



Compact eLink Reader

Installation & User Manual

July 2003

© Copyright 2003, eXI Wireless Systems Inc. All rights reserved.

Revision 1.0

Table of Contents

P 1.	Record of Changes	3
P 2.	Limited Warranty	4
P 3.	FCC Regulations.....	4
1.	Introduction	6
1.1.	Initializing the Compact eLink Reader System.....	7
1.2.	Assigning the Keypad to the Controller	8
2.	Installation	8
2.1.	Check List Before Installation	8
2.2.	Controller.....	8
2.3.	Wireless Keypad.....	9
3.	Operation	10
3.1.	Compact eLink Reader Controller	10
3.2.	Detection Field Set Up.....	12
3.3.	Wireless Keypad.....	12
3.4.	Bypassing / Escorting Patients.....	13
3.5.	Accepting Alarms	13
3.6.	Tamper Alarm.....	13
3.7.	Tags.....	13
3.8.	Power Supply.....	13
4.	Passwords	14
4.1.	Master Password	14
4.2.	User password	14
4.3.	System Settings.....	15
4.4.	Input/Output Connector	15

P 1. Record of Changes

July 2003 Revision 1.0 Initial Release

P 2. Limited Warranty

eXI Wireless Systems Inc. ("eXI") hereby warrants the product(s) accompanying this limited warranty (the "Product(s)") to be free of defects in materials and workmanship for a period of two years (excluding any batteries that may be added to or used in conjunction with the Products(s)) from the date of delivery of the original purchase of the Product(s) subject to the limiting conditions set forth below, provided that eXI has received notification of such defects no later than 30 days after expiration of the applicable warranty period and provided further that eXI has received a fully completed registration card (below) within 30 days from the date of original purchase of the Product(s).

The responsibility of eXI under this warranty is and shall be limited to repairing or replacing the Product(s) or any part thereof determined by eXI in its sole discretion to be defective in workmanship or material.

The installation of the Product(s) shall be deemed as acceptance by the original purchaser and any subsequent purchaser of the Product(s) (collectively the "Purchaser") of the terms set out in this limited warranty including the following further limiting conditions:

(a) eXI shall not be responsible for any repair or replacement of any Product(s) which has been found, upon inspection, to have been subjected to abuse, misuse or negligence, or any damage attributable to accident, lightning, power surge, brown-out, leaking, damaged or inoperative batteries or to have been installed, altered or repaired contrary to factory designated procedures without the prior written consent of eXI;

(b) It is understood, and the Purchaser agrees further to so inform any user of the Product(s) that the Product(s) is not, nor can it be, infallible in the detection of wandering patients, the prevention of infant abduction, the prevention of theft of assets or any other contemplated use of the Product(s). **The Purchaser will warn all users and acknowledges on it's own behalf that it has read and understands the above-mentioned limitations of the Product(s).** The Purchaser further acknowledges that the Product(s) are solely intended to provide an additional safeguard in notifying staff and accordingly do not guarantee the prevention of wandering patients or the attempted abduction of an infant or the theft of assets;

(c) It is further agreed by the Purchaser that the Purchaser has received no additional promises or statements of fact from eXI or its agents relative to the Product(s) upon which the Purchaser might have relied in purchasing the Product(s);

(d) The warranty set out above excludes and is in lieu of all other express or implied warranties, conditions or obligations, and no person is authorized to give any further representation or warranty or assume any further obligation on behalf of eXI. Although the Purchaser may have other rights, as they may vary from State to State or Province to Province, where it is legally possible to do so any statutory warranty is hereby expressly excluded. The warranty is subject to the domestic laws of Canada and the Purchaser agrees to attorn to the jurisdiction of the courts of competent jurisdiction in the Province.

(e) eXI shall not be liable for any damages, whether direct or, indirect, incidental, consequential or arising out of contract or tort with the sole exception of the warranty set out above and any rights expressly created by applicable statute.

