A760
Proximity Locator

Preface

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RF Code, Inc.
9229 Waterford Centre Blvd.
Suite 500
Austin, TX 78758
www.rfcode.com

FCC Compliance

This 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.

RF Code is not responsible for any radio or television interference caused by using other than recommended cables and connectors or by unauthorized changes or modifications to this equipment. Unauthorized changes or modifications could void the user's authority to operate the equipment.

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.

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Industry Canada Compliance Statement
This Class A digital apparatus meets the requirements of the Canadian Interference-Causing Equipment Regulations.

Avis de conformité à la réglementation d'Industrie Canada
Cet appareil numérique de la classe A respecte toutes les exigences du Règlement sur le matériel brouilleur du Canada.

The system is designed to operate with RF Code RFID Tags – whose operating frequency is 433.92 MHz which have been certified or are in the certification process. These devices comply with part 15 of the FCC rules. Operation is subject to the following two conditions:
(1) these devices may not cause harmful interference, and
(2) these devices must accept any interference received, including interference that may cause undesired operation.

a. FCC ID: P6F2005433 for beacon intervals greater than, or equal to 10 seconds.
b. FCC ID: P6F433MHZ for the security tag with beacon intervals less than 10 seconds.

Battery Statement

RF Code warrants all tags to be free from defects in materials and workmanship for a period of 1 year.

Based on the ratings and specifications from the battery manufacturers, RF Code develops

usage models to calculate the life of the active RFID Tags. Like all models there are assumptions and approximations involved. The values are to be taken as engineering estimates - not guaranteed performance.

In most asset tag deployment scenarios, RF Code tags with a 10-second beacon rate have a useful life of 5-to-7 years.

In most sensor tag deployment scenarios, RF Code tags will typically have a useful life of 3 or more years.

Exposure to extreme temperatures for all tags will shorten the battery life.

Overview

The A760 Proximity Locator is a wall-mounted unit used in conjunction with R142 Staff Badges to provide a method of locating people and correlating events within tightly-defined coverage areas. Each Proximity Locator transmits an RF pulse pattern containing a unique code when the attached switch is actuated by a door opening or other event. The A760 also detects the nearest R142 Staff Badge at the time of the event (typical coverage is 3 meters) and transmits the ID of the badge and other tag payload information to an RF Code reader infrastructure. When used with RF Code's Asset Manager or other 3rd-party software, the solution enables tracking of who did what, when, and where.

Features

- Battery-powered wall-mounted unit (3 AA batteries – not included)
- 2-year battery life (50% duty cycle)
- Low-battery indicator
- Field-upgradable firmware
- Communication status indicator LED

Contents

- A760 Proximity Locator
- Proximity Locator Utility CD
- User Manual

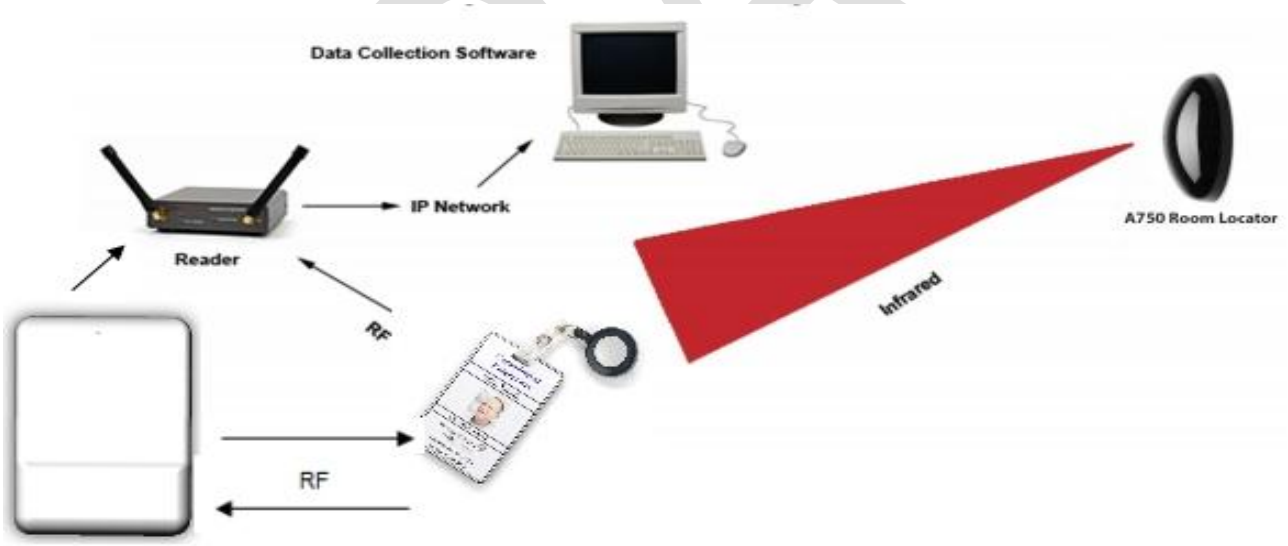
Operating System Requirements for Proximity Locator Utility

