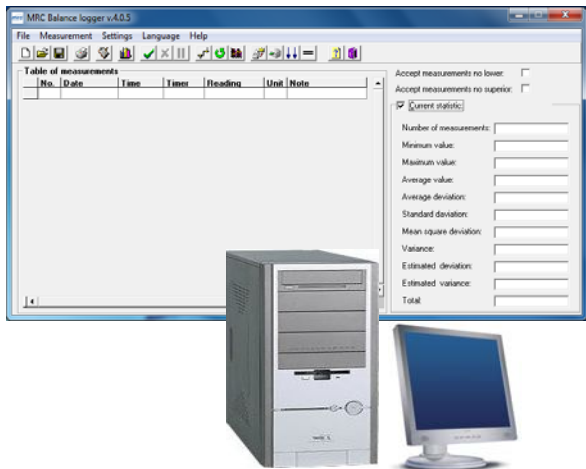# User Manual

Computer Program „MRC Balance logger"

Manual number:
01 2011-05-ENG

Version: 4.0.X

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TABLE OF CONTENTS

1. INTENDED USE

Program **„MRC Balance logger"** has been designed for collecting measurement data form scales made by **MRC LTD**. and performing some statistical calculations.

Basic program functions:

- Reading data from scales, recording measurements in a file,
- Possibility of manual or automatic readings of measurements,
- archiving of measurement data in a file,
- visualization of measurement data in a chart,
- statistical processing of measurement data,
- creating reports from the selected set of measurements.

Notice:
MRC *shall not be liable for any errors resulting from wrong use of the program.*

2. INSTALLATION
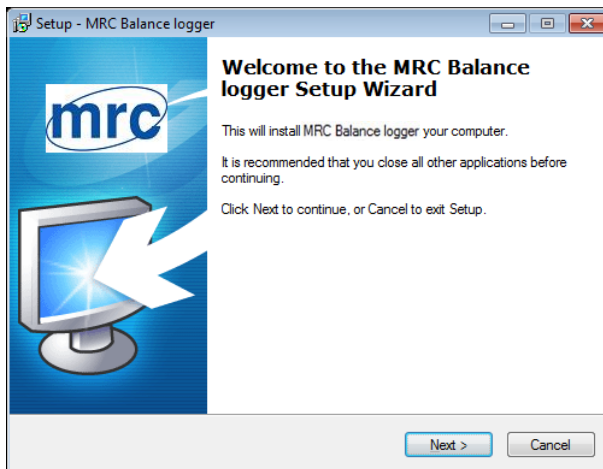
2.1. System requirements

Minimum requirements:

- Processor INTEL or AMD >= 1200 MHz,
- RAM minimum 256 MB (recommended 512 MB),
- Graphic card SVGA (resolution minimum 1024x768 with 24-bit colour palette),
- Communication port RS-232,
- Free space on a Hard Drive >=1 GB,
- Mouse,
- Keyboard,
- A colour monitor with a resolution of 1024x768,
- System Windows XP/2000/Vista/7,
- Printer (format A4),
- Software for reading pdf files (for manuals),
- Basic computer operation skills.

