



# **User's Guide**

Dosimeter Configuration Software

**ADR-1/60**

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If you have any comments or suggestions for additions concerning either the products or this document send them to:

RADOS Technology Oy

PO Box 606

20101 TURKU

FINLAND,

Fax: +358 21 468 4601, phone: +358 21 468 4600.

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# 1 INTRODUCTION

## 1.1 Introduction to the Program

ADR-1/60 is a program designed for configuring the RAD-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 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-1/60 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.

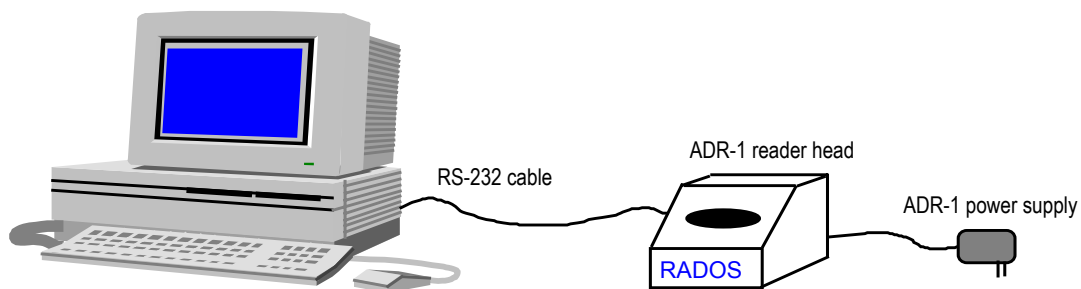


Figure 1. The ADR-1/60 system configuration.

## 1.3 Installing the Program

Windows software must be installed before you can start using **RADOS** ADR-1/60 program.

### Installation:

- Start Microsoft Windows
- Put ADR-1/60 setup disk in your floppy drive. Normally, this is Drive A.
- Select the **Run** command from the **File** menu in the Program Manager in Microsoft Windows.
- Type **A:\SETUP** and click **OK** or press **Enter**
- Follow the instructions at the setup screen and the program will be installed to your fixed disk
- ADR-1/60 setup program builds the ADR-1/60 Program Group for you when the install program finishes. The program group looks like this:



Figure 2. The ADR-1/60 Program Group.

### 1.3.1 ADR-1/60 Program Files

ADR-1/60 program uses the following files in the ADR1\_60 directory:

#### **ADR1\_60.EXE**

ADR-1/60 program file.

#### **ADR1\_60.INI**

ADR-1/60 general settings file (COM port and printer settings).

