

Farmfit[®]

LIFETIME MONITORING TECHNOLOGY

User Manual. System installation



STgenetics[®]



**Your calf
today is
your future
cow**

**Alerts and notifications
of core body
temperatures from
each bolus right
to your phone.**

- ✓ Early diagnosis of calf illness
- ✓ Work-flow and labor optimization
- ✓ Full traceability of animals and interventions
- ✓ Improve animal comfort
- ✓ Around the clock monitoring

Know your herd inside and out

To install the Farm Fit system you will need the following things:

- **An equipment location site plan developed during the site survey.**
- **An equipment package.**

A copy of the site survey should be included with the equipment package. If not, contact a Farmfit™ or ST representative.

The equipment package should include all hardware that needs to be installed.

- **Tools**

Before beginning installation, open the equipment package and **inspect the contents**. Each package will have a minimum of 1 of each of the following items.

Industrial Gateway

An Industrial Gateway will come packaged with these items.

- Gateway
- Power Cable
- 2.4GHz Antenna
- Cat-5 Ethernet Cable
- Zip Ties
- Mounting Hardware



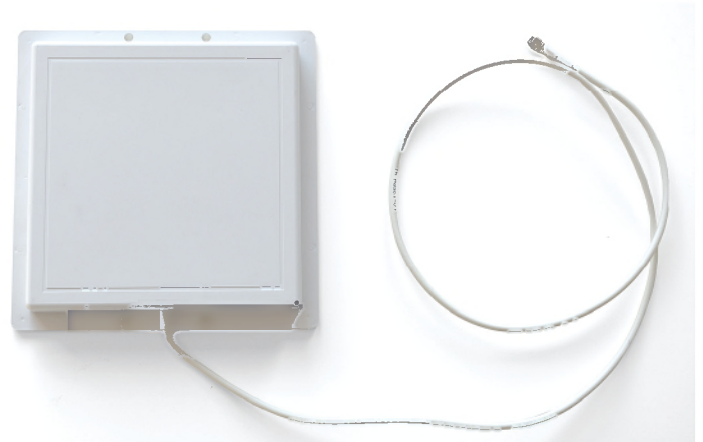
Collector

A Collector kit will come packaged with these items.

- Collector
- AC/DC WALL MOUNT ADAPTER
- 2.4GHz Antenna
- 865/900 MHz Directional Antenna
- Brackets
- Zip Ties
- Mounting Hardware
- Mounting bracket



865/900 MHz Directional Antenna



Bolus

**Boluses* are shipped in boxes of 100 units.
(depending on the size of the facility)**

*Operate on 865/900 MHz GFSK



Additional items

The equipment package may come with additional pieces not discussed above. These can be items such as Gateway Range Extenders or Solar Powered Collectors.

These items, as well as their necessary locations, will be called out specifically in the Equipment Location Site plan.

It is important to note that these items are specialty case use and may or may not be included in your equipment package.

Necessary Tools

You will need the following tools to install the equipment.

- **Cordless drill**
- **Ladder (Sft.)**
- **Phillips head screwdriver/bit**
- **5/16" Hex head driver/bit**
- **1/4" Hex head driver/bit**
- **Side cutter**
- **1/8" Drill bit**

Installation Instructions

Begin by consulting the equipment location site plan and matching the items in the equipment package with the equipment locations in the plan. Make sure that all of the necessary pieces have been allocated for the locations in the site plan. If there are any pieces missing, consult an Farmfit™ or ST representative to obtain the missing pieces.

The first item that needs to be installed is the Industrial Gateway. There should be a location marked on the site plan for this with notes for where to mount the device and any special considerations that should be taken for the system to operate optimally

Gateway Set Up

• Step 1.

Mount the Gateway in the location specified in the site plan. If no location is specified, locate the Gateway near enough to the internet connection point specified in the site plan that the included Cat-5 Network Cable will reach, and close enough to an outlet that the included power can also reach.

• Step 3.

Attach the 2.4GHz Antenna to the Gateway by screwing it on. Once it is snugly threaded on, rotate the antenna and bend it if necessary so that it is perpendicular to the ground.

• Step 4.

