FARMPRO FP-100 Attachable Biometric Detecting Device User Manual

FARMPRO FP-100 Attachable Biometric Detecting Device

Contents

Product Name, Design, Structure and Dimensions

Definition

The electronic ear-tag device is attached to the cow's ear and detects the estrus period by measuring the temperature and its activity. The measured data is transferred to the server through the wireless Bluetooth network and analyzes the estrus period, disease and delivery period. The server sends these collective data to the farm owners through their smartphone.

Product Name

- Part Name: Attachable Biometric Detecting Device
- Rated: 2nd grade
- Type: FP-100

Outline

This product is used as a principle to detect the time of estrus of cattle, by using the phenomenon that their sign of estrus is detected when their body temperature continuously rises to about 1°C from their average temperature and their amount of activity also increases to 4~10 times than norms.
By embedding a temperature sensor inside the penetrating part of their ear, it minimized the possibility of being affected by the external temperature. With the three-axis acceleration sensor embedded inside, it detects the amount of activity with the number of changes made in the x, y, and z axes. The measured data is analyzed through the server's algorithm and transmitted to the farm owner through their smartphone.
In addition, through the analyzed data of changes in body temperature and activity, it provides the identified disease and delivery period.

Design and Structure

1. Main Body

Front	Back
Backside Cap (Locker)	**Side**

2. Spare Parts

No.	Name	Function
1	Body	Collects activity data through the three-axis acceleration sensor. Sends the collected data to the server through wireless LoRa network.
2	Pin	Collects temperature data through the embedded temperature sensor.
3	Cap (Locker)	Main Body Cap

Dimension and Volume

1. Body

Net Weight(g)	23
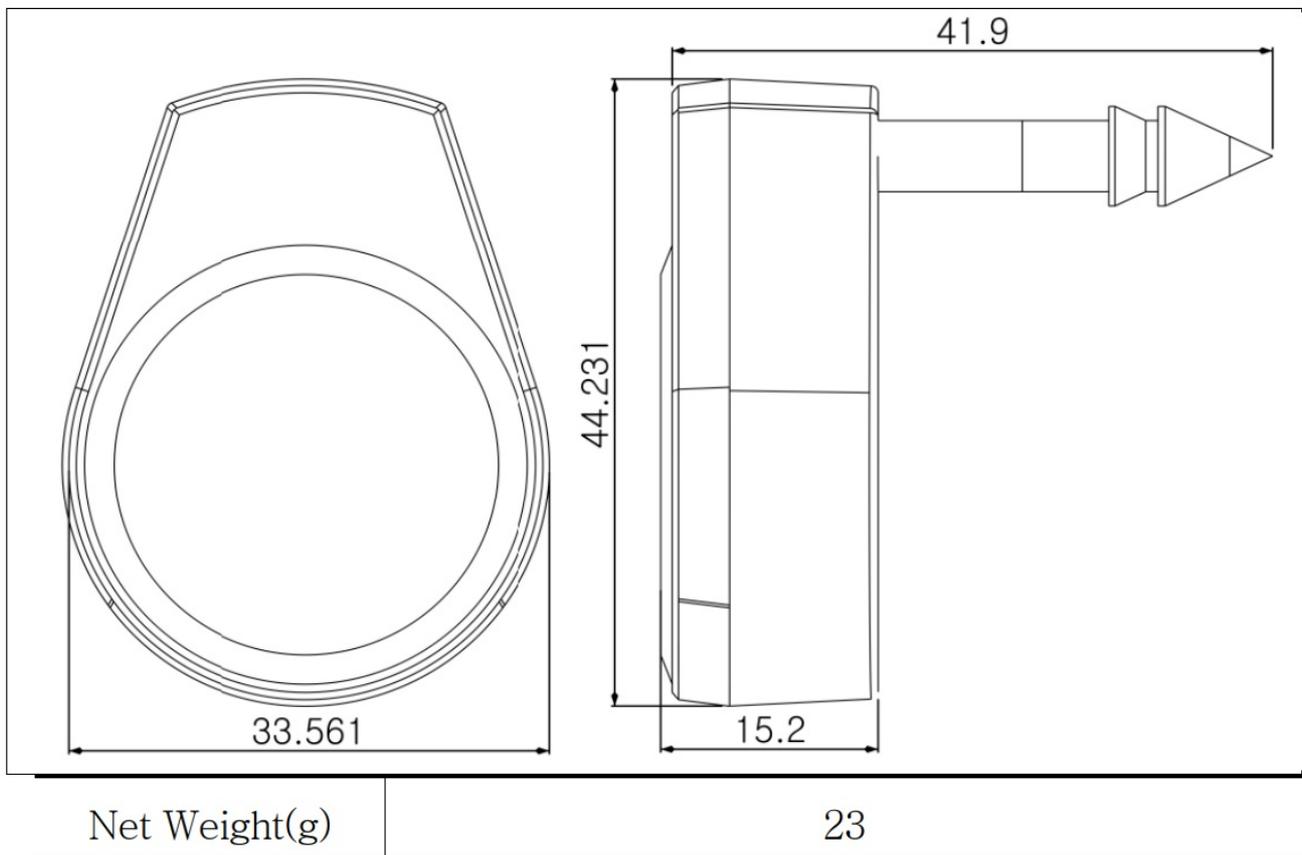
Characteristic (Example)

