



User Manual

smaXtec® pH Monitoring System

User Manual smaXtec® pH Monitoring System

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1. Introduction

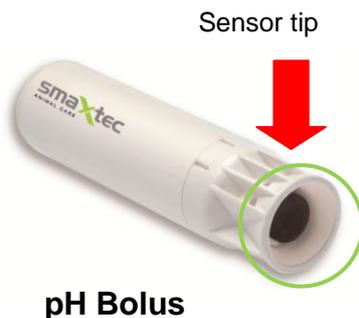


PLEASE NOTE: For your own safety, please read all instructions before starting to use the *smaXtec® pH Monitoring System* (also available at www.smaXtec-animalcare.com)!

The smaXtec® pH software and further information on the smaXtec® pH Monitoring System (including videos) can be downloaded from the smaXtec Support Center (<http://support.smaxtec-animalcare.com>) and from the company website (<http://www.smaxtec-animalcare.com>).

The *smaXtec® pH Monitoring System* consists of the following components:

smaXtec® pH Bolus



The pH Bolus comes with state of the art sensor technology. This is the only way to ensure reliable pH measurement in the harsh environment of the rumen over an extended period of time. The measurement data is stored in the pH Bolus and automatically transmitted to the readout equipment via a radio system. The current dimensions of the pH Bolus mean it is not suitable for use in cows under the age of 18 months or weighing less than 450 kilos.

smaXtec® Base Station

The Base Station constitutes the core piece and heart of the system. With up to eight antennas it contacts the pH Boli located in the radio area (radius of approx. 10 meter per antenna) at regular intervals, imports and stores the data.

The measuring results can be transmitted via Internet connection to a smaXtec server (Online Archive) where you can access them at any time. If required, the data may also be made available to experts you trust (vet, feed advisor, etc.) in order to ensure optimum monitoring.



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smaXtec® Mobile Reader



As an alternative to the Base Station you can also use the Mobile Reader.

The Mobile Reader is used to detect the pH Boli in the radio area (radius of 10 meter) and to read the stored data. In order to display the data, the device must be connected up via the USB cable enclosed in the package to a PC/laptop. The smaXtec® pH software enables the display of the measurement data and communication with this mobile readout equipment. Use of this device also enables you to save the data

on the smaXtec® server (online archive) and make data available to trusted experts (vet, feed advisor, etc.).

PLEASE NOTE: The smaXtec® Base Station and the smaXtec® Mobile Reader can NOT be used simultaneously!!!

smaXtec® pH software

Our software is the optimal tool for accessing your dairy herd's data. In addition to a standard viewing of your data, it includes countless analytical functions making it easier to interpret your data.

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2. Basics

The smaXtec® pH Monitoring System measures the pH in the rumen directly inside the animal and in real time. This means you have the information to hand whenever you need it.

Sub-acute rumen acidosis (SARA) as a health risk

Imbalanced feeds and cattle physiology frequently lead to an alteration of the pH in the rumen and may in the worst cases eventually cause disease.

Clinical systems:

- Lameness
- Diarrhoea
- Poor general health

Indirect clinical symptoms:

- Reduced fertility
- Decreased milk production and quality

Sub-acute rumen acidosis (SARA) as a commercial risk

SARA may constitute a burden for your business in several respects:

- Increased cost, due to reduced yield
- Lower fertility
- Health problems
- Unproductive fixed costs

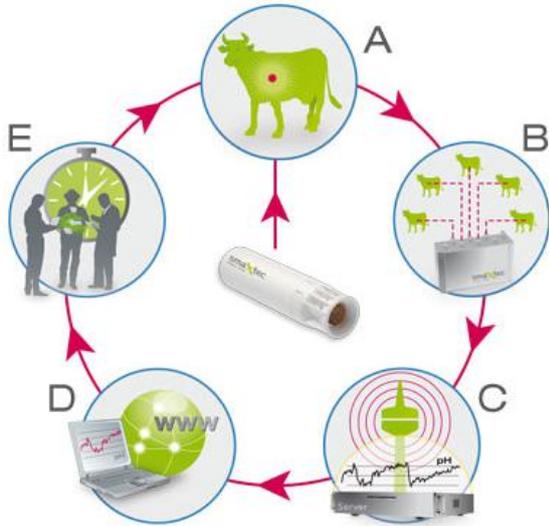
Scientific studies and field studies (W. Stone, 1999) have come to the same conclusions. They estimate that the losses caused by SARA on dairy farms amount to approx. € 1.00 per cow per day.

SARA and its collateral costs affect 15% to 40% of all cattle and avoiding it needs to be a key priority for farmers.

The smaXtec® pH Monitoring System has been designed to simultaneously improve the health of your cattle and the economic yield of your farm.

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And this is how it works:



A Activated pH Bolus in the rumen of cattle

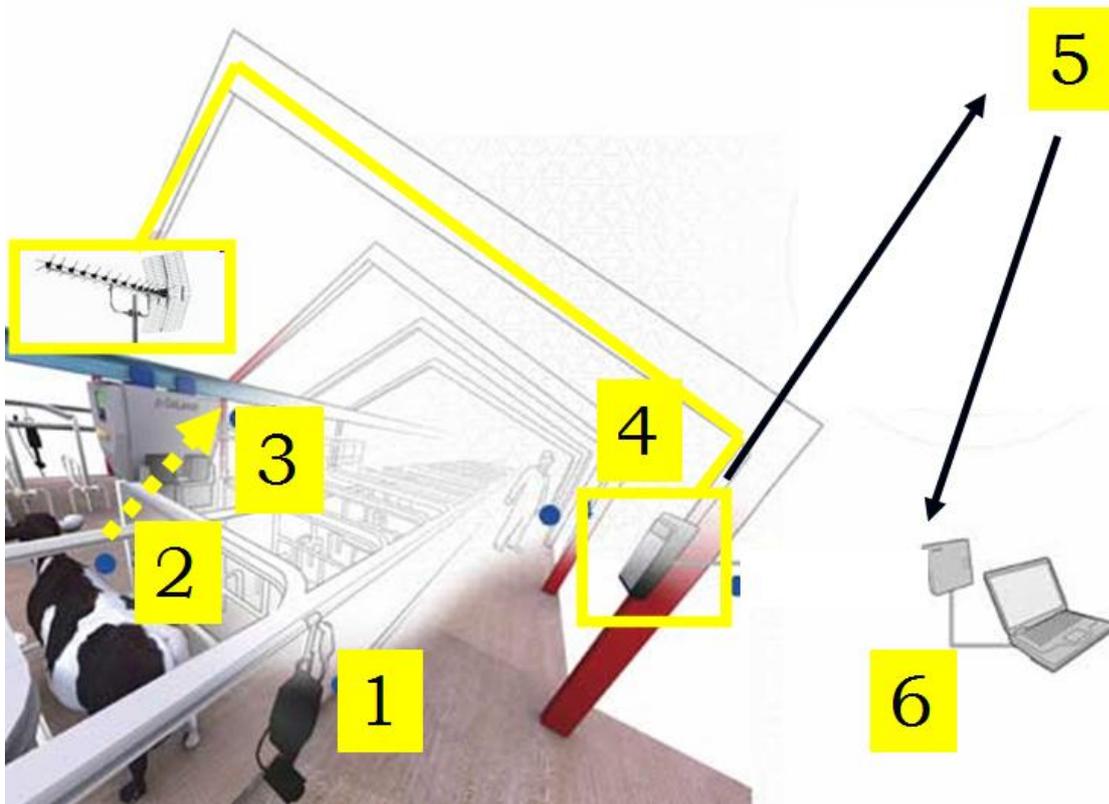
B Base Station to receive the data

C Transmission of values to server

D Processed data accessible web-wide

E Fast data analysis and quick decision

The illustration below shows the process described above in more practical terms.



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1. Concentrate feed station/milking parlor/massage brush
2. pH Bolus in cow rumen
3. Antenna(s) (433 MHz) connected to the Base Station receive data from the pH Bolus
4. Base Station saves data on the smaXtec® server (Online Archive) via the internet (5.)
6. PC/laptop has access to the measurement data and can interpret it

Alternatively, you have the option of using the Mobile Reader instead of the Base Station.

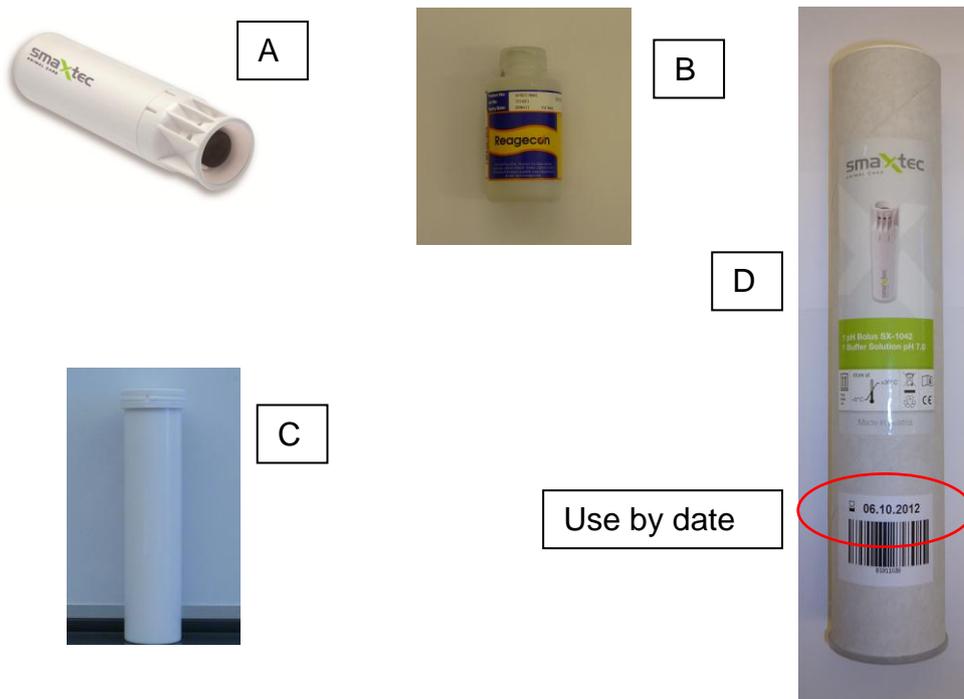


PLEASE NOTE: The Base Station and the Mobile Reader can NOT be used simultaneously!!!

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3. Scope of delivery

smaXtec® pH Bolus



Item	Component	Function
A	smaXtec® pH Bolus	<i>This saves the pH and temperature levels in the cow's rumen at 10 minute intervals. The guaranteed measurement period is 50 days.</i>
B	Buffer Solution	<i>This pH7 liquid is required for first initialisation of the Bolus.</i>
C	Plastic casing	<i>This protects the pH Bolus. It also contains a piece of sponge covering the sensor tip and this must be removed on first initialisation of the Bolus.</i>
D	Packaging tube	<i>This packaging tube contains the buffer solution and the plastic casing with the pH Bolus. Please note the storage instructions on the label particularly with respect to temperature range.</i>



Warning: The pH Bolus must be inserted before the use by date!!!

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Label on packaging

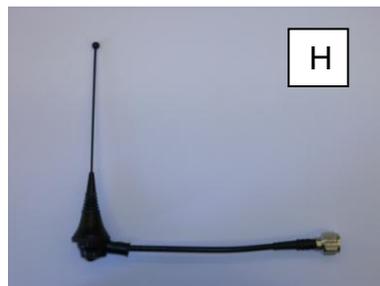
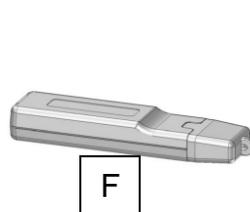
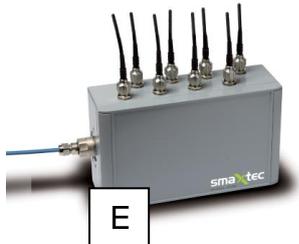


- 1.) Please store right way up as indicated on packaging
- 2.) Storage temperature between + 5 °C and + 30 °C
- 3.) Please read the instructions
- 4.) See Chapter 11 for approval information

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smaXtec® Base Station

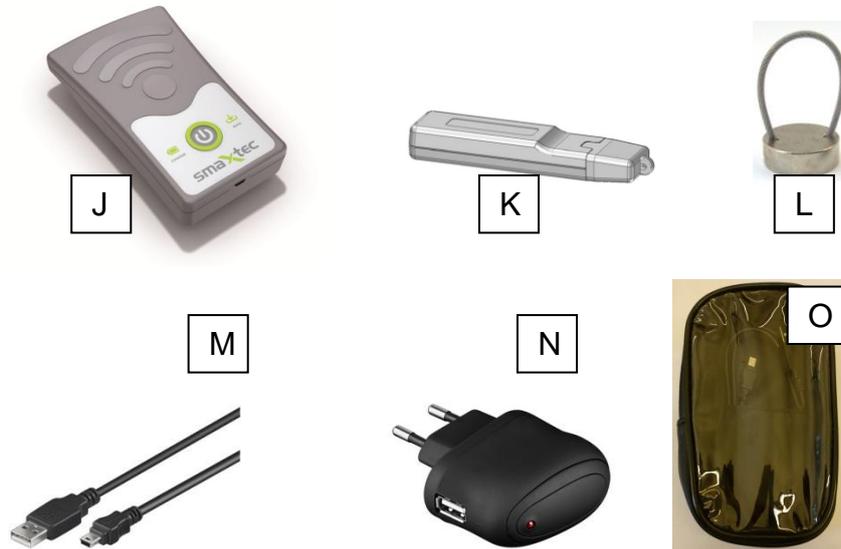
Information on installation of the Base Station is available in the Installation Manual at <http://www.smaxtec-animalcare.com>.