Connect one end of the Cat-5 Network Cable to the network port on the Gateway.

• Step 2.

If mounting to a wall, use the included wall anchors by marking the mounting hole locations on the gateway, drilling a 1/8" hole in each location, and inserting the anchors into the holes. Then use the phillips head screws to attach the Gateway to the wall.



• Step 5.

Connect the other end of the Cat-5 Network Cable to an open network port on the facility's existing Internet network. An empty port on a router or switch is sufficient, as long as it has Internet connection.

- **Step 6.**

Plug the included power supply into an open outlet.

- **Step 7.**

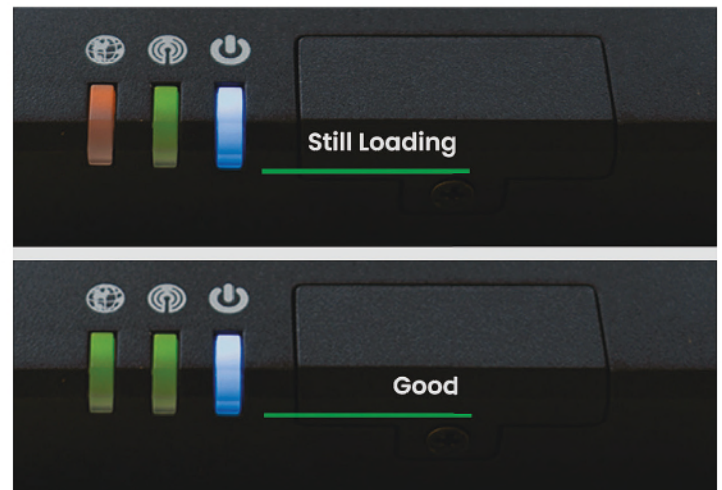
Plug the power supply's barrel connection into the power port on the Gateway.

- **Step 8.**

Use the included cable ties to secure the Network cable and Power cable out of the way if necessary.



It will take a moment for the Gateway to boot up and connect the Internet. When the lights on the front have turned green, the device is online.



Once the Gateway is in place and activated, begin installing the Collectors. The locations for these will be marked on the equipment location site plan. If applicable, the site plan will have notes for each collector location that will detail specific instructions that will need to be followed to obtain satisfactory performance from the system.

CAUTION:

Failure to follow these instructions may result in poor system performance. Every effort should be taken to adhere to these specific notes, where applicable, to ensure proper system performance. The following steps should be followed for each Collector being installed.

Collector Installation

- **Step 1.**

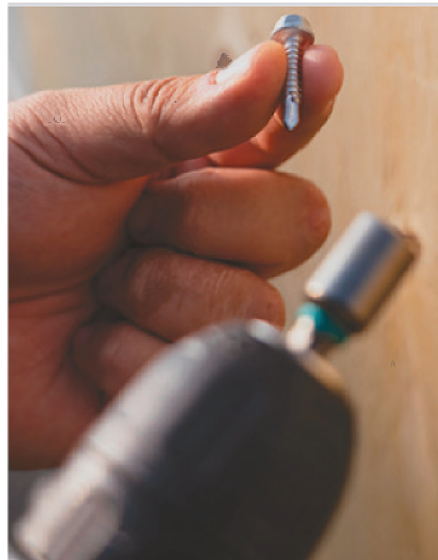
consult the site plan, and any installation notes to identify the Collector location.

- **Step 2.**

Attach the appropriate mounting material to the collector.

- **Step 3.**

If mounting to a wall, wooden post, or the mounting bracket, attach the included stainless steel mounting feet to the back of the Collector housing using the Included phillips head screws. use a minimum of 2, 5/16" hex head self tapping screws and a cordless drill with a 5/16" nut driver attachment to secure the Collectors' stainless steel mounting feet to the surface.



- **Step 4.**

If mounting to a round pole, attach the pole mounting bracket using the included bracket instructions. Then, use a minimum of 2, 5/16" hex head self tapping screws and a cordless drill with a 5/16" nut driver attachment to secure the Collectors' stainless steel mounting feet to the surface of the pole bracket.

