



User's Guide

Dosimeter Configuration Software

ADR-1/60



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CONTENTS

1. INTRODUCTION	1
1.1 Introduction to the Program.....	1
1.2 Installing the ADR-1 Reader Head	1
1.3 Installing the Program	2
1.3.1 ADR-1/50 Program Files.....	2
1.4 Starting the Program	3
1.5 Reading the Dosimeter.....	4
2. USING THE ADR-1/50 PROGRAM	5
2.1 ADR-1/50 System Commands	5
2.2 Configuration Window for RAD-50	7
2.2.1 Button Bar.....	7
2.2.2 Calibration	8
2.2.3 RAD ID Data.....	10
2.2.4 Configuration Data.....	10
2.2.5 Test Status	11
2.2.6 Alarm Level Setting.....	11
2.3 Quick Configuration Window	12
2.4 Configuration Window for RAD-50/52 and RAD-60/62.....	14
2.4.1 Button Bar.....	14
2.4.2 Calibration	15
2.4.3 RAD ID Data.....	16
2.4.4 Configuration Data.....	16
2.4.5 Test Status	17
2.4.6 Alarm Level Setting.....	18
2.4.7 Service Counter	18
2.4.8 ID, Work & Memo	18
2.3.9 Status	18

1. INTRODUCTION

1.1 Introduction to the Program

ADR-1/50 is a program designed for configuring the RAD-50/60 Personal Alarm Dosimeter.

The user interface operates under the Microsoft Windows environment. The program cannot be used with the keyboard alone, a mouse is necessary at some functions. Before using this manual, you need to know the fundamentals of using Windows. If you need to review Microsoft Windows techniques, consult the documentation that comes with Microsoft Windows™.

1.2 Installing the ADR-1 Reader Head

Connect the RS-232 cable to the ADR-1 reader head and to the communication port of the computer (either to COM1 or COM2). You can choose the communication port to be used from the Options Menu in the ADR-1/50 program. Choose the desired port and click the Save button. Connect the ADR-1 reader head power supply to the mains. When installing the hardware it is advisable to shut down the PC.

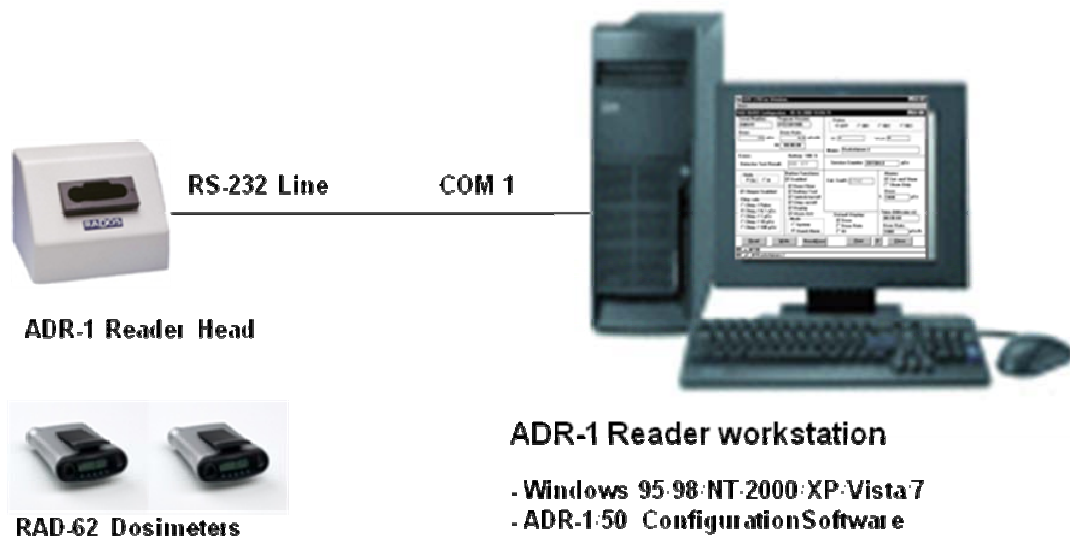


Figure 1. The ADR-1/50 system configuration

1.3 Installing the Program

Windows 95/98/NT/200/XP/Vista/7 software must be installed before you can start using **RADOS** ADR-1/50 program.

