SatisGeo

*instruments for geophysics & environment*


# KAPPAMETER KM-7

## Pocket Magnetic Susceptibility Meter

## OPERATION MANUAL

2011

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# 1 INTRODUCTION

The pocket susceptibility meter KM-7 is designed for quick field measurements of magnetic susceptibility of outcropping rocks, drill cores and larger pieces of rocks. The use of KM-7 is especially advantageous for selecting of suitable specimens for further precise laboratory studies of magnetic properties.

The KM-7 is designed for one-hand operation. A leather case can be worn on a waist-belt.

## 1.1 Operation principles

The fundamental part of the instrument is an LC oscillator of 10 kHz, the inductivity of which is embodied by a measuring coil situated at the active face of the instrument, the black head. The susceptibility measurement is performed in three steps.

The frequency of the oscillator is measured with the coil at a distance at least 30cm from the rock (initial measurement, *AIR1*), then with the coil applied to the rock surface *(SAMPLE)* and again with the coils at a distance at least 30cm to achieve good sensitivity. From the difference of the frequencies the susceptibility is computed and then displayed.

## 1.2 Specifications

| | |
|---|---|
| Sensitivity: | $1x10^{-6}$ SI units ($1x10^{-5}$ SI units in scan mode or with pin) |
| Measuring ranges: | from -999.9 to 999.9 x $10^{-3}$ SI units<br>with automatically switched range |
| Operating frequency: | 10 kHz |
| Display: | 4 rows, backlight |
| Data memory: | 999 readings without GPS coordinates<br>ca 500 readings with GPS coordinates |
| Controls: | 4 buttons: Escape, Enter, Up, Down |
| Interface: | USB 2.0, Bluetooth |
| Power consumption: | 8 mA (without Bluetooth or backlight)<br>< 0.1 μA when power off |
| Battery: | 2x AAA alkaline or NiCd/NiMh |
| Operating temperature: | from $-20^{O}$C to $+60^{O}$C |
| Dimensions: | 165mm x 76mm x 30mm |
| Weight: | 250g including batteries |
| Accessories: | leather case, instruction manual, USB cable,<br>disk – communication program |

# 2 OPERATION

## 2.1 Power Supply

KM-7 is powered by two batteries (alcaline) or accumulators, type AAA. The battery compartment is located at the bottom part of the instrument, the polarity of batteries is shown at the picture at the back side.

## 2.2 Turning On/Off

Press the *Enter* button to turn the KM-7 on. The KM-7 introduction screen is displayed, see chapter 2.6.1.

Press the *Escape* button for approximately 3 seconds to turn the KM-7 off. The instrument is automatically turned off after ca 40 seconds of inactivity. If the KM-7 is connected to a PC via USB/Bluetooth, or connection to Bluetooth GPS is active, the automatic turn off is disabled.

## 2.3 Control buttons

The KM-7 magnetic susceptibility meter is controlled by four buttons, *Enter*, *Escape*, *Up* and *Down*.

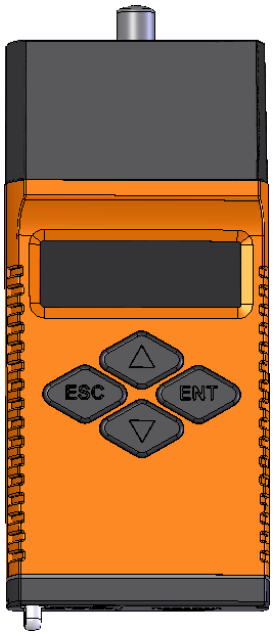


**Figure 2-1 KM-7**

The *Enter* button is used for entering a sub menu, enabling editable items and activating action items. The *Escape* button located at the opposite side terminates an action on editable items without change or returns to the upper menu when pressed in a sub menu. The *Up* and *Down* buttons are used to browse among menu items and select values from predefined editable items, e.g. enable or disable backlight.

To see which item in the KM-7 menu is selected, arrow at the left side of the display is used. The position of the arrow points to the selected menu item.

## 2.4 Items setting

The KM-7 setting items are of two types: items to select one of predefined choices and items to set a numerical value. All items with choices display their actual values. After *Enter* button is pressed for the selected item, the original value is inverted and with the *Up* and *Down* buttons the desired value can be selected. In case of the numerical values, the value is incremented or decremented respectively. After the *Enter* button is pressed, the selected value is stored to the KM-7 memory and a respective action is taken, e.g. Bluetooth is turned on. If *Escape* button is pressed, the value of the item is not changed and the control is returned back to the menu.

The arrow located at the left side of a menu shows which item is selected.

## 2.5 Status icons

The KM-7 uses several status icons. They can be seen on the right side of the display in any of the KM-7 menus and sub-menus.

The battery icon displays battery status.

**Figure 2-2 KM-7 battery status icon**

The other icons that can be seen on the KM-7 screen show a connection status. If the KM-7 is connected to PC via USB cable, the USB icon appears.

**Figure 2-3 USB connection icon**

If the Bluetooth is enabled, the Bluetooth icon appears, see Figure 2-4. Note only one connection icon can be visible at a time, because only one type of connection can be established at a time. The USB connection has the higher priority than the Bluetooth connection. When the Bluetooth connection is active and the USB cable is connected, the connection type is changed to the USB connection.

**Figure 2-4 Bluetooth connection icon**

If the KM-7 connection to the PC is established (via USB or Bluetooth) and is active (program KMdata), the PC icon appears.

**Figure 2-5 PC communicating icon**

In the case that Bluetooth GPS is enabled in *Setup>BT ON* and connection type is set to GPS in *Setup>BT menu>BT GPS*, the GPS satellite icon appears when valid GPS data are received, see Figure 2-6. In the case of single mode measurement with GPS enabled, this icon appears after measurement, indicating that the actual measurement can be saved with the actual and valid GPS data. Otherwise valid and actual GPS data has not been received from GPS and measurement can not be saved with GPS data.

**Figure 2-6 GPS satellite icon**

## 2.6 Menu

KM-7 menu has four levels:

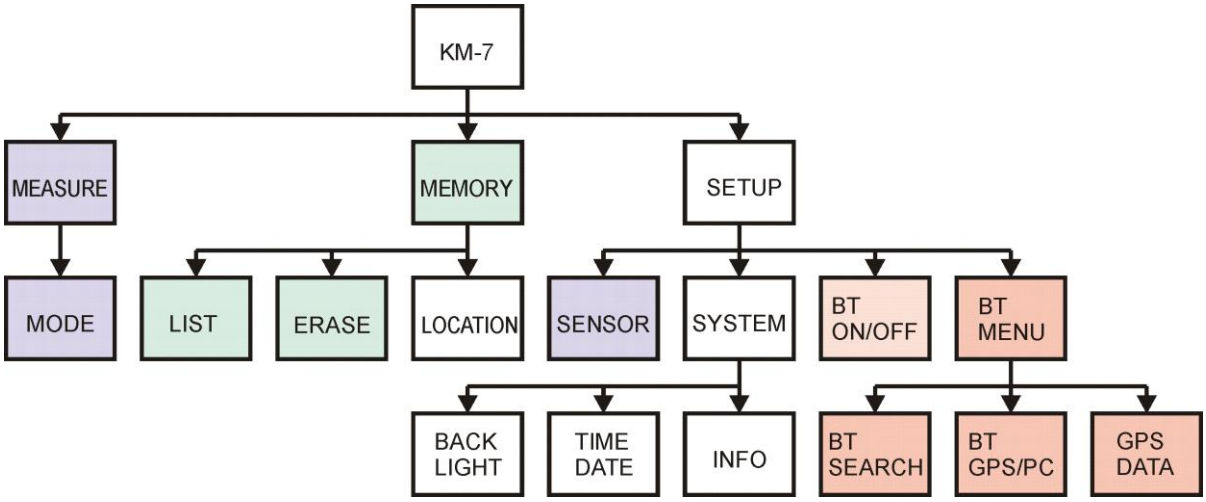


**Figure 2-7 KM-7 menu structure**

### 2.6.1 Introduction screen

The KM-7 introduction screen is visible for ca 3 seconds after the instrument has been switched on. Then the KM-7 goes to the main menu. The introduction screen can be left by pressing any button as well.

### 2.6.2 Main menu

The main menu is composed of three items. Real time is displayed at the bottom line.

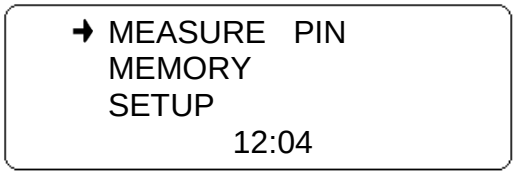


**Figure 2-8 Main menu**

The second item in main menu is a link to the *Memory* menu, see chapter 2.6.4.
The third item is a link to the *Setup* menu, see chapter 2.6.5.

