

ADR-1/51
Dosimeter Configuration Software
User's Guide

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1 INTRODUCTION

1.1 Introduction to the Program

ADR-1/51 is a program designed for configuring the RAD-51 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-1/51 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.

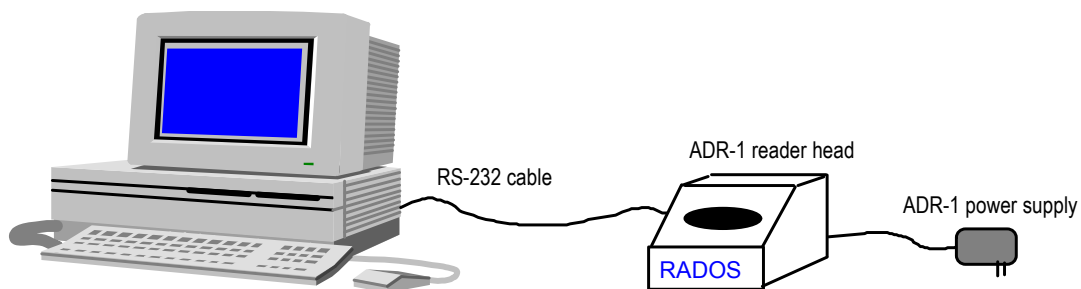


Figure 1. The ADR-1/51 system configuration

1.3 Installing the Program

Windows 95/98/NT software must be installed before you can start using **RADOS** ADR-1/51 program.

Installation

- Start Microsoft Windows
- Put the ADR-1/51 set-up disk in your floppy drive. Normally, this is Drive A, but it may be different for you.
- Select the **Run** command from the **Start** menu.
- Type **A:\SETUP** and press **Enter**.
- Follow the instructions at the set-up screen and the program will be installed to your fixed disk
- ADR-1/51 set-up program builds the ADR-1 MANUAL Reader Program Group for you, when the install program finishes. The program group looks like this:

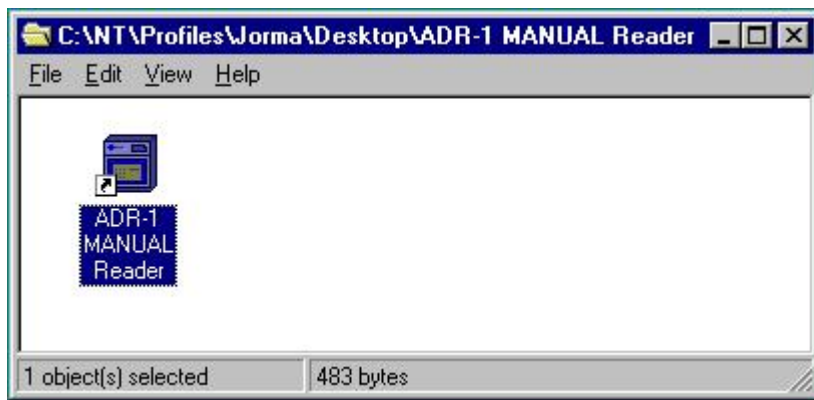


Figure 2. The ADR-1/50 Program Group

1.3.1 ADR-1/51 Program Files

ADR-1/51 program uses the following files in the C:\RADOS\ADRMRRDR directory:

ADR1RDR.EXE

ADR-1/51 program file.

ADR1RDR.INI

ADR-1/51 general settings file.

ADR1PSW.INI

ADR-1/51 password file.

ADR1BAR.INI

ADR-1/51 bar code reader settings file (optional).

2 USING THE ADR-1/51 PROGRAM

2.1 Starting the Program

Start ADR-1/51 simply by double-clicking the ADR-1/51 icon in the ADR-1/51 Program Group. When you start the program the Manual Mode Main menu window will be displayed automatically.

2.2 MANUAL mode menu

In the MANUAL mode there is Dosimeter *INITIALIZER* group commands and the *OPTIONS* command group available (Note that the *AUTO* mode command is disabled when using ADR-1/51 SW).