Installation

- Start Microsoft Windows
- Put ADR-1/50 setup CD in your CD drive.
- **Run** the **SETUP.EXE** from the CD.
- Follow the instructions at the setup screen and the program will be installed to your fixed disk.
- ADR-1/50 setup program builds the ADR-1/50 Program Group for you, when the install program finishes. The program group looks like this:



Figure 2. The ADR-1/50 Program Group

1.3.1 ADR-1/50 Program Files

ADR-1/50 program uses the following files in the ADR1_50 directory:

ADR1_50.EXE

ADR-1/50 program file.

ADR1_50.INI

ADR-1/50 general settings file (COM port and printer settings).

ADR1_50P.INI

ADR-1/50 password file.

ADR1_50.STG

ADR-1/50 Quick Configuration settings file.

1.4 Starting the Program

Start ADR-1/50 simply by double-clicking the ADR-1/50 icon in the ADR-1/50 Program Group. When you start the program the Insert Dosimeter window will be displayed automatically.



Figure 3. The Insert Dosimeter window

When you insert the dosimeter, the ADR-1/50 window will be displayed. The screen (figure 4 or figure 5) depends from the version of the dosimeter.

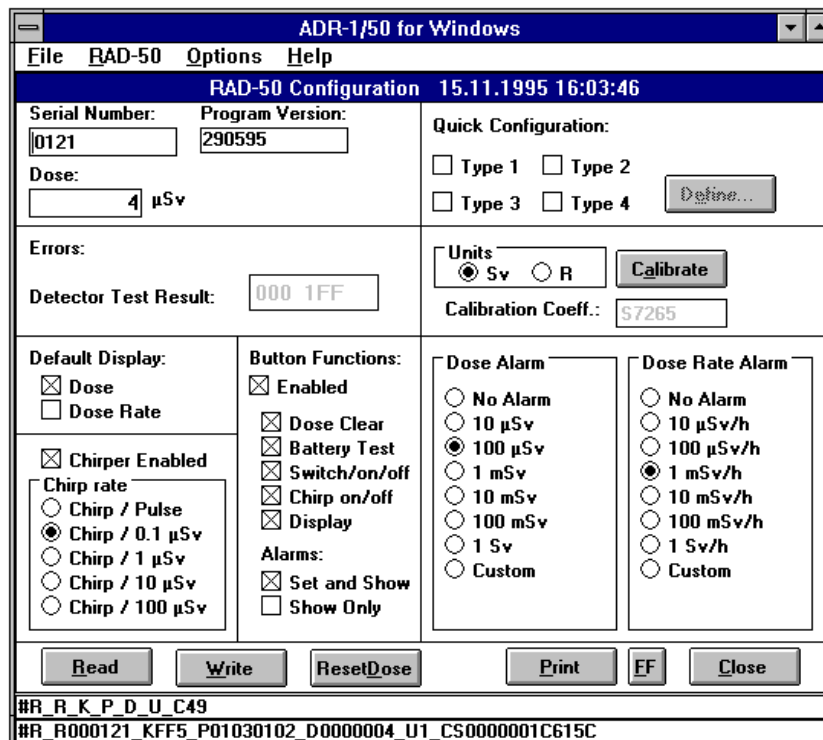


Figure 4. The ADR-1/50 program window

There are two lines at the bottom of the display that show the data communication between the computer program and RAD-50/60 dosimeter.

Figure 5. The ADR-1/50 program window

There are two lines at the bottom of the display that show the data communication between the computer program and RAD-50/60 dosimeter.

1.5 Reading the Dosimeter

Put the dosimeter in the reader head slot. After a while the dosimeter display changes to show *SEr*. The *SEr*-display indicates that the dosimeter is in the reader head. The *SEr* will come into the display of RAD-50/60 even when the RS-232 cable is not connected, if the ADR-1 power supply has been connected to mains.

2. USING THE ADR-1/50 PROGRAM

2.1 ADR-1/50 System Commands

In the RADOS ADR-1/50 system main window there is a menu bar with the following commands:

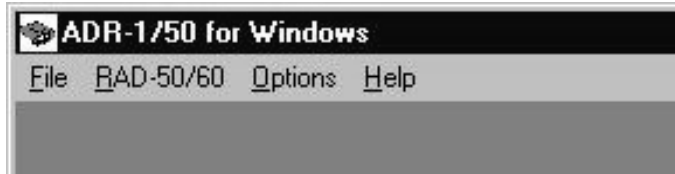


Figure 6. ADR-1/50 system menu bar

File menu

Includes only **Exit** command for closing the program.