### 2.6.3 Measuring

The first item is *Measure*. On the right side of this item, an actually selected measurement sensor is indicated *(FLAT, PIN, CORE)*. This can be changed in the *Setup* menu.

If *Enter* button is pressed when *Measure* selected, the user is requested to set one of three modes of measurement:

1. Single – one measurement.
2. Scan – data are continually measured and results are displayed on the display only.
3. Scan remote – continual measurement, where the measured data are transferred to the PC via USB or Bluetooth and processed by the program KMdata.

After the mode of measurement is set, the initial measurement can be done (at least 30cm distance from a sample or other materials). This is indicated on the display by *"AIR1"* notice. In the case the *Escape* button is pressed, the main menu is displayed. If button *Enter* is pressed, the initial measurement is taken and *"SAMPLE"* is displayed to indicate that the initial measurement is done, and the KM-7 can be put to the sample to measure its susceptibility. In the case the *Escape* button is pressed, the *"AIR1"* notice is displayed again. The selected sensor is indicated at the bottom line.

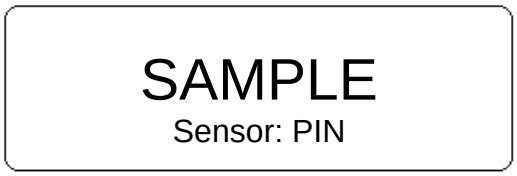


**Figure 2-9 Ready for measuring**

If the *"SAMPLE"* indicator is displayed and *Enter* button is pressed, the susceptibility of the sample is measured. During the time of collecting signal, which takes ca 0.5s, the icon **M** is displayed at the left upper corner of the display and the beep is heard. Please do not move the instrument when the **M** is on. To complete the measurement, the third step is required, again the measurement at least 30cm far from solid materials, see the notice *"AIR2"*. The timeout between the steps is 10s. If the measurement is not completed by the time, the notice *"AIR1"* is displayed and the kappameter is ready to start anew. If the set of the three measurements are completed properly, the value of susceptibility is displayed, see Figure 2-10. *Mem* indicator (left side) specifies location in the *Memory* menu, *Loc* indicator (middle bottom) shows the user predefined location number. This can be set in the *Memory* menu. Now, if the *Enter* button is pressed, the measured value is stored to the KM-7 memory, if the *Escape* button is pressed, the measurement is lost. A new measurement can be taken.

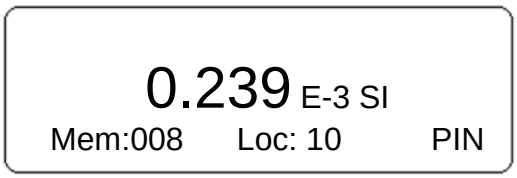


**Figure 2-10 Results**

### 2.6.4 Memory menu

The *Memory* menu, see Figure 2-11, integrates all action linked to the nonvolatile data memory, like browsing the stored data and erasing the memory. The location of measurement can be set.

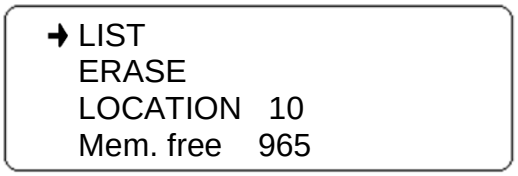


**Figure 2-11 *Memory* menu**

The first item *List* allows to view a stored data. If this item is selected and *Enter* button is pressed, the most recently stored reading can be seen, see Figure 2-10. The measured value is displayed in the center. Position in memory indicated by *Mem*, user defined location by *Loc* and used sensor are displayed at the bottom line.

If the data was measured with GPS enabled, indicated by left arrow in the bottom left corner in display, then GPS coordinates can be displayed by pressing *Enter* button, see Figure 2-12. To go back to the data view, *Enter* button must be pressed again.

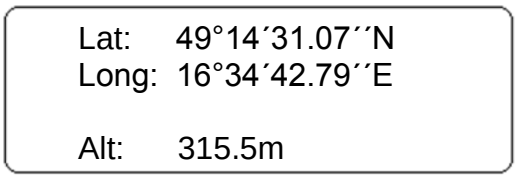


**Figure 2-12 Memory list, GPS coordinates**

To walk through stored items, *Up* and *Down* buttons are used. The *Down* button goes to older data, *Up* button goes to newer data. If *Up* or *Down* button is pressed for a few seconds, the move is faster. *Escape* button returns the control to the *Memory* menu.

The second item is *Erase*. All data stored in the KM-7 nonvolatile memory can be deleted. Confirmation of this operation is required, otherwise this action is canceled.

The third item allows to set a measurement location, as described in chapter 2.4.

The last line shows free memory (number of readings without GPS data). Readings with GPS coordinates are two times longer.

### 2.6.5 Setup menu

Various features of the KM-7 and measurement can be set up, see next chapters.

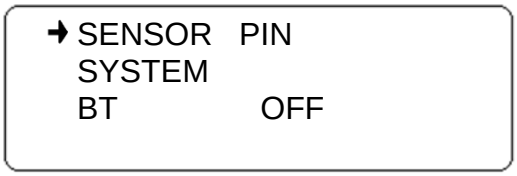


**Figure 2-13 *Setup* menu**

### 2.6.5.1 Sensor setting

The first item of the *Setup* menu allows to select a sensor *(PIN, FLAT, CORE)*, for editing see the chapter 2.4**Chyba! Nenalezen zdroj odkazů.**.

The value measured with the KM-7 depends on the size and shape of the sample.

The instrument KM-7 is calibrated for the idealized case in which the pick-up coil is attached to an absolutely smooth plane confining a half-space filled with magnetically homogeneous and isotropic medium. Then the displayed value of the susceptibility is the true value. (The true value of susceptibility is computed in the microprocessor from the measured, so called apparent, susceptibility.) If the sample is smooth enough and large enough, the sensor *FLAT* may be used. It is not recommended to measure samples less than 50 mm thick, with a surface smaller than the KM-7 face (60 mm).

However, often only rough surfaces of rocks are available for measuring. In that case, it is recommended to use *PIN* option. The small (0.5cm long) pin screwed to the head of the KM-7 defines the position of the pick-up coil – the distance from the surface, which may give more precise results. The surface of the rock should be paralel to the surface at the head of the instrument. The instrument is calibrated for the option. The measured value does not require any corrections. Sensitivity of the measurement is limited to $1x10^{-5}$ SI units.

In measuring on outcrops it is necessary to consider the degree of weathering of the surface which affects the results considerably. The weathering effect can hardly be evaluated; therefore measuring on unweathered though less smooth surface is preferred.

In measuring drill cores, it is recommended to attach the pick-up coil to the side rather than to the head of the core, since the core side is an almost perfectly smooth cylindrical surface, while the head is uneven and usually of a small diameter. It is essential that the cylinder measured be longer than 100 mm. The values measured on a cylindrical surface are again the true values because the instrument is calibrated for the various diameters. When selecting *CORE*, the user is requested to set the diameter of the core.

### 2.6.5.2 System menu

Various settings of KM-7 are available:


**Figure 2-14 *System* menu**

The first item allows to disable or enable the backlight of the display. If the backlight is enabled, it is automatically turned off after ca 10 seconds of user's inactivity. It is turned on by pressing a button. The backlight ON increases the power consumption ca three times.

Setting the current time and date in the instrument can be done here *(time/date)* or by a PC in the KMdata program (Synchronize time). The values of hours and minutes are incremented and decremented by pressing *Up* and *Down* buttons. *Enter* button moves the control to the next item. To set the date, similar way of editing is used. To exit the time and date setting without changes, pres *Escape* button. Seconds are set to zero after all time and date values are set and confirmed by the last *Enter*.

*Info* displays manufacturer, device name, serial number and firmware version.

### 2.6.5.3 BT menu

The third item of the *Setup* menu enables/disables Bluetooth connection. In the case Bluetooth is enabled, the forth line *BT MENU* is displayed. This is disabled if USB cable is connected to the KM-7.

In the BT (Bluetooth) menu, all actions regarding the Bluetooth control are to be accessed.

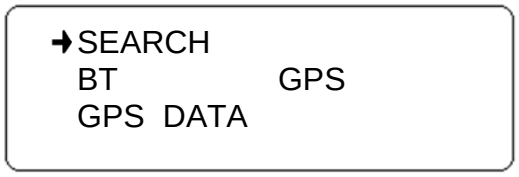


**Figure 2-15** ***BT MENU***

The first item allows searching for Bluetooth devices. All devices in the range are searched, and the user must select the Bluetooth GPS (most likely the GPS will be in its name) from a list of found devices. The search process displays maximum four devices. If *SEARCH* is selected and *Enter* button is pressed, the KM-7 begins searching for devices in the range, and the progress is indicated by dots. This action takes ca 40 seconds and can not be canceled.