1. Product's composition

   This device is made for measuring cow's body temperature and activity, composed of penetrating pin, main body and cap.

2. How it works

   The device is powered by an inner battery. Every 10minute, it collects data from the temperature sensor and activity sensor located inside the penetrating pin and stores them inside the memory chip. Once every hour, the collected data is sent to the server using the wireless Bluetooth network. The transferred data is analyzed through server's algorithm and their results are serviced to the farm owner's smartphone.

3. Characteristic

Parameter		Performance	Note
Rated voltage		DC 3V 540mA (CR2450 Coin Battery Cell)	
Current Consumption	Active	10mA(When sent via wireless BLE)	
	Sleep	3uA	
Temperature Sensor	Measurement range	-40 ~ 125 °C	
	Accuracy	± 0.1 °C @(20 ~ 60 °C)	
	Resolution	0.01 °C	
Activity Sensor	Measurement range	± 2g, ± 4g, ± 8g, ± 16g	
Operating temperature range		**-10 ~ 40°C**	
Protection type and protection capacity against electric shock		Internal powered supply device, B- type mounting portion	
Electrostatic Discharge		6KVContact, 8KV aerial discharge	

Raw material or ingredient and quantity
Raw material or ingredient and quantity

Serial No.	Spare Parts Name	Spare Parts Part No. / Raw Material No.	Dimension	Q'ty	Memo
1	Body	PC-1100	• Size(mm) : 33x44x15 • Net Weight(g) : 23g ■Rating : 3VDC	1	
2	Cap	PC-1100	• Size(mm): φ27×18(H) • Net Weight(g) : 3g	1	–
3	Firmware	SN-003	Android Ver. 4.0 and over IOS ver. 7.0 and over	1	App. operation Ver.

Manufacturing Method

Depended upon the manufacturer's manufacturing method

Performance and Purpose of use

Performance

Collects data of body temperature and number of activities from cow's ear

Category	Description	Range	Note
Measures body temperature	Temperature Measurement Range	-40 ~ 125 ℃	
	Accuracy	± 0.1 ℃ @(20 ~ 60 ℃)	
	Resolution	0.01 ℃	
Measures amount of activity	Measuring Range	± 2g	g : Gravitational acceleration unit [9.8m/sec^2]

Purpose of use

- Device designed to detect and alarm the estrus and signs of livestock activity with the body temperature and amount of activity data collected from the ear.
- Supporting APP(application) and related software for detecting estrus and managing disease.

How to operate / How to use

Warnings before use

1. Before use, sanitize the penetrating area and device pin.
2. Power on the inner battery by removing the magnet attached in front of the main body of the device.
3. Run a second set of sanitizations on the penetrating area after embedding the device.