THIS WARRANTY IS VALID ONLY IN THE USA AND CANADA

P 3. FCC Regulations

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.

eXI Wireless Systems	Model No.: Compact eLink Reader
CANADA	FCC ID: HE7 APC

* This device complies with Part 15 of the FCC Rules. Operation is subject to the following two rules: (1) This device may not cause harmful interference, and (2) This device must accept any interference received, including interference that may cause undesired operation.

Made in Canada

eXI Wireless Systems	Model No.: Wireless Keypad
CANADA	FCC ID: HE7 WKP

* This device complies with Part 15 of the FCC Rules. Operation is subject to the following two rules: (1) This device may not cause harmful interference, and (2) This device must accept any interference received, including interference that may cause undesired operation.

Made in Canada

1. Introduction

The Compact eLink Reader is a detection device usually used as a departure alarm. Compact eLink Reader detects the presence of eXI wrist or asset transponders within a prescribed detection zone. Compact eLink Reader may be used to:

- Alert if people or property at risk are near an egress or danger zone.
- Automatically open doors or activate equipment when a tag is present.
- Indicate proximity of any "tagged" item or person.

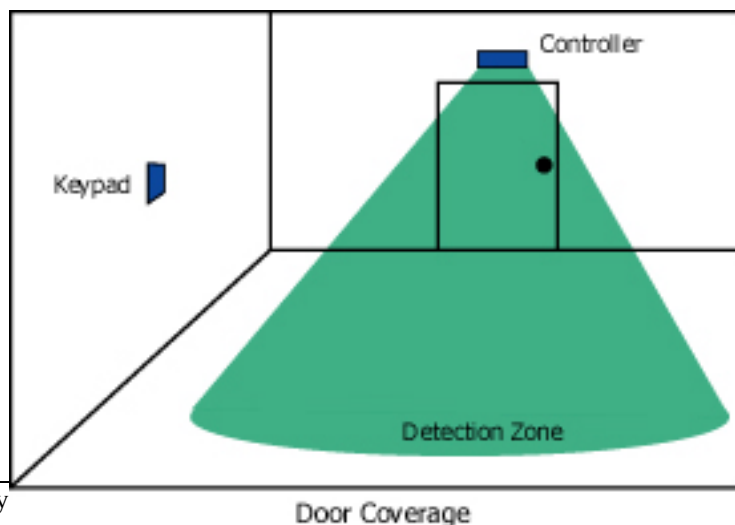
The system application is defined in Firmware. For example, the device when configured as Assetrac ProtecPoint system controller, will identify only Asset Tags as valid.

The Compact eLink Reader is simple to install and uses eXI's high reliability RFID (Radio Frequency Identification) protocols to ensure accurate detection. A tag is sensed when it enters a detection field that is set up around the eXI Compact eLink Reader Controller. This system uses an optional wireless keypad to control bypass functions, accepting alarms and changing passwords. The Compact eLink Reader is a valued priced system designed to be used as a stand alone or networked system to protect smaller perimeters.

Various features are built in the Compact eLink Reader System to accommodate a variety of applications with minimum supervision.

- Adjustable detection range (3'-12')
- Bypass alarms
- Audio and visual alarm indication
- 1 Master password
- 2 Users passwords
- Remote Wireless Keypad (Optional)
- Light weight Wrist Tag with a 3-year pro-rated warranty
- Asset Tag with 3 year pro-rated warranty
- Auxiliary Port: 1set of NO / NC relay contacts

Compact eLink Reader in a 'Patient Tracking' application, is designed to assist staff in providing a higher degree of safety for patients. **It is not intended as the sole means of protection in preventing a wanderer or infant from leaving the premises.** Regular checks to verify that your Compact eLink Reader system is operational is highly recommended.



1.1. Initializing the Compact eLink Reader System

The Compact eLink Reader System may be installed without a Wireless Keypad. In this simplest of configurations, a switch may be connected at the 10 pin I/O plug between pin 5 and signal ground to bypass alarms. The remainder of this manual assumes the configuration includes one or more Wireless Keypads. "Controller" and "Reader" will be used hereafter in reference in place of "Compact eLink Reader".