Item	Component	Function
E	smaXtec® Base Station	<i>Communicates with the pH Bolus in the rumen by means of antennas.</i>
F	smaXtec® USB antenna	<i>Use this USB antenna to initialise the pH Bolus.</i>
G	Magnet	<i>Use the magnet to activate the pH Bolus (Bolus initialisation).</i>
H	Antennas	<i>Up to eight antennas are used for communication with the pH Bolus situated in the rumen and are connected to the smaXtec® Base Station (previously installed).</i>
I	Mains adapter + PoE adapter	<i>Provides the Base Station with power (previously installed).</i>

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smaXtec® Mobile Reader



Item	Component	Function
J	smaXtec® Mobile Reader	<i>The Mobile Reader is used to detect pH Boli within the range and to read off the stored measurement data.</i>
K	smaXtec® USB antenna	<i>Use this USB antenna when initializing the pH Bolus.</i>
L	Magnet	<i>Use the magnet to activate the pH Bolus (Bolus initialization).</i>
M	USB cable	<i>Use this cable to connect the Mobile Reader either to the Power supply unit or a PC/laptop.</i>
N	Power supply unit	<i>May be used to charge the Mobile Reader battery.</i>
O	Protective cover	<i>The Mobile Reader is not waterproof. Do not expose it to liquids or damp or very humid conditions. Please use the protective cover provided.</i>

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4. System requirements

The following items are required for operation of the *smaXtec® pH Monitoring System*:

- A PC/laptop computer with USB connection and one of the following operating systems:
 - Windows XP Home or Professional with Service Pack 3 (or higher)
 - Windows Vista Home Premium, Business, Enterprise or Ultimate Edition
 - Windows 7 Home, Professional
- smaXtec® pH software, available for download from www.smaXtec-animalcare.com
- smaXtec® USB antenna
- smaXtec® Base Station and/or:
- smaXtec® Mobile Reader
- smaXtec® pH Bolus (in plastic tubing)
- Buffer solution
- Magnet
- Balling gun (inside diameter 35 mm, to be ordered from smaXtec® animal care – for further information see chapter 9)

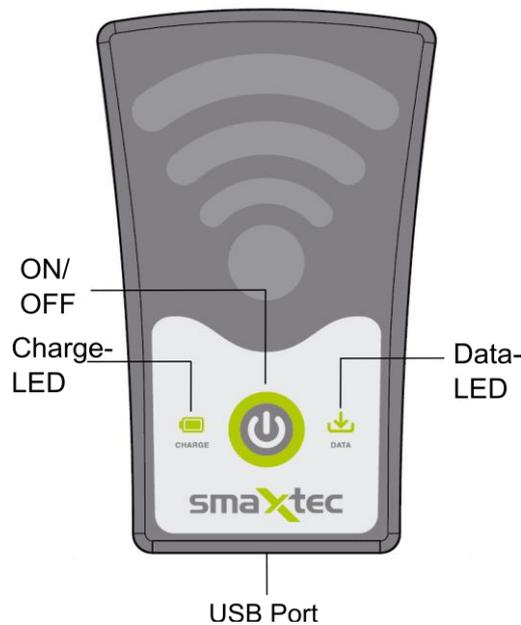
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5. Your smaXtec® Mobile Reader



Important information:

The warranty for this product shall be rendered invalid if you take the device apart or attempt to take the device apart.



ON/OFF BUTTON:

This button is used to turn the Mobile Reader on and off. This LED flashes to indicate that it is on.

Note: If the LED does not flash although the Mobile Reader has been switched on it is highly likely that the battery is out of charge. Please charge the battery (see section below on charging the battery).

Charger LED (CHARGE):

When the USB cable is attached the battery charge level is displayed

Steady LED: indicates battery is charging

Flashing LED (at 1 second intervals): indicates battery is fully charged

Data LED (DATA):

When measurement data from the Mobile Reader has been read, this LED flashes. Please leave the Mobile Reader for approx. a further 30 minutes (depending on the amount of data saved from the pH Bolus) from start of blinking) in the receiving radius (approx. 5 - 10 meters) of the cow fitted with the pH Boli in order to ensure all measurement data has been completely read. The stated time serves as a guideline and is sufficient for example for reading off measurement data from five pH Boli, which have stored measurement data for 2 days.

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USB connection:

The USB cable is plugged in here and is either connected up to a PC/laptop or a mains adapter.

Charging the battery

On receipt the battery will be part charged. Before switching on and using the Mobile Reader, however, you first need to fully charge the battery. It is important that you only use the supplied PoE adapter and supplied USB cable to charge the battery.

Connect the supplied USB cable to the Mobile Reader and supplied mains adapter. Start charging the battery by plugging the mains adapter in to a suitable wall socket. It takes around five hours to fully charge the battery. The LED light flashes to indicate that charging is complete.

The battery can also be charged by connecting the Mobile Reader to your PC/laptop using the USB cable provided. This takes around twice as long as using the supplied mains adapter.

Note:

Measurement data cannot be read from the pH Boli when the Mobile Reader is being charged or is connected to the PC/laptop.

Initial application:

When the battery is fully charged, please connect it up to the PC/laptop using the USB cable. Start the pH software programme and execute the menu item "Configure company/readout device". Please see Chapter 8.14 for further details.

Reading measurement data from the pH Boli with the Mobile Reader:

- 1) Switch your Mobile Reader on by pressing the ON/OFF button.
- 2) Once the Mobile Reader has been switched on, all data from the pH Boli in the given range will be automatically imported. In order to do this most effectively, take the Mobile Reader to areas where the cows tend to spend longer periods of time (e.g. in the milking parlor, waiting areas near the milking parlor etc.).

Data is imported from Boli in cows within a range of 5-10m and after approx. 30 minutes all measurement data from the pH Boli has been imported.

Note: When importing measurement data for the first time please allow a readout time of 60 minutes.

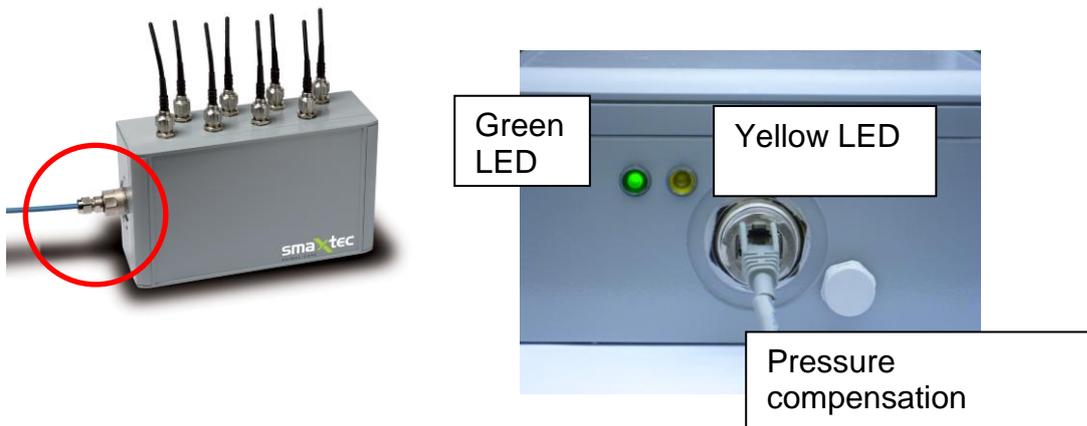
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- 3) To import the pH measurement data from the Mobile Reader, please use the USB cable provided to connect it to your PC/laptop.
- 4) Please refer to Chapter 8 for further information on importing data, on configuring your Mobile Reader and saving the data in the online archive.

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6. Your smaXtec® Base Station

The Base Station constitutes the core and central device of your system. Up to eight antennae are used to contact the Boli within the range at regular intervals, read out and store the data.



The illustration above shows the Base Station on the left-hand side. A close-up of the area marked in red is shown on the right. The two LEDs on this side of the device show the following functions of the smaXtec® Base Station.

Green LED on: Base Station in operation (this LED must always be on to indicate that the smaXtec® pH Monitoring System is functioning).

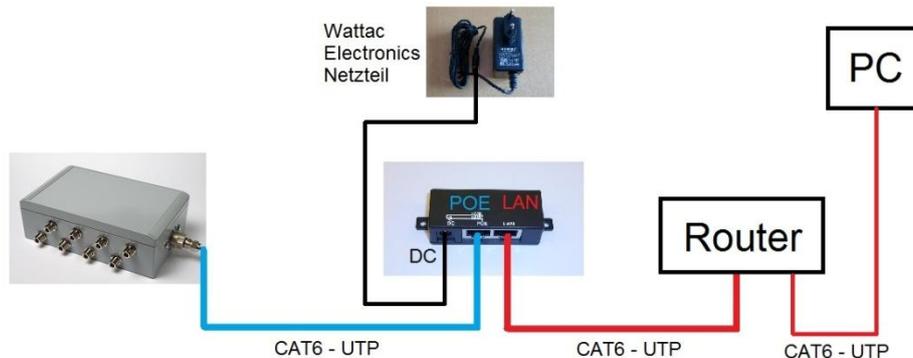
Yellow LED blinking: Boli are within range of the antennas and are communicating with the smaXtec® Base Station.

Yellow LED off: no Bolus is within range of the antennas yet.

The smaXtec® Base Station also contains a pressure compensation valve, which compensates variations in pressure in order to prevent the formation of condensation inside the Base Station. Alternating temperature curves may result in pressure differences between the inside of the casing and its surroundings. Pressure differences that are not compensated increase the load on the seals. This may lead to cracks and leaks with the risk of water, humidity, or dirt penetrating the casing and eventually leading to a malfunctioning of the smaXtec® Base Station.

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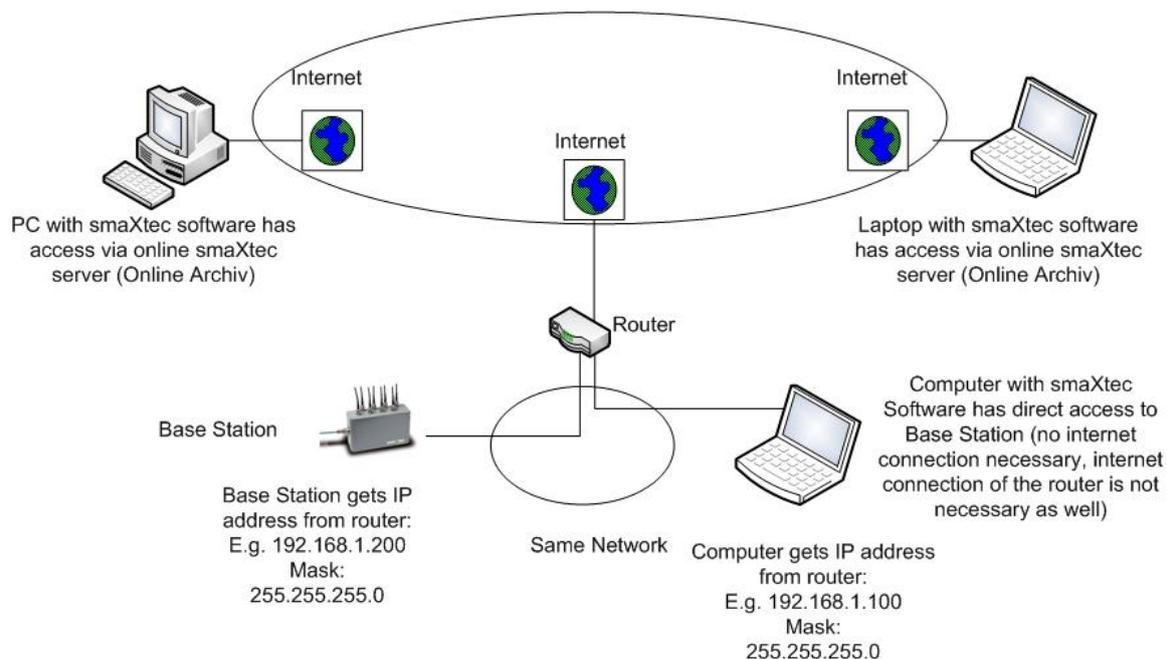
A schematic representation of the interaction between the Base Station and your PC/laptop is given in the figure below:



The router must be configured as follows:

- DHCP must be activated on the router (PC/laptop and Base Station must be in the same subnetwork)
- High ports (1024 and upwards) may not be blocked on the router (Base Station uses 1194 UDP)
- MYSQL port 3306 also needs to be activated

If the router is located on the internet the measurement data can be transferred to the online archive (see Chapter 8). The figure below shows in detail how a configuration with router and internet could look:



For further information on installation of and/or wiring for the antennae, please see the Installation Manual at <http://www.smaxtec-animalcare.com>.

