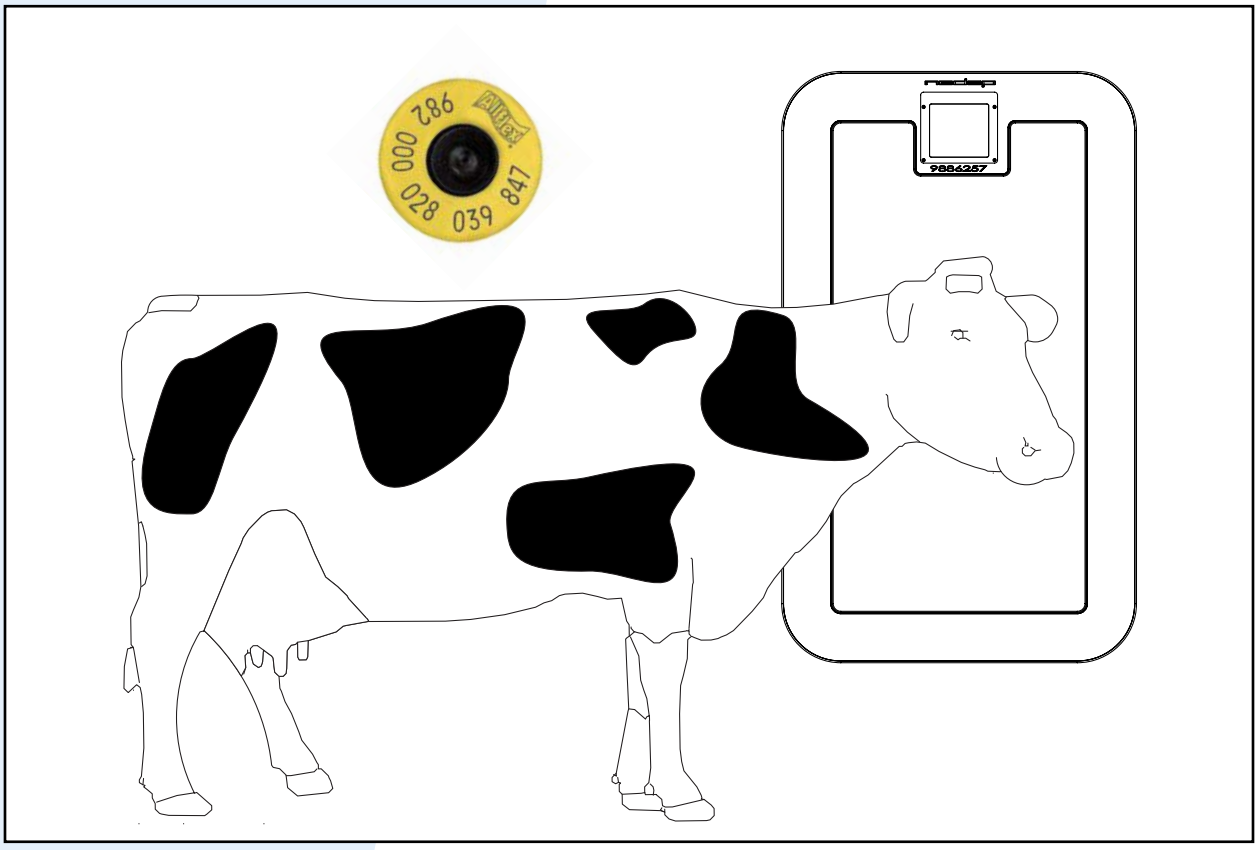
SmartEID™
ISO Ear Tag ID System

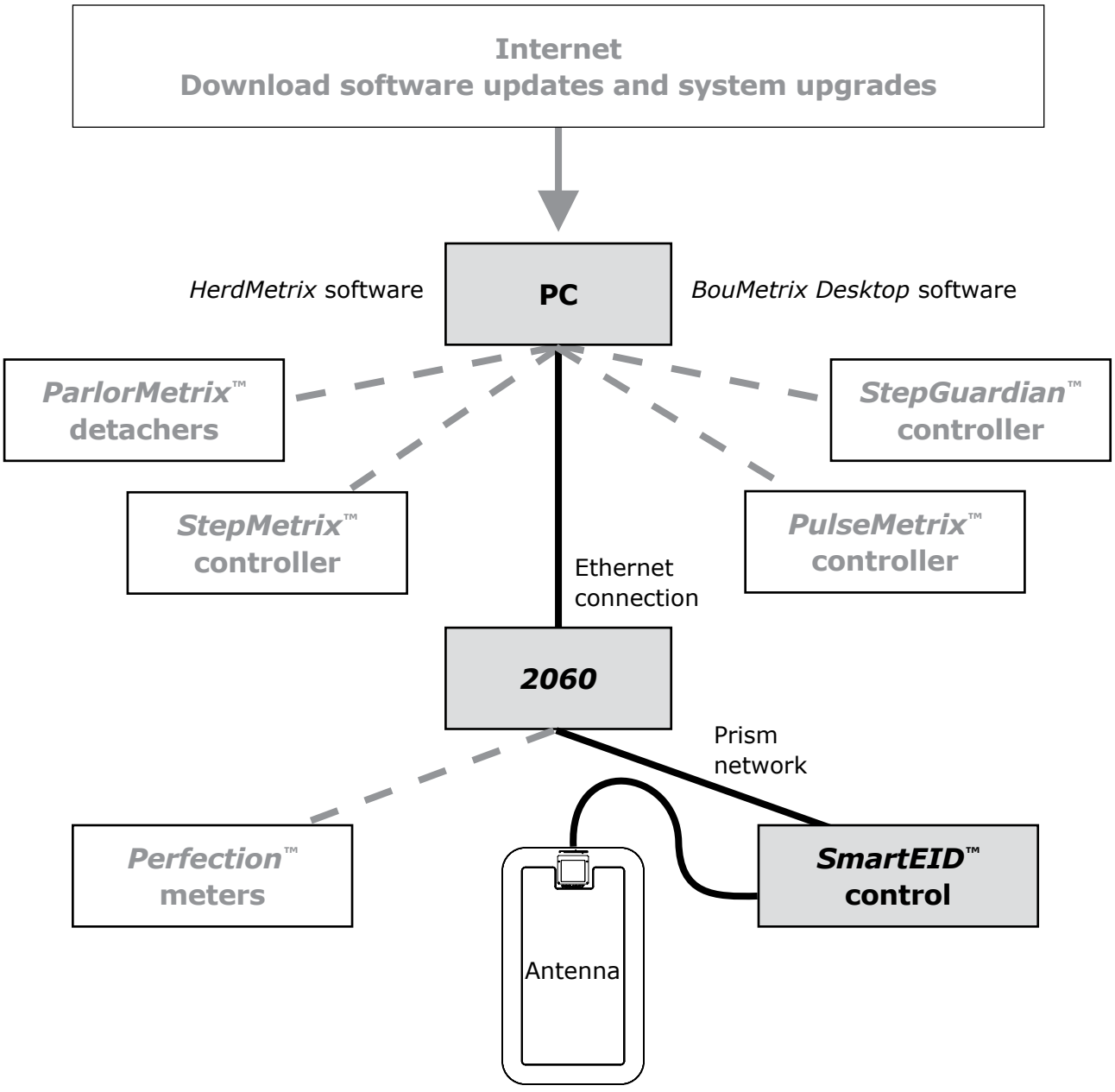


Design & Application

SmartEID™ is a high performance dairy cattle ID system, engineered with durable antennas, controls and our unique *BouMatic SmartEID* programming. *SmartEID* works with the 2060 network controller and the interfacing software, *BouMetrix* to provide not only consistent and reliable ID but also milk weight assignment. ID percentages > 95% are routinely achieved when the tag manufacturer's recommendations and the *BouMatic* Site Evaluation guidelines are followed.

System performance can be compromised from excessive amounts of radio frequency interference in some situations. To assure proper system performance, *BouMatic* requires that a site evaluation is performed by a trained *BouMatic* technician and that all appropriate corrective measures are taken prior to equipment installation.

ISO compliant ear tags are sold in two variations, HDX and FDX. The difference between the two is how the tags work with the antenna. *BouMatic's SmartEID* system is compatible with both types of tag offering the freedom to choose the tag desired.



