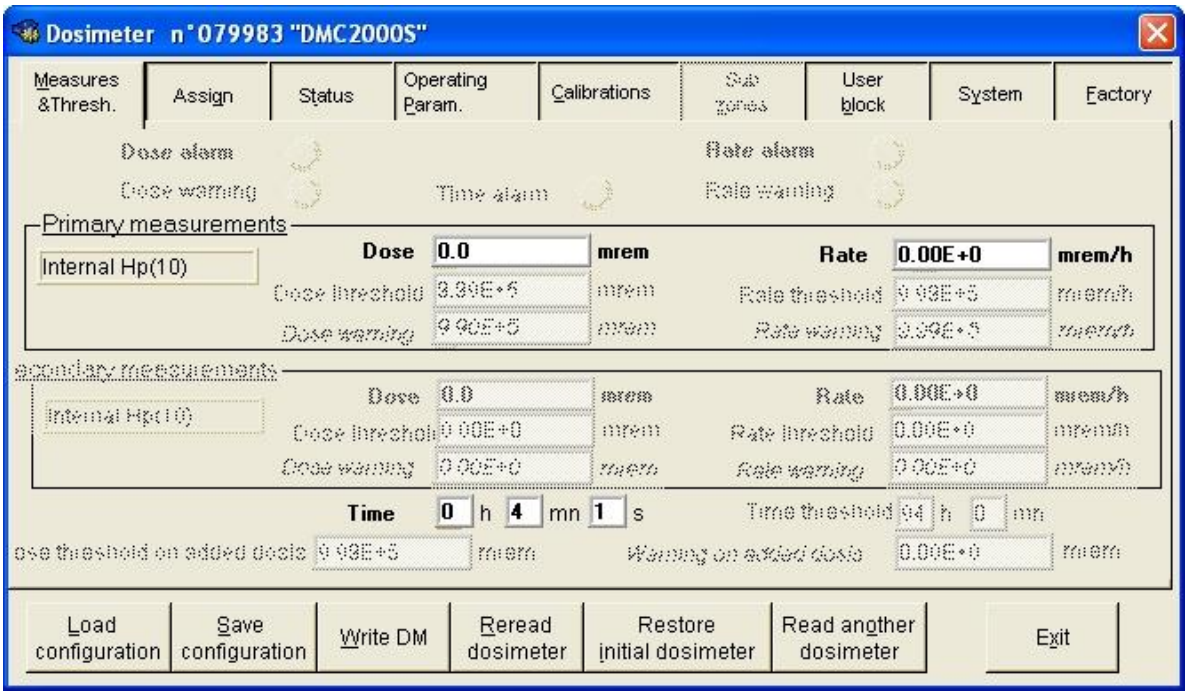
- Key [Read E2PROM]: this key allows the initiation of the E2PROM readout from the address specified in the ***Next*** Address to Read field.
- Key: [Print]: This allows the user to print the E2PROM readout at the address specified
- E2PROM Contents: this section allows the user to visualize the E2PROM data (in hexadecimals) read at the address specified in the ***Next Address to Read*** field.

5.3 DMC2000 with LDM101

This section provides all of the sections contained in the Configuration window when the DMC2000 Dosimeters are used with an LDM101 reader, operating in «***infra-red***» mode.

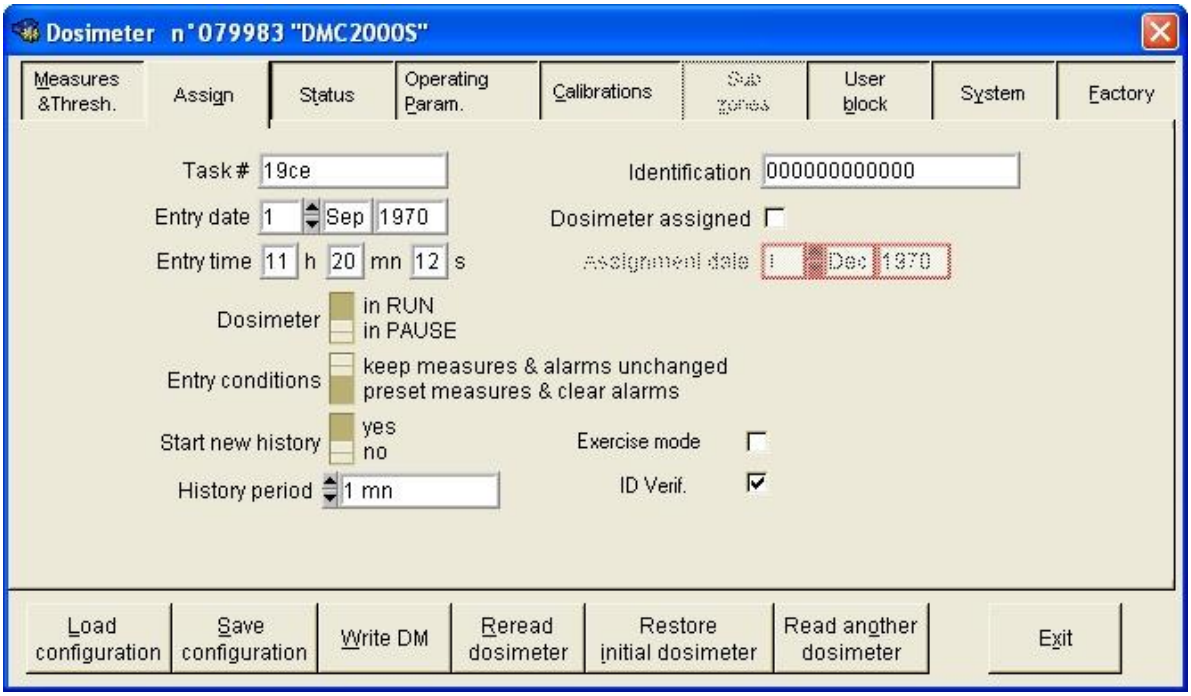
All of the differences relative to the standard configuration (DMC2000 with Hands free readers) are identified in the following sections.

5.3.1 Measures and Thresholds



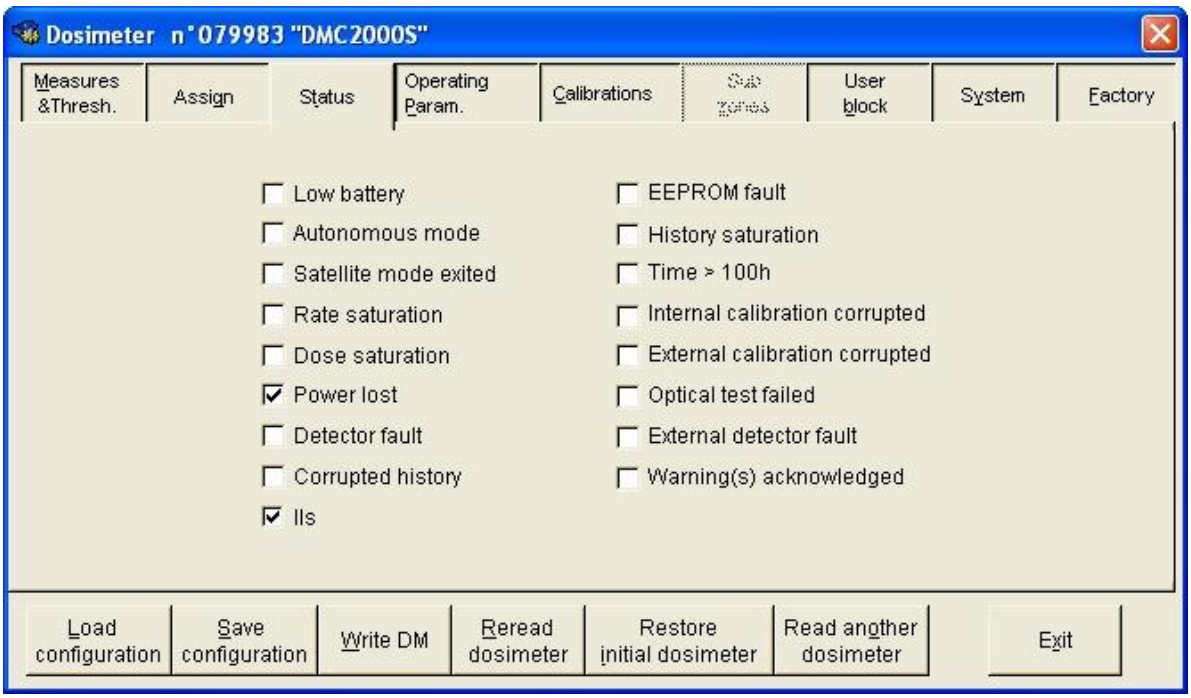
The entire array of measures and parameters relative to the **secondary measurements** field are inaccessible.

5.3.2 Assignment



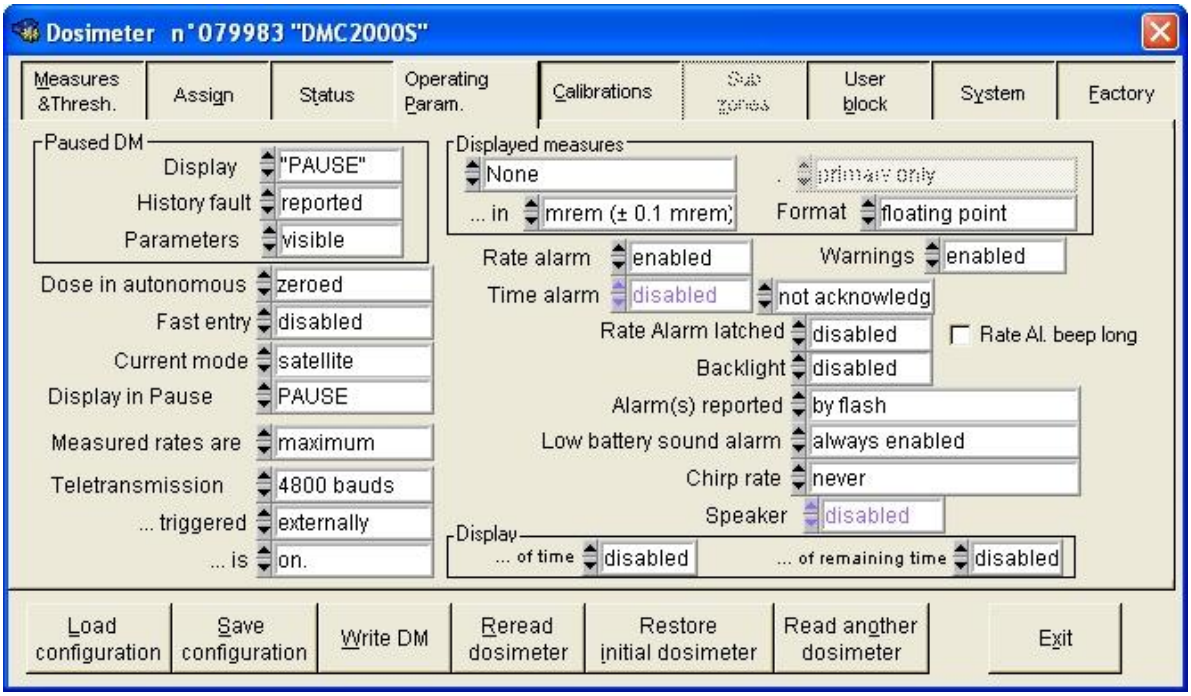
The Assignment Date field is inaccessible.

5.3.3 Status



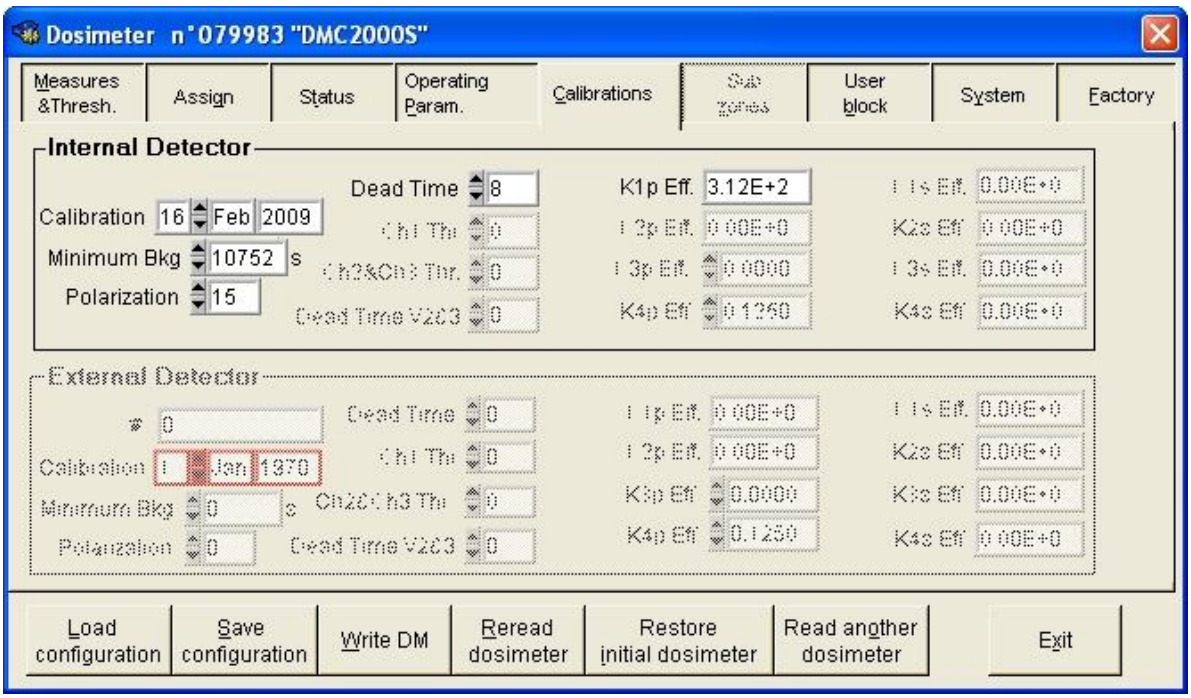
The entire array of detailed information relative to the Dosimeter status recorded in the Dosimeter is accessible.

5.3.4 Operating Parameters



The secondary measurements display option is inaccessible.

5.3.5 Calibrations

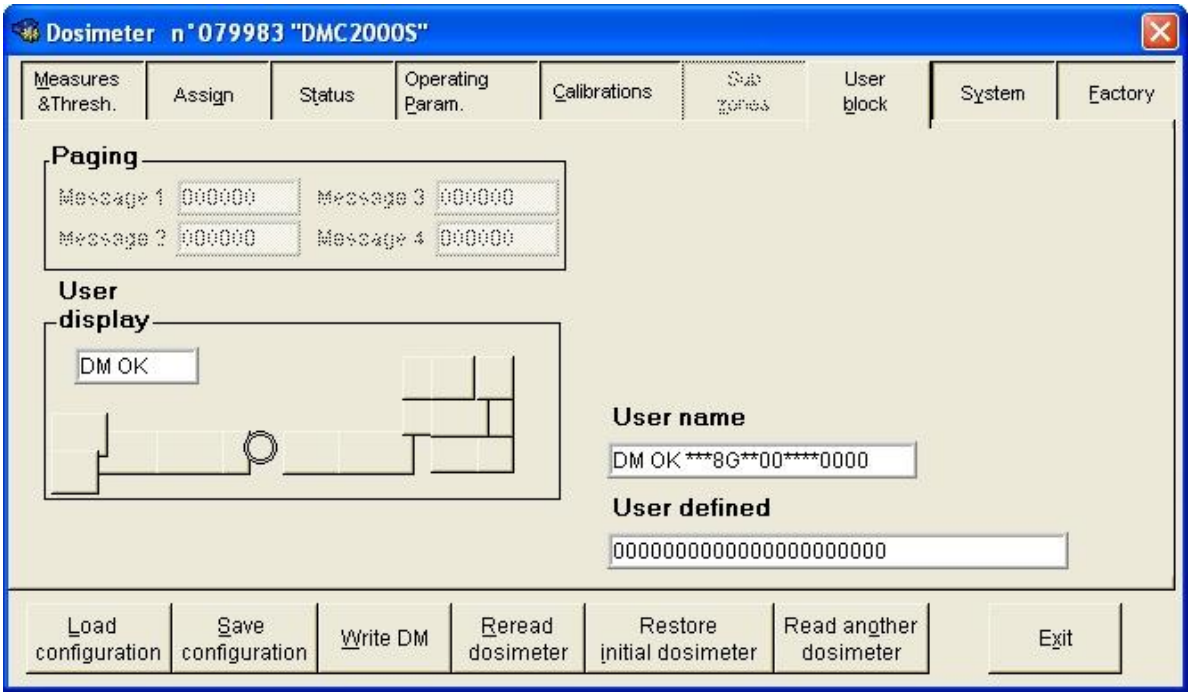


Only certain calibration fields are accessible.

5.3.6 Sub-Zones

This section is inaccessible.

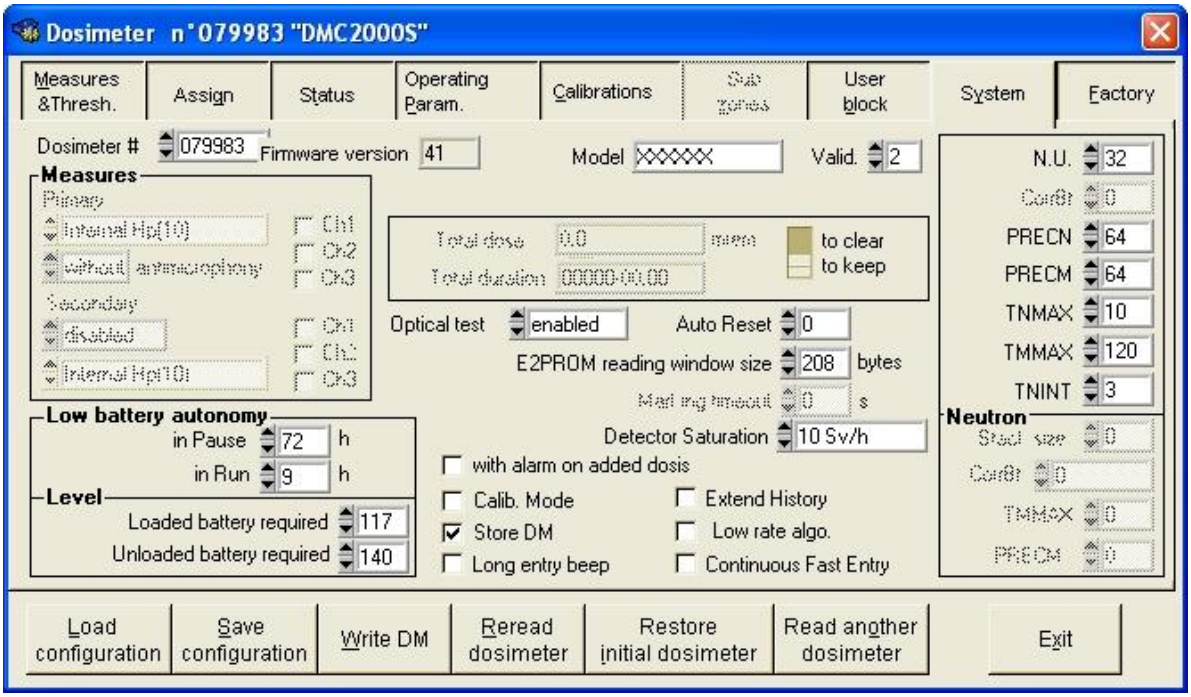
5.3.7 User Block



The following parameters are inaccessible:

- Messages 1-4;
- Fading.

5.3.8 System

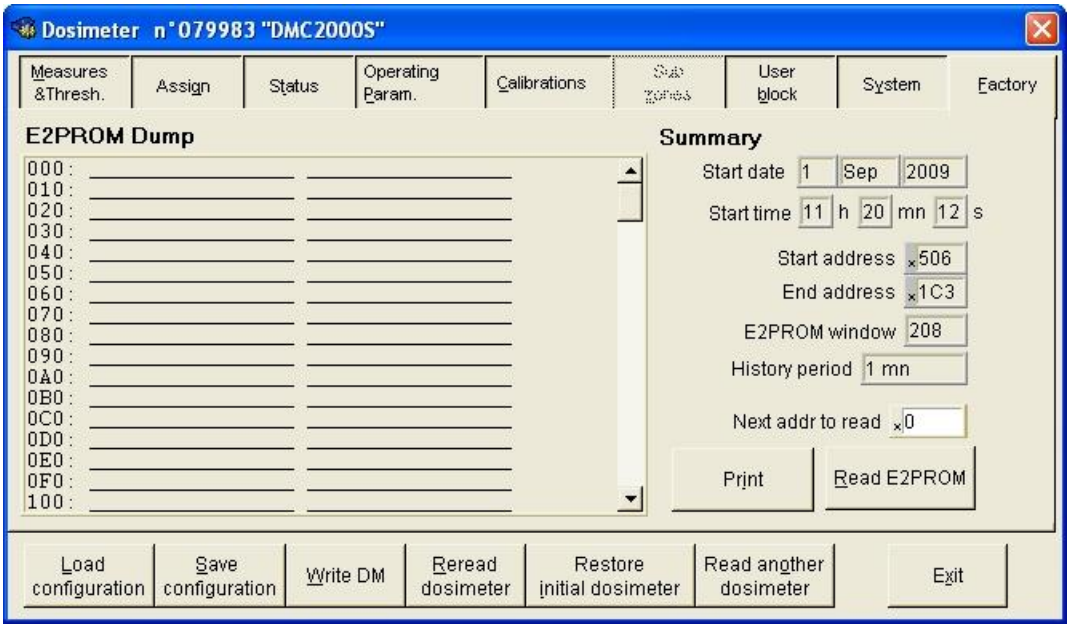


The following parameters are inaccessible:

- Marking Timeout;

- Total Dose; and,
- The entire array of parameters linked to **primary and secondary measurements**.

5.3.9 Factory



The entire array of parameters in this section is accessible.

