Personal Radiation Detectors Data Collection and Processing Software

User Guide

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Introduction

Polimaster PRD (Personal Radiation Detectors) Data Collection and Processing Software is designed to work with Polimaster Personal Radiation Detectors (PRD). The main purposes of this software are the following:

- The collection and retention of all measurement data from a PRD instrument. This data is stored in the internal instrument memory since the last time it was connected to the PRD software. After the data is downloaded and stored in the database, it is deleted from the PRD instrument.
- Adjusting of the PRD instrument internal settings, such as various measurement coefficients, thresholds, enabling\disabling the vibration and sound alerts, etc.
- Working with the instrument history database. The database stores all the data downloaded from each instrument that has been connected to software. Please note, that only history of instrument registered to a database user are stored, history of any unregistered instrument is discarded and not deleted from the instrument.

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Getting Started

After the installation of the PRD software it will appear on the **Start** – **All Programs** – **Polimaster PRD** menu. Click the **PM PRD** shortcut in this menu to start the program. When Polimaster PRD Software is running, its icon is displayed in the Windows tray:

Right-click on this icon to access the available PRD Software functions:

- **Information system** — opens the user database and instruments' history.
- **Instrument settings** — opens the dialog box for reading, adjusting and recording of the PRD instrument internal parameters.
- **Program settings** — opens the dialog box for adjusting of the software configuration.
- **Exit** – exits the program.
- **Help** – displays this help.

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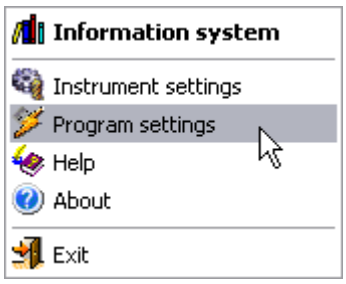
Software Setup

To access to the internal settings of the Polimaster PRD Software right-click its icon ( ) in system tray and select the **Program settings** command from the subsequent menu:



The Program settings window will be displayed.

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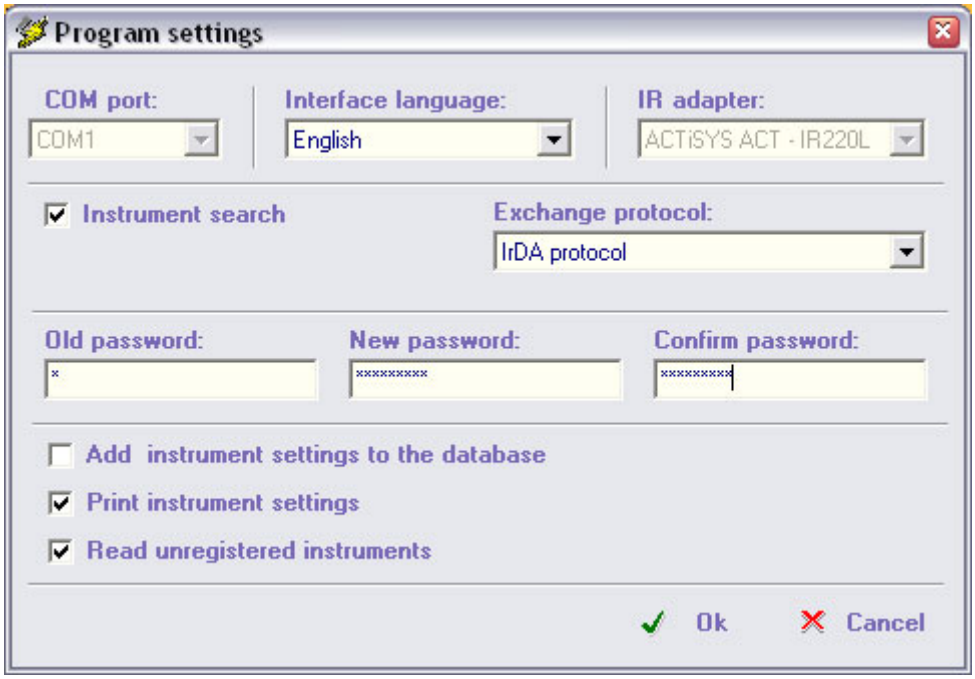
Program Settings

Program Settings dialog box is accessed by right-clicking the PRD Software tray icon and selecting the **Program settings** command from the subsequent menu. The following dialog box will be displayed:



COM Port — specifies the communication port through which the connection with the PRD instrument is performed. This control is disabled if you select to use **IrDA protocol**, because in this case the default system infra-red port is used.