Attach the ear-tag

1. Prepare the applicator, main body and cap as shown in the picture below.
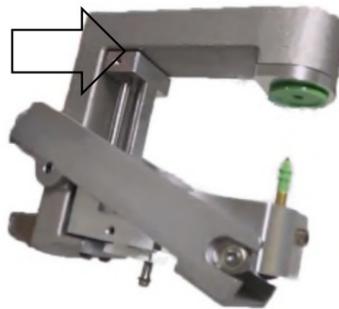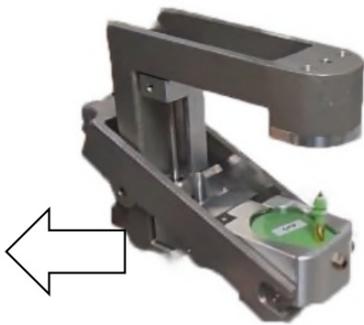
[Applicator]   [Main Body]   [Cap]

2. Place the main body (pushed far in as possible) on the bottom of the applicator with the penetrating pin facing upwards. Place the cap on top of the applicator as shown in the picture below.

3. Before use, check if the penetrating pin is centered with the hole of the cap by slightly clenching on the applicator.

4. Place the screw on the embedding area, clench the applicator as fast as possible to apply the device.

How to install App (application)

1. Type in 'FarmPro' in the Play Store or Apple Store and click button to install.
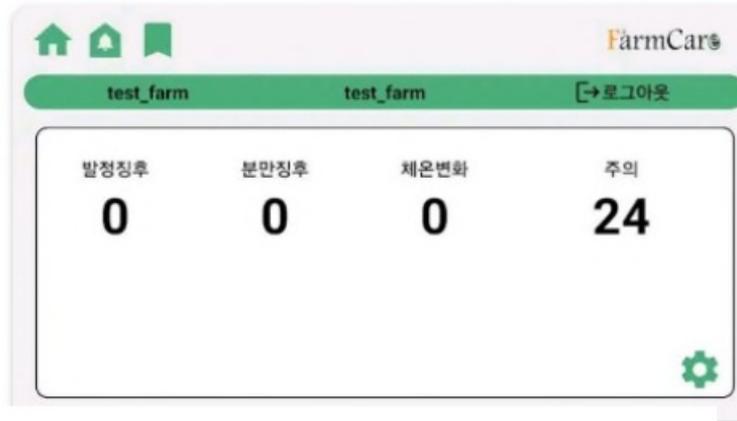
설치

팜프로 Farmpro
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farmpro

팜프로에서 설치
있습니다.

App UI and How to use

1. Run the 'FarmPro-Heat' on your smartphone. When the log-in screen appears, input the ID and password given, change the password after.

