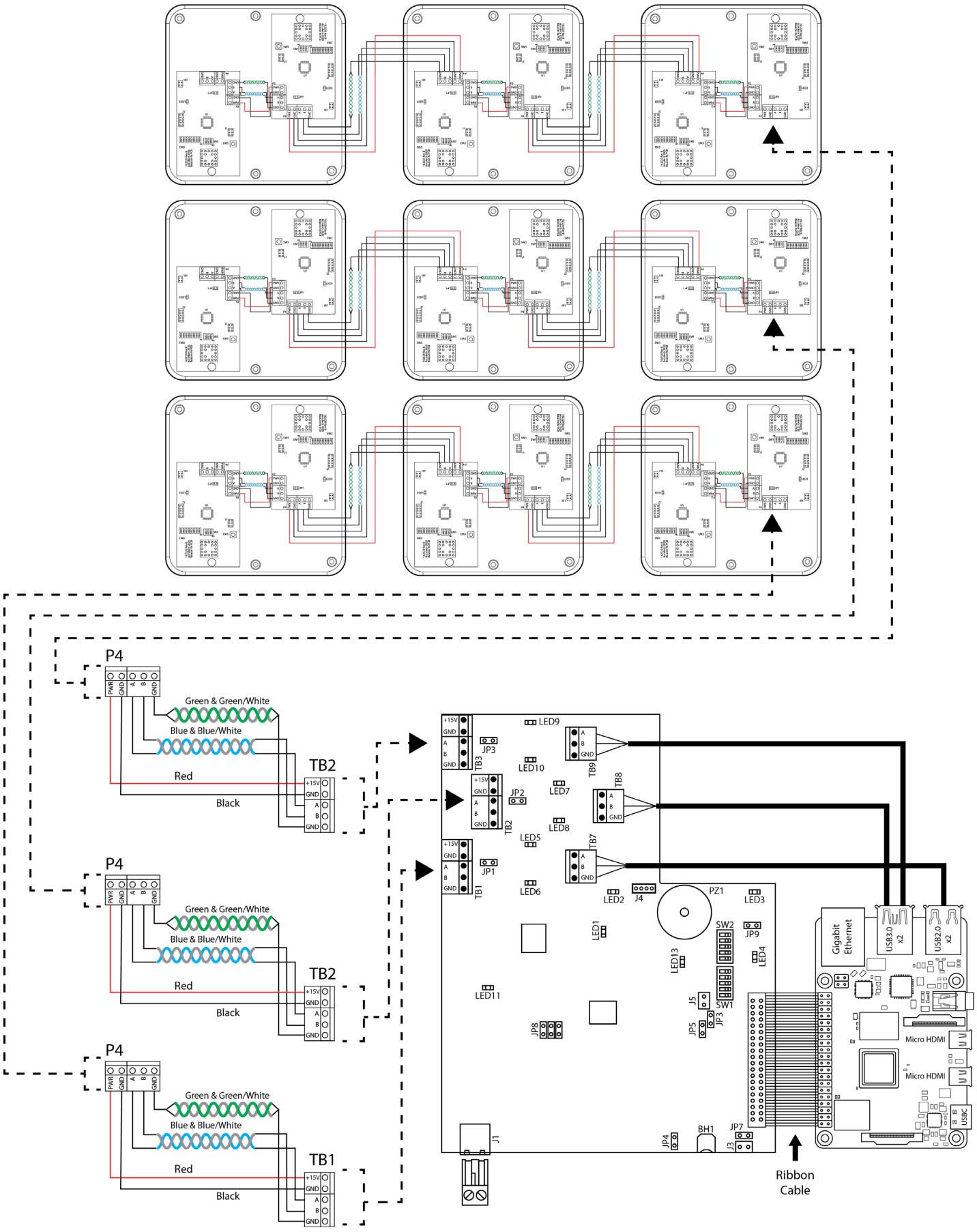

Figure 5.7 - Receiver Wiring to RXC Controller

Note: Use one specific twisted pair for A and B.

Receiver Settings

Each Receiver housing contains two Receiver boards, and each board has two dip switch groups used for addressing: the Individual Address switches (SW1), and the Pair Address switches (SW2).

Each switch in each group has a designated number, and the address is the sum of these numbers added together.

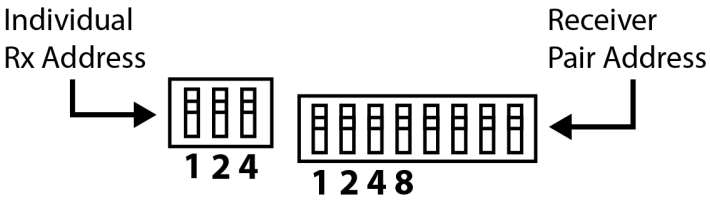

Figure 5.8 - Receiver Address Switches

A Receiver's address is represented in the format "Individual/Pair", meaning a Receiver board with an individual address of 2 and a pair address of 1 would be represented as "2/1".

It is important to note that Pair Address 0 is used for the first Receiver wired to a Door Controller. On RXC Controllers, the Pair Address for the first Receiver is 1.

The following diagram shows the values of the switch configurations:

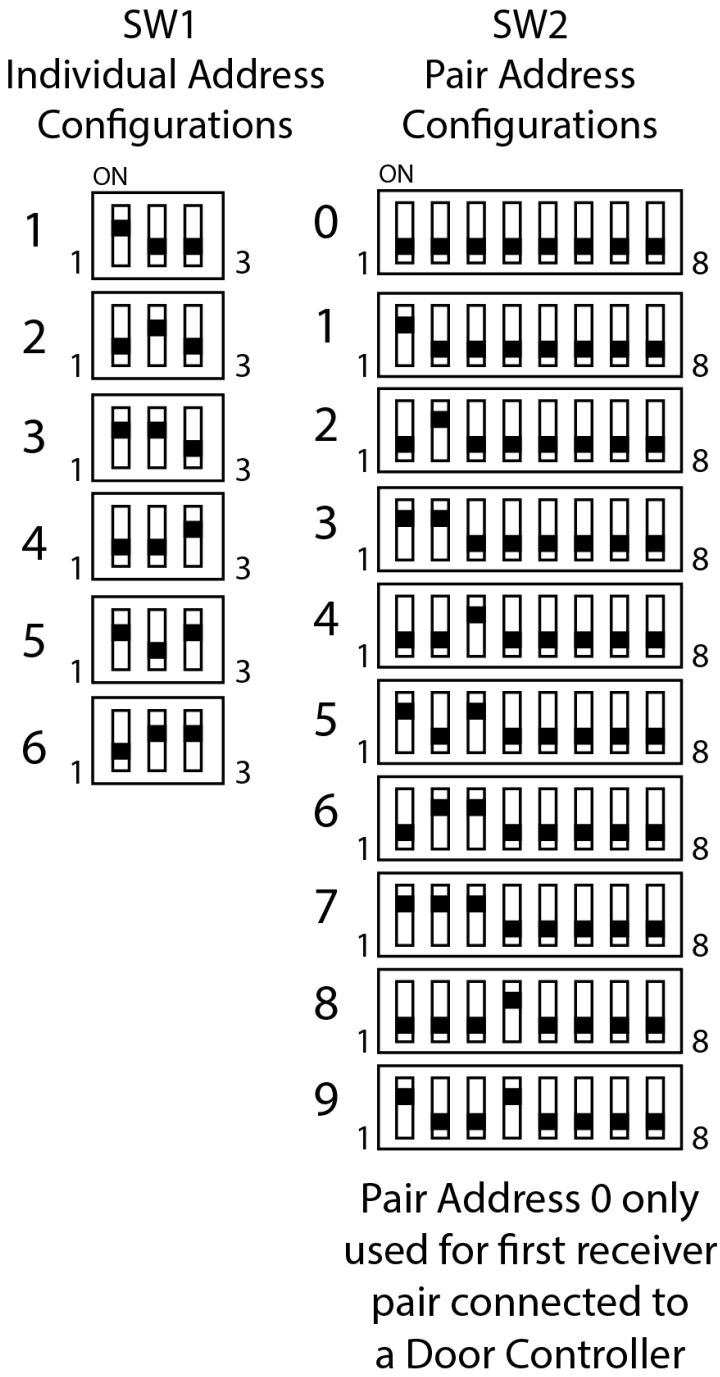

Figure 5.9 - Receiver Address Configurations

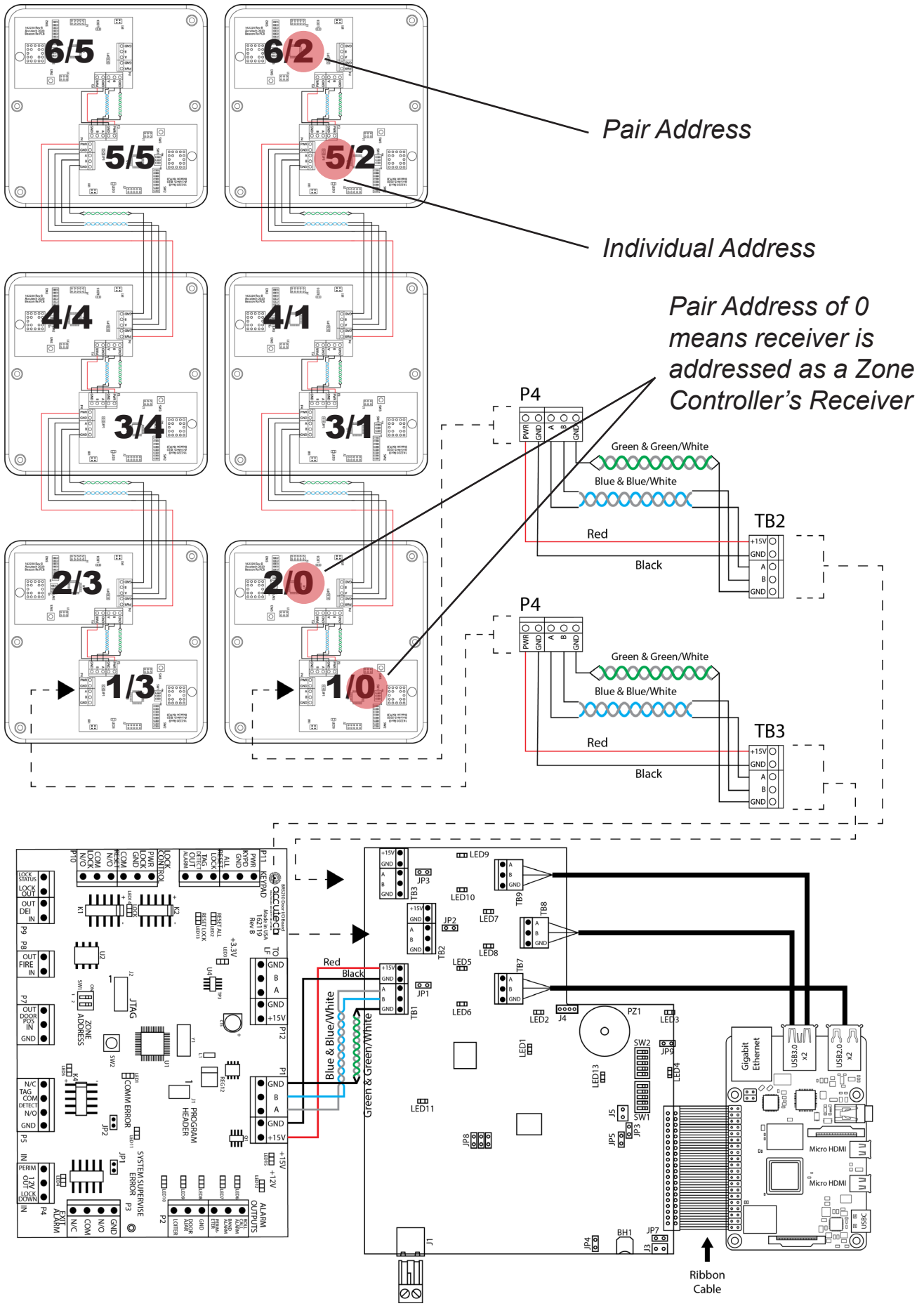

Figure 5.10 - Example of Receiver Address Configurations when Connected to a Door Controller

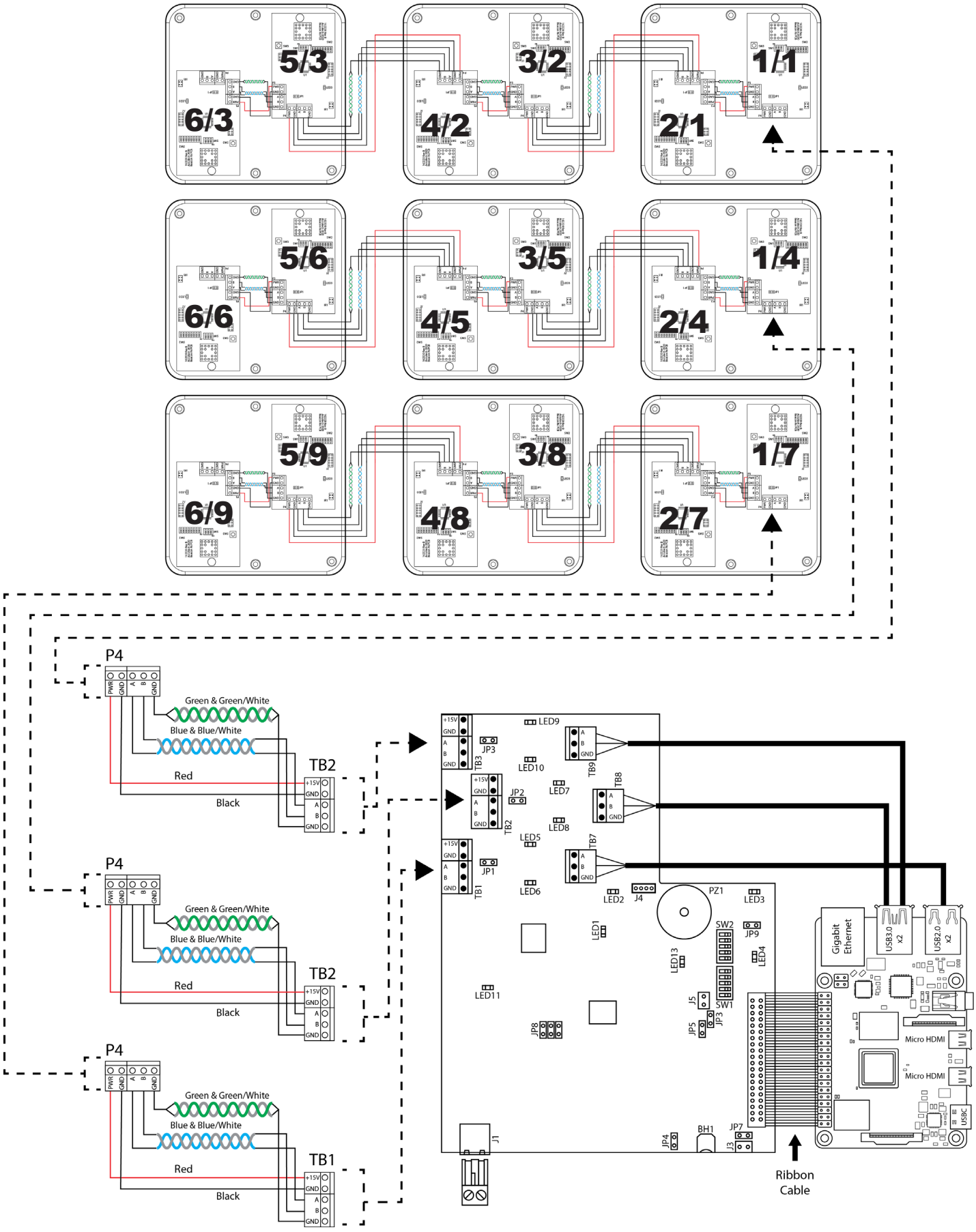

Figure 5.11 - Example of Receiver Address Configurations when Connected to an RXC Controller

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HEALTHCARE SECURITY SOLUTIONS

Chapter 6
Tags and the BTAD

Tags and the BTAD

About BR5200 System Tags

BR52 Tags (Figure 6.1) are monitored by the system at all times by emitting a check-in signal with approximately 80ft of range every 1.5 seconds to system Receivers. If a Tag ceases to send a signal, the system alarms to indicate that the Tag is missing. The Tags are attached to infants via a conductive-fiber-striped cloth band (figure 6.2), which will cause an alarm if removed or tampered with. These operations prevent an infant from being taken out of a facility, and prevent potential abductors from removing or tampering with the Tag.

Tags are activated and deactivated with a BTAD unit.

Figure 6.1 - BR52 Tag
Part Number: 692015

Figure 6.2 - BR52 Infant Band
Part Number: 100908 (25 pack)

Tag Specifications

Electrical

BR52 Tags operate by internal battery. They can be powered on/off with a BTAD.

Mechanical

Size: 1.25” x 1.75” x 0.75”
Weight: 0.88 oz

Operating Characteristics

Transmit Frequency: 418 MHz
Receive Frequency: 127-139 kHz
FCC ID: JM7-HWHY-662020
IC: 2683A-662020

Environmental

Operating Temperature: 32º to 120º Fahrenheit
Intended for indoor use only.

Band Specifications

Dimensions

Size: 8.00” x 0.700” x 0.100”
Weight: 0.125 ounces

Material

Lycra - soft blue polyester blend with silver coated nylon fiber

Tag Bar Codes

Bar codes on each Tag (figure 6.3) contain a Tag’s manufacturing history.

Figure 6.3 - Tag Bar Code

The coding scheme is as follows:

M-WWYY-TSSSR

M – Manufacturing designator

WWYY – Date Code

Example: “1706” is the 17th week of 2006

T – Tag type designator

-1 is for CB (Cut Band)

-2 is for BR (Band Removal)

-3 is for LT (Long Term)

-4 is for SB (Slotted Back)

SSS – Tag serial number for that Tag type manufactured during that week.

R - stands for “Roll Call”, designating the Tag as a BR52 Tag.

Attaching BR52 Tags

Note: The Soft Bracelet has conductive fiber stripes (Figure 6.4) that must be in contact with both the infant's skin and the gold contacts on the Tag (Figure 6.5). The band must be routed properly through the Tag case for the system to function properly. Tags are typically attached to a wrist or ankle. For smaller infants, placing the Tag around the thigh is also acceptable.

All Tag bands are for one-time use only. For cleanliness and sanitary reasons, Accutech recommends replacing applied bands on a semi-monthly basis with a maximum of one month between changes.

1) Unsnap the Cam Lock (Figure 6.5).

2) Hold the Tag in your left hand with the Slot to the right and the Cam facing up.

3) With the conductive fiber stripes facing the Tag, slide the pointed end of the band up through the Slot from underneath until the folded end is snug next to the Slot (Figure 6.6).

4) Push the pointed end of the band (with the conductive fiber stripes facing the gold contacts on the Tag) through the Cam Lock opening and form a 2-inch loop with the band (Figure 6.7).

5) Slip the 2-inch loop over the infant's extremity and cinch the band until it is snug around the infant's extremity.

6) Make sure the conductive fiber stripes are in good contact with the infant's skin.

7) Snap the Cam Lock closed. **Note:** Make sure the band is still snug around the infant's extremity. If necessary, gently pull the band snug while the Cam Lock is closed. Be careful not to overtighten; the Cam Lock must be opened to loosen the band.