Interface language — specifies the PRD Software user interface language. Two languages are available: English and Russian.

IR Adapter — using this control you can specify the type of Infrared adapter you are using. This control is disabled if you select to use **IrDA protocol**, because in this case the default system infra-red port is used.

Instrument search — if this option is enabled, the program performs continuous search for the instrument located in the IR adapter reception area and performs reading of the history from any detected instrument.

Exchange protocol — specifies the data exchange protocol to be used when communicating with the PRD instrument. Please follow the recommendations below when selecting the proper protocol:

- In case you use a USB IR adapter, select **IrDA protocol** from protocol list.
- In case a serial port IR adapter is used, both "**IrDA protocol**" and "**IrDA simulation**" protocols can be used. However **IrDA protocol** is recommended.
- In case the combination of a serial port IR adapter and **IrDA simulation** protocol is used, it is required to select the COM port where the IR adapter is physically connected (usually COM1 or COM2) and disable any IrDA Adapter driver if it is installed. It is impossible to use one serial port IR adapter in both IrDA and IrDA simulation modes.

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- In case you use Bluetooth, please choose **“Bluetooth protocol”** from protocol list.

Password fields — are used to change the current password for the access of the Instrument settings page. The default password is "1".

Add instrument settings to the database — if this option is enabled, both the instrument settings and its history will be stored in the database after reading of the data from the instrument. If this option is disabled, only the history of the instrument will be stored in the database.

Print instrument settings — if this option is enabled, both the instrument settings and its history will be printed out when the user presses the **Print** button after reading of the data from the instrument. If this option is disabled, only the history of the instrument will be printed out.

Read unregistered instruments — this option allows/forbids the reading of history and data from instruments not registered in the database.

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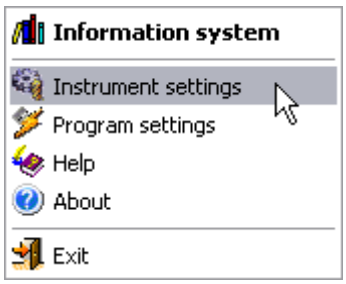
Instrument Setup

To access to the dialog box for adjusting the connected instrument internal parameters right-click its icon ( ) in system tray and select the **Instrument settings** command from the subsequent menu:



You will be prompted to specify the access password. The default password is "1".

If the access password is specified correctly the Instrument settings window will be displayed.

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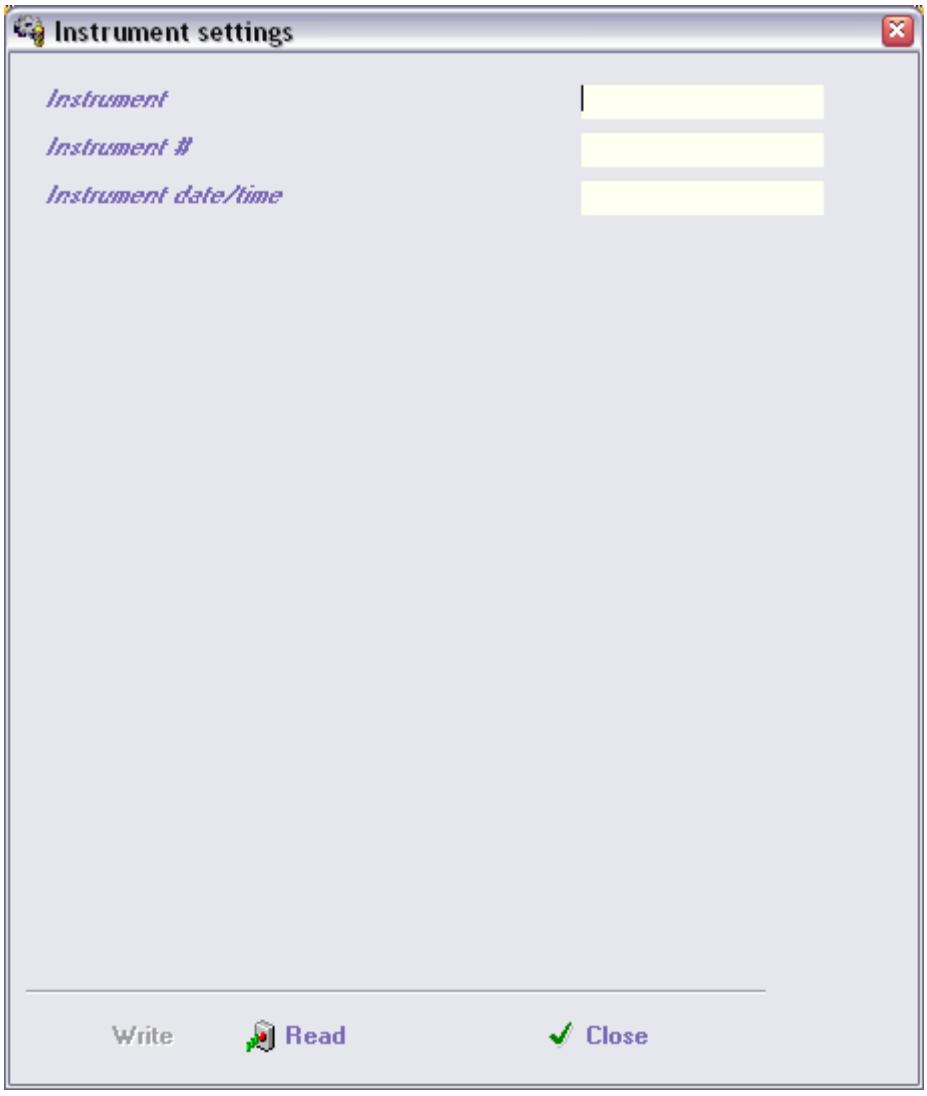
Instrument Settings