RAD-50/60 menu

When you choose **Configure** command from the ADR-1/50 menu, the Configuration window will be opened (see chapter 2.2 or chapter 2.4).

Options menu

In the Options menu there are the following commands:

Settings

When you choose **Settings** command from the **Options** menu, the following window will appear.

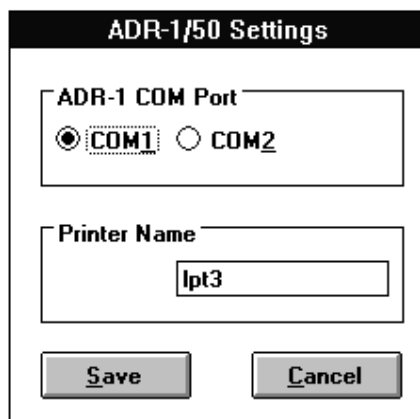
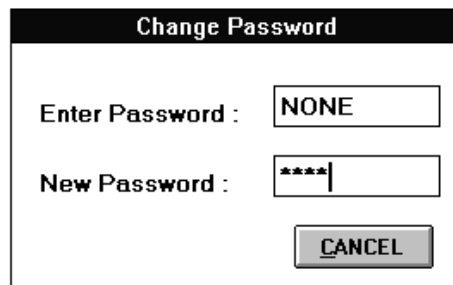


Figure 7. Settings window

In this window you can choose the printer name and the communication port of the computer that is used for communicating with the ADR-1 reader. Choose the desired port and set the printer name. The printer name is the name of your printer device (LPT1, LPT2 or LPT3) or the data file name. By entering a printer name, which is longer than 4 characters, the printings will be directed to a file. Click **Save** button to save the settings. Click **Cancel** button, if you want to cancel the changes and close the window.

Change Password

When you choose **Change Password** command from the Options menu, the following window will appear.



The image shows a dialog box titled "Change Password". It contains two text input fields. The first field is labeled "Enter Password :" and contains the text "NONE". The second field is labeled "New Password :" and contains five asterisks "*****". Below the input fields is a button labeled "CANCEL".

Figure 8. Change Password window

In this window you can change the system password. The default system password is "NONE", which means that the password checking is not activated. When a new password is entered the system asks you to verify it. If the password is set to any other value than "NONE" the password protection is activated. Click **Cancel**, if you want to cancel the changes and close the window.

Help menu

About

When you choose **About** command from the **Help** menu, the **About** window will appear.



Figure 9. About ADR-1/50 window

2.2 Configuration Window for RAD-50

The configuration window of the program (for earlier RAD-50 dosimeter versions, orange case) is presented in the figure below. The window displays automatically all the configuration information of the dosimeter. You can change the configuration to meet the user's requirements by choosing the options you want to include in the dosimeter.