Features/Advantages/Benefits

Features	Advantages	Benefits
Patented program algorithm.	Determines which stall(s) have an unidentified cow to assure identified cows receive their own milk weight.	Milk weight assignment accuracy.
Cows are identified at the entrance of the parlor.	No need for antennas mounted at each stall.	More economical than individual ID systems.
	Much simpler to wire compared with individual antennas.	Easy to install.
Utilizes ISO ear tags.	No costly proprietary tags to buy.	Low investment costs.
	Recognizes FDX and HDX tags	Adapts to what the dairy is already using.
	No neck straps or leg bands required to mount the tag on the cow.	Lower operating costs.
	Fewer tags lost as compared with neck and leg mounted tags.	Lower operating costs.
Site evaluation performed prior to installation.	Identifies unwanted sources of RF interference before it becomes a problem.	Pro actively eliminates startup problems.
	Establishes a benchmark against which future readings can be compared.	Documented performance standard for each installation.
Standard antenna used for all ID applications.	Reduces spare parts inventory requirements.	Lower operating costs.
The antenna is molded into a solid plastic panel.	Provided excellent durability in heavy cow contact environments.	Low maintenance.

Frequently Asked Questions

Q. **What makes *SmartEID* different from other systems?**

A. *BouMatic* uses a patented program algorithm to determine where unidentified cows are located to assure that every identified cow is matched with her correct milk weight.

Q. **Can't other systems achieve the same performance by manually correcting misidentified cows?**

A. Yes, but in practice this just doesn't happen because operators are focused on moving cows through the parlor, not insuring the accuracy of the herd data being collected.

Q. **Why are guillotine style entrance gates required for the parlor entrance?**

A. Experience has shown that with swing gates the first cow can stand with her head through the opening in the gates which is beyond the antenna's read range. The antenna is not activated until the gate opens which often results in a misidentified first cow. *BouMatic's* patented software assures all cows identified receive their actual milk weight, however we strive to identify every cow possible to optimize the available herd management capabilities. A guillotine gate's upward movement forces the first cow to wait until the gate is fully open before she advances beyond the antenna's read range.

Q. **Why is the antenna mounted overhead on a rotary platform instead of in the entry lane?**

A. Identifying a cow after she has been committed to a stall eliminates the possibility of her backing out after being identified.

Q. **Why does *BouMatic* require a Site Evaluation prior to installing a *SmartEID* system?**

A. Our ID system like any other performs at its peak when there is no interference (RF - radio frequency noise) present. Each installation site is unique with its own RF characteristics. Think of it as an RF fingerprint or DNA. It is not possible to predict how a site will effect the RF signal without performing the Site Evaluation.

The Site Evaluation pro-actively identifies and allows *BouMatic* technicians to remove or correct interference sources before they become a problem. The Site Evaluation also establishes a benchmark of actual on-farm conditions. This is helpful for tracking future system performance and identifying new sources of interference that may be introduced after the system is up and running.

Q. **What types of things are you looking for as potential RF noise sources?**

A. Typically any electric motor that operates with a variable speed control, such as milk pumps, vacuum pumps and ventilation fans. Other potential sources include defective or low quality florescent light fixtures, dimmer switches or other rheostat-controlled devices and poor electrical ground connections. There are other potential sources but these are the most common.

Frequently Asked Questions

Q. How is the *SmartEID* system better than others that I have heard an accuracy rate as high as 98%?

A. When you hear claims of 98% accuracy with other programs they are referring to the percent of cows they identify. What about the milk weights? Are they being assigned to the proper cows? With *BouMatic's* patented program algorithm all cows that are identified also receive their correct milk weight. This is generally why cows are identified in the milking parlor. An accurate cow identity has no value if she is not receiving the correct milk weight.

Q. Why is there a second antenna mounting position on the right side of the lane for sort gates and straight parlor ID systems?

A. The second mounting position is only used on rare occasions when a site is experiencing higher than normal missed tags due to high levels of RF noise or abnormal cow behavior. In those special circumstances a second installed antenna generally corrects the situation.

Q. How do HDX and FDX tags work and is one better than the other?

A. FDX stands for Full Duplex and HDX stands for Half Duplex. The terms are used to explain how each tag communicates with the antenna. An FDX tag starts transmitting it's 15 digit AIN (Animal Identification Number) as soon as it receives enough energy from the tag reader. The tag continues to repeat the code while activated in the antenna field. HDX tags cannot transmit and receive signals simultaneously. In the ON-time of the antenna, these tags collect energy and in the OFF-time of the antenna they transmit the 15-digit AIN.

BouMatic testing did not show a significant difference in tag performance between these two types. The *SmartEID* system is fully compatible with both tags.

