

EDGE GSF LFID W/ AUTO TUNING

Models:
074-11963

Installation / User Manual

890-00682
Version 02

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PN895-00847

REV02

All information, illustrations, photos, and specifications in this manual are based on the latest information available at the time of publication. The right is reserved to make changes at any time without notice.

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NOTES

1 Introduction

Topics Covered in this Chapter

- Contact information
- General Safety Precautions and Usage
- Telecommunication Advice
- Terms of Use
- Inspecting Your Received System
- System Overview
- Guidelines for Installation Location

Contact information

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Manufacturer










GSI Electronics
5200 Armand Frappier Saint-Hubert, Qc
Canada J3Z 1G5



Warranty is void if this product is used in a manner not specified by the manufacturer. Every effort has been made to ensure that this manual is complete, accurate and up to date. The information contained in this manual is subject to change without notice.

General Safety Precautions and Usage

Safety Symbols

	Warning. Read the following text carefully; it contains important information which, if ignored, may cause the controller to operate improperly
	High Voltage. Hazard of electrical shock. Read the message and follow the instructions carefully
	Direct current (DC)
	Alternating current (AC)
	Protective Earth Ground Terminal, Primarily used for protective earth terminals. Terminal connected to conductive parts of a device for the purpose of safety and is intended to be connected to an external system for protective grounding
	Functional Ground Terminal Primarily used for functional earth terminals which are generally associated with test and measurement circuits. These terminals are not for safety earthing purposes but provide an earth reference point.
NOTE:	To emphasize points or remind readers of something, or to indicate minor problems in the outcome of what they are doing
	Failure to follow the instructions can result in damaged equipment or loss of data or potential problems
	Failure to follow the instructions carefully can result in serious or fatal injury
IMPORTANT:	The following information is of great significance and must be read carefully
	Read the following text carefully; it contains important information which, if ignored, may cause the controller to operate improperly
Tip	Shortcut or a faster way of getting to an end result

Safety Messages



Turn off the main electrical disconnect switch prior to servicing any of the boxes. Failure to do so might lead to serious injury or death.

Always use extreme caution when measuring voltage or performing procedures that require a module to be powered on.

Electrostatic Discharge Prevention When Manipulating a Printed Circuit Board (PCB)

Electrostatic discharge (ESD) can damage equipment and impair electrical circuitry. ESD damage occurs when electronic components are improperly handled and can result in complete or intermittent failures.

Always follow ESD on a PCB-prevention procedures when you remove and replace components. Ensure that the chassis is electrically connected to earth ground. Wear an ESD-preventive wrist strap, ensuring that it makes good skin contact. Connect the grounding clip to an unpainted surface of the chassis frame to safely ground unwanted ESD voltages. To guard against ESD damage and shocks, the wrist strap and cord must operate properly. If no wrist strap is available, ground yourself by touching the metal part of the chassis.

For safety, periodically check the resistance value of the antistatic strap, which should be between 1 and 10 megohm (Mohm).

Telecommunication Advice

EDGE GSF LFID W/ AUTO TUNING

The EDGE GSF has also a radio accessory: EDGE GSF LFID W/ AUTO TUNING.

FCC ID and IC ID

The FCC ID of the EDGE GSF LFID W/ AUTO TUNING is 2AFLZGSFLFIDAUT.

The IC ID of the EDGE GSF LFID W/ AUTO TUNING is 11880A-GSFLFIDAUT.

FCC Caution and Safety Notices

Any changes or modifications (including the antennas) made to this device that are not expressly approved by the manufacturer may void the user's authority to operate the equipment. This device and its antenna(s) must not be co-located or operating in conjunction with any other antenna or transmitter.

FCC Antenna Gain Restriction

The radio device does not allow the possibility to use another antenna. It uses a coil antenna.

IC Detachable Antenna Gain Restriction

The radio device does not allow the possibility to use another antenna. It uses a coil antenna.

Health and radiation

This equipment should be installed and operated with minimum distance 20 cm (7-7/8 in.) between the radiator and your body.

FCC non-interference disclaimer

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.

Terms of Use

Read and follow all installation, operation, and maintenance information carefully before using the product. Refer to the user documentation for complete product specifications. If the product is used in a manner not specified, the protection provided by the product warranty will be void.

Using the Product According to Your Function

A responsible body is an individual or group responsible for the use and maintenance of equipment, for ensuring that the equipment is operated within its specifications and operating limits, and for ensuring that operators are adequately trained.

Operators use the product for its intended function.

Maintenance personnel perform routine procedures on the product to keep it operating properly. At this level, all procedures whose do not touch high voltage. The maintenance personnel can work on high voltage only if they have the competences as an electrician.

Service personnel are trained to work on live circuits, perform safe installations, and repair products. Only properly trained service personnel may perform installation and service procedures. (In other words: electricians, Service personnel employed by or active in an organization, business, or service).

General Safety Usage

Follow the guidelines given below for safe usage of the product:

- Installation must only be performed by qualified service personnel
- Carefully read all instructions
- Comply with local and national safety codes
- Repairs must only be performed by qualified service personnel
- When replacing the fuses, use only the same type and same rating as specified
- Make sure the unit is disconnected from AC Power when servicing
- Do not try to operate the system if it is damaged. Disconnect the Power from the units and call your local service representative
- Do not operate while condensation is present
- Use of the system in a manner not specified by these instructions may impair the safety protection provided by the system. Do not operate the system outside its rated supply voltages or environmental range
- Omission to read the installation and user manuals or to comply with the warnings and references contained herein can result in serious bodily injury or damages to the controllers
- Do not insert metal objects into the connectors
- Use the system only as specified, or the protection supplied by the product can be compromised

Chapter 1: Introduction

- Follow all installation and maintenance recommendations and consider all provided information regarding product specifications and limitations
- Do not use the system if it does not operate correctly
- The enclosures must be closed and locked at all times, particularly when operating the system
- Use only specified replacement parts

Inspecting Your Received System

Inspecting your system and making sure you have received all expected parts helps avoid many hassles.

Shipment Contents

Item	Contents
EDGE GSF LFID W/ AUTO TUNING	1 - EDGE GSF LFID W/ AUTO TUNING
	1 - Manual

Damage Inspection

Your system and its components were carefully inspected both electrically and mechanically before shipment. After unpacking all items, check for any obvious signs of physical damage that may have occurred during transit. Report any damage to the shipping agent immediately. Save the original box for possible future shipment.