#### **ADR1\_60P.INI**

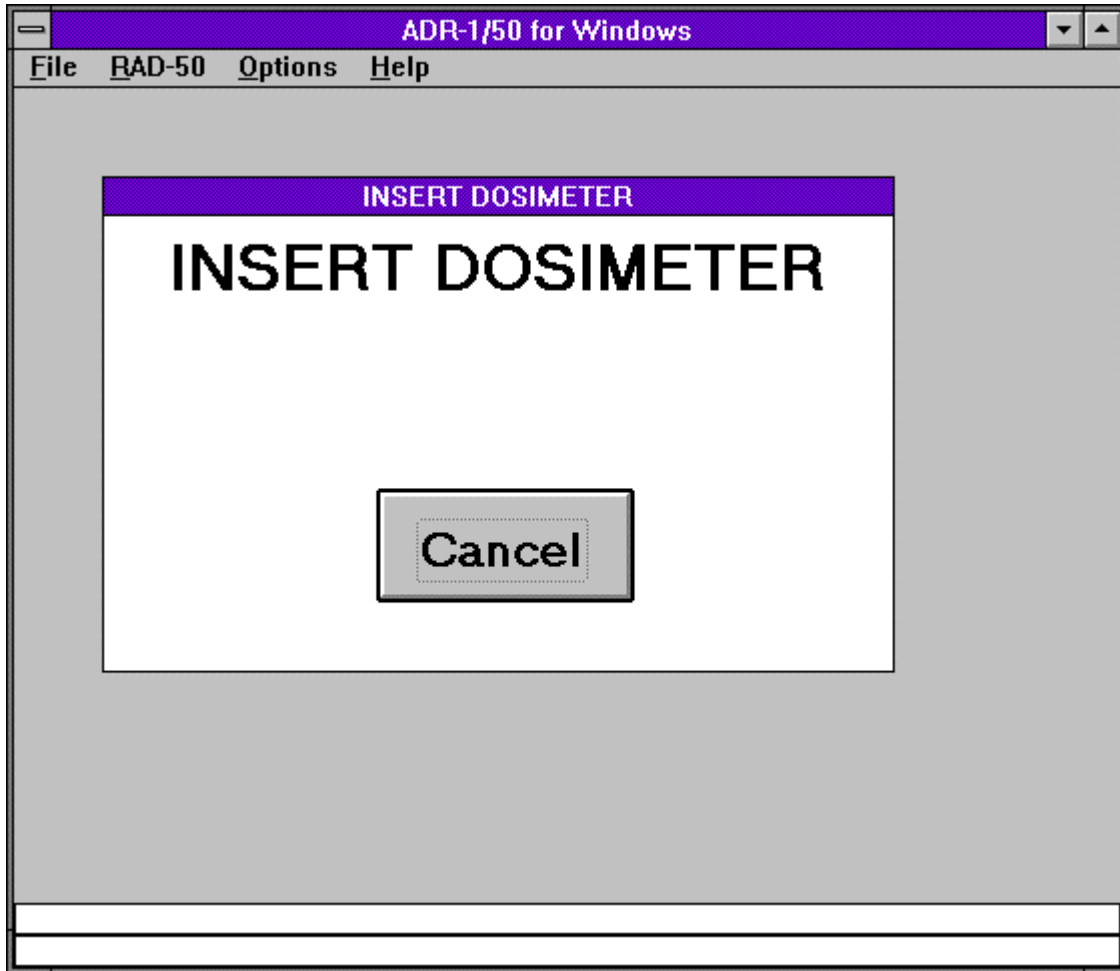
ADR-1/60 password file.

#### **ADR1\_60.STG**

ADR-1/60 Quick Configuration settings file.

## 1.4 Starting the Program

Start ADR-1/60 simply by double-clicking the ADR-1/60 icon in the ADR-1/60 Program Group. When you start the program the Insert Dosimeter window will be displayed automatically.



When you insert the dosimeter ADR-1/60 window will be displayed. The screen (figure 3 or figure 4) depends from the version of the dosimeter.