Q. What is the failure rate of ISO tags?

A. Allflex is a common supplier of ISO ear tags and they reported a failure rate of less than 0.2% on their company web site.

Q. What frequency do ISO tags operate on?

A. The frequency chosen for these tags was 134.2 kHz. This is a relatively low-frequency and is one that can be susceptible to interference. This is why *BouMatic* requires a site evaluation prior to the installation of a *SmartEID* system. If an evaluation is not performed, unidentified noise sources may interfere with the tag signals and result in unsatisfactory ID tag read-rates.

Q. What do I do if the dairy has too much noise?

A. A *BouMatic* dealer or Technical Support person can assist in identifying the noise sources. A site evaluation tool has been created for this purpose. Once noise sources are identified, they can usually be corrected through the use of proper wiring and electrical filters. Information on filters for *BouMatic* equipment can be found in the instruction, 9E-892 ISO ID System - Site Evaluation.

Frequently Asked Questions

Q. Can I use *BouMatic* tags along with ISO RFID ear tags on the same cow?

A. You can install ear tags on cows with neck tags. But only one tag can be used for management purposes.

Q. Is National Identification program mandatory in North America?

A. It is not mandatory yet. The details can be found at: http://animalid.aphis.usda.gov/nais/index.shtml

Q. Can I use ISO RFID tags for activity?

A. Currently *BouMatic* does not support ISO RFID ear tags for activity. For activity, you must use *BouMatic CowTrakker* tags.

Q. Can I use existing milk meters?

A. You must have perfection milk meter with software version 5.42 and higher.

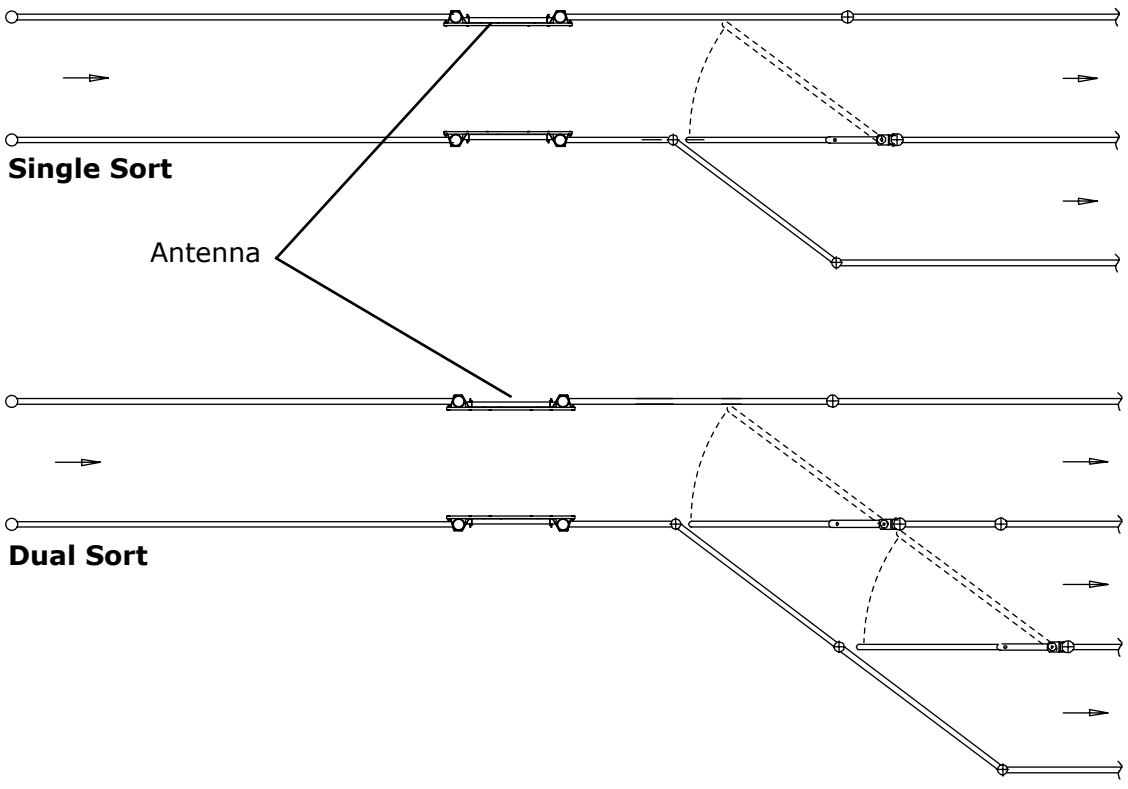
Q. Do I need to buy special management software?