If no device is found, *BT device not found* is displayed and *Escape* button must be pressed to get back to the *BT* menu. Otherwise, list of found devices and their names is displayed. The user can select the desired Bluetooth GPS by *Up* and *Down* buttons and press the *Enter* button to use the selected device as the default GPS data source or press the *Escape* button to end without changes.

The second item of the *BT* menu allows selection of the connection:

1. PC connection – the PC connection to the KM-7 and communication with KMdata is established
2. GPS – the KM-7 connection to the default Bluetooth GPS

The third item displays current GPS data, see Figure 2-12. KM-7 must be set up for connection to a Bluetooth GPS, and the Bluetooth GPS must be turned on.

## 2.7 Measurement setting up

To set up parameters for a measurement and conduct the measurement, follow the instructions bellow. For further details, see chapters above.

### 2.7.1 Measuring in Single mode

- Set sensor (Flat, Pin, Core) in *Setup* menu. Be sure the pin is properly screwed to the head when setting *PIN*.
- When measuring with GPS, make sure the USB cable is disconnected, set BT ON in *Setup* menu, set BT GPS in BT MENU, turn on the GPS and wait for connection. When measuring without GPS, set BT OFF in *Setup* menu.
- Select *Measure* in main menu, set Single mode. Measuring is done in three steps, with maximum 10 s between them.
    1. *AIR1* is displayed, KM-7 is ready for an initial measurement with the instrument placed minimum 30 cm far from the sample, press Enter

2. *SAMPLE* is displayed, place the black head of the instrument paralel to the surfice of the sample, press Enter
3. *AIR2* is displayed, ready for the final measurement with the instrument placed minimum 30 cm far from the sample, press Enter

- Do not move instrument while the icon **M** is displayed (collecting signal ca 0.5 s).
- Save the displayed value by Enter, delete it by Escape.
- Repeat the three steps or finish by Escape.

### 2.7.2 Measuring in Scan mode

- Set sensor (Flat, Pin, Core) in *Setup* menu.
- Select *Measure* in main menu, set Scan mode.
- *AIR1* is displayed. Make an initial measurement: Place the instrument minimum 30 cm far from the sample, press Enter.
- *SAMPLE* is displayed. Place the black head of the instrument paralel to the surfice of the sample, press Enter.
- Measuring at the sample is repeated until Escape. Move the KM-7 along the sample according to your needs. Values of susceptibility are displayed, but not saved to memory.

### 2.7.3 Measuring in Scan remote mode

- Set sensor (Flat, Pin, Core) in *Setup* menu.
- When using Bluetooth, set BT ON in *Setup* menu and BT PC in BT MENU, otherwise connect USB cable.
- Run program KMdata on PC, connect to the KM-7, go to Scan remote tab of KMdata. Wait for the connection – check the icon.
- Select *Measure* in main menu, set Scan remote mode.
- *AIR1* is displayed. Make an initial measurement: Place the instrument minimum 30 cm far from the sample, press Enter.
- *SAMPLE* is displayed. Place the black head of the instrument paralel to the surfice of the sample, press Enter.
- Measuring at the sample is repeated until Escape. Move the KM-7 along the sample according to your needs. Values of susceptibility are displayed and sent to PC.

## 2.8 GPS setting up

Before using GPS for the first time, the device must be bounded (paired) with the KM-7. This process can be done in any state of Bluetooth connection. After the search is completed, the original state of connection is restored. The connection is then established to the newly selected Bluetooth GPS.

Note if Bluetooth GPS is not a part of the package, this process must be done before the Bluetooth GPS can be used and or after a new Bluetooth GPS is used.

Instructions: Go to the *Setup* menu and enable Bluetooth. In the *BT menu* search for devices in the range. Wait for ca 40 seconds until the search process is completed. Select the Bluetooth GPS by name and press *Enter*.

## 2.9 Error messages

Error messages are self-explanatory. In most cases, pressing *Escape* button solves the problem. Sometimes removing batteries and inserting them again helps. If the failure persists, please contact the manufacturer at info@satisgeo.com.

# 3 KM-7 MAINTENANCE

Caution: The instrument can be damaged by a strong static charge.

If any operation described in this manual cannot be executed, check the battery, the cleanness and quality of the contacts that connect the battery with the electronics. If both the battery and the contacts are in a good condition, and the failure still persists, it is necessary to ship the instrument for repair to the producer:

SatisGeo, s.r.o.
Jecna 29a
621 00 Brno
Czech Republic
(info@satisgeo.com)

# 4 THE KMdata COMMUNICATION PROGRAM

The KMdata communication program allows data transfer from KM-7 to PC. The transferred data are stored in the internal program database. In the *Scan remote* mode, KMdata allows direct acquisition of measurements from the KM-7. The data can be accessed, displayed, sorted and exported.

The built-in tree xml database can be used in other programs for a further data processing.

## 4.1 The KMdata installation

Run *Setup* from the installation CD, if it does not start automatically. This installation program installs the KMdata program and all components to the PC. The USB drivers are installed as well. To install USB drivers, you windows account must have administration privileges.

After program installation starts, you may see following screen, Figure 4-1, if the .Net Framework is not installed on you PC.

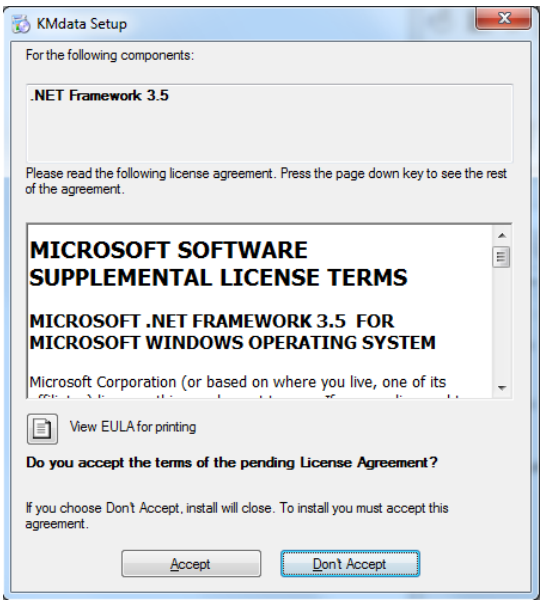


**Figure 4-1 .NET framework installation window**

After accepting the license agreement, .Net framework is installed.
Then the KMdata installation guide starts, see Figure 42.

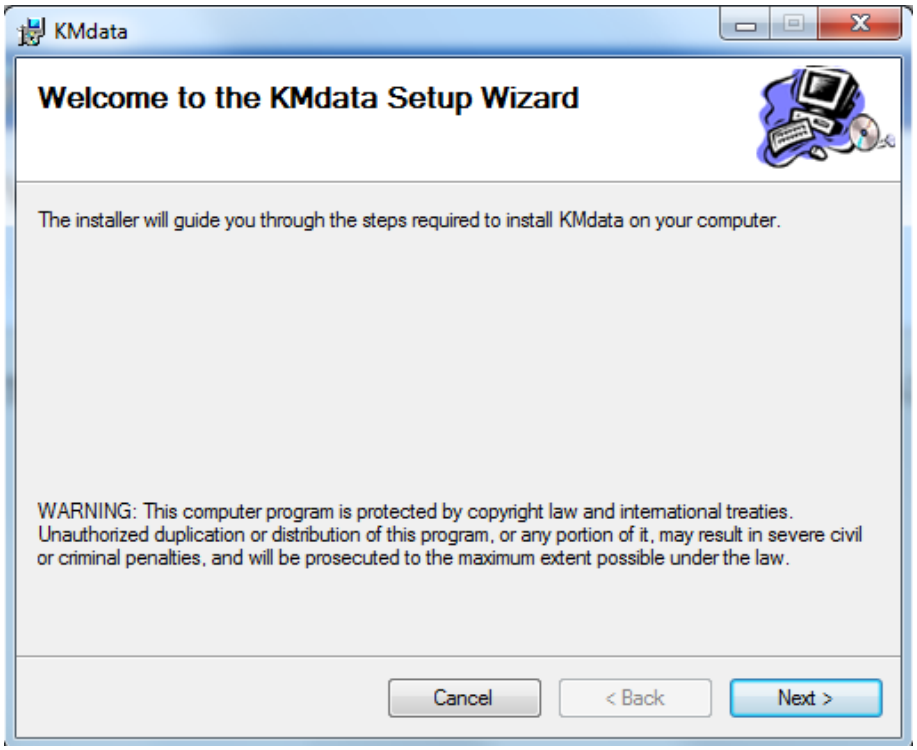


**Figure 4-2 KMdata welcome installation window**

To continue the installation, click on the *Next* button. In the next window, installation folder and Windows user account to where KMdata will be installed can be selected. The necessary disk space for installation of the KMdata can be seen by clicking on the *Disk Cost* button.

