English

Elpas LF BUS Beacon

For P/Ns: 5-ALA00125-11, 5-ALA00125-12 & 5-ALA00125-2

Installation Guide

Introduction

This installation guide provides basic instructions for common LF BUS Beacon installation scenarios.

CAUTION! It is important that you read, understand, and follow the instructions in this document. If you have questions, call your local Elpas support representative.

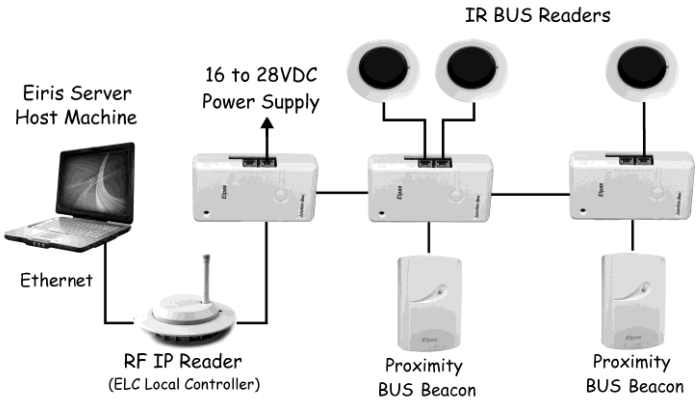
Product Description

The Elpas LF BUS Beacon is a fully supervised, 125KHz emitter that adds instantaneous location (choke-point) awareness to RTLS security and safety applications

The LF BUS Beacon generates a user-adjustable, spherical shaped electromagnetic field up to 1.5m/5ft in radius that can be used to cover a single interior doorway. Optionally, up to four LF BUS Beacons can be deployed in 'Primary–Secondary' star or daisy-chain topologies to cover large double-doors or architectural complex indoor entrance/exit areas

The LF BUS Beacon also contains an I/O port that enables the monitoring of one alarm sensor and control of either one digital open-collector output or one 26-bit Wiegand device

Note: An Elpas RS-485 BUS may contain up to fifteen Elpas BUS devices (such as RF or IR Readers, Elpas Display Panels, LF Beacons or other Primary BUS Beacons) which are wired together using Elpas RS-485 Junction Boxes (P/N:5-JBA00485).



LF BUS Beacon (Primary) - Sample Network Topology

Primary/Secondary Beacons – Front View

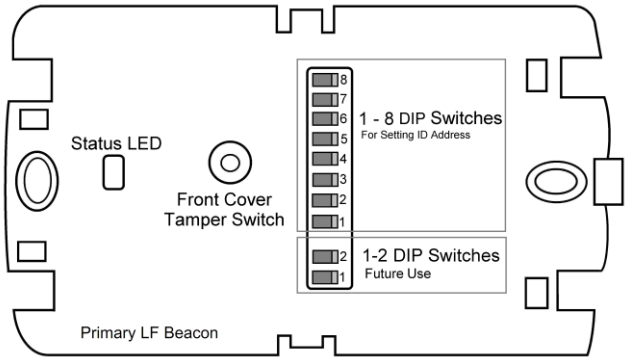
Front Cover Tamper Switch: All BUS beacons contain a tamper switch which indicates non-authorized attempts to remove the device's front cover when in operation.

The tamper switch is also used to control the coverage area of the LF field. (See page 4 for details.)

Status LED: All BUS beacons contain a Red, Green and Orange LED array that detail the status of the devices:

- **Green LED**
  - **Unregistered:** Flashes once/second
  - **Power up/Communication Loss/Sync Cable Disconnected**: Flashes once/second
- **Red LED**
  - **Invalid ID:** Flashes once/second - See page 4 for additional details
  - **Device Tamper:** Flashes once/second
  - **Output Activated:** Flashes once
- **Orange LED**
  - Flashes to indicate the selected LF field range - See page 5 for additional details

DIP Switch: Only the Primary Beacon has an eight-position DIP Switch for assigning its ID Address. (See page 4 for details.)