8) Using scissors, carefully trim any excess band material so that the band does not protrude beyond the end of the Tag case (Figure 6.7).

9) Using a BTAD, activate the Tag.

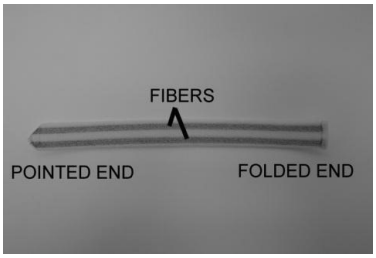


Figure 6.4 The Soft Bracelet

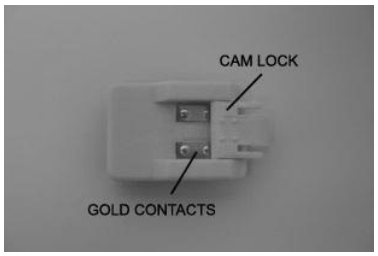


Figure 6.5 Tag with Cam Lock open

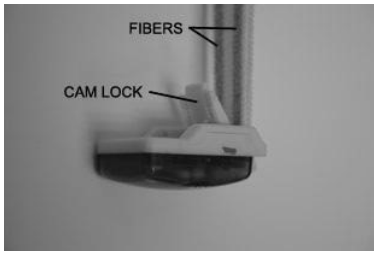


Figure 6.6 BR52 Tag with band inserted

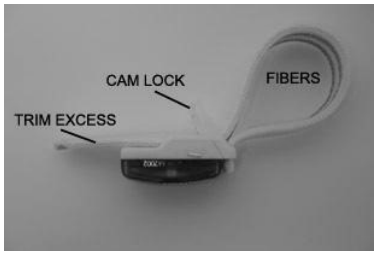


Figure 6.7 BR52 Tag with band in place


Figure 6.8 BR52 Tag with band in place

Test Tag

- Verifying Proper Zone Coverage
- Identifying Foreign Tag Activating Sources

DISCLAIMER: Due to each facility's unique environment, a Test Tag cannot give an exact measurement of zone coverage; it can only give an estimation of zone coverage.

Figure 6.9 - Test Tag

Verifying Proper Zone Coverage

A Test Tag (Figure 6.9) is used to verify proper zone coverage during installation, adjustment, or testing of a monitored zone.

Proper zone coverage fully protects the intended area (door, elevator, hallway, or any other passageway) without extending into other areas (in front, in back, on sides, above, and beneath the intended area).

Monitored zones emit a Tag-activating signal called the TX Activation Field. When a Tag enters a zone's TX Activation Field, the system will detect the Tag and take appropriate action response.

A Test Tag can detect a zone's TX Activation Field making it a quick and easy way to verify proper zone coverage. This is not only useful in ensuring complete zone coverage but also in locating areas where a Tx Activation Field may be extending into common areas and causing nuisance alarms.

To verify proper zone coverage with a Test Tag, use the following instructions:

1) Using a BTAD, activate the Test Tag.

   NOTE: Once activated the Test Tag's LED will change state when it is in a Tx Activation Field.

2) With the Test Tag in your hand, slowly approach each zone at various angles and orientations.

3) If you find that a zone's coverage is at unacceptable levels (too small, too big, extends too far in one direction), look for factors that may be affecting the zone (food carts, medical equipment, and/or building construction).

4) If you cannot locate any immediate causes, contact your system maintenance technician for further assistance.

5) When finished, deactivate the Test Tag using a BTAD.

Testing Tags

Accutech Tags operate by internal battery. Over the course of normal operation, Tags eventually lose battery power and the Tags will need to be replaced. The Tag battery is not replaceable.

For maximum protection of residents or assets, Accutech recommends that Tags be tested on a weekly basis.

There are several ways that you can test Tags:

- Enter a monitored zone (Software will report.)
- The Keypad's Auxiliary LED (Yellow) will light when a Tag is detected.

Identifying Foreign Tag Activating Sources

In addition to verifying proper zone coverage, a Test Tag (Figure 6.3) can be used to identify foreign Tag-activating sources to help preserve your Tags' battery life and prevent nuisance alarms.

Monitored zones emit a Tag-activating signal called the TX Activation Field. When a Tag enters a zone's TX Activation Field, it is activated. The system detects the activated Tag and takes appropriate action in response.

However, there are sources that can activate a Tag other than a TX Activation Field. When Tags are activated by these "foreign" sources, battery life is depleted and/or nuisance alarms can be caused. Therefore, identifying these sources will prolong Tags battery life and prevent nuisance alarms.

*Some activating sources can be:

- Computer Monitors
- Unshielded computer cables
- Television Sets
- Medical Monitoring equipment
- X-ray and other imaging equipment
- Fluorescent Lighting
- Wireless Communication Devices

Do not store tags near any of these sources.

Tag and Band Maintenance

All Tags are reusable but must be cleaned and sanitized between applications.

Clorox Healthcare® Hydrogen Peroxide Disinfectant Wipes, or a solution of 3% hydrogen peroxide with water, are the recommended cleaning solution for use when cleaning system Tags. Using any other cleaning solution can and will potentially cause premature failure of the Tag enclosure and will void any warranty.

Seek guidance from your Infection Control representative for approved cleaners that can be used on plastics.

In long-term applications, periodically clean the Tags and replace Tag bands.

To clean and sanitize Tags:

1) Put on latex, rubber, or nitrile gloves before handling disinfectants.

2) Before using disinfectant wipes, remove dirt and other debris from Tag.

3) Wipe down entire Tag surface with disinfectant wipe.

4) Wait 1 minute for full disinfection.

5) Rinse with a water-dampened cloth and towel dry (wipe only; DO NOT soak, submerge, or place under running water).

6) Dispose of disinfectant wipe.

Do Not submerge Tags in water or cleaning solutions.

Do Not use solvents or abrasive cleaners/ cloths.

Do Not put Tags in an AutoClave.

Do Not put Tags in a dishwasher.

Do Not put Tags in a washing machine or dryer.

Do Not steam clean Tags.

Cleaning Bands

All Tag bands are for one-time use only. In long-term applications, periodically replace the bands and clean the Tags.

Storing Tags

To preserve battery life and prevent nuisance alarms, Tags must be turned off with a BTAD when not in use. In addition, Tags should be stored away from sources of electrical noise (see examples listed below) and stored in a metal container that has a lid.

Do not store Tags within 3 feet from any of the following sources of electrical noise:

- Computer Monitors
- Unshielded Computer Cables
- Television Sets
- Medical Monitoring Equipment
- X-ray and Other Imaging Equipment
- Fluorescent Lighting
- Wireless Communication Devices

Storing Bands

Extra Tag bands should be stored in a clean and dry environment.

The BTAD

- Charging, powering, and unlocking the BTAD
- Powering the BTAD on/off
- Unlocking the BTAD
- Activating/Deactivating Tags
- Programming and Configuration Modes
- BTAD Specifications
- Installing and Removing the Battery
- LiON Warning and Disclaimer

Figure 6.10 - The BTAD
Part Number: 762021

The BTAD (figure 6.10) is the device that activates and deactivates BR52 Tags. The BTAD is also a testing device for Tags.

The BTAD incorporates a keypad (for security purposes) and an internal Tag that will cause an alarm if it moves into or through a monitored exit. You must input a code into the BTAD to activate or deactivate a Tag.

BTAD Specifications

Electrical

Battery: 3.7 VDC 1600 mAh (5.92 Wh) Lithium Ion battery pack. (DO NOT attempt to repair or rebuild/replace the cells within).

Component Cell: UL 1642
Test Specification: UL2054:2004 R9.11
Maximum Charging Current: 0.8 A Nominal
Nominal Charging Voltage: 5.0 V

Battery Shipping Compliance: UN38.3

Charging Cable: USB Type C - charges via a computer USB port or a 120 VAC to 5VDC/500 mA Adapter (not included) Note: using a charger that provides less than the recommended 500 mA can work but will take longer than normal to charge.

Mechanical

Size: approximately 5.50” x 3.00” x 1.25” (with boot)
Weight: 7 ounces

Environmental

Operating Temperature: 32º to 120º Fahrenheit
Intended for indoor use only.

Operating Characteristics

Transmit Frequency: 127.0 kHz
Receive Frequency: 418 MHz
Internal Security Tag Transmit Frequency: 418 MHz
Internal Security Tag Receive Frequency: 127-138 kHz

FCC ID: JM7-HWHY-662021
IC: 2683A-662021

Charging, Powering, and Unlocking the BTAD

Charging the BTAD

Charging time may vary, depending on the computer's USB port or charging source. A USB-1.0 port will charge slower than a USB-3.0 port due to the amount of current provided.

To charge the BTAD, connect the USB-C side of the supplied USB-C cable into the BTAD (Figure 6.11). Connect the other side of the cable into a USB port on a computer.

Figure 6.11 - BTAD USB-C Cable and Port

Note: Do not store the BTAD next to a monitored exit or a Tag Test Station, as this will cause a nuisance alarm and/or drain the BTAD's battery.

Once the BTAD is initially plugged in for its first full charge, the battery indicator will display a question mark (?) inside the middle of the battery icon (Figure 6.12a). To allow proper battery level read and/or calibration, do not unplug the BTAD during this process

During this first full charge, you will not see an incremental battery level increase on the icon. As soon as the battery is fully-charged, the question mark will disappear and the battery icon will display a full charge (Figure 6.12b). This will take approximately 3-4 hours. If you disconnect the battery from the BTAD at any time before the battery is fully charged, the battery/BTAD will need to be re-calibrated for a proper battery level read. To recalibrate the battery/BTAD, you may need to charge for another 3-4 hours.

After the first full charge, the battery icon will display incremental battery levels as it recharges during any future charging sessions. The question mark (?) will no longer appear during recharge sessions unless the battery has been disconnected and reconnected. This will happen regardless of whether or not the battery is fully charged. It will then have to remain plugged in and charging for recalibration.