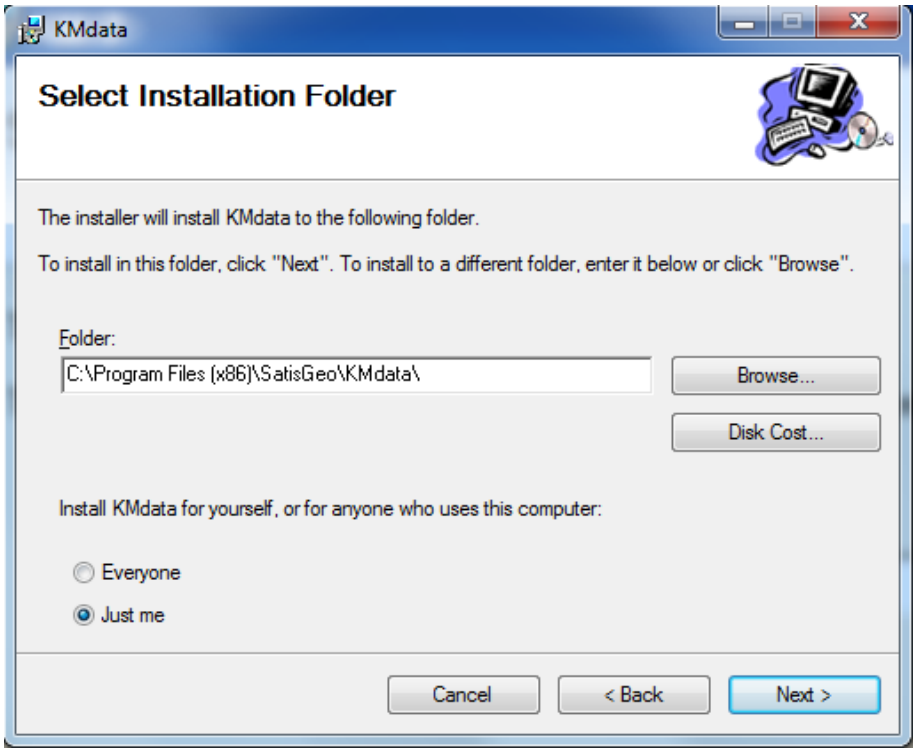


**Figure 4-3 Installation folder selection**

The installation must be confirmed.

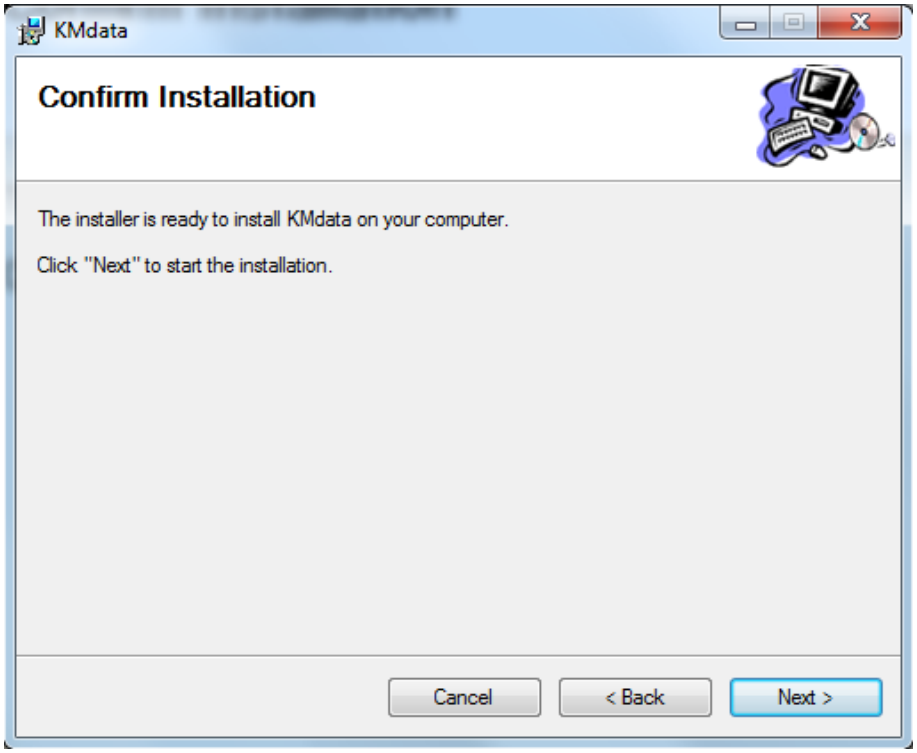


**Figure 4-4 Installation confirmation**

If the installation is confirmed, the window with installation progress is displayed.

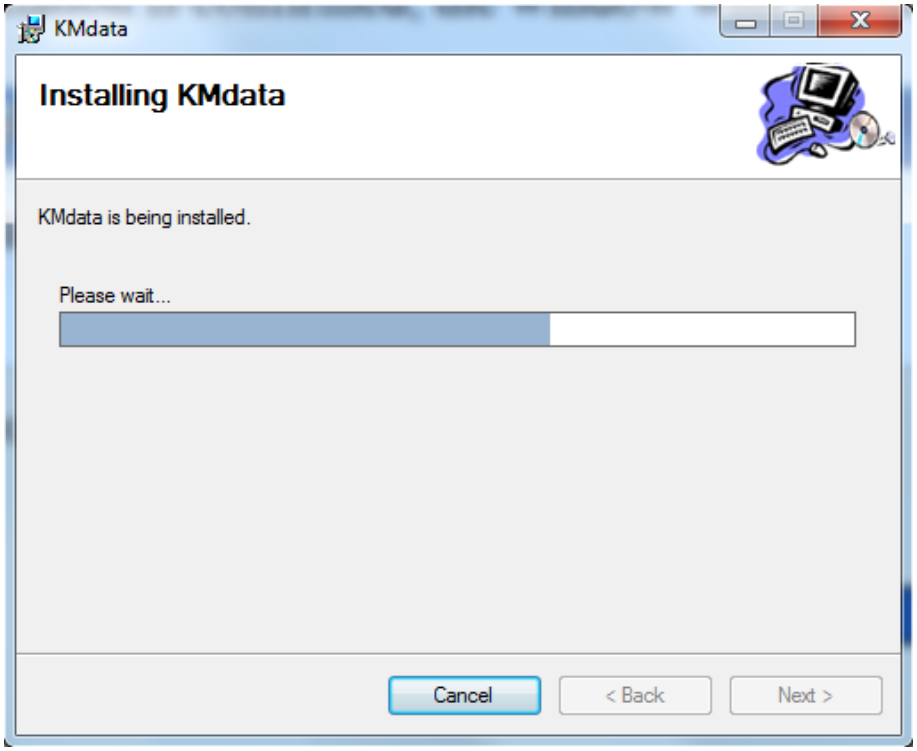


**Figure 4-5 Installation progress**

The result of installation is displayed.

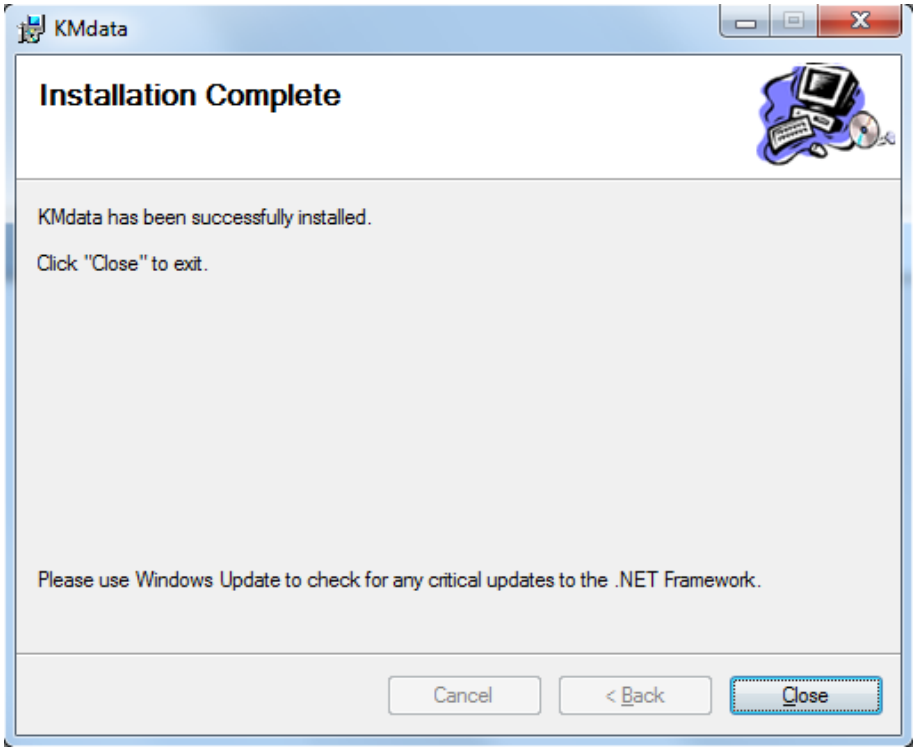


**Figure 4-6 Installation complete**

The USB drivers are necessary for communication with KM-7 via USB. The drivers are installed by KMdata installation program and can be found as well in the program installation folder. To successfully install the USB drivers, the KM-7 must be connected via USB cable. This action must be done before the first run of the KMdata.