- **Step 5.**

Attach the 2.4GHz antenna (approximately 3 inches in length) to the Collector by screwing it snugly onto the threaded antenna fitting to the RIGHT side of the Collector housing.



• **Step 6.**

Mount the 865/900 MHz directional antenna (large white square) to wall, wooden post, or mounting bracket using a minimum of 2, 5/16" hex head self tapping screws.

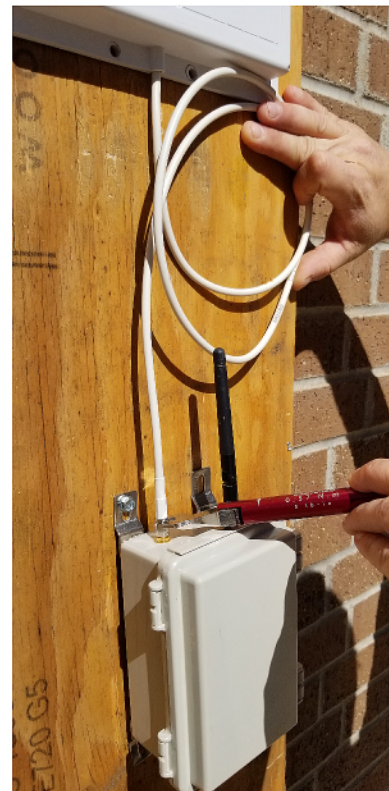
NOTE: When mounting this antenna, care should be taken to ensure that it is mounted so that the cable from the antenna is coming from the BOTTOM of the antenna housing. If the cable is coming out in any other direction, then the antenna housing may fill with condensation over time and cause failure. There are drain holes at the bottom of the antenna housing to allow moisture to leave so correctly mounting the antenna will prevent any future issues that may lead to failure.



• **Step 7.**

Attach the RP-SMA fitting on the end of the antenna cable to the threaded antenna fitting on the LEFT side of the Collector housing by screwing it on.

NOTE: It is important that this fitting be completely screwed on. If the cable is pulled to the side it can bind the fitting and make it seem like it is completely attached when it is not. Double check the tightness of this fitting by moving the cable to remove any strain and tightening by hand again. Care should be taken not to over tighten the connection, as this can cause damage. Hand tightening and then giving it one snug twist with a pair of pliers should be sufficient.



• **Step 8.**

Connect the power cable by plugging the female end of the cable into the power block connection on the bottom of the Collector housing, then plug the male blade end into a nearby outlet.



• **Step 9.**

Verify that the Collector is functioning. The LED on the RIGHT side of the board inside the housing will turn on solid to indicate that the Collector is active. After a few seconds this will begin blinking as one of the onboard radio systems connects to the Gateway, which was previously installed.



• **Step 10.**

Secure any cables using the included cable ties and self tapping screws as needed. If the equipment site plan requires a Solar Powered Collector the installation will be slightly different. Each solar powered collector will come in a single large enclosure with a separate support arm for the solar panel. These can be mounted to metal or wooden posts in the locations specified in the equipment location site plan. The steps below should be followed for each Solar Powered Collector being installed.

Installation Instructions

• **Step 1.**

Consult the site plan and any installation notes to identify the Solar Powered Collector location.

• **Step 2.**

Mount the solar panel to the support arm following the enclosed instructions. Set the solar panel aside, face down.

CAUTION: Once the solar panel is exposed to light it will begin generating electricity. Care should be taken to avoid shorting the wire ends. Cover the positive (RED) wire with electrical tape to insulate it until you are ready to connect it to the charge controller.

• **Step 3.**

If mounting to a wall use 4, 1.5" long 5/16" hex head self tapping screws and a cordless drill with a 5/16" nut driver attachment to secure the solar enclosures' mounting tabs to the wall.

• **Step 4.**

If mounting to a round pole, attach the solar enclosures' mounting tabs to the pole using the included round clamps. Tighten using a 5/16" nut driver and a cordless drill.

• **Step 5.**

Attach the solar panel bracket assembly to the mounting surface in the same manner as the enclosure. This should be mounted above the enclosure so that it faces the sun, and at a sufficient height above the enclosure as to not interfere with antenna placement.