- Windows XP, Windows Vista, or Windows 7

A760 People/Event Correlation Process

The A760 Proximity Locator works in conjunction with A750 Room Locators and R142 Staff Badge tags. A750 Room Locators are positioned to cover specific areas, such as rooms, closets or entire floors. The IR-enabled R142 tags can report specific location data when it transmits its RF location payload to an RF Code reader. As a person moves from one room to another, their badge tag will transmit the location code it detected from the last seen A750. Each A750 Room Locator is assigned a unique ID for distinct room locations. A760 Proximity Locators are also assigned ID's which allow for people and event tracking with sub-room level accuracy. For example, if a supply cabinet door is instrumented with a reed switch connected to an A760, door open events can be correlated with a wearer of an R142 Staff Badge. The communication between the solution components is as follows:

1. Battery-powered wall unit detects event (wired dry contact or reed switch connected to door or other device).
2. Wall unit and badge tag communicate (send/receive) via low power 915 MHz broadcasts. Wall unit determines closest badge tag if multiple badge tags are within close proximity.
3. Badge tag transmits via 433 MHz RF, broadcasting its unique tag ID, room location, and event payload to the RF Code reader infrastructure.
4. The wall unit also has a unique ID and signals events via 433 MHz RF to the existing RF Code reader infrastructure.
5. Time stamps, payloads and IDs from the wall unit and badge tag transmissions are correlated via software to accurately tell you who did what, when, and where.



Notes for A760 Proximity Locator and R142 Badge tag deployment

If there is IR interference in a deployement area, the tag's RF signal will not be affected but the IR location code will not be received by the tag. To avoid any IR interference refer to the following notes:

- IR-enabled active tags are NOT designed to work outdoors. In direct sunlight, the IR tags will not detect the A750 transmissions.
- Do not cover the IR sensor on the tag label. This will affect the ability of the tag to read A750 signals.
- A Room Locator's transmissions can interfere with other Room Locators operating within the same location. The A750 Room Locators have a team operating mode to allow multiple room locators to synchronize their IR transmissions at unique times.

Installation and Configuration

To configure the A760 Proximity Locator you will need to use the Proximity Locator Utility which is provided on the CD that came with the A760 Proximity Locator. A USB Type A to mini-B cable (not provided) is needed to connect the A760 Proximity Locator hardware to a Windows platform running the Proximity Locator Utility.

Hardware Installation

When first connecting the A760 Proximity Locator to a PC, the A760 driver will need to be installed. This is performed through the Found New Hardware Wizard that should automatically load when the Proximity Locator is connected to the PC. Follow the steps in the wizard to locate the driver software for the A760 Room Locator. This software is located on the Proximity Locator CD that came with the unit.

Utility Software Installation

To install the Proximity Locator Utility insert the CD into the CD-ROM drive and click on Install Proximity Locator Utility to begin. Alternatively, the Proximity Locator Utility can be installed directly by double clicking on the setup.exe file. This will launch the install wizard. Follow the prompts to install the utility.

Launching the Room Locator Utility

After installing the application from the CD, select Start > All Programs > RF Code > Proximity Locator Utility to launch the application and display the main screen. The A760's USB cable needs to be plugged into an available USB port on the computer on which the utility software is running.

Configuration

It is suggested that you use the utility to configure your Proximity Locator before you mount it on a wall or other surface. The steps for initial configuration of an A760 Proximity Locator are described below:

1. **Launch the Utility**

Ensure that the A760 Proximity Locator is connected to the PC through the USB cable and launch the Proximity Locator Utility software.