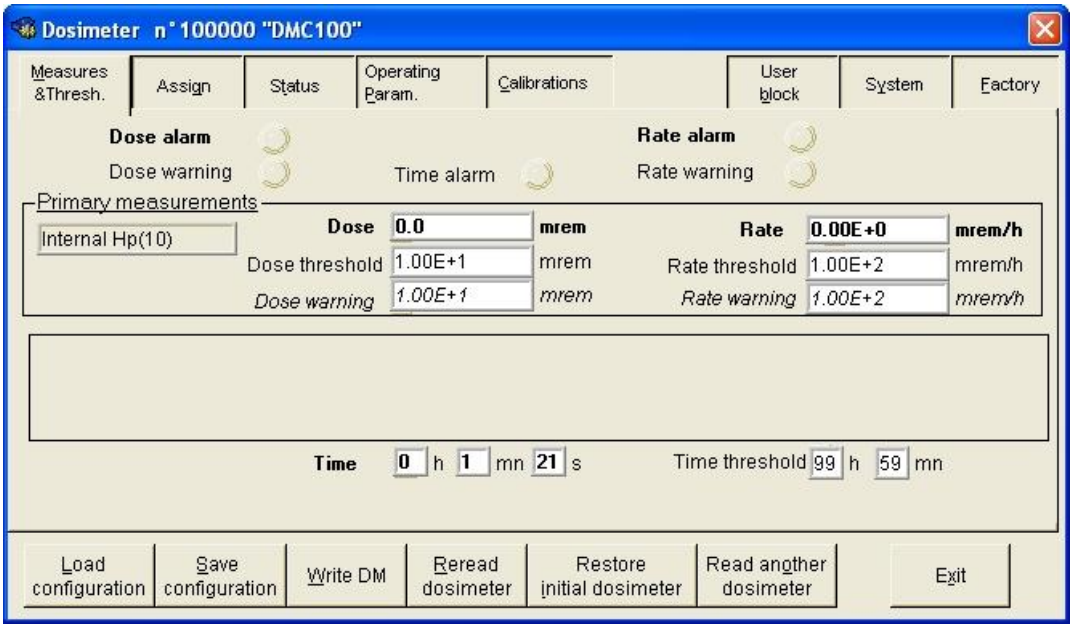
The possibility of reading the E2PROM is also available without restriction.

5.4 DMC100, DMC90, DM9X with LDM101

This section provides all of the sections contained in the Configuration window when the DMC100, DMC90, DM9X Dosimeters are used with an LDM101 reader, operating in «***infra-red***» mode.

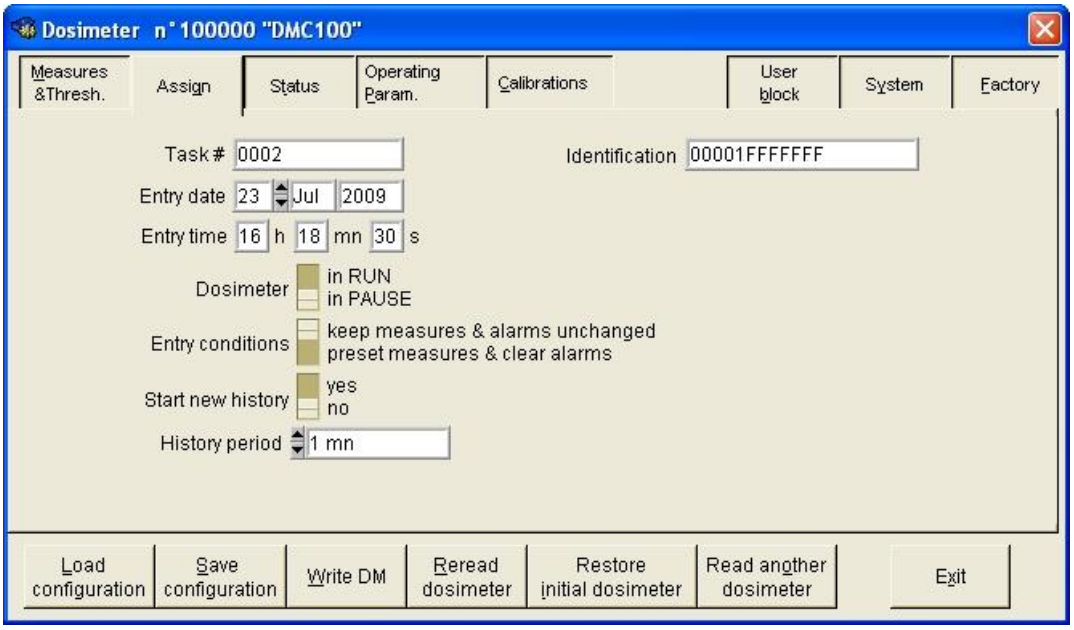
All of the differences relative to the standard configuration (DMC2000 with Hands free readers) are identified in the following sections.

5.4.1 Measures and Thresholds



The entire array of measures and parameters relative to the secondary measurements field are inaccessible.

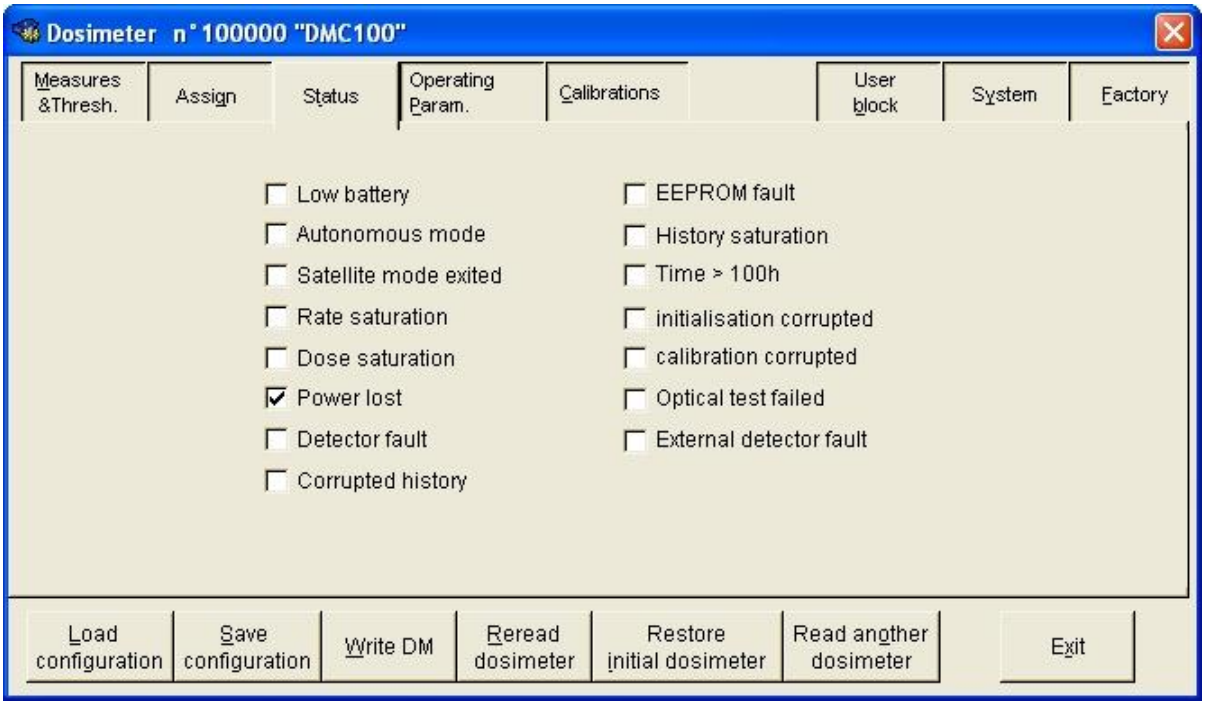
5.4.2 Assignment



The following parameters are inaccessible:

- Assigned Dosimeter;
- Assignment Date;
- Activated ILS.

5.4.3 Status



For the **DMC100**, the following information is unavailable:

- Warning(s) acknowledged.

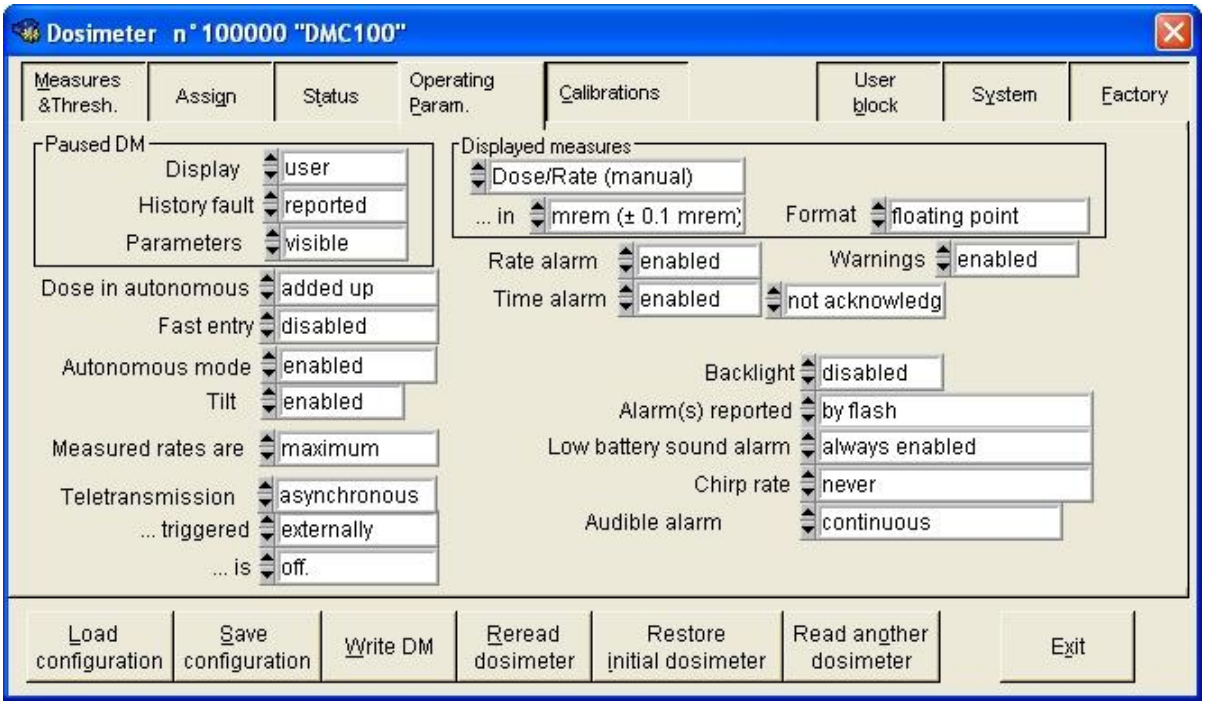
For the **DMC-90, DM-9X**, the following information is unavailable:

- Corrupted Events History;
- EEPROM Fault;
- Optical Test Failed;
- External Detector Fault; and,
- Warning(s) Acknowledged.

Note:
the following parameters have a different designation for the DMC-100, DMC-90 and DM-9X:

- ***Internal Calibration Corrupted ⇒ Initialization Parameters Corrupted***
- ***External Calibration Corrupted ⇒ Calibration Parameters Corrupted***

5.4.4 Operating Parameters



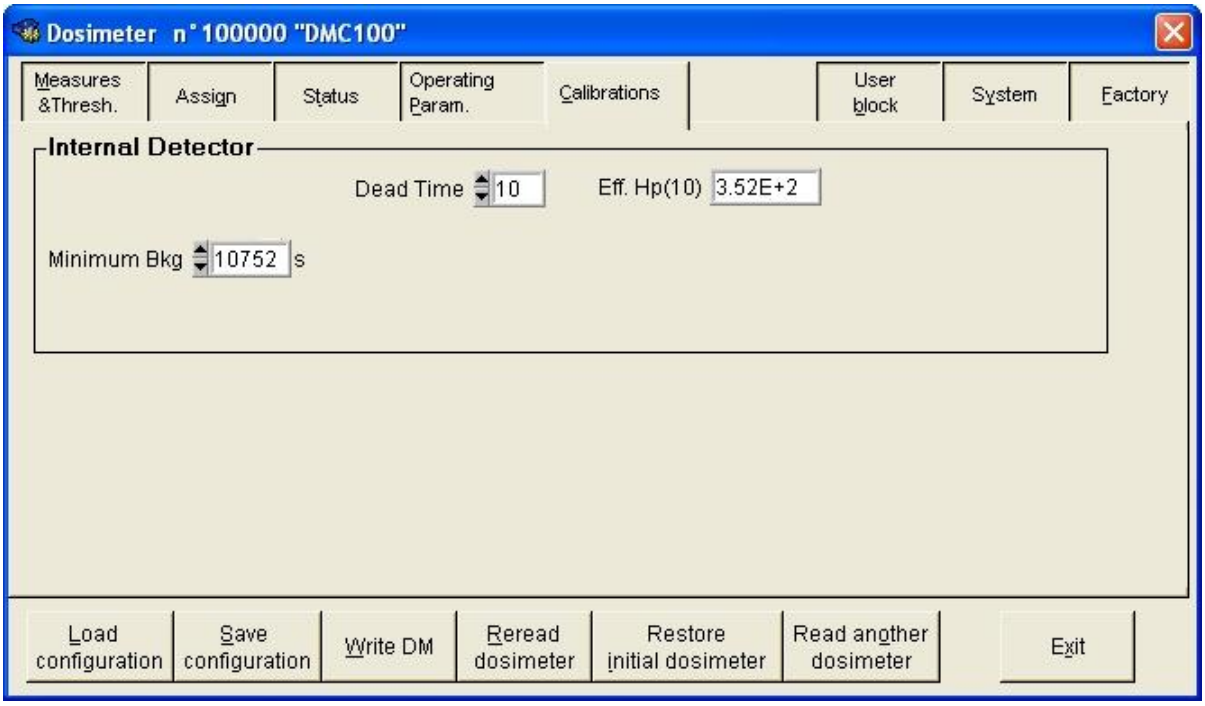
For the **DMC-100**, the following parameters are unavailable:

- The **Secondary Measurements** display option,
- Mode (Civil or Military);
- Buzzer.

For the DMC-90, DM-9X, the following parameters are unavailable:

- The **Secondary Measurements** display option;
- *Mode* (Civil or Military);
- Buzzer;
- Backlighting;
- Alarm Flash.

5.4.5 Calibrations

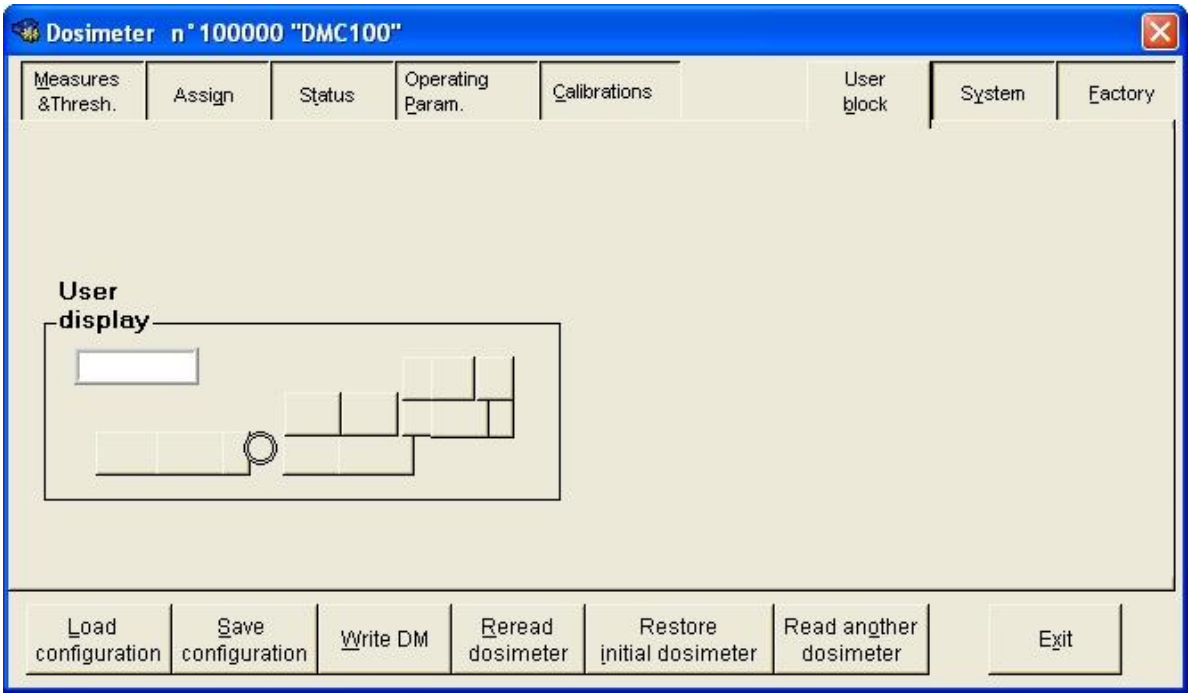


Only three calibration fields are accessible.

5.4.6 Sub-Zones

This section is inaccessible.

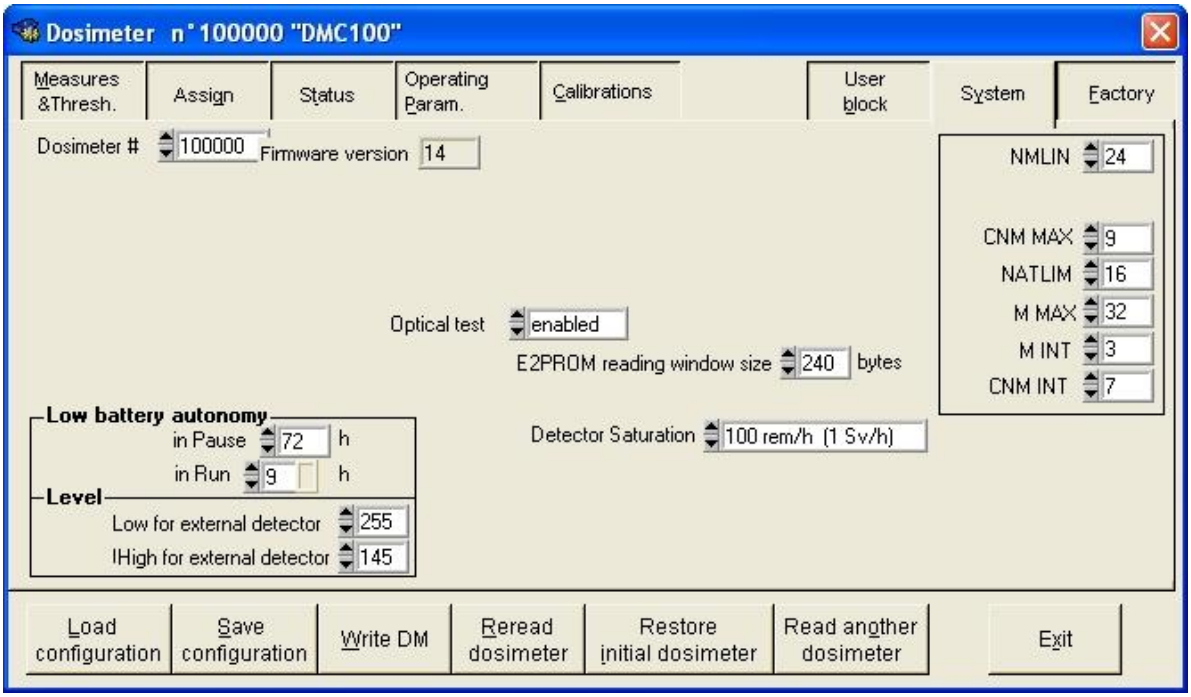
5.4.7 User Block



The following parameters are inaccessible.

- Messages 1-4;
- Fading; and,
- All the parameters relative to the Flash Measures

5.4.8 System



- **E2PROM Window Size**: the size, in bytes, of the data block transmitted at the time of the E2PROM readout (see the section entitled Factory pages 77, 82 and 88). For the DMC-100, the recommended value is 240 bytes.
- **Dosimeter**: hardware identification number of the Dosimeter (serial number). This number is allocated at the time of the manufacturing of the Dosimeter and allows manufacturing after sales service. It is also engraved directly onto the Dosimeter casing.

Note:
the Dosimeter numbers are assigned in number series depending upon the type of Dosimeter:

- ***DMC90**: 00500 to 001799*
- ***DMC10**0 100000 to 149999*
- ***DMC2000S**: 010000 to 099999, 150000 to 249999, 607000 to 609899, 650000 to 699999, 799996 to 809999, 820000 to 899999*
- ***DMC2000X**: 250000 to 299999*
- ***DMC2000XB**: 350000 to 399999*
- ***DMC2000GN**: 001800 to 009999, 810000 to 819999*
- ***SOR/T:** 300000 to 349999, 400000 to 449999, 520000 to 599999, 900000 to 999999*
- ***SOR/R:** 609900 to 649999*

For the **DMC100**, the following information is unavailable:

- Marking Timeout;
- Total Dose;
- Storage; and,

→ The entire array of parameters linked to primary and secondary measurements.

For the **DMC-90** and **DM-9X**, the following information is unavailable:

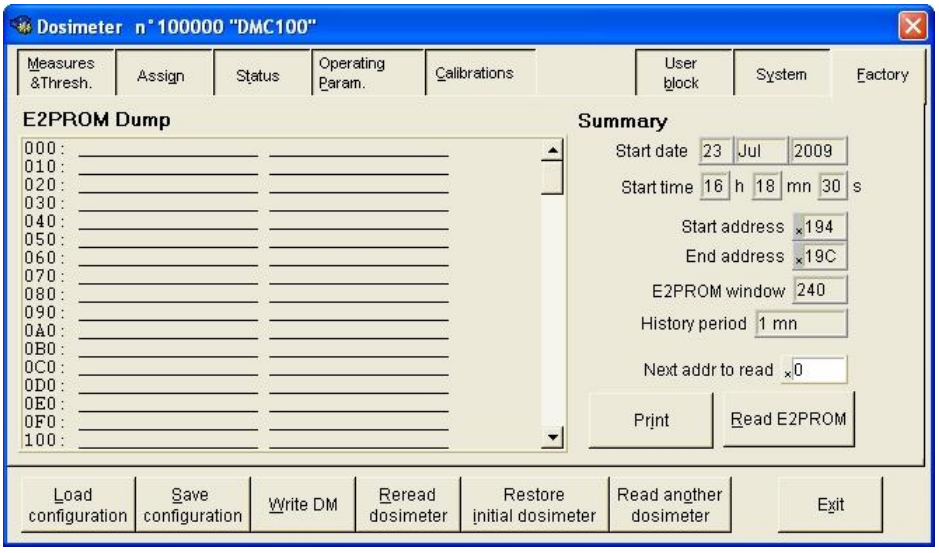
- Marking Timeout;
- Total Dose;
- Storage;
- Software Version;
- Unloaded Battery Level;
- Loaded Battery Level;
- Storage; and,

→ The entire array of parameters linked to primary and secondary measurements.