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7. Driver Installation USB Antenne/Mobile Reader

Following successful installation of the pH software, the driver for the smaXtec® USB antenna and the smaXtec® Mobile Reader are automatically installed. However, should one of these devices fail to be recognised by the pH software, please follow the steps described in Chapter 7.1 (for Windows XP) or 7.2 (for Windows 7).

7.1. Driver Installation - Windows XP

Notes: These instructions are for Windows XP. Installation under Windows 98/ME/2000 is similar but not necessarily identical.

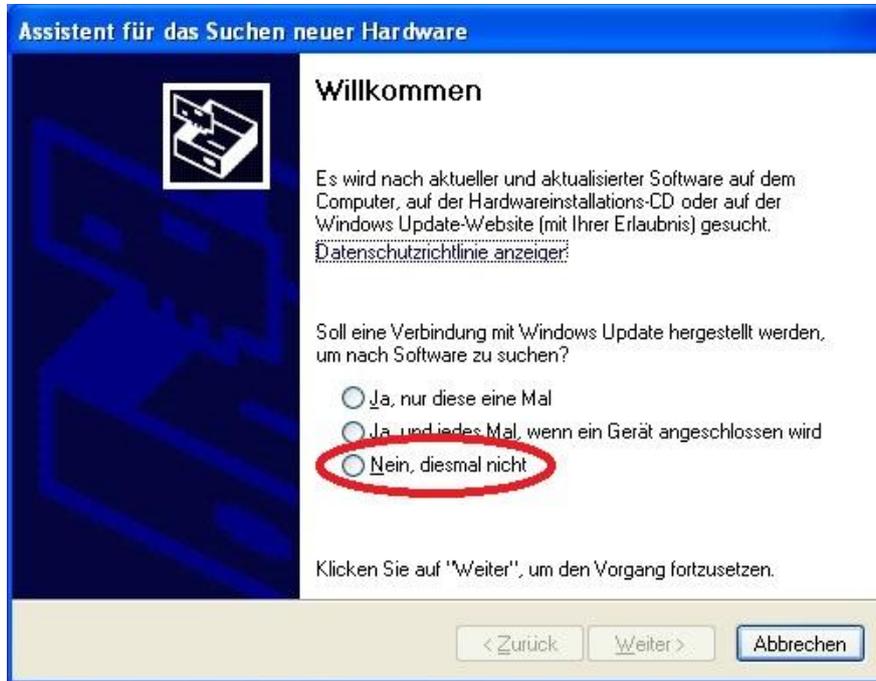
Step 1: Connect the smaXtec® USB antenna/smaXtec® Mobile Reader to a free USB interface on your PC/laptop.



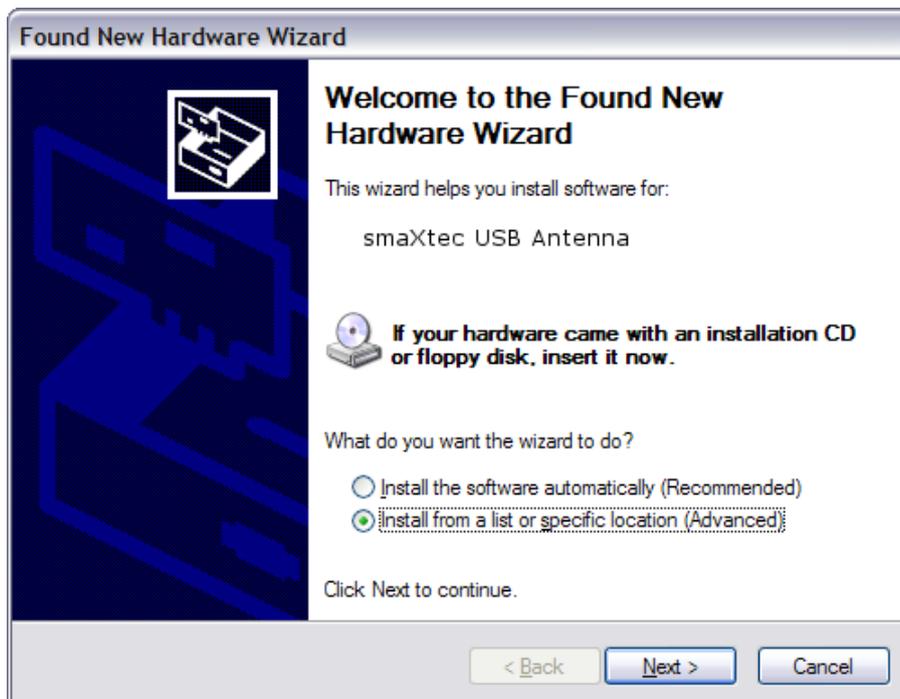
NOTE: If the new Hardware Found Wizard popup does not appear when you plug in your interface, go into Device Manager and look for the interface “smaXtec USB Antenna”. In Windows XP, you can typically find the Device Manager by RIGHT-CLICKING on “My computer” then selecting “Manage”. Your smaXtec® USB antenna should be under “Universal Serial Bus (USB) Controllers” or under “Other Devices”. If it is there, right-click it and then select “Update driver”. Then you can move on to Step 2 in the instructions below.

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Step 2: Select “No, not this time” and then click on “Next”.



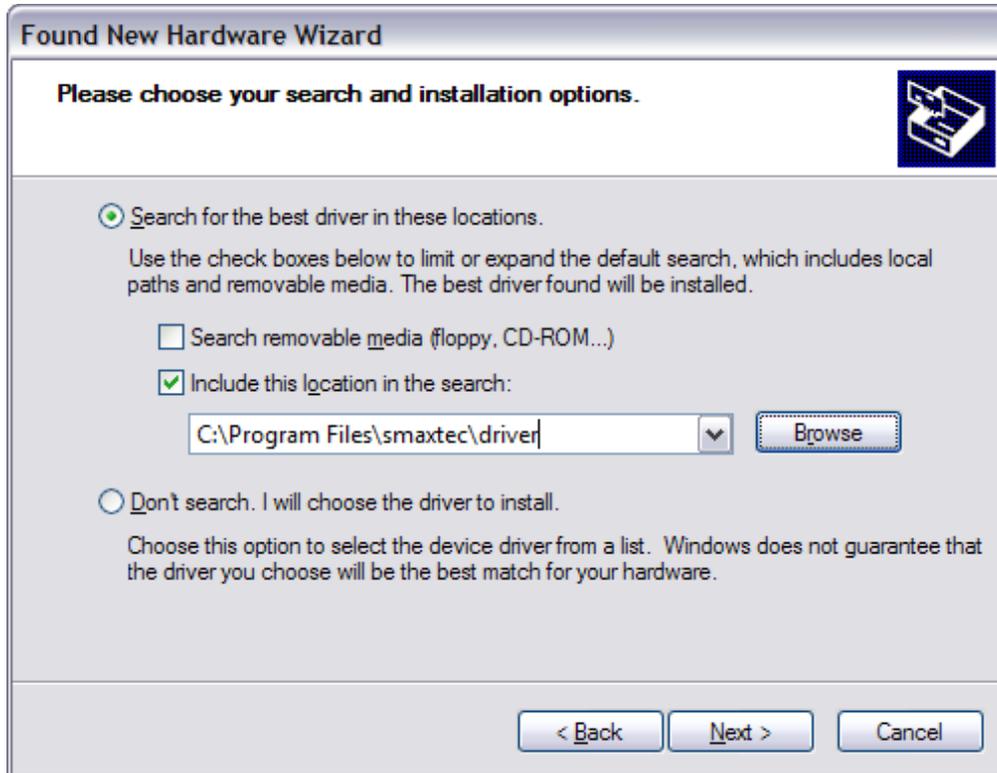
Step 3: The New Hardware Found Wizard should appear:



On the screen above, select "Install from a list or specific location (Advanced)" then click on “Next”.

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Step4: The following dialog should appear:



On the screen above: select "Search for the best driver in these locations"
Click on "Include this location in the search:" Use the [Browse] button to find the smaXtec folder (Usually C:\Program Files\smaXtec\driver_mobile_reader or driver_usb_antenna unless you chose a different folder when you installed the software)

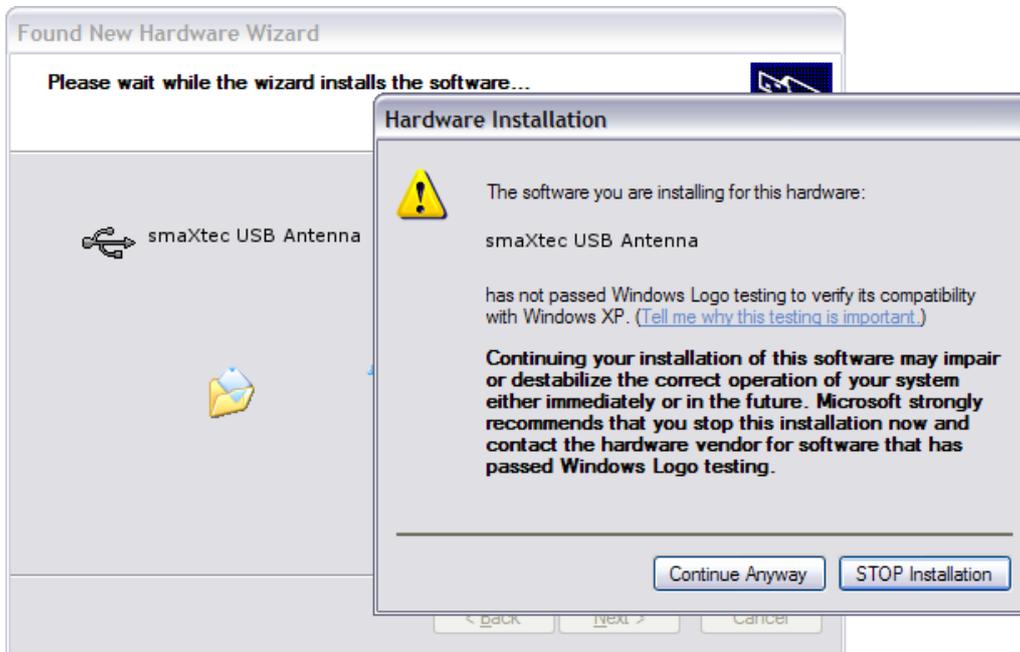
Click the on "Next".

Step 5: If a Windows message appears stating "This hardware will not be installed. Contact your system administrator" then you need to do the following

- A) Login to Windows with Administrator rights.
- B) Go to Start -> Settings -> Control Panel -> System -> Hardware -> Driver Signing
- C) Select Warn and choose "Prompt me each time to choose an action."
- D) Next, repeat the driver installation starting at Step 2.

Step 6: The following dialog should appear:

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This dialog warns you that the driver is not certified. Please click on the [Continue Anyway] button. Note: If your Windows Security Settings policy is "undefined" you may need to set it to "warn" to be able to continue.

Step 7: The following dialog should appear:



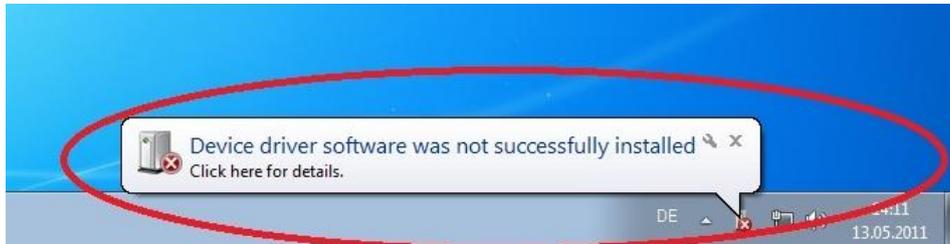
Click the [Finish] button to complete the installation.

