kahne

Knowledge • Animal Health
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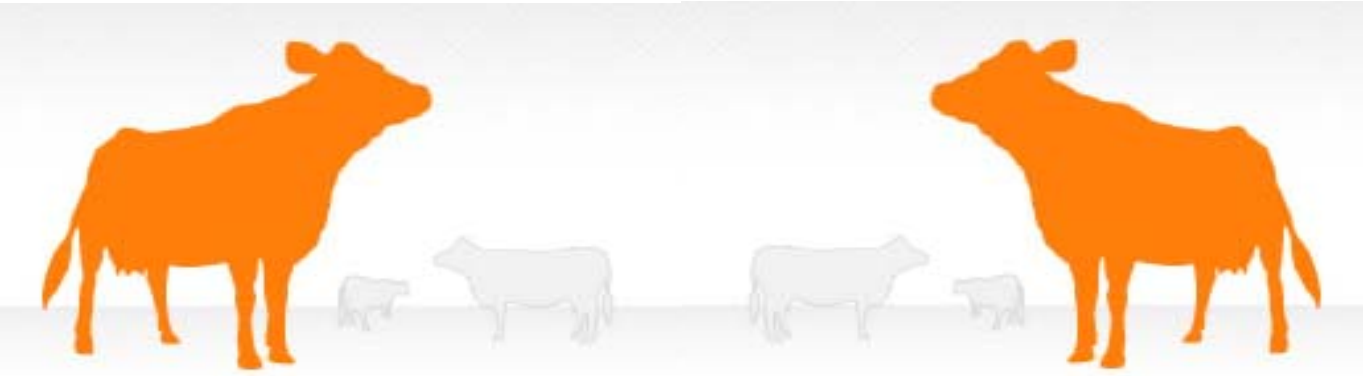
User Guide

Kahne Bolus Series



www.kahneanimalhealth.com

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Foreword

Kahne operates a policy of continuous development. Kahne reserves the right to make changes and improvements to any of the products described in this document without prior notice.

Under no circumstances shall Kahne be responsible for any loss of data or income or any special, incidental, consequential or indirect damages howsoever caused.

The contents of this document are provided "as is". Except as required by applicable law, no warranties of any kind, either express or implied, including, but not limited to, the implied warranties of merchantability and fitness for a particular purpose, are made in relation to the accuracy, reliability or contents of this document.

Kahne reserves the right to revise this document or withdraw it at any time without prior notice. The availability of particular products may vary by region.

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Statement of Compliance

1. The KB1000 Series Bolus complies with FCC CE

2. The Kahne KB1000 Series Bolus complies with FCC Part 15 Subpart C. Operation is subject to the following two conditions: (1) these devices may not cause harmful interference, and (2) these devices must accept any interference received, including interference that may cause undesired operation.

   NOTE:

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

   This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference. This equipment generates uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

   — Reorient or relocate the receiving antenna.
   — Increase the separation between the equipment and receiver.
   — Consult the dealer or an experienced radio/TV technician for help.

Warranty

Thank you for purchasing this Kahne product. To get maximum use of the features of your new product we recommend that you follow a few simple steps:

- Please ensure the product is working correctly before insertion into a dairy or beef animal as the warranty is void upon ingestion.
- Do not stress the plastic wing when folding them down prior to loading the KB1000 series bolus into the balling gun.
- Use only an approved balling gun to insert a KB1000 series bolus.
- Kahne will not warrant KB1000 series boluses against any damage occurring during the insertion process.
- Read the guidelines for safe and efficient use.
- Read all the Terms and Conditions of your Kahne Warranty.
- Save your original receipt. You will need it for warranty repair claims. Should your Kahne product need warranty service, you should return it to the dealer from whom it was purchased or contact Kahne directly.

Our Warranty

Kahne warrants this product series to be free from defects in material and workmanship at the time of its original purchase by a consumer, and for a subsequent period as stated in the following table:

Product	Warranty Period
KB1000 Series Bolus	One month from the date of purchase

This warranty is expressly limited to the original owner who purchases the equipment directly from Kahne or from an authorised Kahne dealer.

What We Will Do

If, during the warranty period, this product fails to operate under normal use and service, due to improper materials or workmanship, Kahne subsidiaries, authorised distributors or authorised service partners will, at their option, either repair or replace the product in accordance with the Terms and Conditions stipulated herein.

Conditions

1. The warranty is valid only if the original receipt issued to the original purchaser by the dealer, specifying the date of purchase, is presented with the product to be repaired or replaced. Kahne reserves the right to refuse warranty service if this information has been removed or changed after the original purchase of the product from the dealer.