Important note

It is not recommended to change the factory preset settings by untrained users, since it may cause incorrect instrument operation.

Instrument Settings dialog box is accessed by right-clicking the PRD Software tray icon and selecting the **Instrument settings** command from the subsequent menu. The following dialog box is initially displayed:



Before reading the data from the instrument make sure it is connected.

To read the instrument data press the **Read** button in the window shown above. When Instrument Search message is displayed make sure that the PRD instrument is in the IR communication mode (Ir is displayed on its LCD). To switch on the IR communication mode press the **Light** button on the detector.

After the instrument settings are read they will be displayed in the window:

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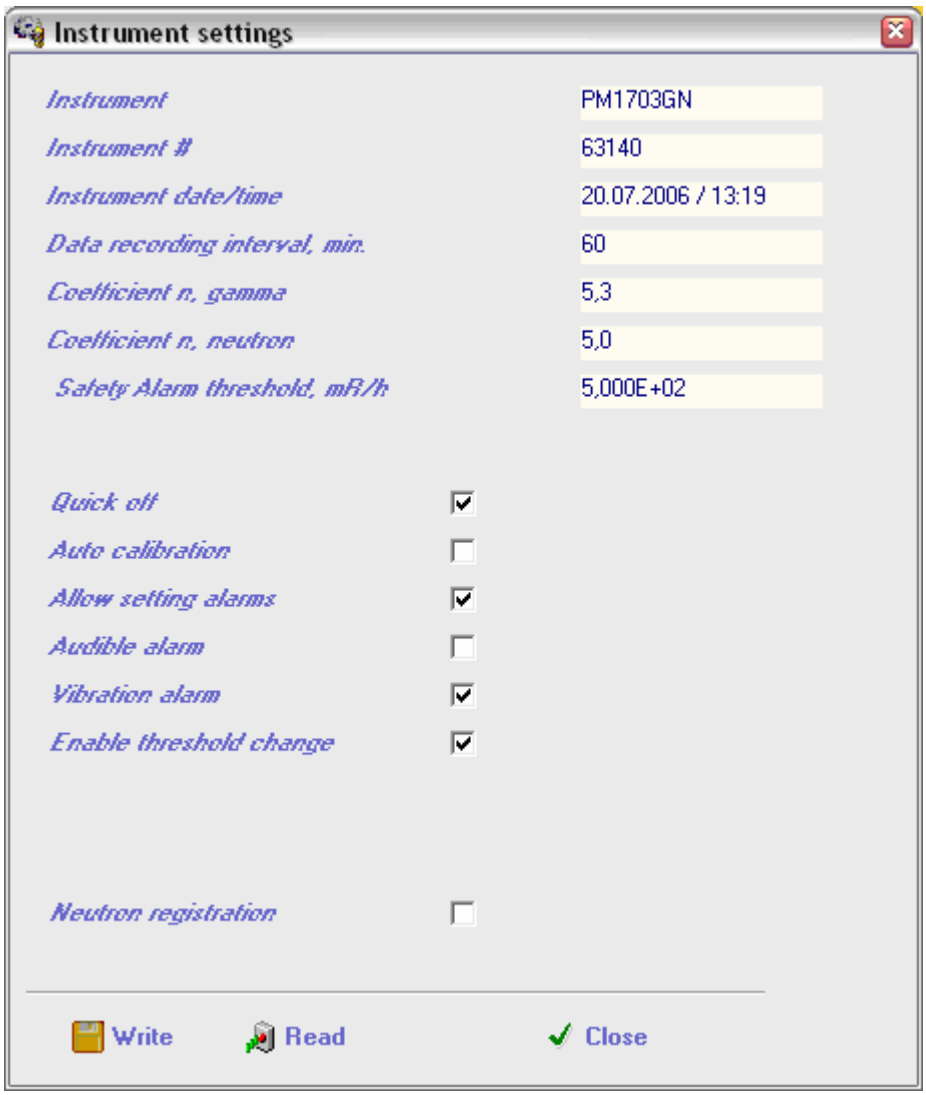