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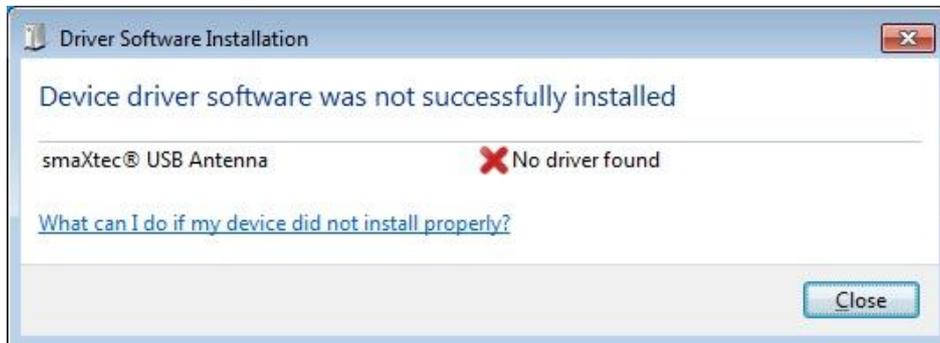
Step 8: Following installation of the smaXtec® USB antenna/smaXtec® Mobile Reader driver, go to Device Manager and look for the interface “USB Serial Port”. In Windows XP, you can typically find the Device Manager by RIGHT-CLICKING on “My Computer” then selecting “Manage”. The USB Serial Port should be under Ports (COM & LPT) or under Other Devices. If it appears, right-click it and then select “Update driver”. Then you can move on to Step 2 in the instructions below (driver has to be installed twice).

7.2. Driver Installation - Windows 7

Step 1: Connect the smaXtec® USB antenna/smaXtec® Mobile Reader to a free USB interface on your PC/laptop.

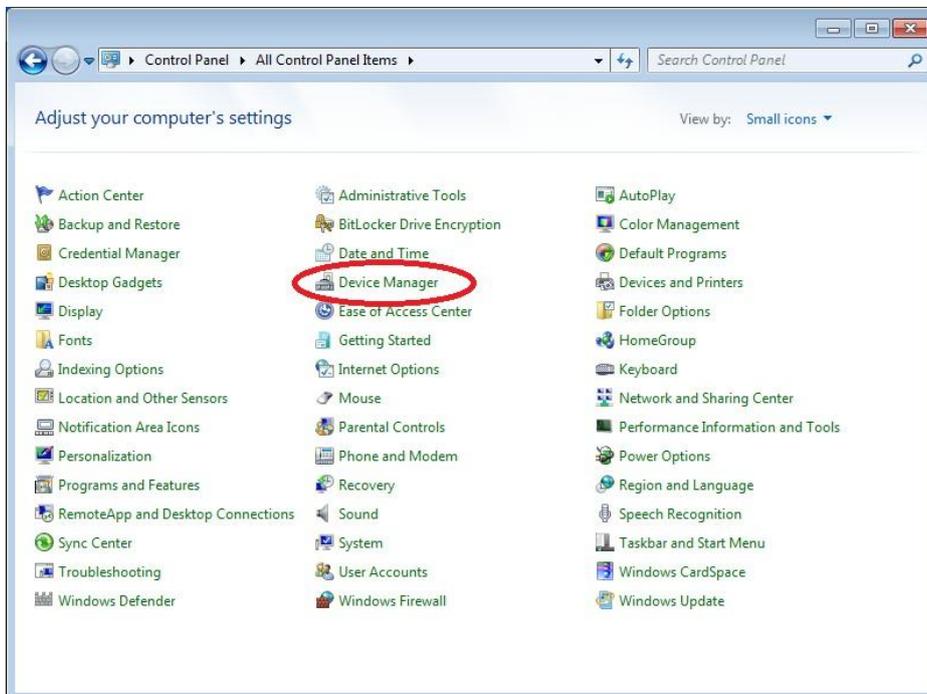
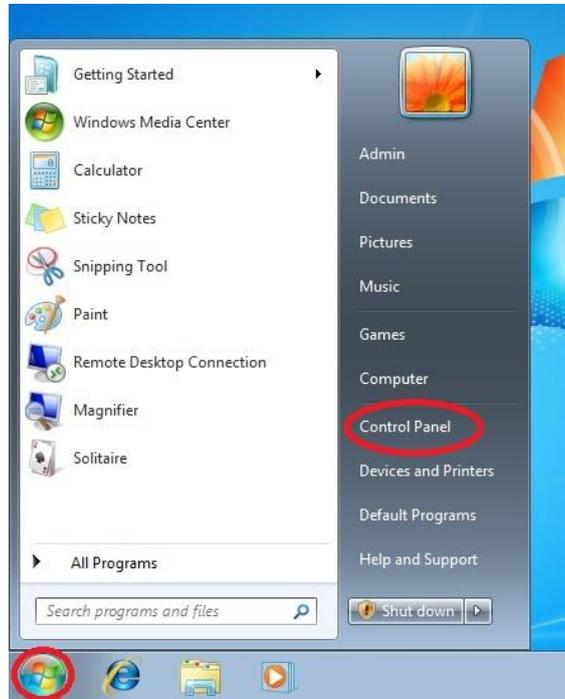


If no suitable driver is automatically found, please follow the procedure below.



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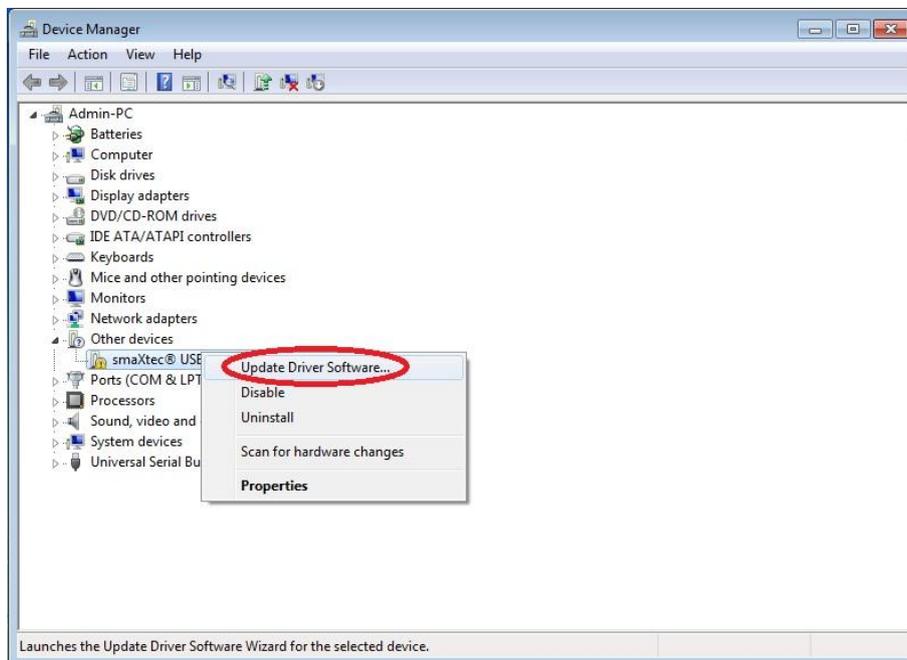
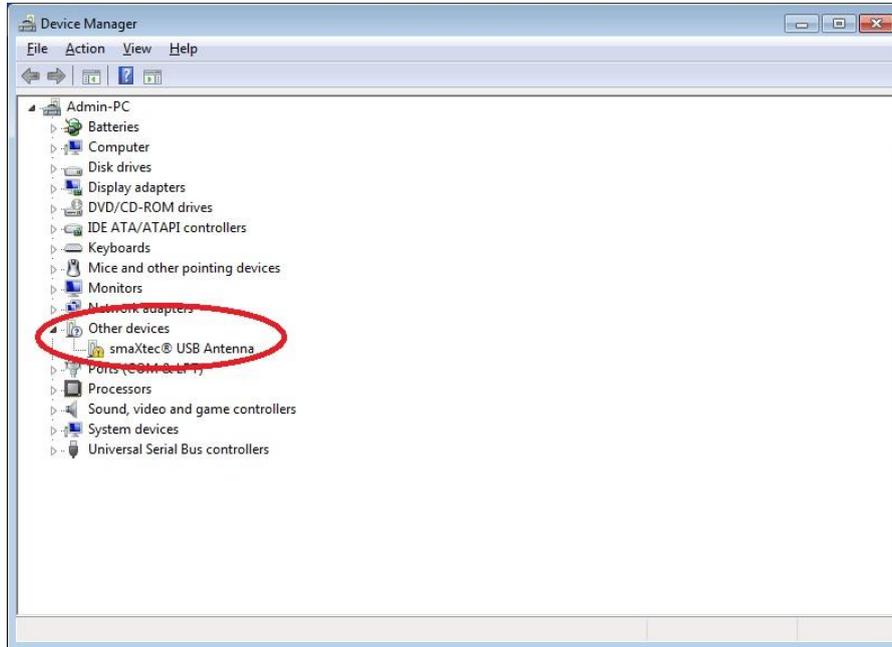
Step 2: Click on the Windows start button to bring up the start menu and select “Control Panel” and then select “Device Manager”.



Step 3: In the “Device Manager” window there will be a device (smaXtec® USB Antenna/smaXtec® Mobile Reader) under “Universal Serial Bus (USB) Controllers”

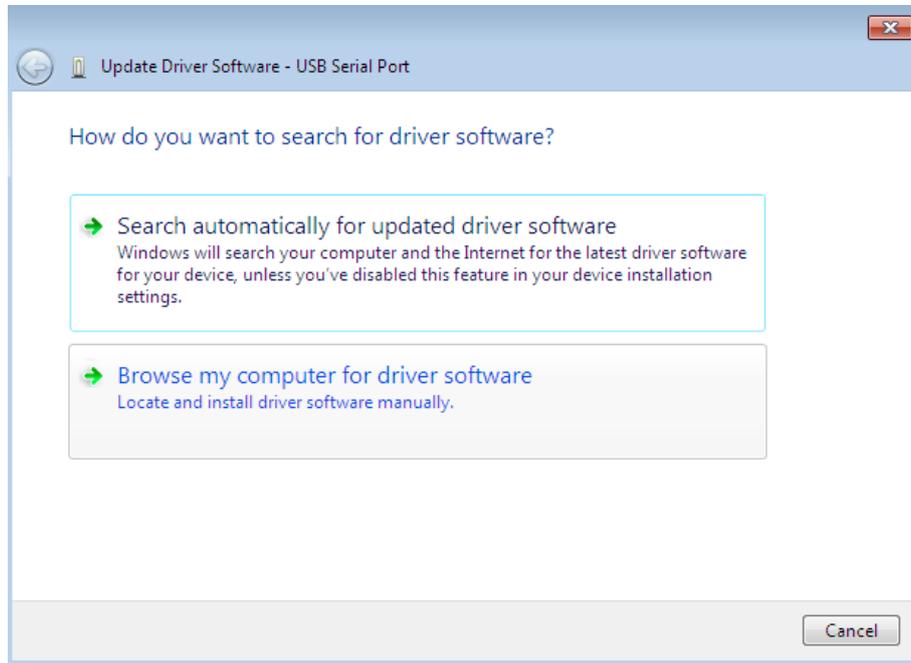
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or under “Other Devices” with a yellow warning symbol indicating that there is no driver installed. If this symbol appears, right-click it and then select “Update Driver Software”.