LF BUS Beacon (Front View-Cover Removed)

Primary/Secondary Beacons – Rear View

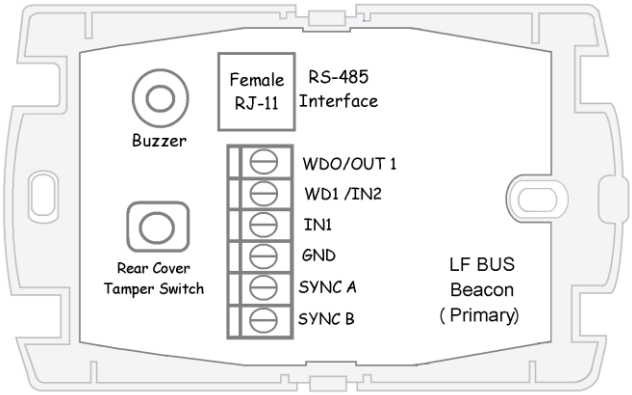
Rear Cover Tamper Switch: All BUS Beacons contain a dual purpose tamper switch which indicates non-authorized attempts to remove the device's rear cover when in operation.

RS-485 Interface: All BUS beacons contain a female RJ-11 connector for linking to the RS-485 Junction Box. This connector is used for both power & data. (See page 2 for details)

Buzzer: The beacon has a buzzer that sounds when an improper ID Address has been assigned. (See page 4 for details.)

General Purpose Inputs: All BUS Beacons have general purpose inputs. (See page 6 for details.)

Digital Output: The primary beacon and the secondary beacon have one digital output. (See page 6 for details.)



LF BUS Beacon (Rear View)

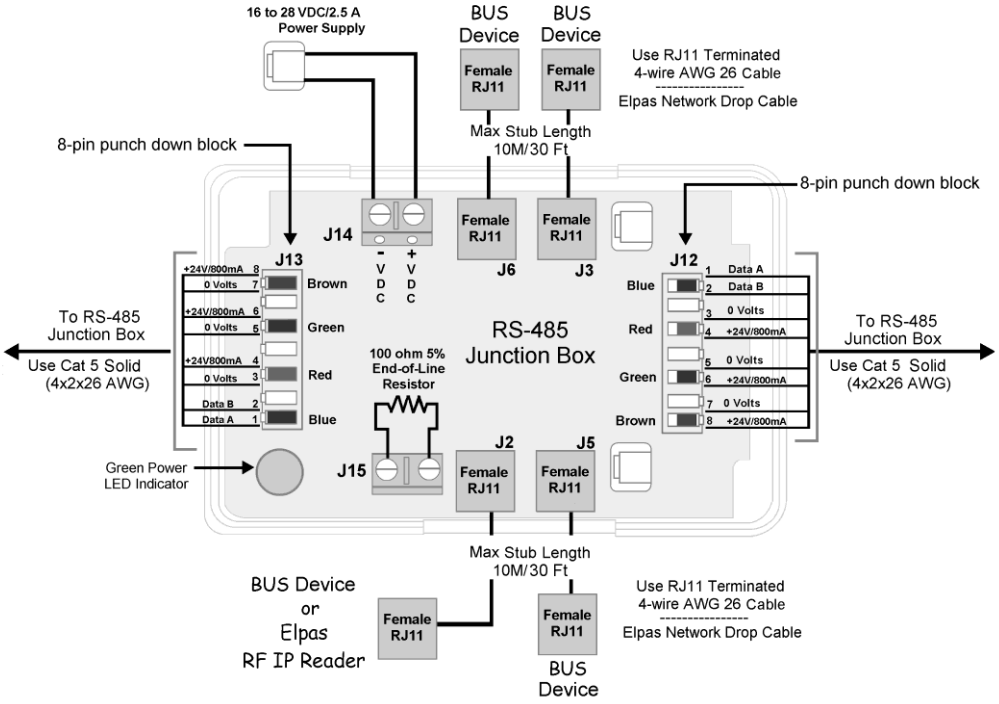
IMPORTANT: BUS Beacons **MUST BE** powered-down while wiring the unit's I/Os and when connecting to the RS-485 BUS. This will prevent accidental shorts/spikes to cause damage to the devices

RS-485 BUS/Stub Topology

The RS-485 BUS **MUST BE** wired using a BUS/Stub topology where the BUS Master (a RF IP Reader or an ELC Controller) is connected anywhere along the BUS. The topology supports data transmission between the BUS Master and up to 15 Elpas BUS Devices (such as RF or IR Readers; LF Beacons primary & secondary), Elpas Display Panels and 6x6 I/O Modules using Elpas RS-485 Junction Boxes (P/N: 5-JBA00485).

IMPORTANT NOTE: Only 1 RF IP Reader/ELC Controller and up to 7 RF BUS Readers may coexist together on a single BUS.