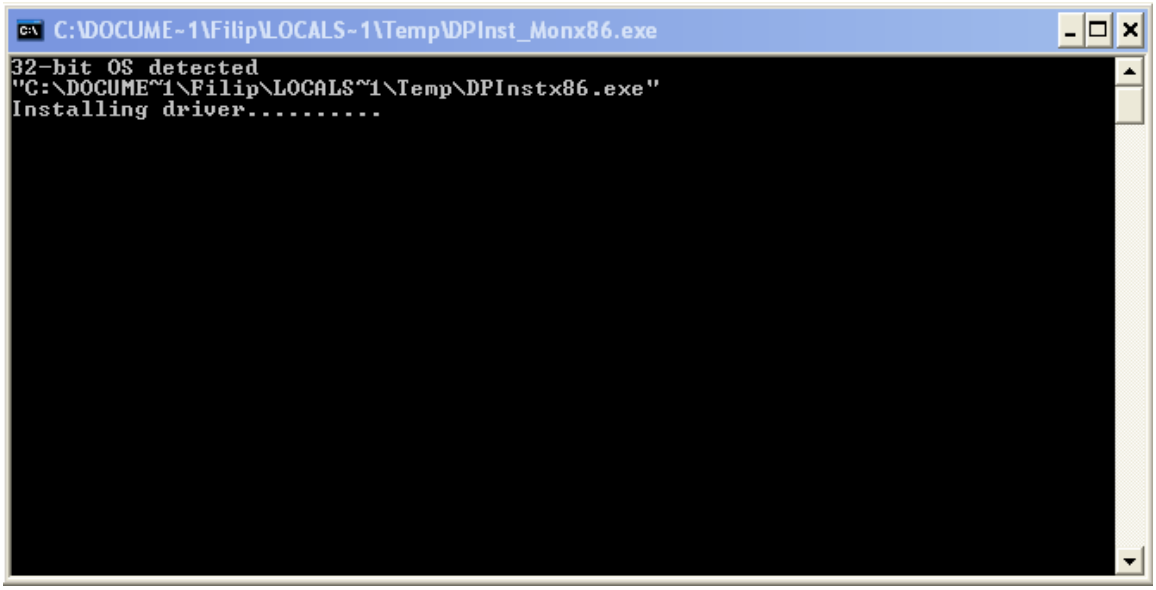


**Figure 4-7 USB driver installation**

## 4.2 Repair or Remove

After the KMdata is installed, the installation program can be run again and remove (uninstall) or repair the KMdata program.

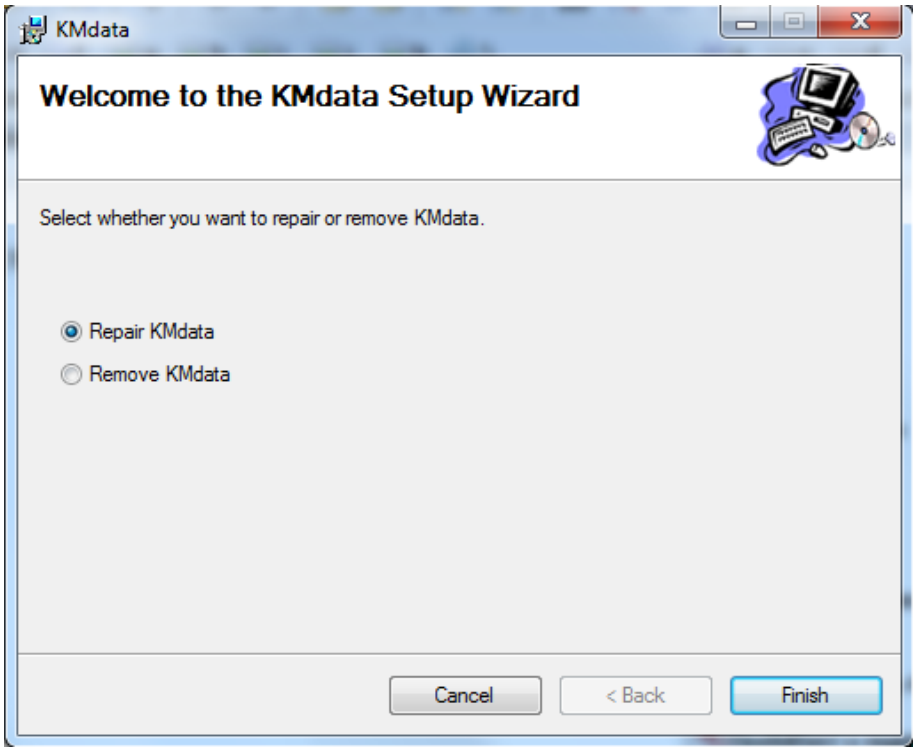


**Figure 4-8 Repair, Remove**

# 5 THE KMdata DESCRIPTION

The KMdata program consists of three main windows/tabs and About tab.

The Data tab window, see Figure 5-1, is the first window that appears after the program has started. Four tabs are to be found at the top left side of the main window. *Data* tab provides access to a stored data. *Setup* tab incorporates all program setups and the KM-7 firmware update guide. *Scan Remote* tab, which is accessible only if the KMdata is connected with KM-7, is used to acquire data from KM-7 in the *Scan Remote* mode. *About* tab shows information about program.

The program window is divided to three main regions (except for the *Setup* tab). The command banner is to be found under tabs, the status banner at the bottom of the window and the main window of the selected tab is located in the middle of the program window.

The status banner is visible on all tabs. On the left side of status banner, the KM-7 serial number is displayed. The progress bar is visible only when an action is taken e.g. transfering data from KM-7, loading huge amount of data from the database to the table, etc.

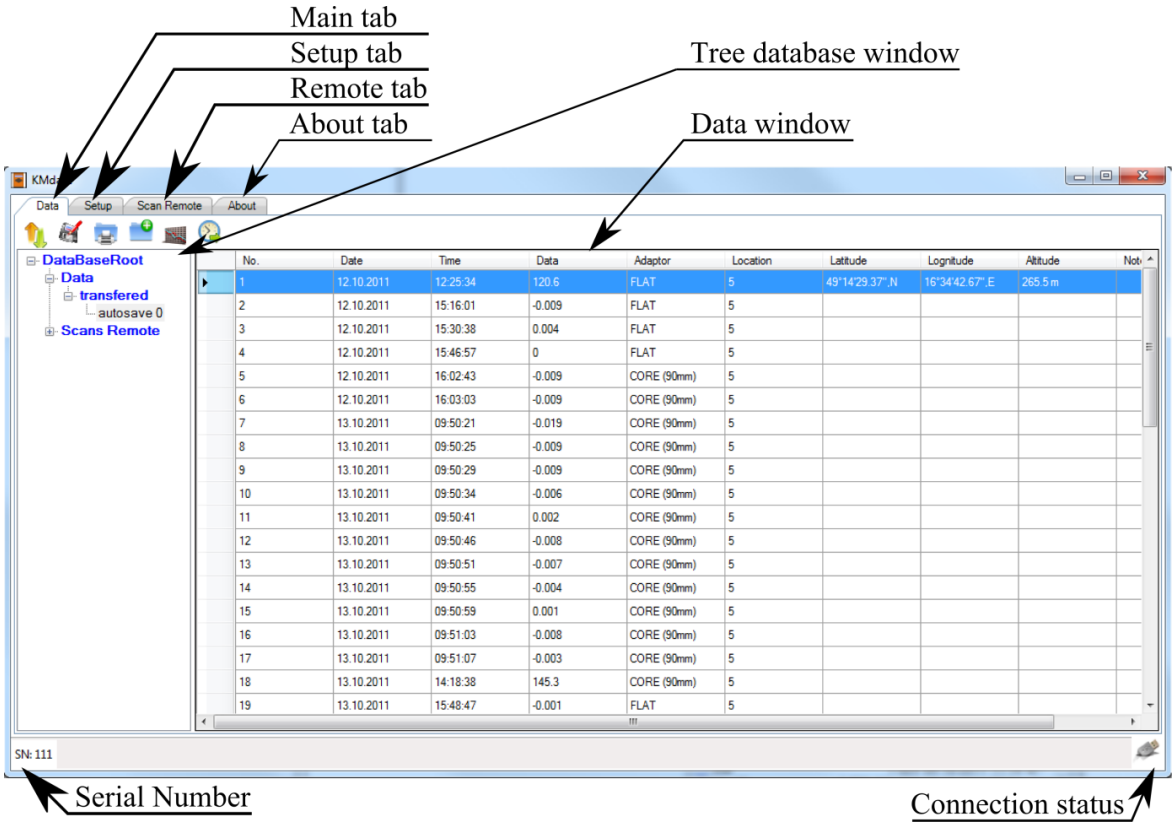


**Figure 5-1 KMdata main window**

On the right side of status banner, a connection status icon can be seen.