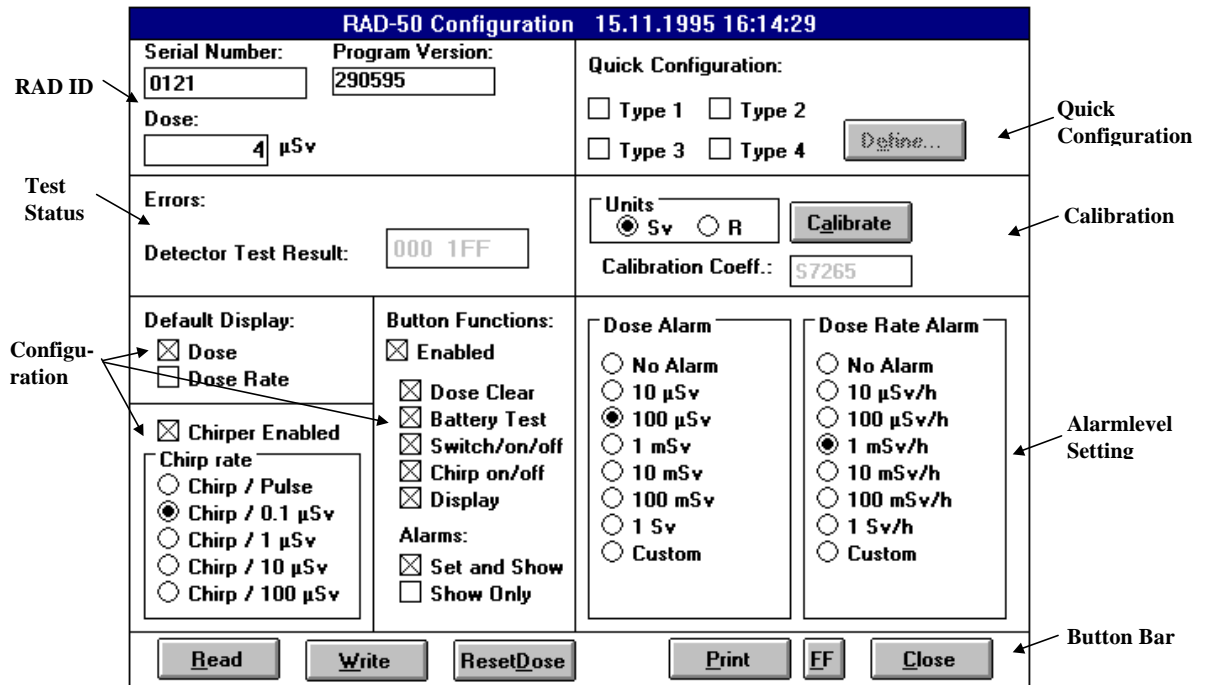


Figure 10. The Configuration window

On the configuration window there are following sections available:

2.2.1 Button Bar

This section includes the commonly used command buttons.

Read

Click the **Read** button to re-read the configuration settings of the dosimeter.

Write

If you want to change the configuration settings of the dosimeter, select the desired alternatives and click the **Write** button to send the new settings to the dosimeter. The settings are not stored in the dosimeter memory until you click the **Write** button. If you click the **Read** button instead of the **Write** button, the program restores the old configuration settings.

Reset Dose

If you want to clear the dose of the dosimeter, click the **Reset Dose** button.

Print

If you want to print the configuration data, click the **Print** button. The configuration of the dosimeter will be printed on the selected printer or to a file (see the Settings menu). Printing is possible only when there is a dosimeter inserted in the ADR-1 reader head slot.

```
*-----*
RAD-50 Configuration                               16.11.1995
S/N : 0121   Program Version : 290595   Calib. Coeff. : S7265
Dose : 0 uSv   Chirper Enabled; Chirp / 0.1 uSv
Dose Alarm : 100 uSv   Dose Rate Alarm : 1 mSv/h
Errors : None   Detector Test : 000 1FF   Default Display : Dose
Button Enabled; Dose Clear   Alarms ; Set and Show
                Battery Test
                Switch/on/off
                Chirp on/off
                Display
```

Figure 11. The RAD-50 configuration printout

FF

To give a form feed command to the printer, click the **FF** button.

Close

If you want to close the Configuration window, click the **Close** button. To re-open the window select **Configure** from the **RAD-50/60** menu.

To exit from the ADR-1/50 program, choose **Exit** from the File menu.

2.2.2 Calibration

This section includes **Units** option buttons, **Calibration Coefficient** data field and **Calibrate** command button.

Units

Mark the appropriate check box to choose dose/dose rate units; Sievert (Sv units) or Roentgen (R units). The units of the Dose Alarm, Dose Rate Alarm and Chirp Rate fields will be changed accordingly.

Calibration Coeff.

The **Calibration Coeff.** field shows the calibration coefficient of the dosimeter and indicates the sensitivity of the detector. Calibration coefficient is the number of detector pulses that equals 100 μ Sv dose.

Calibrate

When you click the **Calibrate** button, the following window will appear.

Note! The dosimeter calibration can be password protected. If the password is set, the program will ask the password before you will be able to proceed to the calibration.