Returning the Unit for Repair

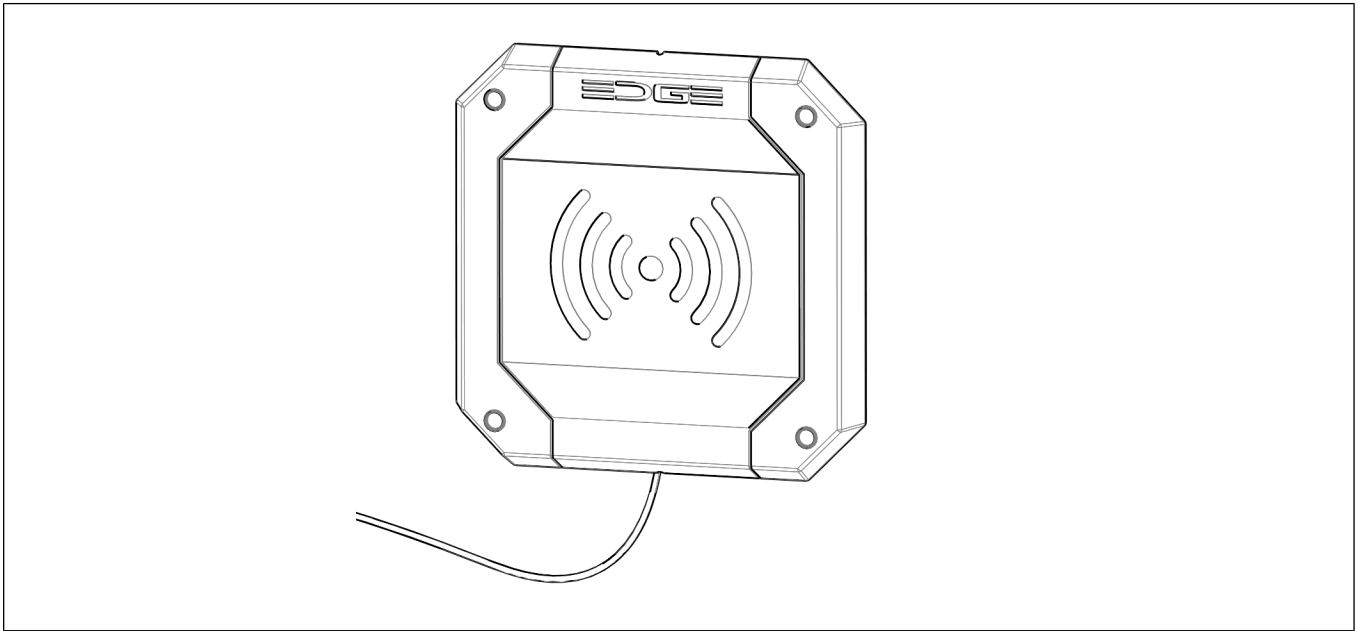
If you must return the system for repair, carefully package the system in its original box or an equivalent. Contact your local customer service department to get return instructions. Have on hand the system's serial number and date code found on the system's main board. See Contact Information/Support in this manual.

System Overview

The main function of the EDGE GSF LFID W/ AUTO TUNING is to be used with the EDGE GSF system.

The EDGE GSF LFID W/ AUTO TUNING allows you to detect sows on an individual basis to manage their feed and weight. The EDGE GSF LFID W/ AUTO TUNING uses a telecommunication functionality: RFID functionality at 134.2 KHz.

Figure 1-1 EDGE GSF LFID W/ AUTO TUNING



Guidelines for Installation Location

Consider the environment, mounting recommendations, and clearance space to choose the ideal location for your system.

Operating Environment

- The ideal ambient temperature is between 20 °C and 25 °C (68 °F - 77 °F). The temperature should not go lower than 0 °C (32 °F) and should not exceed 40 °C (104 °F).
- Ensure there is sufficient ventilation around the unit.
- Install the EDGE GSF far from sources of vibrations and where they are not likely to get bumped.

IMPORTANT: *If you are not planning on installing the system immediately, store the units in a cool dry place.*

Clearance

The EDGE GSF must be mounted in a location that has sufficient air circulation around the enclosure and to ensure protection against electrical conducted or radiated noise.



If the EDGE GSF is installed inside a pen, make sure to install the fence option on the stall.

NOTES

2 Installation

Topics Covered in this Chapter

- Mounting the Antenna
- EDGE GSF LFID W/ AUTO TUNING Connections

Mounting the Antenna

The EDGE GSF LFID with Auto Tuning must be installed to the stall before connecting it to the EDGE GSF Feeder.

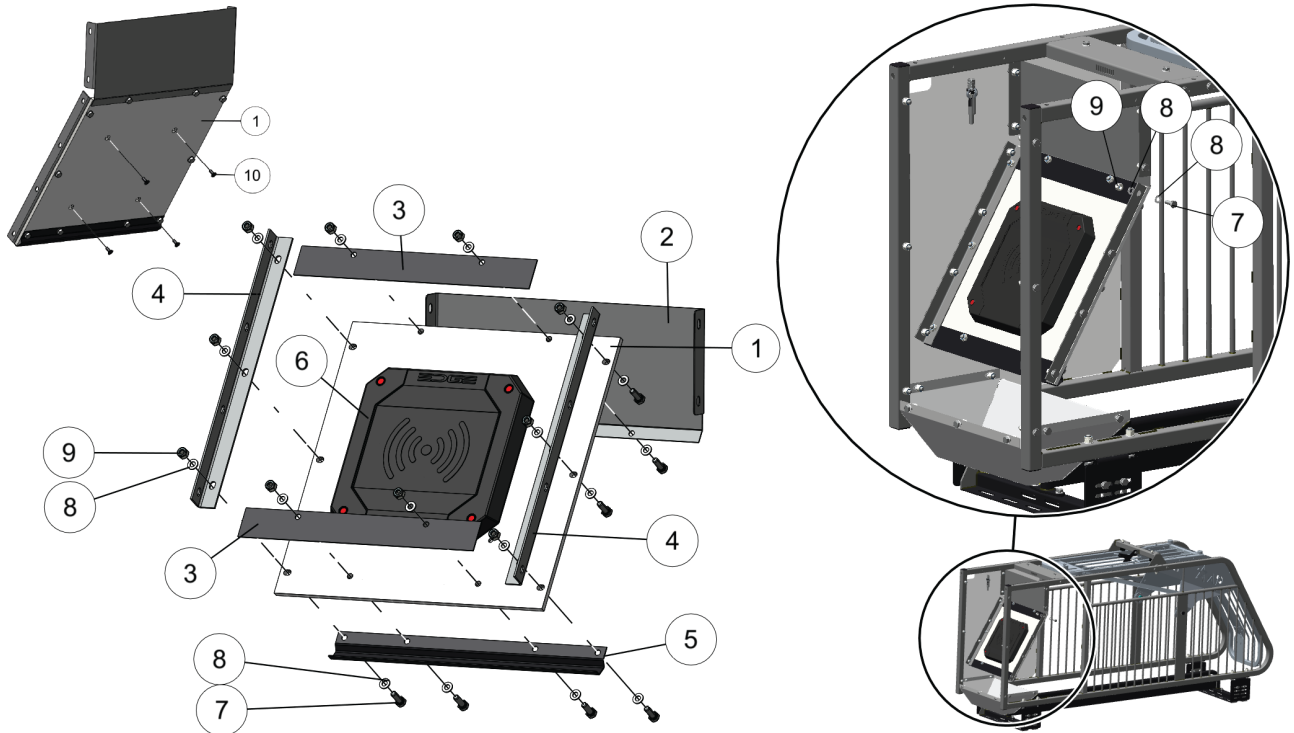
What You Should Know

These instructions only cover the installation of the EDGE GSF LFID with Auto Tuning to the GSF stalls. Refer to the GSF Stall assembly and installation manual for details on stall installation. See figure below for all references to hardware and parts listed in steps.