If it is necessary to change any instrument settings, do it and press the **Write** button when finished. Again make sure that the PRD instrument is in the IR communication mode (Ir is displayed on its LCD). To switch on the IR communication mode press the **Light** button on the detector.

The following settings are available depending on the PRD model:

Read-only settings:

- **Instrument** — instrument type.
- **Instrument #** — instrument serial number.
- **Instrument date/time** — date and time preset in the instrument.

Read/Write settings:

- **Data recording interval, min** — value of time intervals in which the current count rate values are recorded in the instrument memory.
- **Coefficient n, gamma** — the value of the number of measured deviations (coefficient n) for gamma radiation. Please see PRD Instrument Operation manual for more information.
- **Coefficient n, neutron** — the value of the number of measured deviations (coefficient n) for neutron radiation.

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- **Calibration time, sec**. — count time in the background updating mode. Default value is 36 sec. It is not recommended to change this parameter unless you fully realize the consequence.
- **Safety Alarm threshold** — the value of the Safety Alarm threshold. Please see PRD instrument Operation manual for more information.
-

- **Threshold Geiger, Sv/h** – the value of the DER threshold for Geiger-Muller detector (only for PM1401K).
- **Neutron threshold –** the value of the Neutron threshold.
- **Search threshold** — the value of the Search threshold. Please see PRD Instrument Operation manual for more information.

- **Quick off –** this option allows/forbids the instrument quick-off function. That is the ability to switch off the instrument using only one button. If this option is enabled the instrument can be switched off by pressing the **Light** button and holding it for 5 seconds.
- **Auto calibration** — switches on/off the automatic calibration mode. When this mode is ON, the instrument takes into account “slow” changes in background level. It is calibrated every ten (10) minutes when the background level changes.
- **Allow setting alarms** — allows\forbids the user to switch on or off the audio and vibration alarms using the instrument buttons.

- **Audible alarm** — switches on/off the instrument audio alarm.
- **Vibration alarm** — switches on/off the instrument vibration alarm.
- **Enable changes coeff. n** — enables\forbids the user to change the value of coefficients for gamma and neutron radiation using the instrument buttons.
- **Variation coeff. indication** — switches on/off the indication of variation coefficient.
- **Neutron registration** — switches on/off the Neutron registration mode.
- **Time before data recording —** the time interval, after which the first current count rate value is recorded in the instrument memory.

