

To GDP

To connect a Multiplexer to a GDP, refer to Figure 17.4 and use the following instructions:

1. On the Multiplexer, jumper P12-pin 1 (+12V) to P6-pin 1 (C1) to provide power to that output.
2. Connect P6-pin2 (ST-1) of the Multiplexer to P2-pin 1 (1) of the GDP. The GDP will now receive and display data from Zone 1.

For additional GDPs, connect the ST-(#) outputs of the Multiplexer to the (#) inputs of the GDPs. For example ST-1 to 1 will be Zone 1, ST-2 to 2 will be Zone 2, and so on.

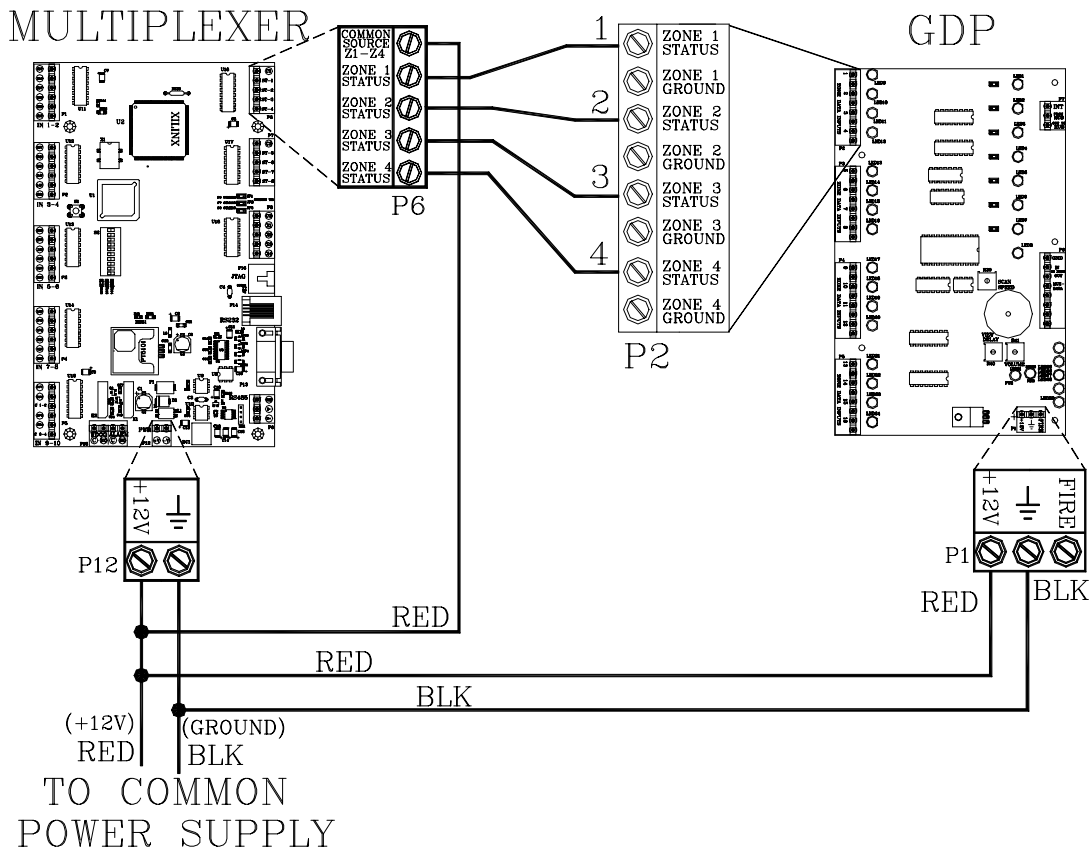


Figure 17.4 Connecting a Multiplexer to a GDP(s)

To PC

To connect a Multiplexer to a PC, refer to Figure 17.5 -17.6 and use the following instructions:

1. Using CAT5 and a DB9 connector, connect the Multiplexer to a serial port of the PC (serial port #1 recommended).

NOTE: Depending on the distance between the Multiplexer and the PC, you may want to use RJ45 wall plates for simplicity.