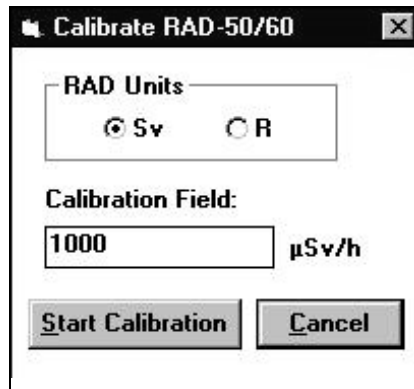


Figure 12. Calibrate RAD-50/60 window

This window is used in the RAD-50/60 calibration routine. For calibration you need a calibrator with quantum energy of 662 keV from a Cs-137 isotope source. The dose rate of the calibrator must be known value between 200 $\mu\text{Sv/h}$ (20 mR/h) and 20 mSv/h (2 R/h).

Select the unit from the **RAD Units** field. Enter the dose rate of the calibrator in the **Calibration Field** text box. Click the **Start Calibration** button to send this value to the dosimeter. The dosimeter display shows text \overline{CAL} . The dosimeter must be put in the calibrator within 90 seconds. The dosimeter counts pulses corresponding to 100 μSv dose during the calibration procedure, so the calibration time depends on the calibrator used. For example, in the minimum field of 200 $\mu\text{Sv/h}$ the calibration takes half an hour. When the dosimeter has completed the calibration procedure, it beeps and three MSB digits of the calibration coefficient are shown in the dosimeter display for 2 seconds (in hexadecimal form).

2.2.3 RAD ID Data

This section includes RAD **Serial Number**, **Program Version** and **Dose** data fields.

Serial Number

Shows the internal serial number of the dosimeter. The serial number can be changed, but it is not recommended.

Program version

Shows the CPU program version of the RAD-50/60 dosimeter. The number shows the program date (e.g. 060994 is September 6th, 1994). This number cannot be changed.

Dose

Shows the dose of the dosimeter in μSv or in mR. The dose can be cleared by using the **Reset Dose** command button.

2.2.4 Configuration Data

This section includes RAD configuration data for the display, chirper and for the button functions.

Default Display

Mark the appropriate check box to choose the display mode of the dosimeter. You can select either Dose or Dose rate display.

Chirper Enabled

Mark the check box to enable the chirper function.

Chirp rate

Choose the desired chirp rate from the option group. The units shown are defined in the Units field. **NOTE!** Setting this option **has no influence** on dosimeters with CPU version 060994 or older.

Button

If the **Enabled** check box of the **Button** field is marked, you can define what check box options are available for the dosimeter user. Mark the check boxes of the desired options.

Note! If you mark the **Chirp on/off** check box, the dosimeter user can use the Chirp function even though the check box of the **Chirper field** is not enabled. The **Chirp Rate** values cannot be changed by the dosimeter user, even if the **Chirp on/off** option is marked.

If the Button field is **not** enabled, the settings you have made in Default Display, Chirper, Chirp Rate, Dose Alarm and Dose Rate Alarm apply, and they cannot be changed by the dosimeter user.

2.2.5 Test Status

This section includes RAD Error codes and detector test result data.

Errors

If the dosimeters status is OK, the Errors field will be empty. If there is an error text "Low Battery" or an error code in the Errors field, the dosimeter must be returned for servicing. By clicking the **Errors** text you can open a dropdown list of the error codes.

The error codes are:

- 1 = Calibration error
- 2 = Cannot write to non-volatile memory
- 3 = Detector function error
- 4 = RAM memory error

Detector Test Result

In the **Detector Test result** field there are two 3-digit hexadecimal numbers that show the test result of the internal detector test. The test is done every time the meter is switched on. In the test 511 (=1FFh) low amplitude and 511 high amplitude pulses are fed to the detector. Low amplitude pulses should not give more than 255 (=0FFh) counts and all high amplitude pulses should give more than 255 counts. First test result number shows the detected low amplitude pulses and the second test result number shows the detected high amplitude pulses (in HEX number). If the test fails, there will be an error code in the **Errors** field and the meter must be returned for servicing.

2.2.6 Alarm Level Setting

This section includes RAD alarm level settings.

Dose Alarm / Dose Rate Alarm

Choose the desired **Dose Alarm / Dose Rate Alarm** level from the option group. The units shown are defined in the **Units** field. If the preset values are not suitable, you can define the alarm level by selecting **Custom** option. A field will appear where you can set the new level. If you don't want the dosimeter to give an alarm, choose **No Alarm**.