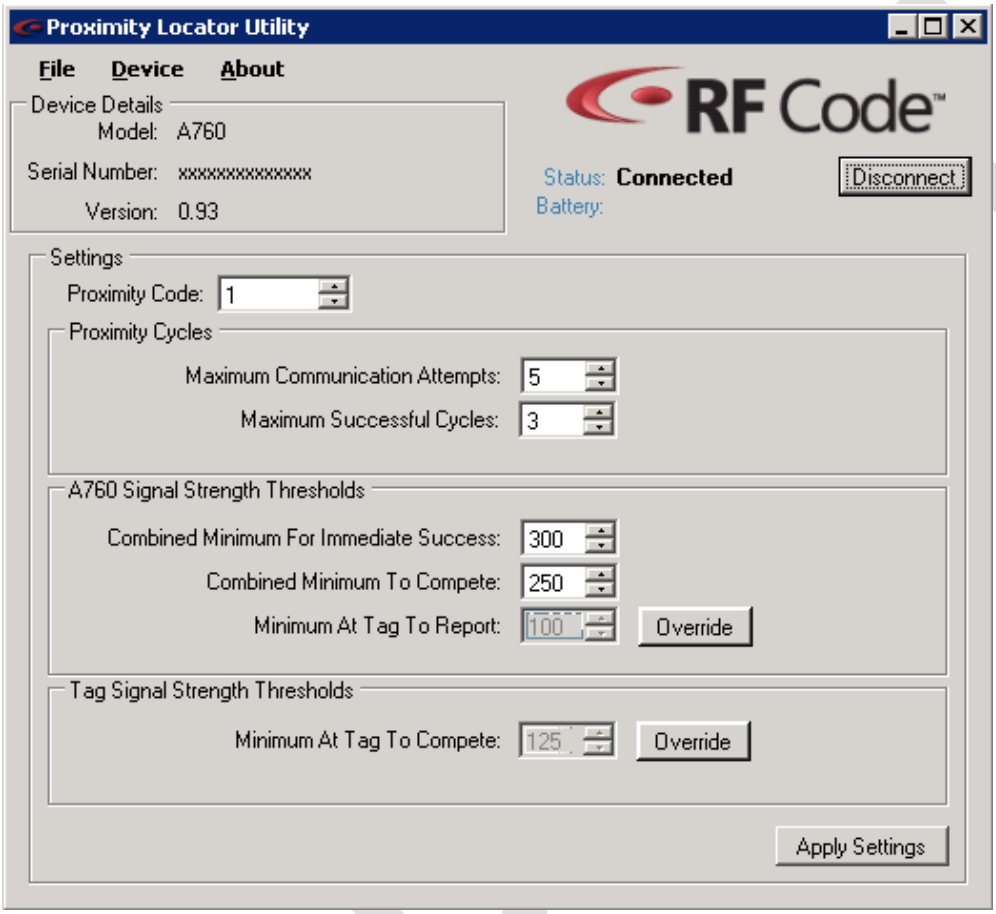
2. **View Manufacturing Default Settings**

The Proximity Locator Utility GUI will open and the Device Details section should display the status, model number, the version of the firmware installed on the device, and the device's serial number. If the Status reports Disconnected, the device may need to be discovered by selecting the Device > Select device menu

item. A window will appear. Click the Discover button. The utility will discover any A760's that are connected to the PC. Select the device from the drop-down list and click the OK button. The A760 will display default values for Proximity Code and other settings set during manufacturing time. If the utility does not show any A760's connected, unplug the USB cable to the device(s), wait 10 seconds and plug the USB cable back into the device.

3. **Proximity Code**

Under the Settings section the Proximity Code field will determine what will be transmitted from the A760 to the RF Code reader infrastructure. It can be configured to transmit proximity code values ranging from decimal 0001 to 9999.



4. **Proximity Cycles**

Maximum Communication Attempts: after an event is detected via the reed switch, this is the number of times that the A760 attempts to communicate with a nearby badge tag. Note that setting this value too high may result is inaccurate reporting. That is, if the wall unit keeps trying to communicate with a badge after a detected event, then someone with a badge tag may walk within range and incorrectly get "credit" for the detected event. Also note that the LED on the wall unit will light green at the beginning of each communication attempt.

Maximum Successful Cycles: this is the maximum number of times that the A760 and the R142 Badge tag will communicate. A smaller number will result in faster reporting to the system, but may also reduce accuracy if other badge tags are nearby.

5. **A760 Signal Strength Thresholds**

Combined Minimum For Immediate Success: this is a measurement of the combined signal strength detected between the badge tag and the Proximity Locator. When this number is exceeded by an A760/badge combination, the A760 will not do any more attempt/cycles and will immediately declare a "winner" (based on the strongest SSI or in the case of a tie, the first badge that responded). Setting this value to a higher number will require that the "winning" badge will need to be closer to the wall unit when compared to other badges that are farther away.

