

smaXtec User Manual: pH Plus Bolus SX.2

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Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

- (1) This device may not cause interference.
- (2) This device must accept any interference, including interference that may cause undesired operation.

This device contains licence-exempt transmitter(s)/receiver(s) that comply with Innovation, Science and Economic Development Canada's licence-exempt RSS(s). Operation is subject to the following two conditions:

- (1) This device may not cause interference
- (2) This device must accept any interference, including interference that may cause undesired operation of the device.

Cet appareil contient des émetteurs / récepteurs exemptés de licence conformes aux RSS (RSS) d'Innovation, Sciences et Développement économique Canada. Le fonctionnement est soumis aux deux conditions suivantes:

- (1) Cet appareil ne doit pas causer d'interférence
- (2) Cet appareil doit accepter toutes les interférences, y compris celles susceptibles de provoquer un fonctionnement indésirable de l'appareil.

The following steps need to be completed to use the smaXtec pH Plus Bolus SX.2:

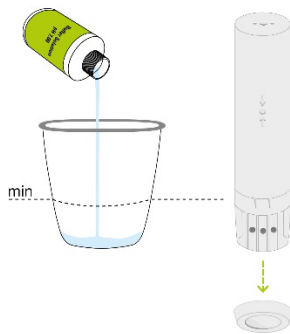
1. Activation process, consisting of
 - Switching on the pH Plus Bolus SX.2
 - Assigning the bolus to an animal
2. Bolus administration

Please note that you need an activated smaXtec Base Station SX.2 as well as a smaXtec account with an organisation before using smaXtec pH Plus Boluses SX.2.

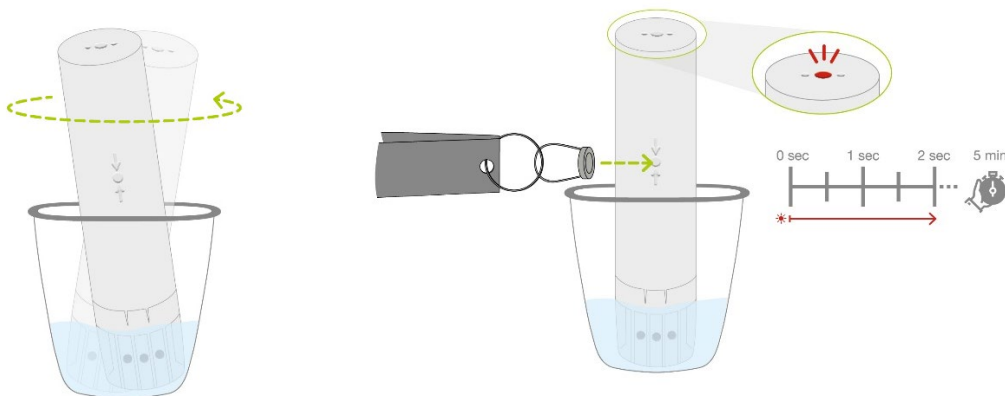
1: Activation: Switching on the pH Plus Bolus SX.2

Ensure that your smaXtec Base Station SX.2 is activated and ready for use before starting the bolus activation process.