• **Step 6.**

Attach the 2.4GHz antenna (approximately 3 inches in length) to the enclosure by screwing it snugly onto the threaded antenna fitting to the RIGHT of the enclosure

• **Step 7.**

Mount the 865/900 MHz directional antenna (large white square) using a minimum of 2, 5/16" hex head self tapping screws.

NOTE: When mounting this antenna, care should be taken to ensure that it is mounted so that the cable from the antenna is coming from the BOTTOM of the antenna housing. If the cable is coming out in any other direction, then the antenna housing may fill with condensation over time and cause failure. There are drain holes at the bottom of the antenna housing to allow moisture to leave so correctly mounting the antenna will prevent any future issues that may lead to failure.

• **Step 8.**

Attach the RP-SMA fitting on the end of the antenna cable to the threaded antenna fitting on the LEFT side of the enclosure by screwing it on.

NOTE: It is important that this fitting be completely screwed on. If the cable is pulled to the side it can bind the fitting and make it seem like it is completely attached when it is not. Double check the tightness of this fitting by moving the cable to remove any strain and tightening by hand again. Care should be taken not to over tighten the connection, as this can cause damage. Hand tightening and then giving it one snug twist with a pair of pliers should be sufficient.

• **Step 9.**

Run the power cable from the solar panel into the enclosure. To do this, first open the enclosure by clicking the two tabs on the right side and swing the door open. Next, locate the split rubber grommet on the bottom of the enclosure. Feed the power cable from the solar panel into this grommet.

• **Step 10.**

Connect the power cable to charge controller beginning with the negative (BLACK) wire. The location to connect this is marked on the charge controller. Feed the bare wire into the connector and then tighten it down using a flat head screw driver. Once the negative wire is connected, remove the electrical tape from the positive wire and repeat the same steps as before in the positive connection location.

• **Step 11.**

Using the LCD display on the charge controller, verify the power output to the collector board mounted inside. This should be between 11 volts and 15 volts.

• **Step 12.**

Verify that the Collector is functioning. The LED on the RIGHT side of the board on the door will turn on solid to indicate that the Collector is active. After a few seconds this will begin blinking as one of the onboard radio systems connects to the Gateway, which was previously installed.

• **Step 13.**

Secure any cables using the included cable ties and self tapping screws as needed.

How to access Farmfit™

Go to <https://stfarmfit.com/>

Hit the “Login” button in the top Righthand corner.

Input your login credentials, if you do not have a login please contact your ST sales rep or a Farmfit™ team member.

Farmfit™ App for Smart Device:

If using IOS (Apple)

- Search “stfarmfit” in the Appstore.
- Download
- Input your login credentials.
 - o If you do not have a login, please contact your ST sales rep or a Farmfit™ team member. Login credentials for the app and desktop are the same.



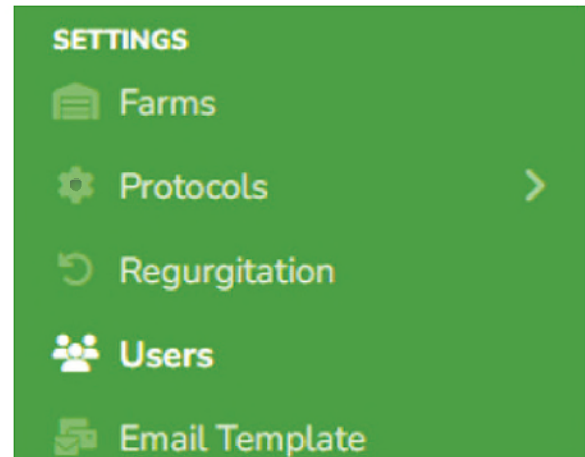
If using Android

- Search “Farmfit” in google play store.
- Download
- Input your login credentials.
 - o If you do not have a login, please contact your ST sales rep or a Farmfit™ team member. Login credentials for the app and desktop are the same.

*Information needed to make account:
First and Last Name, Email, Phone number,
Role/position held on farm.*

How to access Farmfit™

1. Login to stfarmfit.com
2. Scroll down to the settings area on the lefthand column and select Users.
3. Select the Create New User button located in the top right-hand of the screen.