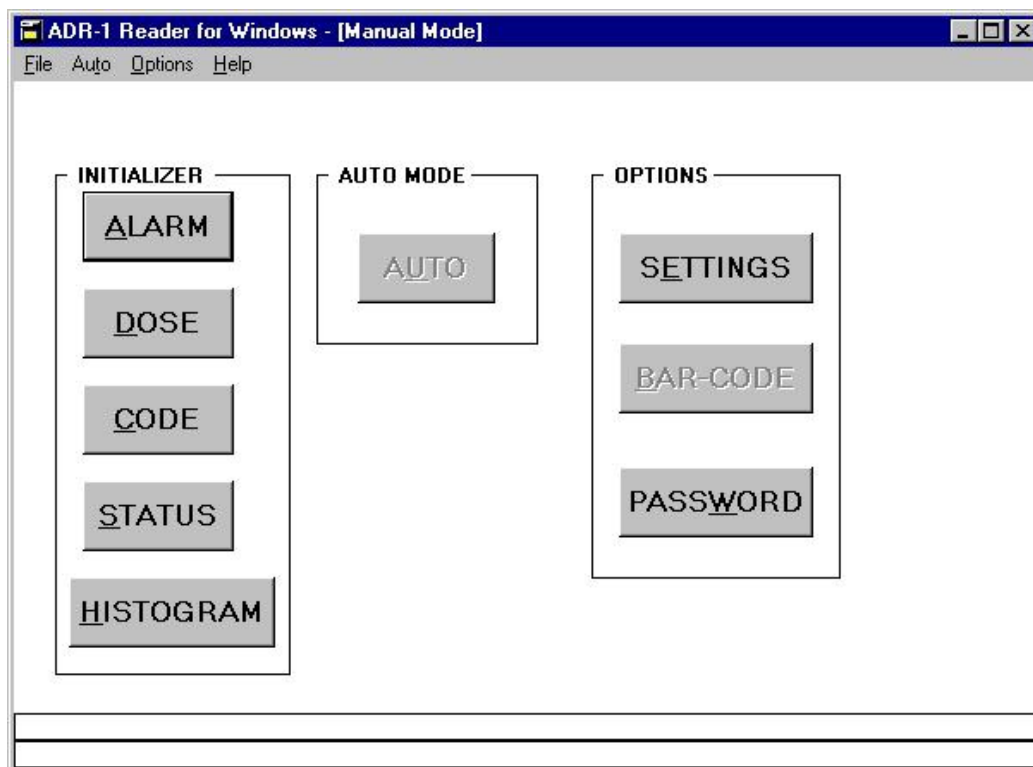


Figure 3. MANUAL Mode main menu

2.3 INITIALIZER commands

2.3.1 ALARM

This command is used to read/write the Dosimeter alarm fields.