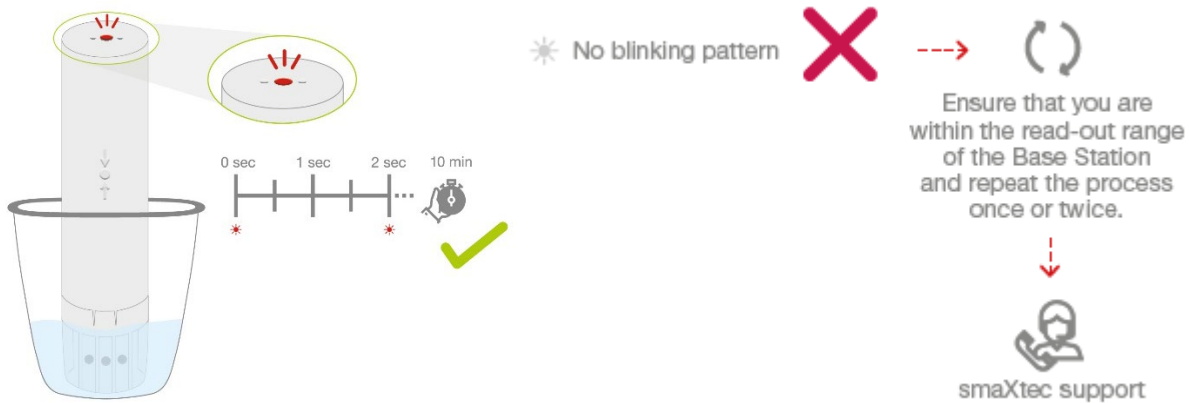
- 1) Pour the buffer solution pH 7.00 into a narrow container (please note minimum filling level) and remove the sponge from the sensor tip.



- 2.) Now place the smaXtec pH Plus Bolus into the container sensor head first and gently shake it. Then switch on the sensor with the magnet provided. Calibration of the smaXtec pH Plus Bolus takes at least 5 minutes. During this time the LED is on.



3.) If the bolus then blinks every two seconds, the process was successful.



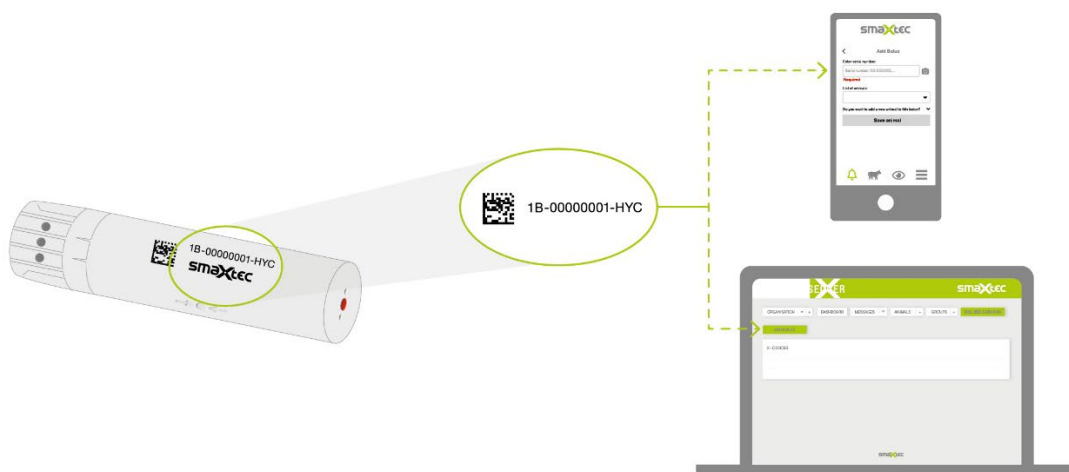
Overview of the different LED displays

Bolus starts initialisation	LED lights up continuously for 5 to 6 minutes
Bolus successfully initialised	LED flashes every two seconds for 10 minutes
Error during initialisation	if the LED does not flash, an error during initialisation occurred

Procedure in case of error during initialisation

If the bolus doesn't show the indicated blinking pattern, ensure that you are within the read-out range of the smaXtec Base Station SX.2 and repeat the process once or twice. If it doesn't work then, please get in touch with the smaXtec support. **Do not administer the bolus to an animal in this case!**