1. Align the four holes on the back of the antenna (06) with the four holes in the antenna plate (01).
2. Attach the antenna (06) to the antenna plate (01) by installing the bolts (10) through the holes in the back of the antenna plate (01) and into the antenna (06).
3. Mount the antenna plate supports (04), bottom reinforcement bracket (05), and the antenna plate (01) using hex bolts (07), washers (08), and nuts (09), do not fully tighten hardware.
4. Install the top antenna reinforcement bracket (03) to the antenna plate (01) and antenna upper plate (02) using hex bolts (07), washers (08), and nuts (09), do not fully tighten hardware.
5. Install the bottom antenna reinforcement bracket (03) to the antenna plate (01) and bottom antenna reinforcement bracket (05) using hex bolts (07), washers (08), and nuts (09), do not fully tighten hardware.
6. Position the antenna assembly between the sides of the stall and install the antenna assembly to the sides using the hex bolts (07), washers (08), and nuts (09).
 - If assembling only one stall, install the hardware and fully tighten.
 - If assembling multiple stalls side by side, pre-assemble the antenna, antenna plates, and supports for all the stalls. Then position the antenna assemblies between the stall sides and install the hardware through the two antenna assemblies that share the stall side.

Chapter 2: Installation

Figure 2-1 Mounting the antenna



Item	Code	Description
01	GSF-0423	ANTENNA PLATE
02	GSF-0763	ANTENNA UPPER PLATE
03	GSF-1234	ANTENNA REINFORCEMENT BRACKET
04	GSF-0413	ANTENNA PLATE SUPPORT
05	GSF-1233	BOTTOM ANTENNA REINFORCEMENT BRACKET
06	GSF-10021	ANTENNA
07	SUS-BMC10030	HEX HEAD BOLT, M10X30 SUS304 8.8 GRADE GB/T5783-2000
08	SUS-FWM10	WASHER, FLAT M10 SUS304 GB/T95
09	SUS-NLNM10	NYLOCK NUT, M10 SUS304 Grade 8,GB/T 889.1
10	GSF-10027	SCREW,M8X1.25,60MM,SS,,TRUSS,PHIL

EDGE GSF LFID W/ AUTO TUNING Connections

Connection output (5) is dedicated to the LFID Antenna. Connect the LFID Antenna cable to output (5).

Connecting to Power Source

The EDGE GSF LFID W/ AUTO TUNING power is supplied by the EDGE GSF. When the EDGE GSF is powered on, the EDGE GSF LFID W/ AUTO TUNING is running.

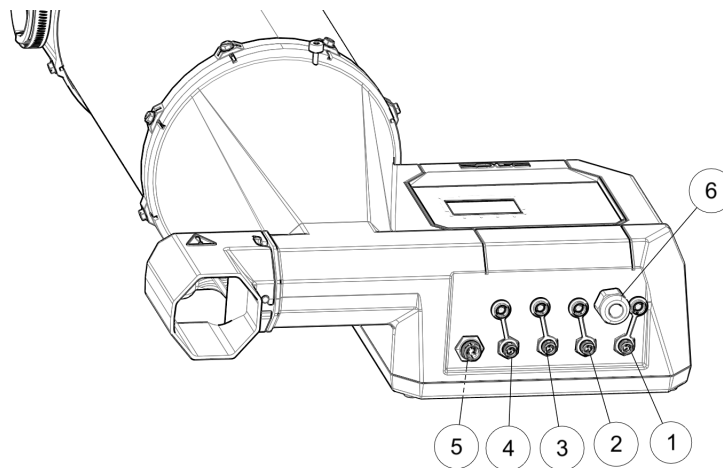
The EDGE GSF comes with a power cord of 3 meters (9.8 feet). The EDGE GSF voltage is limited by the power cord provided with the model. Voltage will vary depending on the EDGE GSF model purchased.

NOTE: *The working voltage range is between 90 Vac and 264 Vac. The system consumes a power of 65W.*



Only use LFID Antenna sold by the GSI Group, Inc.

Figure 2-2 EDGE GSF Connection Port Identification



- 1 — Sprayer 1 connector
- 2 — Sprayer 2 connector
- 3 — Sprayer 3 connector
- 4 — AUX connector
- 5 — EDGE GSF LFID W/ AUTO TUNING connector
- 6 — Power cord

NOTES

3 Maintenance

Topics Covered in this Chapter

- Inspecting and Cleaning the EDGE GSF

Inspecting and Cleaning the EDGE GSF

Regularly inspecting and cleaning the EDGE GSF can prolong the life and keep the system functioning properly.

Before You Begin



Before servicing the system, disconnect the main voltage supply.



Do not pressure wash the EDGE GSF.



Maintenance must only be performed by maintenance personnel and qualified service personnel.

1. Use a damp cloth to wipe clean the exterior of the enclosure.
2. Every 3 months, open and inspect the enclosure for moisture or dust build-up. Replace the cover when inspection is complete.

NOTES

4 Troubleshooting

Table 4-1 *Troubleshooting*

Problem	Possible Solutions
EDGE GSF does not power up	Verify if the AC power cable plug is connected in the outlet
	Verify if the outlet breaker is not opened or correctly sized
	Ensure that the AC power cable plug is not disconnected in the EDGE GSF plastic enclosure
	Verify if the outlet provides a voltage from 100-Vac to 240Vac
	Verify if the power led is green on the user interface
	If the problem persists, contact AP or GSI Electronics
EDGE GSF LFID W/ AUTO TUNING does not work	Verify if the EDGE GSF LFID W/ AUTO TUNING cable connector is properly connected in the EDGE GSF LFID W/ AUTO TUNING connector
	Verify if the EDGE GSF LFID W/ AUTO TUNING cable terminal is properly connected on the PCB-452
	If the problem persists, contact AP or GSI Electronics

NOTES

A Technical Specifications

Table A-1 EDGE GSF LFID W/ AUTO TUNING — Safety Ratings

INPUTS :	
Supply Input : 24VDC \pm 10%, 1.92W	
Operating Temperature	0 to 40°C (32 to 104°F)
Storage Temperature	-20 to 50°C (-4 to 122°F)
Environment Type	Indoor use
Pollution Degree	2
Installation Category	2
Altitude	2000 Meters Max. (6561 Ft. Max)
Operating Relative Humidity (maximum)	0 to 10°C (32 to 50°F) Non condensing
	10 to 30°C (50 to 86°F) 95 % (\pm 3 %) Non condensing
	30 to 40°C (86 to 104°F) 95 % (\pm 3 %) Non condensing
IP rating (IEC 60529)	54
Nema Rating (Nema 250)	12
Flame Rating (UL94)	5VA V-0
Flame Rating (IEC 60695 or IEC 60707)	FV-0
IK rating (degree of mechanical protection - impact, IEC 62262)	8

Table A-2 EDGE GSF LFID W/ AUTO TUNING — Functional Ratings

Enclosure Dimensions	Height	345.8mm (13.61 inches)
	Width	345.8mm (13.61 inches)
	Depth	30mm (1.18 inches)
Weight	1224.7 grams (2.70 lbs)	
EDGE GSF LFID W/ AUTO TUNING Telecommunication parameters		
Protocol Handling 1	FDX-B animal identification ISO 11784 and ISO 11785	
Protocol Handling 2	HDX animal identification ISO 11784 and ISO 11785	
Antenna information	Not detachable	
Number of RF-channel	1	
Output Power	105.06dBuV/m	
System Clock Frequency Output	134.2 KHz	

Appendix A: Technical Specifications

Table A-2 *EDGE GSF LFID W/ AUTO TUNING — Functional Ratings (cont'd.)*

Equipment classification (ETSI EN 301 489-1)	equipment for fixed use
Product category (ETSI 300 330)	III
Receiver category (ETSI 300 330)	Tagging systems
Frequency Bands/frequencies Applications (ETSI 300 330)	Transmit and Receive 119 kHz to 140 kHz Inductive devices, Generic use
Product class (ETSI 300 330)	Class 1

B Safety Characteristics and Certification

Safety Characteristics

The EDGE GSF is Safety Class I according to IEC classification and has been designed to meet the requirements of UL 61010-1 third edition, CAN/CSA-C22.2 n° 61010-1 third edition, EN 61010-1: 2010 (Safety Requirements for Electrical Equipment for Measurement, Control and Laboratory Use). It is an Installation Category II intended for operation from a normal single phase or two phase(s) supply according to the power cord.