Combined Minimum to Compete: this is a measurement of the signal strength needed for a nearby badge to be considered to be associated with an event.

Minimum At Tag To Report: this is a measurement of the signal strength detected at the badge tag for it to be considered to be associated with an event. Setting this to a smaller value will consider badges that are farther away from the wall unit.

6. **Tag Signal Strength Thresholds**

Minimum At Tag To Compete: this is a measurement of the signal strength detected at the badge tag for it to be considered to be associated with an event. Setting this to a smaller value will consider badges that are farther away from the wall unit.

Saving Device Configuration File: The Proximity Locator Utility allows saving a set of device settings for backup purposes. To save the currently connected Proximity Locator's set of device settings, select the File > Save or File > Save As menu option. This will prompt a file browser window. Select a location and a name for this device configuration file and click the Save button. The Proximity Locator's configuration file is saved with a .rlc extension.

Upgrade Device Firmware: To upgrade the firmware for the A760 unit, access the Device > Upgrade device firmware menu option. A dialog prompt will appear. Next click the Start button to begin the upgrade process. A message indicating the firmware upgrade is complete will be displayed.
Click the Done button to finish this process. If the Proximity Locator already has the latest firmware installed, a message will display indicating that an upgrade is not necessary.

Note: Do not disconnect the device during the upgrade process. Doing so may cause problems with the device and its ability to upgrade the firmware properly.

Mounting

Flush Wall Mount - The A760 unit is intended to be mounted with the supplied mounting plate flush onto a wall. However, it can also be mounted under a cabinet, for example, if use-case testing yields satisfactory results.

1. Attach the mounting plate to the mounting surface using anchors and screws (not supplied) or mounting adhesive (not supplied).
2. Slide the A760 unit onto the mounting plate. Ensure it is secure.
3. Snap the plastic cover onto the unit.

Environmental Limits

The A760 unit is approved for use within the ranges set forth below.

- Operation: -20 to +70 degrees Celsius
- Humidity: 10% to 90% RH non-condensing

Warranty & Service

Limited Standard Warranty Terms

RF Code warrants its products to be free from defects in materials and workmanship for a period of 1 year (12 months) for hardware and software from the date of purchase from RF Code. Its obligation under this warranty is limited to repairing or replacing, at its own sole option, any such defective products. This warranty does not apply to equipment that has been damaged by accident, negligence, or misapplication or has been altered or modified in any way. This warranty applies only to the original purchaser (end-user) and is not transferable.

Standard Warranty Limitations

Except as provided herein, the entire liability of RF Code and its suppliers under this limited warranty will be that RF Code will use reasonable efforts to repair or replace, without charge, all defective Products returned to RF Code by Customer, all as more particularly described in the End User Warranty. Except for the express warranties STATED HEREIN, RF Code makes no other representations or warranties and RF Code hereby disclaims, all other warranties, express, implied, statutory, or otherwise, including without limitation, any warranty of merchantability, non-infringement of third party intellectual property rights, fitness for a particular purpose, performance, satisfactory quality, or arising from a course of dealing, usage or trade practice.

Obtaining Service & Support

For in-warranty service, customers have several options. Customers having difficulty with RF Code products should attempt to solve those problems through RF Code's Technical Support Problem Escalation Process:

First, contact the RF Code representative or other distributor from whom the RF Code product was purchased for information on how to obtain local support.

Second, contact the RF Code Customer Support via e-mail.

Third, contact the RF Code Customer Support via the Support Line.

For product returns, the support engineer will give you a return material authorization (RMA) number. No returns will be accepted without an RMA number. If the warranty expired, there is a charge for repair or replacement per RF Code's out-of-warranty policy. For full details of the RF Code RMA policy, please review the "RF Code Warranty, RMA, and Extended Warranty Policy" document.

RF Code Customer Support

RF Code Customer Support gives entitled customers and partners the ability to contact RF Code about installation and usage-related questions as well as make defect inquiries about eligible products that are covered under RF Code warranty agreements. A team of technical specialists can be contacted electronically or via phone.

The Support Line is available to provide General Support during normal business hours: Monday through Friday, 8:00 am to 5:00 pm Central time, excluding national holidays.

E-mail: support@rfcode.com
Support form: http://www.rfcode.com/Resources/Support/Support-Request.html

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