200M/650Ft: Max. BUS length 10M/30Ft: Max. Stub length 100 Ohm Termination: Required each end of the BUS.



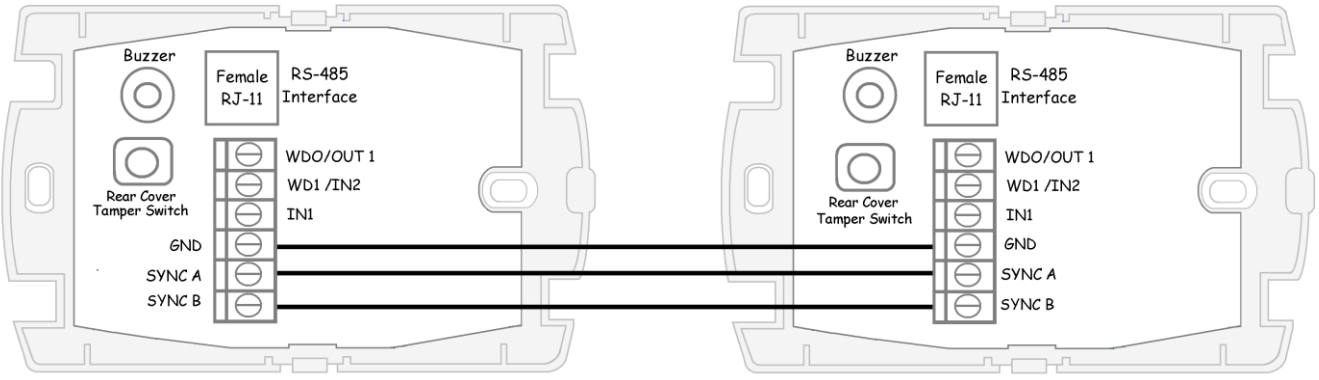
Recommended RS-485 Backbone Cable Type: CAT5 Solid (4x2x26AWG)
For Power: Use three-twisted pairs (six conductors) between RS-485 Junction Boxes
For Data: Use one-twisted pair (two conductors) between RS-485 Junction Boxes

Primary/Secondary Synchronization

Up to four LF BUS Beacons can be deployed in 'Primary–Secondary' **Daisy-Chain** or **Star Topologies** in order to cover large double-doors or architectural complex indoor entrance/exit areas.

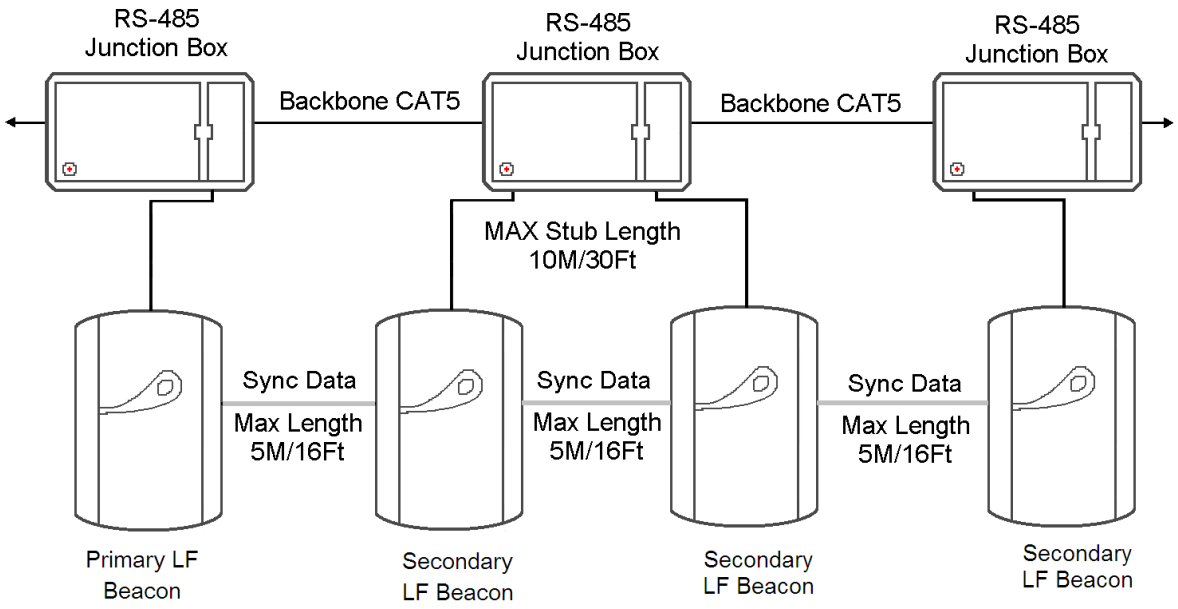
When deploying either of these two topologies, the LF fields generated by the secondary beacons **MUST BE** synchronized to pulse at precisely the same moment in time as the LF field generated by the primary unit in order to avoid mutual interference between any of the LF fields.