The EDGE GSF has been tested in accordance with IEC61010-1 and has been supplied in a safe condition. This instruction manual contains some information and warnings which have to be followed by the user to ensure safe operation and to retain the instrument in a safe condition.

These Safety EU directives were followed:

2014/35/EU The Low Voltage Directive (LVD)

2014/30/EU The Electromagnetic Compatibility Directive (EMC)

EMC characteristics - Emissions Standards

The EDGE GSF has been designed to meet the requirements of the EMC Directive 2014/30/EU, FCC directives, Industry Canada directives. The compliance was demonstrated by meeting the test limits of the following standards:

- EN 61000-6-4 (2019) : Emission tests levels for industrial environment
- EN61326-1 (2013) : EMC product standard for Electrical Equipment for Measurement, Control and Laboratory Use
- IEC EN 60730-1 (2016): Automatic electrical controls for household and similar use - Part 1: General requirements - EMC requirements
- FCC part 15 Subpart B, class A
- EMC certification: ICES-003 - Information Technology Equipment (ITE) — Limits and Methods – class A
- ETSI EN 301 489-1 V2.2.3 (2019-11): Electromagnetic compatibility and Radio spectrum Matters (ERM); ElectroMagnetic Compatibility (EMC) standard for radio equipment and services; Part 1: Common technical requirements
- ETSI EN 301 489-17 V3.2.2 (2019-12), ElectroMagnetic Compatibility (EMC) standard for radio equipment and services; Part 17: Specific conditions for Broadband Data Transmission Systems; Harmonised Standard covering the essential requirements of article 3.1(b) of Directive 2014/53/EU
- ETSI EN 301 489-3 V2.1.1 (2019-03): ElectroMagnetic Compatibility (EMC) standard for radio equipment and services; Part 3: Specific conditions for Short-Range Devices (SRD) operating on frequencies between 9 kHz and 246 GHz; Harmonised Standard covering the essential requirements of article 3.1(b) of Directive 2014/53/EU

Appendix B: Safety Characteristics and Certification

Table B-1 Emissions

Test number	Test name	Standard	Standard level
1	Radiated emissions	CISPR 11 FCC part 15, Subpart B ICES-003 EN61000-6-4 ETSI EN 301 489-17 and ETSI EN 301 489-3, article 8.2 →EN 55032	Group 1, class A Class A Class A Class A Class A

EMC characteristics - Immunity Standard

The EDGE GSF has been designed to meet the requirements of the EMC Directive 2014/30/EU, FCC directives, Industry Canada directives. The compliance was demonstrated by meeting the test limits of the following standards:

- EN61326-1 (2013) : EMC product standard for Electrical Equipment for Measurement, Control and Laboratory Use
- EN 61000-6-2 (2019): Immunity tests levels for industrial environment
- IEC EN 60730-1 (2016): Automatic electrical controls for household and similar use - Part 1: General requirements - EMC requirements
- ETSI EN 301 489-1 V2.2.3 (2019-11): Electromagnetic compatibility and Radio spectrum Matters (ERM); ElectroMagnetic Compatibility (EMC) standard for radio equipment and services; Part 1: Common technical requirements
- ETSI EN 301 489-17 V3.2.2 (2019-12), ElectroMagnetic Compatibility (EMC) standard for radio equipment and services; Part 17: Specific conditions for Broadband Data Transmission Systems; Harmonised Standard covering the essential requirements of article 3.1(b) of Directive 2014/53/EU
- ETSI EN 301 489-3 V2.1.1 (2019-03): ElectroMagnetic Compatibility (EMC) standard for radio equipment and services; Part 3: Specific conditions for Short-Range Devices (SRD) operating on frequencies between 9 kHz and 246 GHz; Harmonised Standard covering the essential requirements of article 3.1(b) of Directive 2014/53/EU

Appendix B: Safety Characteristics and Certification

Test methods, limits and performance achieved are shown below (requirement shown in brackets):

Table B-2 Immunity

Test number	Test name	Standard	Standard level
2	Radiated, radio-frequency, electromagnetic field immunity test	IEC61000-4-3 : ETSI EN 301 489-17 and ETSI EN 301 489-3, article 9.2→ EN61000-4-3	Modulation: 80% AM at 1kHz, 80MHz - 1GHz: 10V/m 1.4GHz-2 GHz: 3 V/m 2GHz-2.7GHz: 3 V/m 2.7GHz-6GHz: 3 V/m Performance: A (A)
3	Immunity to conducted disturbances, induced by radio-frequency fields	IEC61000-4-6 ETSI EN 301 489-17 ETSI EN 301 489-3, article 9.5→ EN61000-4-6	Frequency test range : 150KHz and 80Mhz at 10Vrms Pause time: 0,5s (Earth, I/O connections >3m) Performance A (A)
4	Electrostatic discharge immunity test	IEC61000-4-2 ETSI EN 301 489-17 and ETSI EN 301 489-3, article 9.3→ EN61000-4-2	± 8 kV air ± 6 kV contact Performance A (B)
5	Electrical fast transient/burst immunity test	IEC61000-4-4 ETSI EN 301 489-17 and ETSI EN 301 489-3, article 9.4→ EN 61000-4-4	±1kV/5kHz and 100kHz on the I/O ports >3m (not applicable) Performance A (B)
6	Power frequency magnetic field immunity test	IEC61000-4-8	30 A/m Performance A (B)

The definitions of performance criteria are:

Performance criterion A: During test, normal performance within the specification limits.

Performance criterion B: During test, temporary degradation, or loss of function or performance which is self-recovering.

Performance criterion C: During test, temporary degradation, or loss of function or performance which requires operator intervention or system reset occurs.