The BTAD can also function and be used without a battery pack if it is connected via the USB-C cable to a computer. This scenario allows it to function if the battery fails, is no longer functioning, or if you are waiting to receive a replacement battery pack. A battery icon will not be displayed while the BTAD is operating without a battery pack (Figure 6.12c).

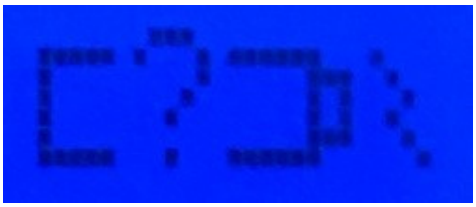


Figure 6.12a - BTAD Charging Indicator

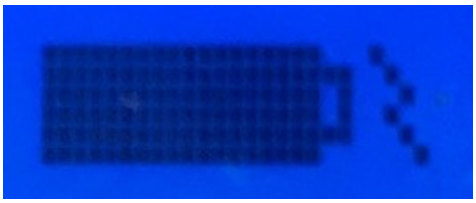


Figure 6.12b - BTAD Fully Charged Indicator

Figure 6.12c - BTAD Charging Indicator (No Battery Pack)

Powering the BTAD On/Off

The BTAD includes a built-in power saving feature that automatically turns off the BTAD after a period of inactivity.

1) Press the Power/Clear button (a). The LCD screen lights up and “ACCUTECH” is displayed (b). The screen will remain lit for 1 minute without button activity. When nearing the 1-minute mark, the screen will display “20 sec to Power Off” and then “7 sec to Power Off”.

2) To extend the length of time the screen remains lit, press the Power/Clear button (a) again before the screen powers down. Each press will extend the time by 1 minute (up to 5 minutes).

3) To manually turn off the BTAD, hold down the Power/Clear button (a) for 5 seconds. Once the LCD screen turns off, you may release the button.

Important: The BTAD’s internal Tag prevents it from leaving the monitored area. Once the BTAD is turned on, the internal Tag no longer functions. When the BTAD is turned off, it will cause an alarm if it enters a monitored exit and will display as Tag #254 on a computer with Accutech software.

Unlocking the BTAD

For added security, access to secure BTAD operations is locked via 4-digit user codes.

1) Press the Power/Clear button (a). The LCD screen lights up and “ACCUTECH” is displayed (b).

2) Using the number grid (e), enter a valid 4-digit user code. Entering the code will display an asterisk for each number entered (f). See Programming Mode section for more information on user codes.

3) Once the correct code is entered, press the Enter button (c). The screen will display “BTAD in unlocked mode NO TAG OR TAG OFF” if there is no Tag near the BTAD (d). If you entered the wrong code, “Invalid Code” will be displayed. Press the Power/Clear button (a) and start over.

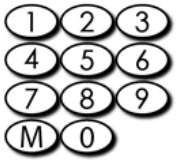
4) You may now use the BTAD for activating/deactivating Tags, testing Tags, and verifying Tag data. Each action you take, except for pressing the Power/Clear button, will reset the screen on/off timer to 1 minute. After 1 minute of inactivity, the screen will turn off and you will need to enter a valid user code again.

(a)

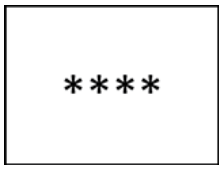
(b)

(c)

(d)



(e)



(f)

Figure 6.13a - 6.13f - References for BTAD Powering and Unlocking

Activating/Deactivating Tags

The BTAD can activate and deactivate Tags to conserve power and prevent nuisance alarms.

Activating

1) Turn on and unlock the BTAD. The LCD screen will display “BTAD in unlocked mode NO TAG OR TAG OFF” (a).

2) Hold the top side of the Tag (the side with the Accutech logo) up against the BTAD and within the Tag receptacle (d). Position the Tag in the orientation displayed within the receptacle.

3) Press the Enter button (c). The screen will display “Wait turning tag on/off NO TAG OR TAG OFF” (b). Do not remove the Tag during this process.

4) Verify the Tag has been activated by making sure the Tag’s LED light is flashing.

Deactivating

1) Unlock the BTAD as previously instructed.

2) With the LCD screen displaying “BTAD in unlocked mode NO TAG OR TAG OFF” (a), place the Tag in the correct orientation within the tag receptacle (d).

3) Press the Enter button (c). The screen will display “Wait turning tag on/off NO TAG OR TAG OFF” (b). This means the Tag is not active. Verify by making sure the Tag’s LED light is off.

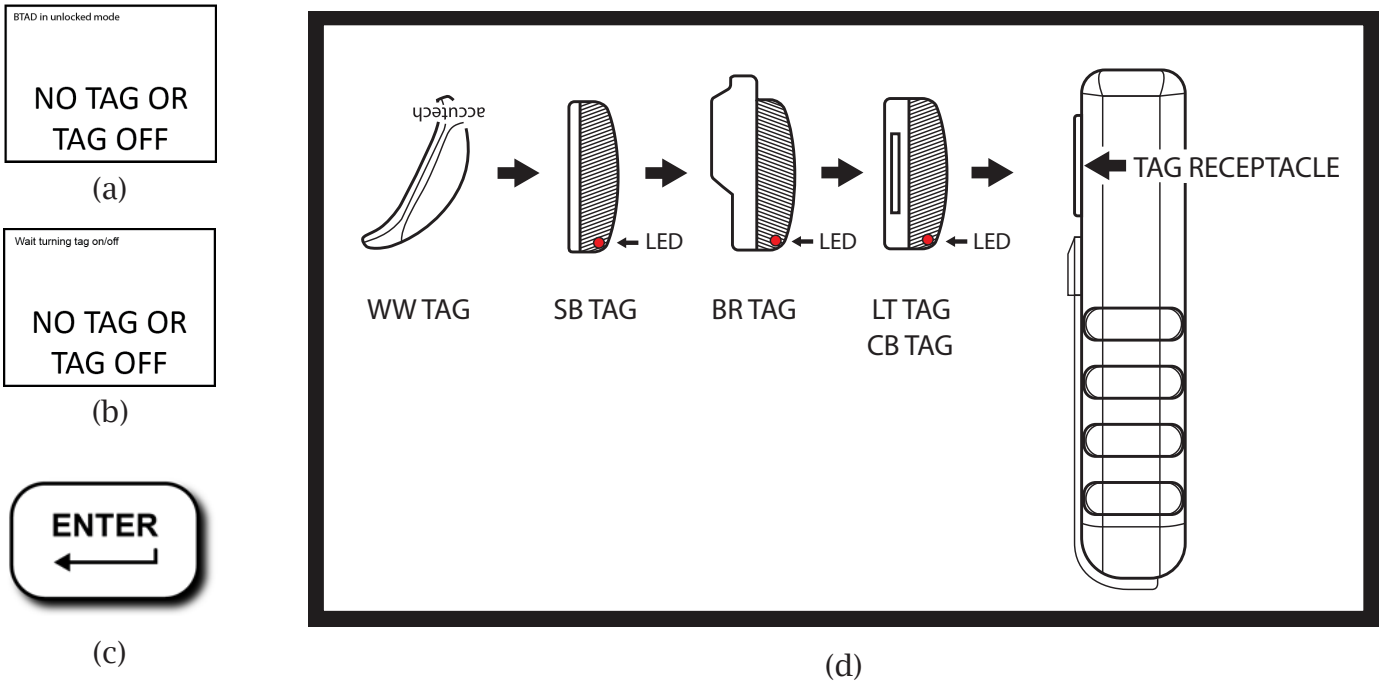


Figure 6.14a - 6.14d - References for Tag Activating/Deactivating

Programming and Configuration

BTAD Programming Mode

If you want to change and/or add user codes, or if you want to add a certain function to the BTAD, you will need to enter programming mode.

Important: To prevent the screen from timing out and turning off, press the Enter button when the display indicates it is counting down to Power OFF. The display will indicate "20 seconds to power off", then "7 seconds to power off" before shutting down.

To Enter Programming Mode:

Press Enter>Enter>Master Code>Enter (198237645 is the default master code).

To Exit Programming Mode:

Press the Power/Clear button.

Configuration

With the correct programming mode entered, the screen will display the following menu:

BTAD Version 0.0.X

1. Configure Buzzer
2. Set Unlock Timeout
3. Set LCD Contrast
4. Change Master Code
5. Edit Unlock Codes
6. Set Defaults
7. Select MBM Display

1. Configure Buzzer

Press 1. This will bring you to a screen displaying "Press 1 or 2 to configure buzzer." You will have 2 options:

1. Buzzer for Tag BR
   Current: Enabled or Disabled
2. Buzzer for MBM
   Current: Enabled or Disabled

To change the Current status of 1. Buzzer for Tag BR, Press 1. The next screen will display the current status, "BR BUZZER ENABLED" or "BR BUZZER DISABLED," displayed with a selection of:

1. Enable
2. Disable

Select the preference and the display will change to that preference.

Enter>Enter returns you to the menu screen.

2. Set Unlock Timeout

Press 2. This will bring you to a screen displaying "Press 1-5 for unlock timeout minutes" CURRENT: 1 is the default. Press 2 for two minutes, 3 for three minutes, 4 for four minutes and 5 for five minutes.

Enter-Enter returns you to the menu screen.

3. Set LED Contrast

Press 3. “Press 0-9 for LCD Contrast” is displayed. CURRENT: 4 is the default. Pressing 0 is the lowest. Pressing 9 is the highest.

Enter>Enter returns you to the menu screen.

4. Change Master Code

Press 4. “Enter current master code” is displayed. Input the code, then press Enter.

Once the code has been input, “Enter new master code” is displayed. Input the new master code (must be 9 digits).