2.2. Installation procedure

In order to install the program put the installation CD to the CD-ROM drive. An installation program of **„MRC Balance logger"** should start running automatically. If the installation is to be performed manually run program **<Install_MRC_Balance_4.0.5.exe>** in the main folder of the CD.
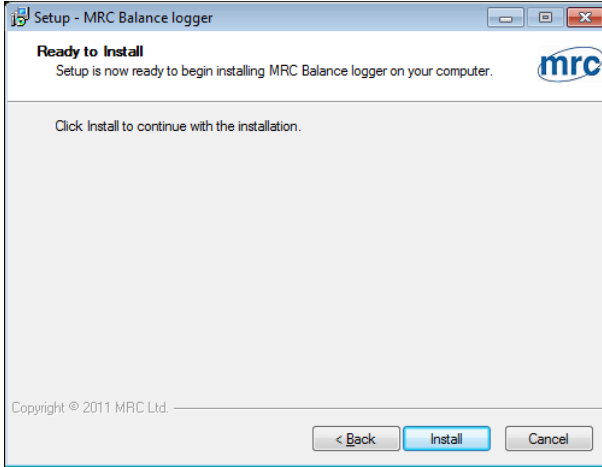
Follow the instructions in the subsequent windows.
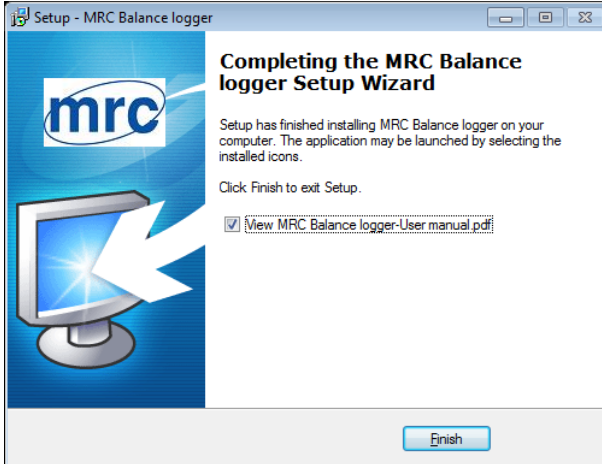
The welcome window of the installation wizard:

Press **„Next"** to continue.

The Ready to Install window:

Press button **"Install"** to continue.

The installation completion window:

Then **" MRC Balance logger"** will be quickly installed.
Press **"Finish"** to close the installation wizard.

2.2.1. Program update

In case when program **" MRC Balance logger"** has already been installed on a computer and when the user starts to install a new version of the program, the whole installation process is similar to that when it is installed for the first time.

Notice:
Before the installation wizard is started it is advisable to make
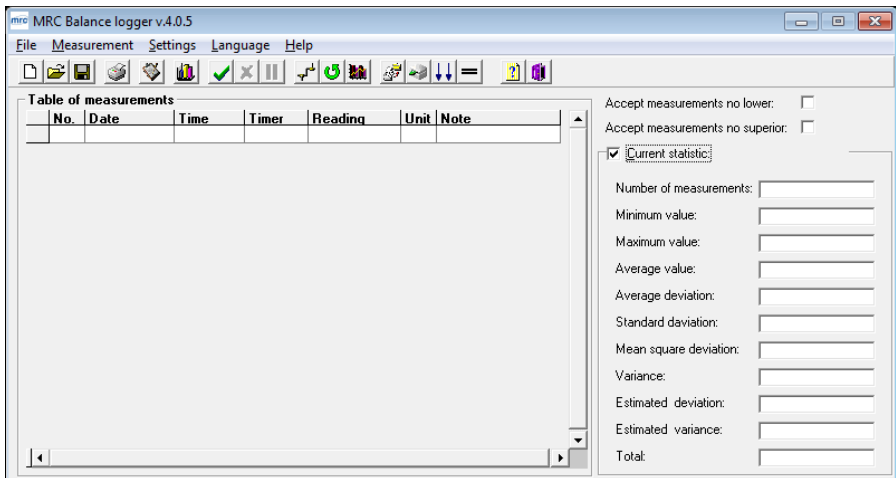*a backup copy for the program folder. Default folder is:*
<C:\Program Files\MRC\MRC_Balance_log\>.

3. STARTING PROGRAM

The program may be run by clicking the shortcut icon on the desktop:

The program may also be started from the START menu:
"**START/Programms/MRC/MRC Balance"**.

3.1. Main window

After starting the program the main window is displayed:

It allows for displaying collected weighings and statistics in real time.

The main program options can be accessed from the menu or buttons in the tool bar. There are additional buttons to set data to be accepted by the program:

- It the cyclical mode is enabled the icon is displayed, otherwise can be seen, the cycle interval is set in the program which requests a reading in every cycle.

- If the continuous mode is enables the icon is displayed, otherwise can be seen,

- If the scales sends stable data it is signalled by icon , otherwise icon can be seen.