To implement Primary/Secondary Synchronization a **Sync Data Link** (typically using a 2x2x26 Category 5 cable) needs to be physically connected between the Primary Beacon and all of the Secondary devices.

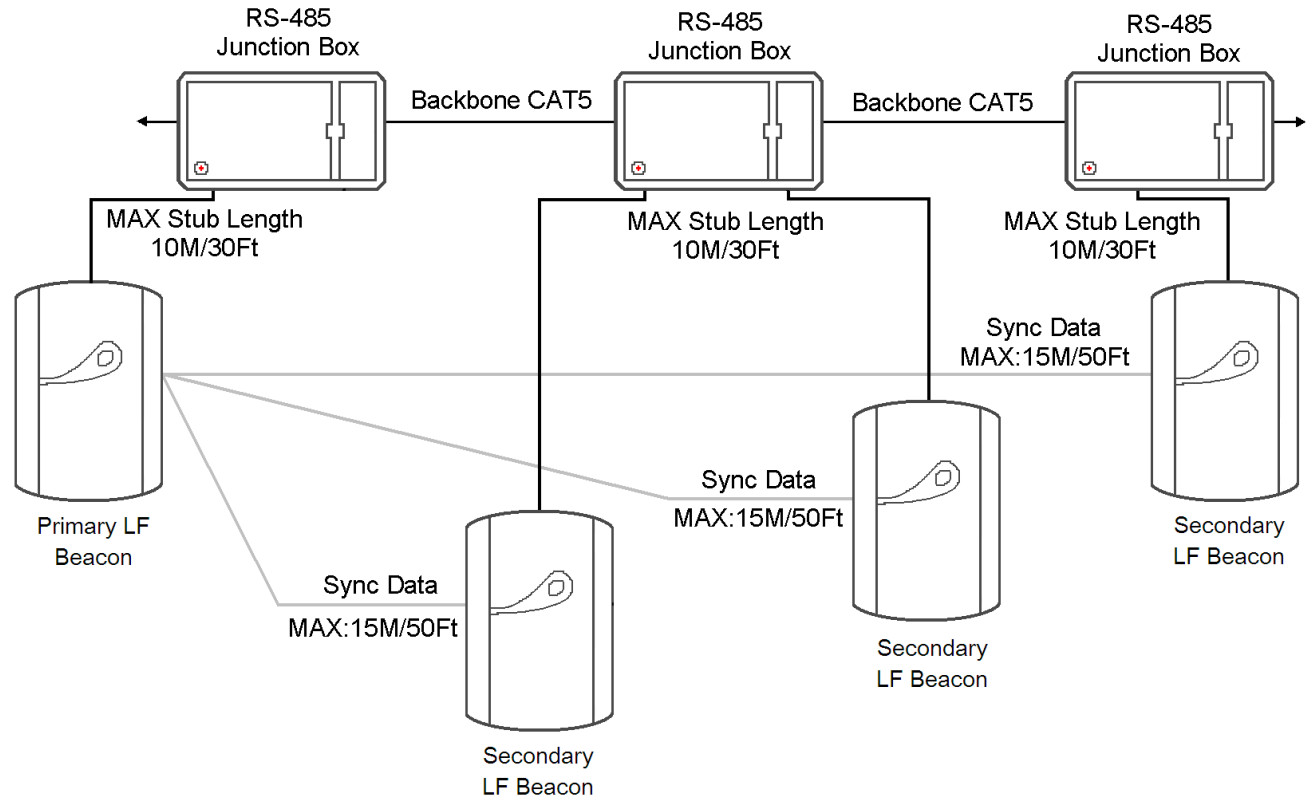


LF Beacon - Primary LF Beacon - Secondary

Primary/Secondary Synch Data Connection Diagram – Daisy-Chain Topology



Primary/Secondary Synch Data Connection Diagram – Star Topology



ID Address Setup

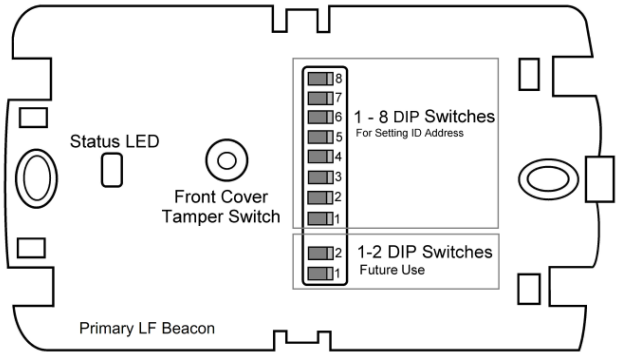
Before initial power-up, the **Primary LF BUS Beacon** must be assigned a unique ID Address (Neuron ID) in order for the Eiris Software Platform or an Elpas Local Controller to be able to identify the device. Convert the Neuron ID (typically using a scientific calculator) into the two-digit hexadecimal number that correctly corresponds to the DIP switch found on the LF Beacon. This hexadecimal number will be used to register the beacon's ID address into the EIRIS or the ELC database.