Once all digits are entered, “Enter to change master” is displayed. Press Enter. “Master code changed” is displayed.

Enter>Enter returns you to the menu screen.

5. Edit Unlock Codes

Press 5. “Enter code to add or delete” is displayed. Input a code to be added or deleted.

After you add the 4 digits required, “Press 1 to add” and “Press 2 to delete” are displayed.

If you press 1, “User code XXXX Added” is displayed.

If you press 2, “User code XXXX deleted” is displayed.

Press the Enter button to return to the previous screen to add or delete another code.

Enter>Enter returns you to the menu screen.

6. Defaults

Press 6. “ENTER to set defaults” is displayed.

To reset all unit settings back to factory defaults, press the Enter button. “Setting defaults…” is displayed. Once all the unit’s settings are set back to factory defaults, “Defaults set” is displayed.

Enter>Enter returns you to the menu screen.

Installing and Removing the Battery

Installing

1) Connect the new battery plug terminal to the main board (Black – left, Yellow – Center, Red – Right) (Figure 6.15).

2) Replace the BTAD cover and secure with the four Phillips-head screws.

3) Replace the battery cover.

4) Charge the new battery/unit for at least 4 hours before use.

Removing

Always disconnect and remove the USB cable. Warning: When you disconnect a cable, pull on its connector or on its pull- tab—not on the cable itself.

1) Always disconnect and remove the USB cable. Warning: When you disconnect a cable, pull on its connector or on its pull-tab—not on the cable itself.

2) Remove the battery cover.

3) Remove the four Phillips-head screws.

4) Remove the BTAD back cover.

5) Carefully remove the battery pack from the compartment.

6) Carefully unplug the battery pack terminal from the main board connector.

7) Properly dispose of the used LiON battery.

   Warning: Consult your bio-med department, or your local municipality regarding location(s) for safe disposal and proper methods. Never ship back to the mfg.

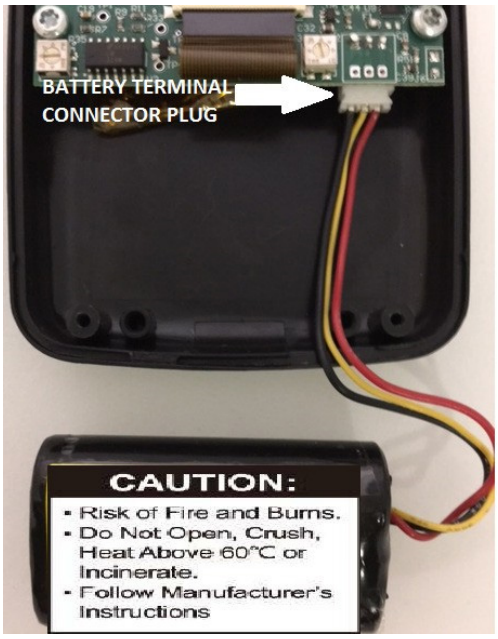


Figure 6.15 - Battery Terminal Connector Plug

Figure 6.16 - Battery Cover Screws

Figure 6.17 - BTAD Battery Pack

Figure 6.18 - Pack Label Front View

Figure 6.19 - Pack Label Back View

LiON Warning and Disclaimer

General Safety Guidelines

- Never use a NiCd/NiMH charger to charge LiON batteries. Only use chargers designed for Lithium Polymer (LiON) batteries.
- Never store LiON batteries in any location that exceeds 40-80˚ F (e.g. in a car, garage, or in the sun)
- Never let the battery's positive and negative leads to touch. This can cause the battery to short and lead to a FIRE. If for any reason you need to cut the terminal wires, it will be necessary to cut each wire SEPARATELY, to make sure the wires do NOT touch each other.
- Never charge a swollen or ballooned battery (even if swollen upon purchase). Continuing to charge a battery that has begun to swell will result in a fire. Follow these steps:

1) Stop the charging process and disconnect battery immediately.
2) Disconnect battery from the device immediately.
3) Place it in an open, non-flammable area.
4) Watch it for approximately 30 minutes from a safe distance.
5) Follow proper procedure to dispose of battery.

- Always inspect the battery to make sure there are no signs of damage, deformity, or swelling before charging. If there are, STOP charging the battery and follow the proper procedure to dispose of the battery.
- Always store LiON batteries in cool, dry places between 40-80˚ F.
- Always keep LiON batteries out of reach of children or pets.

If the battery reaches high temperatures in the event of damage to the BTAD, follow these steps:

1) Disconnect battery immediately from the device.
2) Place it in an open non-flammable area.
3) Watch it for approx. 30 minutes from a safe distance.
4) If the battery appears to be stable (no signs of damage or swelling), put it back into your device and continue using with caution.

Avoid Over-Discharging LiON Batteries

Over-discharging—continuing to use a LiON battery even when it is almost completely drained or below its minimum voltage level—can cause permanent damage to the battery. The damage caused by this can be internal battery damage and will not always be visible; however, internal damage can eventually lead to a fire when attempting to recharge it at later times.

Charging Batteries Caution - Before Charging

- Always visually inspect LiON battery for any damaged leads, connectors, shrink wrap, swelling of cells, or other irregularities before charging or using.
- Do not use if you find any of the above issues with your pack.
- Use the supplied USB-C cable for charging.

If any damage to the pack or leads is found, or if the voltage is significantly less for your pack than specified above, do not attempt to charge or use the pack.

Batteries Involved in Severe Impact

Carefully inspect your battery after any damage to the BTAD. Cautiously look for any damaged leads, connectors, broken shrink- wrap, punctures, swelling of cells, or other irregularities. Not doing so can lead to battery failure at some point in the future, and possibly a fire.

In the event of damage or if the battery exceeds high temperatures, follow these steps:

1) Disconnect battery immediately from the device.
2) Place it in an open, non-flammable area.
3) Watch it for approximately 30 minutes from a safe distance.
4) If the battery appears to be stable (e.g. no signs of damage or swelling), proceed to put it back into your device and continue using with caution.
5) Never disassemble existing LiON packs to mix with other LiON cells/packs.
6) Do not discharge battery to a level below 3 V per cell under load. Deep discharge below 3 V per cell can deteriorate battery performance.

Battery Life & Disposal of LiPo Batteries

Rechargeable LiPo batteries do not last forever. Batteries that have lost 20% of their initial capacity should be removed from service and disposed of properly.

If at any time you see any physical damage in a LiON battery, such as swollen cell, split, or tear in the cell's covering, stop usage immediately and dispose of the battery.

Battery Product Warranty

Product warranty is limited to original defects in material and workmanship for 6 months. Warranty does not cover collateral damage. Due to the nature and use of this product, there is no term warranty. Misuse, abuse, incorrect charging, failure to comply with the above warnings and guidelines, and other inappropriate use of this product will not be covered under warranty.

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Chapter 7
The Keypad

The Keypad

- Specifications
- Positioning
- Wiring
- Programming

The KP-103 Keypad (Part #650209; Figure 7.1) is used to escort residents through a monitored zone and to reset zone equipment once an alarm has occurred.

Figure 7.1 - The KP-103 Keypad
Part Number: 650209

The KP-403 Outdoor Keypad (Part #650403; Figure 7.2) provided by Accutech is meant for outdoor use.

Figure 7.2 - The KP-403 Keypad
Part Number: 650403

The KP-103 features 2 relays.

The first relay is an anti-tailgate feature that will allow unimpeded passage through the exit point without triggering an alarm; however, any banded tailgater attempting to subsequently pass through will trigger an alarm event.

The second relay is used for authorized escorting and resetting zone equipment after an alarm event.

The KP-103 keypad has circuitry to handle request-to-exit applications. Contact your Accutech representative for more information. Request-to-Exit devices are available in many forms, such as a simple push button, motion detector, or card swipe.

Warning: Do not enter the keypad initiation mode (as described on page 3, step 2 of the KP-103 manufacturer operation instructions). If you do, you will wipe out all programming and have to start over. Keypad initiation mode is only used for initial programming which has already been completed by Accutech.

Specifications

KP-103 Keypad

Electrical

Operating Voltage: 12 V OR 24 V AC/DC
Active Current Draw:
100 mA Max @ 12 V
65 mA Max @ 24 V
Idle Current Draw:
9 mA Max @ 12 V
17 mA Max @ 24 V
Relay Contact Rating: 10 A @ 28 VDC/120 AC
Cable: minimum 22-gauge, 6-conductor

Mechanical

Size: 4-5/8" x 2-7/8" x 1-3/8"
Weight: 4.3 ounces
Mounting: Flush or Surface Mount
*Metal box not recommended

Operating Characteristics

LED	Status	Function
Green	On	Reset active
Yellow	On	Tag Detect active
Red	On	Unit is in alarm

Table 7.1 - Keypad LED Indicators

Environmental

Intended for indoor use only.

Duty Cycle

Rated for continuous use.

KP-403 Keypad

Electrical

Operating Voltage: 12 V OR 24 V AC/DC
Active Current Draw:
100 mA Max @ 12V
120 mA Max @ 24V
Idle Current Draw:
10 mA Max @ 12V
22 mA Max @24V
Relay Contact Rating: 10 A @ 28 VDC/120 AC
Cable: minimum 22-gauge, 6-conductor

Mechanical

- Surface Mount Die Cast Metal Black Powder Coated Back Box
- Stainless Steel Faceplate with Tamper-Proof screws
- Durable Metal Keys are backlit for visibility in dark areas

Operating Characteristics

- Adjustable Relay on Time from 1 to 999 seconds
- Two Programmable Relay Outputs
  - » Output 1: 100 User Codes with Code Lengths from 4 to 8 digits
  - » Output 2: 9 User Codes with Code Lengths from 4 to 8 digits Request to Exit feature
- Anti-Tailgating feature

LED	Status	Function
Green	On	Reset active
Yellow	On	Tag Detect active
Red	On	Unit is in alarm

Table 7.2 - Keypad LED Indicators

Environmental

Intended for indoor use only.