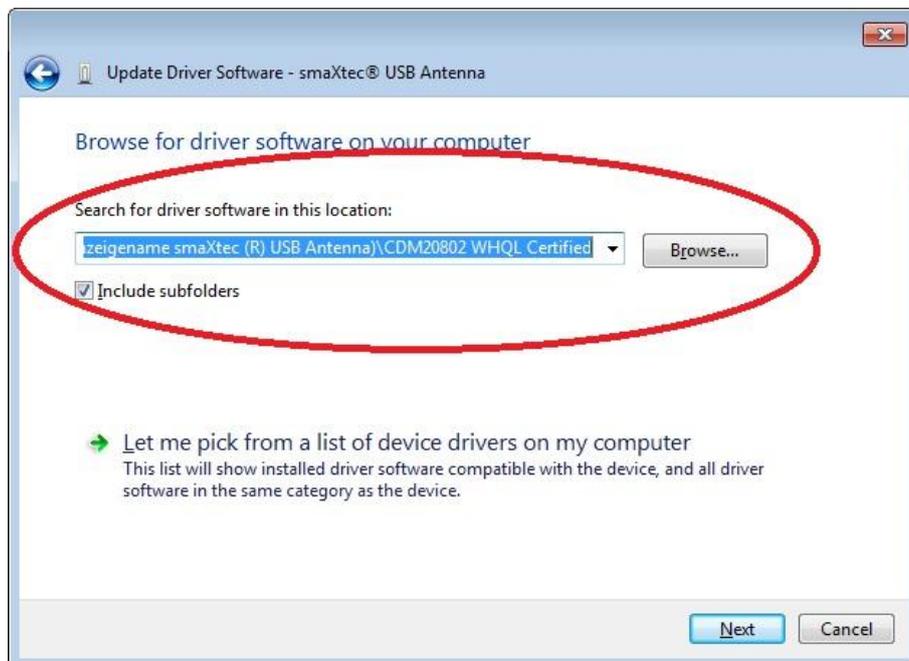


Step 4: An automatic search or a manual search option is displayed in a new window. Select the second option to browse manually.

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Step 5: Use the [Browse] button to find the smaXtec folder (Usually C:\Program Files\smaXtec\driver_mobile_reader or driver_usb_antenna unless you choose a different folder when you installed the software) . Click on “Include subfolders”.



Click the on “Next”.

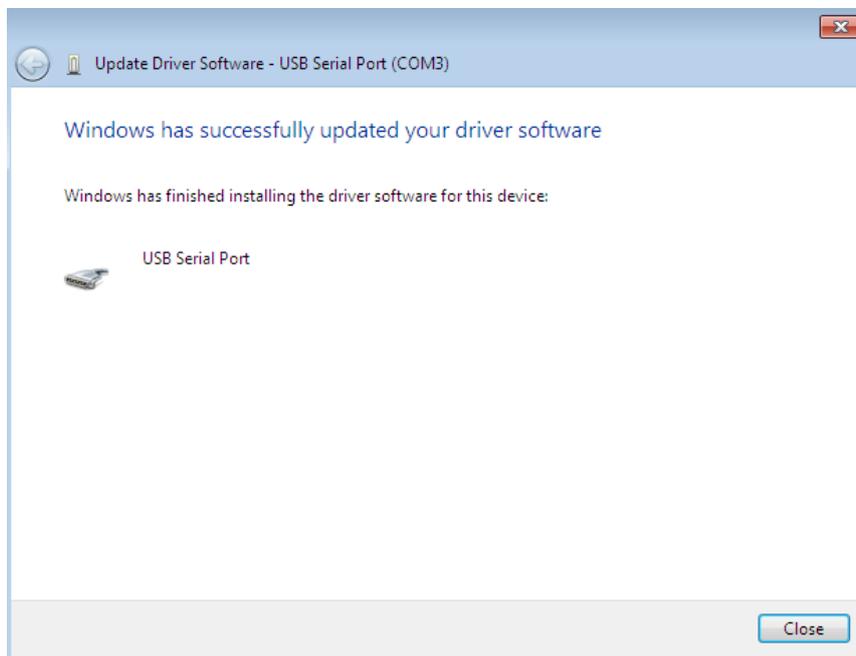
Step 6: The following dialog should appear – Click on “Install this driver software anyway”.

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This dialog warns you that the driver is not certified. Note: if your Windows Security Settings policy is "undefined" you may need to set it to "warn" to be able to continue.

Step 7: The following dialog should appear:



Click on "Finish" to complete the installation.

Step 8: Following installation of the smaXtec® USB Antenna/smaXtec® Mobile Reader driver, go to Device Manager and look for the interface "USB Serial Port". The USB Serial Port should be under Ports (COM & LPT) or under Other Devices. If it appears, right-click it and then select "Update Driver". You can then go to Step 4 in the instructions below.

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8. The smaXtec® pH software

8.1. First Steps

1. Installation of the readout device

Connect your readout device (Mobile Reader or Base Station) with your PC. A detailed description for the installation of the Base Station is given in the Installation Manual (available in the download area on <http://www.smaxtec-animalcare.com>).

2. Configuration of your company and readout device

Please fulfil menu item "Configure company/readout device" with your readout device connected. Thus, you link it with your company and you can also configure it in a manner that allows you to automatically transfer your measurement data into the online archive.

3. Configuration of your pH Bolus:

The menu item "Bolus Initialisation" now allows you to configure your pH Bolus. Please keep the included magnet and the ear tag number of the cow to be provided with the Bolus ready. Please ensure the USB antenna has previously been connected to your PC.

4. Online Archive synchronisation:

When you use the Base Station that is connected to the internet correctly, the measurement data will be transferred to the Online Archive automatically. When using the Mobile Reader, synchronisation is carried out automatically, subject to the condition that you are logged in the pH software with your username and password and the Mobile Reader's measurement data has been downloaded completely. Requirement: the PC must be connected to the internet.

5. Feed stuff advisor/veterinarian unblocking:

If required, you can allow access to your measurement data for your feed advisor/veterinarian. Therefore, enter the code received from him/her under "Custom Settings".

6. Reading out the measurement data

Mobile Reader:

Put the Mobile Reader in areas where the cows tend to spend longer periods of time (e.g. milking parlor, holding areas near milking equipment etc.) and switch it on. The range of the Mobile Reader is 5 – 10 metres and after approx. 30 minutes the measurement data from the Boli are fully imported.

Base Station:

After correct installation of the Base Station (see Installation Manual available at <http://www.smaxtec-animalcare.com>) the measurement data are automatically read out from the Boli when the cows are in range of the antennae (readout range is 5 – 10 metres per antenna).

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8.2. The User Interface of the smaXtec® pH software

Once the installation has been successfully completed, launch the smaXtec® pH software from your start menu.

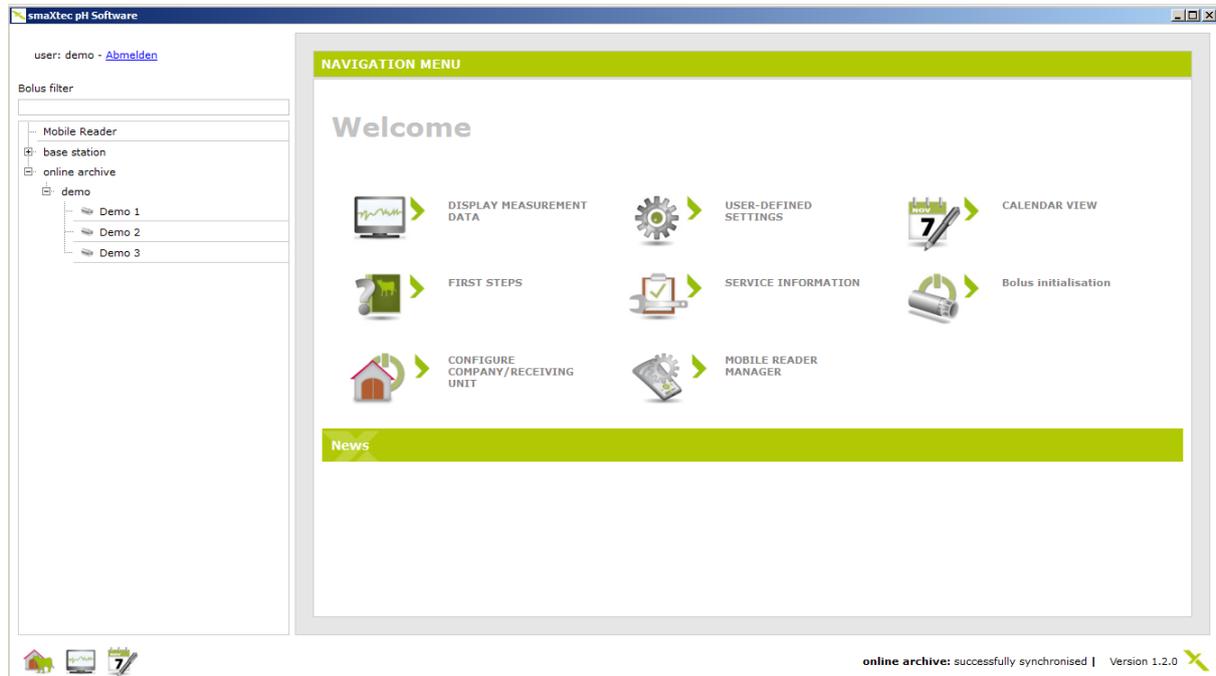


- a.) Registration system (see Chapter 8.3)
- b.) Main window (see Chapter 8.5)
- c.) Status bar (see Chapter 8.6)
- d.) News (see Chapter 8.7)

To familiarise yourself with the smaXtec® pH software and see a demonstration of pH Bolus measurement data, simply log on using the user name and password “demo”. Information explaining the demo measurement data is available at <http://www.smaxtec-animalcare.com>.

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The following screenshot shows the user interface, which appears when you have successfully logged on to the system.



- a.) Navigation panel (see Chapter 8.4)
- b.) Main window (see Chapter 8.5)
- c.) Status bar (see Chapter 8.6)
- d.) News (see Chapter 8.7)

8.3. smaXtec® Registration System

When you have successfully carried out the steps under the menu item “Configure company/readout device” (see Chapter 8.14) and have successfully executed one of the settings with “Online Archive”, you can log in to the smaXtec® pH software. This means you ensure that the measurement data are always transmitted to the Online Archive and you are also able to access it.

Note:

If you are using a Base Station and you start the pH software on a PC/laptop which is in the same network as the Base Station, you will automatically be registered in the pH software as “Anonymous”. If you would like to have online archiving of your measurement data, please still carry out the steps under the menu item “Configure company/readout device” (see Chapter 8.14). You can use the user data created to access your archived online measurement data on another PC/laptop, which is connected to the internet. The measurement data are automatically transmitted from the Base Station to the online archive.

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8.4. Navigation panel

The left-hand panel in the software is to log on to the pH Monitoring System and navigation of the measurement data read out from the Boli. The default identification for the data is the ear tag number. You can click on an ear tag number in the main window and assign an animal name to the cow in the tab “Master Data”. This then means that the animal name rather than the ear tag number is displayed in the navigation panel.

On this panel you can also click on “Bolus Filter” to search for certain ear tag numbers or animal names (or parts of these numbers/names) and only have these listed.

8.5. Main Window



➤ **DISPLAY MEASUREMENT DATA**
Shows the pH as well as temperature measurements for your cattle.



➤ **USER-DEFINED SETTINGS**
Choose from various settings with this menu item (e.g.: give access to feeding adviser, change password and so on).



➤ **CALENDAR VIEW**
Click on this button to see an overview of the run time of all previous and current pH Boli.



➤ **FIRST STEPS**
Here you will find a short guide to help you when you first start using the pH Monitoring System.



➤ **BOLUS INITIALISATION**
Click this button to proceed to initialisation (activate and calibrate the pH Bolus). Please keep the included magnet and the ear tag number of the cow to be provided with the Bolus, ready. Previously, please connect the USB antenna to your PC.



➤ **SERVICE INFORMATION**
Here you will find contact information for smaXtec® Support.

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CONFIGURE COMPANY/READOUT DEVICE

Here you can link your company with your readout device (Base Station or Mobile Reader) and configure it so that your measurement data are automatically transmitted to the online archive. Please only execute the steps under this menu item when the readout device is connected.



MOBILE READER MANAGER

Please click here to manage the smaXtec® Mobile Reader and choose from a large number of settings/queries (e.g. memory status, delete data etc.).

8.6. Status Bar

The symbols appearing on the bottom left of the pH software screen provide quick navigation of the programme. You can click here, for example, to return to the main screen, display measurement data or select the calendar planner.

On the bottom right of the screen you will also see the status of the online archive and the Mobile Reader. The  symbol shows that the Mobile Reader or the online archive is currently processing measurement data or other activities. If this symbol appears please do not disconnect the Mobile Reader from the PC/laptop and please wait until the symbol disappears – you will only then be able to access all measurement data.

8.7. News

If your PC is connected to the internet the latest information about the pH Monitoring System will be displayed here.

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A more detailed description of the individual navigation items is given on the following pages.

8.8. Display Measurement Data

The pH software enables you to monitor the pH and rumen temperatures of your cattle at any time by clicking on the ear tag number or animal names of the corresponding animal. To do this, select the designated Bolus in the left-hand column and click on “Display Measurement Data”.