Environment characteristics

Parameter	Condition	Value
Environment Location	Inside	
Temperature Operating	Operating	0 to 40°C (32 to 104°F)
	Storage	-20 to +50°C (-4 to +122°F)
Humidity (Maximum Relative)	0 to 10 °C (32 to 50 °F)	Non condensing
Operating	10 to 30 °C (50 to 86 °F)	95 % (± 3%) Non condensing
	30 to 40 °C (86 to 104 °F)	95 % (± 3%) Non condensing
	Storage	Non condensing
Altitude		2000 Meters Max. (6561 Ft. Max)
Electromagnetic Environment		IEC EN 61326-1 IEC EN 60730-1 EN 61000-6-4 EN 61000-6-2 ETSI EN 301 489-1 ETSI EN 301 489-17 ETSI EN 301 489-3
Enclosure Protection		Nema 250 : type 12 IP : 54, ref : IEC60529
Impact rating (IK)		8

The EDGE GSF was tested under IEC60068-1 (Environmental testing - Part 1: General and guidance)

Environmental characteristics

These Environmental EU directives were followed:

- EU 2015/863 The RoHS 3 (RoHS 2 amended) Directive
- 2012/19/EU The WEEE 2 Directive
- 1907/2006/EU The REACH regulation
- 2006/66/EC The Battery Directive
- 94/62/EC Packaging and packaging waste Directive
- 97/129/EC Packaging material identification Directive

C EC Declaration of Conformity

(In accordance with EN ISO 17050-1 2004)



EC DECLARATION OF CONFORMITY

(In accordance with EN ISO 17050-1 2004)

We: GSI Electronics Inc.
Of: 5200, Armand-Frappier, Saint-Hubert (Québec), Canada, J3Z 1G5

In accordance with the following Directive(s):

2014/35/EU	The Low Voltage Directive (LVD)
2014/30/EU	The Electromagnetic Compatibility Directive (EMC)
2014/53/EU	The Electromagnetic Compatibility Directive (RED)
EU 2015/863	The RoHS 3 (RoHS 2 amended) Directive
2012/19/EU	The WEEE 2 Directive
1907/2006/EU	The REACH regulation
2006/66/EC	The Battery Directive
94/62/EC	Packaging and packaging waste Directive
97/129/EC	Packaging material identification Directive

Hereby declare that:

Equipment: The EDGE GSF system is a farm system which the main function is to provide feed to sows.

Models number: EDGE GSF
EDGE GSF LFID W/ AUTO TUNING

is in conformity with the applicable requirements of the following documents:

Directive	Ref. No.	Title	Edition/date
LVD	EN 61010-1	Safety requirements for electrical equipment for measurement, control, and laboratory use Part 1: General requirements	2010
EMC	EN 61326-1	Electrical equipment for measurement, control and laboratory use - EMC requirements Industrial environment	2013
EMC	EN 61000-6-2	Immunity tests levels for industrial environment	2019
EMC	EN 61000-6-4	Emission tests levels for industrial environment	2019

Appendix C: EC Declaration of Conformity

Directive	Ref. No.	Title	Edition/date
EMC	IEC EN 60730-1	Automatic electrical controls for household and similar use - Part 1: General requirements- EMC requirements	2016/A1:2019
RED	ETSI EN 301 489-1	Electromagnetic compatibility and Radio spectrum Matters (ERM); ElectroMagnetic Compatibility (EMC) standard for radio equipment and services; Part 1: Common technical requirements	2019-11
RED	ETSI EN 301 489-17	Electro Magnetic Compatibility (EMC) standard for radio equipment and services; Part 17: Specific conditions for Broadband Data Transmission Systems; Harmonised Standard covering the essential requirements of article 3.1(b) of Directive 2014/53/EU	2019-12
RED	ETSI EN 301 489-3	ElectroMagnetic Compatibility (EMC) standard for radio equipment and services; Part 3: Specific conditions for Short-Range Devices (SRD) operating on frequencies between 9 kHz and 246 GHz; Harmonised Standard covering the essential requirements of article 3.1(b) of Directive 2014/53/EU	2019-03
RoHS	EN 50581	Technical documentation for the assessment of electrical and electronic products with respect to the restriction of hazardous substances	2012

GSI Electronic Inc. hereby declares that the equipment named above has been designed to comply with the relevant sections of the above referenced specifications. The unit complies with all applicable Essential Requirements of the Directives.



D Innovation, Science and Economic Development Canada Statement

This device complies with RSS-210, and CAN ICES-003(*) / NMB-003(*) of Innovation, Science and Economic Development Canada Rules. This digital apparatus does not exceed the Class A limits for radio noise emissions from digital apparatus set out in the interference-causing equipment standard.

Ce dispositif est conforme à la norme CNR-210, et CAN ICES-003(*) / NMB-003(*) d'Innovation, Sciences et Développement économique Canada. Cet appareil numérique ne dépasse pas les limites de classe A pour les émissions de bruit radio provenant d'appareils numériques définies dans la norme relative aux équipements provoquant des interférences.

Non-interference disclaimer statement for Canada

The EDGE GSF has a RFID device at 134.2 kHz: EDGE GSF LFID W/ AUTO TUNING. The IC ID of the EDGE GSF LFID W/ AUTO TUNING is 11880A-GSFLFIDAUT.

This device contains licence-exempt transmitter(s)/receiver(s) that comply with Innovation, Science and Economic Development Canada's licence-exempt RSS(s). Operation is subject to the following two conditions:

1. This device may not cause interference.
2. This device must accept any interference, including interference that may cause undesired operation of the device.

Le EDGE GSF a un accessoire radio RFID à 134.2 kHz: EDGE GSF LFID W/ AUTO TUNING. L'identifiant IC du EDGE GSF LFID W/ AUTO TUNING est 11880A-GSFLFIDAUT.

L'émetteur/récepteur exempt de licence contenu dans le présent appareil est conforme aux CNR d'Innovation, Sciences et Développement économique Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes:

1. L'appareil ne doit pas produire de brouillage.
2. L'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

IMPORTANT:

Radiation Exposure Statement: This equipment complies with IC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 20cm between the radiator and your body.

Déclaration d'exposition aux radiations: Cet équipement est conforme aux limites d'exposition aux rayonnements IC établies pour un environnement non contrôlé. Cet équipement doit être installé et utilisé avec un minimum de 20 cm de distance entre la source de rayonnement et votre corps.

NOTES

E FCC part 15 statement

FCC Statement regarding the importation of radio frequency devices capable of causing harmful interference.

GSI Electronics Inc. develops, manufactures and distributes innovative technological products for the agricultural industry. Our unique expertise allows us to offer accurate, simple and diverse electronic, data processing and mechanical solutions for improving agricultural production.

The EDGE GSF has a RFID device at 134.2 kHz: EDGE GSF LFID W/ AUTO TUNING.

The FCC ID of the EDGE GSF LFID W/ AUTO TUNING is 2AFLZGSFLFIDAUT.

The RFID device classed as intentional radiators (FCC 47-part 15-Subpart C). The radio device respects the emission limitations and the performances required by the standards FCC 15.207, FCC 15.209, RSS-210, ETSI EN 300 330. The radio device is used in a production context and in an industrial context (FCC 47-part 15-Subpart B - Class A).

GSI Electronics Inc. hereby declares that the equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

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 and 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 GSI Electronics

NOTES

F FCC RF Exposure

Statement regarding the importation of radio frequency devices capable of causing radiation exposure.

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The FCC ID of the EDGE GSF LFID W/ AUTO TUNING is 2AFLZGSFLFIDAUT.

The RFID device classed as intentional radiators (FCC 47-part 15-Subpart C). The radio device respects the emission limitations and the performances required by the standards FCC 15.207, FCC 15.209, RSS-210, ETSI EN 300 330.

The radio device complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 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.

NOTES

G FDA declaration

Statement regarding the importation of devices and public health hazard directives from FDA (U.S. Food and Drug Administration)

GSI Electronics Inc. develops, manufactures and distributes innovative technological products for the agricultural industry. Our unique expertise allows us to offer accurate, simple and diverse electronic, data processing and mechanical solutions for improving agricultural production.