4. Fill in the general user information.

A form titled "User Information" with a blue header bar. The header bar contains six tabs: "User Information Create User" (active), "User Roles Add Roles", "App Menu Add App Menu", "Web Menu Add Web Menu", "User Barns Add Barns", and "User Farms Add Farms". The form contains several input fields: "User name (Email)" with the value "email@stgen.com", "First Name", "Last Name", "Phone" with a dropdown for country (US) and the value "(201) 555-0123", "Temperature Type" with a dropdown for "Fahrenheit", "Military Time" with a dropdown for "Use 12-hour Time", and "Language" with a dropdown for "English". A green "Next" button is located at the bottom right.

5. Go through the steps listed at the top of the screen.

- a. User roles
 - i. Select role of user on the farm and click "Add Selected"
- b. App Menu and Web menu
 - i. Select the widgets desired to be used and click "Add Selected"
 1. Widgets may be autogenerated into the list. If needed, you can remove a widget by hitting the red trashcan button to the left of the widget name.

- c. User Barns

- i. You can skip this step if the farm is not using this function. If different barns will be added and managed separately, then select and add any barns the user needs to be granted access.

- d. User Farm

- i. Add any other farms that the user needs to access.

6. When finished select the Finish button at the bottom right-hand side of the screen.

Assigning a bolus to an animal

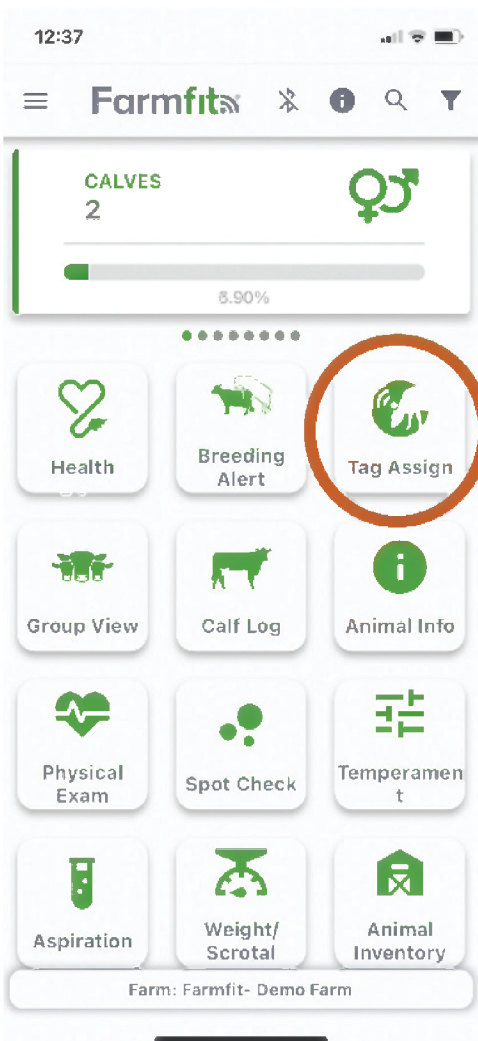
Note: Prior to enrolling animals into Farmfit™, a Farmfit™ Specialist will assist in integrating herd management software to Farmfit™ and pull all current animal inventory into the system.

• Step 1

Open the ST Farmfit™ App on your smart device.

• Step 2

Tap and open the “Tag Assign” widget on the home page.