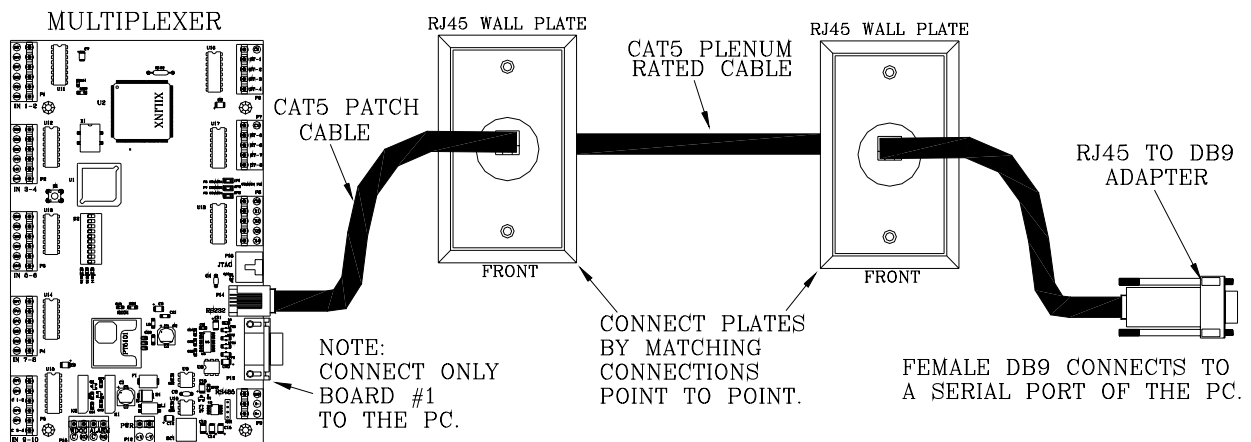


Figure 17.5 Connecting a Multiplexer to a PC

VIEW FROM INSIDE OF ADAPTER

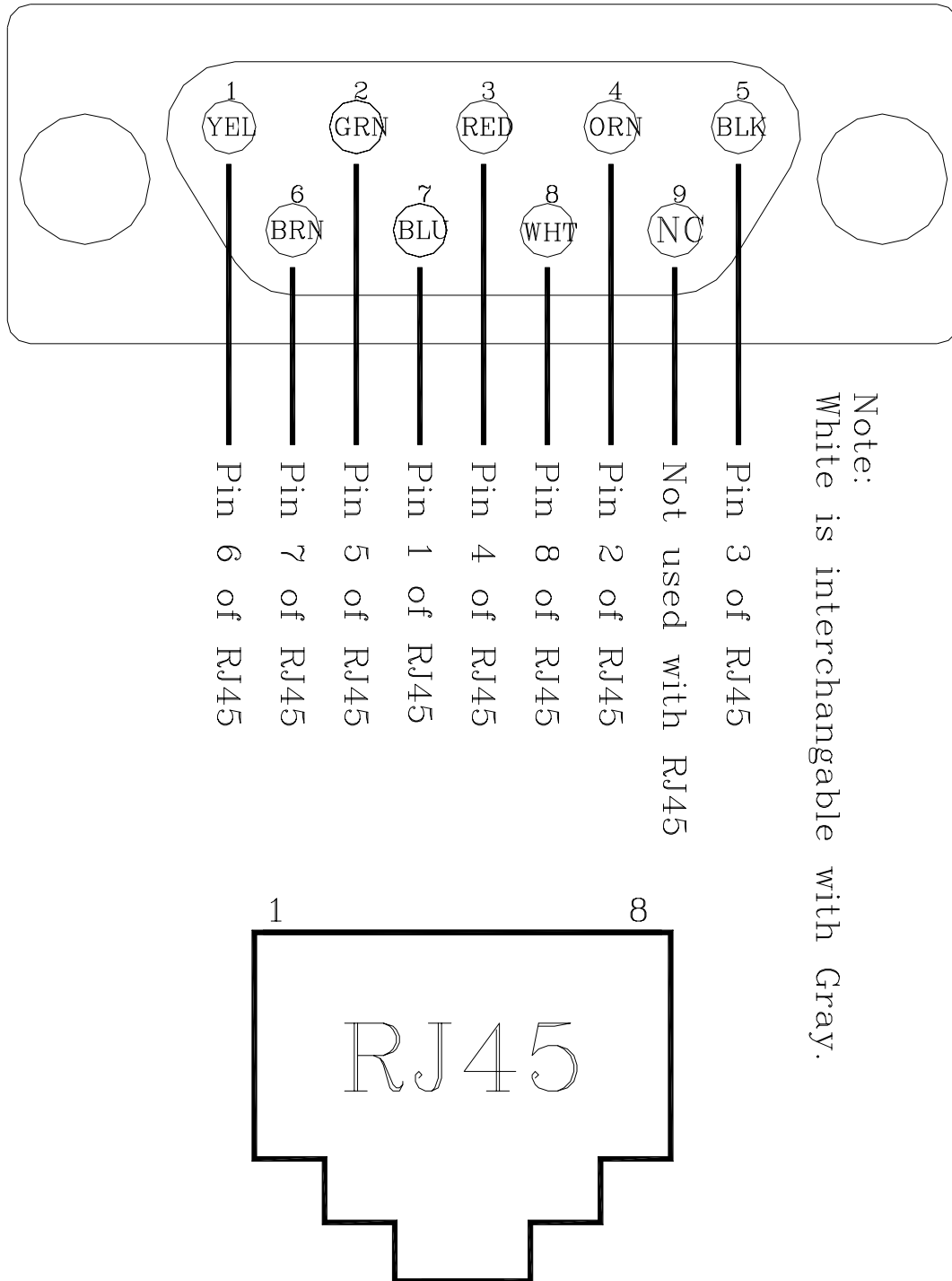


Figure 17.6 DB9 to RJ45 connector

To other Multiplexers

To connect two more or Multiplexers, parallel all RS485 connections, one to the next in cascading method. (see Figures 17.7 and 17.8).