Note:
the following parameters have a different designation for the DMC-100, DMC-90, and DM-9X:

- ***N MAX: consult MGP Instruments***
- ***M INT: consult MGP Instruments.***
- ***CNM INT: consult MGP Instruments.***
- ***CNM MAX: consult MGP Instruments.***
- ***NATLIM: consult MGP Instruments.***
- ***NMLIN: consult MGP Instruments.***

5.4.9 Factory



For the **DMC-100**:

- The entire array of parameters in this section is accessible.
- The possibility of reading the E2PROM is also available without restriction.

→ For the DMC-90 and DM-9X, this section is not available.

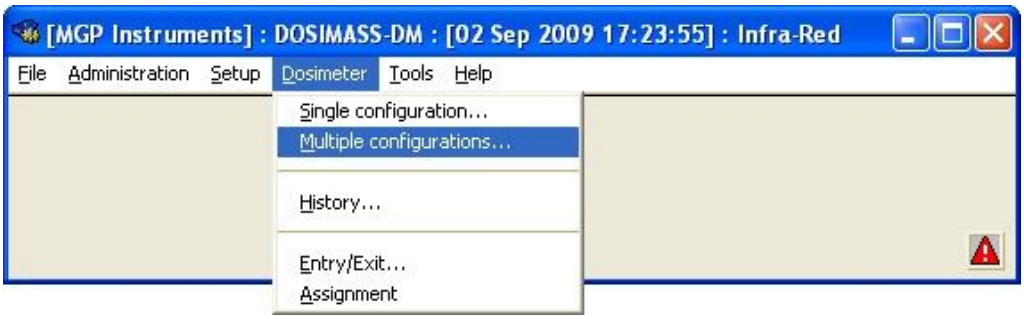
6. Multiple Configuration of the Dosimeters

This chapter provides a detailed view of the procedure that enables fast configuration of several Dosimeters using the hands free reader.

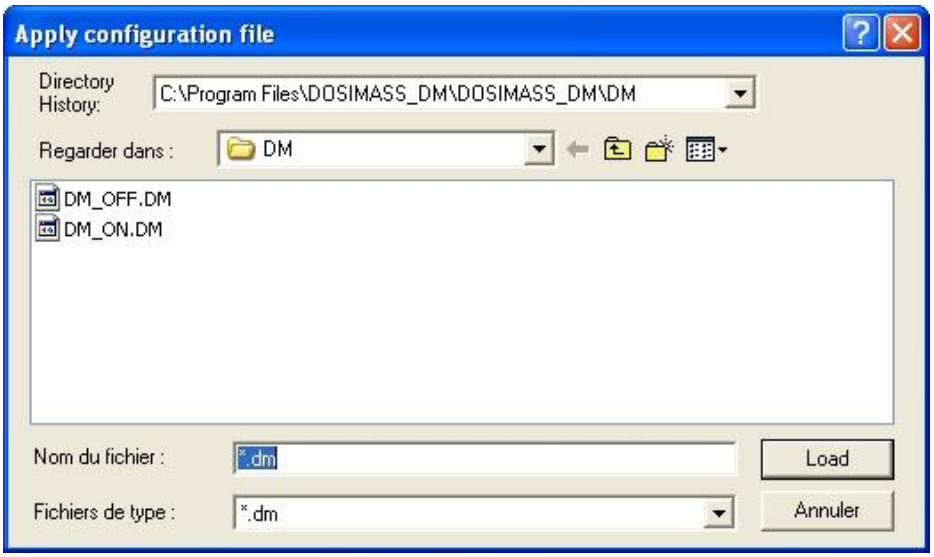
Note:
this function is authorized for all levels except the administrator.

The procedure is provided below:

- From the main menu, select Dosimeter/Multiple Configurations.

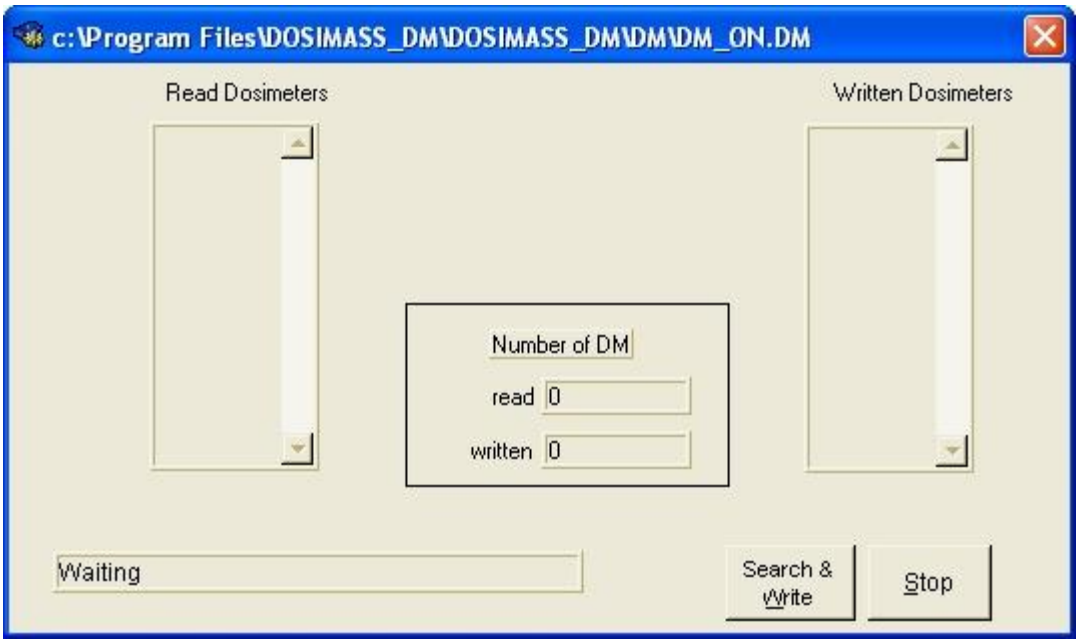


The following window will appear:



- Select the configuration file to be applied to the series of Dosimeters and click on ***Load***.

The following window will appear:



- Position one Dosimeter within close proximity of the reader.

The Dosimeter has been configured with the initially selected configuration file.

Its identification (serial) number appears in the scroll-down list entitled ***Written Dosimeters*.**

In the field ***Number of DM written***, the number of configured Dosimeters is increased.

- Take the Dosimeter out of direct proximity with the reader
- Repeat the procedure with a new Dosimeter or click on ***Stop*** in order to return to the main menu.

7. Passage into a Controlled Area (RCA)

This chapter provides the user with a detailed review of the procedure that enables the rapid configuration of a Dosimeter during an Entry/Exit into a controlled area.

Note:
*this function is authorized for all access levels except the **administrator**. However in the **operator** level, it is only possible to activate and deactivate dosimeter.*

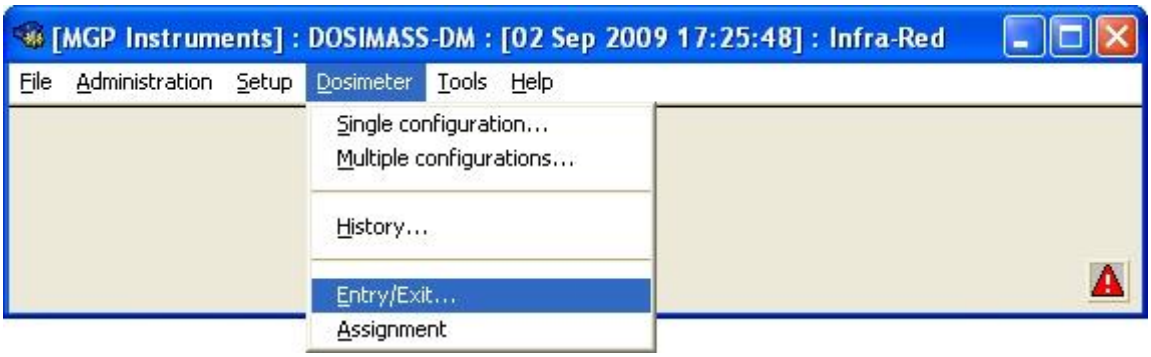
7.1 Entry into a Controlled Area

During the entry into a controlled area, this function enables the Operator to:

- Activate the Dosimeter;
- Configure the Dosimeter with new thresholds:
  - *a threshold equivalent to the dose;*
  - *a rate threshold equivalent to the dose; and,*
  - *a duration threshold.*

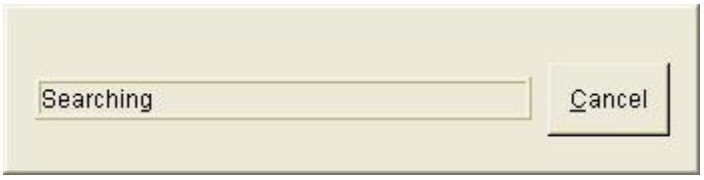
The correct procedure is reiterated below:

In the main menu, select ***Dosimeter/Entry/Exit.***



The following window will appear:

When using a Dosimeter with a hands free reader:

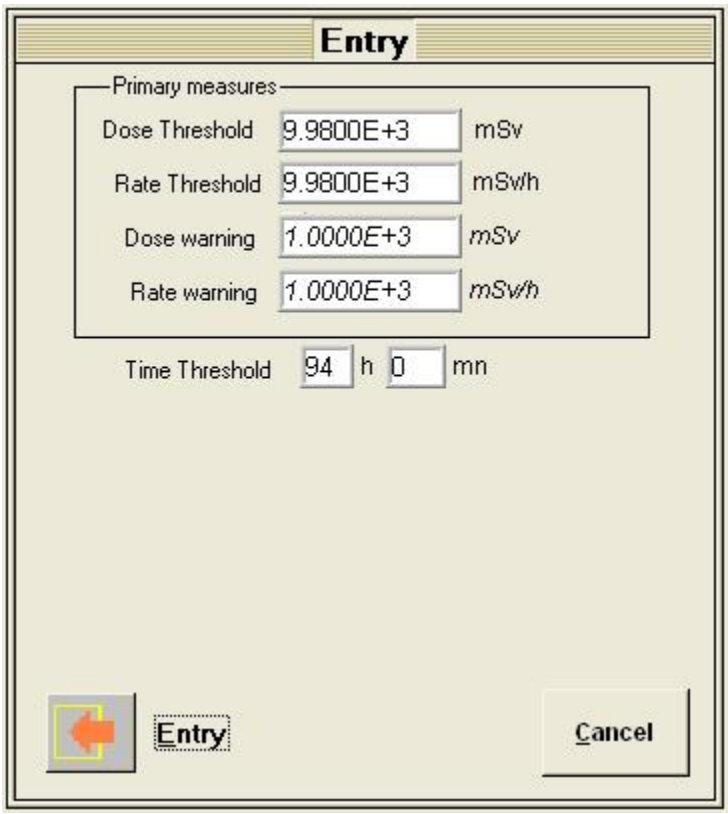


- Position the Dosimeter within close proximity of the Hands free readers.

When using a Dosimeter with an LDM101:

- Insert the Dosimeter into the ***LDM***101.

The following window will appear which contains threshold values appropriate the dosimeter configuration (i.e. with or without dose and dose rate warnings or time thresholds).



Note:
in order for this window to appear, the Dosimeter in question must be inactive (paused).

Type in the threshold fields with the values to input into the Dosimeter.

- Click on  or press enter.

The following window will appear.

The new thresholds have been recorded into the Dosimeter.

The Dosimeter is now active.

- Take the Dosimeter out of direct proximity with the Hands free reader, or retrieve the Dosimeter from the LDM101.
- Repeat this procedure with a new Dosimeter or click on ***Cancel*** to exit from the function.

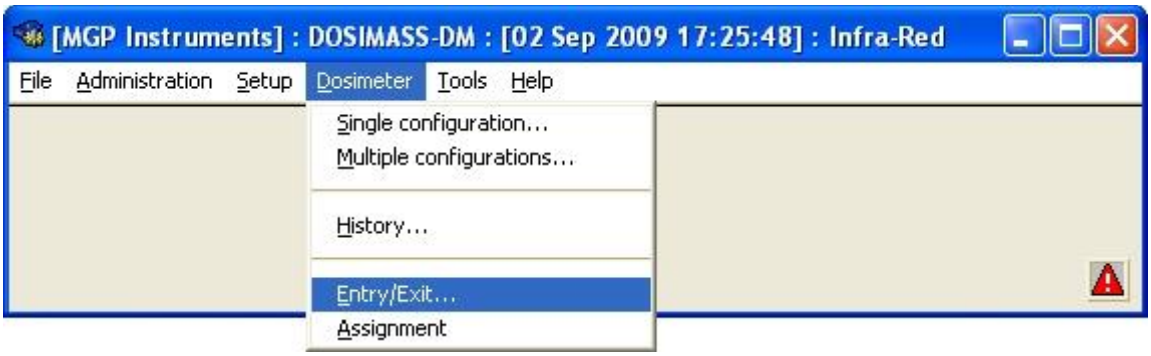
7.2 Exit from a Controlled Area

During the exit into a controlled area, this function enables the Operator to:

- Deactivate the Dosimeter;
- Visualize the alarms related to the visit of the controlled area, including the:
  - *dose alarm;*
  - *rate alarm; and,*
  - *duration alarm.*
- Obtain the following primary measurement values related to the visit of the controlled area, including the:
  - *values equivalent to the dose;*
  - *rate value equivalent to the dose; and,*
  - *duration value.*

The correct procedure is reiterated below:

From the main menu, select ***Dosimeter/Entry/Exit.***



The following window will appear:

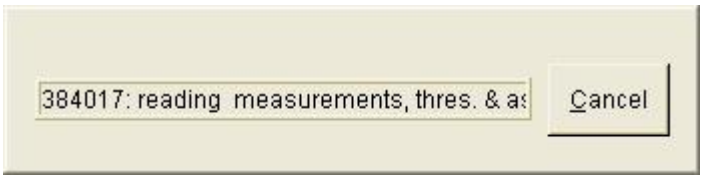
When using a Dosimeter with a hand free reader

Position the Dosimeter within close proximity of the reader.

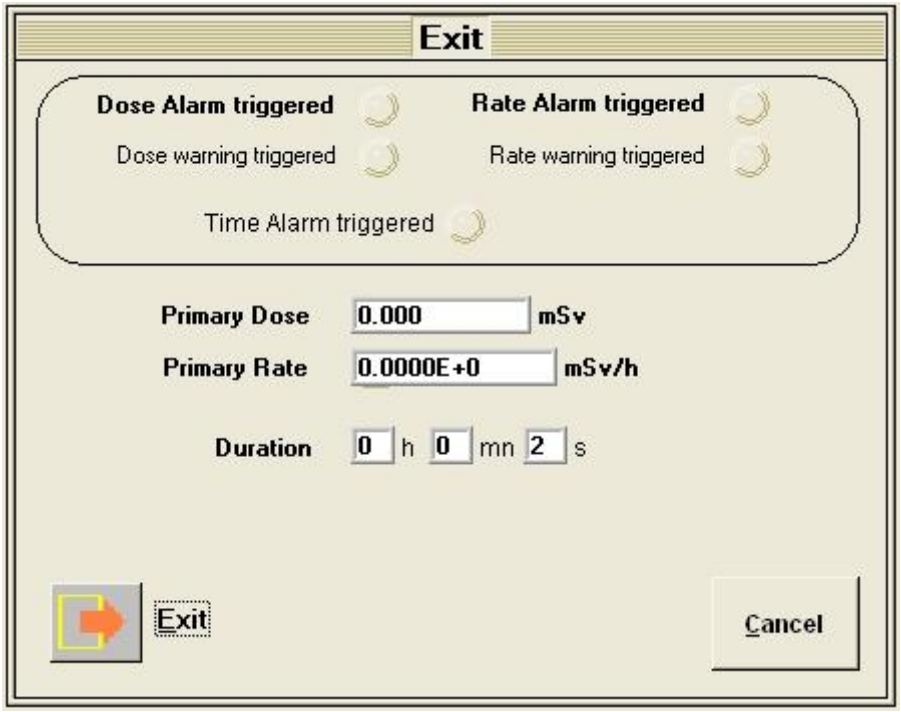
When using a Dosimeter with an LDM101:

Insert the Dosimeter into the LDM101.

The following window will appear briefly:



The following window will then appear:

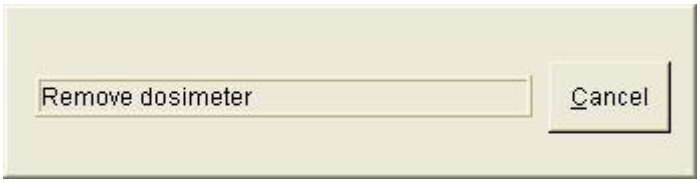


The alarms are signaled by red and orange «***lights***» that are located in the upper portion of the window. When a button remains gray, then the corresponding alarm was not activated during the last visit into the controlled area.

The primary measurements are displayed.

- To deactivate the Dosimeter Click on  or press enter

The following window will appear:



The Dosimeter is now inactive.

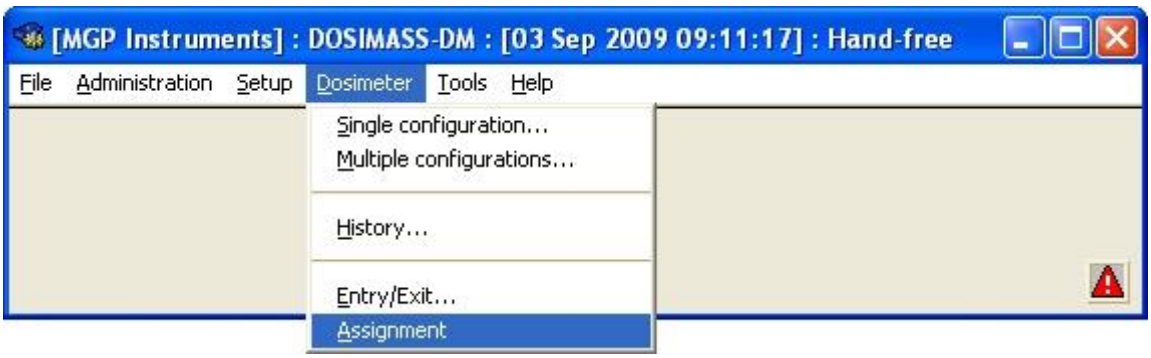
- Remove the Dosimeter from direct proximity with the Hands free reader, or extract the Dosimeter from the LDM101.
- Repeat this procedure with a new Dosimeter or click on ***Cancel*** to exit from the function.

8. Assignment Menu Option

This chapter details the process provided for assigning dosimeters to personnel. Dosimeter assignment is desirable when dosimeters are provided to individuals on a permanent; semi-permanent basis, or designated for the use of specific personnel, teams or tasks.

8.1 Assignment of a Dosimeter using an LDM2000, LDM2XX (recommended)

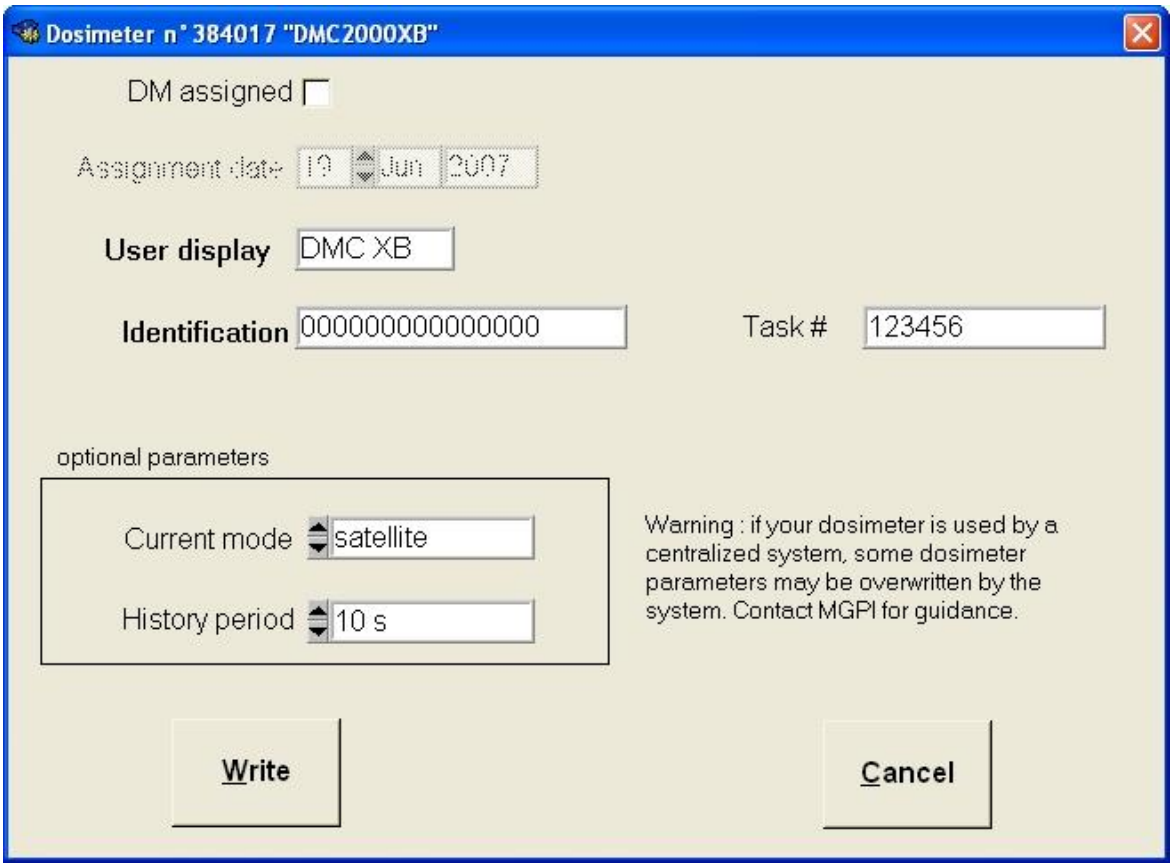
Assignment of dosimeters through the menu option is a semi automatic process where the operator is prompted for dosimeters, enters the applicable assignment data and writes the data to the dosimeter. Dosimeters may also be assigned through the single configuration option menu detailed on § 5.2.2, 5.3.2 and 5.4.2.