Notice:
*When the weighings are collected the statistics are calculated in real time after every weighing. It can cause some problems on computers with low processor capacity. The program may slow down some operations or even the operation in real time may be impossible. In such case option **„Current statistics"** needs to be disabled.*

3.1.1. Window description

Title bar – displays program name and version. Standard windows buttons allows for minimizing, maximizing or closing the window:

Main menu – a menu with all functions of the program:

File   Measurement   Settings   Language   Help

Buttons in the toolbar – buttons with direct access to some functions:

Buttons' description:

🗋	Open new series of measurements
📂	Open an existing series of measurements in file with extension *.ser
💾	Saves current weighings from the table to a file
🖨	Prints current measurements and statistics
📝	Opens the report window
📊	Shows the chart of weighings
✔	Starts automatic operation
✖	Terminates automatic operation
‖	Holds automatic operation
⌐	Opens program settings
🔄 🔴	Opens cycle settings
📈	Opens chart settings
📋	Reads one measurement from a scale
⬜	Tares scale
↓↓ ✖	Initiates or terminates continuous transmission
= ✂	Enables / disables non-stable readings
❓	Displays help
🚪	Closes program

Table of measurements – an area for displaying measurements:

	No.	Date	Time	Timer	Reading	Unit	Note	
	1	2010-09-13	15:00:55	0	0,990	kg		
▶	2	2010-09-13	15:00:55	0	0,990	kg		

Window of Statistics – displays statistical information about measurements.

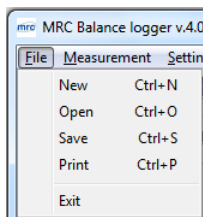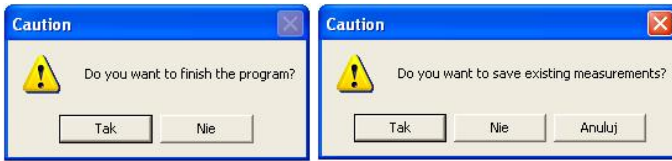|	
Accept measurements no lower:	☐
Accept measurements no superior:	☐
☑ Current statistic:	
Number of measurements:	2
Minimum value:	0,990
Maximum value:	0,990
Average value:	0,990
Average deviation:	0,000
Standard daviation:	0,000
Mean square deviation:	0,000
Variance:	0,000
Estimated deviation:	0,000
Estimated variance:	0,000
Total:	1,980

After choosing one of options **„Accept measurements no lower / no superior"**, a window to describe a limit value will appear.

3.1.2. Close the program

Closing the application is possible after pressing button or choosing item **„File/Exit"** in the menu:

mrc MRC Balance logger v.4.0		
File	Measurement	Settin
New	Ctrl+N	
Open	Ctrl+O	
Save	Ctrl+S	
Print	Ctrl+P	
Exit		

Closing the program and some windows is preceded by displaying a dialogue window to confirm or contradict the operation.:
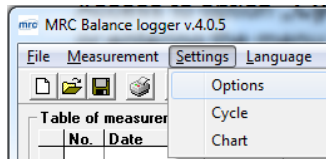

3.1.3. Help

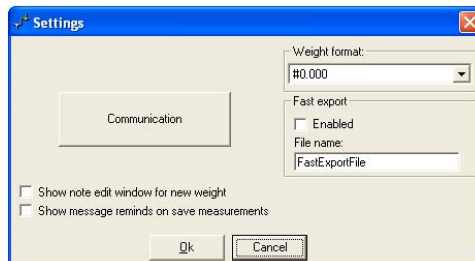Info window will be displayed after pressing [?] or choosing item **"Help"** in the menu:

4. SETTINGS MENU

4.1. Options

The access to menu item **"Options"** is possible after pressing button ⌐┘ or entering submenu **"Settings/Options"**:
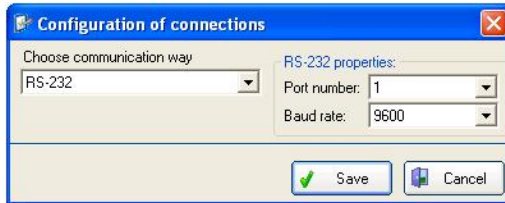

In menu **"Options"** parameters of communication with a scale are set. Connect the scale to an RS232 COM port or Ethernet and then carry out configuration of parameters according to the description.