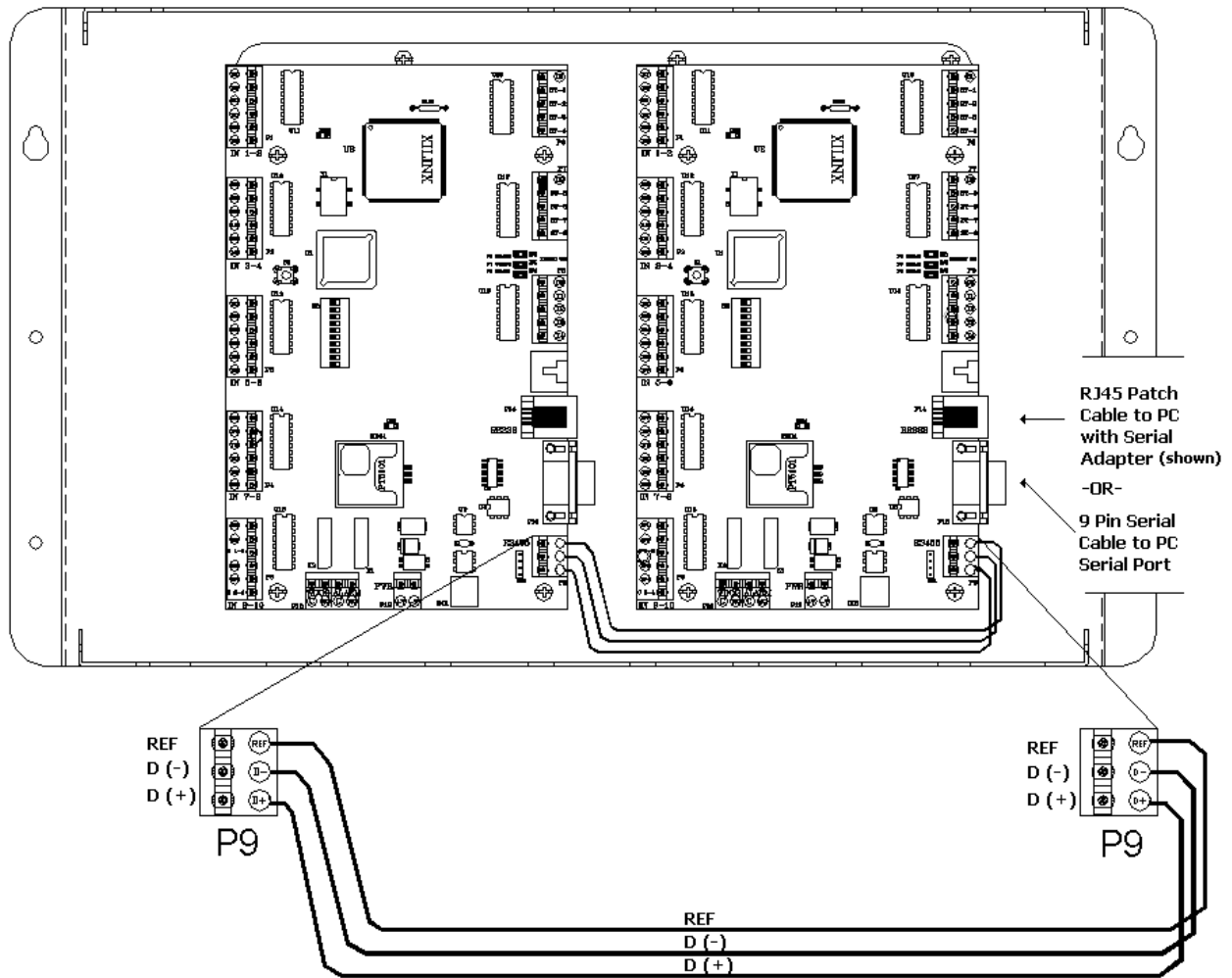


Figure 17.7 Connecting Multiplexers within a case



Figure 17.8 Connecting Multiplexer cases

Multiplexer board settings

Use the board settings below (Table 17.1 and Figure 17.9) for Dip Switch S2 on the Multiplexer.

NOTE: *Only* board 1 (Address 0000) should be plugged into the PC.

Table 17.1 Multiplexer Board Settings	
Board Number	Dip Switch Setting
	1234
1	0000
2	0001
3	0010
4	0011
5	0100
6	0101
7	0110
8	0111
9	1000
10	1001
11	1010
12	1011
13	1100
14	1101
15	1110
16	1111

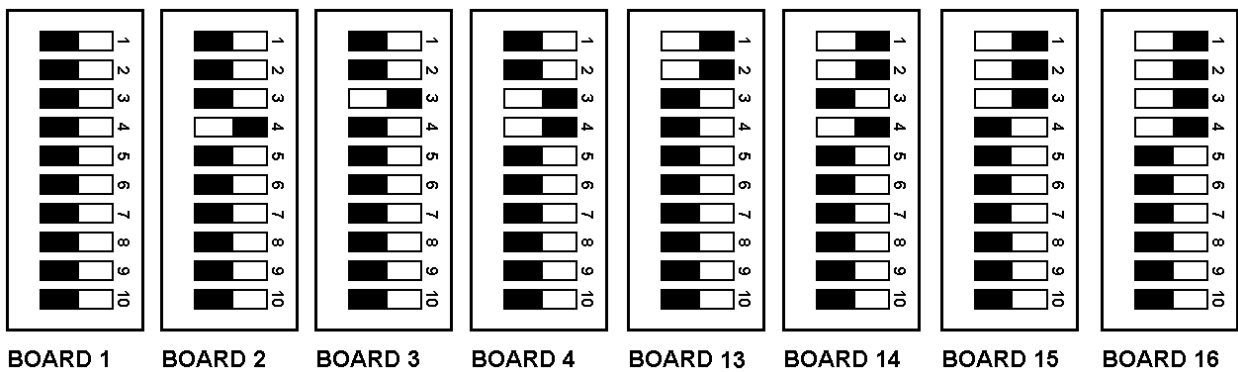


Figure 17.9 Multiplexer Switch Settings

Installation Manual

Chapter 18:

Power Supply

Power Supply

- Power Supply Specifications
- Positioning the Power Supply
- Mounting the Power Supply
- Connecting the Power Supply

Some installations of the Accutech System peripherals require more power than the Controller can provide. In these cases, a Power Supply (Figure 18-1) is added to the system to meet the additional power requirements.

Power Supply Specifications

- Power
- Temperature
- Weight

Power

120V AC, 2 amp

Temperature

A Power Supply operates best in an ambient temperature between 35 and 90 degrees Fahrenheit. Operation outside of this range may cause unexpected or undesirable results, including premature failure.

Weight

A Power Supply weighs approximately 12 pounds.

Positioning the Power Supply

The Power Supply is located above the drop ceiling or remotely in a utility closet near a 120V AC dedicated power outlet.

Mounting the Power Supply

Use appropriate hardware for the weight and mounting surface.

Connecting a Power Supply

For all connections to the Power Supply, use 18-gauge, 2-conductor wire. To connect a Power Supply, refer to Figure 18.1 and the respective component:

- To a GDP
- To a FPI
- To a BR 4200 Receiver
- To a Multiplexer

To a GDP

Using RED and BLACK wire, connect the +12V and Ground between the Power Supply terminal strip and GDP.

To a FPI

Using RED and BLACK wire, connect the +12V and Ground between the Power Supply terminal strip and FPI.

To a BR 4200 Receiver

NOTE: Connections between the BR 4200 Receiver(s) and Multiplexer should be completed first (see pages 17-3 - 17-5).

Using RED and BLACK wire, connect the +12V and Ground between the Power Supply terminal strip and FPI.

To a Multiplexer

NOTE: Connections between the Multiplexer and BR 4200 Receiver(s) should be completed first (see pages 17-3 and 17-5).

Using RED and BLACK wire, connect the +12V and Ground between the Power Supply terminal strip and Multiplexer.