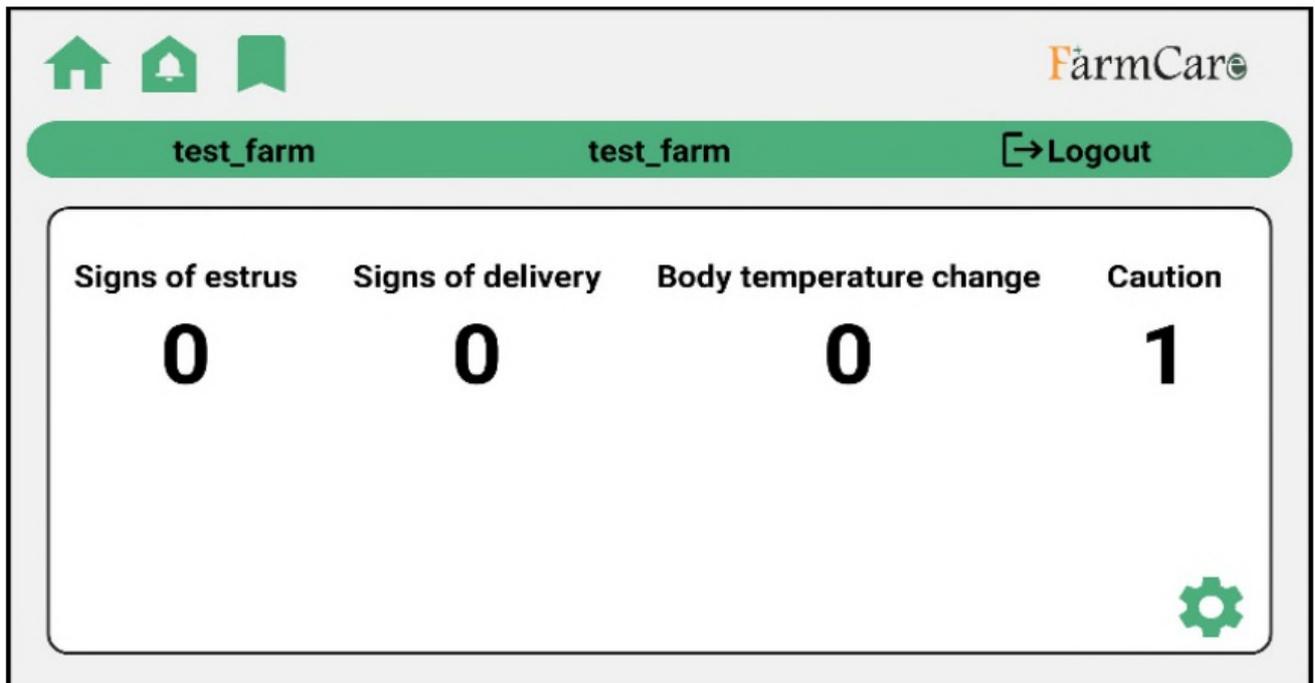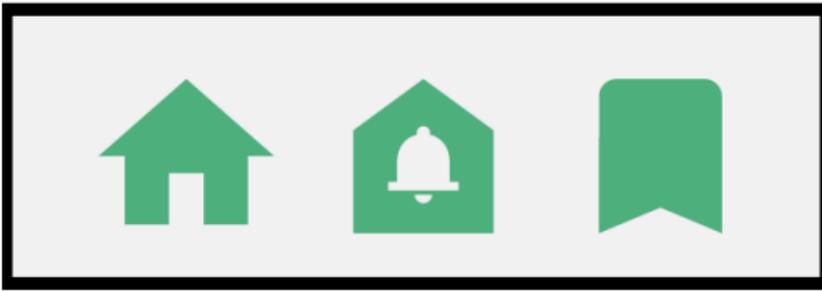After the log-in, follow the below direction.

2. Main screen

Above main screen will appear after your first log in.
On it, displays a list of four alarms showing: signs of estrus, signs of delivery, body temperature change, and caution.

Icons shown in the upper left-hand corner.

1. Home icon: Displays the main screen.
2. Bell icon: Displays a screen where you can check the list of notifications.
3. Tag icon: Displays a screen where you can check all objects.