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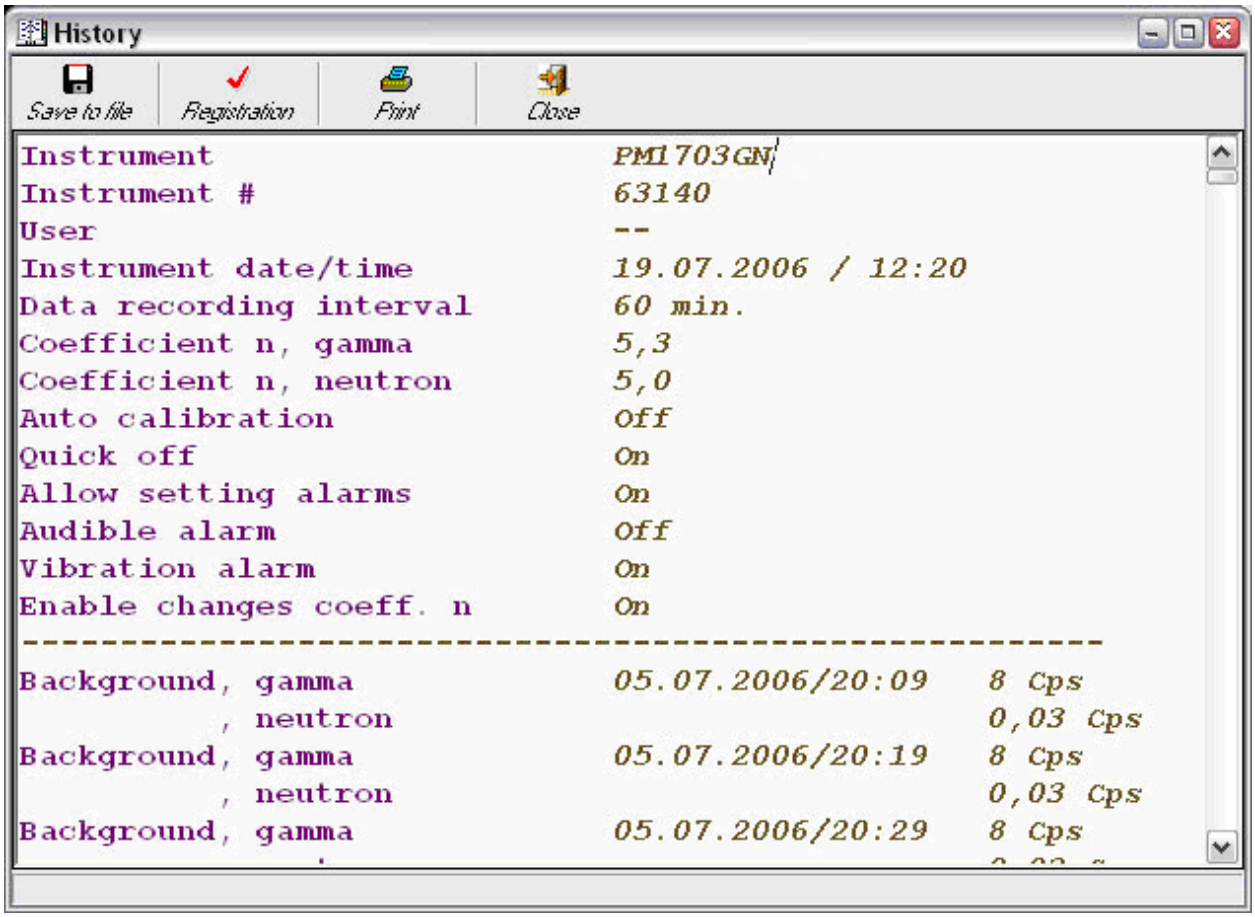
Data Collection and Storage

When a Personal Radiation Detector is connected with the PRD software (via Bluetooth or IR protocol), the downloading of the instrument measurements history should start automatically. After the *Reading history* progress bar finishes a dialog box is displayed showing all the information read from the instrument.



Using toolbar buttons of this dialog box you can:

- Save all the read history to a text file.
- Register a new database user and save this information for this user. After the information is saved to the database it is automatically deleted from the instrument memory.
  Please note: in case the instrument is already registered to a database user, all the read information is automatically stored in the database for this user and deleted from the instrument memory when you press the *Close* button.
- Print out the PRD instrument history and data.

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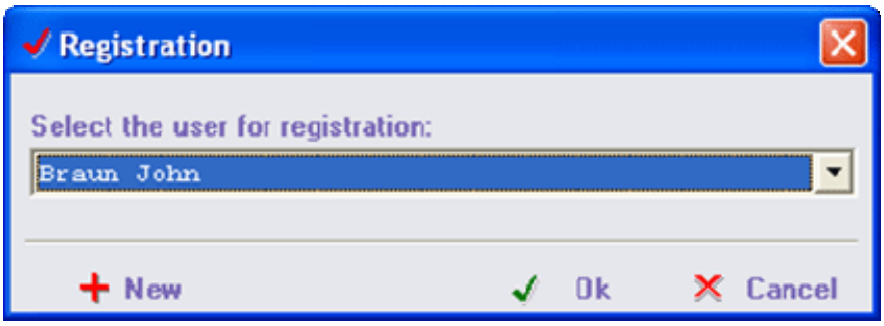
Registering the Instrument

All PRD instruments must be registered in the database in order for the PRD software to be able to save the read data. Each instrument is registered to a certain database user, so that it would be possible to track down who performed this or that measurement.

After the instrument history is read, if it is registered to a certain user, the user information will be displayed in the **User** field and instrument history will be automatically added to the database and erased from the instrument. If the instrument is not registered to any user, the instrument history will not be added to the database and erased from the instrument. In order not to loose the measurements it is necessary to register the instrument by pressing the **Registration** button.