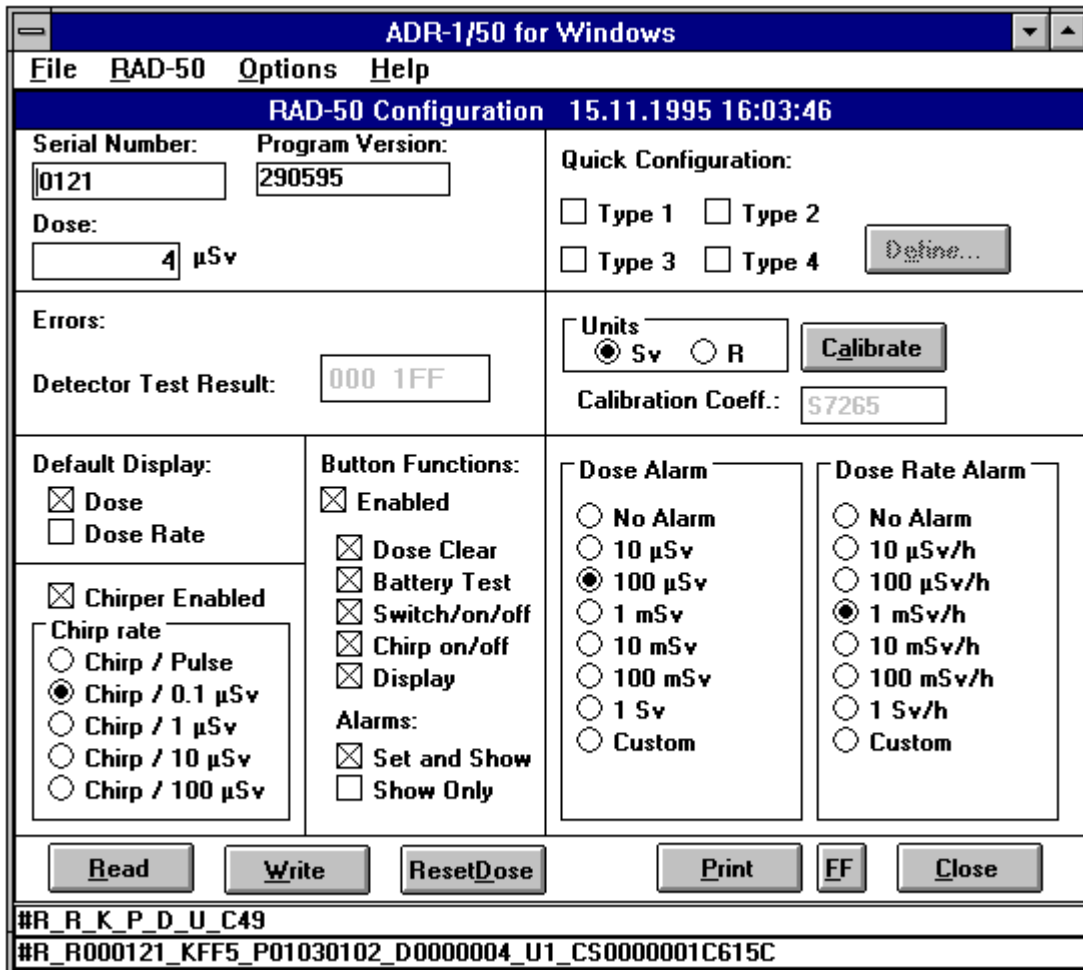


Figure 3. The ADR-1/60 program window.

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

Figure 4. The ADR-1/60 program window.

There are two lines at the bottom of the display that shows the data communication between the computer program and RAD-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 display of RAD-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-1/60 PROGRAM

### 2.1 ADR-1/60 System Commands

In the ADR-1/60 main window there is a menu bar with the following commands:

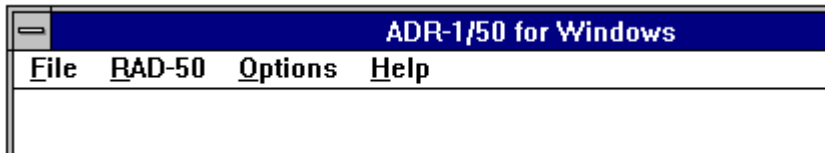


Figure 4. ADR-1/60 system menu bar.

#### File menu

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

#### RAD-60 menu

When you choose **Configure** command from the ADR-1/60 menu, the Configuration window will be opened (see chapter 2.2).