GSI Electronics' controllers are shipping under 9032.89.60.30 Canada (Automatic Regulating or Controlling Instruments & Apparatus). Electronic controllers are used to monitor and to control animal environment in a barn: ventilation function; heating function; lightning function; alert system function. Electronic controllers can be used to control the food distribution and to scale animals.

Electronic controllers do not use laser technologies. Electronic controllers use liquid crystal display (LCD) or Light-emitting diodes (LED). It is important to note also that electronic controller incorporating Liquid Crystal Displays (LCD) or Light-emitting diodes (LED) are not capable of emitting x-radiation.

The EDGE GSF has a RFID device at 134.2 kHz: EDGE GSF LFID W/ AUTO TUNING.

The FCC ID of the EDGE GSF LFID W/ AUTO TUNING is 2AFLZGSFLFIDAUT.

The RFID device classed as intentional radiators (FCC 47-part 15-Subpart C). The RFID radio respects the emission limitations and the performances required by the standards FCC 15.207, FCC 15.209, RSS-210, ETSI EN 300 330. The RFID device is used in a production context and in an industrial context (FCC 47-part 15-Subpart B - Class A).

The RFID device complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 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.

GSI Electronics devices are not used in contact with animal food. Electronic controllers do not manipulate vaccines or drugs.

As such these products and are not subject to the FDA standards and do not pose a public health hazard.

NOTES

H Reduction of Hazardous Substances

REACH directive

The REACH directive addresses the production and use of chemical substances, and their potential impacts on both human health and the environment. On June 1, 2007, the European Commission promulgated new legislation that covers the registration, evaluation, authorization and restriction of chemical within the European Union community. This new regulation is commonly known as REACH, an acronym for **R**egistration, **E**valuation and **A**uthorization of **C**hemicals (EC Regulation 1907/2006).

GSI Electronics supports the underlying goals of REACH, which are consistent with our own commitment to promote the responsible manufacturing, use and handling of chemicals. GSI Electronics uses and promotes components suppliers or components manufacturers who will meet the pre-registration deadline for all chemical substances in quantities greater than one metric ton. The information provided here is accurate to the best of our knowledge at the present time.

RoHS directive

The **R**estriction of **H**azardous **S**ubstances Directive 2002/95/EC, RoHS, Directive on the restriction of the use of certain hazardous substances in electrical and electronic equipment, was adopted in February 2003 by the European Union. The RoHS directive took effect on 1 July 2006, and is required to be enforced and become law in each member state. This directive restricts (with exceptions) the use of six hazardous materials in the manufacture of various types of electronic and electrical equipment: Lead (Pb), Mercury (Hg), Cadmium (Cd), Hexavalent chromium (Cr6+), Polybrominated biphenyls (PBB), Polybrominated diphenyl ether (PBDE). The RoHS 2 directive (2011/65/EU) is an evolution of the original directive and became law on 21 July 2011 and took effect 2 January 2013. It addresses the same substances as the original directive while improving regulatory conditions and legal clarity.

The new version RoHS 3 Directive (2015/863/EU) caught all electronic and electrical products and added four new restricted substances - all phthalates. The four phthalates are mainly used as insulation plasticizers: Bis(2-ethylhexyl) phthalate (DEHP), Butyl benzyl phthalate (BBP), Dibutyl phthalate (DBP), Diisobutyl phthalate (DIBP).

GSI Electronics hereby certifies that all components are RoHS Compliant and fulfills the definition and restrictions defined under Directive 2015/863/EU of the European Parliament and of the Council on the restriction of the use of certain hazardous substances in electrical and electronic equipment (EEE). The information provided here is accurate to the best of our knowledge at the present time.

The RoHS declaration is available, contact GSI Electronics or the European representative.

Battery directive

The Battery Directive, Directive 2006/66/EC (Previous Directive, Directive 91/157/EEC), of the European Parliament regulates the manufacture, the disposal, the recycling of batteries and accumulators in the European Union.

GSI Electronics uses Lithium cell button in a light industrial context or industrial context. GSI Electronics encourages the batteries and accumulators recycling.

NOTES

Disposal and Recycling Information

North America : Canada

As the concern for the volume of electronic waste grows, a number of Provinces in Canada have passed regulations since 2006 to divert electronics waste from the landfills and to protect the environment. These waste diversion regulations require manufacturers of covered electronic devices to participate in approved electronic product stewardship programs. The programs allow consumers and businesses to drop off eligible electronic devices for recycling, free of charge at numerous depots throughout the Province.

For more detailed information about the recycling of the device or batteries, contact your local city office, the household waste disposal service, or the retail store where you purchased this device. These collection points are accessible free of charge.

North America : United States

For more detailed information about the recycling of the device or batteries, contact your local city office, the household waste disposal service, or the retail store where you purchased this device. These collection points are accessible free of charge.

Instructions for disposal of waste equipment by users

The "crossed out wheelie bin" symbol on the device (and any included batteries) indicates that they should not be disposed of as normal household garbage. Do not dispose of your device or batteries as unsorted municipal waste. The device (and any batteries) should be handed over to a certified collection point for recycling or proper disposal at the end of their life.



For more detailed information about the recycling of the device or batteries, contact your local city office, the household waste disposal service, or the retail store where you purchased this device. These collection points are accessible free of charge. All products with this sign must be brought to these collection points.

The disposal of this device is subject to the Waste from Electrical and Electronic Equipment (WEEE) directive of the European Union. The reason for separating WEEE and batteries from other waste is to minimize the potential environmental impacts on human health of any hazardous substances that may be present.

There are two ways available to dispose of waste:

Appendix I: Disposal and Recycling Information

- Public system— contact your municipality or the nearest collection site to dispose of Electrical and electronic Equipment waste
- Private system— For a Return Material Authorization for Disposal of Waste Equipment, contact customer support at 1-877-926-2777 or by e-mail at mtl_techsupport@agcocorp.com

J California Proposition 65

California Proposition 65 - Statement regarding the importation of devices and public health hazard directives from The Office of Environmental Health Hazard Assessment (OEHHA)

In 1986, California voters approved Proposition 65, an initiative to address their growing concerns about exposure to toxic chemicals. That initiative is officially known as the Safe Drinking Water and Toxic Enforcement Act of 1986. The law requires California to publish a list of chemicals known to cause cancer or reproductive toxicity, and for businesses with 10 or more employees to provide warnings when they knowingly and intentionally cause significant exposures to listed chemicals.

This list currently includes more than 850 chemicals. Proposition 65 does not ban or restrict the sale of chemicals on the list. The warnings are intended to help Californians make informed decisions about their exposures to these chemicals from the products they use and the places they go.

The Office of Environmental Health Hazard Assessment (OEHHA) administers the Proposition 65 program.

In 2016, OEHHA launched a new website, www.P65Warnings.ca.gov, to provide the public with more information on chemicals, products, and locations associated with Proposition 65 warnings. The website is part of the state's effort to provide Californians with more useful information on chemicals they are being exposed to and ways to protect themselves.

People who read Proposition 65 warnings and want to learn more can go to the website to find additional information about chemicals and best practices for reducing or eliminating exposures. The website contains fact sheets about Proposition 65 chemicals and specific types of exposure, such as from furniture products or enclosed parking facilities. It also answers frequently asked questions about Proposition 65 and includes a glossary of Proposition 65 terms.