2. If Kahne repairs or replaces the product, the repaired or replaced product shall be warranted for the remaining time of the original warranty period or for thirty (30) days from the date of repair, whichever is longer. Repair or replacement may be via functionally equivalent reconditioned units. Replaced faulty parts or components will become the property of Kahne.

3. This warranty does not cover any failure of the product due to normal wear and tear, damage, misuse, including but not limited to use in any other than the normal and customary manner, in accordance with Kahne's user guide for use, damage during dosing, off label calibration and maintenance of the product, accident, modification or adjustment, events beyond human control, improper experiments and damage resulting from liquids which are not natural rumen digesta or corrosion from environments which are not normally present in the rumen or reticulum of cattle beast.

4. This warranty does not cover product failures due to repairs, modifications or improper service performed by a non-Kahne authorised service workshop or opening of the product by non-Kahne authorised persons.

5. The warranty does not cover product failures which have been caused by use of components which have not originated from Kahne.

6. Tampering with any part of the product will void the warranty.

7. Damage to the sensors can occur through exposure to certain sensor poisons such as acidity pH 2, alkaline pH 12, high concentrations of VOC's and abrasive cleaning agents. Use of Kahne sensors in environments containing these materials may (at the discretion of Kahne) void the warranty on the sensor. Exposure to environments outside of the operating range of any specific Kahne sensor can adversely affect the calibration of that sensor and will also void this warranty.

8. Leave the protective cover on the pH sensor at all times prior to dosing into a cattle beast. The exception being the time during which pH calibration is completed. If physical damage is detected on the pH sensor the warranty is void.

9. Damage to this product at the time of dosing, administration, ingestion and insertion into a cattle beast is not covered by this warranty.

10. Kahne makes no other express warranties, whether written or oral, other than contained within this printed limited warranty. To the fullest extent allowable by law all warranties implied by law, including without limitation the implied warranties of merchantability and fitness for a particular purpose, are expressly excluded, and in no event shall Kahne be liable for incidental or consequential damages of any nature whatsoever, however they arise, from the purchase or use of the product, and including but not limited to lost profits or business loss.

11. Some countries restrict or do not allow the exclusion or limitation of incidental or consequential damage, or limitation of the duration of implied warranties, so the preceding limitations or exclusions may not apply to you. This warranty gives you specific legal rights, and you may also have other rights, which may vary from country to country.

For Best Results and the Safety of Your Animals

Read these simple guidelines. Ignoring these guidelines may be hazardous and cause injury.

- **USE SENSIBLY**

  Use only as per this user guide.

  Keep these products and all peripherals out of the reach of children.

- **USE KAHNE APPROVED SERVICE**

  Only approved service personnel must work on this product.

  Use an approved balling gun to insert the KB1000 series bolus.

- **HEALTH AND SAFETY IN THE WORKPLACE**

  Kahne does not warrant user safety. Take care during the process of inserting a KB1000 series into a beef or dairy animal; cattle can behave in a manner which is dangerous and hazardous to people who may in close proximity; an appropriate Health and Safety plan should be in place.

- **ANIMAL WELFARE**

  A person experienced in the practice of bolus administration is best suited to safely install a bolus down the throat then into the oesophagus of a dairy or beef animal.

  Use a standard balling gun of the dimensions required for the normal practice of inserting a controlled release capsule bolus. These are available world wide.

Care and Maintenance

Your Kahne KB1000 series products are complex scientific instruments and should be treated with care:

- Do not attempt to open. Non-expert handling of the device may cause damage.
- Do not drop, knock or shake the KB1000 series products as this could lead to internal damage.
- Do not use harsh chemicals, cleaning solvents or strong detergents for cleaning. Wipe with a tissue or a soft cloth slightly dampened with distilled water.

Disposal

Please note that that the KB1000 series bolus is an electronic product which contains a Li-Ion battery, copolymer plastic and rubber. After use it should be disposed of in accordance with local and federal/national codes.

Bolus Components

KB1001

The following components are supplied with the KB1001:

- KB1001 bolus
- Removable magnet
- User guide

Please check that all these components have been supplied and contact your dealer or Kahne on email contact@kahneanimalhealth.com if any of the components are missing.

KB1101

The following components are supplied with the KB1101:

- KB1101 bolus
- Removable magnet
- User guide

Please check that all these components have been supplied and contact your dealer or Kahne on email contact@kahneanimalhealth.com if any of the components are missing.

About Your Bolus

The **Kahne 1000 Series Bolus** has been designed to supply users with rumen temperature, pressure and pH data from an animal. They are designed to be inserted into and operate in the rumen of beef and dairy animals which are greater than 300kg body weight. Once inserted into animals they will operate until the battery is exhausted. Battery life is dependent on the sampling frequency set by the user. The longer the sampling frequency interval the longer the battery life.