When assignment is selected the user is prompted to insert a dosimeter.

The assignment data is entered as follows:

Assignment of a DMC2000 with a Hands free readers.



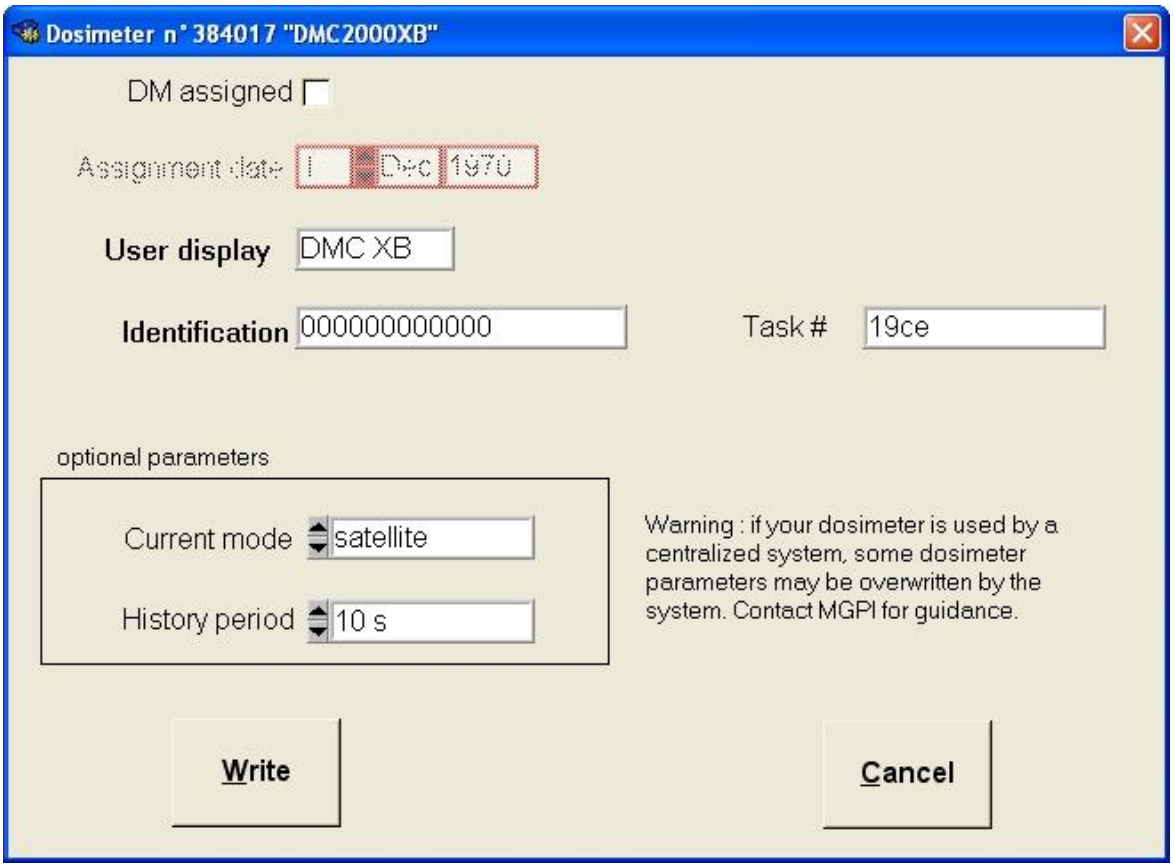
The following information may be entered:

- **Assigned Dosimeter:** this option is checked, to confirm the Dosimeter has been assigned. Note the dosimeter will read «AFFECT» instead of «PAUSE» when it deactivated; when the dosimeter is in “run” mode, the user USER DISPLAY will be displayed in addition to the radiological measurements. If the dosimeter is already assigned this box will be checked.
- **Assignment Date:** this field is read only and indicates the start date of the Event History if the dosimeter has already been assigned.
- **Identification:** an alphanumeric field that allows the identification of the wearer of the Dosimeter;
- **Task Code:** a code that enables the connection between a Dosimeter and a task to be accomplished;
- **Current Mode:** this enables the definition of the operating mode of the Dosimeter from among the following:
  - ***Autonomous****: autonomous mode*
  - ***Satellite****: satellite mode.*
- **History Period:** this parameter enables the definition of the specific time including the following parameters:
  - *10 seconds*
  - *1 minute*
  - *10 minutes*
  - *1 hour*
  - *24 hours*

Some parameters are not accessible dependant on the dosimeter and reader type used:

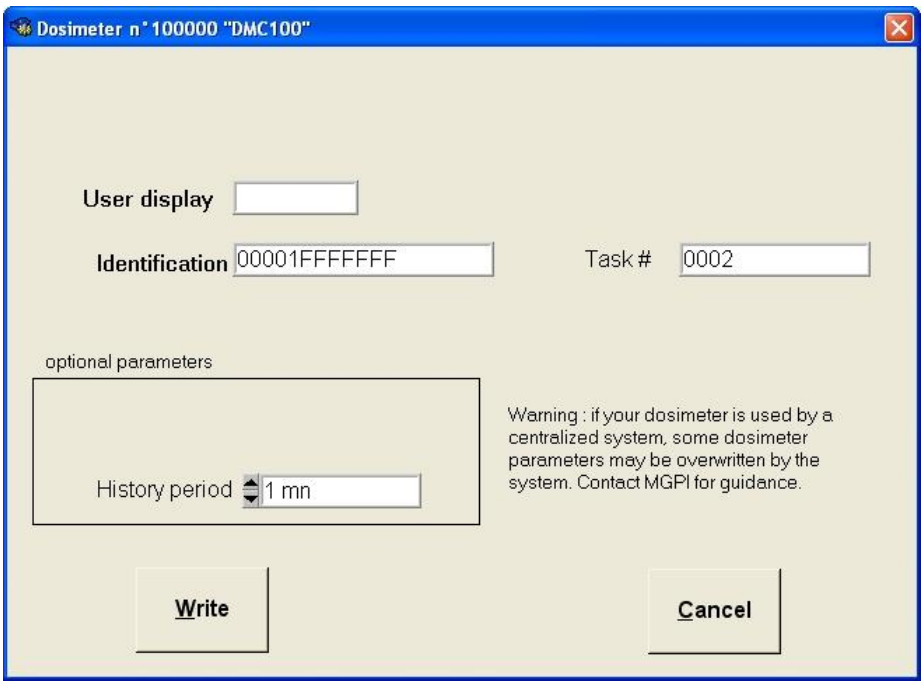
Once the assignment is complete the reader then searches for another dosimeter.

8.2 Assignment of the DMC2000 using an LDM101 Reader

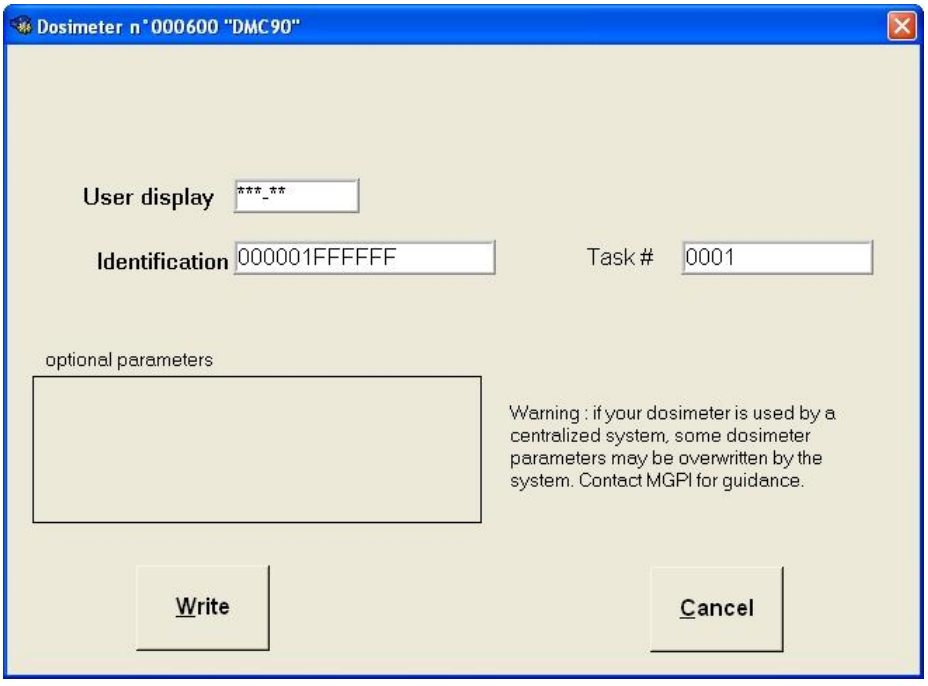


For the DMC2000 the Assignment date field is not accessible through the LDM101 reader.

8.3 Assignment of a DMC 100 / 90, using an LDM101 Reader



For The DMC 100 the « DM assigned » checkbox is not available and the display in pause will display either the word pause or the user display if selected in the operating parameters for the dosimeter. The assignment date, current mode is also not available.



For the DMC 90 the « DM assigned » checkbox is not available and the display in pause will display either the word pause or the user display if selected in the operating parameters for the dosimeter. The assignment date, current mode, history period options are also not available.

After the write is selected the operator is prompted to remove the dosimeter.

Once assignment is complete or the operator is requested to insert dosimeter (LDM101 Reader).

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9. Operation of the Events History Menu Option

9.1 Introduction

This chapter presents the entire array of information that enables the user to ensure optimal operation of the Events History feature. The Events History data is stored in the Dosimeter and saved in History files.

Note:
The use of the Events History feature for the DM-90 and DM-9X Dosimeters is not possible using the DOSIMASS Dosimeter Software.

This function is the only function of DOSIMASS DM that is accessible without the use of a dosimeter. It allows exploring the historical files previously stored.

9.2 Important Definitions

9.2.1 Events History

An Events History is a series of chronological elements that are time and date stamped and stored in a Dosimeter. These elements are either dose increments or specific events (status change of a Dosimeter such as the appearance of faults, alarms, assignment changes, marking occurrences, etc.). The maximum number of recordable elements depends upon the Dosimeter type.

Note:
the start-up of an Events History generally takes place at the time of the activation of the Dosimeter (see the option entitled Start new events history page 83 under the section entitled Assignment).

9.2.2 Current Events History

Once an Events History has been initiated, all events that arise from that moment are time/date stamped and recorded into the Dosimeter. In addition, at regular intervals (***Events History Periods***) the value of the potential increase of the dose equivalent is recorded. The entire set of corresponding recordings comprises the Current Events History.

Please add total number of events that are capable:

A general approximation of histogram operation time before data overwrite can be given as follows:

Step	Min	Max
10 s	2h	21 days
1 min.	13h	128 days
10 min.	5 days	280 days
Extended Histogram (when selected)> 3.4 firmware will approx. doubles storage capacity for DMC2000 S. (from 3.4 version and greater).		

9.2.3 Closure of an Events History

The closure of an Events History is conducted at the next activation of the Dosimeter if the ***Start New Events History*** option is validated. This option is defined under Start new events history in the section entitled Assignment.

9.2.4 Number of Events History

Several Historical Events can be recorded successively in the Dosimeter memory. As soon as the totality of the corresponding memory is used, the Current Event replaces the oldest Event.

Note:
it is advisable to save the Events History on a regular basis into files, which can be subsequently used.

9.2.5 Events History Saturation

If an Events History takes up all of the memory, it cannot be recovered.

When the Events History is saturated the most recent records replace the oldest elements.

9.2.6 Events History Period

The Events History Period is the constant interval of time at the end of which the increase in dose equivalent and the events are recorded. This interval can be one of several values.

Note:
*See para "**Events History Period**" page 64*

9.2.7 Dose Increment

A dose increment is the increase in the dose equivalent during an interval of time defined by the Events History Period. Each dose increment is date/time stamped. Their use provides information regarding the evolution of radiation doses received by a specific user.

9.3 Access to the Events History Function

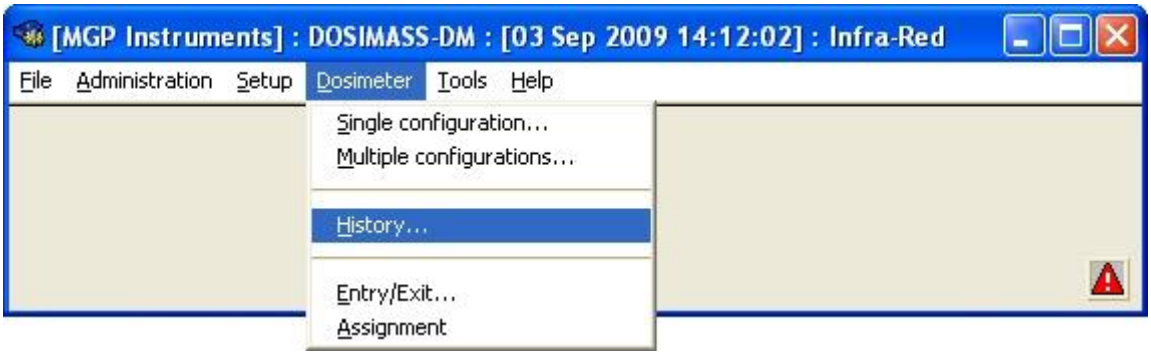
The following procedure indicates the manner in which the Events History function can be accessed.

When using a Dosimeter with a hand free reader:

- Position the Dosimeter within close proximity of the reader.

When using a Dosimeter with an LDM101:

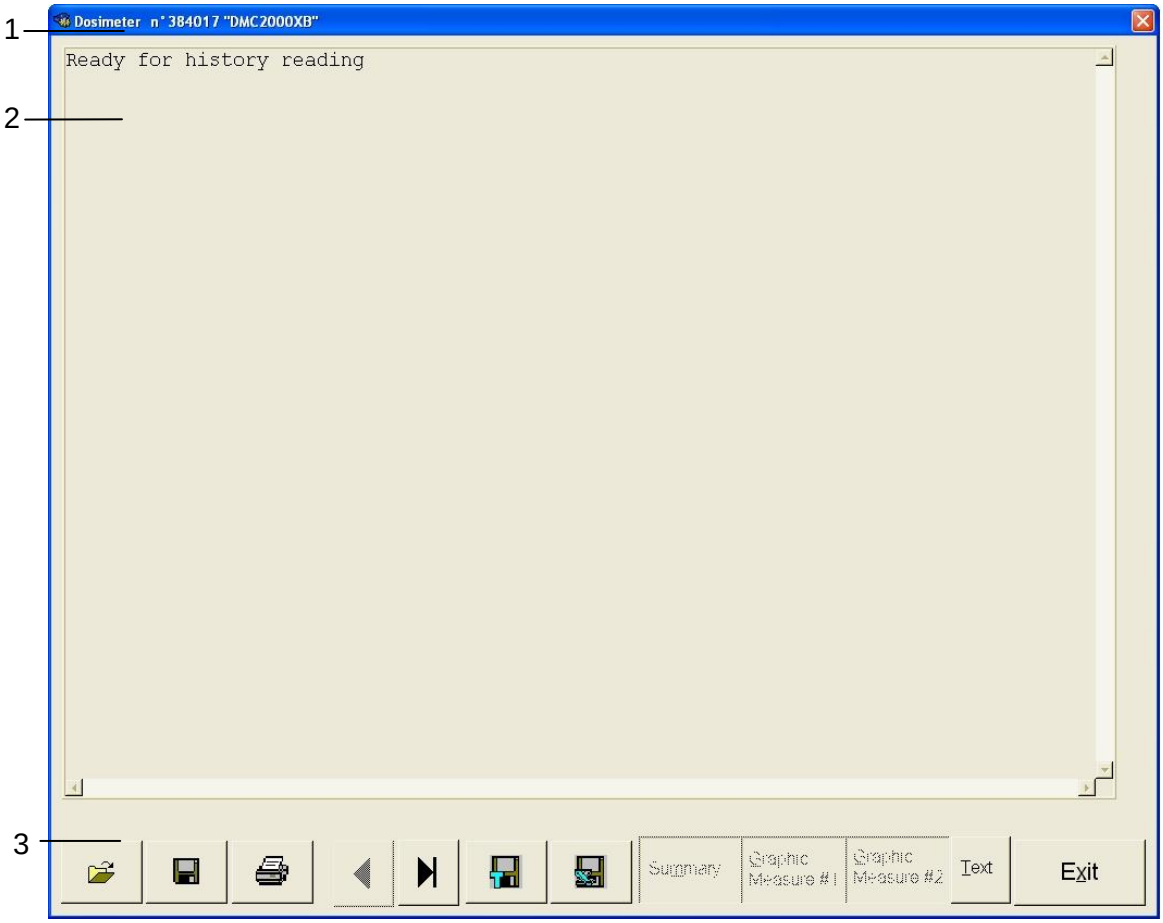
- Insert the Dosimeter into the LDM101.
- From the main menu, select ***Dosimeter/History.***



The following window will briefly appear:

Then the ***Events History*** window will appear:

9.4 Events History



This window includes the following elements:

1- A title bar that includes the ***Dosimeter Number*** and the ***Dosimeter Type***.

2- A Blank area which is designed to receive:
- the current messages addressed to the user;
- the textual representation of the Events History;
- the summary of the Events History; and,
- the graphic representation of the Events History.

3- a series of operation keys that enable the use of the **Events History** function.

Note:
when the Events History reading is conducted from a file, the Dosimeter number and the Dosimeter type that is associated with this Events History will appear in the title bar.

9.5 Function Keys

The function keys are located on the bottom portion of the Events History window. The corresponding functions are activated by a simple click.

	This function key allows the user to read the Events History data recorded in a file.
	This function key allows the user to record the Events History data displayed in a file.
	Once a history has been read this function key allows the user to print the Events History currently displayed. The following information is printed: ▪ The Dosimeter Number (or the name of the Events History file during a reading from a file); ▪ The Events History Period; ▪ The date and time of the Events History start-up; ▪ The date/time stamped list of all events and dose increments; and, ▪ A graphic representation of the Events History will also be printed (if selected by the user) See § Printing an Events History 9.10
	A click on this key allows the user to read the previous Events History in the Dosimeter (if several Events History were recorded in the Dosimeter). This new Events History is older than the one initially displayed.
	This function key allows the user to read the Events History recorded in the Dosimeter. A click on this key displays the current Events History for the Dosimeter (or the most recent Events History if there is no current Events History for the Dosimeter); ***Note**: upon each new reading of an Events History from the Dosimeter, the following window appears.* 
	This function allows the data to be exported to a text file.
	This function allows to export the file to a document that can be opened directly with excel.
	This function key allows the user to display the summary of the display Events History (*See § summary display 9.8)*

Graphic Measure #1	This function key allows the user to display the Events History in graphic form in order to analyze it in greater detail *(see § Historic Display in Graphic Format 9.9).*
Text	This function key allows the user to display the Events History in the form of a text, which lists the events *(see § Display of Historical Events 9.7).*
Exit	This function key allows the user to return to the main menu.

9.6 Reading an Events History

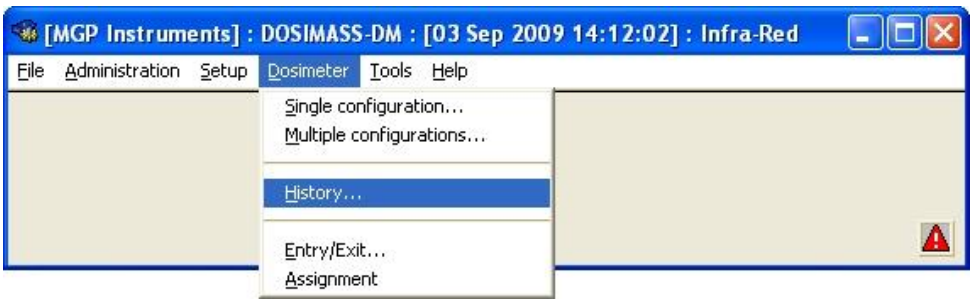
9.6.1 From a Dosimeter:

- Access the Events History window by following the procedure elaborated in the section entitled ***Access to Events History***.
- Click on 

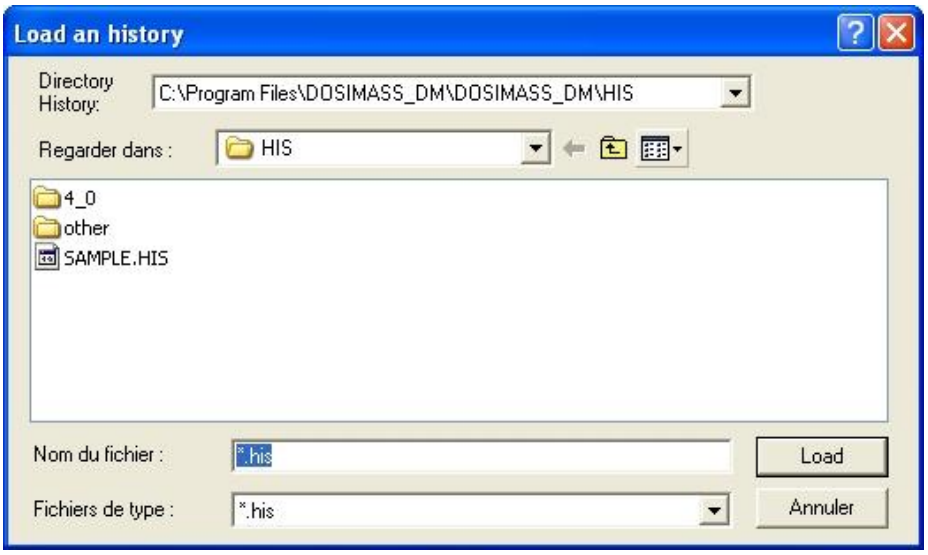
The event contained in the Events History will appear in the Events History window (see § *9.7* Display of Historical Events).