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GSI Electronics Inc. Hereby declare that Electronic controllers can contain chemicals listed from OEHHA Chemicals list.

NOTES

K Product material composition

EDGE GSF Antenna

Material	Weight		Percentage of the product weight (%)
	Lbs	Grams	
Packaging material			
Plastic material			
Electronic Circuits			
Metal			

NOTES

L Packaging Characteristics

The following directives were followed during the packaging process

2015/863/EU	The RoHS 3 directive
2012/19/EU	The WEEE 2 directive
1907/2006/EU	The REACH regulation
2006/66/EC	The battery directive
94/62/EC	Packaging and packaging waste directive
97/129/EC	Packaging material identification directive

The packaging is only in cardboard to respect international standards about environment standards:

EN 13428	Packaging - Requirements specific to manufacturing and composition - Prevention by source reduction
EN 13429	Packaging - Reuse
EN 13430	Packaging - Requirements for packaging recoverable by material recycling
EN 13431	13431 Packaging - Requirements for packaging recoverable in the form of energy recovery, including specification of minimum inferior calorific value
EN 13432	Packaging - Requirements for packaging recoverable through composting and biodegradation - Test scheme and evaluation criteria for the final acceptance of packaging

The packaging was tested under ISTA 3A (Packaged Products for Parcel Delivery System Shipment weighing 150 lbs or less – is a test used for simulating courier companies shipping environments).

Shipping, EDGE packaging and Lithium battery: EDGE packaging shall be capable of withstanding a 1.2 m drop test in any orientation without damage to cells or batteries contained therein according to the International Civil Aviation Organization (ICAO), the International Air Transport Association (IATA), the International Maritime Organization (IMO) requirements.

Handling symbols on EDGE packaging: the standard is ISO R/780 (Packaging - Pictorial marking for handling of goods).

NOTES

M EDGE GSF LFID with Auto Tuning - End-of-Life Disassembly

This disassembly and recycling guidance provides general guidance for the disassembly of the referenced product to remove components and materials requiring selective treatment, as defined by EU directive 2002/96/EC and, Waste Electrical and Electronic Equipment (WEEE).

Models and Descriptions

This document provides disassembly instructions for the product listed in the next table.

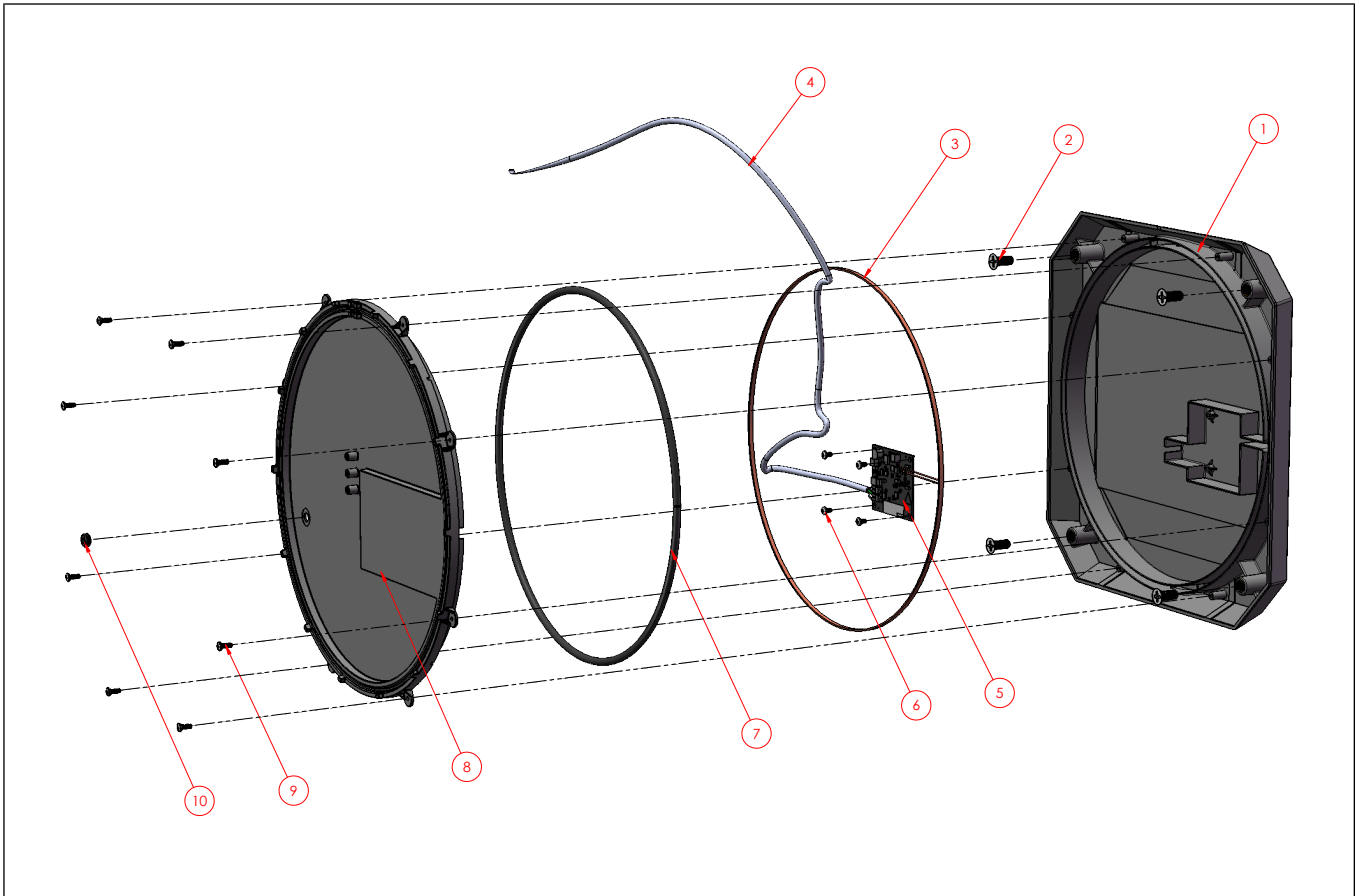
Marketing name (GSI Electronics part number)	Description
EDGE GSF LFID WITH AUTO TUNING	LFID Antenna

Required Tools

The next table lists the type and size of the tools that would typically be used to disassemble the product to a point where components and materials requiring selective treatment can be removed.

Phillips screwdriver	#1
Phillips screwdriver	#2
Flat-head screwdriver	Small
Flat-head screwdriver	Large
Side cutters	—

Disassembly of EDGE GSF LFID with Auto Tuning



Item number	Description	Item number	Description
1	PLASTIC ANTENNA ENCLOSURE	6	PCB SCREWS
2	SCREW,M8-1.25,20MM	7	GASKET
3	ANTENNA COIL	8	PLASTIC ANTENNA COVER
4	EDGE GSF LFID with Auto Tuning CABLE CONNECTOR	9	SCREW,#6-19,3/8IN
5	PCB-518	10	GROMMET

Items Requiring Selective Treatment

Items in the product that are classified as requiring selective treatment are provided in the following table.