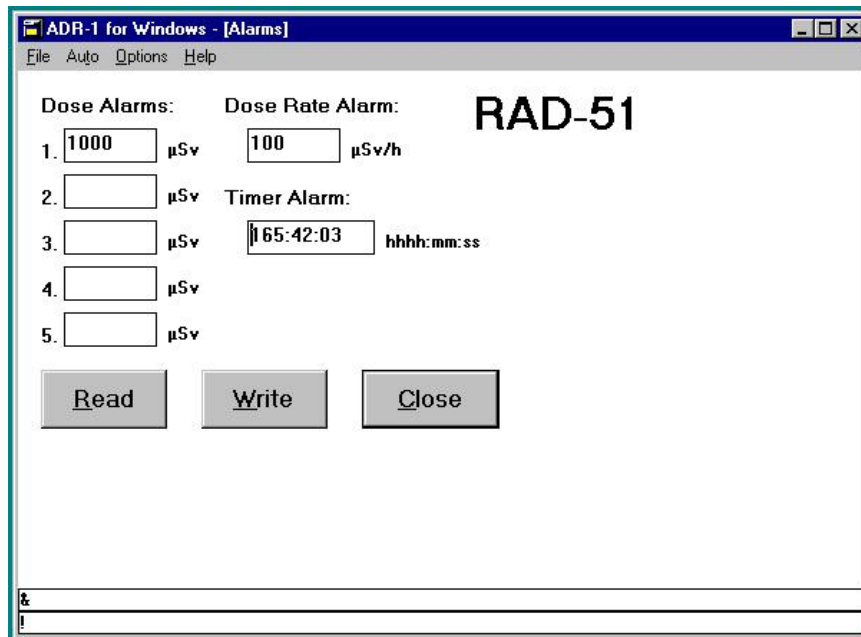


Figure 4. Alarms window. The **Read** and **Write** buttons control the communication with the dosimeter.

Dose Alarms

Up to five separate Dose Alarms can be set in the RAD-101 and in the RAD-51 dosimeter (two in the RAD-100).

The lowest Dose Alarm Level must be entered first. If you have set more than one Alarm Levels and the Dosimeter starts to alarm on the first Alarm Level the user can reset the Dosimeter Alarm by pressing the button or wait for one minute for the alarm to stop. The last Alarm Level, which is set is the final Alarm Level and it cannot be reset by the user.

The maximum setting is 999999 (mrem or μSv , depending on the configuration of the dosimeter).

Dose Rate Alarm

The Dose Rate Alarm comes on if the user enters into a radiation field that exceeds the alarm setting. The alarm is automatically turned off as soon as the user leaves the high radiation area.

The maximum setting is 999999 (mrem/h or $\mu\text{Sv/h}$, depending on the configuration of the dosimeter).

Timer Alarm

The Timer Alarm sounds if the time elapsed since the dosimeter was last inserted into a reader exceeds the alarm setpoint. Every time the dosimeter is inserted into a reader or into a charger the internal timer in the dosimeter is reset and the elapsed time starts from zero.

Time values can be entered either in seconds, minutes and seconds (mm:ss) or hours, minutes and seconds (hh:mm:ss). When the cursor leaves the field, the value is always displayed as hh:mm:ss.

Entering a zero time sets the alarm to its maximum value (165 h or 2150 h, depending on the configuration of the dosimeter (for RAD-100 the maximum value is always 165 h).

2.3.2 DOSE

This command is used to reset the Dose and Max. Dose Rate of the Dosimeter.

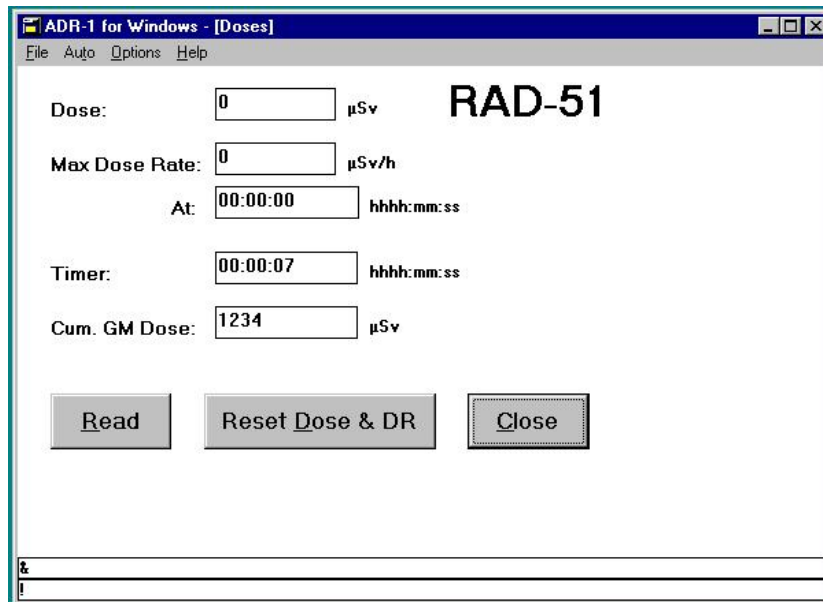


Figure 5. Doses window

Dose

The integrated Dose is displayed in mrem or μSv , depending on the configuration of the Dosimeter. Dose cannot be changed, it can only be reset by issuing the **Reset Dose & DR** command.