NOTE: It is vital that a newly assigned ID Address does not conflict with any other ID Address that has already been assigned to any other beacon.

The following Neuron ID Addresses **SHOULD NOT BE ASSIGNED** to the Primary LF BUS Beacon: **0x00** (00000000), **0x13** (00010011), **0x35 (**00110101), **0x4B** (01001011), **0x4D (**01001101), **0x5C** (01011100), **0xB8** (10111000), **0xD5** (11010101), **0xDC (**11011100), **0xFF** (11111111), **0xFE** (11111110) and **0x7F** (01111111).

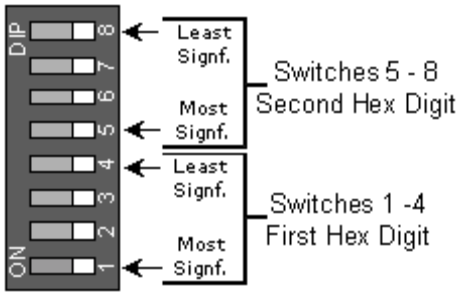
Should any of the above ID addresses be assigned by mistake, the beacon will not properly function. Additionally the beacon's Red Status LED will continually flash; and the device's buzzer will repetitively sound.

Use the beacon's 8-poisition DIP Switch to set the ID address (in binary format) of the beacon as illustrated below.



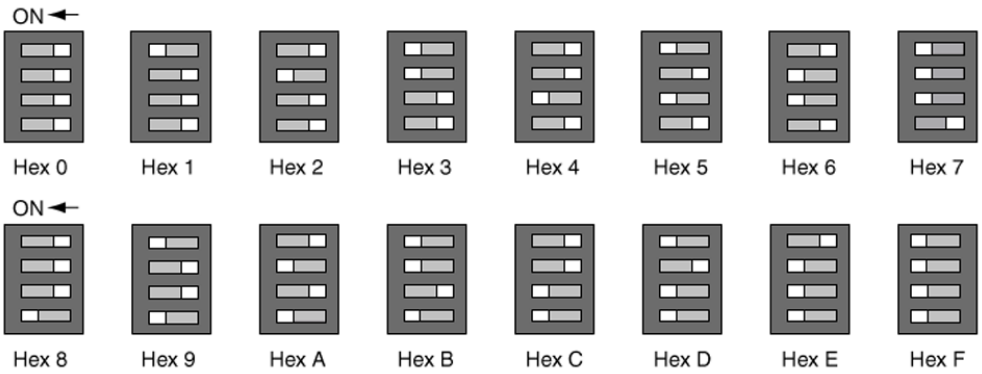
The ID address is assigned using a binary coded hexadecimal number.

Switches 1-4 (high nibble) are used to set the first hexadecimal digit while switches 5-8 (low nibble) are used to set the second hexadecimal digit.