2: Activation: Assigning the bolus to an animal



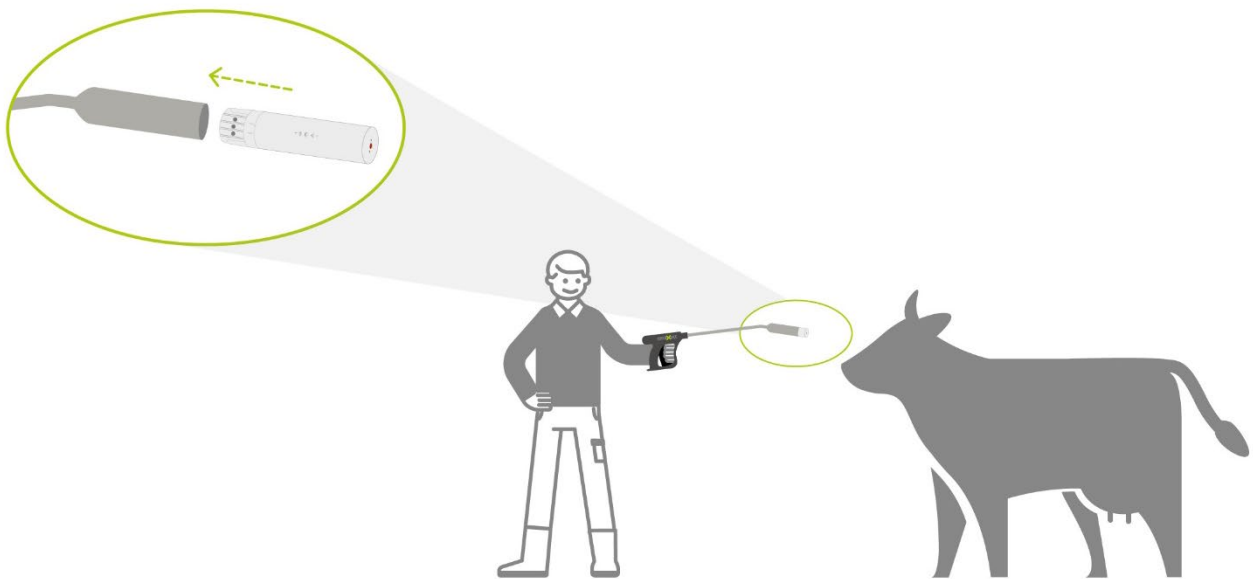
After switching on the bolus successfully, start with the second step of the activation process: Assigning the bolus to an animal. This can be done both in the smaXtec Messenger and the smaXtec App. You can either create a new animal in the system or assign the bolus to an existing animal (e.g. that was created upfront via the animal importer).

ATTENTION:

The activation process is only completed after the bolus has been assigned to an animal. If the bolus is not assigned, no data or alerts will be generated or displayed.

3: Bolus administration

After completing the activation process (switching on the bolus using the magnet and assigning it to an animal), administer the bolus within 4 hours with the smaXtec bolus applicator. Keep the smaXtec pH Plus Bolus SX.2 in the buffer solution until it is administered.