Max. Dose Rate

The value displayed in this field is the maximum dose rate that the dosimeter was exposed to since the last time the Dose and Dose Rate were reset in a reader.

Time of Max. Dose Rate

The value displayed in this field is the elapsed time of the maximum dose rate. The elapsed time measurement starts from zero every time the dosimeter is inserted into a reader or into a charger.

Cumulative GM Dose

This is the total integrated dose that the GM-Tube detector has been exposed to during its use. This value applies also to the solid state detector used in the RAD-51 dosimeter.

2.3.3 CODE

This command is used to read/write the RAD Serial Number, ID Code, RWP Code and Memo fields of the Dosimeter.

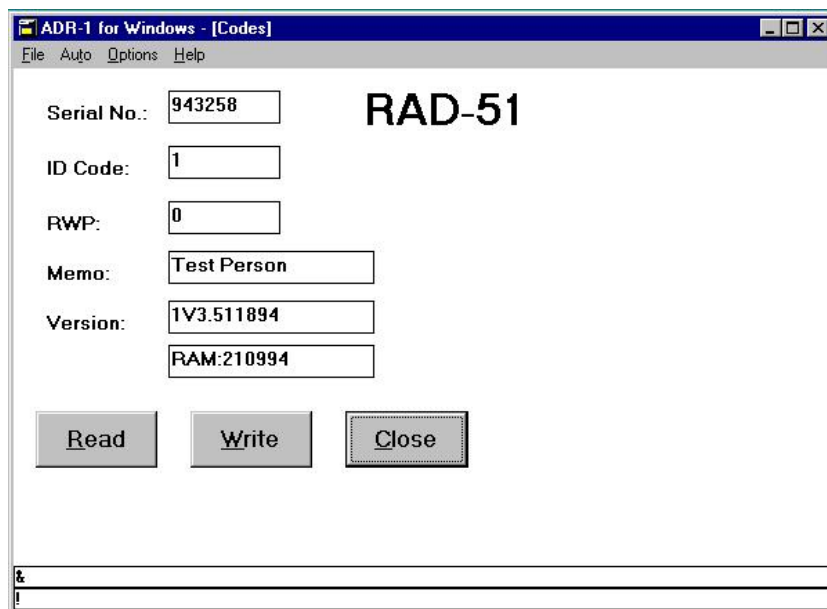


Figure 6. Code window

Serial Number

Dosimeter Serial Number, max. 6 digits (read only).

ID Code

The ID-Code of the last user, max. digits. The ID-Code is written into this field during the Entrance Procedure in the AUTO Mode.

RWP Code

The last RWP Code used, max. 7 digits. The RWP Code is written into the dosimeter in the Entrance Procedure in the AUTO mode.

Memo

The Memo field , max. 16 ASCII characters. The user name is written into the Memo field in the Entrance Procedure in the AUTO mode.

Version

The firmware Version of the dosimeter software (read only).

RAM Version

The RAM program version of the RAD-51 Dosimeter software (read only).

2.3.4 STATUS

This command is used to read/write the RAD Status, Configuration, Error Flags, Battery Capacity and Calibration Coefficient. The Dosimeter detector can be checked by using an optional test source.