Notifications list screen

This screen shows you the list of notifications you have received.
You can check the Cattle ID, the time of the notification received, and the status of your cattle.
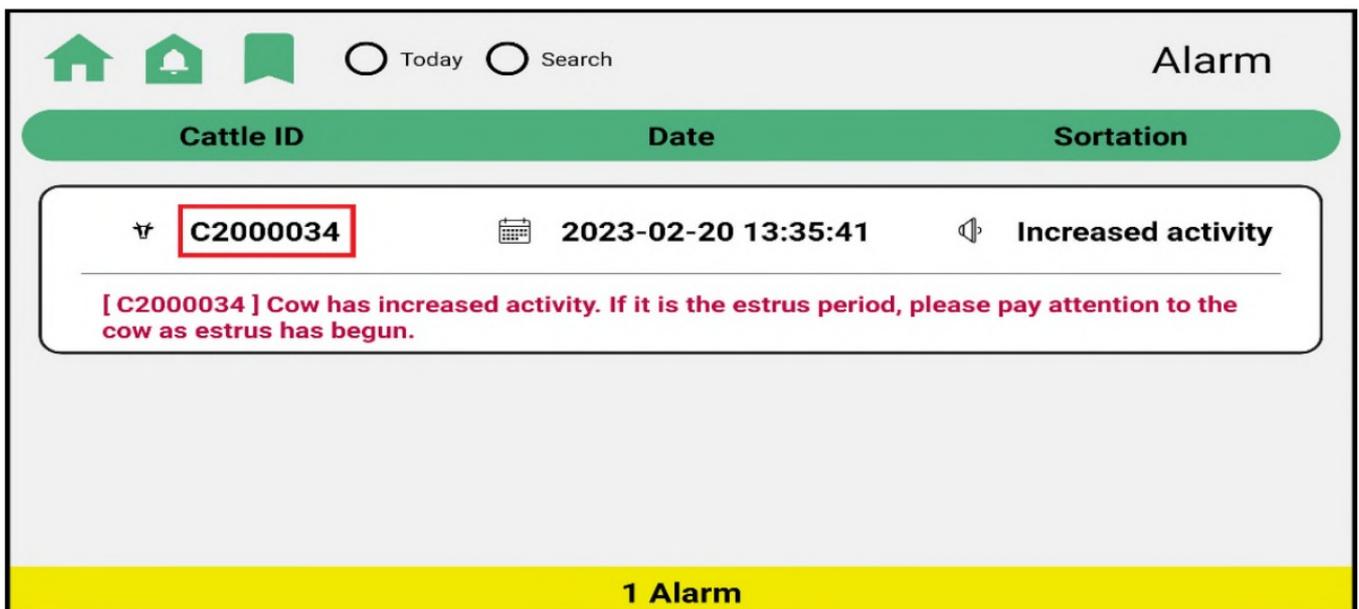
Click the "Today" button to see the notifications received today.
Click the "Search" button to search for the cattle's ID, the time of the notifications received, and the status of your cattle.
Please include space bars, hyphen '– ', colon ': 'depending on your object of search.

To recheck the notifications list

Select the notification you want to see again and proceed to the next page.
You can review the previous activity and its occurred date.
You can also check the analysis table by scrolling down the graph.

List of Cattle

This screen allows you to check the history number, device number, farm management number, and device communication status.
This screen also shows the total number of cattle that are registered/using the device.

- If the cattle's device has a poor network, the screen will show 'communication bad' in red text.
- You can also use the search engine on the screen that shows the list of cattle.
- You can search history number, device number, and farm management number (please be noted of using the

  space bars).

Cattle's detail screen
You can move to the detail information page of your selected cattle by clicking their cattle ID from the Cattle's detail screen.
On this screen, you can check graphs, analysis tables, and detailed information.

Select date
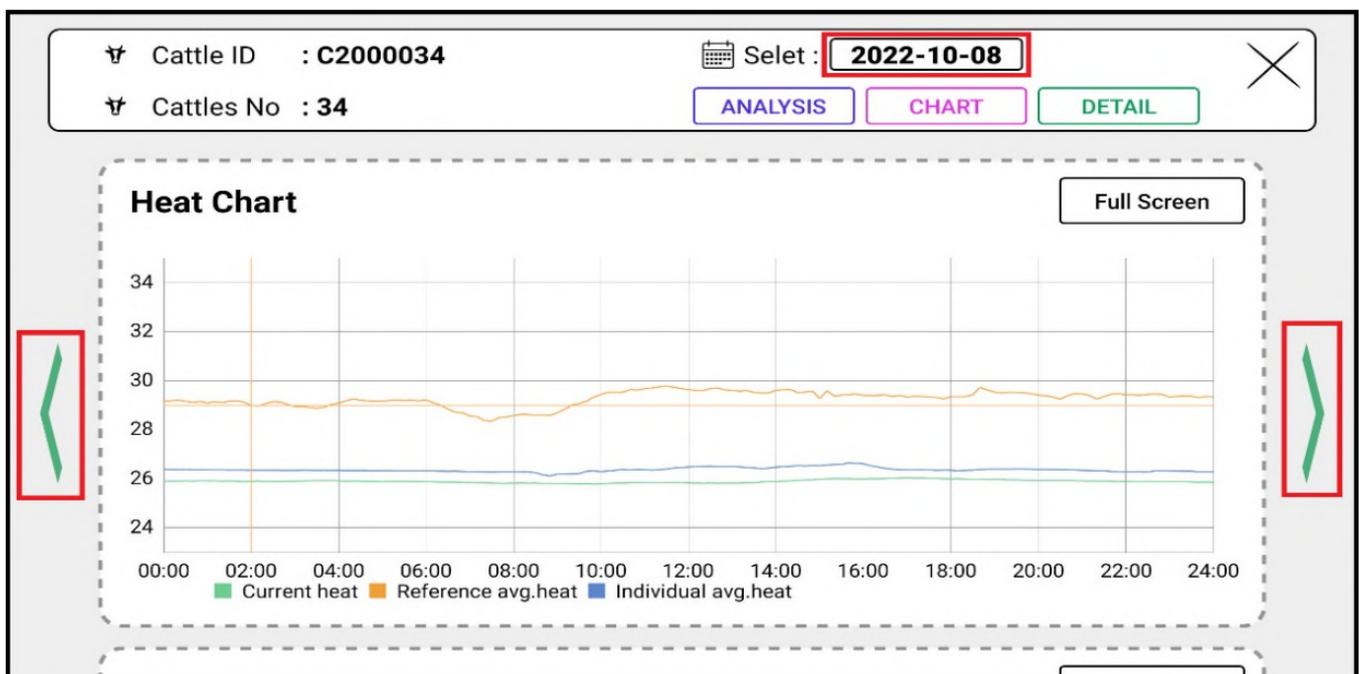
You can choose the date of your selection.
Left angle bracket: You can move to a day before information from the current viewing date.
Right angle bracket: You can move to a next day information from the current viewing date.