The following information details the operation and features of the bolus:

- Pressure and temperature sensors are factory calibrated and their settings cannot be altered.
- The pH sensor is factory calibrated and tested. Verification by the user is recommended prior to insertion into an animal by recording its values in pH 7 buffer and pH 4 buffers. The pH sensor will drift over time as a result of bio-fouling and precipitate from feed and fluid additives and minerals. In cases where fistulated animals are used, KB1000 boluses may be retrieved, cleaned and recalibrated. The pH sensor should be cleaned in soapy water with a soft toothbrush.
- All KB1000 series products can be configured to sample data at user defined intervals with a sampling interval of not less than 5 seconds. This should be configured prior to insertion. **In vivo reconfiguration of the bolus is possible but not guaranteed.**
- All KB1000 series products require user configured ID. The factory set ID for all boluses is 1 unless otherwise stated.
- All KB1000 series products must be configured prior to insertion. **In vivo reconfiguration of the bolus is possible but not guaranteed.**

Bolus Operation, Configuration and Insertion

Operation

The Bolus is turned on and off by removing and replacing, respectively, the external magnet. The bolus must be configured using a computer and Kahne Receiver each time it is turned on, before it is ready for use. If the magnet is replaced the bolus is depowered. When the magnet is then removed the bolus always wakes up in listening mode and waits to be configured. In listening mode it can be configured and calibrated but will not enter normal operation mode (start measuring and transmitting data) until the configuration is completed by clicking “Set Properties”. Please follow the configuration steps carefully.

Configuration

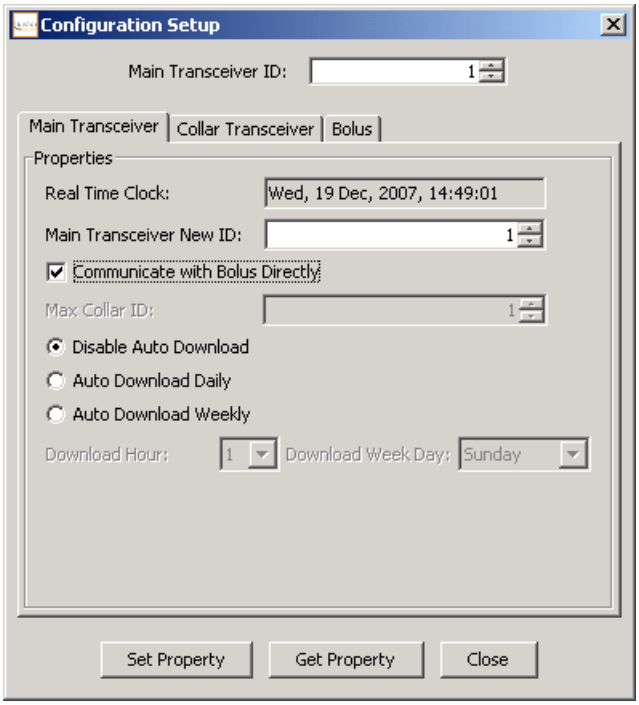
1. Computer Software Setup

Install the Kahne software to your PC. Use either a Main Receiver (KR2000 series) or the desktop version for the ensuing configuration and calibration process. Connect the PC to the operating Receiver via the USB connector.

2. Configuring the Bolus prior to use.

Open the Kahne program and begin the following tasks from the opening Window.

1. Go to *Setting → Configuring Kahne Device*.
2. The *Configuration Setup* box will appear.



3. Make sure that the *Main Transceiver ID* corresponds directly to the transceiver being used. If not manually changed, the *Main Transceiver ID* will be set to *1* as a default.
4. Click *Get Property* to check the computer is communicating correctly with the main receiver. If it is successful then proceed to the next step. If unsuccessful check cable, power and com port settings.

5. Under the *Main Transceiver* Tab, check the box C*ommunicate with Bolus Directly.*
6. Click *Set Property*
7. Click *Bolus* tab.
8. Select *Configure Bolus Via Main transceiver*
9. Enter Bolus ID into *Bolus Current ID*. The factory default setting is 1, if you change this number you should have a record of the ID.
10. Remove the magnet (this turns the bolus on).
11. Wait about 30 seconds before attempting to communicate with the bolus, this allows the capacitors to power up and initialise the bolus.
12. Click *Get Property* → *Yes.* If successful this means that the receiver and the bolus have registered contact.
13. Enter values for *Bolus New ID, Sampling Frequency*, *Data Logging On* (note this refers to onboard datalogging for later download. Only select this option after discussion with Kahne Technical Support). If you change the Bolus ID you should label the bolus with a permanent marker to avoid confusion. If you don't want to change the ID then the *Bolus Current ID* should match the *Bolus New ID.*
14. Click *Set Property*. There should be a success confirmation screen. If not repeat click *Set Property* until a positive confirmation is received. The bolus is now operating and will send data at the sampling frequency selected. It is recommended that the bolus sensors are verified by placing into pH standard buffers and logging the transmitted data. If this is satisfactory the bolus should be inserted into the animal without depowering or allowing it to contact a magnet.

