NECK TAG RUMINATION ACT

The NECK TAG RUMINATION ACT is a label that is attached to the cows neck and it determines monitors the behavior of individual cows 24/7 and the system will detect the cow's in heat. A cow in heat shows more activity then being in a "normal" state of condition.

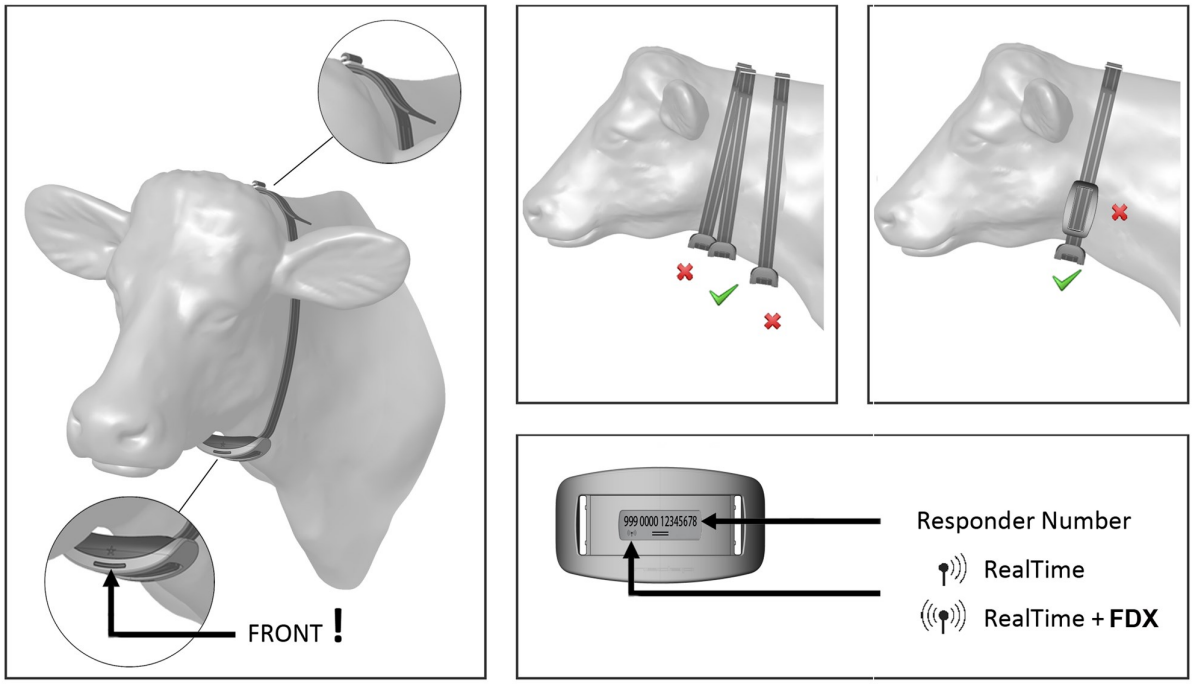
The main parts of the NECK TAG RUMINATION ACT for the purpose activity meaning heat – and health detection are:

1. Cow activity detection together with the beacon VP4102
2. An acceleration sensor detecting motions.
3. A battery (active) assisted RFID (=Radio Frequency Identification) tag for individual cow activity monitoring, operating on 433.6, 433.8, 434.0 and 434.2 MHz.
4. The 134.2 kHz inductive RFID tag (passive) is optional.

The motions of the cow are stored in the memory of the RFID tag transmitting this data. The repetition rate of this transmission is min. 10 seconds and max. 10 minutes depending on the cow's activity.
The antenna in the barn receives the activity information from the RFID tag of the individual animals and the information is transported by means of the receiver VP4102 over CAN bus or Ethernet to the host computer process controller and is e.g. used for ovulation/heat detecting, automatic cattle feeding, separation of animals, milk registration etc.

The Velos program determines the activity increase of an animal. If an animal is a lot more active than usual it will get an heat attention. The red light on the process unit will indicate this attention. The Velos program displays overviews of animals with a clear increased heat attention on the PC screen.

Figures below show how the NECK TAG RUMINATION ACT is attached to the cow's neck



NOTE:
The label can only monitor the behavior of the animals if placed on the cows neck in the right position.

Wrong Position of the label:

1. **Back to front**
   Label attached backwards, the groove (and the arrow on the back of the label) is pointing towards the cows body instead of the cows head.
2. **Check position**
   Turned sideways on the neck or twisted on the collar.

Specification

Transmitter Information

Frequency	: 433.6, 433.8, 434.0 and 434.2 MHz
Modulation	: FSK modulated
DataRate	: 100 kbit/s
Frequency deviation	: 25 kHz
On time	: 11msec
Repeat time	: >10 seconds
Duty cycle	: ≤ 1 %
Transmitted Power	: EIRP < 1 mW

Power

Power	: Battery powered 3.6 V

Antenna

Antenna	: Copper on Printed Circuit Board

Environment

Operating Temperature	: -10 to + 50 °C
Storage	: -25 to + 70 °C
Relative humidity	: 10 – 93% non condensing
Enclosure	: IP class 67

FCC ID: CGDIFER and IC: 1444A-IFER

This device complies with part 15 of the FCC Rules and with Industry Canada's licence-exempt RSSs. 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.

Warning (15.21)
Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

Cet appareil se conforme aux normes RSS exemptés de license du Industry Canada. L'opération est soumis aux deux conditions suivantes:
(1) cet appareil ne doit causer aucune interférence, et
(2) cet appareil doit accepter n'importe quelle interférence, y inclus interférence qui peut causer une opération non pas voulu de cet appareil.

Les changements ou modifications n'ayant pas été expressément approuvés par la partie responsable de la conformité peuvent faire perdre à l'utilisateur l'autorisation de faire fonctionner le matériel.

FCC and ISED Radiation Exposure Statement
This equipment complies with FCC (OET Bulletin 65) and Canadian radiation exposure limits set forth in RSS-102 for a uncontrolled environment. This equipment should be installed and operated with a minimum distance of 20 cm between the radiator and your body. This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

Cet équipement est conforme a RSS-102 limites énoncées pour un environnement non contrôlé. Cet équipement doit être installé et utilisé avec une distance minimale de 20 cm entre le radiateur et votre corps.

ISED EMC Declaration
This Class B digital apparatus complies with Canadian ICES-003.
Cet appareil numérique de Classe B est conforme à la norme Canadienne ICES-003.

FCC Information to the user (15.105(b))
Note: This equipment has been tested and found to comply with the limits for a class B digital devices, 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 frequent 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 not cause harmful interference to radio or television reception, which can be determine 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.
• Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.
• To ensure compliance with FCC regulations, use only the shielded interface cables provided with the product, or additional specified components or accessories that can be used with the installation of the product

Taiwan requlatory information(NCC)

低功率電波輻射性電機管理辦法

第十二條　　經型式認證合格之低功率射頻電機，非經許可，公司、商號或使用者均不得擅自變更頻率、加大功率或變更原設計之特性及功能。

第十四條　　低功率射頻電機之使用不得影響飛航安全及干擾合法通信；經發現有干擾現象時，應立即停用，並改善至無干擾時方得繼續使用。

前項合法通信，指依電信法規定作業之無線電通信。

低功率射頻電機須忍受合法通信或工業、科學及醫療用電波輻射性電機設備之干擾。