#### 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.

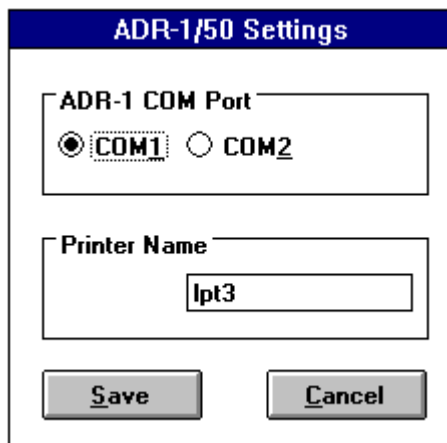
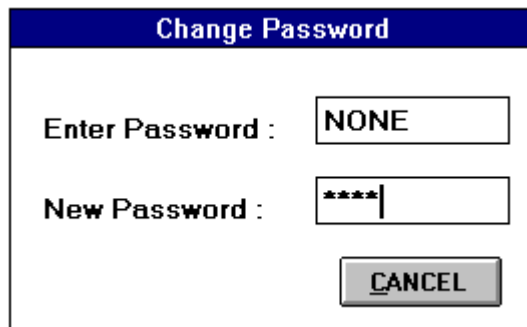


Figure 5. Settings window.

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 has a blue title bar with the text "Change Password" in white. Below the title bar, there are 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 four asterisks "\*\*\*\*". Below these fields is a button labeled "CANCEL".

Figure 6. 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.

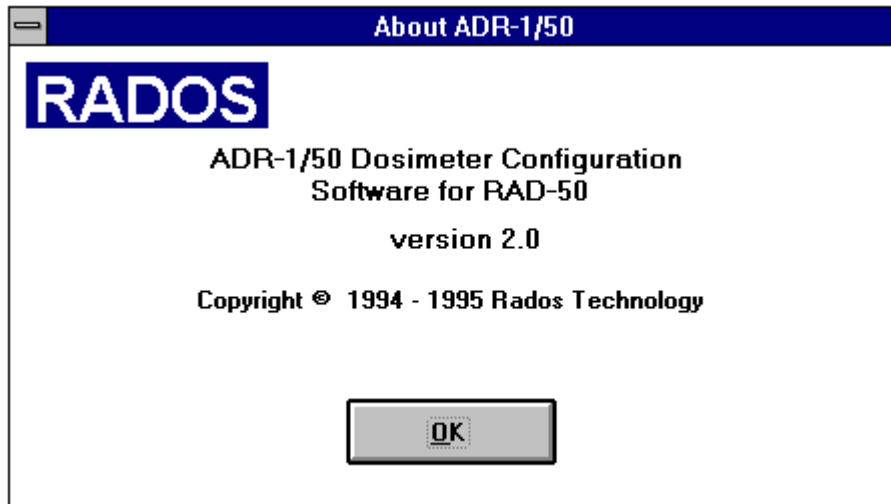


Figure 7. About ADR-1/60 window.

## 2.2 Configuration Window

The configuration window 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.