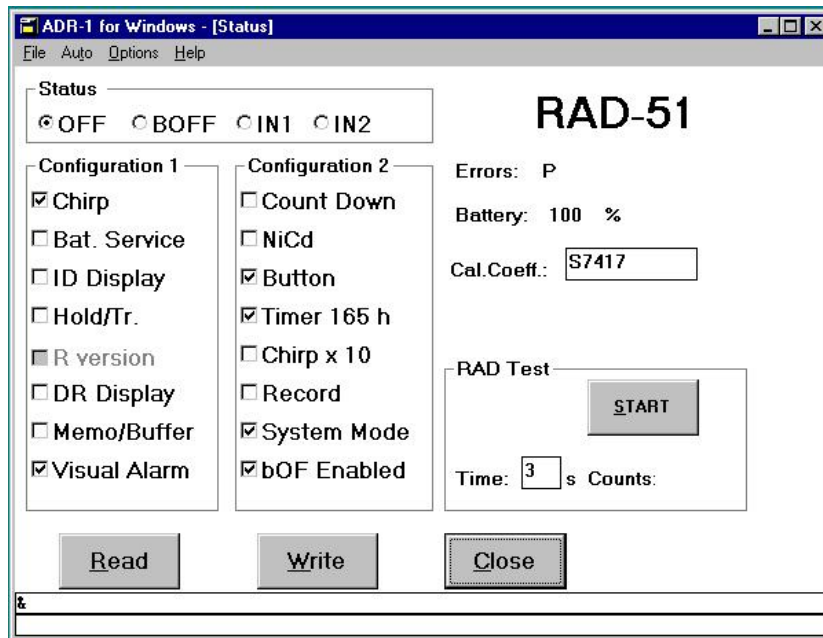


Figure 7. Status window

Status Buttons

The '*Status*' of the dosimeter, '*OFF*', '*BOFF*', '*IN1*' or '*IN2*'.

The '*Status*' is automatically set by the Entrance and Exit Procedures in the AUTO Mode. It can be set manually by clicking on the desired option and issuing the **Write** command.

Additionally, the '*BOFF*' state can be set in the RAD-101/51 by turning this option on and issuing the **Write** command to turn off the battery power completely. The power is automatically restored as soon as the dosimeter is inserted into a reader or by pressing the button on the dosimeter.

Configuration Check Boxes

These are the Configuration 'Bits' in the dosimeter. See the Dosimeter User's Manual for more details on each function. The second group of Configuration Check Boxes is only applicable to the RAD-101 and RAD-51

Error Flags

The '*Error Flags*' are displayed in this field. The P-Error, which appears every time after the battery power is interrupted in the dosimeter, can be cleared by issuing a **Write** command.

See the dosimeter User's Manual for more details on the meaning of the other Error Flags.

Calibration Coefficient

This is the Calibration Coefficient of the dosimeter. The first character (R or S) indicates the dose units (R or Sv) in which the dosimeter has been calibrated. The remaining digits are relative to the individual detector and circuitry in the dosimeter. See the dosimeter Service Manual for more information on the expected range of the coefficient.

Calibration (option)

By entering the desired units (R or S) followed by the calibration Dose Rate in mrem/h or $\mu\text{Sv/h}$ into the Calibration Coefficient field and issuing the **Write** command, the dosimeter can be put into the Calibration Mode. For example, "*R100*" would enable calibration in a 100 mrem/h field. After issuing the **Write** command, the dosimeter should be placed in the specified field within one minute. If the dosimeter is returned into the reader head within one minute, the calibration command is aborted.

Dosimeter Test

The '*Test Time*' must be entered in seconds before issuing the **Start** command. The detected number of counts is displayed at the end of the test. The result of the test can be used as a guideline for setting the Source Check parameters on the ADR-1 Reader Settings form.