The Controller is powered from a 12Vdc source. This may be a UL/CSA listed AC/DC adapter at 300 maDC minimum. The supply may be wired through the 10 pin I/O connector or the DC 2.1 mm Power jack. If the 2.1 mm power jack is used, the center pin is positive.

When a Wireless Keypad is included in the installation it must be configured to communicate with the controller. The following procedure initiates the keypad for the reader:

1. Plug in the 12 VDC power source.
2. Preset the rotary switch SW1 on the controller to match the keypad (position 0-7).
3. Type Master password (**9876- Factory Default**) on keypad and then press the 'Enter' key. (The green bypass led should blink on the keypad)
4. Type number (1) on the keypad.
5. Press 'Enter' key.
6. Press 'Clear' key. (Hear a short beep)
7. Type Master password (**9876 - Factory Default**) on keypad and then press the 'Enter' key.
8. Enter number (1) on keypad and press the 'Enter' key.
9. Type in a 4-digit code "**XXXX**" and press the 'Enter' key. (Hear 2 short beeps)

The controller should now be configured to communicate with the keypad. To confirm, retype the 4-digit code on keypad and press 'Enter' key. You should hear an alarm accompanied by alternating red and the yellow LEDs.

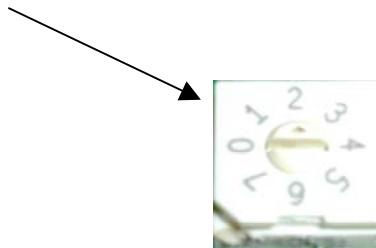
If no alarm, then repeat the configuration process, ensuring that the keys are pressed properly each time you enter a number.

After the controller has been configured, each time that you enter the 4-digit code, a low tone alarm should go off and you should see alternating red and yellow LEDs on the controller.

1.2. Assigning the Keypad to the Controller

The Keypad can only communicate to the Controller if they both have the same ID number. Each Keypad and Controller comes with 8-position rotary switch, which is used to set this ID number. Multiple Controllers could be programmed to respond to the same Keypad or multiple Keypads could be used to send commands to the same Controller (their ID settings should be the same). When a Keypad and Controller are shipped from the factory, they all have ID number set to '2' so every Keypad can communicate with every Controller. The installer needs to change this only if multiple Controllers and Keypads interfere with each other.

Rotary Switch found on the back of the **Wireless Keypad** and the **Controller**.



2. Installation

2.1. Check List Before Installation

- Rotary Switch Settings are the same on the keypad and controller.
(See *Back View of Controller pg. 10* and *Keypad pg.11*)
- Detection Field is set up to desired range. (See *Back View of Controller pg.10*)
- Verify communication distance between keypad and controller.
(Enter the bypass code at the keypad ensuring the controller receives the signal)
- Base plate of the keypad is mounted with the magnet at the upper right corner.
(See *Back View of Keypad pg.11*)

2.2. Controller

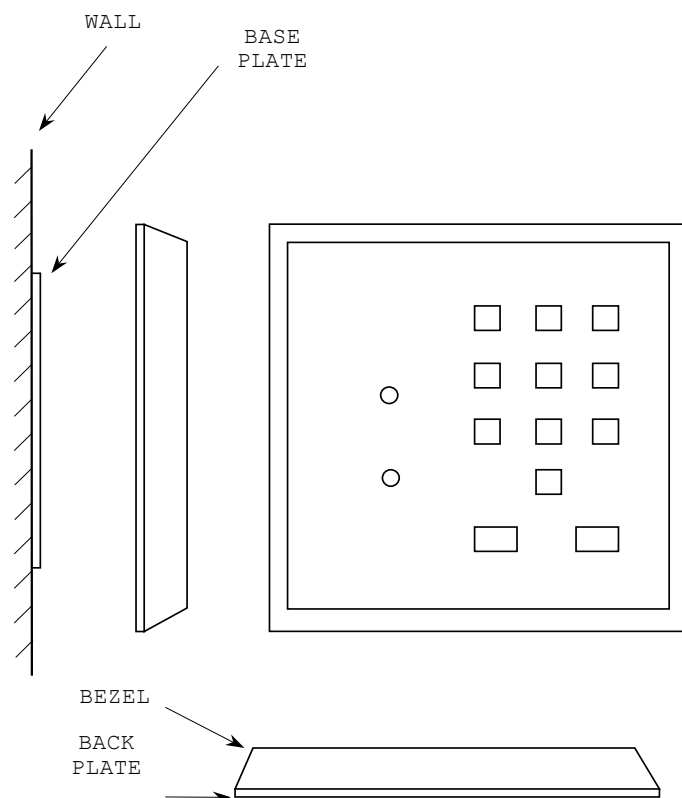
The best position for the Controller to be installed is above the door (best field coverage). A wall mounting bracket is supplied. The controller is attached to the wall bracket by two 6-32 Torx head machine screws. Remove the screws and mount the bracket using suitable wall mount hardware. Locate the controller at least 18" away from any metal objects that may cause interference to the internal transmit & receive antenna in the controller.