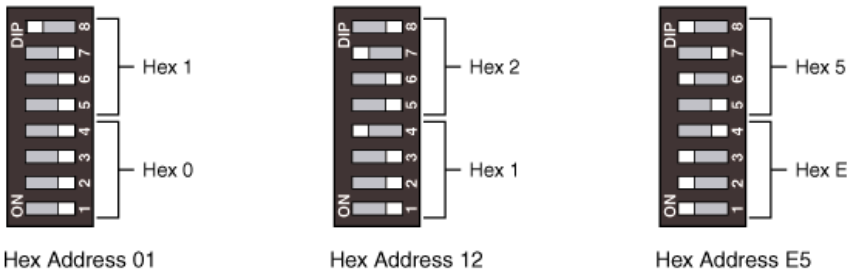


Together, the two hexadecimal digits provide a total of 256 possible Neuron ID addresses.

The figure below shows how to set the hex digitals '0' to 'F'

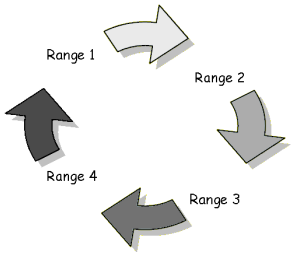


Below are three examples of addresses set in hexadecimal:



LF Field Adjustment

The size of the LF field generated by any of the BUS Beacons can be adjusted using the device's Front Cover Tamper Switch to control the actual coverage of the LF field and to reduce the unwanted signal penetration.



For Primary Beacons: Primary Beacons support four ranges from10cm/4.0 inches to 1.5m/5ft in radius. To cycle to the next range press the tamper switch twice.

Each time you cycle to the next LF field range, the Orange LED will flash the applicable number of times to indicate the selected range:

- One flash - Shortest range
- Two flashes - Medium 1 range
- Three flashes - Medium 2 range
- Four flashes - Maximum range

For Secondary Beacons: Secondary Beacons support only the Medium 2 and Maximum Ranges. To cycle between the two ranges press the tamper switch twice. There will be no LED indication of the selected field range.

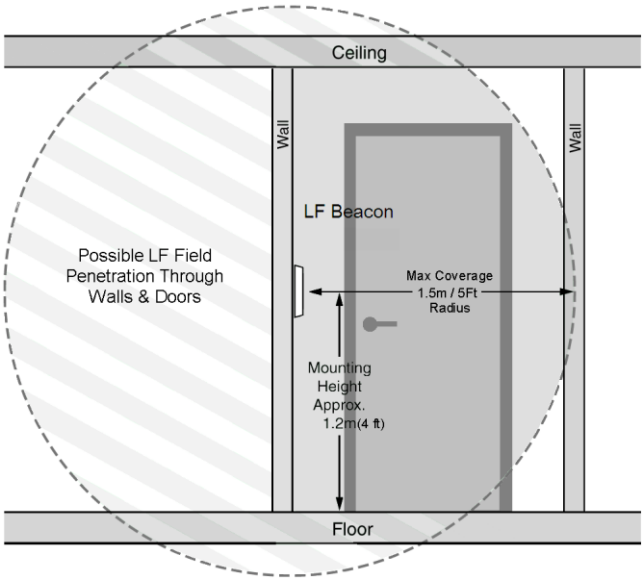
NOTE: In practice the coverage area (for each range mode) regardless of beacon type may vary +/- 20% by specific Active RFID Tag as well as the active RFID Tag's physical orientation in relation to the LF field.

Single Door Placement

Mount the primary beacon on the wall adjacent to the opening side of the door, at a height of 1.2m/4Ft. above the floor.