The following window will be displayed:



In the above window select the required user from the list for instrument registration and press **OK.** If the required user for instrument registration is not on the list, he/she can be added by pressing the **New** button.

To finish the registration process, press **Light** button on the instrument to enable IR communication when the corresponding software prompt is displayed. The history will be added to the database and deleted from the instrument. The instrument serial number will be registered to the user.

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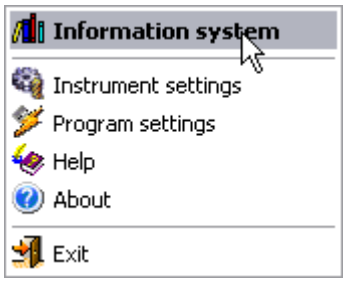
Database Management

All data read from the PRD instruments is stored in the program database to the folder of the user, the specific instrument is registered to. It is possible to read the data from unregistered instruments, however the instrument must be registered anyway before storing of the instrument data to the database. To access the users and instruments history database right-click the PRD software icon ( ) in system tray and select the **Information system** command from the subsequent menu:



The Information system window will be opened allowing you to browse the instruments database, add new users, delete the existing ones, archive old data, or export the stored data to a file.

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Users List

When you open the PRD Software Information system, the list of users registered in the database is displayed. The user list represents a list of people, who have their information stored in the database. There is a possibility to add new user into the list, view and change user information. It can be done either by selecting of the required command from the *User* menu, or by pressing the corresponding toolbar button. Hint: place the mouse cursor above a toolbar button and wait two seconds to see the button tooltip specifying the button functionality.

An instrument can be registered to any user existing in the database, and instrument history can be then stored in the user folder. If a user has a registered instrument, the instrument serial number (#) and type is shown in the column **«Instrument #»**.

Also the program provides the possibility to move the user and his history into archive (archive database) deleting all the information from the main database. The information is not deleted permanently, and can be viewed later by accessing the archive database. It is also possible to print out the users list.

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Adding a New User

To add a new user to the database select the **New user** command from the **User** menu or press the corresponding toolbar button ( ), or press the Ctrl+N short-cut. The following form will be displayed:

Please note, that the first and the last names are the required fields.

Press OK to create the new user or Cancel to skip the creation process. If the specified user already exists in the database, the corresponding error message will be displayed.

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Editing User Information

To edit the information of an existing user in the database select the **Edit** command from the **User** menu or press the corresponding toolbar button ( ), or press the Ctrl+U short-cut. The following form will be displayed:

Please note, that the first and the last names are the required fields.

Press OK to save the edited information or Cancel to skip the editing process. If the specified user already exists in the database, the corresponding error message will be displayed.

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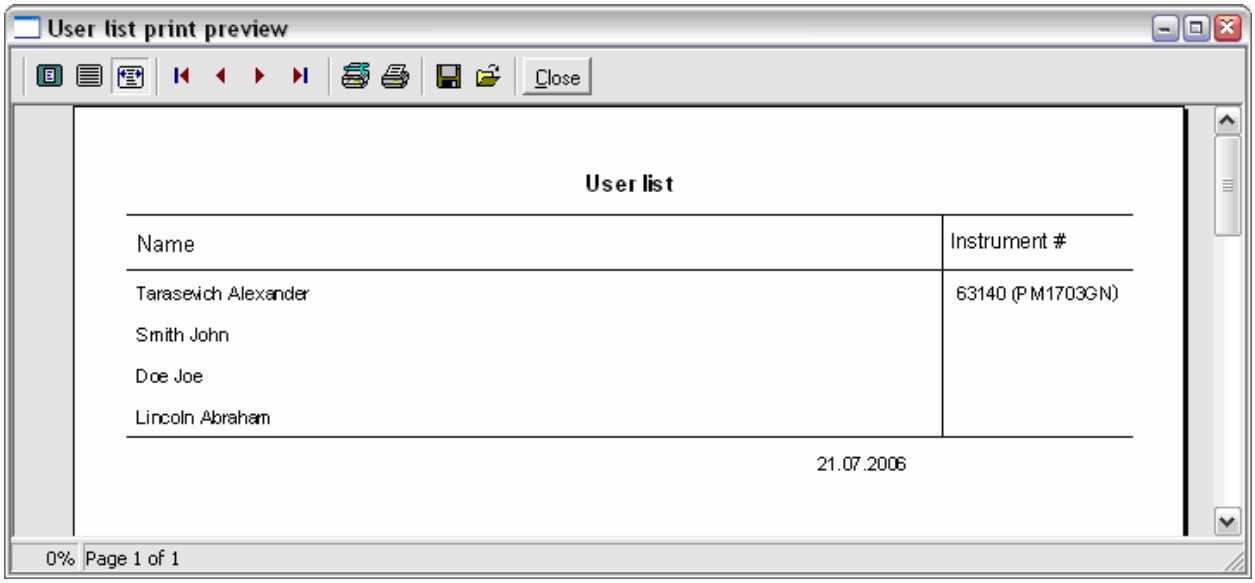
Printing the Users List