2.3. Wireless Keypad

The base plate of the keypad is mounted to the wall with 4 screws. Make sure that the magnet on the back of the base plate is at the upper right corner. The keypad face plate simply snaps onto this base plate. The best position to mount the keypad is usually 8'-12' away from the protected doorway.

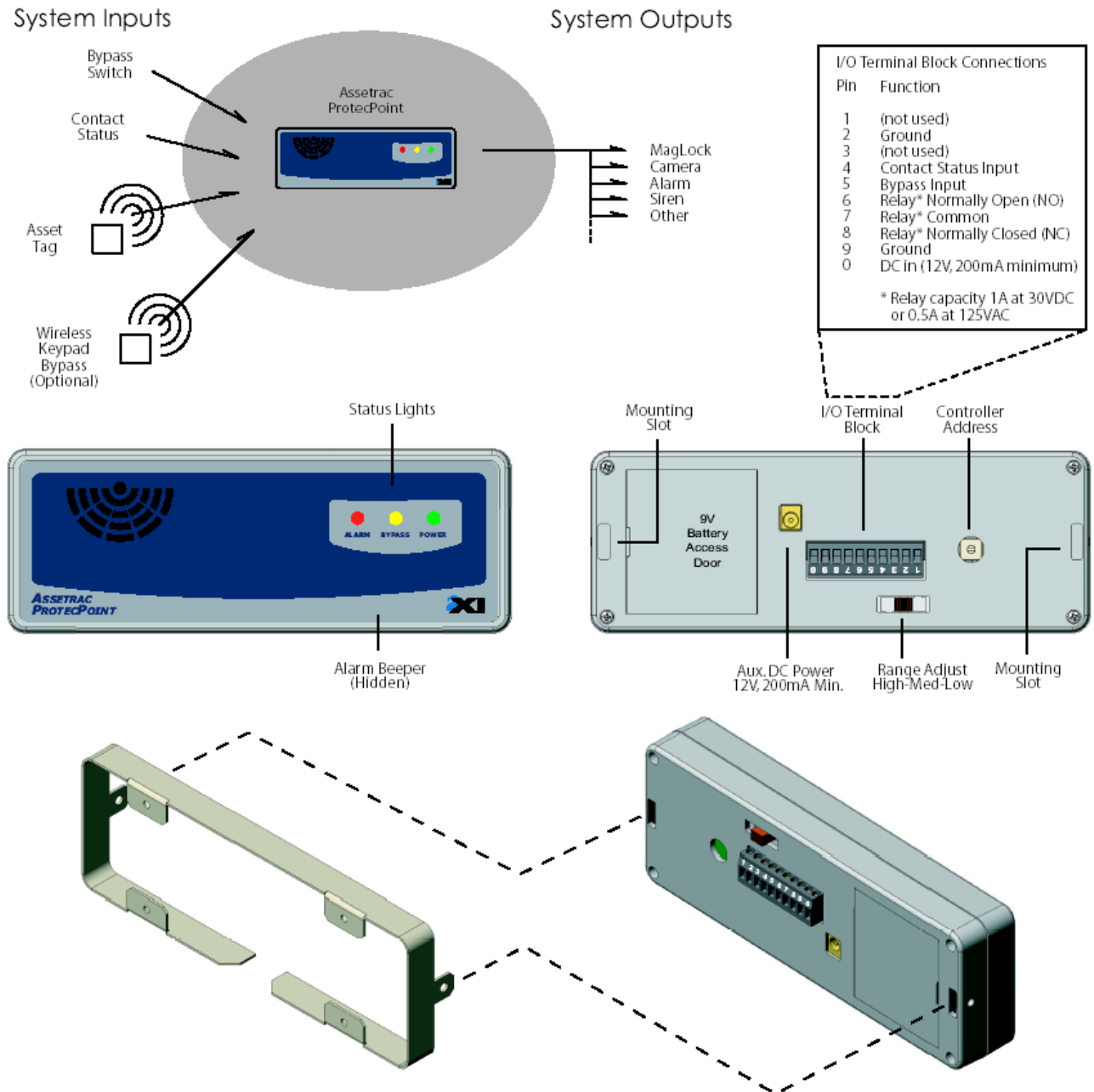
The Wireless Keypad can be mounted inside or outside the detection field of the controller. When it is mounted inside the detection field, the alarm will sound as a patient is brought into the detection field. The alarm is silenced once the bypass code is entered into the keypad.