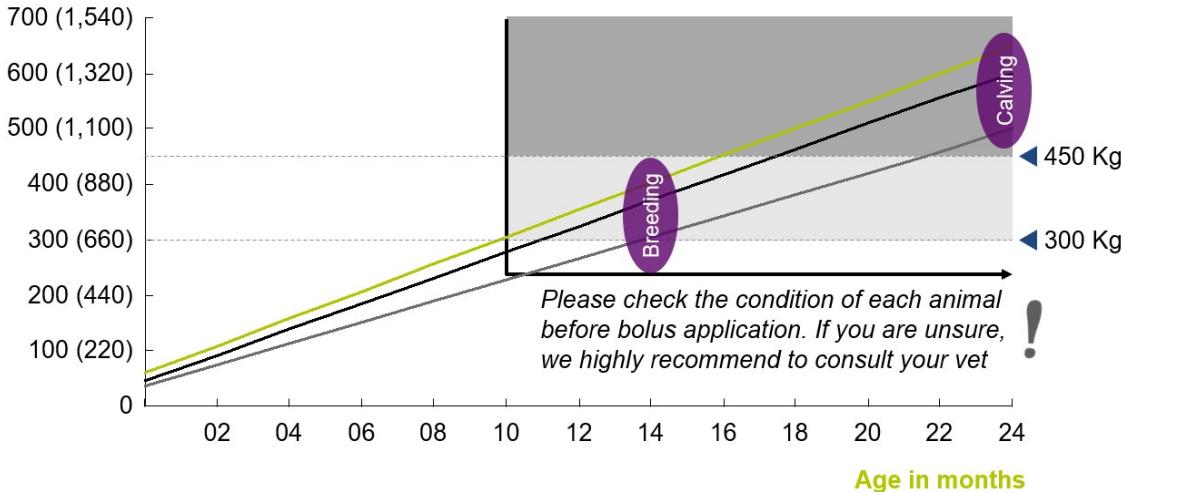


Caution: The smaXtec smaXtec pH Plus Bolus SX.2 is exclusively for use in cows. Under no circumstances may they be used for other animals or for humans. The minimum body weight for both sensors is 450 kg when administered by trained staff (approximately 18 months for Holstein cows) and 300 kg when administered under veterinary supervision. This graph gives more information about the age/weight of different breeds:

Bolus application

Body weight

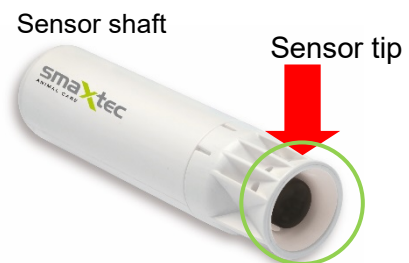
kg (lbs)



Cows that are to be fitted with smaXtec pH Plus Bolus should not eat right before bolus application.

Application Procedure:

Position the smaXtec pH Plus Bolus into the applicator with the sensor tip at the head. Insert the smaXtec pH Plus Bolus into the applicator in such a way that sensor comes to rest at the far end of the applicator. Please ensure that the push rod of the applicator is kept flat – push rod should not press directly on the sensor tip. This ensures that the smaXtec pH Plus Bolus is positioned sensor tip first in the cow's stomach.



Picture: application procedure

With the cow's head and neck angled in an extended and straightened position you can now administer the smaXtec pH Plus Bolus SX.2. The front end of the applicator must extend beyond the base of the tongue before the bolus is released.



Warning: After insertion, the smaXtec pH Plus Bolus SX.2 needs to settle on the floor of the reticulum as quickly as possible. For this reason, it is important to ensure that the fibrous material in the rumen is not too dense, i.e. the cow should not recently have eaten anything.

It takes at least 30 minutes after bolus administration until first cow data will be visible in the software.

Technical Details

- Model: UX-2142P
- Dimensions: 132 × 35 mm (length × diameter)
- Weight: 223 gr
- Certificate Rumen fluid resistant – materials tested by the German Agricultural Society (Deutsche Landwirtschafts-Gesellschaft DLG)
- Antenna: Internal
- Readout range: typically 50 meters; up to 300 meters*
- Memory: Internal measurement value memory: 6 days (24h/day); after 6 days old data will be replaced by new data
- Battery: Lithium Metal Battery
- Battery life: up to 4 years
- Measurement interval: 10 min (for temperature, pH and activity)
- Measurement range
 - Temperature: 20 – 60 °C/68 – 140 °F
 - pH: 3 – 9
- Measurement resolution:
 - Temperature: 0,01 °C/0,02 °F
 - pH: 0,01
- Measurement accuracy:
 - Temperature:
 - at 30 – 50 °C/86 – 122 °F: ± 0,1 °C/± 0,18 °F
 - other temperatures: ± 0,30 °C/± 0,54 °F
 - pH:
 - up to day 90: ± 0,2
 - up to day 150: ± 0,4
- Activity index 0 to 100
- Rumination activity: 0 to 50 % in 24h
- *depending on farm layout, country regulations obstructions, surroundings