Before printing out the instrument history make sure you are in the users list mode, the users displayed in the table will be printed out. To print out the users list, select the **Print user list** command from the **User** menu or press the corresponding toolbar button ( ) . The print preview page will be displayed, from which you can print out the list of users, as well as to save the list to the disk:



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Cancelling the Instrument Registration

Each user in the database can have an individual PRD detector registered to him\her. It is possible to void the instrument registration to a certain user by selecting the **Cancel instrument registration** command from the **User** menu or press the corresponding toolbar button ( ). After confirming the registration cancellation, the instrument will no longer be associated with the user it used to be, and it will be necessary to register the instrument to another user in order to be able to save the instrument data and history in the database.

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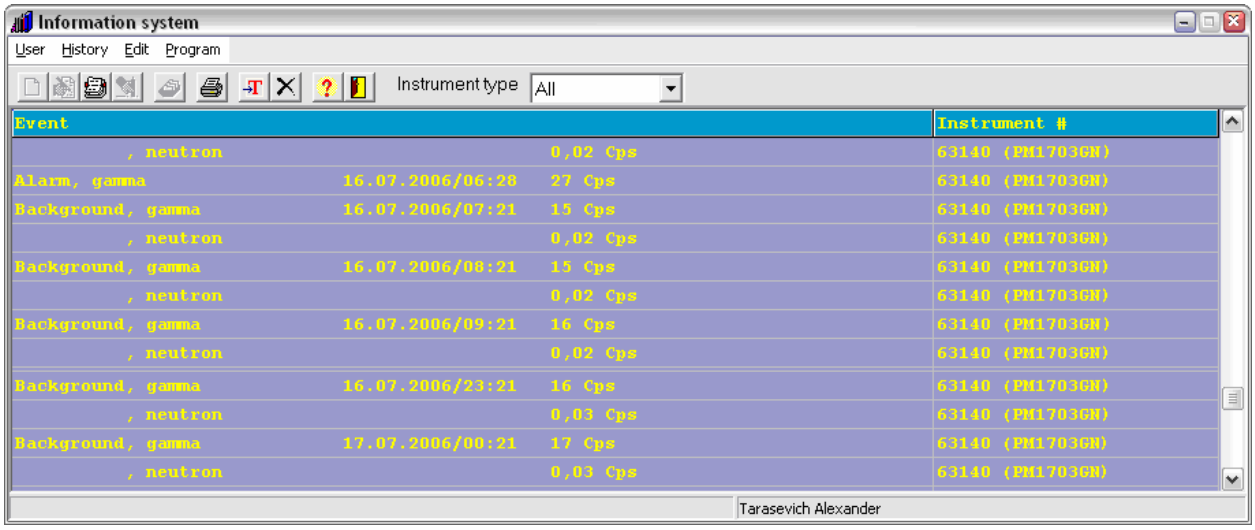
Viewing Instrument History

To see the history and measurements performed by the PRD instrument registered to a specificc user simply double-click the user in the users list or select a user and activate the **View history** command from the **History** menu (Ctrl+H shortcut) or press the corresponding toolbar button ( ). All data for the selected user's instrument will be displayed:



To return to the list of users press the corresponding toolbar button ( ) or activate the **User list** command from the **History** menu.