8.9. User-defined settings

You may define the following customized settings:

- Show and hide pH and rumen temperature curves
- Format pH and temperature axis
- Show and hide value cursor
- Change Password
- Access to your measurement data by your feed advisor/vet

8.10. Calendar View

Provides an overview of pH Boli currently in use and assigned to the corresponding animals.

8.11. First Steps

Here you will find a short guide to help you when you first start using the pH Monitoring System.

8.12. Bolus Initialisation

In order to be able to use the smaXtec® pH Monitoring System you will be requested to activate and calibrate the pH Bolus. Please keep the included magnet and the ear tag number of the cow to be provided with the Bolus, ready. Previously, please connect the USB antenna to your PC.



WARNING: Before using the magnets, please read the safety instructions given in this User Manual (Chapter 11) with regard to handling of the magnets supplied!

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Unlike other pH measuring devices which need to be recalibrated before each measurement is taken, the smaXtec® pH Bolus is only calibrated once.

After insertion the Bolus is retained in the reticulum and is therefore inaccessible. It is therefore absolutely essential that activation, calibration and administration of the Bolus are carried out in strict accordance with the instructions provided by smaXtec.

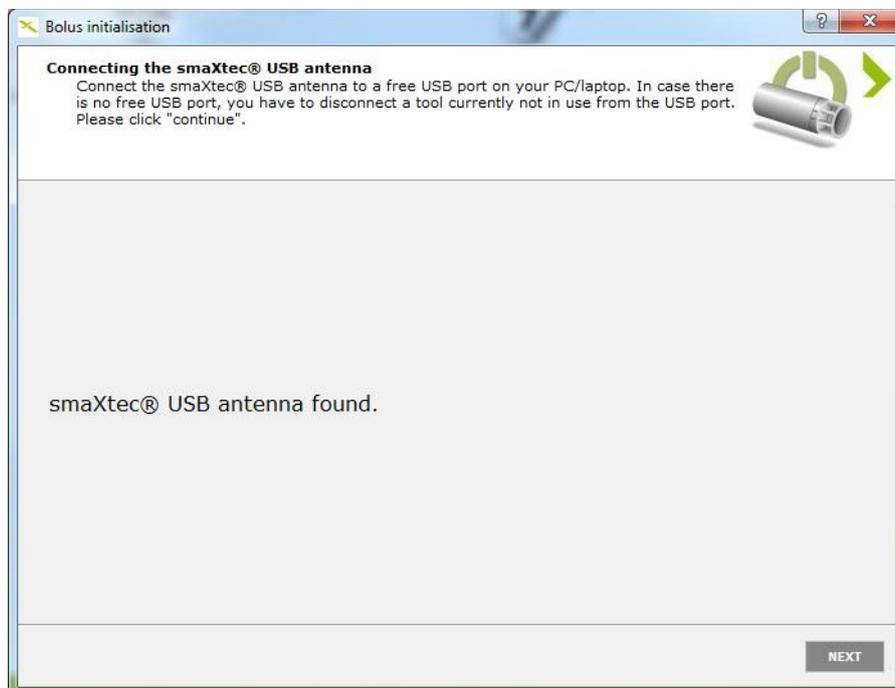


Warning: The measurement period for measurements with an accuracy of ± 0.2 pH is 50 days from activation of with the magnet!

Please note: It is only possible to activate and calibrate one pH Bolus at a time. Complete the entire configuration process for a pH Bolus before using the next pH Bolus.

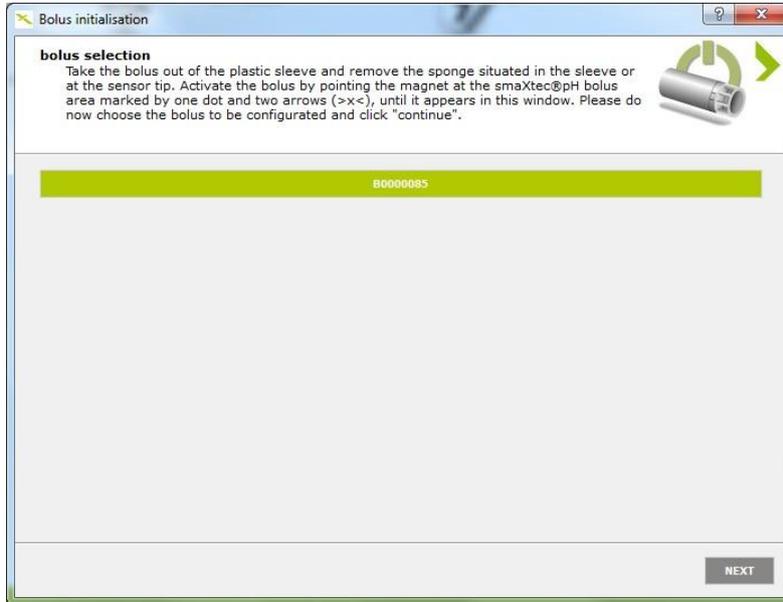
In order to start the configuration process for the pH Bolus please click the button “Bolus Initialisation” and follow the instructions provided. The following steps appear on the screen:

The first screen checks if the USB antenna is connected. If this is connected, please click on “Next”.



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Now you will be asked to activate the Bolus. Please point the magnet at the point on the Bolus marked by the two arrows (>x<) until it appears on the screen. Click on the Bolus to be configured and then click on “Next”.



Please empty any residual liquid from the plastic sleeve and pour in the buffer solution. Remove the label from the pH Bolus and stick it on to the plastic sleeve. Dip the pH Bolus with the sensor tip first in to the liquid. Confirm these steps have been completed and click on “Next”.



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Please now enter the ear tag number in country-specific format.

If your PC is connected to the internet then the date and time will be automatically downloaded. Please check that the date and time entered correspond with your actual data. If there is no internet connection available date and time may be entered manually. Please confirm the data entered is correct and click on "Next".

Bolus initialisation

Configure settings for B0000085.
Please enter the ear tag number in the format described below. You can also write this ear tag number on the plastic sleeve label in order to avoid later confusions. Now check and confirm your entries. Then, please click "continue".

ear tag number:
Ländercode (z.B. AT, DE), gefolgt von "-" und der weiteren Nummer in Ihrem länderspezifischen Format.
Z.B. AT-123-123-123, DE-1234-123-123, DE-1-123-123-123

AT-085

current time:
your time zone is UTC +1

date: 09.03.2012
time: 10:04:49
status: internet time has been downloaded

DOWNLOAD CURRENT TIME FROM THE INTERNET

Entries are being confirmed.

NEXT

In the next step the Bolus is calibrated. This process may take several minutes. Please wait until you are asked to save and/or print a guarantee document.

Bolus initialisation

bolus pH - calibration
The smaXtec® bolus is being configured. This process may last several minutes. In conclusion, a guarantee document is drawn up. Please save and/or print this document. You can invoke guarantee only with this document.

please wait 2%

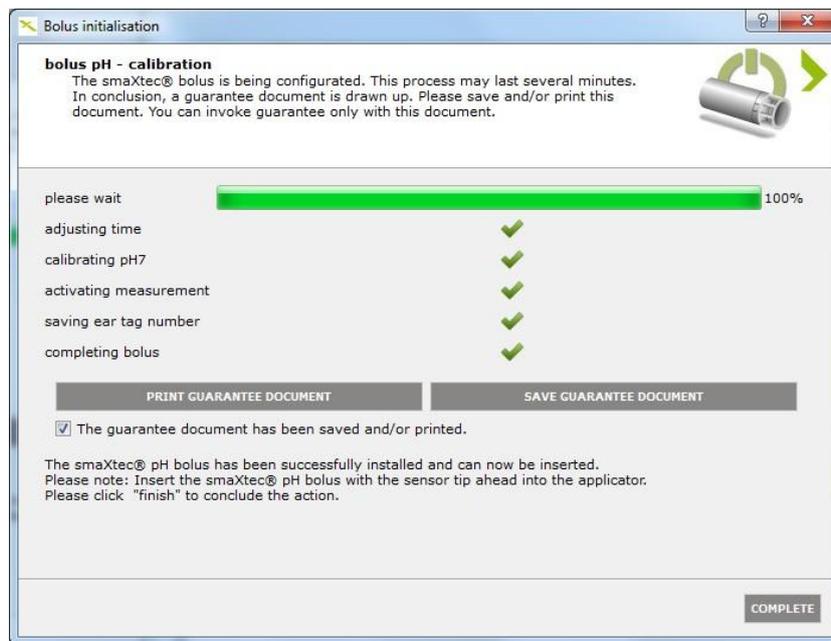
adjusting time
calibrating pH7
activating measurement
saving ear tag number
completing bolus

COMPLETE

When the above step has been successfully completed you will be asked to print and/or save the guarantee document. You must be in possession of this document to make any claim under warranty.

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If the individual items have **not** been confirmed with a green tick, please save and/or print the guarantee document anyway and contact smaXtec® Support (see menu item “Service Information” for contact details). Please confirm the completed steps and click on “Complete”. The pH Bolus may now be inserted (see Chapter 9).



Once you have completed installation of the pH Bolus you can remove the smaXtec® USB antenna from your PC. It is only needed for installation of the Bolus.

8.13. Service Information

If you need help in using the *smaXtec® pH Monitoring System* please click on this menu item. It lists the contact data for smaXtec® Support.

8.14. Configure Company/Readout Device

To log on to the pH software and to assign your readout device to your company you must first register your user data and configure the readout device. These steps can only be carried out when the readout device is connected. If the readout device has not been configured a popup window will appear to draw your attention to this.

Please click on menu item “Configure company/readout device” and follow the next steps.

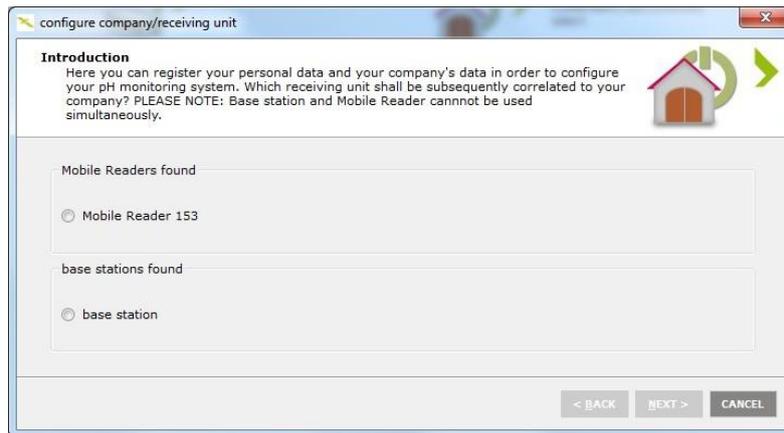
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The screenshots below illustrate the steps when using a Mobile Reader.

Step 1:

Please select your chosen readout device.

Note: Only connected readout devices are listed.



Please click on “Next”.

Step 2:

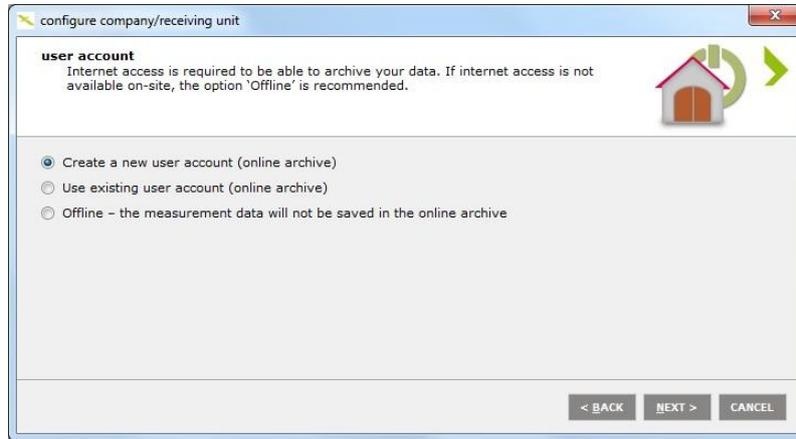
If you require online archiving of your measurement data on the smaXtec® Server, please select the option “Create a new user account (online archive)”. If you have already registered user data and would like to configure another readout device or register another company, please select the option “Use existing user account (online archive)”.

Note: Internet access is required for the above.

If you do not require online archiving please select the option “Offline – the measurement data will not be saved in the online archive”. You will therefore need to click on the “Anonymous” button in the smaXtec® registration system to access your measurement data.

Note: This means no access to your measurement data can be given to your feed advisor/veterinarian.