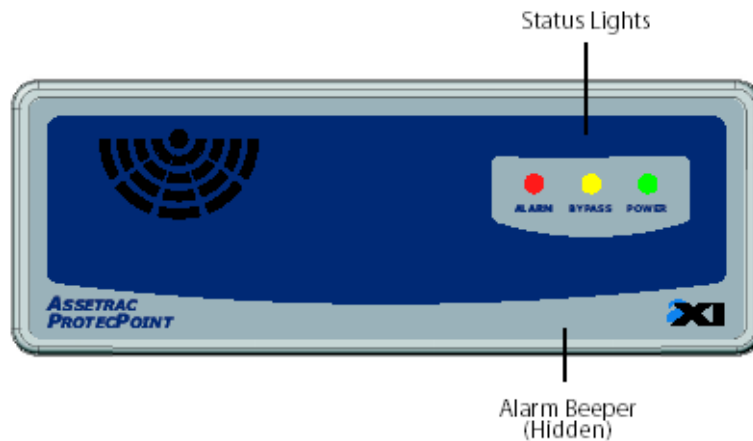
If the keypad is mounted outside the detection field no alarm will sound when the bypass is activated.



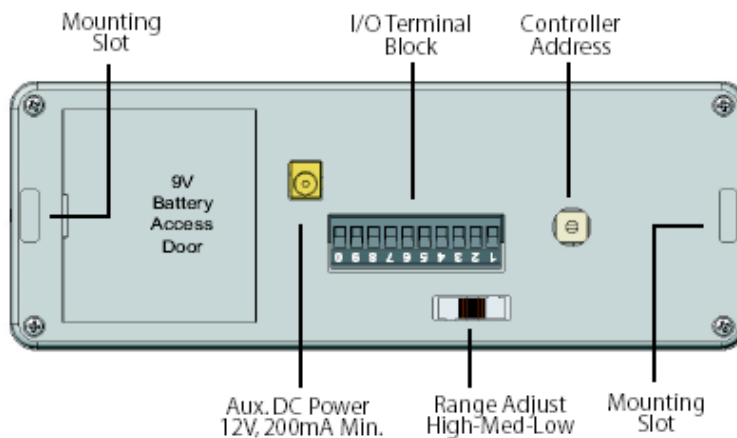
3. Operation

3.1. Compact eLink Reader Controller (Assetrac ProtecPoint configuration shown)



Front View

- **"GREEN LIGHT"** indicates the power is on and the system is on standby.
- **"RED LIGHT"** FLASHING indicates an alarm is in progress (tag detected in range).
- **"YELLOW LIGHT"** & **"RED LIGHT"** alternately FLASHING indicates the system is in BYPASS Mode.

Back View**Side View**

3.2. Detection Field Set Up

The primary considerations here are the field shape and strength. The detection field has to fill the area in front of the door all the way to the floor so that no tag can reach the door without being detected.