Duty Cycle

Rated for continuous use.

Positioning

The Keypad should be located within 3 to 5 feet of the monitored door or elevator. In hallway applications, mount the Keypad just outside of the zone to avoid alarm activation when escorting a monitored resident.

Wiring

You will need 22-gauge, 6-conductor plenum-rated cable for installation.

Note: Use UL-approved, plenum-rated cable.

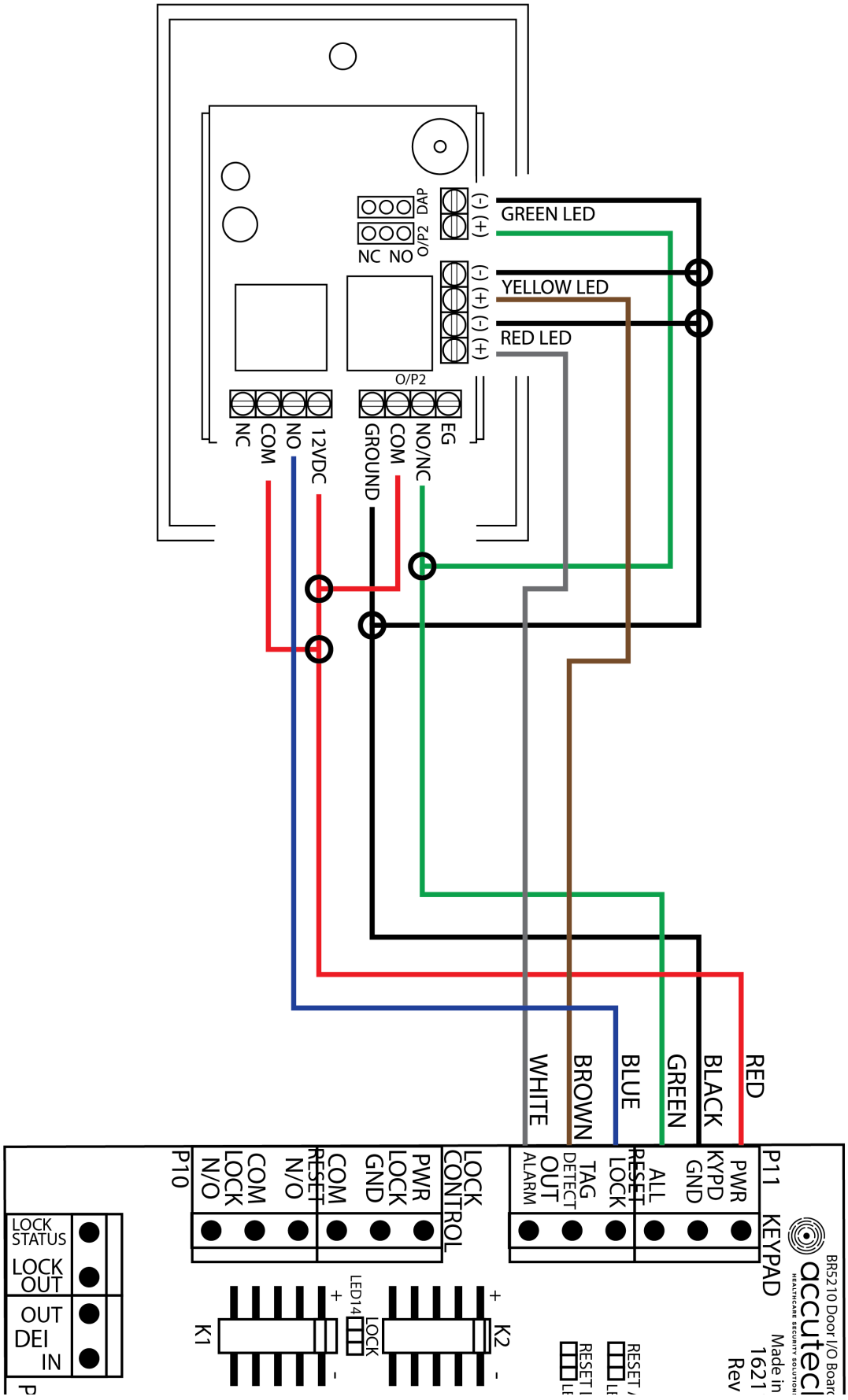

Figure 7.3 - Wiring the KP103 Keypad to the IO Board

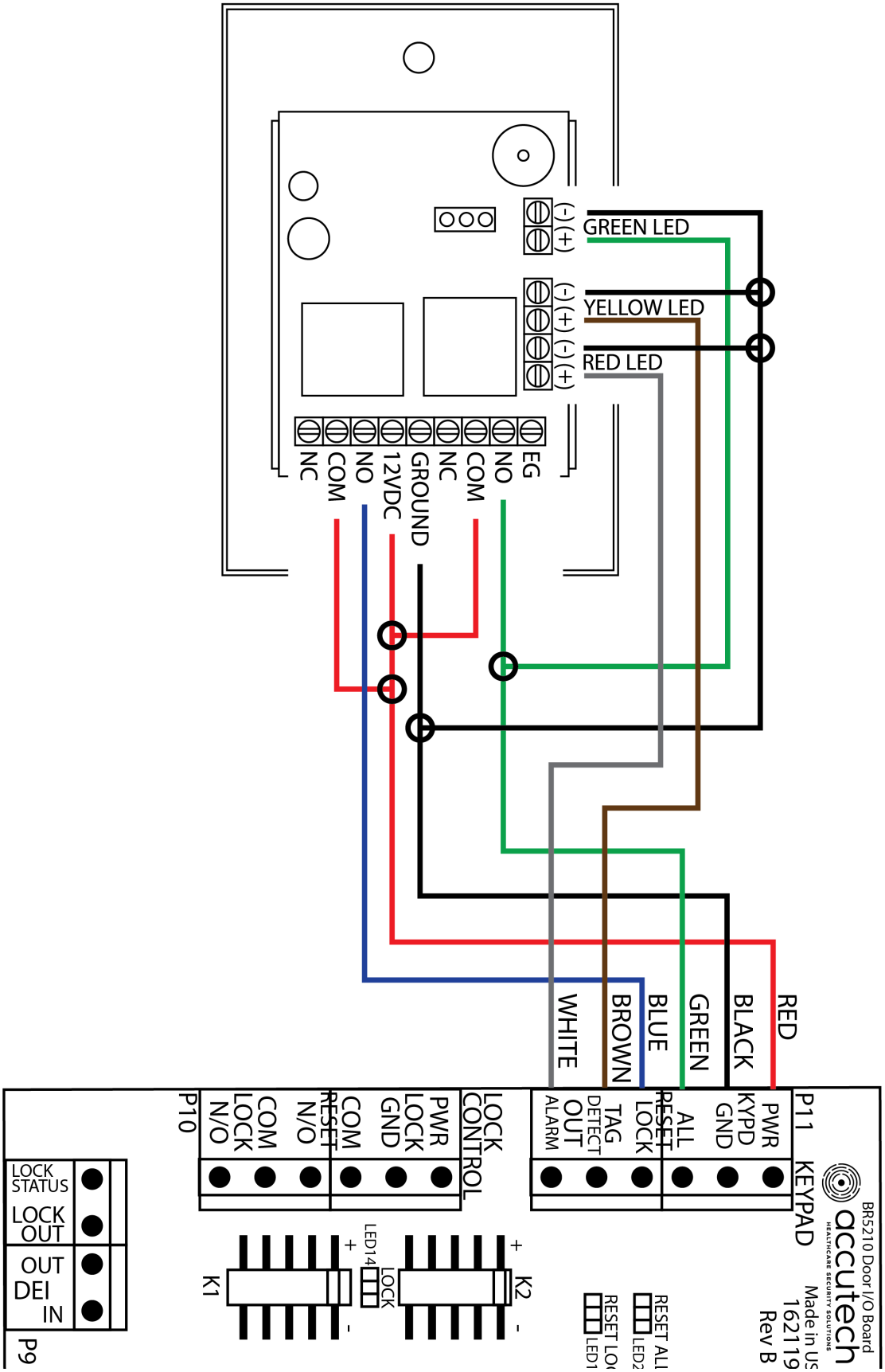

Figure 7.4 - Wiring the KP403 Keypad to the IO Board

Programming

- Initiating a Keypad Reset/Escort
- Programming
- How to enter user codes
- How to delete user codes
- How to set the relay time
- How to set the installer code

Note: For complete information about the Keypad, consult the manufacturer's manual.

Figure 7.5 - The Keypad

Programming the Keypad is, in simple terms, providing it with a set of instructions on how to react in various contingencies. The Keypad must be programmed as soon as all installation and wiring have been completed. Later on, as changes take place, partial or full reprogramming may be carried out as many times as necessary.

The Keypad has three LED indicators. See Table 7.3 for their functions during normal operations.

LED	Status	Function
Green	On	Reset active
Yellow	On	Tag Detect active
Red	On	Unit is in alarm

Table 7.3 - Keypad LED Indicators

Initiating the 2nd relay (Reset All/ Escort)

To initiate the 2nd relay, enter a valid user code and press the [#] key. The green LED will illuminate.

Accutech default is 7 1 3 9 #

Keypad resets are used to reset zone equipment after an alarm has been addressed. When you initiate a keypad reset, all zone equipment and alarms will be reset. However, if the alarm condition is not properly corrected, the alarm will resume.

The keypad's Escort function is used to escort Tags through a monitored zone without triggering alarms. When you initiate the Escort function, for the duration of the Escort time, you will be able to escort the Tag through a door, down a hallway, or while using an elevator without triggering alarms.

How to enter user codes (2nd Relay)

Note: Second relay user numbers are one digit and range from 1 to 9.

1) Input the installer code [1][1][1][1][*] to enter Program mode. You will hear two beeps.