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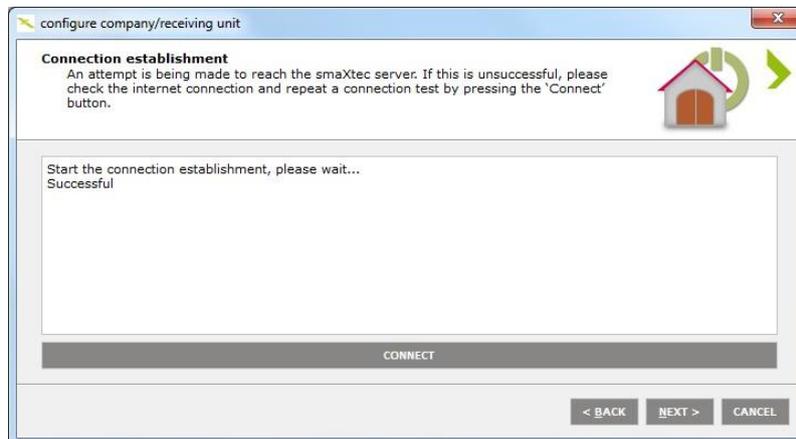
Note:

By selecting "Offline" you will be transferred to Step 7.

Please click on "Next".

Step 3:

Here an attempt is made to connect to the smaXtec® server. If there is already an internet connection the status will be shown as "Successful". If you are now connecting to the internet, please click on "Connect".



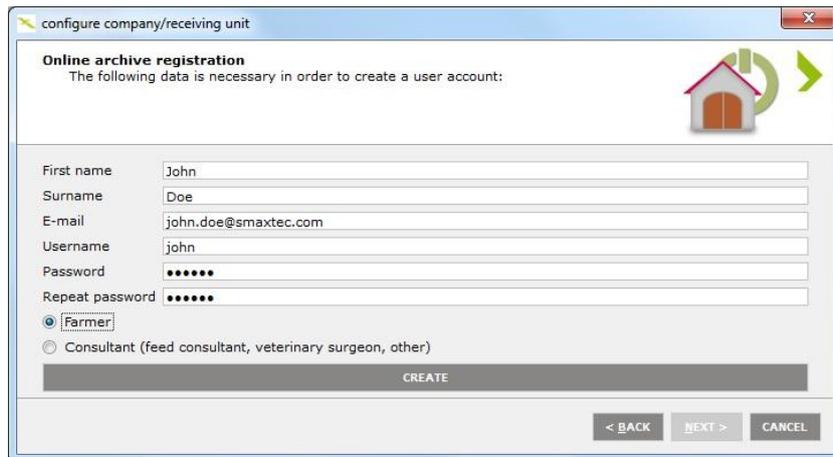
Please click on "Next".

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Step 4 under option “Create new user account (online archive)”:

To create your user data please complete all input fields. Please remember your user name and password – you need these in order to log in to the pH software. Please click on “Create” to register your user data.

Note: The password can be changed under menu item “User-defined settings”.

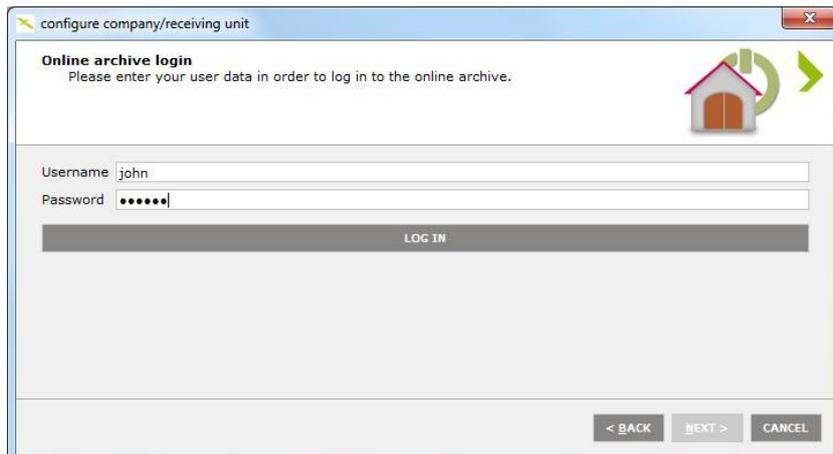


The screenshot shows a web browser window titled "configure company/receiving unit". The main heading is "Online archive registration" with the subtext "The following data is necessary in order to create a user account:". There is a house icon with a green arrow pointing right. The form contains the following fields: "First name" (John), "Surname" (Doe), "E-mail" (john.doe@smaxtec.com), "Username" (john), "Password" (masked with dots), and "Repeat password" (masked with dots). Below these fields are two radio buttons: "Farmer" (selected) and "Consultant (feed consultant, veterinary surgeon, other)". At the bottom of the form is a "CREATE" button. At the bottom right of the window are three buttons: "< BACK", "NEXT >", and "CANCEL".

Please click on “Next”.

Step 4 under option “Use existing user account (online archive)”:

Please enter your user name and password in the input fields and click on “Log in”.



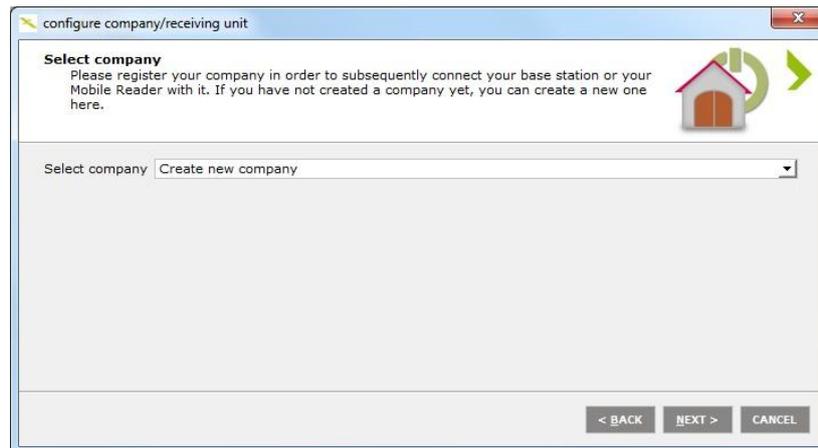
The screenshot shows a web browser window titled "configure company/receiving unit". The main heading is "Online archive login" with the subtext "Please enter your user data in order to log in to the online archive.". There is a house icon with a green arrow pointing right. The form contains the following fields: "Username" (john) and "Password" (masked with dots). Below these fields is a "LOG IN" button. At the bottom right of the window are three buttons: "< BACK", "NEXT >", and "CANCEL".

Please click on “Next”.

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Step 5 “Select farmer”:

Select the company you wish to link with your readout device. If you have not yet created a company then please click on “Create new company”. If you have already created a company and now wish to link it with a new readout device please select this company. In this case by clicking on “Next” you will move on to Step 7.



Please click on “Next”.

Step 5 Selecting the “Advisor”:

Please click on “Create new company” to register a company in which you wish to use the readout device. Once you have registered a company it will appear in a list. You may then select this company and click on “Next”. Subsequently, all Boli, which you use this readout device to read out measurement data from will be linked to the selected company.

If you wish to use a Mobile Reader in several different companies simply register several companies – each time you will automatically be directed back to this window. Afterwards click on “Use Mobile Reader in several companies”.

Note: You must then assign the readout pH Boli under menu item “Mobile Reader Manager” to the companies you have created. Online archiving is otherwise not possible and you may only access the measurement data by logging on as “Anonymous” in the pH software.

You may also create additional companies again under the menu item “Configure company/readout device”.

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Please click on “Next”.

Step 6:

Please complete all input fields and click on “Create”.

The readout pH Boli will then be linked with the name of the relevant company entered here.

Note:

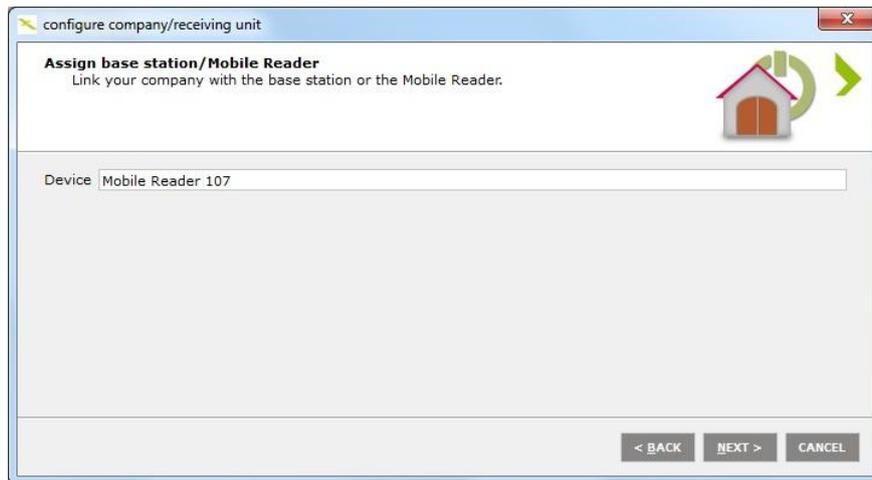
In the case that “Advisor” was previously selected you will return to Step 5 “Select advisor”.

Please click on “Next”.

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Step 7:

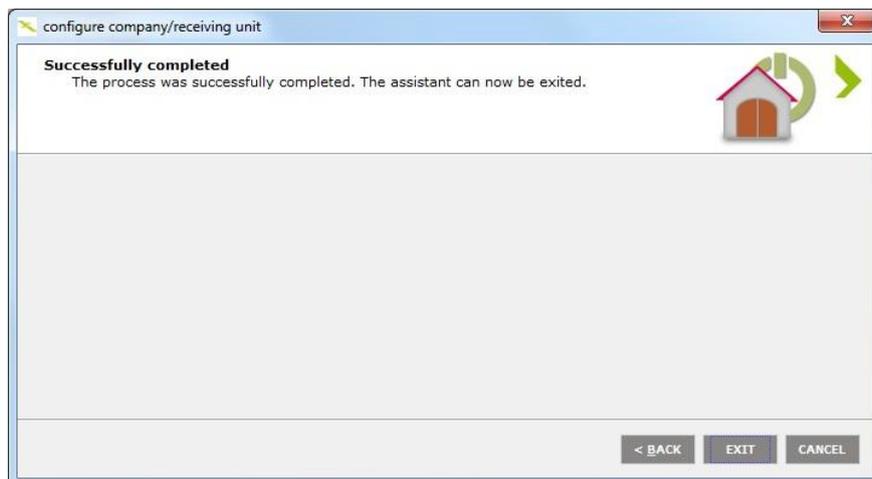
Here you select the connected device which you wish to link with your previously created company/companies.



Please click on "Next".

Step 8:

This step has now been successfully completed.

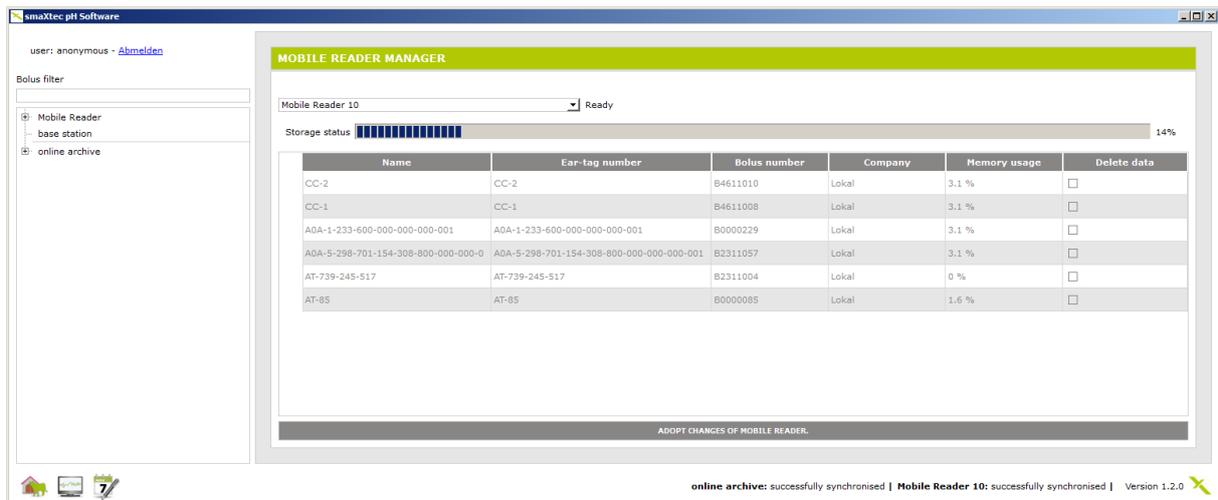


Please click on "Exit" to finish the configuration.