9.6.2 From a File:

From the main menu, select ***Dosimeter/History.***



If no dosimeter is in the presence of the Hands free reader (or inserted into the LDM101 reader) the following window will appear:



- Select the directory under which the Events History files are stored using the scroll-down window entitled ***Browse***.

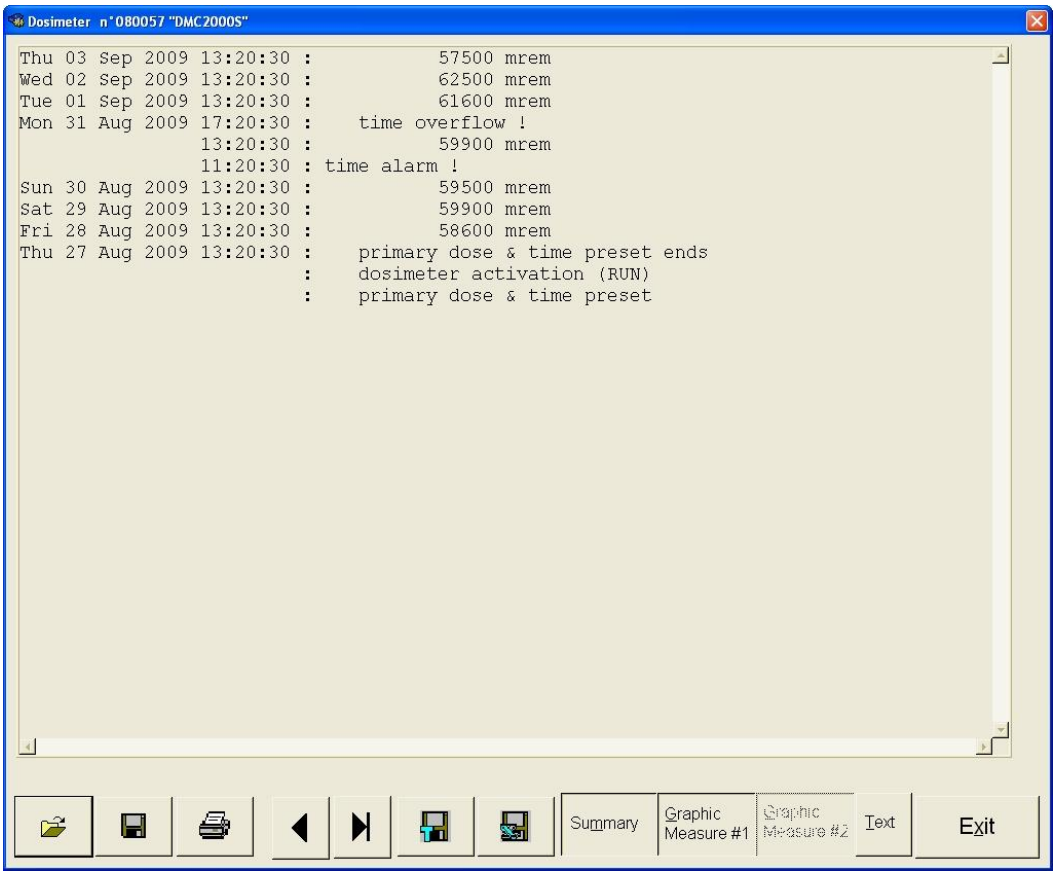
All of the Events History files are displayed (extension.***his***).

- Select the desired Events History file,
- Click on ***Load***.

The events contained in the Events History will then appear in the ***Events History window*** (see the following).

9.7 Display of Historical Events

After proceeding with the reading of an Events History, the corresponding events are directly displayed in the ***Events History*** window. (See Reading an Events History page 106)



This window places in text form all the historical events read.

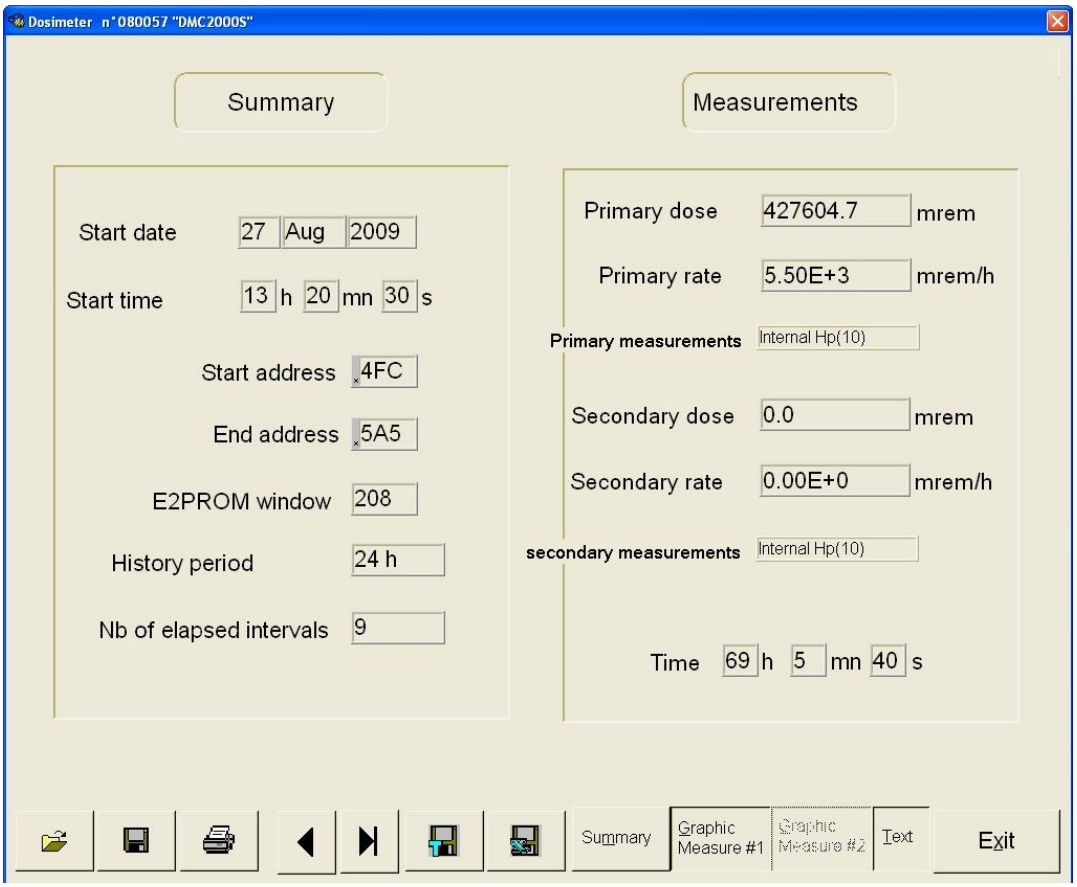
They are sorted in reversed chronological order; the most recent event is displayed on top of the list.

9.8 Summary Display

In order to display the summary of the Events History, click on 

in the Events History window.

The corresponding information is displayed in the Events History window.



This information is the same that which appeared in the ***Summary*** portion of the section entitled ***Factory***, under the Dosimeter Parameters section pages 77, 82 and 88.

A supplementary parameter appears nevertheless:

- **Interval Numbers**: this parameter corresponds to the number of total intervals in the Events History (multiplying this number by the Events History Period, provides the total duration of the Events History).

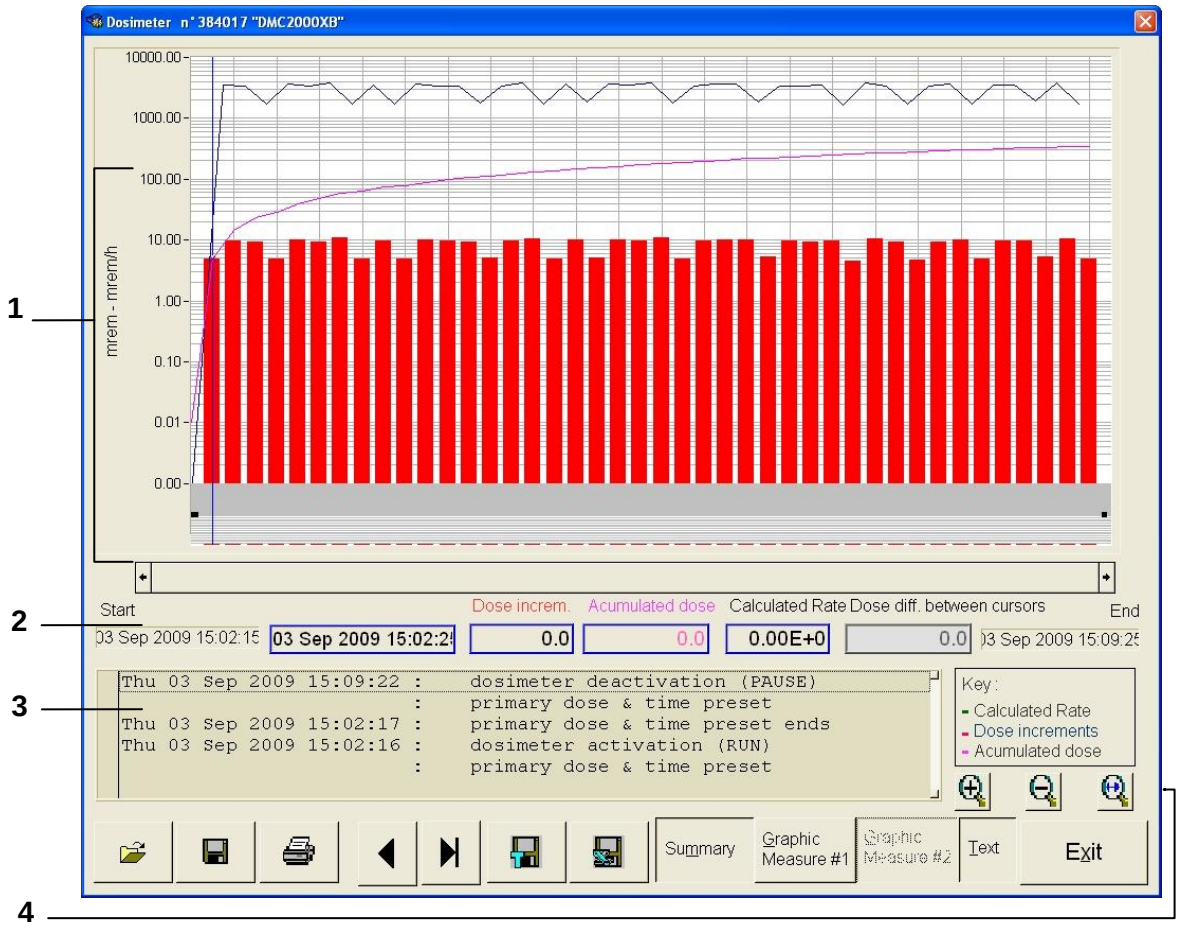
Note:
from the Factory tab, the EEPROM Events History can be read. Input the field « Next Address to read » in the E2PROM Window with the Start Address (see the screen capture above). ***See Dosimeter Parameters page 59).***

9.9 Historic Display in Graphic Format

In order to display the Events History in graphic form, click on Graphic Measure #1 from the Events History window.

Graphic Measure #2 which works in the same way, gives information about the secondary measurement, if it has been validated in the dosimeter.

The following window will appear:



This window contains the main elements listed below:

1. Display area: A portion of history window reserved for the graphic representation of the Events History, which contains the following elements:

- Red Bars (dose increments);
- Pink Continuous Curve (cumulative dose);
- Blue Continuous Curve (calculated rate based on dose increments processed);
- Black and Black squares (historical events in the Events History);
- Blue cursor and black movable pointer;
- the Y-Axis: a ***logarithmic scale*** and the same display units used in other functions of the software;
- The **X-Axis**: the axis of time where each increment is positioned chronologically;

2. Values Area: A portion of the history window reserved for numeric data relative to:

- Date and time of the start of the Events History;
- Date and time corresponding to the position of the cursor;
- Value of the dose increment corresponding to the position of the cursor;
- Value of the cumulative dose corresponding to the position of the cursor; and,
- Date and time of the end of the Events History.

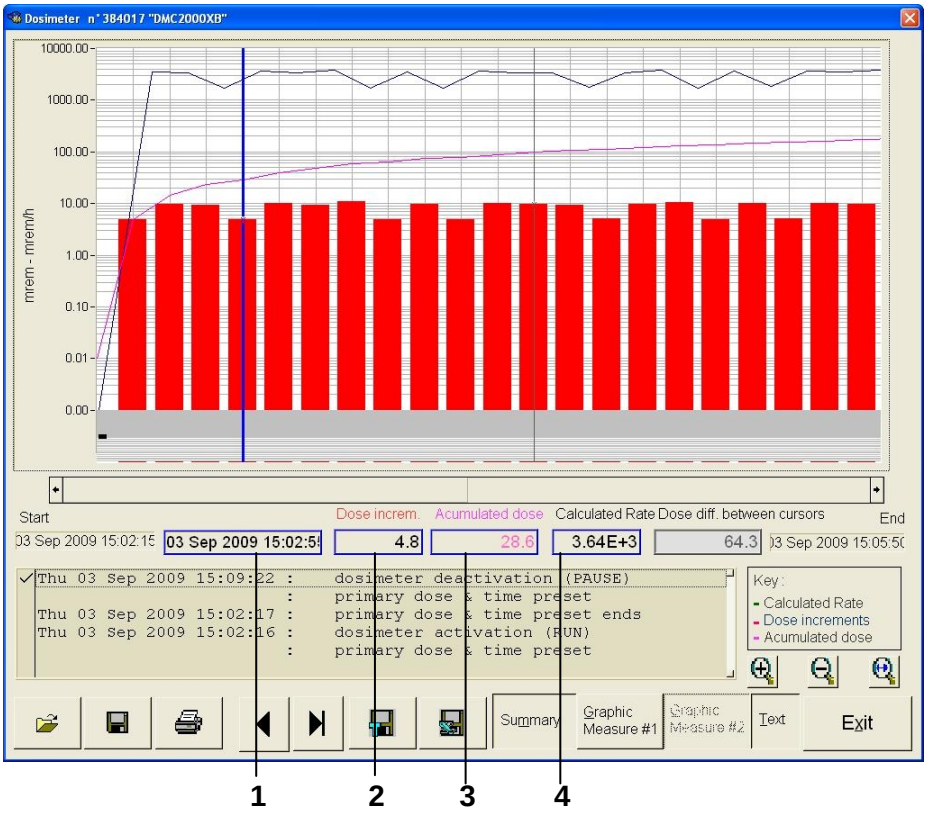
3. Histogram Events: A portion of the history window reserved for display of the date/time stamped historical events (corresponding to the black dots in the display area)

4. Display Tools: A portion of the history window providing Tools enabling zoom and magnification functions enabling the automatic viewing of any part of the graphic.

9.9.1 Navigation of the Cursor and Pointer

The movable blue cursor (vertical blue bar) navigates using the mouse and the black movable pointer described below along the X-Axis. Initially, it is positioned at the origin, directly over the Y-Axis.

The movable black pointer (vertical black bar) enables the definition of an area to be examined using the ***magnifying glass***, similar to defining a Region of Interest (see below).



Several methods may be used to navigate with the **cursor** or the **pointer**.

- Position the mouse pointer on the graphic area where the cursor/pointer (blue bar) is desired. Click on this area, the cursor/pointer will move to the selected area.
- Directly select the cursor/pointer by clicking above it with the mouse. Do not release the mouse button. Move the mouse in order to move the cursor/pointer to the desired location.

After moving the cursor, the Events History data that corresponds to its new position is displayed in the blue rectangles located in the data field:

1. Date and time;
2. Value of the dose increment;
3. Value of the cumulative dose,
4. Value of the calculate rate at the dose increment.

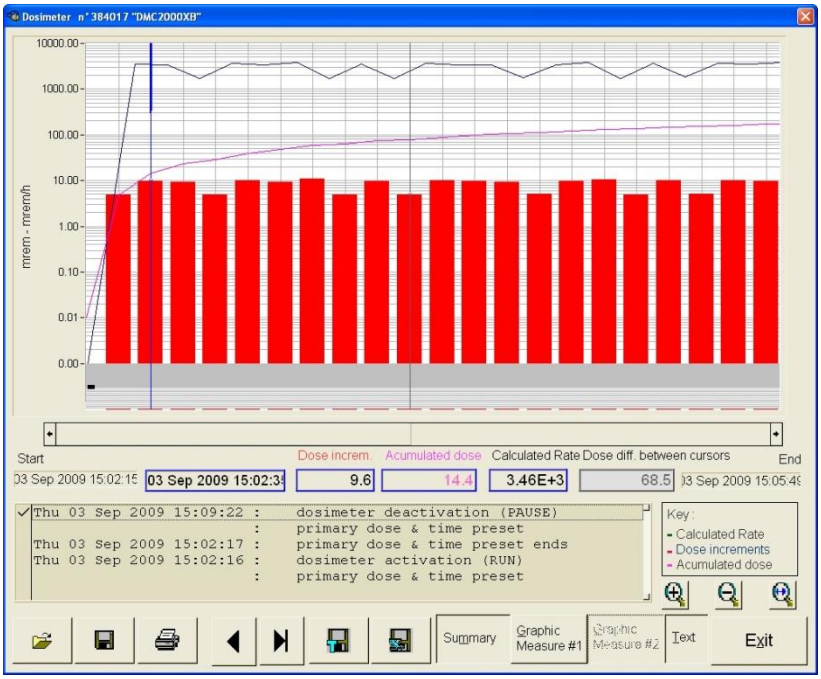
9.9.2 Zooming an Area using the Magnifying Glass

The zoom out and zoom in tools enable the magnification or reduction of an area with a simple click onto the selected area.

To navigate over the entire period corresponding to the Events History, a scroll tool is located directly under the graphic window.

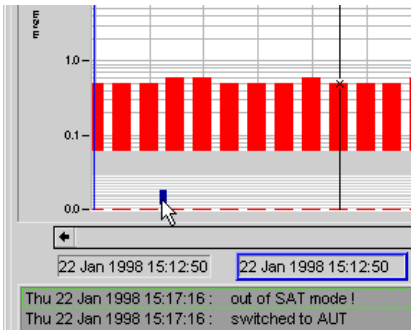
Note:
*See para "**Events History Period**" page 64*

The black bar / pointer allows the user to designate a period situated between its position and that of the blue bar / cursor. The use of the magnifying glass allows the user to adjust the magnification over the selected area (left diagram illustrates before magnification, and the graph below shows the effect with the magnification tool).

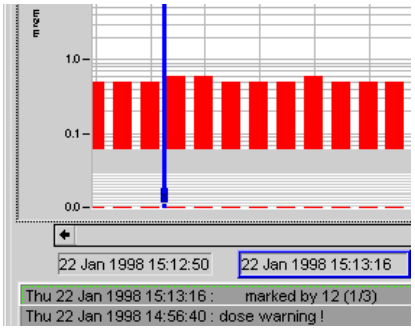


9.9.3 Visualization of Historical Events

An area containing black and blue squares can be found under the X-Axis. These symbols represent the events stored in the Events History.



- In order to identify an event, place the pointer of the mouse on the square and click. The corresponding event is automatically highlighted in the display zone of historical events (see below).



In the example shown above, the cursor points to the event that happened at 3:13 p.m. and the corresponding event is highlighted in the display zone.

9.10 Printing an Events History

In order to print the Events History that is currently displayed, click on  from the Events History window.

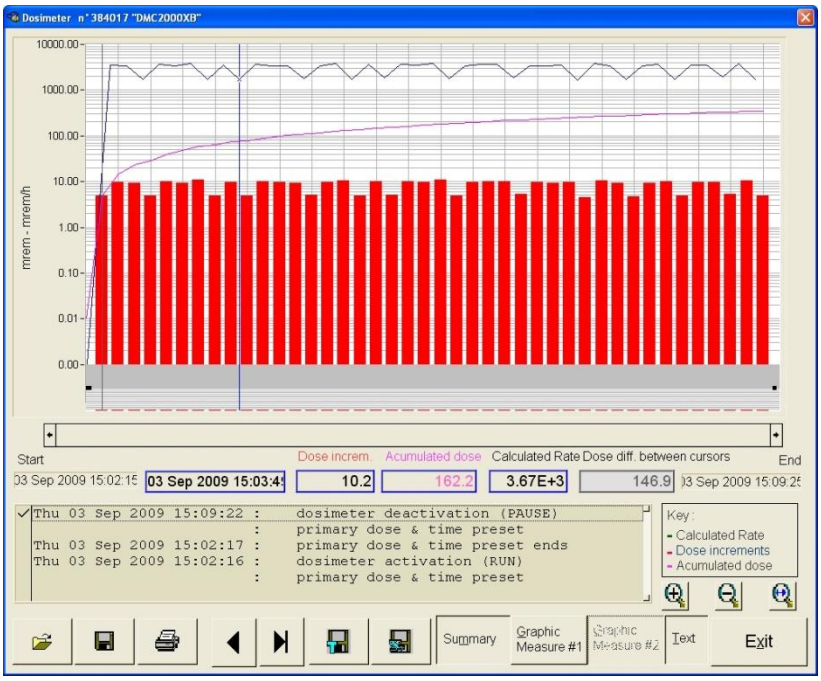
The following information will be printed upon selection:

- The Dosimeter number (and the name of the Events History file when reading from an Events History file);
- The Events History Period;
- The date and time of the start of the Events History;
- The list of all of the events and potential dose increments, date and time stamped;
- A graphic representation of the Events History. See an example in appendix 0

9.11 Exporting a history file

The data contained in the historical file can be exported to be analyzed or archived.

To do this select the function  or  in the historic window.