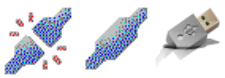

**Figure 5-2 Connection status icons: disconnected, Bluetooth connection, USB connection**

## 5.1 Data tab

Data tab window is the main window of the KMdata. It is divided into three main regions: command banner, database browser and data table. The commands are accessible from the command banner or from the context menu in the database tree and the data table.

### 5.1.1 Command banner

The first button starts data transfer from KM-7.

**Figure 5-3 Data transfer from KM-7 to PC icon**

The second button is to export selected data displayed in data table to text file.

**Figure 5-4 Export selected data icon**

The third button is to print data from the data table.

**Figure 5-5 Print data table icon**

A standard printer selection menu is displayed, the content of data table is previewed, and can be sent to the selected printer.

The fourth button is to add new folder/branch to the database tree, which can be used to sort data based on place, project etc. In such a folder/branch new folders/sub branches can be created for further data sorting.

**Figure 5-6 Add new folder/branch icon**

The fifth button is to view graph of *Scan Remote* data.

**Figure 5-7 View graph icon**

The last button is to synchronize the KM-7 time with the PC time.

**Figure 5-8 Synchronize time icon**

### 5.1.2 Database browser

The database browser can be seen on the left side of main window, see Figure 5-1. The database is represented as a tree. The basic folder is root (DataBaseRoot), folders are branches and leafs are data nodes. There are two main folders/branches: *Data* and *Scans Remote.* The *Data* branch contains all transferred data from the KM-7, the *Scans Remote* branch contains measured data in the *Scan Remote* mode of the KM-7.

The *Data* folder/branch incorporates the special branch node called t*ransferred*. Data transferred from the KM-7 are stored there after *Data transfer* button at the command banner has been pressed. The transferred data are leafs/ nodes of *transferred* folder/branch, and from here the leaf/data can be moved to user defined folders/branches by drag and drop technique.

The *Scans Remote* folder/branch incorporates special folder/branch called *autosave* to store measured data from *Scan Remote* mode.

All folders/branches have a context menu, which is accessible by clicking on the right mouse button. The exception is *DataBaseRoot*, it has no context menu. For the *Data* and *Scans Remote* folders/branches, only *Add Folder* command from context menu is accessible, and for *transferred* and *autosave* folders/brances, *Delete* command is accessible. It deletes all of their content, e.g. all its data.

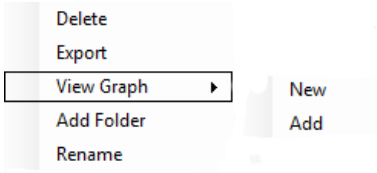


**Figure 5-9 Folder/branch context menu**

The *Delete* command deletes branch node, all its sub folders/branches and leafs. This action needs additional confirmation.

The *Export* command exports data displayed in the data table to a UTF-8 format text file. The columns to export can be selected in the *Setup > Program* tab. This function is accessible also by the *Export* button in the command banner.

The *View Graph* command has two items: *New* command creates a new graph of data from *Scans Remote* measurements, *Add* command adds additional chart to existing graph for other data from *Scans Remote* measurements. Maximum 10 graphs can be displayed in the graph window. The *Graph New* item is also accessible from command banner. The graph window can be seen at Figure 5-10. The graph has it's own context menu:

The *Copy* item copies the graph image to the windows clipboard.

The *Save Image As* item stores the graph to an image on a disk.

The *Print* item prints the graph on a printer.

The *Show Point Values* item shows point values in the graph.

The *Un-Zoom* item un-zooms the latest zoom.

The *Undo All Zoom/Pan* or *Set Scale to Default* undoes all zooms and sets the graph view to the default state.

The zoom is done by dragging the left mouse button and selecting the desired region to zoom. It can also be controlled by the mouse wheel.

The graph can be shifted by holding Ctrl button and then holding left mouse button.

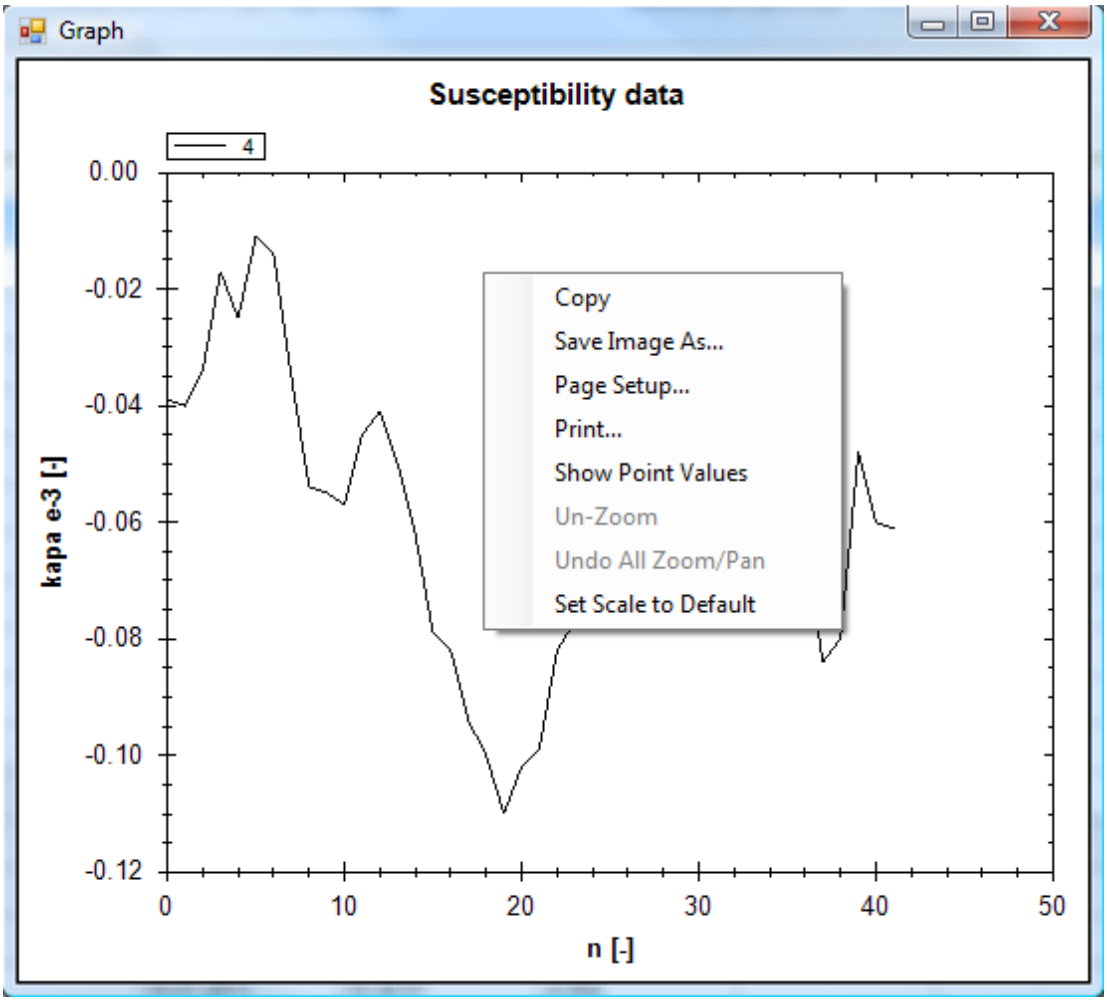


**Figure 5-10 Graph window**

### 5.1.3 Data table

The data table can be seen in the center of the main window in Figure 5-1. The purpose of this table is to display selected data from the database browser. There are ten items – collumns in the table:

No. – number of measurement

Date – date of measurement

Time – time of measurement

Data – measured data *10^-3 [-]

Sensor – type of sensor used for a measure. In the case of *CORE* sensor, the diameter of the core in brackets is displayed.