To set up a field, **See System Settings "51" Test Mode (pg.14)**

Start by placing the tag at the range you want for the field at the height a tag is usually going to be found. The tag needs to be detected at least 3'-12' from the door. The tag should be placed on a non-metallic surface for testing. You might want to do a preliminary field setup by holding the controller at the approximate location you want to install it but be aware that your body could be affecting the field. The controller should be temporarily placed and the field adjusted for range using this stationary tag. Since the Tag will be read easier in some orientations with respect to the controller, it is also necessary to test with the Tag in a variety of positions.

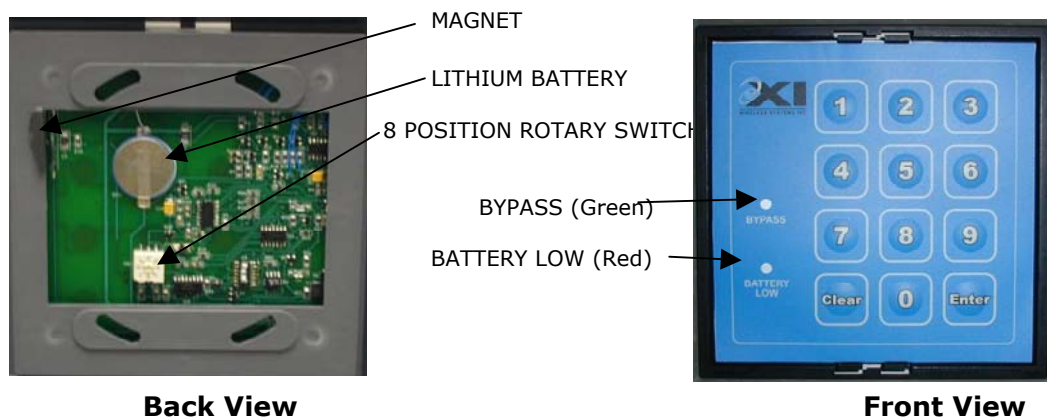
With the controller and tag in position use the **3 position slide switch** on the back of the controller to set up your field strength.

Holding the tag, slowly pass through all the areas that you need the field to cover. The device should continue to beep at a steady rate. An uneven rate indicates that the controller is not able to read the tag successfully every time.

After setting up the Detection Field, return back to **System Settings "52" Normal Mode with Fixed Alarm Duration (pg.14)**

3.3. Wireless Keypad

The Wireless Keypad has 2 lights to indicate its status:



- **BYPASS (Green)** Light will flash when the bypass code is entered.
- **BATTERY LOW (Red)** Light will flash once every 6 seconds when the battery is low on the keypad. Battery has an operating life of 5 years with an average of 100 keypad entries per day.

3.4. Bypassing / Escorting Patients

- Bring the tag to the Wireless Keypad mounted 8'12' away from the protected doorway
(Alarm will sound if keypad is in the detection zone)
- Enter in the Bypass Code on the Wireless Keypad (alarm will be silenced if keypad is in the detection zone).
- You have 10 seconds to bring the tag into the detection field or the system will rearm itself.
- Once the tag is in the detection field you have 90 seconds to move the tag out of the door way or the system will go into alarm state.
- After the tag has been successfully bypassed the system will rearm itself within 8 seconds.

3.5. Accepting Alarms

- Attend to alarm location according to the Controller.
- Remove the tag away from the doorway
- Enter in the Bypass Code to accept the alarm

3.6. Tamper Alarm

The keypad is protected with the tamper switch installed at the back to prevent unauthorized removal. When this switch is released, the keypad sends the message to the Controller signaling tamper alarm and the Controller goes into the alarm mode. This alarm can be silence by entering the password.

3.7. Tags

These devices are attached to a patient or asset. Tags initiate alarm conditions when entered into an area protected by a Controller. The Controller emits a constant field of radio waves, which is picked up by the Tag when in the proximity of the Controller. The Tag reports its presence to the Controller when it senses this RF field.