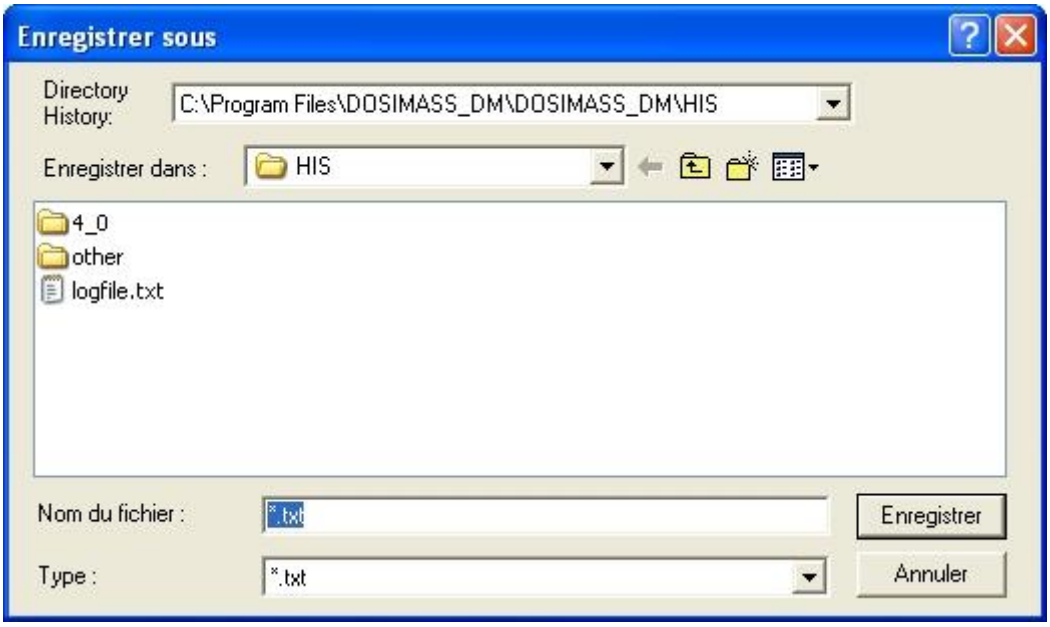


The user is required to choose between two export formats.

9.11.1 Standard Export Format:

this format allows the data to be exported to a text file.

Note that all the files will be exported as a text file.

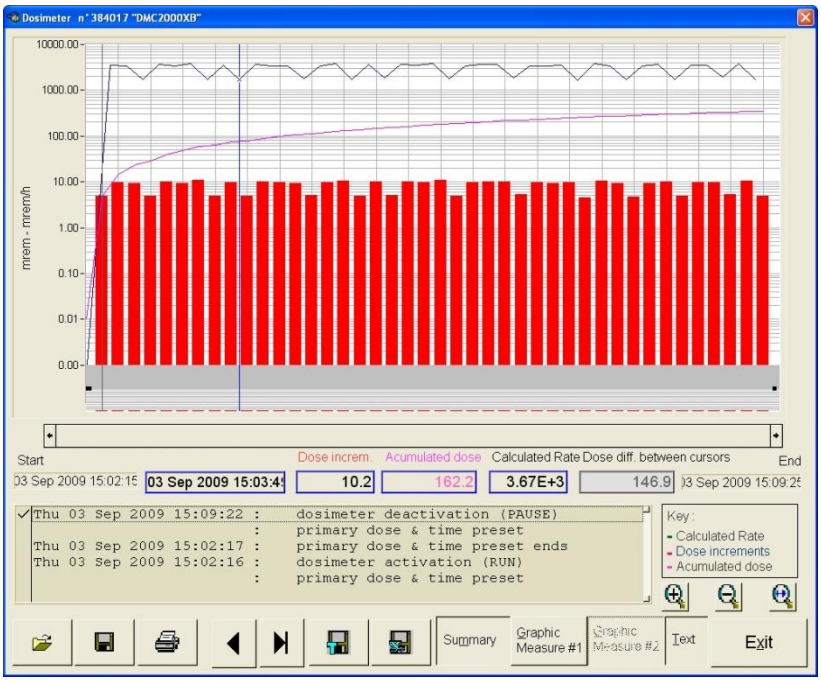


9.11.2 Excel export Format:

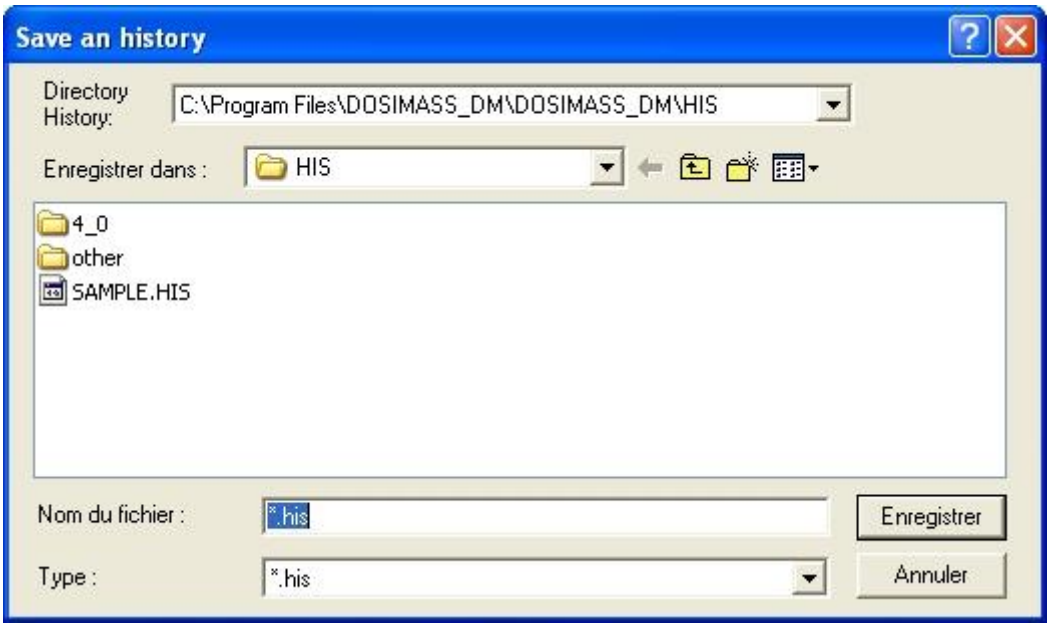
Allows to export the file to a document that can be opened directly with excel.

9.12 Saving a history file

Data contained in the history file can be saved. To do so, select the  in the log window.



The following screen appears:



Note:
When opening a history File with Excel, it may be that the information is poorly distributed in the columns. This problem comes from a wrong definition of the separator excel (default =;). In this case, go to the registry: HKEY_LOCAL_MACHINE \ SOFTWARE \ MGPInstruments \ DOSIMASS_DM \ S \ Main \ Principale, and change the parameter "separator excel" in the column "data"

9.13 Reading an Events History Directly in E2PROM

This function is accessible directly from the Factory tab in the Configuration window.

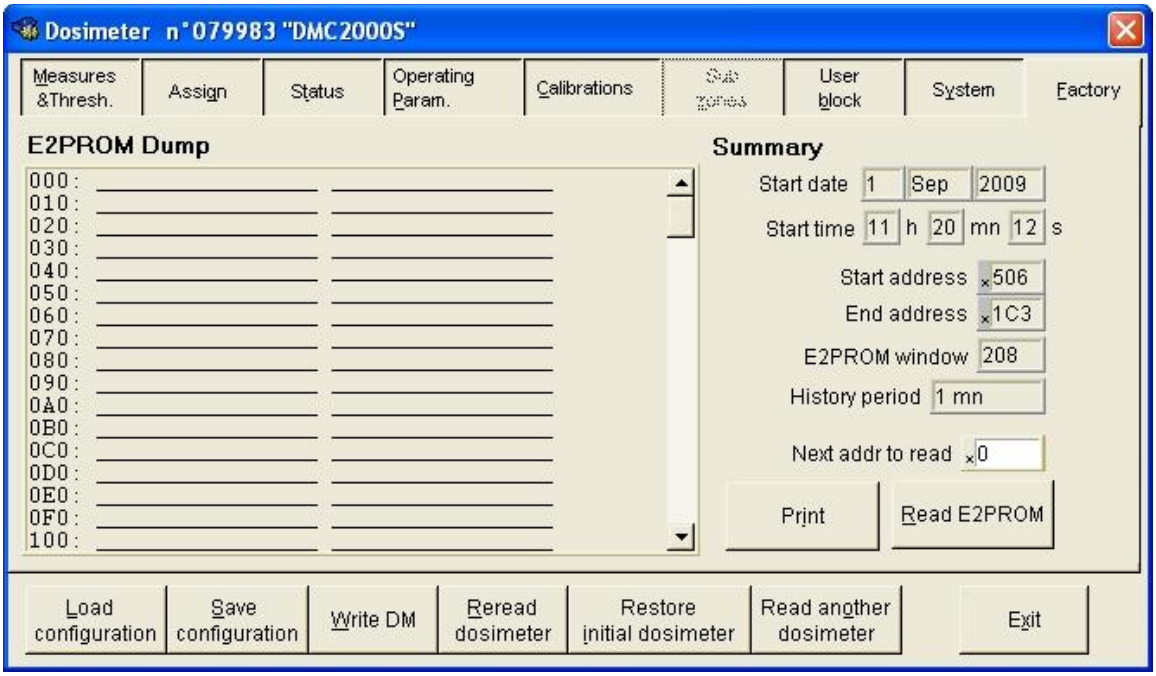
In order to conduct a reading directly in E2PROM, the following procedure must be executed:

- Copy the address of the Start of the Events History in question (see "***Summary Display"*** page 108).

Note:
for the current Events History, the start address appears in the Summary area.

- Access the Configuration window (see Access to the Configuration window page 51).
- From the ***Factory*** tab, input the Next Address to Read data with the start address of the Event History to read in E2PROM.
- Then, Click on Read E2PROM

The contents of the E2PROM will appear in hexadecimals in the left-hand portion of the ***Factory*** tab. Alternatively, you may click on Print to print the E2PROM contents



10. Diagnostics

This chapter is designed to provide a diagnostic tool that responds to the majority of troubleshooting scenarios that might be encountered by a potential user. It also addresses the aspect of hot-keys and keyboard shortcuts.

10.1 Operator Messages

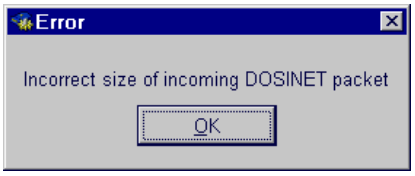
The operator messages appear in the form of a dialog box containing a message for the attention of the user. Most of these messages are explicit and need no further commentary.

The following are presented below:

- Examples of common dialog boxes.
- A table that provides the list of primary messages accompanied by information on the nature of the problem encountered and the required user intervention.

10.1.1 Common Examples

10.1.1.1 Problem with the connection between the Dosimeter reader and the PC.



The preceding message appears when there is data exchange trouble between the PC and the Dosimeter reader:

Required User Intervention:

Verify that the:

- Dosimeter reader is turned **On** and has power;
- The connection cable between the Dosimeter reader and the PC is correctly connected (serial port COM1);
- The address of the Dosimeter reader is correct (**1** for Hands free readers, **0** for LDM101).

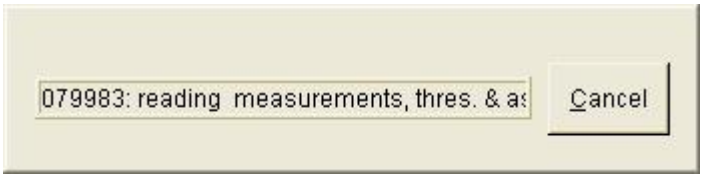
Note:
*For more information, see **Hardware Configuration with an LDM2000** page 8 or **Hardware Configuration with an LDM101** page 9*

10.1.1.2 Data transmission between the reader and the dosimeter interrupted

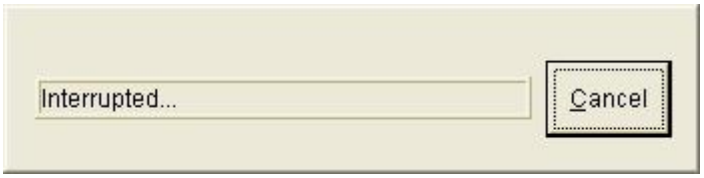
The preceding message appears when there is a data exchange interruption between the Dosimeter and the Dosimeter reader, which is provoked by the user.

Other causes of interruptions can appear in the same manner (proximity of DMC2000 from the Hands free readers insufficient, or removal of the Dosimeter from the LDM101, etc.).

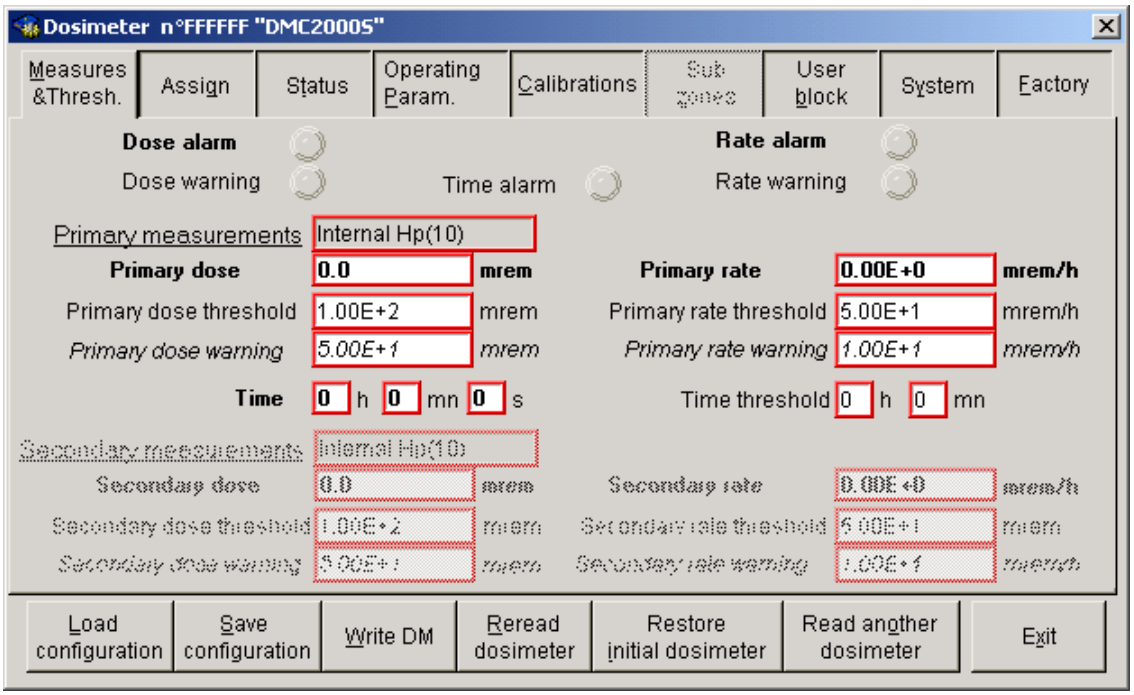
During data exchange between the Dosimeter and the reader, the following windows appear:



If the user interrupts the exchange by clicking on ***Cancel***, then the following operator messages appear successively:



Then, the Configuration window appears in the following manner: the fields that are highlighted in red indicate fields that are incoherent.



10.1.2 List of Operator Messages

The main operator messages are presented in the following table according to the alphabetical order of the label.

Convention

In the Operator message wording, there will be one or several dynamic information fields. In the table below this information is replaced with «... ».

Example:

«Failure to access software protection key [12]. Contact Mirion Technologies »
is replaced with «Failure to access software protection key. Contact Mirion Technologies »

Note:
in case the diagnostic tool indicates that the user should contact MGP Instruments, the user should remember to note the dynamic information mentioned in the operator message, such as the error number, for example.

Operator Message Label	Diagnostic Tool
Access Denied	▪ Cause: the user does not have the required authorization to use the current function. ▪ Solution: Choose the appropriate access level from the main menu by selecting Administration / Identification (see ***Identification page 35***).
Incoherent DM Command Transmitted/Received	▪ Cause: problem of exchange with DM ▪ Solution: Input the command that lead to this fault once again. If the fault persists, contact MGP Instruments
Reader Connection Fault	See the message: Reader could not synchronize with a DM.
Disk Full	▪ Cause: the disk on the PC is full. ▪ Solution: ❑ *Eliminate unused files and applications* ❑ *Add a new hard disk, or replace the existing disk with a more powerful disk.*
Multiple Dosimeters	▪ Cause: several DMC2000 Dosimeters are located in close proximity to the LDM2000 reader Solution: Make sure that only one Dosimeter is in close proximity to the LDM2000 reader at one time.
Reiteration failure. Data incomplete.	▪ Cause: several unsuccessful attempts were made by the Dosimeter reader to record the data in the Dosimeter. ▪ Solution: begin again. *Attention: the data that appears in the current Configuration window was not entirely input into the Dosimeter.*
Illegal format in the Events History file	▪ Cause: incorrect internal structure of the file (*.his) containing the Events History. An alteration of this file has made the corresponding data irrecoverable. ▪ Solution: None – A new history may be started but the most recent histogram is unrecoverable.
User ID already in existence	▪ Cause: attempt to add an existing user. ▪ Solution: input another name
User ID unknown	▪ Cause: incorrect input. ▪ Solution: begin input again. If the problem persists, or if the information has been forgotten, contact the person in charge of the Account Management of the user (see ***Access Levels*** *page* ***36***).
Interruption	▪ Cause: interruption of the transmission between the Dosimeter reader and the Dosimeter due to one of the following: ❑ *The user clicked on the Cancel button of an data exchange in progress;* ❑ *The Dosimeter is no longer present at the time of the data exchange (the DMC2000 is too far from the Hands free readers, or the Dosimeter was removed from the LDM101).* ▪ Solution: leave the Dosimeter in place during the entire length of the data exchange. *Attention: the information that appears in the current configuration window can be modified (if this is the case, then the data is highlighted in red).*
Reader could not synchronize with a DM	▪ Cause: problem with the «hands-free» connection of the DMC2000 and the LDM2000. ▪ Solution: - Verify the correct operation of the transmission by inspecting the green and red lights on the front of the LDM2000. - bring nearer the DM to the reader and adjust correctly his position (consult the reader User's Manual). - Move others DMC away from the reader and move the DMC reader away from any electrical or electronical devices

Operator Message Label	Diagnostic Tool
	❑ *Green light : (transmission)* *In normal operation, this light blinks rapidly, which indicates the correct operation of the reader. This blinking corresponds to the transmission of messages to any Dosimeters present in its vicinity.* ❑ *Red Light : (reception)* *This light is briefly illuminated when the messages coming from a Dosimeter in its vicinity are received. If this light does not function, this means that the DMC2000 is not transmitting any information to the LDM2000. In this case, verify the correct operation of the DMC2000 (consult the DMC2000 User's Manual).*
Reader does not respond	See the message: Reader could not synchronize with a DM.
Two passwords are different	▪ Cause: erroneous input during the typing of the two passwords. The two passwords must be identical. ▪ Solution:re-enter the password input again
Incorrect reading size	▪ Cause: incorrect Events History reading size ▪ Solution: modify the size of the E2PROM window (see ***System***, under Dosimeter Parameters).
Saturated Memory.	▪ Cause: PC memory insufficient. ▪ Solution: close all other open applications (except DOSINET). Verify that the memory size of the PC is sufficient, and increase the capacity if required.
Insufficient Memory	▪ Cause: PC memory insufficient. ▪ Solution: close all other open applications (except DOSINET). Verify that the memory size of the PC is sufficient, and increase the capacity if required.
Password Incorrect	▪ Cause: input incorrect. ▪ Solution: input password again. If the problem persists, or if the information has been forgotten, contact the person in charge of the Account Management of the user (see Access Levels).
Insufficient Access Level	▪ Cause: the user does not possess the access authorization required to use the current function. ▪ Solution: Choose the appropriate access level from the main menu, by selecting Administration / Identification (see ***Identification*** page 35).
Access Level Required (current level…)	▪ Cause: the user does not possess the access authorization required to use the current function. ▪ Solution: Choose the appropriate access level from the main menu, by selecting Administration / Identification (see ***Identification*** page 35).
Unknown access level	▪ Cause: input incorrect. ▪ Solution: reenter data. If the problem persists, or if the information has been forgotten, contact the person in charge of the Account Management of the user (see Access Levels).
Inconsistent DM numbers transmitted/received	▪ Cause: this fault is probably due to a change in Dosimeters while the data exchange with the reader was in progress. ▪ Solution: replace the Dosimeter in order to finish the task in progress.
No TCP Connection to the DOSINET	▪ Cause: problem with the data exchange between the Dosimeter reader and the PC. ▪ Solution: ❑ *Verify that the Dosimeter reader is plugged in;* ❑ *Verify that the cable between the Dosimeter reader and the PC is correctly installed (COM1 serial port);*

Operator Message Label	Diagnostic Tool
	▫ *Verify that the address of the Dosimeter reader is correct (1 for LDM2000, 0 for LDM101). (For more information, see Hardware Installation page 8).*
Events History Overwritten	▪ Cause: part of a single Events History in the memory of a Dosimeter is no longer accessible because it was overwritten. The size of an Events History is limited, the oldest data is overwritten by the most recent events. ▪ Solution: ▫ *none for the current situation.* ▫ *Modify the provisional duration of visits to controlled areas in the Events History Period*
Illegal Tag in the Events History	▪ Cause: incorrect internal structure of the file (*.his) containing the Events History. An alteration of this file has made the corresponding data irrecoverable. ▪ Solution: none– A new history may be started but the most recent histogram is unrecoverable
Tag missing from the Events History	▪ Cause: incorrect internal structure of the file (*.his) containing the Events History. An alteration of this file has made the corresponding data irrecoverable. ▪ Solution: none– A new history may be started but the most recent histogram is unrecoverable
Incorrect Size (Received DM message)	▪ Cause: incorrect Events History reading size ▪ Solution: modify the size of the E2PROM window (see System, under Dosimeter Parameters page 72)
Incorrect Size (DOSINET frame transmitted)	▪ Cause: problem with the data exchange between the Dosimeter reader and the PC. ▪ Solution: ▫ *Verify that the Dosimeter reader is plugged in;* ▫ *Verify that the cable between the Dosimeter reader and the PC is correctly installed (COM1 serial port);* ▫ *Verify that the address of the Dosimeter reader is correct (1 for LDM2000, 0 for LDM101). (For more information, see Hardware Installation page 8).*
Incorrect Size (DOSINET frame received)	See Incorrect Size (DOSINET frame transmitted)
Illegal Value	▪ Cause: incorrect internal structure of the file (*.his) containing the Events History. An alteration of this file has made the corresponding data irrecoverable. ▪ Solution: none

10.2 Keyboard Shortcuts/Hotkeys

Because they become accustomed to the easy use of scroll-down and drop-down menus, users sometimes forget the availability of keyboard shortcuts and hotkeys.