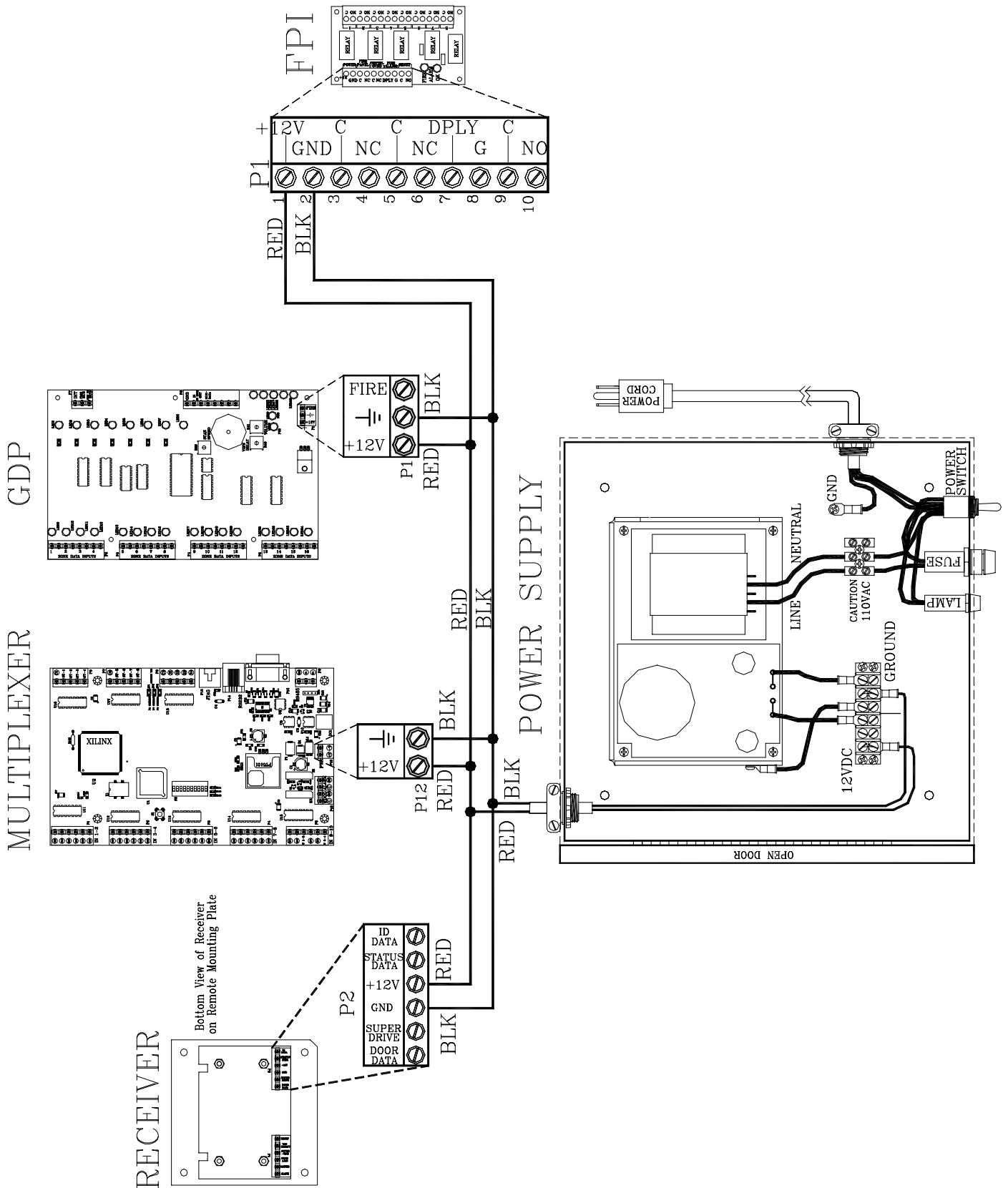


Figure 18.1 Power Supply connections

Installation Manual

Chapter 19:

The Accutech Software

The Accutech Software

- Minimum System Requirements
- Recommended System Components
- Installing the Accutech Software
- Uninstalling the Accutech Software
- Example System Configuration

The Accutech Software (v4.10 or greater) displays incoming event information via the Multiplexer from monitored zones. The PC screen will display events in real-time using the facility's floor plan as the background.

The Accutech Software is separate from and does not affect or control the physical Accutech security system.

Minimum System Requirements

- Intel Celeron 400mHz
- 17" Monitor (capable of displaying 1024x768 pixels in 16-bit high color)
- 8.4 GB Hard Drive
- 64MB PC-100 SDRAM
- 8MB AGP Video Card
- Sound Card
- Speakers
- 3 ½ " Floppy Drive
- 24x CD-ROM Drive (minimum available)
- Motherboard w/Intel BX or VIA 133 Chipset (should be expandable, i.e., 3 PCI, 1 ISA, 1 ASP, 2 Serial, 2 USB, 1 parallel)
- Keyboard
- Mouse
- Mouse Pad
- Windows NT, Me, 2000 or XP
- If this is a Networked System, you will need a Network Interface Card (NIC). Accutech recommends a 3Com PCI NIC.
- 1 Serial 9pin COM PORT

Recommended System Components

- Pentium 4 Processor 1.8 GHz
- 128 MB PC-133 SDRAM
- 16 MB Video Card
- 16-bit PCI Sound Card
- Windows 2000
- Windows Service Pack 2 or higher

Installing the Software

NOTE: Windows 2000 users will need Administrator privileges to install the software.

1. Close all other applications before installing the Accutech Software.
2. Place the Accutech CD in your CD-ROM drive.
3. If Autoplay is enabled, the installation program will begin.
4. If Autoplay is not enabled:
 - a. From the *Start* menu, Settings, select **Control Panel**.
 - b. Double-click "**Add/Remove Programs**".
 - c. Click "**Add New Programs**".
NOTE: Windows Me users, click "**Install**".
 - d. Click "**CD or Floppy**".
 - e. Click "**Next**".
 - f. Click "**Finish**".
5. In the Accutech installer, follow the on-screen instructions to accept all default settings.
6. When prompted, reboot your computer to complete installation.

Uninstalling the Accutech Software

1. From the *Start* menu, *Programs*, *Accutech*, select “**Remove Accutech Patient Security System**”.
A confirmation message box appears.
2. Click “**Yes**”.
3. Click “**Close**” to exit the uninstaller program.
4. From the *Start* menu, *Programs*, *Accessories*, select “**Windows Explorer**”.
5. Select the ICS folder (C:\ics) and delete it.
6. Reboot the PC.

Example System Configuration

A facility’s system configuration will depend on its particular needs.

However, as an example, Figures 19.1 and 19.2 show an 8-zone BR 4200 System Hospital with software configuration.

NOTE: When connecting Receivers to the Multiplexer, their input positions on the Multiplexer are determined by (**and must match**) the software configuration.

Example Hospital

floor example

zone 1 sardoorst “OB Stairwell” 868 525
reader 2 sanurse “Tag Test Station” 790 425
zone 3 saddoor “Center Stairwell” 638 312
zone 4 sabr “Band Removal 6” 880 388
zone 5 sabr “Band Removal 5” 631 499
zone 6 sabr “Band Removal 3 Nursery” 380 410
zone 7 sabr “Band Removal 4” 540 390
zone 8 saelevator “Public Elevator” 608 263