2.3 Quick Configuration Window

There are five predefined configurations specified in the program. You can choose one of the predefined configurations by selecting the menu option “**Quick/Configuration n**” (where **n** is 1, ..., 5)

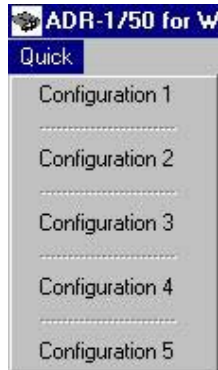


Figure 13. The Quick Configuration main menu

By selecting the “**Configuration n**” menu the Quick Configuration setting window will open.

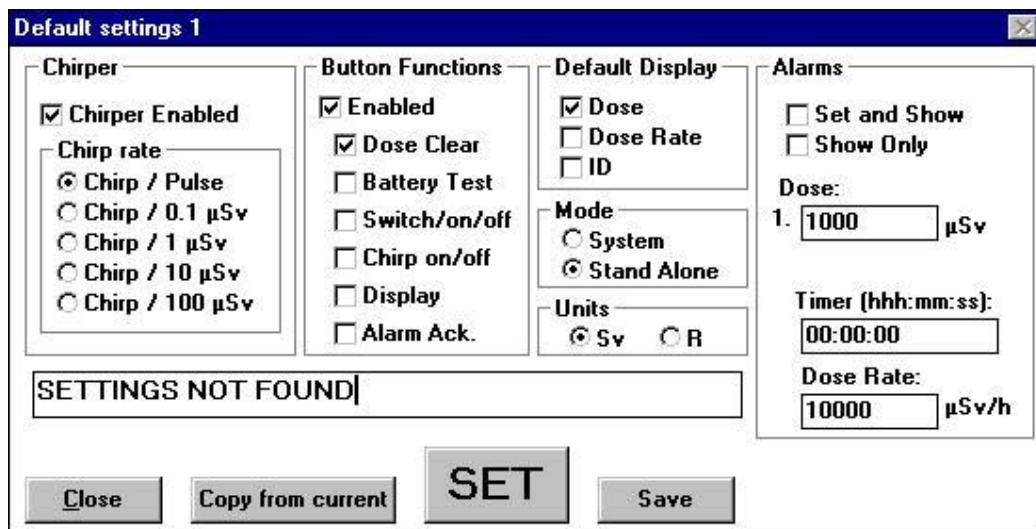


Figure 14. The Quick Configuration Setting window

You can change the configuration values by typing in the new setting values in the Quick Configuration Setting window.

The Quick Configuration Settings window command button functions are as follows:

Close

Choose **Close** button to close the Quick Configuration window.

Copy from Current

To copy dosimeter settings from the current dosimeter, click **Copy from Current** button.

SET

To transfer the predefined configuration into RAD-50 Configuration window, click **SET** button.

NOTE ! After you have transferred the predefined data into RAD-50 Configuration window, you must click the RAD-50 Configuration window **Write** button in order to write the data into the Dosimeter.

Save

To confirm the changes for the selected configuration, click the **Save** button.

NOTE ! If you have not previously saved the Configuration Settings, the setting description text is set to "**SETTINGS NOT FOUND**". When you save the settings, please replace this text field by your own setting description.

2.4 Configuration Window for RAD-50/52 and RAD-60/62

The configuration window of the program is presented in the figure below. The window displays automatically all the configuration information of the dosimeter. You can change the configuration to meet the users requirements by choosing the options you want to include in the dosimeter.