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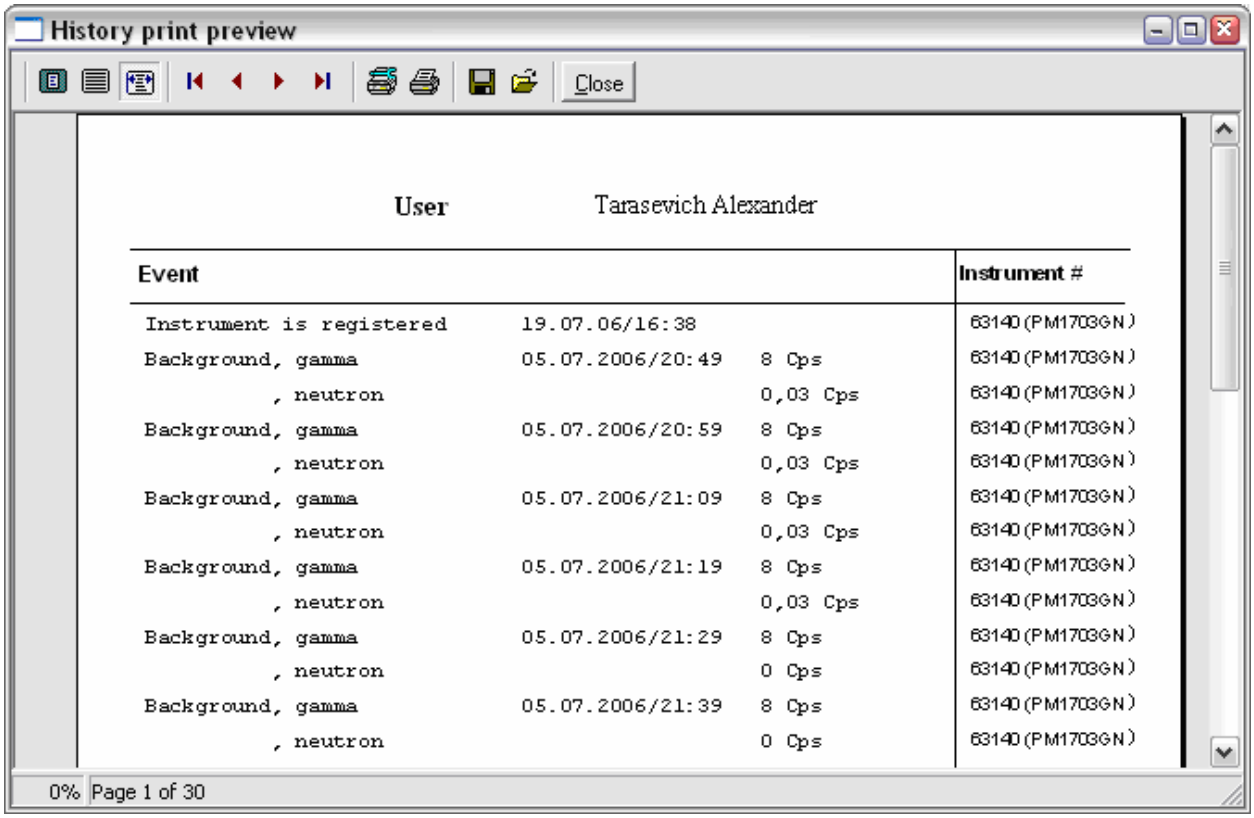
Printing the History

Before printing out the instrument history make sure you are in the history view mode, the events displayed in the table will be printed out. To print out the measurements history, select the **Print history** command from the **History** menu or press the corresponding toolbar button ( ).

The print preview page will be displayed, from which you can print out the history, as well as to save it to the disk:



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Moving Data to the Archive

The PRD Software does not allow to delete any data stored in its database. Instead, the unused data is moved to the archive. The process is similar to deleting Windows files, when they are not actually deleted by just moved to the trash bin. It is possible to move to the archive just the user history or the user together with his history.

To delete information of a certain user you have to select him in the list and press the Delete key or Delete toolbar button ( ). The further program behavior depends on whether the user has an instrument registered to him:

- If no instrument is registered to the user, the user will be deleted from the list along with all instrument history he may posses. All the data will be moved to the archive.
- If there is an instrument registered to the user, the user will not be deleted from the list, just all his history will be moved to the archive.

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Viewing the Archive

The archive database contains all the users and data that were deleted from the main PRD Software database. To view the archive it is necessary to select the **Archive** command from the **History** menu or press the corresponding toolbar button ( ). You will be prompted to select the database file where the archive is stored. By default the archive is stored to the *ArchDb.mdb* file, which is situated in the *Archive* folder of the software installation directory (e.g. *C:\Program Files\Polimaster\Polimaster PRD\Archive*).

The archive database represents the same list of users as the main database, with the same way of browsing it.

It is possible to restore a user or user data to the main database. For this purpose you have to select the user and activate the **Move user to the main user list** command from the **Edit** menu, or press the corresponding toolbar button ( ).

It is also possible to restore the instrument history when viewing it in the archive. For this purpose you have to select the **Move events to the main list** command from the **Edit** menu when viewing the history for a certain user, or press the corresponding toolbar button ( ).