2.3.5 HISTOGRAM

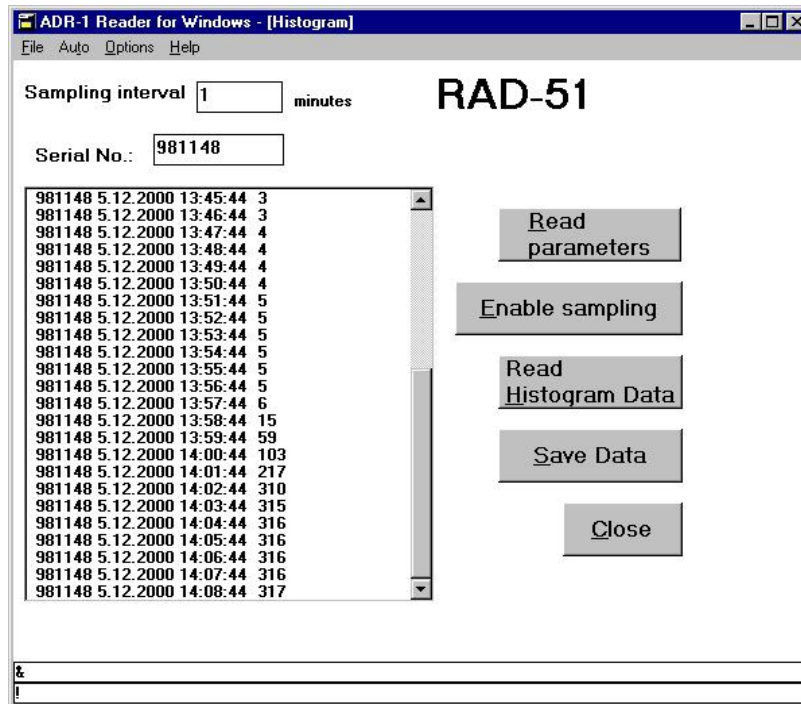


Figure 8. Histogram window

This command is used for reading/writing the Dosimeter dose sampling buffer. With the Read parameters button the current sampling interval can be read. The sampling interval can be set from 1 minute up to 255 minutes. The Enable sampling button writes the interval to the dosimeter and clears the dose. The maximum number of dose records is 998. With the Read histogram data button the recorded values are read from dosimeter. The last record has the current time from computer and the time is calculated backwards according the sampling interval. Note! If the dose is zero, the buffer can not be read.

With the Save data button the dose records can be written to text file.

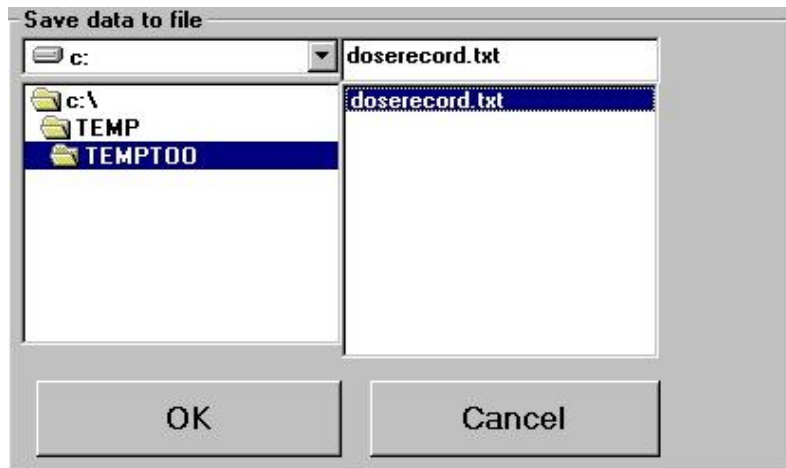


Figure 9. Save data to file dialog box

The text file contains: Dosimeter serial number, date, time and accumulated dose.