Communication

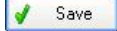The button for accessing a configuration window for defining the connection with a scale.

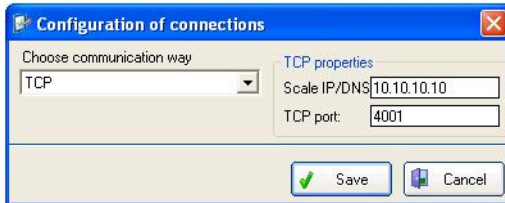- **Communication via RS-232**

Description:

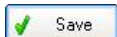|	
Port Number	Serial port number to be used for communication with scales
Baud rate	Communication speed, the same as set in scales
Save	Save settings
Cancel	Cancel settings

- **TCP communication**

Description:

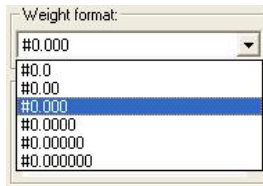|	
Scale IP/DNS	IP address used by a scale
TCP port	TCP port number used by a scale
Save	Save settings
Cancel	Cancel settings

Measurement Format

Set displaying format.

After modifying it the changes will be visible after restarting the program in the table of measurements.
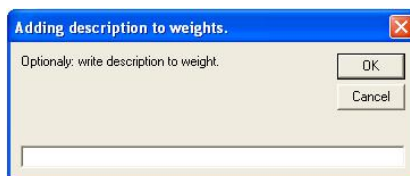
Fast export

After enabling the option measurements from the table will be automatically saved to file ***.csv** with given name. Subsequent savings are added to the file.

Choosing the item **"Save"** in menu **"File"** causes clearing the table and saving measurements in the right file. Saving measurements to a file with extension ***.ser** is not possible then.

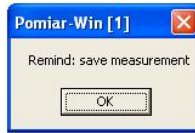**Editing description**

When option **<Show note edit window for new weight>** is selected, after every measurement a window can be displayed for typing a description of the measurement.

Editing records form the table of weighings is possible as well (main program window) after double-click on a measurement.

Saving remainder
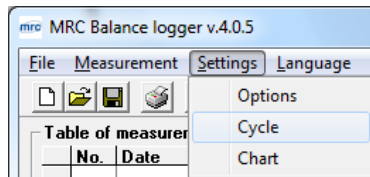
When option **<Show message reminds on save measurements>** is selected then when 18 measurements are overpassed, so the list in the table of measurement is full, the message window below is displayed:
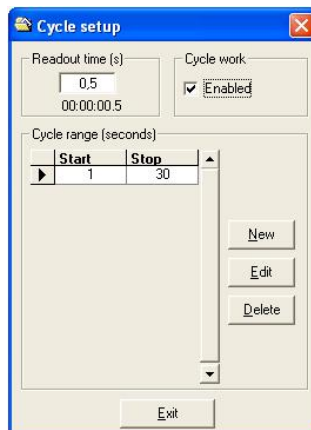

All changes in configuration will be introduced after pressing button **"OK"**.

4.2. Cycle

Access to option **"Cycle"** is possible after pressing button
or entering the menu item **"Settings/ Cycle**:

In the program you can set a time interval between subsequent reading and enable the cyclical readouts.