2) Press [2], then input the desired user number (Example: 01).

3) Input the new user code (Example: 5555) followed by [#]. You will hear two beeps.

4) Continue programming for additional user codes as desired (Example: 03, 9999)

5) When finished, press [*] to exit program mode and return the keypad to normal operation mode.

Enter Programming Mode

Selects Relay 2

Selects user number 01

Selects 5555 as the code

Exits programming mode

How to delete user codes (2nd Relay)

Note: The default code for relay 2 is 7139 and is assigned to user number 1.

1) Input the installer code [1][1][1][1][*] to enter program mode. You will hear two beeps.

2) Press [2], then the desired user number (Example: 01) followed by [#]. You will hear two beeps.

3) Continue deleting additional user codes as desired (Example: 02, #).

4) When finished, press [*] to exit program mode and return the keypad to normal operation mode.

Enter Programming Mode

Selects Relay 2

Selects user number 01

Deletes user code for user number 02

Exits programming mode

How to set the relay time (2nd Relay)

Note: The relay time is factory set to 15 seconds.

1) Input the installer code [1][1][1][1][*] to enter program mode. You will hear two beeps.

2) Press [5][0], then input the desired relay time (1-999 seconds), followed by [#]. You will hear two beeps.

3) Press [*] to exit program mode and return the keypad normal operation mode.

Enter Programming Mode

Selects timer for relay 2

Sets timer for 15 seconds

Exits programming mode

Initiating the 1st relay (Reset Lock Only/Anti-Tailgate)

To initiate the 1st relay, enter a valid user code and press the [#] key.

Accutech Default is 1 2 3 4 #

The 1st relay is an anti-tailgate feature that will allow unimpeded passage through the egress point without triggering an alarm. However, any banded tailgater attempting to subsequently pass-through will trigger an alarm event.

How to enter user codes (1st relay)

Note: First relay user numbers are two digits and range from 01 to 99. User code 1234 is already factory set as user number 01. You must delete a user code before programming another user code into its user number position.

1) Input the installer code [1][1][1][1][*] to enter Program mode. You will hear two beeps.

2) Press [1], then enter the desired user number (Example: 01).

3) Input the new user code (for example 5555) followed by the [#] key. You will hear two beeps.

4) Continue programming for additional user codes as desired (for example 03, 9999, #).

5) When finished, press [*] to exit program mode and return the keypad to normal operation mode.

1 1 1 1 *

Enter Programming Mode

1

Selects Relay 1

0 1

Selects user number 01

5 5 5 5 #

Selects 5555 as the code

*

Exits programming mode

How to delete user codes (1st Relay)

1) Input the installer code [1][1][1][1][*] to enter Program mode. You will hear two beeps.

2) Press [1], then the desired user number (Example: 01), then the [#] key. You will hear two beeps.

3) Continue deleting additional user codes as desired (Example: 02, #).

4) When finished, press [*] to exit program mode and return the keypad normal operation mode.

How to set the relay time (1st Relay)

Note: The Relay time is factory set to 15 seconds.

To change the relay time:

1) Input the installer code [1][1][1][1][*] to enter Program mode. You will hear two beeps.

2) Press [4][0], then input the desired relay time (1-999 seconds) followed by [#]. You will hear two beeps.

3) Press [*] to exit program mode and return the keypad normal operation mode.

Enter Programming Mode

Selects Relay 1

Selects user number 01

Deletes user code for user number 02

Exits programming mode

Enter Programming Mode

Selects timer for Relay 1

Sets timer to 15 seconds

Exits programming mode

How to change the installer code

Important: The original installer code is 0000. The Accutech preprogrammed code is 1111. If the installer code is unknown, or if it differs from the Accutech preprogrammed code, and you need to revert back to the original installer code, refer to the DAP instructions section.

1) Input the installer code [1][1][1][1][*] to enter program mode. You will hear two beeps.

2) Press [0], then input the new desired installer code number (4-8 digits) followed by the [#] key. You will hear two beeps.

3) When finished, press [*] to exit program mode and return the keypad normal operation mode.

Enter Programming Mode

Selects user number 0

Selects 5555 as the new code

Exits programming mode

Request-to-Enter

The KP-103 keypad has Request-to-Enter (RTE) functionality.

Typically, in access control applications, RTE allows uncontrolled egress (exiting) from a secure area. However, in ResidentGuard or Cuddles applications, RTE is reversed (as ResidentGuard and Cuddles are designed to prevent egress of a monitored resident from a secure area).

In ResidentGuard and Cuddles applications, visitors and staff still need to be able to freely enter the secure area. This is achieved via a RTE device (such as a push button) mounted to the unsecure side of the door. This feature allows only the Lock to be cleared. Tag Detect, Band Alarm, and Roll Call alarms will keep the lock energized and override Relay 1 and the RTE function.

DAP Instructions

Important: Direct access programming (DAP) should only be used if the keypad programming has become unstable. The keypad programming is unstable if 5 beeps continuously occur between programming steps. DAP programming will reset the KP-103 keypad to Accutech factory settings.

1) Remove the power and keypad faceplate from the back box.

2) Move the DAP jumper from OFF position to ON position.

3) Apply power to the keypad.

4) Move the DAP jumper back to OFF position.

5) Input [8][9][0][1][#] to initialize. You will hear 2 beeps.

6) Press [0] to select user code 0, then Input [1][1][1][1][#] to designate the new installer code. You will hear 2 beeps.

7) Press [4][0], then [1][5] (to set to 15 seconds), then press [#]. You will hear 2 beeps.

8) Press [5][0], then [1][5] (to set to 15 seconds), then [#]. You will hear 2 beeps.

9) Press [1], then [0][1] (to select user number 01), then input [1][2][3][4][#]. You will hear 2 beeps.

10) Press [2], then [0][1] (to select user number 01), then input [7][1][3][9][#]. You will hear 2 beeps.

11) Press [*] to exit. You will hear 2 beeps.

Initialize

Designate new installer code

Set relay 1 timer to 15 seconds

Set relay 2 timer to 15 seconds

Sets default user code 1 for relay 1

Sets default user code 1 for relay 2

Exit

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Chapter 8
The Magnetic Switch

The Magnetic Switch

- Specifications
- Positioning
- Mounting
- Wiring
- Double Door Applications
- Door Ajar Delay Time
- Perimeter Door Applications

Magnetic Switches (part #650514; Figure 8.1) are used on doors zones to activate alarms when the zone's door is opened while a Tag is in that zone's Tx Activation Field.

Specifications

Electrical:

Operating Voltage: 150 VDC maximum
Contact Rating: 3 watts
Maximum Switch Voltage: 30V AC/DC Switching
Current: 0.5 amps DC
Cable: needs minimum 22-gauge, 2-conductor

Mechanical:

Size: 2.50" x 0.80" x 0.60"
Weight: 1.2 ounces
Color: Brown
Surface mounted (Flush available)

Operating Characteristics:

Contacts: N.O., N.C., and Common
Initial contact resistance: 100 ohms maximum
Operating Time: 1.0 ms maximum
Bounce Time: N.C. leg 1.5 ms maximum
N.O. leg: 1.0 ms maximum
Release Time: 0.5 ms maximum
Maximum Operating Frequency: 200 Hz
Insulation resistance: 1 x 10 ohms maximum
Electrostatic capacitance: 1.5 pF maximum

Environmental:

Operating Temperature: 32º to 120º F
Intended for indoor use only.

Duty Cycle:

Rated for continuous use.

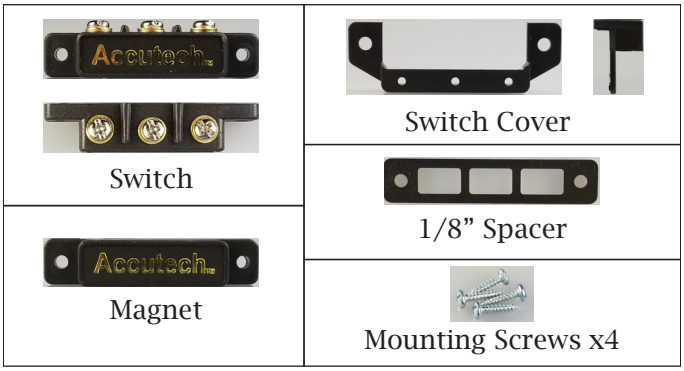

Figure 8.1 - Magnetic Switch Parts

For simplicity, in this manual the term Magnetic Switch will reference the entire switch as a unit, not just that parts that contain the contacts.

For full Magnetic Switch specifications, see cut sheet at the end of this manual.

Positioning

Magnetic switches are usually located at the top of the monitored door on the doorstop. The part that contains the switch is mounted on the header or door frame, while the part that contains the activating magnet is mounted on the door itself (Figure 8.3). A recessed model is also available.

Position the magnetic switch so that it is nearest the latch side of the door. If a magnetic lock is used, the switch should be the one mounted closest to the latch side, and the lock should be positioned after it.

Mounting

To mount the magnetic switch, refer to figure 8.3 and use the following instructions:

1) After choosing your location, following the hole pattern shown in figure 8.2, drill two 7/64” (0.109) mounting holes in the door frame to accommodate the switch. This size hole also coincides with the self-tapping screws provided with the switch. Be careful not to drill these holes oversize.

2) Drill a 5/16” (0.312) pass-through hole in the door frame to accommodate the wire from the IO board to the switch. Important: This hole should be drilled so the wire will come up just under the middle screw terminal (N.C.) of the switch. This hole can be drilled a little smaller, but not larger. If this hole is drilled too far out from the body of the switch, then the switch cover will not be able to hide this hole. Be sure to “de-burr” this hole.

3) Fish the 2-conductor/22-gauge wire through the large hole and strip enough insulation to make a good connection to the switch.

4) Connect the red wire to the COM terminal of the Switch.