• Step 3

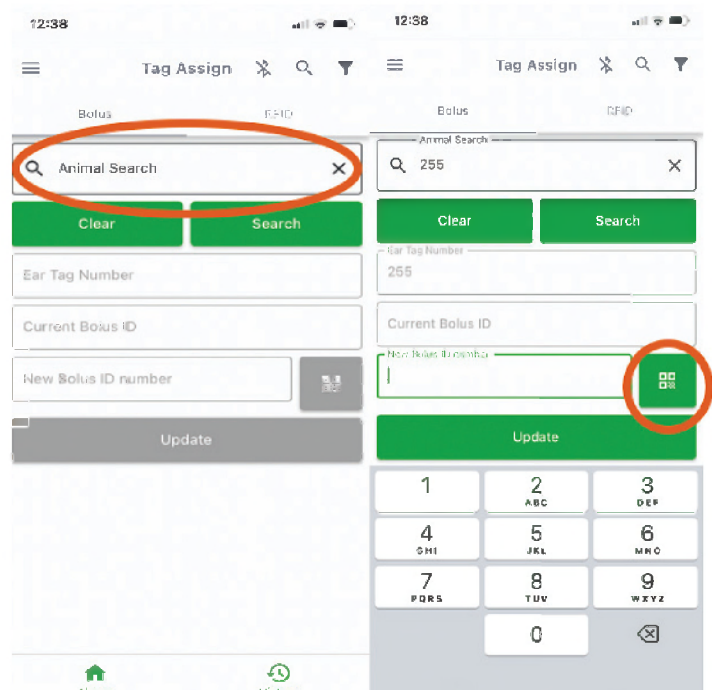
Manually enter or scan RFID (with scanner connected to smart device) to populate the Animal ID.

• Step 4

Click the green button beside “New Bolus ID number” to activate the camera on your smart device. Then place the bolus bar code in the viewing window to scan bolus and populate bolus ID. You may also manually enter the bolus ID on the bottom of the bar code label into the window.

• Step 5

Press “Update” to link the Animal ID to the Bolus ID

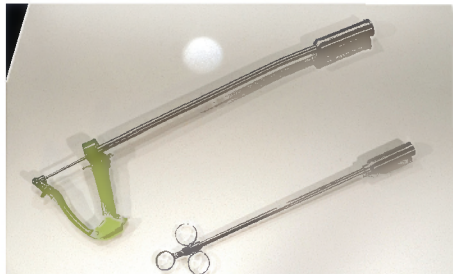


Administering a bolus

Needed equipment

• Step 1

Open box of boluses and note the bolus spreadsheet inside box on upper surface of the boluses. The black circle on the foam in one inside corner of box corresponds to the upper left bolus ID identified on the spreadsheet. This spreadsheet is a backup to your software to enable bolusing in the event a functioning smart device is not available. In this event, bolus ID's should have unique animal ID written legibly beside them to enable entry into the software at a later time.



• Step 2

Remove bolus from box. Always start by removing bolus at one corner and proceed in an organized manner down the row. This will allow troubleshooting of bolus ID in the event a mistake is made.

• Step 3

Safely restrain animal to prevent injury to individual or animal.

• Step 4

Assign bolus to the animal using the "Assign a bolus to an animal" instructions above

• Step 5

Insert bolus into the appropriately sized bolus applicator for the animal. Place the bolus into the applicator with the magnet facing out of the applicator.

• Step 6

Pass the bolus applicator and bolus into the mouth and down the esophagus as far as comfortably possible without using force or damaging the throat of the animal.

• Step 7

Depress the plunger to release the bolus from the bolus applicator.

• Step 8

For calves, palpate the sides of the throat to identify if a bolus has not been swallowed. If a bolus is palpated in the throat, place hand on each side of neck and gently rub toward from the mouth toward the brisket to assist the calf swallowing the bolus.

• Step 9

Insure the animal swallows the bolus. Boluses that are not properly administered in larger animals may be regurgitated or ejected from the mouth. These may be re-administered. Check animal ID and insure the bolus ID matches the animal before re-administering bolus. If you have a picture of inserting bolus into applicator or administering bolus, please include these images. Utilizing the system In-person, online, and digital training will be provided to assist users in learning and utilizing all the features of the Farmfit™ software. Boluses should begin transmitting data once they have warmed inside the animal to normal animal temperature. Data will be transmitted every 15 minutes. Data are constantly monitored for patterns that indicate an alert is warranted. Alert lists are available on the desktop at www.stfarmfit.com.

Welcome to Farmfit.

Safety and Compliance section

Federal Communication Commission (FCC) - USA

- FCC ID: 2BEWM-FFC2G1915 (Bolus)
- FCC ID: 2BEWM-FFCOLDC1915 (DC Collector)
 - Contains FCC ID: MCQ-XBEE3

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.

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.

Caution: Any changes or modifications not expressly approved by the grantee of this device could void the user's authority to operate the equipment.