title “Example Hospital” 2200 2200

Figure 19.1 Example Software configuration

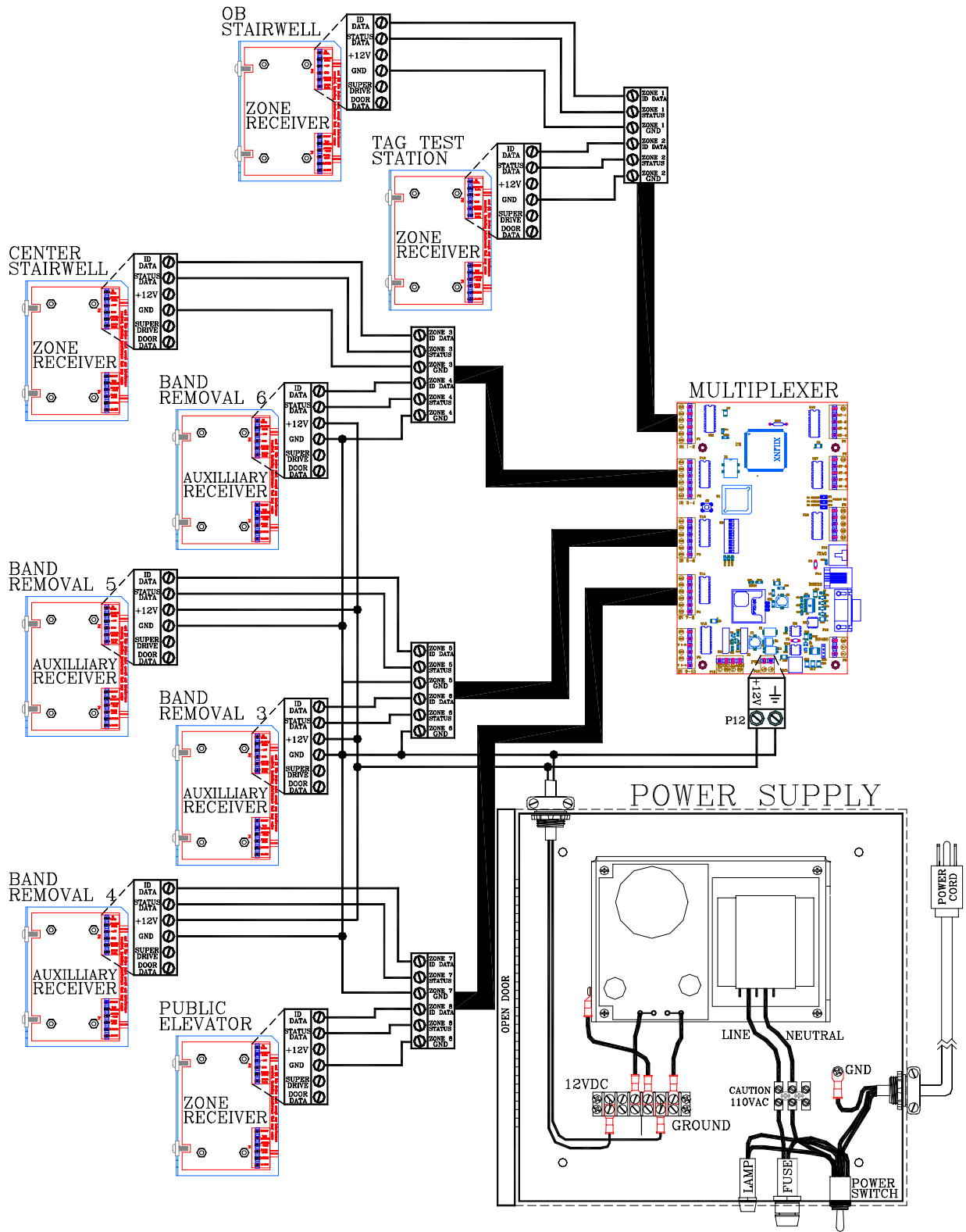


Figure 19.2 Example Software configuration - connections

Installation Manual

Chapter 20:

Tag Test Station

Tag Test Station

- TTS Specifications
- Positioning and Mounting a TTS
- Connecting a TTS

The Tag Test Station (TTS) is used for Tag assignments. In a similar fashion to a Tx wand antenna, the TTS emits a small Tx Activation Field that activates Tags. Once activated a Tag sends a signal to the Receiver. The Receiver sends this information to the Multiplexer, which sends it to the computer with the Accutech Software. The Tag Reader Status dialog box appears on the PC screen where it can be assigned or unassigned.

TTS Specifications

- Power Requirements
- Temperature
- Weight

Power Requirements

Dependant upon Controller.

Temperature

A TTS operates best in an ambient temperature between 35 and 90 degrees Fahrenheit. Operation outside of this range may cause unexpected or undesirable results, including premature failure.

Weight

A TTS weighs approximately 10 ounces.

Positioning and Mounting a TTS

Tag Test Stations are typically located at staff stations near a computer with the Accutech Software and are secured by four mounting screws.

Connecting a TTS

To connect a TTS, refer to Figures 20.1 - 20.3 and use the following instructions:

1. Connect P1-pin1 (“UNREG”) from the Controller to the connector strip of the TTS.
2. Connect P1-pin2 (“X”) from the Controller to the connector strip of the TTS.
3. Note that TTS zones are for Tag assignment purposes only; you **do not** wire the other positions of the Receiver to the Controller. Disconnect any signal not shown (see Figure 20.2).