These shortcuts enable rapid access to the most frequently used functions

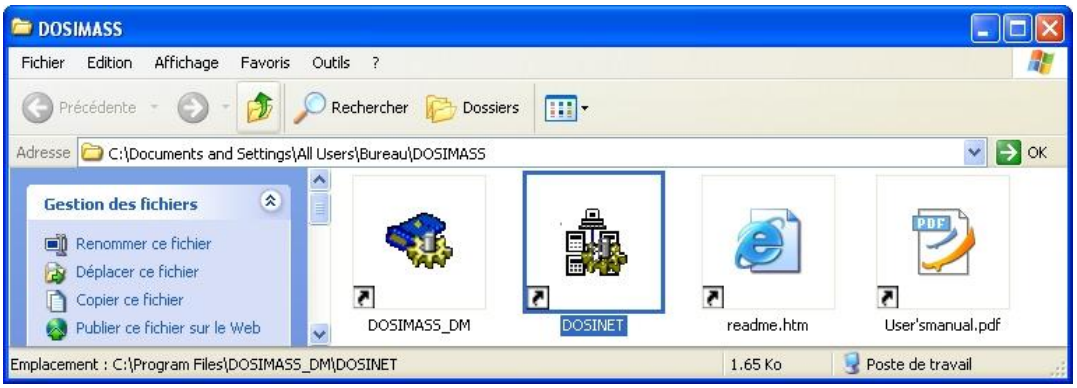
Function	Keyboard Shortcut.
- Return to ***Operator*** access level	*Ctrl+D*
- Access level management (***Administrator*** Access level only)	*Ctrl+F4*
- Exit the DOSIMASS Dosimeter Software	*Ctrl+Q*

11. Appendix 1: Customized Software Configurations

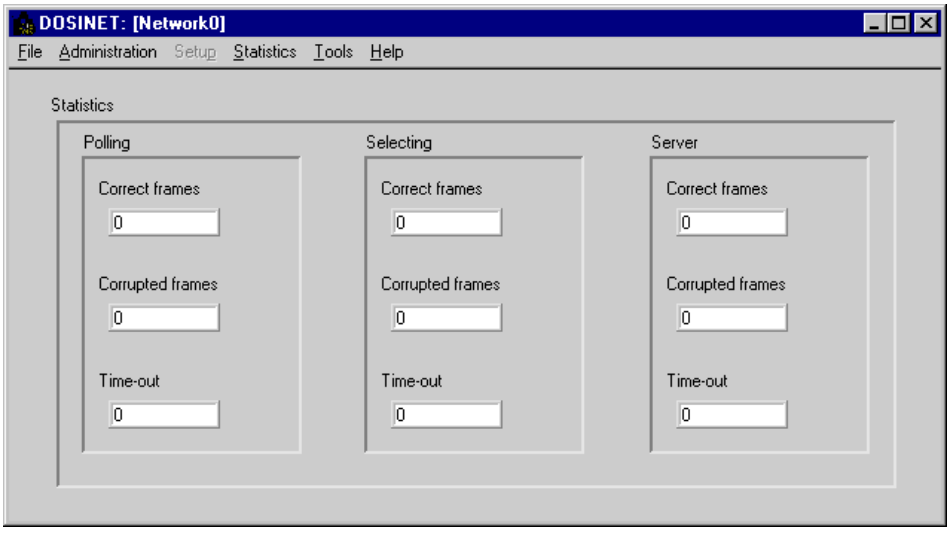
11.1 Selection of another serial port

During the automatic installation of the DOSIMASS Dosimeter Software, the COM1 serial port is configured by default. If the user is connected to another port, select the appropriate serial port using the following procedure:

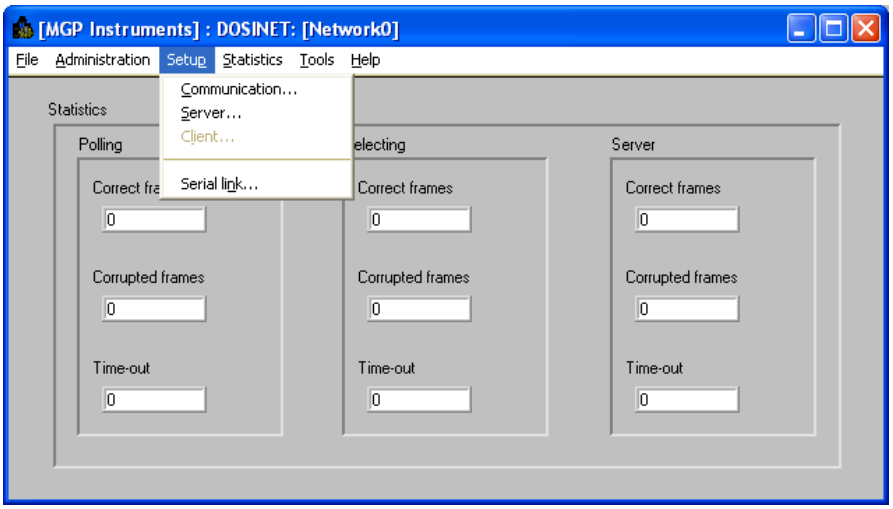
- Initialize the DOSINET Software (by double clicking on the corresponding icon);



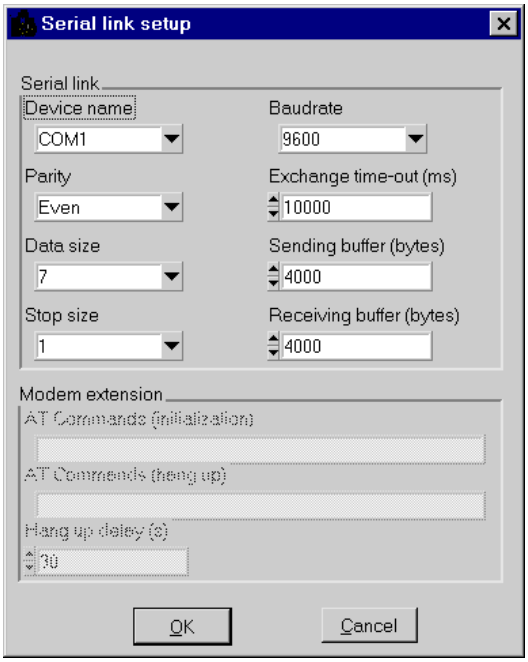
The main window of the DOSINET Software will appear:



- Using the DOSINET main menu, select ***Administration/Identification*** in order to validate the Supervisor access level (the procedure is identical to that used in the DOSIMASS Dosimeter Software; however, the passwords may not be identical).
- Next, from the main menu, select ***Setup/Serial Link.***



The following window will appear:



- In the Peripheral name field, select a new serial port, using either: COM1, COM2, COM3 or COM4.

Note:
do not modify any parameters since they were automatically configured during the software installation procedure.

Validate this new serial port by clicking on ***OK.***

12. Appendix 2: Installation of the TCP/IP Protocol

The following procedure enables the installation of the TCP/IP protocol on a PC using the Windows XP

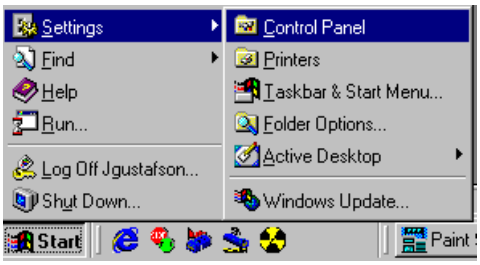
This procedure is essentially the same as that used for Windows 98 and Windows NT.

This procedure requires the use of the Microsoft Windows installation disks.

12.1 Installation of the Dial-Up Adapter

This procedure enables the installation of a fictitious dial-up adapter with the TCP/IP protocol in order to allow the PC to dialog with a remote station (in this case, with a Dosimeter reader).

- First, the user must access the Windows ***Control Panel***:
  - *using the **Start** button,*
  - *select **Settings**; and,*
  - *then Control Panel.*

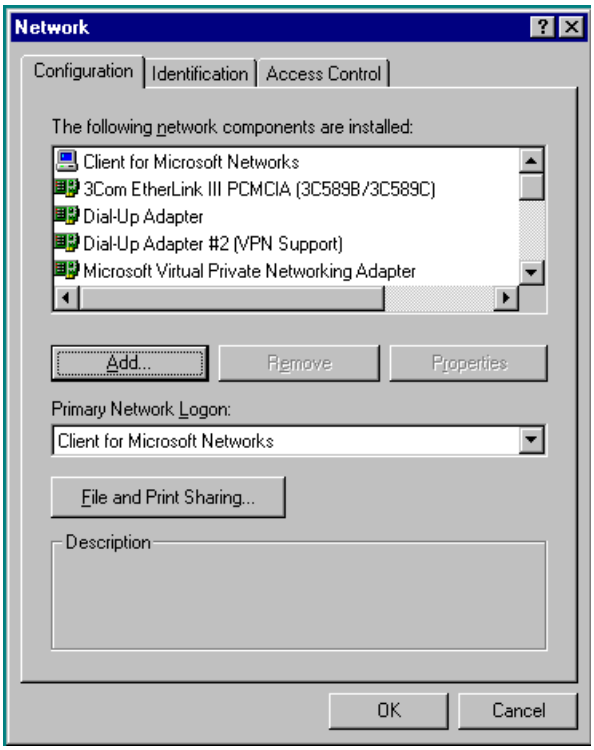


The following window will appear:

- Next, double click on the ***Network*** icon.

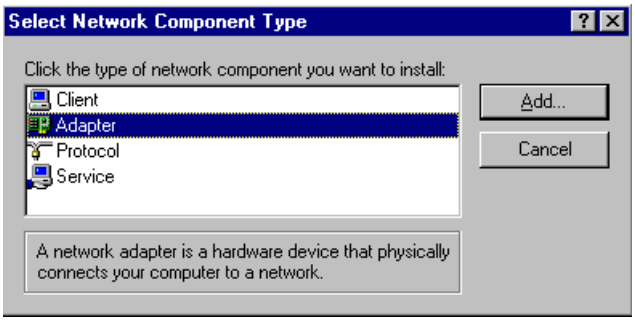
Note:
if the Network function is unavailable, it must be installed using the Add/Remove Program icon (see Installation of the Windows communication module, page 133.

The following window will appear:



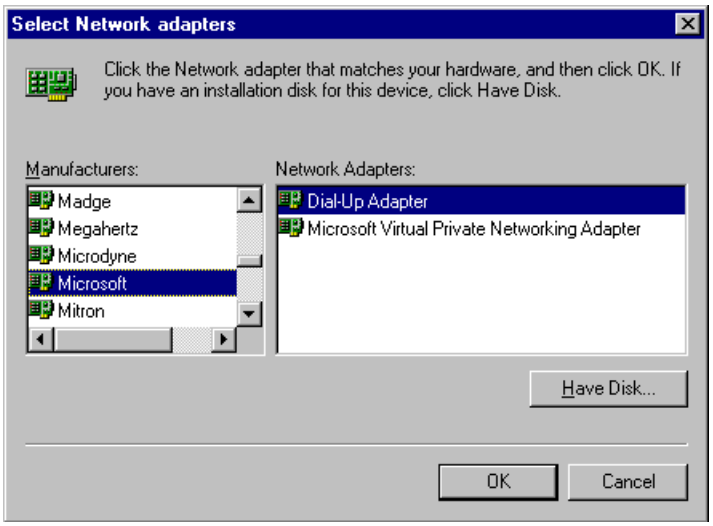
- The user must verify in the upper field that the following components are installed in the Network window (shown above)
  - *Dial-up Adapter; and,*
  - *TCP/IP.*
- If at least one of these two components is not installed, click on ***Add***.

The following selection window will appear:



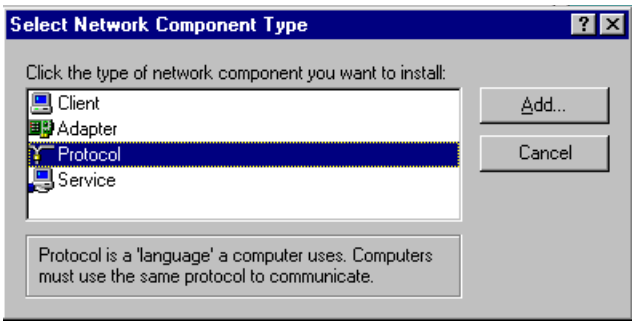
- In order to add a ***Dial-Up Adapter***, select ***Adapter*** then click on ***Add***.

The following window will appear:



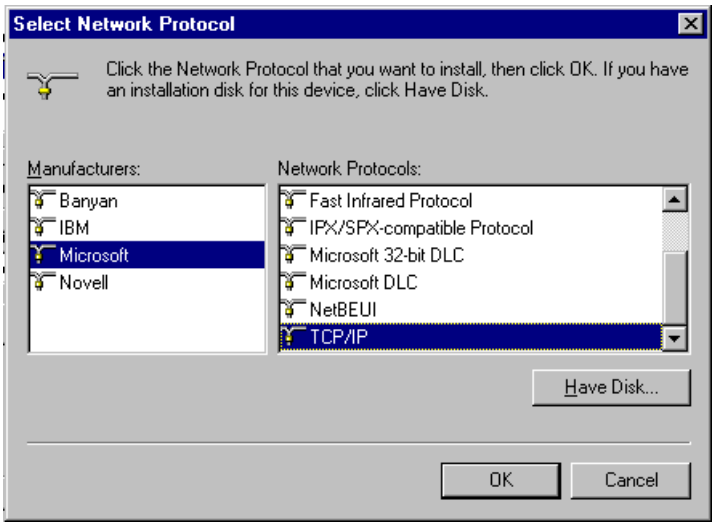
- In the ***Manufacturers*** window, select ***Microsoft***.
- In the Network Adapters window, select Dial-Up Adapter.
- Click on ***OK***

The previous window will reappear for several seconds in order to enable the selection of the protocol (reviewed below). Beyond that, the ***Network*** window will reappear and the user can simply click on ***Add*** once again.



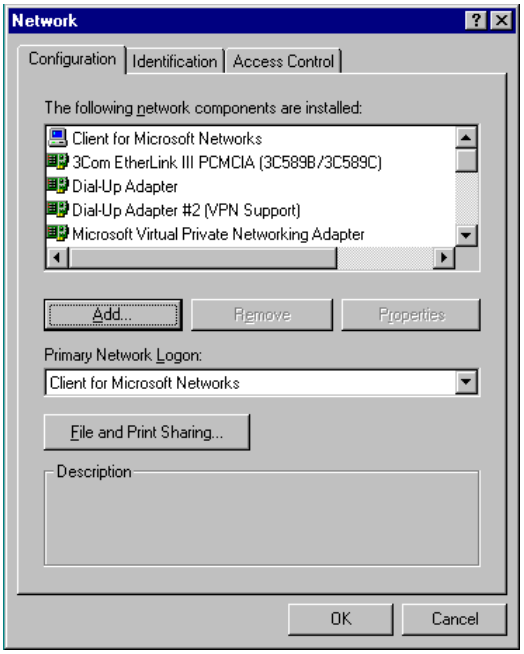
- In order to add the ***TCP/IP*** protocol, select ***Protocol*** and then click on ***Add***.

The following window will appear:



- In the ***Manufacturers*** window, select ***Microsoft***;
- In the ***Network Protocols*** window, select ***TCP/IP***; and,
- Click on ***OK.***

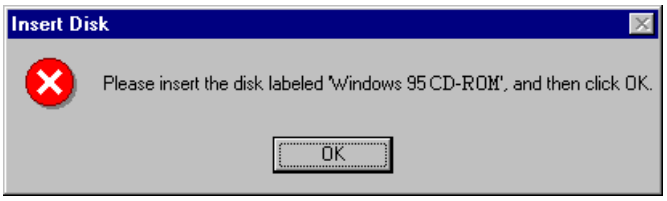
The ***Network*** window will appear again.



This time, the ***Dial-Up Adapter*** and the ***TCP/IP*** should be visible in the upper window.

- Click on ***OK*** in order to reinitiate the file copy.

If the Windows installation disks are not installed, the user will be prompted to insert the disks at this time (CD-ROMs for example). In this case, the following window will appear:



Click on ***OK*** to continue.

The file copy process will be executed. During the file download, the following windows will appear.

The user should simply follow the recommendations indicated in these windows.

Once the installation is complete, the following dialog box will appear:

In order to activate the TCP/IP protocol, the PC must be rebooted.

If there are other software installations that must be executed, for example the DOSIMASS Dosimeter software, the user can reboot the PC once all of the operations are terminated.

To reboot the computer at this time:

- Click on ***Yes.***

To reboot the computer later:

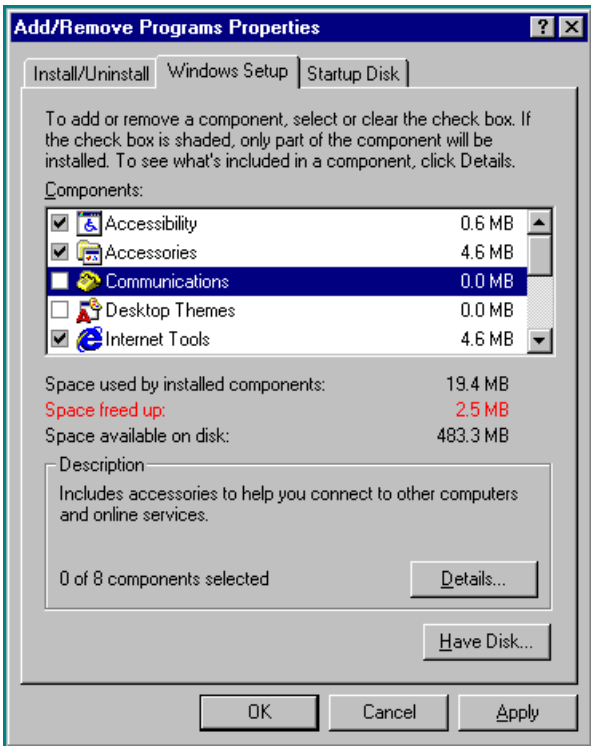
- Click on ***No***

12.2 Installation of the Windows communication module

The Windows Communication Module must be installed so that the TCP/IP protocol can be configured.

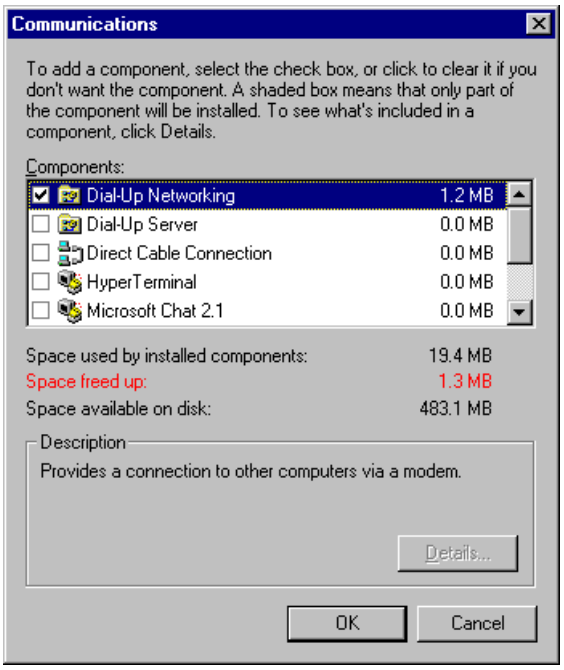
- From the ***Control Panel*** (to access the Control Panel, consult the section entitled ***Installation of the Dial-Up adapter***, page ** ***110***), double-click on the ***Add/Remove Programs icon***.

The following window will appear:



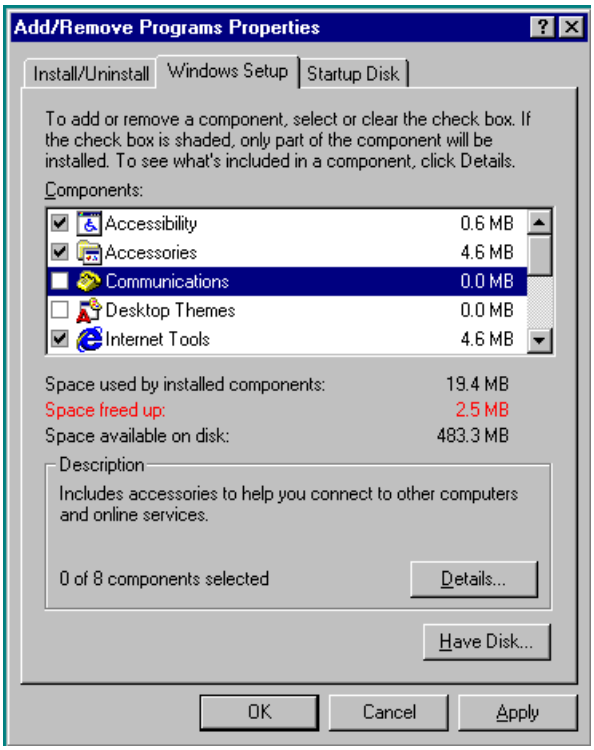
- If the window pictured above does not appear, select the ***Windows Installation tab***.
- Select the ***Communications*** module (by clicking on the Communications option – do not activate the module by clicking directly on the check box, located to the far left of the Communications option bar).
- Click on ***Details***.