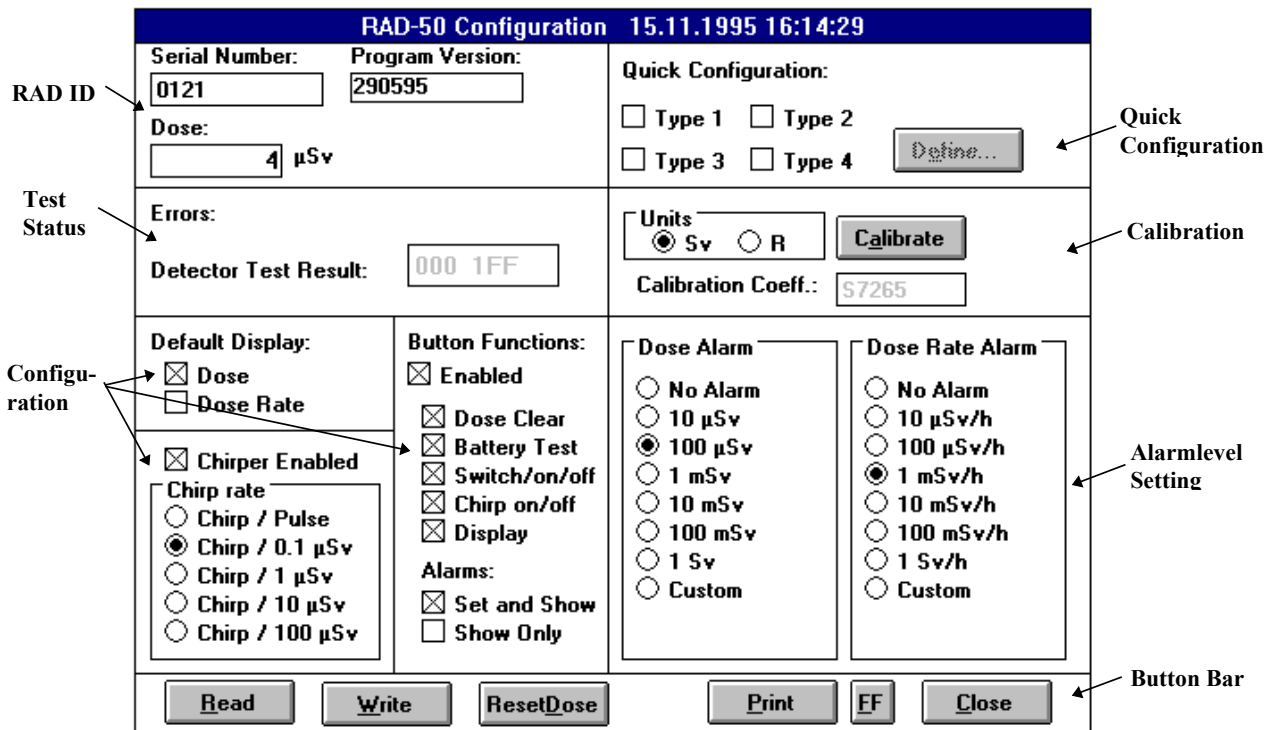


Figure 8. The Configuration window.

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 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 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 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 9. The RAD-51 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-60** menu. To exit from the ADR-1/60 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  $\mu\text{Sv}$  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.

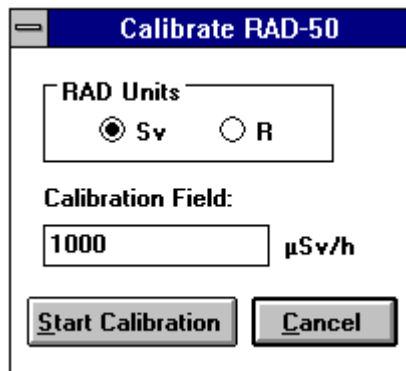


Figure 10. Calibrate RAD-60 window.

This window is used in the RAD-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 *ERR*. The dosimeter must be put in the calibrator within 90 seconds. The dosimeter counts pulses corresponding to 100  $\mu\text{Sv}$  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-60 dosimeter. The number shows the program date (e.g. 060994 is Sept. 6, 1994). This number cannot be changed.

#### **Dose**

Shows the dose of the dosimeter in  $\mu\text{Sv}$  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 checkbox 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 Alarmlevel Setting

This section includes RAD alarmlevel 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 give an alarm, choose **No Alarm**.

## 2.3 Quick Configuration Window

There are four standard configurations specified in the program. You can choose one of the predefined configurations by clicking the desired check box. The other fields will be updated accordingly. You can change the settings of the fields after you have selected the desired configuration.

You can change the standard configuration default values by Clicking **Define** button when the dosimeter is not inserted in the ADR-1 reader head (**Note:** If the dosimeter is in the reader head, the **Define** button is disabled). The following window will be displayed:

Figure 11. The Quick Configuration Defaults window.

Choose the configuration type **1**, **2**, **3** or **4** from the **Configuration Number** field and set the desired values to the data fields as described in the chapter 2.2. The Quick Configuration window command button functions are as follows:

### Save Changes

To confirm the changes for the selected type click **Save Changes** button. After saving you can select new type and define the settings for the selected type.