Item description	Notes	Quantity of items included in the product	Location
Printed Circuit Boards (PCB) or Printed Circuit Assemblies (PCA)	With a surface greater than 10 square cm	1	PCB-518 (item 5)
Batteries	All types including standard alkaline and lithium coin or button style batteries.	none	
Mercury containing components	For example, mercury in lamps, display backlights, scanner lamps, lamps, lightning application, switches, batteries.	none	
Liquid Crystal Displays (LCD)	With a surface greater than 100 square cm and all those back-lighted with gas discharge lamps.	none	
Cathode Ray Tubes (CRT)		none	
Capacitors / condensers	Containing polychlorinated biphenyls PCB / polychlorinated terphenyls PCT.	none	
Electrolytic Capacitors / Condensers	Measuring greater than 2.5cm in diameter or height.	none	
External electrical cables and cords		1	EDGE GSF LFID with Auto Tuning CABLE CONNECTOR (Item 4)
Gas Discharge Lamps		none	
Plastics containing Brominated Flame Retardants		none ¹	
Components and parts containing toner and ink, including liquids, semi-liquids (gel/paste) and toner		none	
Components and waste containing asbestos		none	

Appendix M: EDGE GSF LFID with Auto Tuning - End-of-Life Disassembly

Item description	Notes	Quantity of items included in the product	Location
Components, parts and materials containing refractory ceramic fibres		none	
Components, parts and materials containing radioactive substances		none	
Components, parts and materials containing chlorofluorocarbons (CFC), hydrochlorofluorocarbons (HCFC), hydrofluorocarbons (HFC), hydrocarbons (HC)		none	

¹All plastics used in this product are RoHS compliant and do not contain PBBs or PBDEs

Product Disassembly Process

The next session lists the basic steps that you should follow to remove components for recycling and materials requiring selective treatment.

Note: For the next steps, EDGE GSF LFID with Auto Tuning is unplugged and unfasten from the GSF stall.

Step	Process
Remove and recycle External Electrical cables and internal Electrical cables	<ol style="list-style-type: none"> 1. Unscrew and open the EDGE GSF LFID with Auto Tuning cover (item 8). 2. Cut and remove the wires from the EDGE GSF LFID with Auto Tuning enclosure. 3. Recycle the cable (item 4). 4. Cut and remove the antenna coil (item 3) from the EDGE GSF LFID with Auto Tuning enclosure.
Remove and recycle Printed Circuit Assembly	<ol style="list-style-type: none"> 1. Unscrew and open the EDGE GSF LFID with Auto Tuning cover (item 8). 2. Locate this PCB: <ul style="list-style-type: none"> • PCB-518 (item 5) 3. Unscrew with a Philips screwdriver #1 and remove the screws (item 6) from the PCB. 4. Remove the PCBs from the EDGE GSF LFID with Auto Tuning.
Recycle plastic	<ol style="list-style-type: none"> 1. Unscrew and open the EDGE GSF LFID with Auto Tuning cover (item 8). 2. Remove the Gasket (item 7). 3. Keep only plastic parts. 4. Recycle the plastic enclosure and the plastic parts.
Recycle metal parts	<ol style="list-style-type: none"> 1. Recycle metal parts of the EDGE GSF LFID with Auto Tuning.

Limited Warranty - Protein Products

The GSI Group, LLC. ("GSI") warrants products which it manufactures, to be free of defects in materials and workmanship under normal usage and conditions for a period of 12 months from the date of purchase (or, if shipped by vessel, 14 months from the date of arrival at the port of discharge). If, in GSI's sole judgment, a product is found to have a defect in materials and/or workmanship, GSI will, at its own option and expense, repair or replace the product or refund the purchase price. This Limited Warranty is subject to extension and other terms as set forth below.

Warranty Enhancements: The warranty period for the following products is enhanced as shown below and is in lieu of (and not in addition to) the above stated warranty period.

	Product	Warranty Period
AP® Fans	Performer Series Direct Drive Fan Motor	3 Years
AP® and Cumberland®	Flex-Flo/Pan Feeding System Motors	2 Years
Electronic Controls	All Protein controls manufactured by GSI	24 Months from date code on part
Cumberland® Feeding and Watering Systems	Feeder System Pan Assemblies	5 Years, prorated **
	Feed Tubes (1.75" and 2.00")	10 Years, prorated *
	Centerless Augers	10 Years, prorated *
	Watering Nipples	10 Years, prorated *

* Warranty prorated from material list price:
 0 to 3 years - no material cost to end user
 3 to 5 years - end user pays 25%
 5 to 7 years - end user pays 50%
 7 to 10 years - end user pays 75%

** Warranty prorated from material list price:
 0 to 3 years - no material cost to end user
 3 to 5 years - end user pays 75%

Conditions and Limitations:

THERE ARE NO WARRANTIES THAT EXTEND BEYOND THE LIMITED WARRANTY DESCRIPTION SET FORTH HEREIN; SPECIFICALLY, GSI DISCLAIMS ANY AND ALL OTHER WARRANTIES OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING, WITHOUT LIMITATION, WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE OR USE IN CONNECTION WITH: (I) ANY PRODUCT MANUFACTURED OR SOLD BY GSI, OR (II) ANY ADVICE, INSTRUCTION, RECOMMENDATION OR SUGGESTION PROVIDED BY AN AGENT, REPRESENTATIVE OR EMPLOYEE OF GSI REGARDING OR RELATED TO THE CONFIGURATION, INSTALLATION, LAYOUT, SUITABILITY FOR A PARTICULAR PURPOSE, OR DESIGN OF SUCH PRODUCTS.

The sole and exclusive remedy for any claimant is set forth in this Limited Warranty and shall not exceed the amount paid for the product purchased. This Warranty only covers the value of the warranted parts and equipment, and does not cover labor charges for removing or installing defective parts, shipping charges with respect to such parts, any applicable sales or other taxes, or any other charges or expenses not specified in this Warranty. GSI shall not be liable for any other direct, indirect, incidental or consequential damages, including, without limitation, loss of anticipated profits or benefits. Expenses incurred by or on behalf of a claimant without prior written authorization from the GSI warranty department shall not be reimbursed. This warranty is not transferable and applies only to the original end user. GSI shall have no obligation or responsibility for any representations or warranties made by or on behalf of any dealer, agent or distributor. Prior to installation, the end user bears all responsibility to comply with federal, state and local codes which apply to the location and installation of the products.

This Limited Warranty extends solely to products sold by GSI and does not cover any parts, components or materials used in conjunction with the product, that are not sold by GSI. GSI assumes no responsibility for claims resulting from construction defects, unauthorized modifications, corrosion or other cosmetic issues caused by storage, application or environmental conditions. Modifications to products not specifically delineated in the manual accompanying the product at initial sale will void all warranties. This Limited Warranty shall not extend to products or parts which have been damaged by negligent use, misuse, alteration, accident or which have been improperly/inadequately maintained.

Service Parts:

GSI warrants, subject to all other conditions described in this Warranty, Service Parts which it manufactures for a period of 12 months from the date of purchase, unless specified in Enhancements above. Parts not manufactured by GSI will carry the Manufacturer's Warranty.

(Protein Limited Warranty_REV01_06 November 2018)

This equipment shall be installed in accordance with the current installation codes and applicable regulations which should be carefully followed in all cases. Authorities having jurisdiction should be consulted before installations are made.



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