Subsequent readouts with time interval (s)
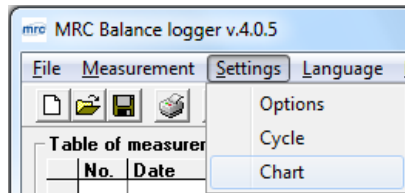
Setting the time in seconds for subsequent readings of measurement from a scale. The minimum range is 0.5 s – and maximum 86399 s.
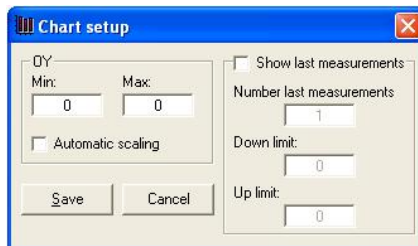
Cyclical operation

Enables operation of the program with the declared step. Numbers in fields mean quantities of seconds which have elapsed from the first measurement.

4.3. Chart

Setting options for **„Chart"** is accessible after pressing or choosing menu item **„Settings/Chart**:
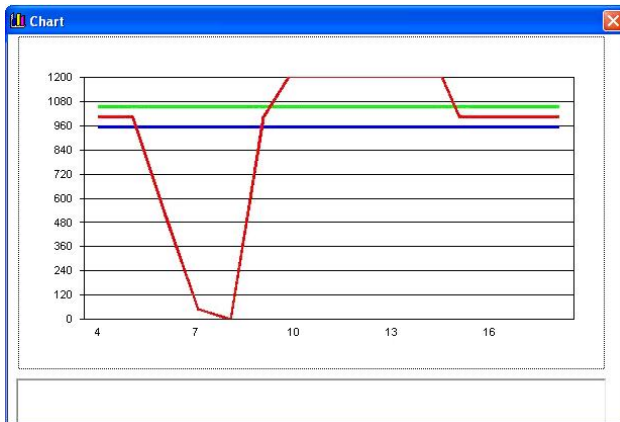

Window **„Chart setup"** allows for changing the look of the chart:

In fields **Min** and **Max** set the range of values you want to see in the chart. If you do not want to limit the range tick the option **„Automatic scaling"**.

After enabling option **„Show last measurements"**, you can limit the number of measurements put in the chart to the quantity declared in field **„Number last measurements"**. Additionally you can display two horizontal lines that would represent some limitations for measurements or simplify readings.
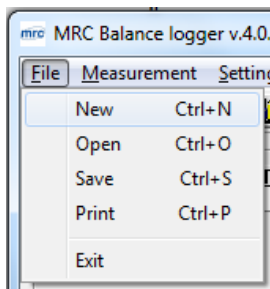
Example chart:

Colours:

Red	Measurements
Green	Top threshold
Blue	Bottom threshold

5. FILE MENU

Different file functions are accessible after pressing buttons:
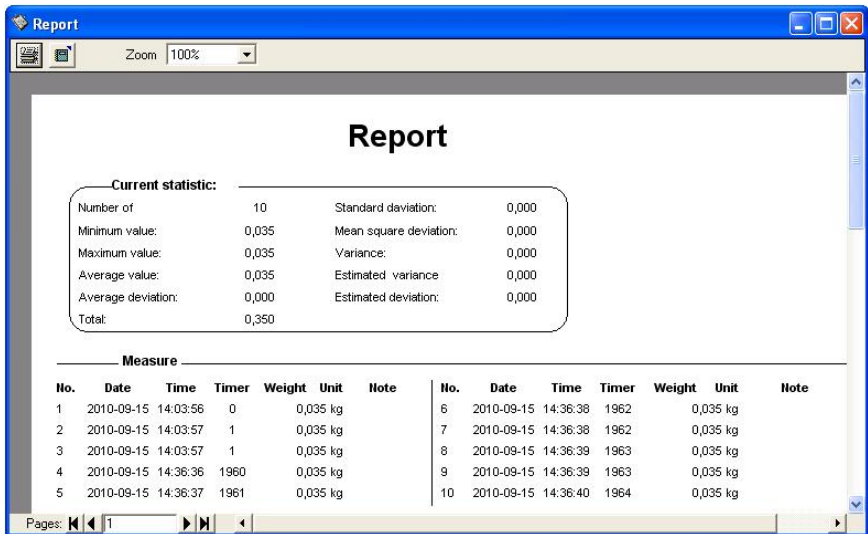
🗋 📂 🖫 🖨 or choosing items in menu **"File"**:

File menu items:

New   Starting a new series of measurements, deleting current measurements and statistics.