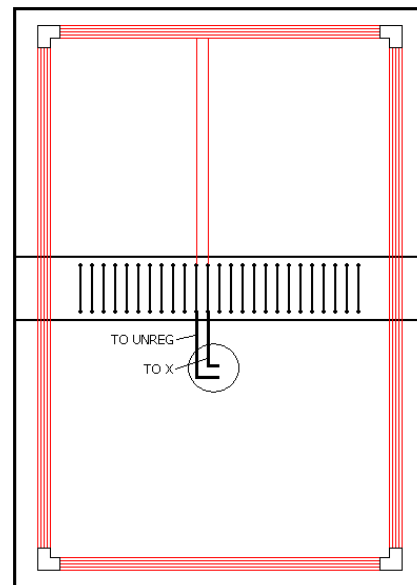


Figure 20.1 Inside a TTS

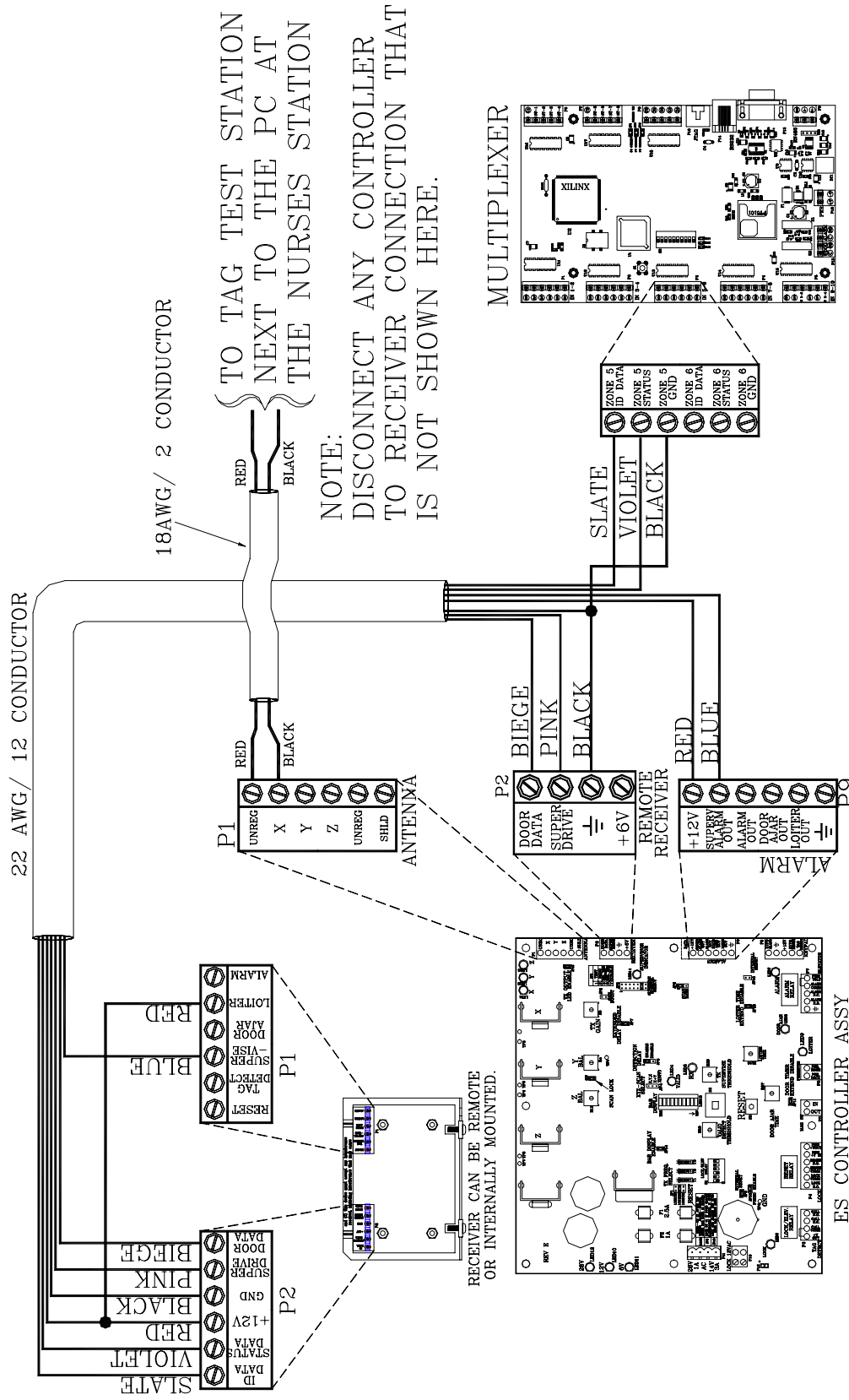


Figure 20.2 Connecting a TTS – Part 1/2

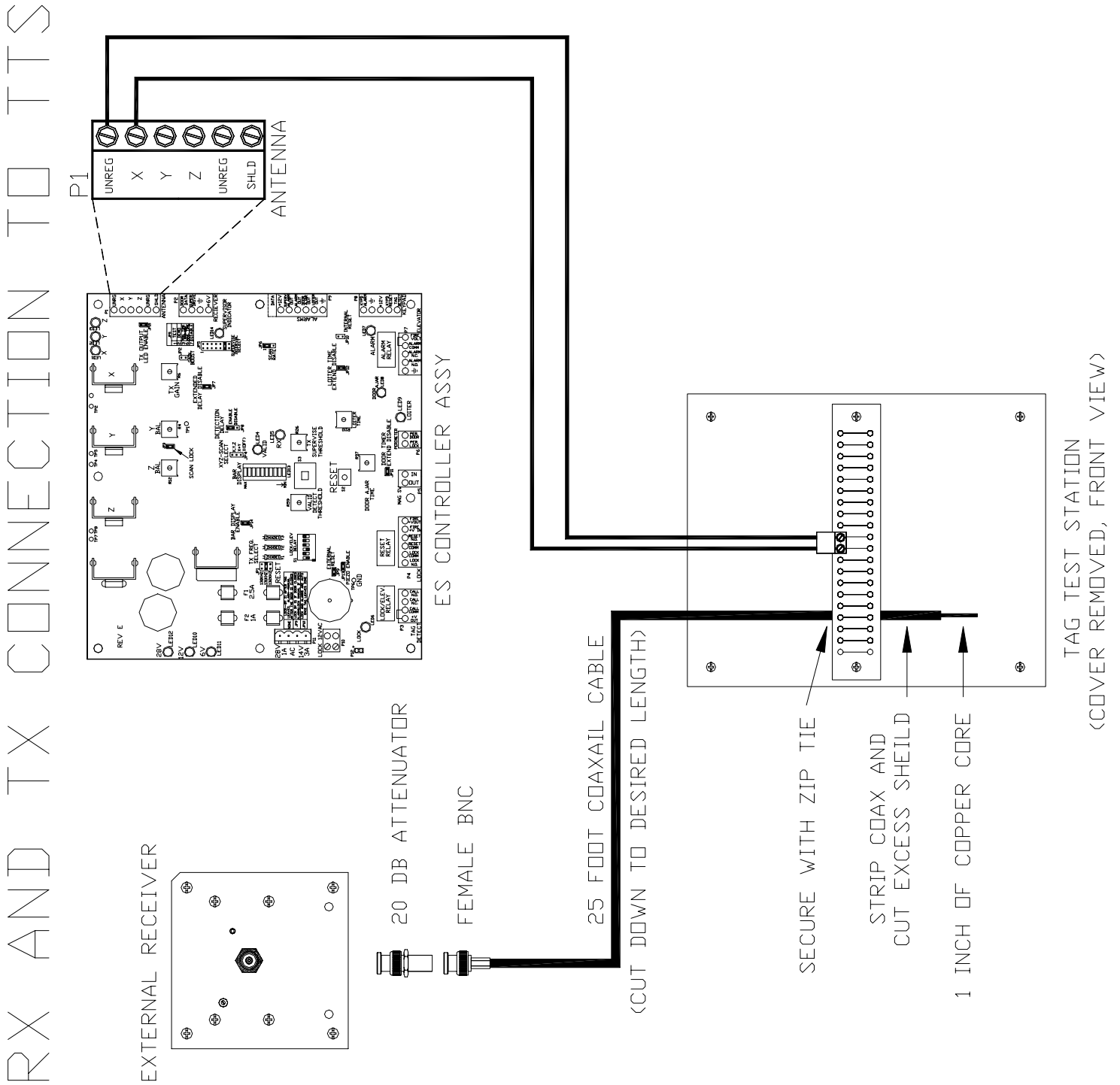


Figure 20.3 Connecting a TTS – Part 2/2

Installation Manual

Chapter 21:

Band Removal Lockdown

Band Removal Lockdown

Band Removal Lockdown engages all facility Magnetic Locks when a Band Removal alarm occurs.