5) Connect the black wire to the N.O. terminal of the switch.

6) Gently guide the excess cable back through the hole in the frame, while moving the switch into position over its mounting holes.

7) While positioning the switch, insert a mounting screw through each hole and secure the switch in place. Be careful not to pinch the wires when tightening.

8) Using the spacer provided in the kit, position the door magnet as shown in figure 8.3 and mark where the mounting holes (7/64”) will be drilled.

9) After you have marked and drilled your holes, mount the magnet with the 1/8” spacer in between the magnet and the door. Important: Remember, if the door frame is metal, you must install the spacer in between the magnet and the door or the magnet will lose effectiveness.

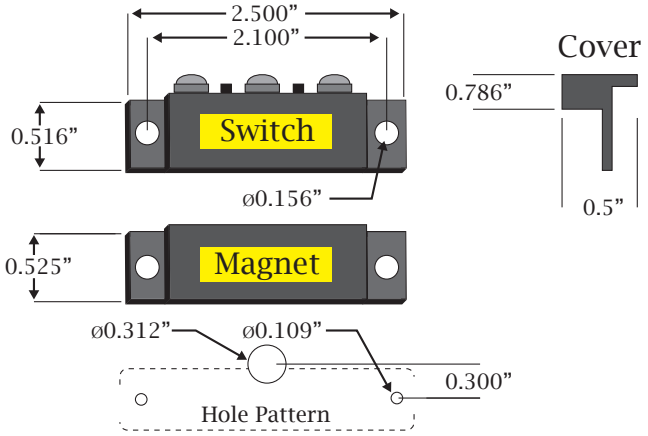

Figure 8.2 - Magnetic Switch Dimensions

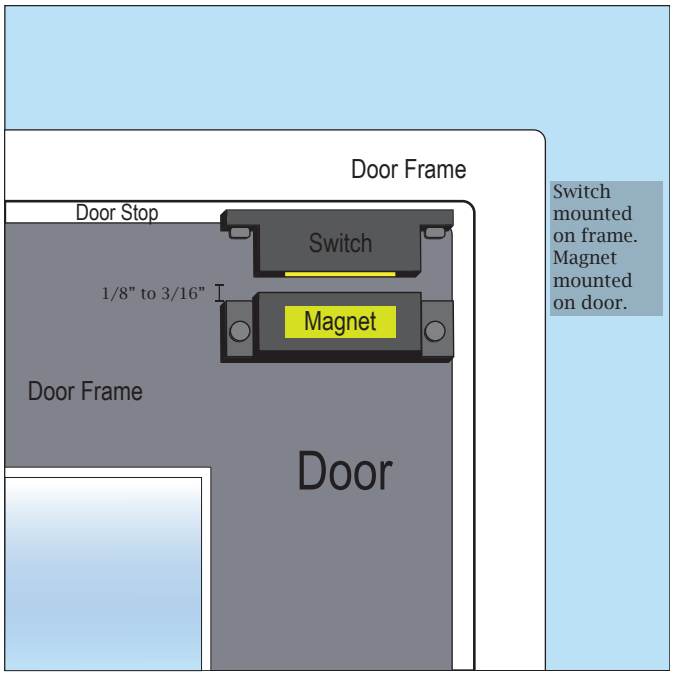

Figure 8.3 - Mounting the Magnetic Switch

Connecting to the IO Board

To connect the Magnetic Switch to the IO board, refer to Figure 8.4 and use the following instructions:

1) Using the BLACK wire, connect COM on the Switch terminal to IN (P7-2) on the IO board.

2) Using the RED wire, connect N.O. on the Switch terminal to OUT (P7-2)on the IO board.

Note: Use UL-approved, plenum-rated cable.

Double Door Applications

For double door applications, install a switch on each door and connect the switches in-series (Figure 8.4) so that one Switch will open when either door is opened.

Door Ajar Delay Time

A Door Ajar alarm occurs when a door is open for longer than the preset time. By setting a delay using the software, you can adjust the time (from 1 to XXX seconds) necessary before a Door Ajar alarm occurs, preventing nuisance Door Ajar alarms from air flow or slight bumps to the door. The Door Ajar Delay Time is factory set to 15 seconds.

Door Ajar Reset

The software determines if the Door Ajar automatically resets once the door is fully closed. See software settings.

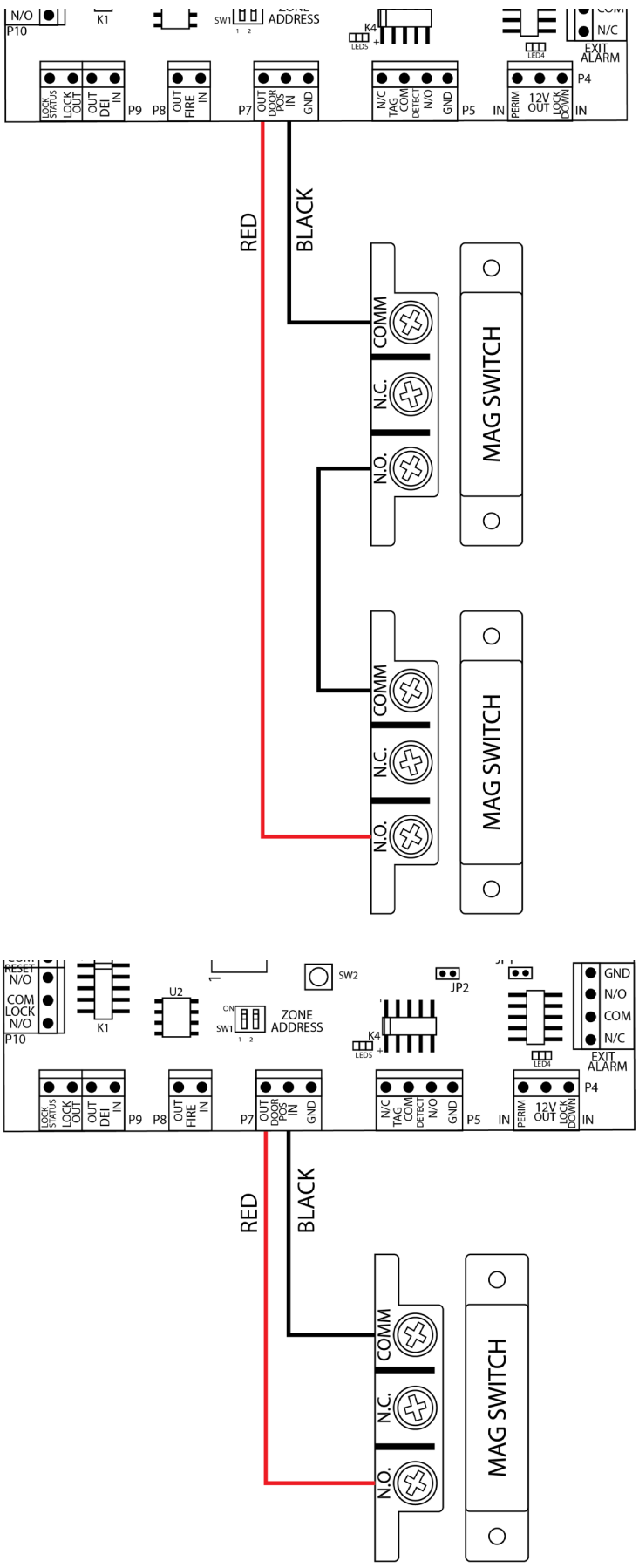

Figure 8.4 - Connecting the Magnetic Switch to the IO Board

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Chapter 9
The Passive Infrared Reader (PIR)

The Passive Infrared Reader (PIR)

- Specifications
- Positioning
- Mounting
- Wiring
- Adjusting the PIR beam angle
- PIR “Masking”

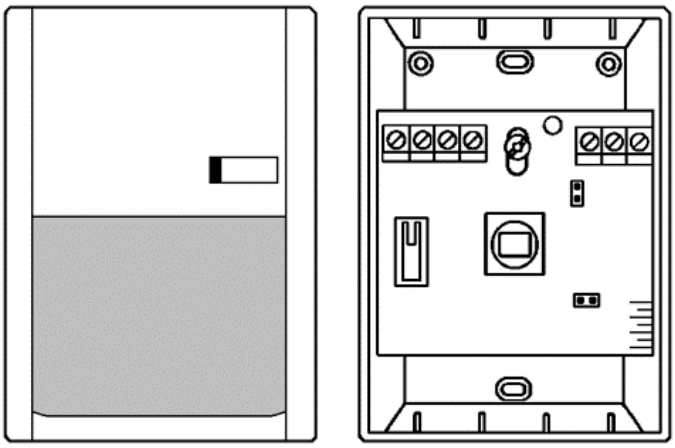

Figure 9.1 - The Passive Infrared Reader
Part Number: 300302

The Passive Infrared Reader (DSC Bravo Series) is used to detect movement through corridors and passageways

The relay contacts provided by the PIR (which control detect validation) can be set to trigger on a programmable timer between a duration of 1 to 7 seconds.

A typical use for a PIR is a hallway, where there is no door to mount a magnetic switch to, or an elevator, where placing anything on the door or frame of the car might be undesirable.

Specifications

Electrical:

Operating Voltage: 12VDC, 100mA
Current: Stand-by 15 mA, In alarm 18mA
Relay Output: N.O./N.C. 2A/28V AC/DC maximum
Cable: needs minimum 22-gauge 4-conductor stranded, non-shielded

Mechanical:

Dimensions: 2.50” x 4.40” x 1.40”
Weight: 3 ounces
Color: White

Operating Characteristics:

Beam Coverage: Vertical curtain up to 15 x 15 feet. *The beam is adjustable from its normal 0º setting (perpendicular to the unit) up to 12º.

Environmental:

Operating Temperature: 32º to 120º F
Intended for indoor use only.

Duty Cycle:

Rated for continuous use.