Open   After opening a file measurements from the file will be recovered and as well as statistics saved in file with extension *.ser. If current measurements are included in the table of measurements a warning is displayed and users can save them before erasing.

Save   Saving current measurements from the table of measurements. Type a file name and choose a folder to save the file. The saved files will have extensions *.ser (series) or *.csv, depending on settings. After savings the table of measurements is emptied and statistics zeroed.

Print   Printing weighings and statistics. After choosing the item a printout view is displayed. Press the printer icon in the window to print the data.

Exit   Closing the program

The view of general report generated from measurements and statistics:

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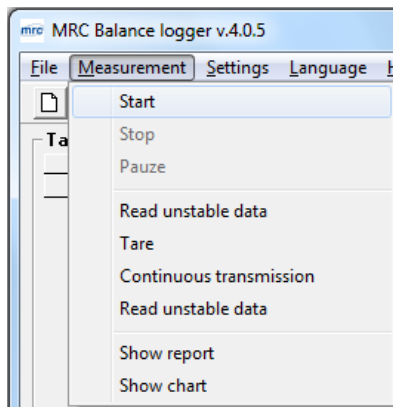
6. MEASUREMENTS

Notice:
In case of lack of communication between the program and a scale check the configuration of connection in the menu:
"Settings/Options/Communication".

6.1. Automatic operation

The automatic operation is started by pressing button or choosing item **"Start"** in the menu **"Measurements"**:
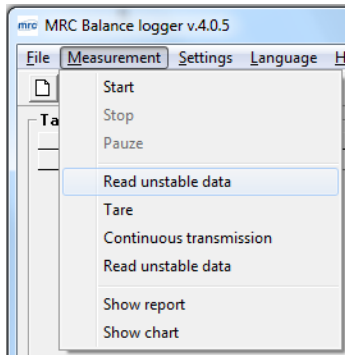

The frequency of readings is set in window **"Cycle setup"** (see section 4.2). If the cyclical operation is enabled the program fetches data in the predefined cycles. In other cases measurements are fetched continuously (with maximum speed for the baud rate). The automatic operation stops after pressing button or item **"Stop"** in the menu **"Measurements"**.

The automatic operation can be terminated after pressing button or item **"Pauze"** in the menu **"Measurements"**.
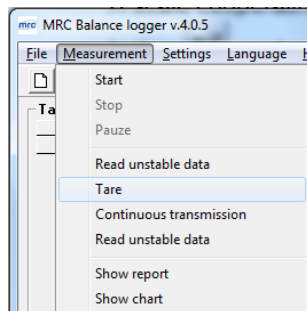
6.2. Read

In order to read data from a scale press button or choose item **"Read stable data"** in the menu **"Measurements"**:

You can press button „**Print**" on the scale.

6.3. Tarring

A scale cooperating with "**MRC Balance logger**" software can be tarred by

pressing button [icon] or choosing item **„Tare"** in the menu
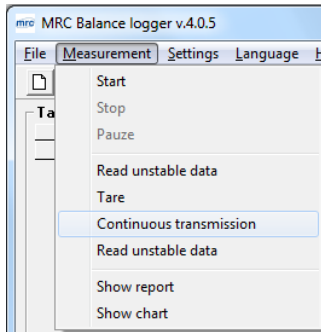**„Measurements"**:

The scale will display **0**, and all performed measurements will be of net value.

6.4. Continuous transmission

Starting the continuous transmission causes the scale to send data to the computer without any requests.

Press button [icon] to start the continuous transmission or choose item
„Continuous transmission" in the menu **„Measurements"**:
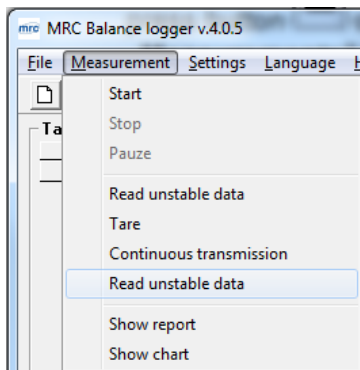
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A window informing about receiving data is displayed.