The Multiplexer controls a 12V DC signal that can be sent to the Relay board. The Relay controls a 12V DC signal from each Controller to the Lock(s) at each zone.

When a Band Removal alarm occurs, the Multiplexer sends 12V DC to the Relay Board. The Relay Board then sends 12V DC to P6-pin 1 (Per Lock) of each Controller (up to 8) connected to it. This engages the Magnetic Locks at all zones equipped with Locks. A Keypad Reset at any zone is required to end the lockdown.

For Multiplexers that are connected in series, use Board 1 only to provide a dry contact (P15 - C./N.O.) that closes upon a Band Removal alarm.

Please use an external 12V DC relay between 8-zone relay board and Multiplexer BR alarm relay (P15).

Wiring Band Removal Lockdown

To wire the Controller for Band Removal Lockdown, refer to Figure 21.1 and use the following instructions:

1. For these connections, use Multiplexer Board 1 only.
2. Connect P15-3 (C) on the Multiplexer to +12v on the external 12V DC relay.
3. Connect +12V DC of Power Supply to:
 - a. P12-1 (+12v) position of Multiplexer
 - b. P15-4 (N.O.) position of the Multiplexer
 - c. +12V position of 8-zone relay board (J5)
 - d. (N.O.) position of external 12V DC relay
4. Connect GND of Power Supply to:
 - a. P12-2 (GND) position of Multiplexer
 - b. GND position of 8-zone relay board (J5)
 - c. GND position of external 12V DC relay
5. Tie pins B1 through B8 to one common point together on the 8-zone Relay Board and connect that common point to the external 12V DC relay at COM position.

6. For each Controller (Lock) you must pick a set of contacts to work with on the Relay Board. The example in Figure 21.1 shows Relay K1 being used:
 - a. Connect P8-3 (+12V) on the Controller to J1 at (K1-Com) on the 8-zone Relay Board.
 - b. Connect P6-1 (Per. Lock) on the Controller to J1 at (K1-NO) on the 8-zone Relay Board.
7. Do the same for contact K2 through K8.
8. If more than 8 zones are being locked, then additional Relay boards will need to be connected.
 - a. Connect +12V and GND of the each Relay Board in parallel to +12V and GND of the first Relay Board.
 - b. Tie pins B1 through B8 of each Relay Board to one common point together on that Relay Board and connect the common point of each Relay Board to the external 12V DC relay at COM position.
9. Repeat step 7 for each Controller (Lock) choosing a different set of contacts (K1-K8) of the Relay Board for each zone to be locked down when a Band Removal alarm occurs.

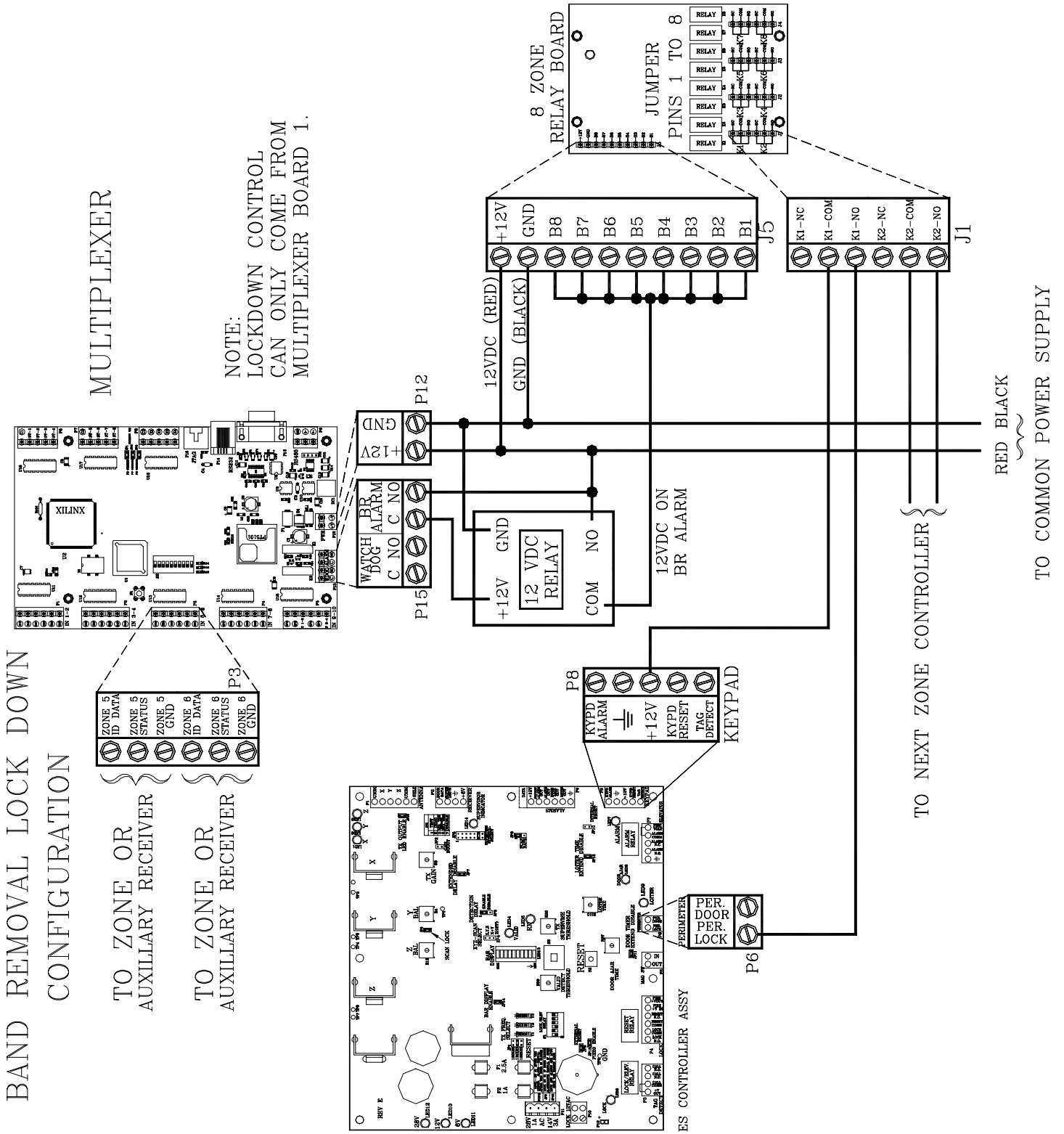


Figure 21.1 Wiring Band Removal Lockdown

Installation Manual

Chapter 22:

User-Defined Settings

User-Defined Settings

- Door Ajar
- Door Ajar Reset
- Loiter
- Loiter Reset
- System Supervise
- Power Loss Supervise

NOTE: The following settings are up to the facility's discretion. All times are approximate.