3. Checking Bolus Operation

Once the bolus is configured start datalogging to check that the bolus is transmitting correctly and the data is satisfactory.

1. *File* → *Start Data Logging* or for a shortcut click the green satellite icon in the top left hand of the screen.
2. Check the connection to the Main Transceiver then click → *Yes.*
3. Wait for the data to be displayed in the *Real Time Table* window.
4. If the pH sensor requires calibration please follow the pH Sensor Calibration Instructions.

4. pH Sensor Calibration

For detail pH calibration instructions, please refer to the KB1101 Bolus pH Calibration manual.

Inserting the Kahne Bolus

Please follow the instructions below. Do not insert the KB1000 series bolus into dairy or beef animals which are less than 300kg body weight. Please ensure the product is working correctly prior to insertion into a dairy or beef animal, as the warranty is void upon ingestion. Do not stress the plastic wing when folding them down prior to loading the KB1000 series bolus into the balling gun. Use only an approved balling gun to insert a KB1000 series bolus. Kahne will not warrant KB1000 series boluses against any damage occurring during the insertion process.

1. Hold the wings of the bolus by their tips taking care that the wings are not over stressed and the plastic is not damaged at the junction of the barrel and the wing.

2. Use adhesive tape e.g. cellulose tape, and wrap it around the wings, once only nearest the wing tip.

DO NOT PRESS THE ENTIRE WING AGAINST THE BARREL OF THE BOLUS BECAUSE THIS WILL OVERSTRESS THE WINGS.

3. Once the wings are held firmly in place by the tape band, place the bolus in the balling gun ready for insertion into the animal. It is recommended that a person experienced in the practice of bolus administration is best suited to safely install the bolus

4. Use the balling gun to insert the bolus down the throat and into the oesophagus of the animal.

Specifications

KB1001 Bolus	
Power – battery	1/2 AA 3.6 volts
Power – battery storage	1200mAh
Power consumption - sleep output	6µA
Power consumption - transmission output	15mA
Signal - outgoing	433.9 MHz
Signal - incoming	433.9 MHz
Operating conditions	Rumen conditions - temp: 10-50°C
ID minimum number and digits	10 digits - minimum # 0000000001
ID maximum number and digits	10 digits - maximum # 4294967295
Enclosure rating	Fully submersible
Enclosure dimension - wings	185mm x 13.5mm x 2.5 tapered to tip pad
Enclosure dimension - barrel	145mm x 27 OD
Enclosure construction	Copolymer
End stopper	Rubber sleeve stopper
KB1001 weight	60grams
Approvals	FCC, EC, ✓
Transmission range from the rumen	0.1meters – 30 meters depending on gut fill
Sensor type	**Temperature**
Measurement range	-40°C to 125°C
Measurement Units	Degrees Celsius (°C)
Accuracy	+/- 0.1%
Resolution	0.01°C
Sensor type	**Pressure**
Measurement range	10-1100 millibars
Measurement Units	0.1 millibars
Accuracy	+/- 0.15%
Resolution	0.1 millibars

KB1101 Bolus	
Power – battery	1/2 AA 3.6 volts
Power – battery storage	1200mAh
Power consumption - sleep output	6µA
Power consumption - transmission output	15mA
Signal - outgoing	433.9 MHz
Signal - incoming	433.9 MHz
Operating conditions	temp: 10-50°C
ID minimum number and digits	10 digits - minimum # 0000000001
ID maximum number and digits	10 digits - maximum # 4294967295
Enclosure rating	Fully submersible
Enclosure dimension - wings	185mm x 13.5mm x 2.5 tapered to tip pad
Enclosure dimension - barrel	145mm x 27 OD
Enclosure construction	Copolymer
End stopper	Rubber sleeve stopper
KB1101 weight	65grams
Approvals	FCC, EC, ✓
Transmission range from the rumen	5meters – 50 meters depending on gut fill
Sensor type	**Temperature**
Measurement range	-40°C to 125°C
Measurement Units	Degrees Celsius (°C)
Accuracy	+/- 0.1%
Resolution	0.01°C
Sensor type	**Pressure**
Measurement range	10-1100 millibars
Measurement Units	0.1 millibars
Accuracy	+/- 0.15%
Resolution	0.1 millibars
Sensor type	**pH ISFET**
Measurement range	2 - 12
Measurement Units	0.01 pH point
Accuracy	+/- 0.05 pH point