Location – location of measurement (selectable in KM-7)

Longitude, Latitude, Altitude – GPS coordinates (if used)

Note – note

The data grid has its own context menu. The *Add/Modify Note* item enable add or modify the note. For data transferred from the KM-7, a note can be added separately to all lines e.g. to every data item. It is possible to add the same note to multiple data items by selecting them. For the scan data, only one note per data can be added. The length of the note

is not limited and the national characters can be used as well. In the case that more lines in table are selected, one note is added to all selected lines.

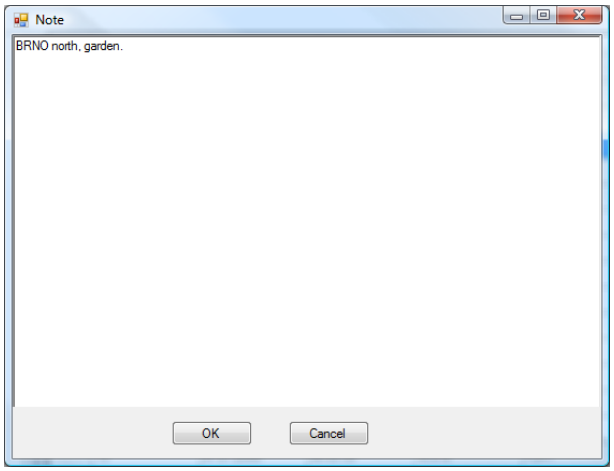


**Figure 5-11 Window to Add/Modify the note**

The *Delete selected items* command deletes all selected items. The items can be selected by mouse and combination of Ctrl or Shift buttons. Confirmation is needed.

## 5.2 Setup tab

The *Setup* tab incorporates all the KMdata program setups. The setup tab has two sub tabs: *Program* and *Communication*.

### 5.2.1 Setup-Program

The *Program* tab enables selection of items to export or print. The items to export/print can be selected by check boxes. By clicking on *Select All* all the items are selected and by clicking on *Select None* otherwise.

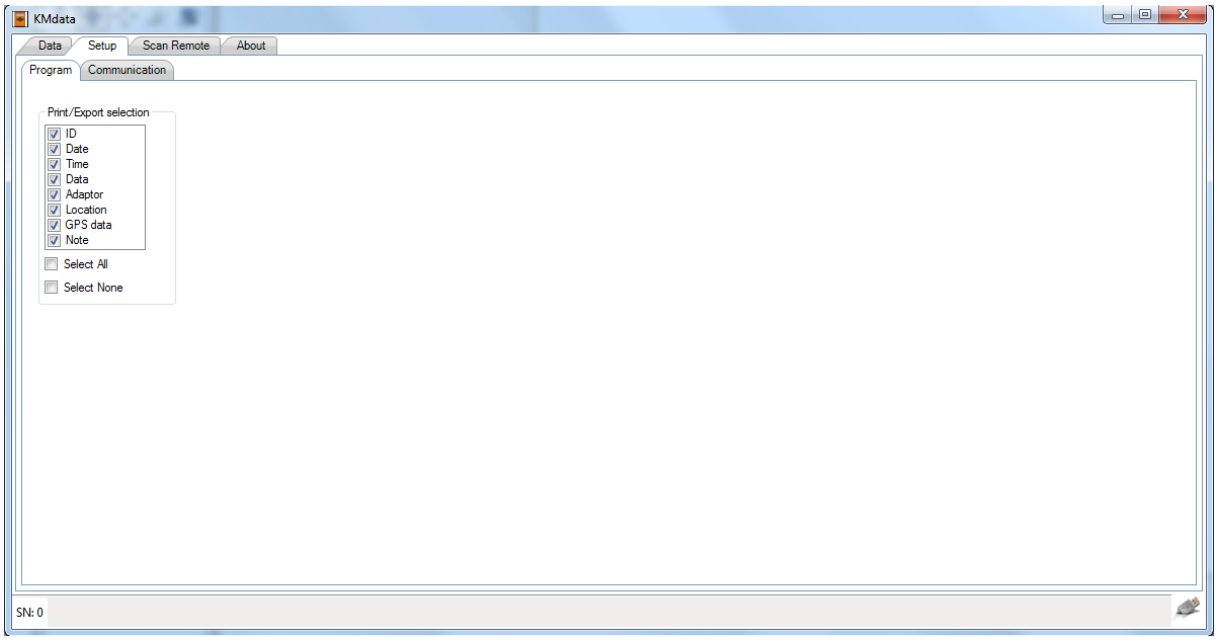


**Figure 5-12 Setup-Program tab window**

### 5.2.2 Setup-Communication

The *Setup-Communication* tab is not needed when using Microsoft Vista, Microsoft 7 and later operation systems. They should connect the instrument KM-7 to the PC automatically (for most Bluetooth adaptors).

For the Microsoft Windows XP and a Bluetooth adaptor that can not use the Microsoft Bluetooth stack, mannual setting is necessary, see Figure 513, *Bluetooth VCP port settings*. In the case that *Use VCP* check box is enabled, the KMdata program tries to connect to the KM-7 by using Bluetooth virtual COM port, which must be set to an appropriate number.

If the KMdata is connected to the KM-7 via Bluetooth, and KM-7 is connected via USB cable, the connection is then reestablished via USB. It is, the USB connection has the priority.

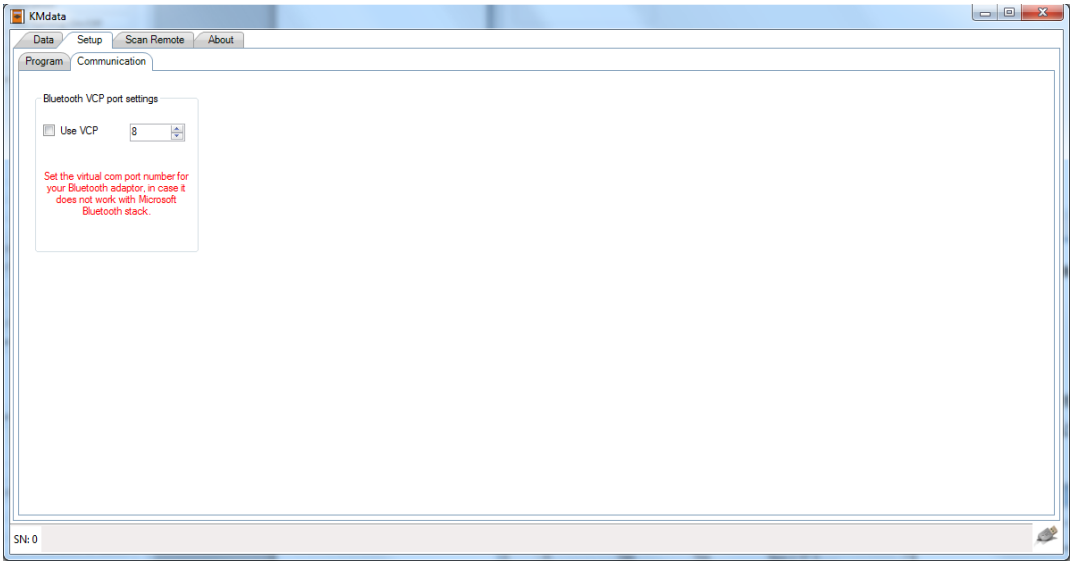


**Figure 5-13 Setup-Communication window**

## 5.3 Scan Remote tab

The *Scan Remote* tab is accessible only if a connection with the KM-7 is established. The purpose of this window is to capture data measured in *Scan Remote* mode of the KM-7.

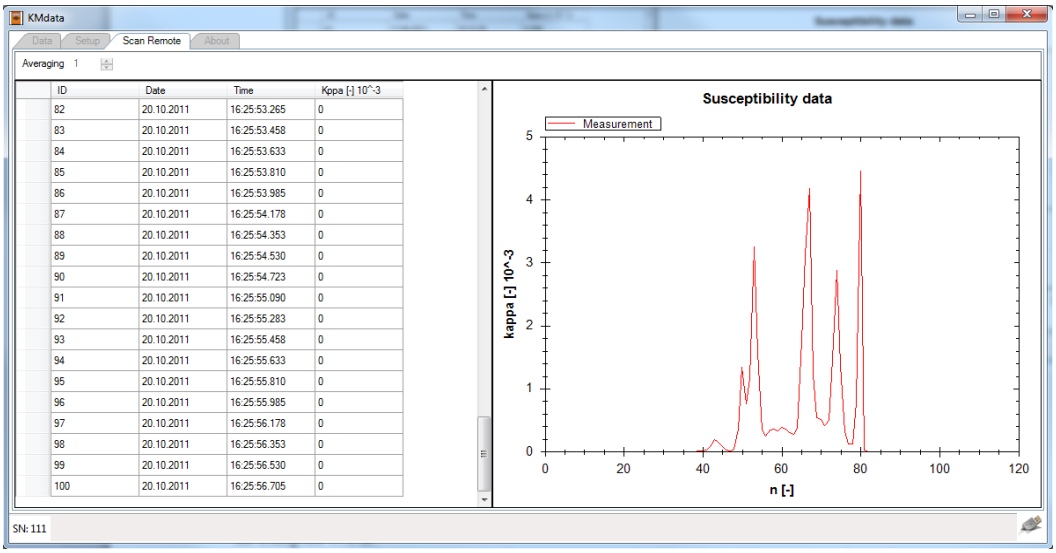


**Figure 5-14 Remote window**

In the command banner, a measurement averaging can be set. This averaging is accessible only before measurement is started.