View graphs
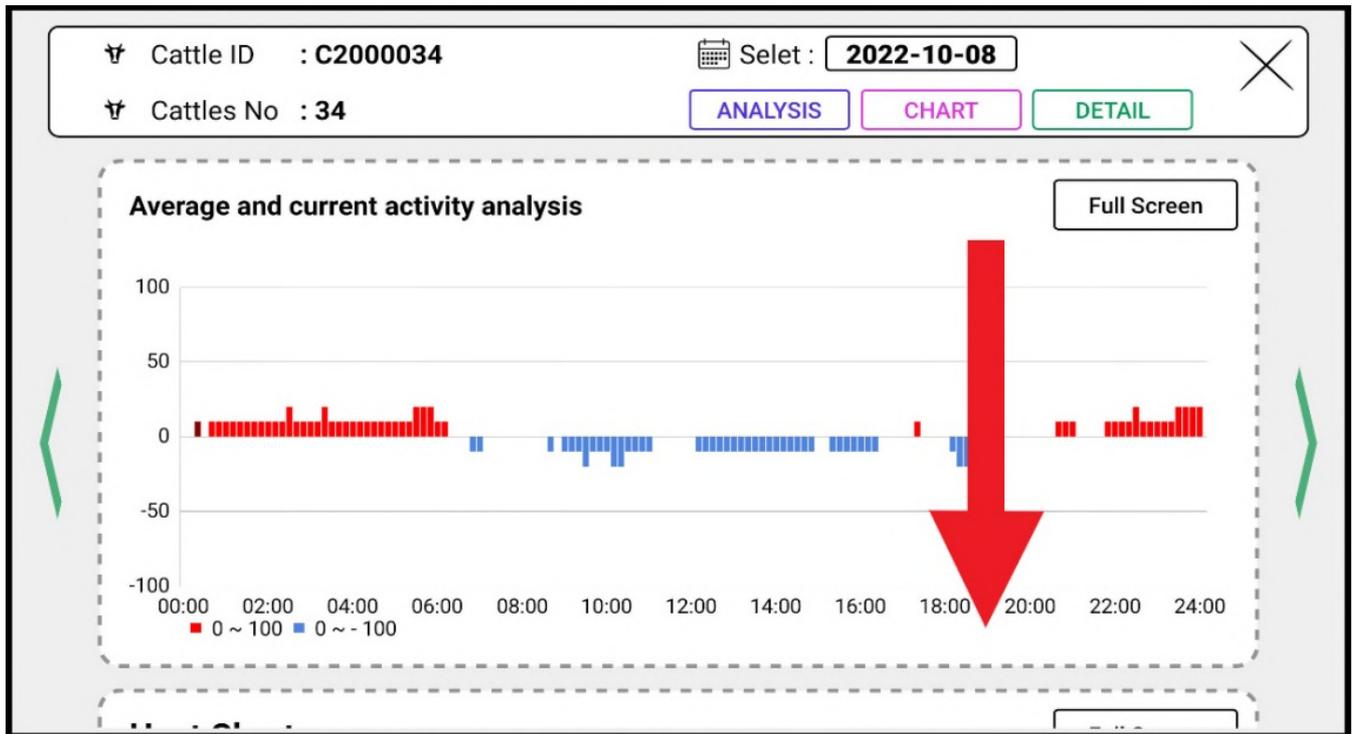
Click on the graph you want to view.