A. ISO ID tags are not compatible with *EZ Cow* and *EZ Cow Plus*. They will be compatible with *HerdMetrix*, PC Dart and DC305.

Technical Specifications	
ISO Compatibility	ISO 134.2 kHz FDX/HDX
Dimensions H x W x D	Antenna: 39.4” x 23.6” x .78 [1000 x 600 x 20 mm] Control: 9.9” x 11.8” x 3.5” [250 x 300 x 90 mm]
Weight	Antenna: 50 lbs (23 Kg) Control: 7 lbs (3 Kg)
Power	Control: 24 VDC Power Supply: 208 – 240 VAC
Outputs/ Inputs	Control PLC has 6 inputs/outputs
Communication	RS485
Environment	Operating Temperature: 14—115° F (-10—46°C)
Enclosure rating (IP Class)	NEMA - 4.4 X IP – 66
Approvals (Certification)	Control PLC: FCC: CGDVELOS2 IC: 1444A-VELOS2 CE: EN 60950-1, EN 50357, EN 50364, EN 301 489-1 AND -3 V1.4.1, IEC 61000-6-2, IEC 61000-6-3, EN 300 330-1 V1.3.1, EN 300 330-2 V1.3.1,
Cable/Wire	For power use, stranded Wire, type TW insulated, 18 AWG [.823 mm²]

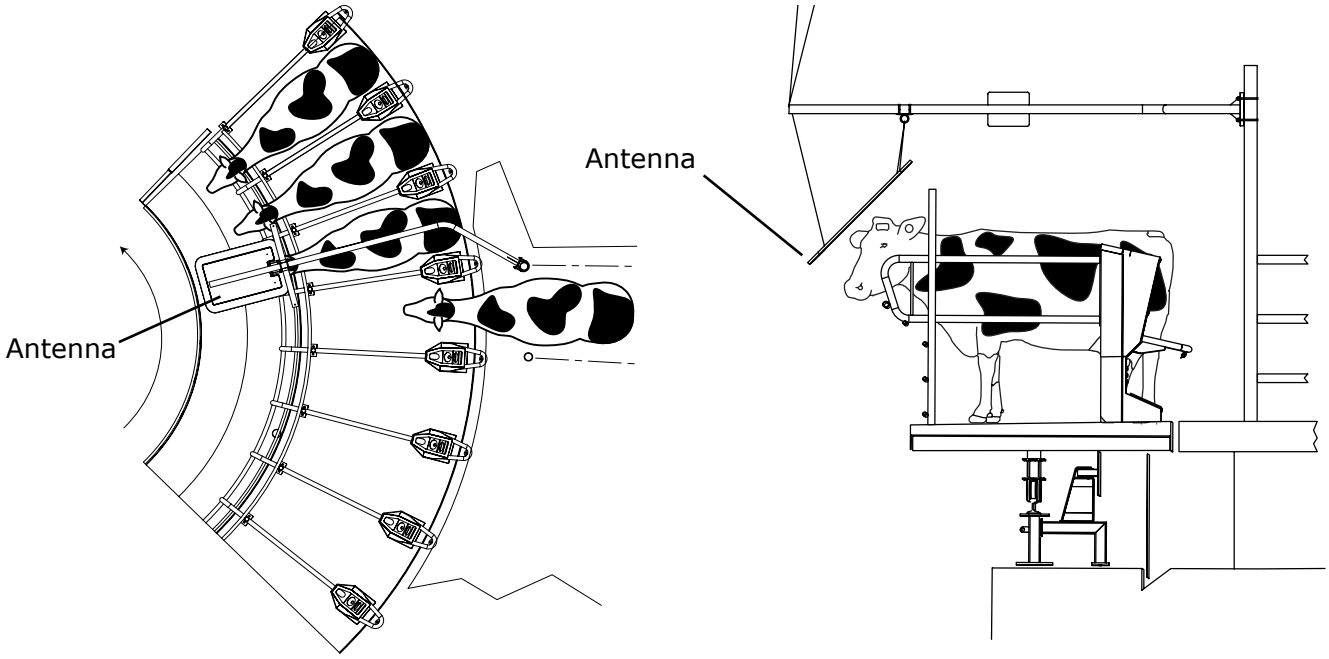
The following illustrations provide a conceptual overview of the product in various applications. Refer to the Installation and Operation Manual for detailed specifications for this product.