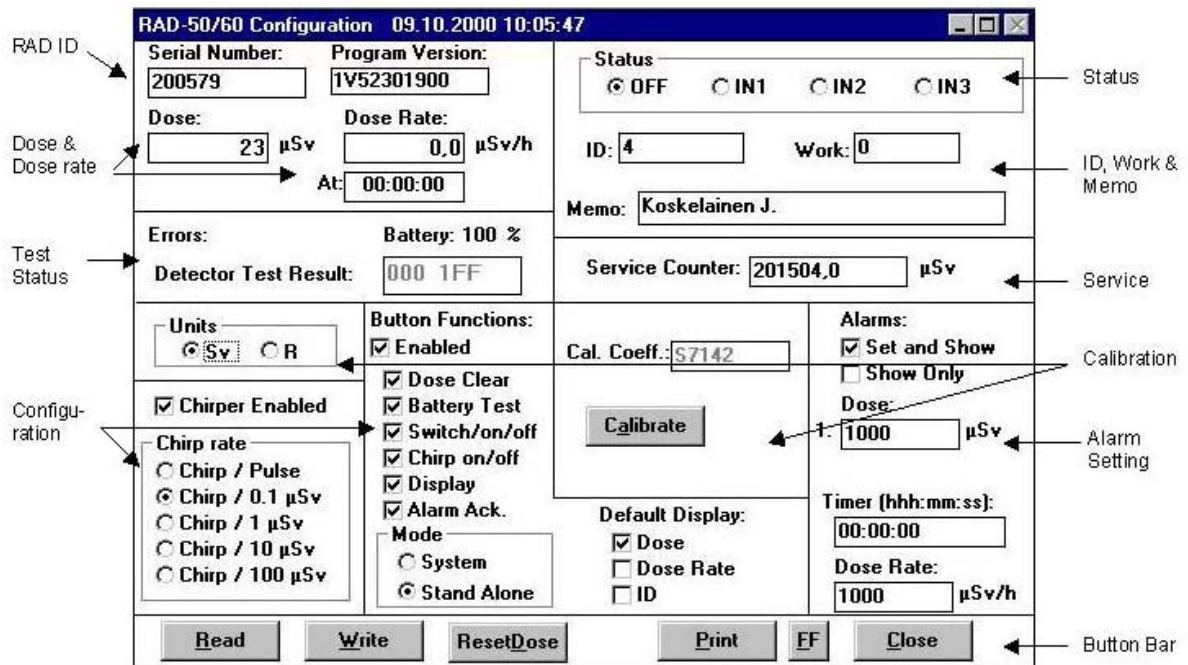


Figure 15. The Configuration window

2.4.1 Button Bar

This section includes the commonly used command buttons.

Read

Click the **Read** button to re-read the configuration settings of the dosimeter.

Write

If you want to change the configuration settings of the dosimeter, select the desired alternatives and click the **Write** button to send the new settings to the dosimeter. The settings are not stored in the dosimeter memory until you click the **Write** button. If you click the **Read** button instead of the **Write** button, the program restores the old configuration settings.

Reset Dose

If you want to clear the dose of the dosimeter, click the **Reset Dose** button.

Print

If you want to print the configuration data, click the **Print** button. The configuration of the dosimeter will be printed on the selected printer or to a file (see the Settings menu). Printing is possible only when there is a dosimeter inserted in the ADR-1 reader head slot.

FF

To give a form feed command to the printer, click the **FF** button.

Close

If you want to close the Configuration window, click the **Close** button. To re-open the window select **Configure** from the **RAD-50/60** menu.

To exit from the ADR-1/50 program, choose **Exit** from the File menu.

2.4.2 Calibration

This section includes **Units** option buttons, **Calibration Coefficient** data field and **Calibrate** command button.

Units

Mark the appropriate check box to choose dose/dose rate units; Sievert (Sv units) or Roentgen (R units). The units of the Dose Alarm, Dose Rate Alarm and Chirp Rate fields will be changed accordingly.

Calibration Coeff.

The **Calibration Coeff.** field shows the calibration coefficient of the dosimeter and indicates the sensitivity of the detector. Calibration coefficient is the number of detector pulses that equals 100 μ Sv dose.

Calibrate

Click the **Calibrate** button to begin the calibration process. **Note!** The dosimeter calibration can be password protected. If the password is set, the program will ask the password before you will be able to proceed to the calibration.

For calibration you need a calibrator with quantum energy of 662 keV from a Cs-137 isotope source. The dose rate of the calibrator must be known value between 200 μ Sv/h (20 mR/h) and 20 mSv/h (2 R/h).