Following is an example of the contents of doserecord.txt file:

```
981148 5.12.2000 13:27:44 0
981148 5.12.2000 13:28:44 0
981148 5.12.2000 13:29:44 0
981148 5.12.2000 13:30:44 1
981148 5.12.2000 13:31:44 1
981148 5.12.2000 13:32:44 1
981148 5.12.2000 13:33:44 1
981148 5.12.2000 13:34:44 1
981148 5.12.2000 13:35:44 1
981148 5.12.2000 13:36:44 2
981148 5.12.2000 13:37:44 2
981148 5.12.2000 13:38:44 2
981148 5.12.2000 13:39:44 2
981148 5.12.2000 13:40:44 2
981148 5.12.2000 13:41:44 2
981148 5.12.2000 13:42:44 3
981148 5.12.2000 13:43:44 3
981148 5.12.2000 13:44:44 3
981148 5.12.2000 13:45:44 3
981148 5.12.2000 13:46:44 3
981148 5.12.2000 13:47:44 4
981148 5.12.2000 13:48:44 4
981148 5.12.2000 13:49:44 4
981148 5.12.2000 13:50:44 4
981148 5.12.2000 13:51:44 5
981148 5.12.2000 13:52:44 5
981148 5.12.2000 13:53:44 5
981148 5.12.2000 13:54:44 5
981148 5.12.2000 13:55:44 5
981148 5.12.2000 13:56:44 5
981148 5.12.2000 13:57:44 6
981148 5.12.2000 13:58:44 15
981148 5.12.2000 13:59:44 59
981148 5.12.2000 14:00:44 103
981148 5.12.2000 14:01:44 217
981148 5.12.2000 14:02:44 310
981148 5.12.2000 14:03:44 315
981148 5.12.2000 14:04:44 316
981148 5.12.2000 14:05:44 316
981148 5.12.2000 14:06:44 316
981148 5.12.2000 14:07:44 316
981148 5.12.2000 14:08:44 317
```

2.4 The Settings Form

The ADR-1 Reader Settings command is used to select the ADR-1 reader head COM port, the Dosimeter Test parameters, the Event Log Printout, the Bar-Code reader and the Touchscreen pop-up Keypad.

The screenshot shows a 'Settings' dialog box with the following elements:

- ADR-1 COM Port:** Two radio buttons, 'COM1' is selected.
- Dosimeter Test Parameters:**
 - Radiological Test Time: 5 s
 - Counts: 0 to 100
- Log Printout
- Bar-Code
- Touchscreen pop-up Keypad
- Buttons: Save, Cancel

Figure 10. Code window

ADR-1 COM Port

Sets the serial port for ADR-1, COM1 or COM2.

Radiological Test Time

Sets the time in seconds used for performing the Source Check during Entrance Procedure (needs an optional test source in the ADR-1 Reader Head Slot).

Counts

The counts accumulated during the Radiological Test must fall between these two values for the dosimeter to pass the test.

The 'RAD Test' function on the MANUAL Mode Status window can be used to test the number of counts expected within the specified Test Time.

Log Printout

A printer can be connected to the system to print a record of all Entrance and Exit events. This option is used only with Dose Control I AUTO mode.

Bar-Code

An optional serial line bar-code reader can be used in the system to read the ID and RWP codes (type Symbol LS-6320 bar-code Scanner) . This option is used only with Dose Control I AUTO mode.

Touchscreen pop-up Keypad

If an optional touch screen is used with the ADR-1 Reader PC, this option must be set on in order to enable numeric pop-up Keypad operation.

2.5 The Bar-Code Reader Settings Form

The optional Symbol LS-6320 bar-code Scanner settings.

The screenshot shows a dialog box titled "Bar-Code Reader Setup". It is divided into several sections:

- Baud Rate:** Radio buttons for 19,200, 9600 (selected), 4800, 2400, and 1200.
- Parity:** Radio buttons for Even (selected), Mark, None, Odd, and Space.
- Data Bits:** Radio buttons for 7 (selected) and 8.
- Stop Bits:** Radio buttons for 1 and 2 (selected).
- Bar-Code Reader COM Port:** Radio buttons for COM3 (selected) and COM4.
- Code Type Selection:**
 - Checked boxes for CODE 39 and INT 2/5.
 - Length 1: Input field containing "2".
 - Length 2: Input field containing "4".
- Buttons:** "Save" and "Cancel" buttons on the right side.

Figure 11. Bar-Code Reader Settings window

Baud Rate, Parity, Data Bits and Stop Bits

Sets the serial port parameters for the bar-code reader.