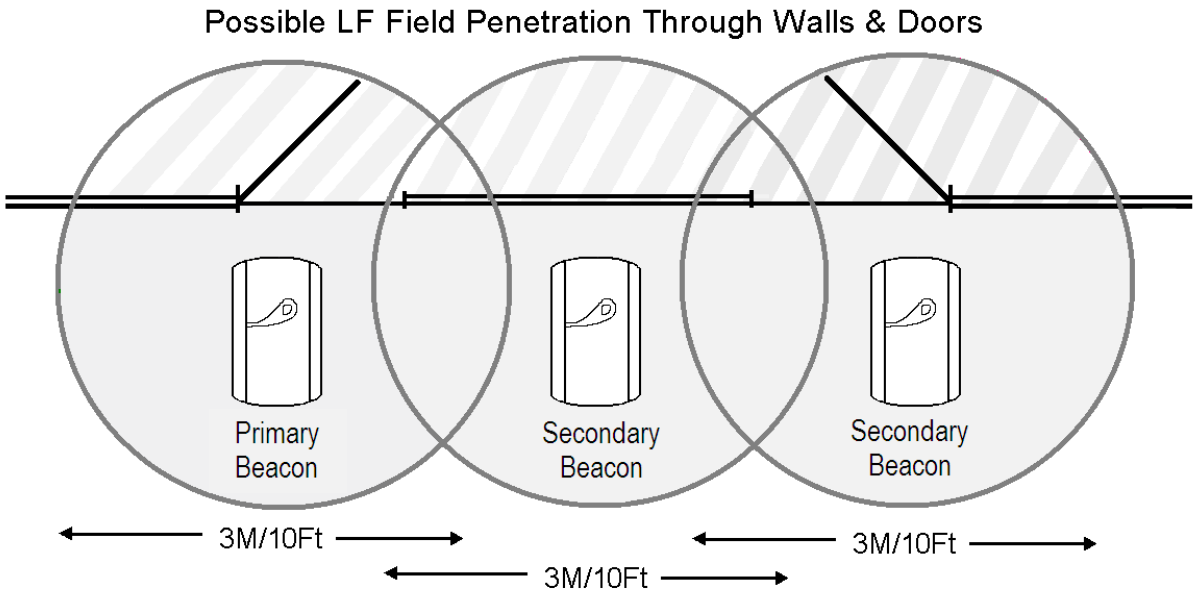
Beacons **MUST NOT BE MOUNTED** on any metallic surfaces and should be positioned at least 30cm/12in from any metal barriers (such as signs/pillars/beams) in any direction

Additionally all beacons **MUST BE MOUNTED** as far away as possible from all other pieces of equipment that may emit magnetic fields (such as large electrical motors, HVAC and refrigeration compressors.



Double Door Placement

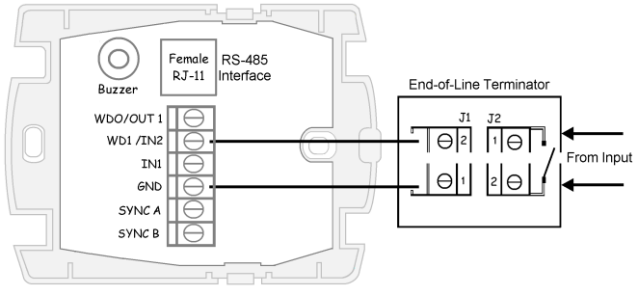
A primary/secondary configuration may be installed by mounting the primary beacon to the right of the double door entrance area and up to three secondary device(s) to the left of the doors, at a height of 1.2m/4Ft above the floor. Ensure that all of the beacons are no more than 1m/3ft from the doors. The resulting LF fields are automatically synchronized in real time to avoid problems associated with coverage area overlap.



General Purpose Inputs

Both the primary beacon (P/N: 5-ALA00125-12) and the secondary beacon (P/H: 5-ALA00125-2) have two general purpose inputs designated IN1 and IN2.

EOL supervision may be added to either of these inputs to detect: Open, Close, Line Cut and Line Short circuit conditions using optional Elpas End-of-Line Terminators (P/N: 5-IOX00001).



Note: Primary beacons that contain the Wiegand output option (P/N: 5-ALA00125-11) contains only Input1.

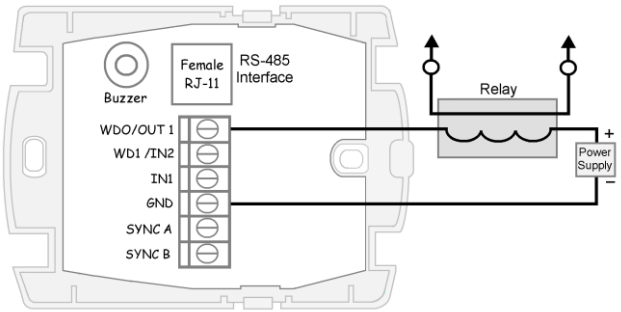
Transmission Suppression Option

Input1 on all BUS Beacons may be used to disable the LF field by shorting IN1 with GND. This allows the user to temporary override the beacon with a security detector, such as a passive infrared.

However Input1 may be used as a normal general purpose input when an Elpas End-of-Line Terminator, (P/N: 5-IOX00001) is connected to the input as illustrated in the above section.