**Cancel**

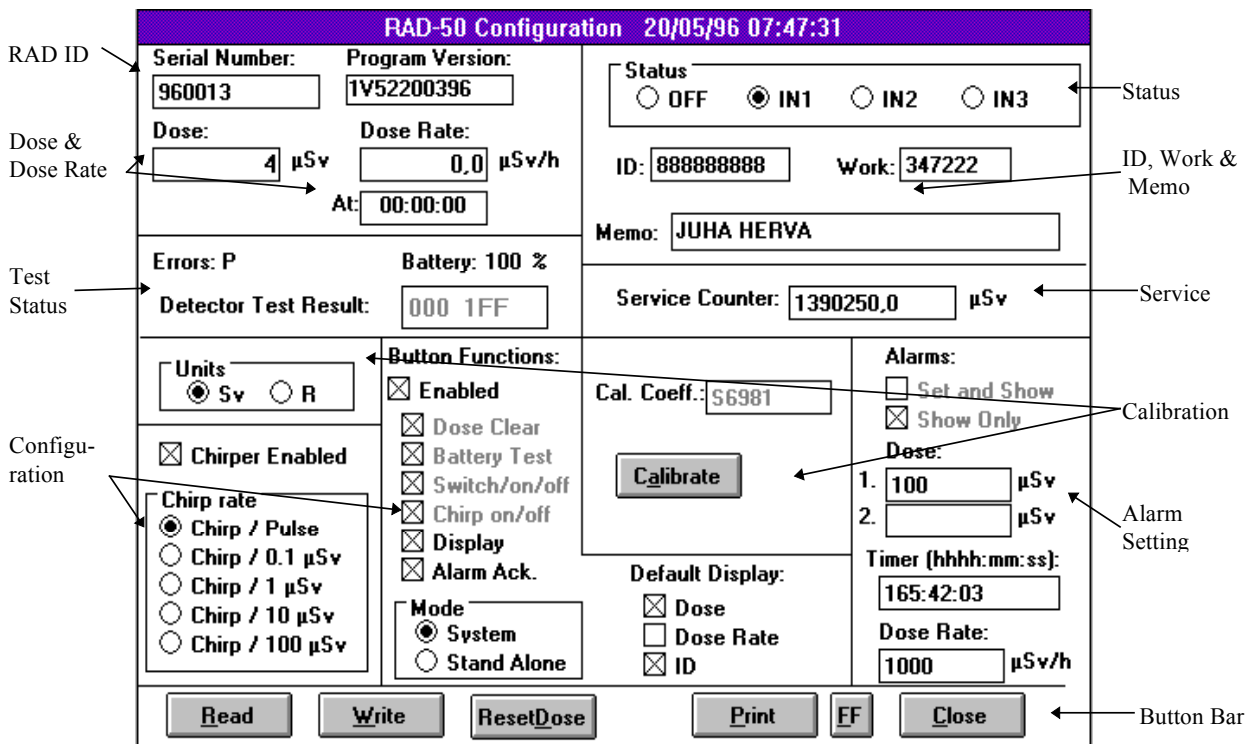
If you want to cancel the changes you have made, click the **Cancel** button. You cannot cancel the changes after you have saved them.

**Close**

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

**2.4 Configuration Window**

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.



**2.4.1 Button Bar**

Same as 2.2.1.

**2.4.2 Calibration**

Same as 2.2.2.

### 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-60 dosimeter. The number shows the program date (e.g. 060994 is Sept. 6, 1994). This number cannot be changed.

#### **Dose**

Shows the dose of the dosimeter in  $\mu\text{Sv}$  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 checkbox options are available for the dosimeter user. Mark the check boxes of the desired options. Grayed 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 Alarmlevel Setting

This section includes RAD alarmlevel settings.

### ***Dose Alarm / Dose Rate Alarm / Timer Alarm***

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

**NOTE:** Dose & Dose Rate alarmlevel resolution is three digits (1 - 999, 1010 - 9990, 10100 - 99900, ...)

## 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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