Bar-Code Reader COM Port

Sets the bar-code Reader COM port, COM3 or COM4.

Code Type Selection

Sets the bar-code Reader Code type. Code-39 and/or Interleave 2/5.

2.5.1 Bar-Code Reader Testing

The optional Symbol LS-6320 bar-code Reader Communication testing can be activated from the **Options / Bar-Code Reader Communication** menu.

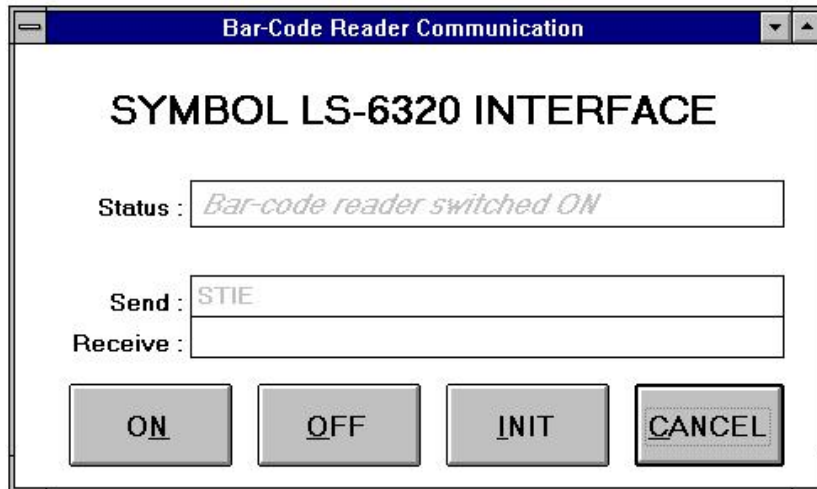


Figure 12. Bar-Code Reader Test window

Status

This window displays the bar-code reader commands.

Send / Receive

These fields displays the bar-code Reader communication.

ON

This Button sets the bar-code reader laser ON.

OFF

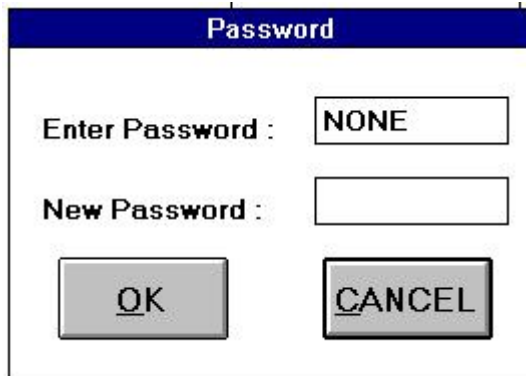
This Button sets the bar-code reader laser OFF.

INIT

This Button writes the new settings into the bar-code reader.

2.6 The Password Form

You can set a password to restrict switching from **AUTO** mode to **MANUAL** mode. Push the **Password** button. A password dialogue box will pop up. If you write **NONE** in the password text box, no password is needed for switching to manual mode.



The image shows a dialog box titled "Password". It has a blue title bar. Inside, there are two text input fields. The first is labeled "Enter Password :" and contains the text "NONE". The second is labeled "New Password :". Below the fields are two buttons: "OK" and "CANCEL".

Figure 13. Password window

2.7 Editing the ADR1RDR.INI File

The ADR-1 Reader settings are automatically saved in the ADR1RDR.INI file which is in the same directory as the ADR1RDR.EXE program (defined during the Set-up) but the ADR1RDR.INI file can also be created and edited outside the program by using any text editor.

The format of the file is shown below with a comment describing the function of each line (the comments are NOT part of the actual file):

COM2	'COM Port setting
3	'Radiological Test Time
0	'Counts From value
9999	'Counts To value
N	'Log Printout
N	'Bar-Code Reader
Y	'Use pop-up touch screen

NOTE!

There must not be any blank lines above the first line or between the individual lines!

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