Digital Output

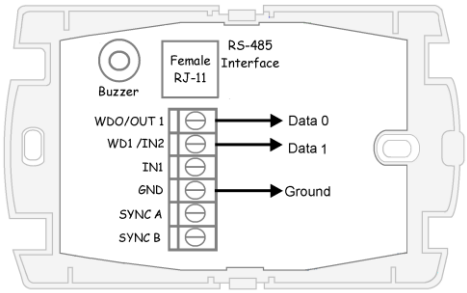
Both the primary beacon (P/N: 5-ALA00125-12) and the secondary beacon (P/H: 5-ALA00125-2) have one general purpose digital output, which provides open-collector switching (up to 100mA, 28Vdc).



Recommended Cable: 22 AWG, unshielded/twisted pair

Wiegand Output

Primary beacons with the Wiegand output (P/N: 5-ALA00125-11) provide one 26-bit Wiegand output (instead of a digital output) for sending Elpas tag IDs to third-party access control panels.



Recommended Cable: 22 AWG, unshielded/twisted pair

Standards Compliance

This device complies with Part 15 of the FCC Rules and RSS-210 of Industry and Science Canada. 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 device complies with Industry Canada license-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.

Le présent appareil est conforme aux CNR d'Industrie 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, et (2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

Warning!

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

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Elpas Ltd. (the Company), and its affiliates, warrants its products (hereinafter referred to as "the Product") to be free of defects in materials and workmanship under normal operating conditions and use for a period of one year from the date of shipment by Elpas. The Company's obligations shall be limited within the warranty period, at its option, to repair or to replace the defective Product or any defective component or part thereof. To exercise this warranty, the product must be returned to the manufacturer freight prepaid and insured.

This warranty does not apply to repairs or replacement caused by improper installation, Product misuse, failure to follow installation or operating instructions, alteration, abuse, accident, tampering, repair by anyone other than Elpas, external causes, and failure to perform required preventive maintenance. This warranty also does not apply to any products, accessories, or attachments used in conjunction with the Product, including batteries, which shall be covered solely by their own warranties, if any. Elpas shall not be liable for any damage or loss whatsoever, whether directly, indirectly, incidentally, consequentially or otherwise, resulting from a malfunction of the Product due to products, accessories, or attachments of others, including batteries, used in conjunction with the Product.

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Elpas shall not, under any circumstances whatsoever, be liable for any inaccuracy, error of judgment, default, or negligence of Elpas, its employees, officers, agents, or any other party, or of the purchaser or user, arising from any assistance or communication of any kind regarding the configuration, design, installation, or creation of security system involving the Product, that being the responsibility of the purchaser or user.

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Elpas shall have no liability for any damages, including without limitation, any direct, indirect, incidental, special, or consequential damages, expenses, costs, profits, lost savings or earnings, or other damages arising out of the use of the Product or the removal, installation, reinstallation, repair or replacement of the Product or any related events. In the event that there is any liability against Elpas, such liability shall be limited to the purchase price of the Product which amount shall be fixed as liquidated damages.

The purchaser and user understand that this Product may be compromised or circumvented by intentional acts; that the Product will not in all cases prevent death, personal injury, property damage, or other loss resulting from burglary, robbery, fire or other causes; and that the Product will not in all cases provide adequate warning or protection. The purchaser and user also understand that a properly installed and maintained alarm may reduce the risk of events such as burglary, robbery, and fire without warning, but it is not insurance or a guarantee that such events will not occur or that there will be no death, personal injury, property damage, or other loss as a result of such events.

By purchasing the Product, the purchaser and user shall defend, indemnify and hold Elpas, its officers, directors, affiliates, subsidiaries, agents, servants, employees, and authorized representatives harmless from and against any and all claims, suits, costs, damages, and judgments incurred, claimed, or sustained whether for death, personal injury, property damage, or otherwise, because of or in any way related to the configuration, design, installation, or creation of a security system involving the Product, and the use, sale, distribution, and installation of the Product, including payment of any and all attorney's fees, costs, and expenses incurred as a result of any such events.

The purchaser or user should follow the Product installation and operation instructions and test the Product and the entire system at least once each week. For various reasons, including but not limited to changes in environmental conditions, electric, electronic, or electromagnetic disruptions, and tampering, the Product may not perform as expected. The purchaser and user are advised to take all necessary precautions for the protection and safety of persons and property.

This statement provides certain legal rights. Other rights may vary

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Elpas reserves the right to modify this statement at any time, in its sole discretion without notice to any purchaser or user. However, this statement shall not be modified or varied except by Elpas in writing, and

Elpas does not authorize any single individual to act on its behalf to modify or vary this statement .

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Elpas
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