Press button ⚔ to stop continuous transmission or press **"Esc"** on the keyboard. Then measurements will be copied to a database.

6.5. Reading non-stable data

If we want to register data without checking if results are stable or not

press button ▭ or choose item **"Read unstable data"** in menu **"Measurements"**:
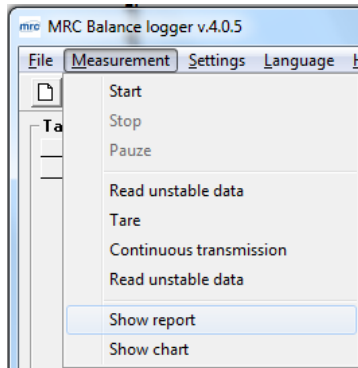
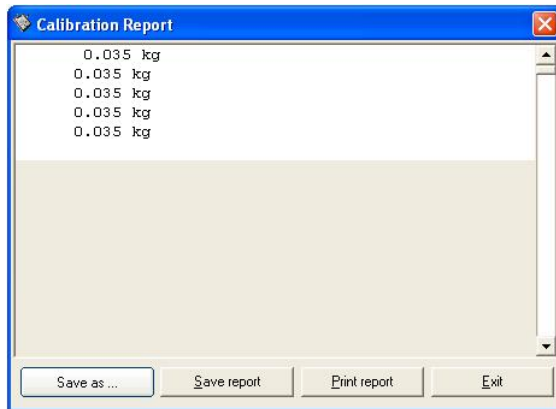If a scale sends **"non-stable"** data icon is displayed in the toolbar.

If the scale sends **"stable"** data icon is displayed in the toolbar.

6.6. Calibration report

In order to show all data send by a scale (not only measurements) press

icon or choose item **"Show report"** in the menu **"Measurements"**.
It can be used e.g. for receiving and saving calibration reports.

Calibration report window:

Data can be saved to a text file by pressing button **"Save as…"** and/or print to a ***.pdf** file by pressing button **"Print report"**.

6.7. Chart

Collected measurements can be presented as a chart. Press button or **"Measurements"** in the menu and submenu **"Show chart"** to draw the chart:
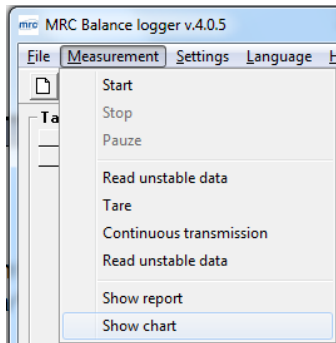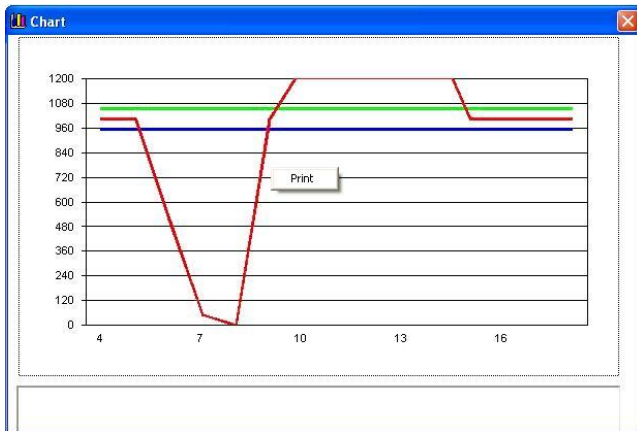

Chart parameters can be changed in window **"Chart setup"** (see section 4.3). In order to print the chart right-click the chart and choose **"Print"** from the pop-up menu.

7. LANGUAGE

Users can change the language after choosing "**Language"** in the menu:

Confirm the choosen language by pressing "**OK"**, then the following message window appears:

After pressing "**OK"** the program needs to be rerun to use the new settings.