All the graphs have the full screen function.
If you touch the side of the graph and scroll down, you can check the graph, analysis table, and detailed information.

Analysis table
Click on the analysis table you want to view

Detailed Information

You may view the detailed information of your cattle.

Caution
– This product is used as an assistant device for detecting estrus.
If you receive a message that requires a checkup on the signs of estrus and disease, please contact your veterinarian for accurate diagnosis and follow according to their instruction.
– Other cautionary procedures
If there is a change of livestock, the farm owner must record this change of information on the web to receive accurate information.

Device storage precaution and validity

Store
– **Temperature** : -20 ~ 55℃
– **Humidity** : 20 ~ 90%
– **Atmospheric Pressure** : 700 ~ 1060hPa

Validity
– None required

Test Specification

Electrical, Mechanical and Electromagnetic Safety

- Test on electrical, mechanical safety shall be conducted in accordance with the standards for medical devices for animals: Shall follow the common standards for electrical and mechanical safety for medical devices for animals.
- Test on electromagnetic safety shall be conducted in accordance with the standards for medical devices for animals: Common standards for electromagnetic safety for medical devices for animals.

Biological safety

- Standards for Animal Medical Devices: shall follow the common standards for biological safety of animal medical devices.

Performance

No.	Testing Items	Testing Standards	Testing Method
1	Coupling of the front and back body of the device	Checks the smoothness of the front and back coupling of the device.	Visual checkup
2	Temperature Sensor	Testing the accuracy of the temperature sensor microchip located inside the penetrating pin.	Checks the temperature of the thermometer compared to the commercial temperature.
3	Bluetooth Transmission Output	Must be within 0 ~ 8dBm	Compare the RSSI values sent to the server.
4	Battery Voltage	Nominal Voltage must be 3.0V	Measure with the voltmeter.

Matters to be stated

Information Details

Part Name (Product Name)	Attachable Biometric Detecting Device[2](Farmking Ear Tag)
Manufacturer and Address	Farmpro Corporation 824, 28 Digital-ro 30-gil. Guro-gu, Seoul, Republic of Korea TEL. 02-838-1108 FAX. 02-838-1109
Manufacturing License Number	286
Manufacturing Product Approval Number	286-001
Serial No. and Production Date	Shall be stated after production
Expiration Date	Not applicable
Packing Unit	Followed by the manufacturer's packing unit
Performance and Instruction Manual	Measure the activity and temperature of the individual cattle with the attached device
Precaution for use	Refer to the instruction manual

FCC Statement

For a Class B digital device or peripheral, the instructions furnished the user shall include the following or similar statement, placed in a prominent location in the text of the manual:

NOTE: 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 in a residential installation.

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. – Connect the equipment into an outlet on a circuit different from that to which the receiver is connected. – Consult the dealer or an experienced radio/TV technician for help.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

FCC CAUTION: Any changes or modifications in construction of this device which are not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

FCC NOTE: The manufacturer is not responsible for any radio or TV interference caused by unauthorized modifications to this equipment. Such modifications could void the user's authority to operate the equipment.

Documents / Resources

Technical document of Attachable Biometric Detecting Device	**FARMPRO FP-100 Attachable Biometric Detecting Device** [pdf] User Manual FP-100, 2BAUK-FP-100, 2BAUKFP100, fp 100, Attachable Biometric Detecting Device, FP-100 Attachable Biometric Detecting Device, Biometric Detecting Device, Detecting Device