Sort Gate *SmartEID* Antenna Location

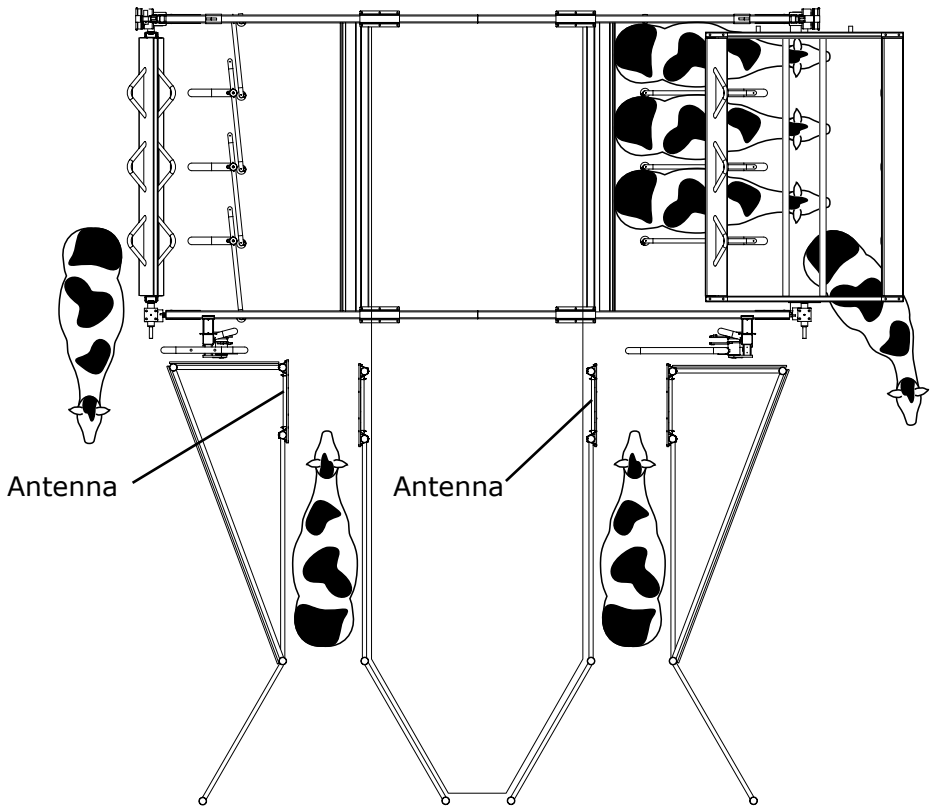


Product Specifications

Rotary Parlor *SmartEID* Antenna Location



Parallel or Herringbone Parlor *SmartEID* Antenna Location



What's Included

Module, Control, Antenna, ISO

- *SmartEID* Antenna
- *SmartEID* Control

Necessary Options

- Power Supply 24 Volt
- Antenna Mounting Module (varies depending on the application)
- Poly Sheet .75" x 37.5" x 48" (Parallel, herringbone and sort only)
- Post Rotary Mounting ISO (Rotary only)
- Guillotine style entrance gates (Parallel and herringbone only)
- Module Switch Pneumatic (Parallel and herringbone only)
  - Hose Red 5/32"
- Sort Modules (Sort gates only)
- Sort Gate Assembly 57" (Sort gates only)
- 2060 Network Controller with *BouMetrix* Software
- Site Evaluation
- Communication Cable 2x18 AWG

Locally Purchased Items

Electrical

- Wiring
- Conduit, fittings and mounting hardware
- Wire nuts

Hardware

- U-bolts for mounting poly sheets
- Stainless steel cable and clamps for supporting antennas mounted on a rotary milking system.
- HDX or FDX ISO compliant ear tags
- Posts and rails for fencing

Operating Costs

SmartEID has no wear items however performance should be monitored regularly.

Investor Resources Required for Unrivaled Results

*SmartEID o*wners can expect to spend an hour per week reviewing reports from the system the operation is monitored. Owners who have not managed their dairy herd with ID before can expect this time to be higher initially. System performance will be dependent on proactive ear tag management; missing, incorrectly installed, or failed tags should be quickly corrected.