3.8. Power Supply

The **Controller** is powered by a 12V DC / 300mA external power supply. The Controller also has a **backup battery** to provide power for the processor for 30 minutes or until power is restored in case of an emergency where the main power supply is cut off. During this time the audible alarm is generated at the controller, which can be muted by the entering the bypass code at the wireless keypad.

To avoid activation of the external power failure alarm, the battery should be installed after the external power is plugged in.

The **Wireless Keypad** is powered by a lithium battery at 3V / 220 mAh. The battery is designed to last for at least 5 years with average of 100 keypad entries per day.

When the battery is low on the keypad the "Battery Low" RED light will flash once every 6 seconds, and the Controller buzzer will give a low tone beep at the same time.

The battery is easily replaceable by opening the enclosure from the front.

4. Passwords

There are two types of passwords: Master password and User password. Master password is used to assign or delete User password. User passwords are used to bypass the system.

There is only one Master password and 2 user passwords. All passwords are 4 digit numbers.

4.1. Master Password

This password is used to change or delete User password or to change itself (Master password).

To change Master Password:

1. Enter existing Master password
2. Press 'ENTER' key
3. Enter existing Master password again
4. Press 'ENTER' key
5. Enter new 4 digit Master password (not less than 4 digits)
6. Press 'ENTER' key
7. After this the keypad Bypass light will flash 3 times and Controller buzzer will beep 4 times to indicate that new Master password is accepted by both, the Keypad and the Controller.

4.2. User password

This password is used to bypass the system and to silence the alarms.

To change/add User password:

1. Enter Master Password
2. Press 'ENTER' key
3. Enter password slot number (1 or 2)
4. Press 'ENTER' key
5. Enter new 4 digit User password (not less than 4 digits)
6. Press 'ENTER' key

After this the keypad Bypass light will flash 3 times and Controller buzzer will beep 2 times to indicate that new User password is accepted by both, the Keypad and the Controller.

To delete User Password:

1. Enter Master Password
2. Press 'ENTER' key

3. Enter password slot number (1 or 2)
4. Press 'ENTER' key
5. Press 'CLEAR' key

After this the keypad Bypass light will flash 3 times and Controller buzzer will beep 1 long beep indicate that one of the User passwords is deleted by both, the Keypad and the Controller.

4.3. System Settings

There are three modes of operation available to the user or installer.
To change the operation mode:

1. Enter Master Password
2. Press 'ENTER' key
3. Enter code for mode of operation:
 - "51" Test Mode
 - "52" Normal Mode with Fixed Alarm Duration
 - "53" Normal Mode with Unlimited Alarm Duration
4. Press 'ENTER' key

When the code is entered, the Controller will beep a distinctive number times for each different mode:

- Once for Test Mode
- Twice for Fixed Alarm Duration Mode and
- Three times for Unlimited Alarm Duration

Test Mode "51"

In this mode the system does not generate any alarms. This mode is used to setup the field strength and position the controller properly. When a tag is in the field the controller will beep briefly. Test mode will terminate after 30 seconds if the controller does not detect a tag in the field.

Normal Mode with fixed alarm duration "52"

This is default operational mode in which the alarm will terminate after 20 seconds the tag is out of the field.

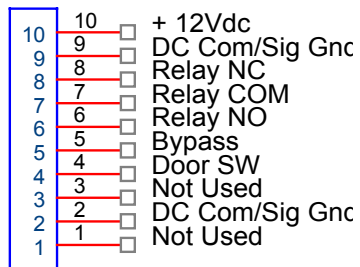
Normal Mode with unlimited alarm duration "53"

In this mode the alarm will not end until the password is entered (system bypassed).

4.4. Input/Output Connector

A 10 pin connector is provided for additional functions:

P1A



WECO 120-A-111/10-CN

- Relay is activated on alarm: Contacts are rated 1.0 A, 30 VDC or 0.5A, 125VAC
- Bypass can be used for manual switch control: a momentary switch closing pin 5 to Sig Gnd will bypass the alarm. Input impedance is 10 kOhm biased at 5 Vdc
- A switch closure between pin 4 and Sig Gnd will activate the alarm: Input impedance is 1 kOhm biased at 5Vdc.