The main window is divided into two views. On the left side, the table of a measured data can be seen, and on the right side, the graph of a measured data. Other tabs are disabled until measurement is stopped. The graph has the same context menu as described in Chapter 5.1.2.

Start and stop of a measurement is controlled by buttons of KM-7 working in *Scan Remote* mode.

The measured data are always stored to the database after measurement stops to the position *DataBaseRoot>Scans>Autosave>N*, where N is the number of measurement.

# 6 BLUETOOTH CONNECTION

The Bluetooth connection of the KM-7 kappameter to a PC in the program KMdata is established automatically when using Windows Vista, Windows 7 and higher (Microsoft Bluetooth stack). This feature is available for almost all Bluetooth adaptors. In the Windows XP, only few Bluetooth adaptors are supported, and the connection must be established manually.

## 6.1 Standard Bluetooth connection

To use automatic Bluetooth connection, the KM-7 must be first bounded to PC. Note it is assumed that drivers for the Bluetooth adaptor are installed (see your Bluetooth adaptor manual). To bound the KM-7 with PC, the KM-7 must be turned on, Bluetooth enabled and connection type to PC set in the Setup menu of the instrument.

To bound the KM-7 with a PC, you must first open *Bluetooth devices*.

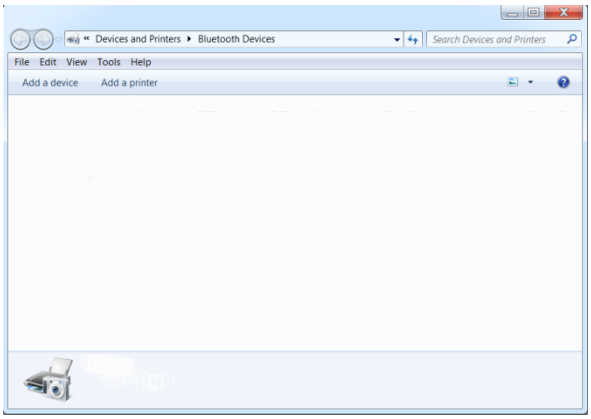


**Figure 6-1 List of paired Bluetooth devices**

Then click on *Add a device*. The search for devices in range begins.

After searching has been done, you can see list of found Bluetooth devices in range.

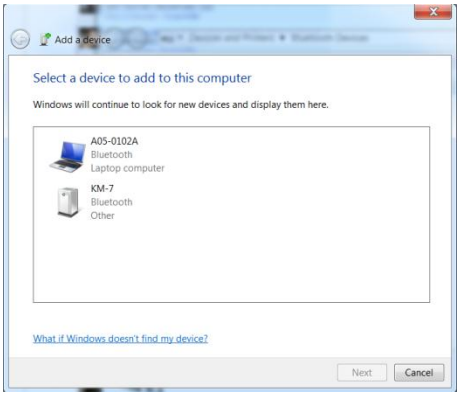


**Figure 6-2 Bluetooth devices search results**

Select the KM-7 and press *Next* button. You will be asked to select pairing code generation mode, see Figure 6-3. Select the *Enter the device's pairing code* item.

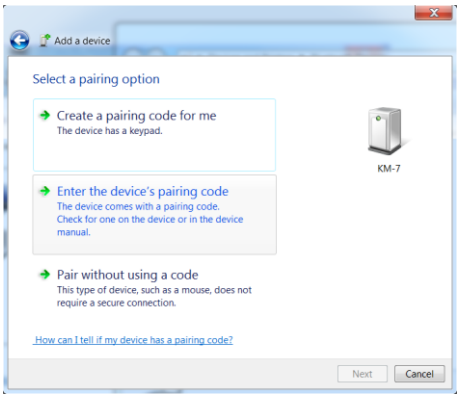


**Figure 6-3 Pairing code generation selection**

You will see a window like Figure 6-4. The pairing code is here “0000”, four zeros. Then click on *Next*.

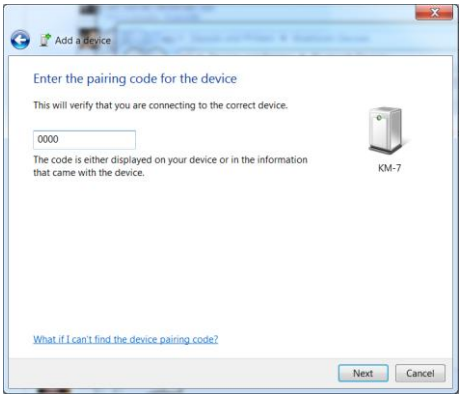


**Figure 6-4 Pairing code assign**

Pairing results appear.

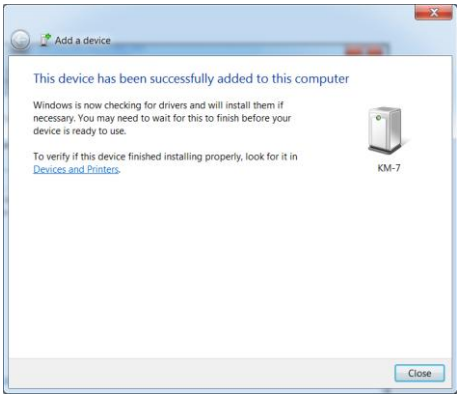


**Figure 6-5 Pairing results**

After closing this window, you can begin to communicate with the KM-7 via Bluetooth connection, and the KM-7 will be visible in the list of Bluetooth devices, see Figure 6-6.

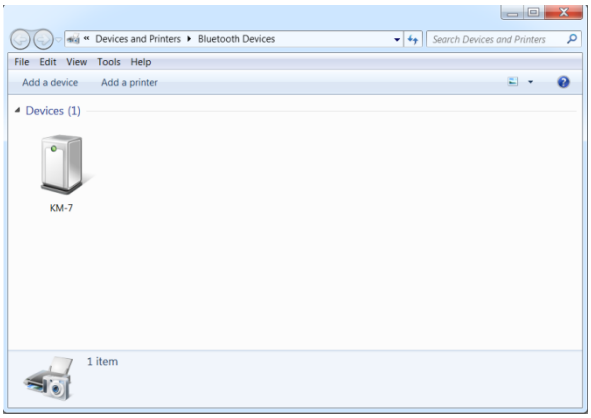


**Figure 6-6 List of paired device (KM-7 successfully paired)**

## 6.2 Manual Bluetooth connection

The approach to pairing and connecting to the KM-7 depends on your Bluetooth adaptor. After successful pairing (the process is similar to pairing with Microsoft Bluetooth stack) you need to find which virtual COM port is assigned to the KM-7 and set it in the KMdata, see chapter 5.2.2.

## 6.3 Declaration of Conformity

CE 0678

We, **connectBlue AB, of Norra Vallgatan 64 3V**
**SE-211 22 Malmö, Sweden**

declare under our sole responsibility that our products:

cB-OBS410 (cB-0925-01), OEM Module Adapter III (cB-0068).

to which this declaration relates, conforms to the following product specifications:

**R&TTE Directive 1999/5/EC:**

Effective use of frequency spectrum:
EN 300 328 V1.7.1 (2006-10)

EMC:
EN 301 489-1 V1.8.1 (2008-04)
EN 301 489-17 V2.1.1 (2009-05)
EN 61000-6-2 (2005)

Health and safety:
EN 50371:2002
EN 60950-1:2006 + A11:2009 + A1:2010 (EN 60950-1:2011-01) and/or IEC 60950-1:2005 (2 Edition) + nd
A1:2009

**Medical Electrical Equipment**

IEC 60601-1-2 (2007)

2011-10-31 Malmö, Sweden


*CTO of connectBlue AB*

If the cB-OBS410x module is used with an antenna with higher gain then 5dBi within EU a notification must be made to each of the national authorities responsible for radio spectrum management of the intention to place radio equipment that uses frequency bands whose use is not harmonized throughout the EU, on its national market.

More information at: http://ec.europa.eu/comm/enterprise/rtte/gener.htm