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8.15. Mobile Reader Manager

Use the Mobile Reader Manager to manage your smaXtec® Mobile Reader. First connect your Mobile Reader to your laptop/PC with the USB cable provided. The Mobile Reader will be automatically recognised by the pH software (see status bar). If this is not the case, please ensure that the drivers have been installed (please see Chapter 7.1 and 7.2).



Here you can manage the various parameters of your pH Boli such as name, ear tag number, Bolus number etc. In the column “Memory Usage” you can see the percentage of the total memory of the Mobile Reader taken up by a particular pH Bolus. If you want to delete measurement data from your Mobile Reader, confirm this by clicking on “Adopt changes on Mobile Reader” at the bottom of the main window.

Note: Measurement data deleted on the Mobile Reader are only deleted from the Mobile Reader. The measurement data from the Bolus remain stored on your hard disk and in the Online Archive (if configured in this way).

Important information for advisors:

If you have registered several companies in the system and have configured the Mobile Reader so that it can be used for different companies (“Use Mobile Reader in several companies”), you first need to assign the pH Boli to the relevant companies in the Mobile Reader Manager. The measurement data will otherwise not be saved in the online archive and you can then only access the measurement data by logging onto the system as “Anonymous”. Please confirm the allocation of the companies by clicking on “Adopt changes on Mobile Reader”.

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9. Inserting the smaXtec® pH Bolus



Important notice: The pH Bolus is exclusively designed for cattle. Under no circumstances may it be used for any other animals or humans. Use of the pH Bolus is prohibited for cattle aged under 18 months or weighing less than 450 kg. If in any doubt, please consult your vet.

It must be ensured that cattle to be fitted with a Bolus have an empty stomach. This means that they have not eaten anything for at least 2 hours.

Balling Gun:

Use a balling gun to insert the smaXtec® pH Bolus into the animal's maw. To do this you may wish to use a balling gun with an inside diameter of 35 mm. We recommend using a balling gun with a widened tube (stainless steel or other, bendable, inside diameter 35mm). A balling gun may be ordered directly from smaXtec animal care (please go to <http://www.smaxtec-animalcare.com>).



Insertion procedure:

First insert the Bolus into the balling gun, with the sensor tip at the head. Push the Bolus into the applicator in such a way that the sensor tip comes to rest at the far end of the applicator. Please ensure that the push rod of the applicator is kept flat - the push rod should not press directly on the sensor tip. This ensures that the Bolus is positioned sensor tip first in the cow's stomach.



With the cow's head and neck angled in an extended and straightened position you can now administer the smaXtec® pH Bolus. The front end of the applicator must reach beyond the base of the tongue before the Bolus is released. Please ensure that the cow does not eat anything for at least two hours prior to administration of the Bolus. It is therefore preferable to administer the Bolus in the morning before the first

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feed as otherwise there is a danger that the smaXtec® pH Bolus can become blocked as it drops down into the reticulum.

Warning:



After insertion the Bolus needs to settle on the floor of the reticulum as quickly as possible. For this reason, the fibrous material in the foregut-fermenting digestive system should not be too dense, i.e. the cow should not have recently eaten any food. It is therefore of the utmost importance that your animal has an empty stomach when the Bolus is administered. Should the sensor tip become filled with food particles immediately after insertion this can cause the sensor tip to become blocked a few days later thereby disrupting pH measurement.

Acting in accordance with the user instructions provided by smaXtec will ensure smooth operation of the pH measurement procedure.

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10. Technical details

smaXtec® pH Bolus

- Model designation: SX-1042
- Dimensions: 132 x 35 mm (length x diameter)
- Measuring range: from 0 to 14 pH, 25°C to 50°C (values indicated between 4 and 8 pH)
- Measuring intervals: variable (standard: 10 min)
- Measuring period: 50 days
- Measuring accuracy: ± 0.2 pH, ± 0.2 °C
- Life after date of manufacture: 1 year
- Large internal storage (for a measuring interval of 10 min values can be stored for 50 days)
- Resistant to rumen fluid (materials tested by the DLG (Deutsche Landwirtschaftliche Gesellschaft))

smaXtec® Mobile Reader

- Type description: SN-4042
- Dimensions: 90 x 144 x 32 mm (W x L x H)
- Plastic casing
- Internal antenna
- Mini Type B USB connection
- Enclosed power supply: 230V 1A
- Battery type: Lithium-Ionen-Akku
- Capacity: 2200 mAh
- Battery life: maximum 4 days (depending on use)

smaXtec® Base Station

- Model designation: BX-3042
- Dimensions: 170 x 280 x 90 mm (W x L x H)
- Dustproof and waterproof casing (IP 67)
- Sockets for up to 8 antennas
- Ethernet (for power supply and Internet connection and/or connection with PC client)
- Assembly either on the wall, on a wooden post etc.
- Optional HSDPA/EDGE/GPRS/GSM - module:
 - Maximum downlink speed up to 7.2 Mbps
 - Maximum uplink speed up to 5.76 Mbps

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smaXtec® USB antenna

- Model designation: SU-2042
- Dimensions: 21 x 85 x 12.4 mm (W x L x H)
- Equipped with antenna
- USB connection socket type A
- USB 2.0

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11. Safety and handling



Please read all safety information and instructions for use before using the *smaXtec® pH Monitoring System* in order to avoid any injury.

PLEASE NOTE:

Failure to comply with the safety information may lead to fire, electric shock or other injuries and/or damage to the system components.

IMPORTANT NOTICE: The smaXtec® pH Bolus is exclusively designed for use in cattle. Use of the smaXtec® pH Bolus is prohibited in cattle aged under 18 months or weighing less than 450 kg. If in any doubt, please consult your vet.

Important safety information

Handling the smaXtec® pH Bolus

Do not drop the smaXtec® pH Bolus on the floor. Disassembly, opening, breaking, or bending the pH Bolus is prohibited. Do not throw the pH Bolus into an open fire and do not paint it. Do not heat the smaXtec® pH Bolus in the microwave or in any other oven, and do not insert any objects into the smaXtec® pH Bolus.

Using the smaXtec® Mobile Reader

Only use the supplied adapter and USB cable. Should any problems occur, please contact your local dealer or smaXtec. As the smaXtec® Mobile Reader is not waterproof, please ensure it does not come into contact with any liquids and is not exposed to any damp or humid conditions. Please use the protective cover provided.

Electrical Safety

This product is intended for operation with the battery or the supplied adapter. Using any other devices can be dangerous and can invalidate your warranty for this product. Only use authorized accessories. Do not connect to any incompatible products or accessories.

Safety guidelines for properly earthed installation

WARNING: Connection to a device which is not properly earthed can cause the device to be affected by an electrical shock. This product is equipped with a USB cable for connection to a PC/laptop. Please ensure the PC/laptop is properly earthed before connecting this device to it. The power cable of a PC/laptop contains an earthing conductor as well as an earthing device in the plug. The plug must be connected to an appropriate, properly installed earthed plug socket which meets all relevant laws and regulations.

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Safety measures for power supply

Only use a properly authorized external power source. For the smaXtec® Mobile Reader only use a power supply, which according to its labeling provides the required electrical power. If you are in any doubt about which power supply is required, please contact an authorized provider or your local power company.

Careful handling of batteries

The smaXtec® Mobile Reader contains a lithium-ion battery. If the battery is not handled correctly, there is a risk of fire and burning. Do not attempt to open or repair the battery contained in the smaXtec® Mobile Reader. You must not take this battery apart, destroy or make holes in it, cause it to short-circuit, throw it in fire or water or expose it to temperatures over 60°C (110°F).

Additional safety measures

Always keep the battery and the device dry and do not use near water or any other liquids to avoid short circuiting.

Safety measures with regard to direct sunlight

Please ensure that the smaXtec® Mobile Reader is not exposed to excessive humidity or extreme temperatures. Please do not leave the device for longer periods of time in a vehicle or in any other place where temperatures can rise to above 60°C (110°F), e.g. on a car dashboard, on a window sill or by a window where the sun can shine directly on to or where it can be affected by UV light. This can cause the device or the vehicle to be damaged and the battery to overheat.

Handling the smaXtec® Base Station

Only use the supplied adapter and the antenna. In case of problems, please contact your dealer or contact smaXtec directly.

Handling the supplied magnet

A neodymium magnet is built in to the supplied magnet.

Please note that the magnetic fields of various data media (diskettes, hard disks, USB sticks, digital cameras, bank/credit cards, audio and video cassettes) can delete, affect or damage electronic and mechanical components, e.g. pacemakers, monitors, compasses, meters etc.



Please note the safe distances specified by the manufacturer. Always ensure you maintain a safe distance of about 1 metre.

There is no risk of flaking or splintering as the magnet is enclosed in a metal casing. Please also note that the magnet must be kept away from children as there is a danger it could be swallowed.

Scope and handling of the supplied buffer solution (summary of manufacturer's safety data sheet)

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First aid measures:

General information: no specific measures required.

Upon respiration: inhale fresh air, in case of complaints consult a physician.

Upon skin contact: the product does not usually cause any skin irritation.

Upon eye contact: rinse the eyes under running water for several minutes, keeping the eyes open.

Protection from liquids and atmospheric exposure (valid for smaXtec® USB antenna, PoE adapter and mains adapter)

Do not use the smaXtec® USB antenna, the PoE adapter or the PoE adapter in rainy conditions, near wash basins or in any other humid environment. Make sure that no liquids come in to contact with the smaXtec® USB antenna, the PoE adapter or the mains adapter. Should the smaXtec® USB antenna be exposed to humidity, disconnect it from the desktop/laptop PC. Should the PoE adapter or the mains adapter be exposed to humidity, disconnect all cables from the adapter and/or from the wall outlet.

Important information for handling

Failure to adhere to the instructions contained in this User Manual may lead to damage being caused to the smaXtec® USB antenna or the smaXtec® pH Bolus.

Use of plugs and connections

Never use force to plug a lead in to a socket. Check the connection for foreign bodies. If the plug does not fit properly, it is probably not intended for that particular socket. Make sure that plug and socket correspond and that you have aligned the plug correctly with the socket.

Acceptable temperature range for the smaXtec® pH Bolus and the supplied buffer solution.

Make sure the smaXtec® pH Bolus is used exclusively within a temperature range of 20 °C to 50 °C. Lower temperatures may result in a reduction in the battery run time. Store the smaXtec® pH Bolus in the packing, together with the buffer solution, at temperatures ranging from 5 °C to 30 °C.

Disposal of buffer solution

Recommendation: smaller quantities can be disposed of together with household waste.

Disposal and recycling of the smaXtec® pH Bolus and the smaXtec® USB antenna

These products must be disposed of in accordance with local environmental laws and regulations. Since the smaXtec® pH Bolus and the smaXtec® USB antenna are electronic devices and contain a battery, they must be separated from household waste. If necessary, check with local authorities for disposal and recycling options.

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smaXtec animal care operates a policy of sustainability and welcomes the return of used smaXtec® pH Boli in order to ensure the correct disposal of all materials contained. Return the used smaXtec® pH Bolus in the packing to your dealer or send it directly to smaXtec.



European Union – recommendations for disposal:

The above symbol indicates that this product is to be disposed of separately from household waste in accordance with local laws and regulations. Please ensure you dispose of this product at an official collection point. Several collection points accept used products for disposal free of charge. The separated collection and recycling of waste helps to save on raw material reserves and guarantees adherence to all regulations for the protection of human health and the environment.

Licensing Information

European Union - product conformity

Products bearing the CE mark comply with the R&TTE Directive (99/5/EC), the EMC Directive (2004/108/EC) and the Low Voltage Directive (2006/95/EC), as established by the EU Commission. Compliance with these directives implies conformity with the following European norms:

- EN 60950-1:2007 Information technology equipment – Safety Part 1
- EN 301 489-1:2008 Electromagnetic compatibility and radio spectrum Matters (ERM); Part 1: Common technical requirements
- EN 301 489-3:2003 Electromagnetic compatibility and radio spectrum Matters (ERM); Part 3: Specific conditions for SRD, 9 kHz and 40 GHz
- EN 300 220-1:2010 ERM for SRD; used in 25 MHz to 1 000 MHz with up to 500 mW Part 1: Technical characteristics and test methods
- EN 300 220-3:2000 ERM for SRD; used in 25 MHz to 1 000 MHz with up to 500 mW, Part 3: Harmonized EN covering essential requirements under article 3.2 of the R&TTE Directive

The smaXtec® pH Monitoring System may be used in the following countries:							
AT	BE	BG	CH	CY	CZ	DE	DK
EE	ES	FI	FR	GB	GR	HU	IE
IT	IS	LI	LT	LU	LV	MT	NL
NO	PL	PT	RO	SE	SI	SO	