The following window will appear:



- Activate the ***Dial-Up Networking*** option by clicking on the check box, then click on ***OK.***

The following window will appear:



- Click on ***OK.***

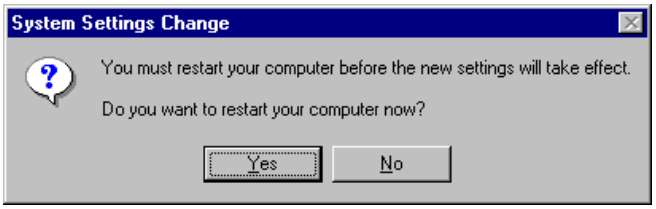
If the Windows installation support (CD-ROM for example) is not installed, the user will be asked to insert the disks at this time. In this case, the following window will appear:

- Click on ***OK*** to continue.

The file copy process will be executed. During the file download, the following windows will appear.

The user should simply follow the recommendations indicated in these windows.

Once the installation is complete, the following dialog box will appear:



- Click on ***No***.

The user can now proceed with the Dial-Up Adapter installation (see ***Installation of the Dial-Up adapter***, page 125).

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13. Appendix 3: Events History Supplementary Information

13.1 List of Events in an Events History

The list of primary events is presented below for the purposes of information. These events are separated by type.

13.1.1 Alarms, Warnings and Measurement Variances

- *Rate alarm!*
- *Dose alarm!*
- *Duration alarm!*
- *End of rate alarm*
- *End of dose alarm*
- *End of duration alarm*
- *End of rate warning*
- *End of dose warning*
- *End of rate saturation*
- *End of dose saturation*
- *Rate warning!*
- *Dose warning!*
- *Rate saturation!*
- *Dose saturation!*

13.1.2 Events and DM faults

- *Detector fault!*
- *Detector fault Cleared*
- *External ASIC fault! (dF CNC)*
- *External calibration fault! (dF EXt)*
- *Internal calibration fault! (dF INt)*
- *E2PROM fault! (dF E2P)*
- *Events History fault! (dF HIS)*
- *Optical test fault! (dF DEt)*
- *External ASIC fault vanished*
- *External calibration fault vanished*
- *Internal calibration fault vanished*
- *E2PROM fault vanished*
- *Events History fault Cleared*
- *Optical test fault vanished*

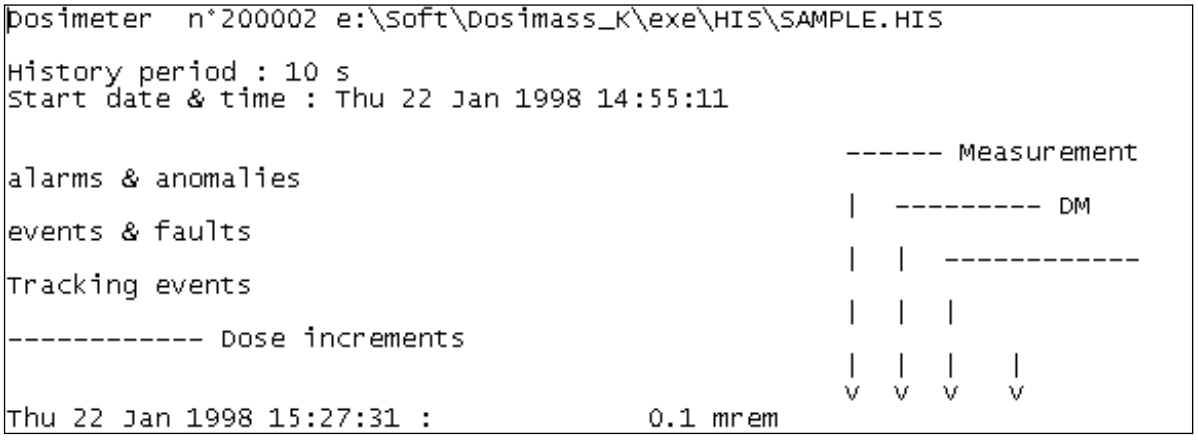
13.1.3 Follow-up events

- *Acknowledgement of passage to AUT*
- *Alert acknowledgement!*
- *Dosimeter activation*
- *Dosimeter assignment*

- *End remote transmission*
- *Authorized in sub-zone (DMC)* *Only for DMC100*
- *Change battery!*
- *Start remote transmission*
- *Dosimeter deactivation*
- *Disassignment*
- *Unlock calibration (DMC)* *Only for DMC100*
- *Battery change alert vanished*
- *Activation duration saturated at 100h*
- *Sub-zone entry(DMC)* *Only for DMC100*
- *End of presetting of primary dose and duration*
- *End of duration saturation*
- *End of Events History saturation*
- *Forbidden in sub-zone (DMC)* *Only for DMC100*
- *Instantaneous rate measurements*
- *Max rate measurements*
- *Passage to AUT*
- *Passage to SAT*
- *Battery low !*
- *Battery ok*
- *Presetting of primary dose and duration*
- *alert acknowledgement Reset*
- *Events History saturation!*
- *Exit sub-zone (DMC)* *Only for DMC100*
- *Exit SAT mode!*
- *300-baud remote transmission*
- *4800-baud remote transmission*
- *Automatic remote transmission*
- *Initiated remote transmission*
- *Calibration lock (DMC)* *Only for DMC100*

13.2 Printed Historical Header

During the printing of a history, each event of the same type is aligned to help with the visualization (see illustration below).



13.3 Example of a printed histogram

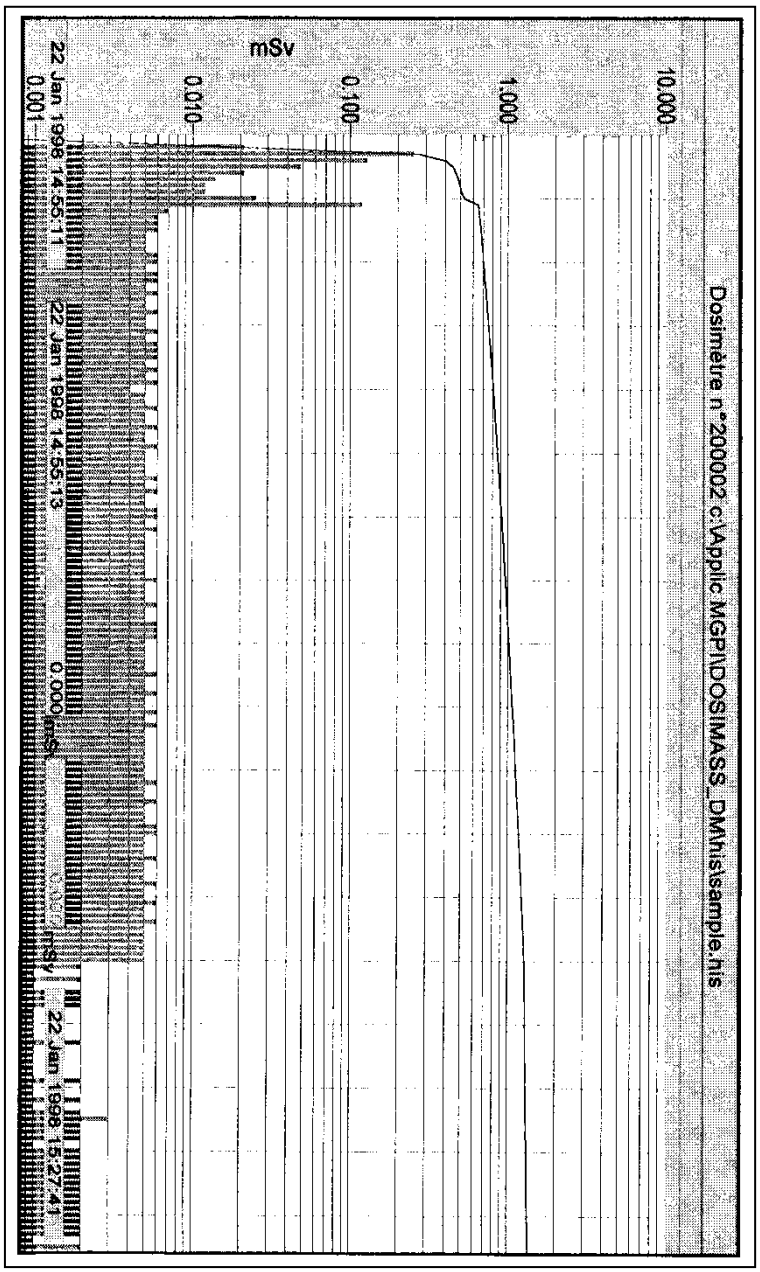
An example of a histogram printout is reproduced here.

```
Dosimeter  n°200002 e:\Soft\Dosimass_K\exe\HIS\SAMPLE.HIS

History period : 10 s
Start date & time : Thu 22 Jan 1998 14:55:11

                                                ------ Measurement
alarms & anomalies
                                                |  --------- DM
events & faults
                                                |  |  ------------
Tracking events
                                                |  |  |
------------ Dose increments
                                                |  |  |   |
                                                V  V  V   V
Thu 22 Jan 1998 15:27:31 :              0.1 mrem
                                15:27:21 :              0.2 mrem
                                15:27:11 :              0.2 mrem
                                15:27:01 :              0.2 mrem
                                15:26:51 :              0.1 mrem
                                15:26:41 :              0.2 mrem
                                15:26:31 :              0.1 mrem
                                15:26:21 :              0.2 mrem
                                15:26:11 :              0.2 mrem
                                15:26:01 :              0.2 mrem
                                15:25:51 :              0.1 mrem
                                15:25:41 :              0.2 mrem
                                15:25:31 :              0.2 mrem
                                15:25:21 :              0.2 mrem
                                15:25:11 :              0.3 mrem
                                15:25:01 :              0.2 mrem
                                15:24:51 :              0.1 mrem
                                15:24:41 :              0.3 mrem
                                15:24:31 :              0.2 mrem
                                15:24:21 :              0.2 mrem
                                15:24:11 :              0.1 mrem
                                15:24:01 :              0.2 mrem
                                15:23:51 :              0.2 mrem
                                15:23:41 :              0.2 mrem
                                15:23:31 :              0.2 mrem
                                15:23:21 :              0.2 mrem
                                15:23:11 :              0.2 mrem
                                15:23:01 :              0.2 mrem
                                15:22:51 :              0.2 mrem
                                15:22:41 :              0.2 mrem
                                15:22:31 :              0.2 mrem
                                15:22:21 :              0.2 mrem
                                15:22:11 :              0.2 mrem
                                15:22:01 :              0.2 mrem
                                15:21:51 :              0.2 mrem
                                15:21:41 :              0.1 mrem
                                15:21:31 :              0.2 mrem
                                15:21:21 :              0.2 mrem
```

```
15:21:01 :              0.3 mrem
15:20:51 :              0.2 mrem
15:20:41 :              0.1 mrem
15:20:31 :              0.2 mrem
15:20:21 :              0.1 mrem
15:20:11 :              0.1 mrem
15:20:01 :              0.2 mrem
15:19:51 :              0.1 mrem
15:19:41 :              0.1 mrem
15:19:31 :              0.1 mrem
15:19:21 :              0.1 mrem
15:19:11 :              0.1 mrem
15:19:01 :              0.2 mrem
15:18:51 :              0.1 mrem
15:18:41 :              0.1 mrem
15:18:31 :              0.1 mrem
15:18:21 :              0.1 mrem
15:18:11 :              0.1 mrem
15:18:01 :              0.2 mrem
15:17:51 :              0.2 mrem
15:17:41 :              0.2 mrem
15:17:31 :              0.1 mrem
15:17:21 :              0.2 mrem
15:17:16 :    out of SAT mode !
                 :    switched to AUT
15:17:11 :              0.1 mrem
15:17:01 :              0.2 mrem
15:16:51 :              0.5 mrem
15:16:48 :    power loss !
15:16:41 :              0.5 mrem
15:16:40 :       marked by 34 (1/3)
15:16:31 :              0.5 mrem
15:16:21 :              0.5 mrem
15:16:11 :              0.5 mrem
15:16:01 :              0.5 mrem
15:15:51 :              0.6 mrem
15:15:41 :              0.5 mrem
15:15:31 :              0.5 mrem
15:15:21 :              0.6 mrem
15:15:11 :              0.5 mrem
15:15:01 :              0.5 mrem
15:14:51 :              0.6 mrem
15:14:41 :              0.5 mrem
15:14:31 :              0.5 mrem
15:14:21 :              0.5 mrem
15:14:11 :              0.6 mrem
15:14:01 :              0.5 mrem
15:13:51 :              0.5 mrem
15:13:41 :              0.5 mrem
15:13:31 :              0.6 mrem
15:13:21 :              0.6 mrem
15:13:16 :       marked by 12 (1/3)
15:13:11 :              0.5 mrem
```

15:13:01	:	0.5 mrem
15:12:51	:	0.5 mrem
15:12:41	:	0.6 mrem
15:12:31	:	0.5 mrem
15:12:21	:	0.5 mrem
15:12:11	:	0.6 mrem
15:12:01	:	0.5 mrem
15:11:51	:	0.5 mrem
15:11:41	:	0.5 mrem
15:11:31	:	0.5 mrem
15:11:21	:	0.5 mrem
15:11:11	:	0.5 mrem
15:11:01	:	0.5 mrem
15:10:51	:	0.5 mrem
15:10:41	:	0.6 mrem
15:10:31	:	0.5 mrem
15:10:21	:	0.6 mrem
15:10:11	:	0.5 mrem
15:10:01	:	0.5 mrem
15:09:51	:	0.6 mrem
15:09:41	:	0.5 mrem
15:09:31	:	0.5 mrem
15:09:21	:	0.6 mrem
15:09:11	:	0.5 mrem
15:09:01	:	0.5 mrem
15:08:51	:	0.5 mrem
15:08:41	:	0.5 mrem
15:08:31	:	0.5 mrem
15:08:21	:	0.6 mrem
15:08:11	:	0.6 mrem
15:08:01	:	0.6 mrem
15:07:51	:	0.5 mrem
15:07:41	:	0.5 mrem
15:07:31	:	0.6 mrem
15:07:21	:	0.5 mrem
15:07:11	:	0.5 mrem
15:07:01	:	0.5 mrem
15:06:51	:	0.6 mrem
15:06:41	:	0.5 mrem
15:06:31	:	0.5 mrem
15:06:21	:	0.5 mrem
15:06:11	:	0.5 mrem
15:06:01	:	0.5 mrem
15:05:51	:	0.5 mrem
15:05:41	:	0.5 mrem
15:05:31	:	0.6 mrem
15:05:21	:	0.5 mrem
15:05:11	:	0.6 mrem
15:05:01	:	0.6 mrem
15:04:51	:	0.5 mrem
15:04:41	:	0.5 mrem
15:04:31	:	0.6 mrem
15:04:21	:	0.5 mrem

```
15:04:11 :              0.6 mrem
15:04:01 :              0.5 mrem
15:03:51 :              0.5 mrem
15:03:41 :              0.5 mrem
15:03:31 :              0.5 mrem
15:03:21 :              0.6 mrem
15:03:11 :              0.5 mrem
15:03:01 :              0.5 mrem
15:02:51 :              0.6 mrem
15:02:41 :              0.5 mrem
15:02:31 :              0.5 mrem
15:02:21 :              0.6 mrem
15:02:11 :              0.5 mrem
15:02:01 :              0.5 mrem
15:01:51 :              0.4 mrem
15:01:41 :              0.6 mrem
15:01:31 :              0.5 mrem
15:01:21 :              0.6 mrem
15:01:11 :              0.5 mrem
15:01:01 :              0.6 mrem
15:00:51 :              0.6 mrem
15:00:41 :              0.6 mrem
15:00:31 :              0.5 mrem
15:00:21 :              0.6 mrem
15:00:11 :              0.5 mrem
15:00:01 :              0.5 mrem
14:59:51 :              0.6 mrem
14:59:41 :              0.5 mrem
14:59:31 :              0.5 mrem
14:59:21 :              0.6 mrem
14:59:11 :              0.5 mrem
14:59:01 :              0.6 mrem
14:58:51 :              0.6 mrem
14:58:41 :              0.5 mrem
14:58:31 :              0.6 mrem
14:58:21 :              0.6 mrem
14:58:11 :              0.5 mrem
14:58:01 :              0.5 mrem
14:57:51 :              0.5 mrem
14:57:41 :              0.6 mrem
14:57:31 :              0.6 mrem
14:57:21 :              0.6 mrem
14:57:11 :              0.7 mrem
14:57:01 :             11.8 mrem
14:56:51 :              2.5 mrem
14:56:41 :              1.2 mrem
14:56:40 : dose warning !
14:56:31 :              1.2 mrem
14:56:21 :              1.4 mrem
14:56:11 :              2.1 mrem
14:56:01 :              4.8 mrem
14:55:51 :             12.7 mrem
14:55:41 :             25.1 mrem


 14:55:41 :             25.1 mrem
 14:55:31 :              2.1 mrem
 14:55:13 :    primary dose & time
preset ends
 14:55:12 :    SAT mode exit has ended
                  :    dosimeter
activation (RUN)
                  :    primary dose &
time preset
                  :    power loss
cleared
```



14. Glossary

Activation

Activate a dosimeter such that it will perform the dosimetry measurements (dose equivalent, dose rate equivalent...).

Activate the dosimeter

Turn dosimeter ON to measure dose, dose rate, etc.

Assignment

Assign a dosimeter to an individual. Assignment of a dosimeter is normally done at the activation time (but is not necessary).

BDD

Data Base

DCE

Data Communications Equipment; devices that provide all the functions required to establish and maintain a connection for data transmission, for example a PC.

Deactivation

Turn OFF a dosimeter and stop the measurement. Once deactivated the dosimeter indicates the state by displaying the message « repos » or « pause » or a specified user message.

DM

DosiMeter: abbreviation used in DOSIMASS DM to refer to a dosimeter.

DMC_HISTO

Software used to extract and read the histogram data stored in a DMC-100 dosimeter memory

DMC_MANAGER

Maintenance and configuration software used for the Dosimeters DMC100, DMC90, and DM9X

DMC_USER

Software used to configure common parameters, turn ON and OFF and read status of the Dosimeters DMC100, DMC90, and DM9X

DOSIMASS

DOSImetry Maintenance And Setup Software: software used for maintenance and configuration of Dosimeters and readers

DOSIMASS_DM

Software Module in DOSIMASS used for dosimeters

DOSIMASS_LDM

Software Module in DOSIMASS used for readers

DOSINET

Software Module used to manage the exchanges between the DOSIMASS module and a reader

DOSIVIEW

Software used to manage the configuration and centralized dosimetry system (management of users, dosimeters and readers)

DTE

Data Terminal Equipment; devices uses as a source of data and/or collector of data

E2PROM

Same as an EEPROM

EEPROM

Electrically Erasable and Programmable Read-Only Memory (electrically erasable memory used to store configuration and measurement data in the dosimeter)

Registration

A register is an indivisible and dated element that constitutes a historical record. A register can be one of the following types:

- **indicator** of start or end of a histogram: used by the cyclic histogram management routine,
- **event:** change of status of a Dosimeter (faults, alarms, assignment change, marking by a reader, etc.),
- **dose increment**: increase of the accumulated dose of more than 0.1 mRem during the specified historic interval.

Zone Entry

The term « zone entry » is a means to indicate entry into the controlled zone. After this the dosimeter is activated and could be marked.

Histogram

A histogram consists of a series of chronological events and measurements stored in the dosimeter memory. It is used to determine when and what dose and events occur during the use of the dosimeter both in RUN and PAUSE modes. The histogram is specific to one dosimeter. A dosimeter can stored several histograms in a circular mode (FIFO type).

Infra-red

See infra-red mode.

LDM101

Dosimeter reader model101: is a reader that operates in the infra-red mode only and can be used as an interface reader to configure and manage of DMC100, DMC90, DM9X, and DMC2000S dosimeters

LDM2000

Dosimeter Reader model 2000: Dosimeter reader that operates in the hands free mode used as an interface for the configuration of the DMC2000 family dosimeters and for access control in a centralized dosimetry system

LDM210

Dosimeter Reader model 210: Dosimeter reader that operates in the hands free mode used as an RS-232 interface for the configuration of the DMC2000 family dosimeters and for access control in a centralized dosimetry (RS232)

LDM220

Dosimeter Reader model 220: Dosimeter reader that operates in the hands free mode used as a USB interface for the configuration of the DMC-2000 family dosimeters and for access control in a centralized dosimetry (USB)

LDM91

Dosimeter Reader model 91: Dosimeter reader that operates in the infra-red mode used as an interface for the configuration of the DMC100, DMC90, and DM9X family dosimeters and for access control in a centralized dosimetry

Hands Free

See hands free mode.

Marking

Action that uses the unidirectional hands free communication mode (reader to dosimeter). After being marked, the dosimeter receives the reader identification information and stores this data along with the date/time in the histogram. No acknowledgement from the dosimeter is required.

Infra-red Mode

Means of infra-red communication used mainly for the exchange of data between a DMC-X family dosimeter and an LDM101 reader.

Hands Free Mode

Means of wireless low frequency communication used mainly for the exchange of data between a DMC-2000 family dosimeter and an LDM2XX reader.

PC

IBM compatible PC

PAUSE

The Dosimeter displays PAUSE and has been deactivated.

Time in zone

Time interval while the dosimeter user is inside the controlled zone. During this time the dosimeter must be active and can be marked.

Exit from zone

The term « exit from zone » is a means to define removing a dosimeter from a controlled zone. After the exit from zone the dosimeter is inactive and can no longer be marked.

Sub-zone

Abbreviation for a controlled sub-zone.

Controlled Sub-zone

Must be located inside a controlled zone. The controlled sub-zone can be one or several designated zones inside the controlled zone. Certain dosimeter parameters (thresholds, task code, etc.) can be modified in the sub-zone entry window.

Controlled Zone

A closed perimeter where all individuals entering and required to wear an active dosimeter. Permission to enter into this zone depends, among other things, on certain dosimetry criteria.

Geographical Zone

Spatial subdivision used for the marking of dosimeters. A building or location can be subdivided into several geographical areas where LDM2000 readers configured for marking mode are installed to identify them and track the movement and dose accumulated by the dosimeters as they move from one zone to another.

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