Select the unit from the **RAD Units** field. Enter the dose rate of the calibrator in the **Calibration Field** text box. Click the **Start Calibration** button to send this value to the dosimeter. The dosimeter display shows text *CAL*. The dosimeter must be put in the calibrator within 90 seconds. The dosimeter counts pulses corresponding to 100 μ Sv dose during the calibration procedure, so the calibration time depends on the calibrator used. For example, in the minimum field of 200 μ Sv/h the calibration takes half an hour. When the dosimeter has completed the calibration procedure, it beeps and three MSB digits of the calibration coefficient are shown in the dosimeter display for 2 seconds (in hexadecimal form).

2.4.3 RAD ID Data

This section includes RAD **Serial Number**, **Program Version**, **Dose**, **Dose Rate** and **Time of Dose Rate** data fields.

Serial Number

Shows the internal serial number of the dosimeter. The serial number can be changed, but it is not recommended.

Program version

Shows the CPU program version of the RAD-50/60 dosimeter. The number shows the program date (e.g. 060994 is September 6th, 1994). This number cannot be changed.

Dose

Shows the dose of the dosimeter in μSv or in mR. The dose can be cleared by using the **Reset Dose** command button.

Dose Rate

Shows the maximum dose rate of the dosimeter in $\mu\text{Sv/h}$ or in mR/h. The dose rate can be cleared by using the **Reset Dose** command button.

At

Shows the time when the maximum dose rate occurred. Format HH:MM:SS.

2.4.4 Configuration Data

This section includes RAD configuration data for the display, chirper and for the button functions.

Mode

SYSTEM = System dosimeter
Stand Alone = Stand Alone dosimeter

Default Display

Mark the appropriate check box to choose the display mode of the dosimeter. You can select either Dose or Dose rate display. If ID is selected, the dosimeter display will show the last 3 digits of the ID-code for 3 s every 25 s.

Chirper Enabled

Mark the check box to enable the chirper function.

Chirp rate

Choose the desired chirp rate from the option group. The units shown are defined in the Units field. **NOTE!** Setting this option **has no influence** on dosimeters with CPU version 060994 or older.

Button

If the **Enabled** check box of the **Button** field is marked, you can define what check box options are available for the dosimeter user. Mark the check boxes of the desired options. Greyed options may be used only with System Dosimeter.

Note! If you mark the **Chirp on/off** check box, the dosimeter user can use the Chirp function even though the check box of the **Chirper field** is not enabled. The **Chirp Rate** values cannot be changed by the dosimeter user even if the **Chirp on/off** option is marked.

If the Button field is **not** enabled, the settings you have made in Default Display, Chirper, Chirp Rate, Dose Alarm and Dose Rate Alarm apply, and they cannot be changed by the dosimeter user.

2.4.5 Test Status

This section includes RAD Error codes and detector test result data.

Errors

If the dosimeters status is OK, the Errors field will be empty. By clicking the **Errors** text you can open a dropdown list of the error codes.

The error codes are:

- C = Calibration not done
- G = Detector defective
- L = Service counter too high
- R = Error in program memory check-sum
- T = Timer alarm
- N = NVRAM-error
- P = 'Reset'-flag.

Detector Test Result

In the **Detector Test result** field there are two 3-digit hexadecimal numbers that show the test result of the internal detector test. The test is done every time the meter is switched on. In the test 511 (=1FFh) low amplitude and 511 high amplitude pulses are fed to the detector. Low amplitude pulses should not give more than 255 (=0FFh) counts and all high amplitude pulses should give more than 255 counts. First test result number shows the detected low amplitude pulses and the second test result number shows the detected high amplitude pulses (in HEX number). If the test fails there will be an error code in the **Errors** field and the meter must be returned for servicing.

2.4.6 Alarm Level Setting

This section includes RAD alarm level settings.

Dose Alarm / Dose Rate Alarm / Timer Alarm

Enter the desired ***Dose Alarm / Dose Rate Alarm / Timer Alarm*** level from the keyboard. The units shown are defined in the ***Units*** field.

NOTICE: Dose and Dose Rate alarm level resolution is three digits (1 - 999, 1010 - 9990, 10100 – 99900 etc.)

2.4.7 Service Counter

The cumulative detector dose. Field can be cleared by typing RESET in the field and clicking the ResetDose button.

2.4.8 ID, Work & Memo

ID:

ID code, 10 digits.

Work:

Work code, 8 digits.

Memo:

Memo field, 16 characters.

2.3.9 Status

Dosimeter state.

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