The equipment complies with FCC RF exposure limits set forth for an uncontrolled environment. This equipment must be installed and operated in accordance with provided instructions and the antenna(s) used for this transmitter must be installed to provide a separation distance of at least 20 cm from all persons and must not be co-located or operating in conjunction with any other antenna or transmitter. End-users and installers must be provided with antenna installation instructions and transmitter operating conditions for satisfying RF exposure compliance.

Farmfit®

FARMFIT DC COLLECTOR

Model: FF-COLDC-1.0-915

FCC ID: 2BEWM-FFCOLDC1915, IC: 32056-FFCOLDC1915

Contains FCC ID: MCQ-XBEE3, Contains IC: 1846A-XBEE3

CAN ICES-003(B) / NMB-003(B)

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.



Farmfit®

FARMFIT Bolus

Model: FF-C2G-1.0-915

FCC ID: 2BEWM-FFC2G1915, IC: 32056-FFC2G1915

CAN ICES-003(B) / NMB-003(B)

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.



Innovation, Science and Economic Development Canada(ISED) – Canada Compliance Statement

- IC: 32056-FFC2G1915 (Bolus)
- IC: 32056-FFCOLDC1915 (DC Collector)
 - Contains IC: 1846A-XBEE3

English :

This device complies with ISED's licence-exempt RSS standard(s).

Operation is subject to the following two conditions:

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

This Class B digital apparatus complies with Canadian ICES-003. CAN ICES-3 (B)/NMB-3(B)

The radiated output power of the Wireless Device is below the Innovation, Science and Economic Development Canada (ISED) radio frequency exposure limits. The Wireless Device should be used in such a manner such that the potential for human contact during normal operation is minimized. This device has also been evaluated and shown compliant with the ISED RF Exposure limits under portable exposure conditions. This device has also been evaluated and shown compliant with the ISED RF Exposure limits under mobile exposure conditions. (antennas are greater than 20 cm from a person's body).

French :

Le présent appareil est conforme aux CNR d'ISED applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes : (1) le dispositif ne doit pas produire de brouillage préjudiciable, et (2) ce dispositif doit accepter tout brouillage reçu, y compris un brouillage susceptible de provoquer un fonctionnement indésirable.

Cet appareil numérique de la classe B est conforme à la norme NMB-003 du Canada.

La puissance de sortie rayonnée de l'appareil sans fil est inférieure aux limites d'exposition aux fréquences radio d'Innovation, Sciences et Développement économique Canada (ISDE). L'appareil sans fil doit être utilisé de manière à minimiser le risque de contact humain pendant le fonctionnement normal.

Ce périphérique a également été évalué et démontré conforme aux limites d'exposition aux RF d'ISED dans des conditions d'exposition à des appareils mobiles (antennes sont supérieures à 20 cm à partir du corps d'une personne).

EU Declaration of Conformity

Hereby, Farmfit LLC declares that the radio equipment type FF-C2G-1.0-868 and FF-COLDC-1.0-868 are in compliance with Directive 2014/53/EU.

The full text of the EU declaration of conformity is available at the following internet address: xxxxxx

UK Declaration of Conformity

Hereby, Farmfit LLC declares that the radio equipment type FF-C2G-1.0-868 and FF-COLDC-1.0-868 are in compliance with the essential requirements and other relevant provisions of the Radio Equipment Regulations 2017. The full text of the UK Declaration of Conformity may be found at the following internet address: xxxxxx

This device meets the EU requirements (2014/53/EU) on the limitation of exposure of the general public to electromagnetic fields by way of health protection. The device complies with RF specifications when the device is used at 20 cm from your body.



All operational modes:

Technologies	Frequency range (MHz)	Max. Transmit Power
SRD – GFSK (bolus)	863 – 870 MHz	0.897 dBm ERP
SRD – GFSK (DC Collector)	863 – 870 MHz	TBD dBm ERP

Agência Nacional de Telecomunicações (ANATEL) – Brazil

Este equipamento não tem direito à proteção contra interferência prejudicial e não pode causar interferência em sistemas devidamente autorizados.

Para maiores informações, consulte o site da ANATEL –www.gov.br/anatel

User Manual.
System installation

Farmfit[®]



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