Door Ajar

A Door Ajar alarm occurs when a door is open for longer than the preset time. By setting a delay using R97 and JP11, you can adjust the time (from 10 to 110 seconds) necessary before a Door Ajar alarm occurs preventing nuisance Door Ajar alarms from air flow or slight bumps to the door.

R97 (Door Ajar Delay)

- Factory Set to 15 seconds

Set mid scale or as desired to delay onset of Door Ajar alarm.

JP11 (Door Timer Extend Disable)

- Factory Default IN

This jumper determines the timing range of the Door Ajar Time potentiometer (R97).

Table 22.1 JP11	
Position	Time Range
In	10-60 seconds
Out	65-110 seconds

Door Ajar Reset

JP16 determines if the Door Ajar automatically resets once the door is fully closed.

Table 22.2 JP16	
Position	Door Ajar Automatically Resets?
In	Yes
Out	No

Loiter

A Loiter alarm occurs when a Tag lingers in the Tx Activation Field for longer than the preset allotted time. By setting a delay using R110 and JP12, you can adjust the time necessary (from 10 to 110 seconds) before a Loiter alarm occurs preventing nuisance Loiter alarms from normal resident movement or passersby.

R110 (Loiter Delay)

- Factory Set to 15 seconds

Set mid scale or as desired to delay onset of Loiter alarm.

JP12 (Loiter Time Extend Disable)

- Factory Default IN

This jumper determines the timing range of the Loiter Timer potentiometer (R110)

Table 22.3 JP12	
Position	Time Range
In	10-60 seconds
Out	65-110 seconds

Loiter Reset

JP10 determines if the Loiter alarm automatically resets once the Tag leaves the zone.

Table 22.4 JP10	
Position	Alarm Automatically Resets?
In	Yes
Out	No

System Supervise

JP5 determines how often the System Supervisor checks the Accutech System. For more information about the System Supervisor, see page 3-6.

Table 22.5 JP5 Positions and Results	
Position	Result (Check system Once/Time Interval)
1	Test (testing purposes only)
2	Demo; Once/min (demonstration purposes only)
3	Once/ 2 Hours
4	Once/ 4 Hours
5	Once/ 8 Hours
6	Once/16 Hours
7	Disable

Power Loss Supervise

The Controller has a Power Loss Supervise function that will indicate that the system power has been lost. For complete information about this function, see page 3-7.

Installation Manual

Appendix A:

Discontinued Components

Appendix A: Discontinued Components

From time to time, system components may become discontinued due to revisions, improvements, or unavailability from the manufacturer.

- ES 2100 Receiver
- Composite Cable (Part #200355)
- Tag styles (gray and yellow colored)

ES 2100 Receiver

- Receiver Specifications
- Internal vs. External Receivers
- Receiver Mounting Options
- Receiver Positioning/Stagger Tuning
- Connecting the Receiver
- Adjusting the Receiver

NOTE: The ES 2100 Receiver is a special order item only; it is no longer in production and is replaced with an IS 3200 Receiver.

The ES 2100 Receiver (Figures A.1-A.2) located at the monitored zone, picks up the signal from an activated Tag and relays it to the Controller. Zone Receivers can be internally or externally mounted near a monitored zone.

Receiver Specifications

- Power Requirements
- Temperature
- Weight

Power Requirements

6V DC

Temperature

Receivers operate best in an ambient temperature between 35 and 90 degrees Fahrenheit. Operation outside of this range may cause unexpected or undesirable results, including premature failure.

Weight

Internal and External Receivers weigh approximately 5.0 oz. and 1 lb. 5.0 oz. U.S. respectively, which should be considered when choosing mounting hardware.

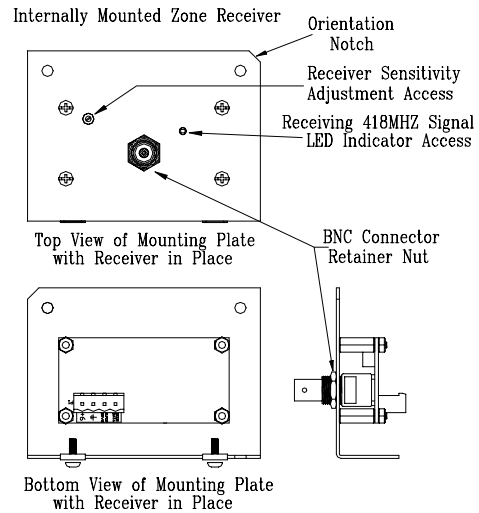


Figure A.1
Internally mounted ES 2100 Receiver

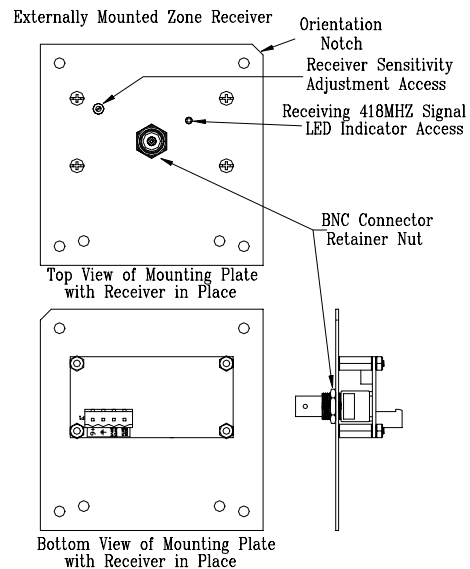


Figure A.2
Externally mounted ES 2100 Receiver

Internal vs. External Receivers

When the Controller is positioned near the monitored zone, the Receiver is mounted internally in the Controller housing.

When the Controller is positioned away from the monitored zone, the Receiver is mounted at the zone in a 4"x4"x2" electrical box.

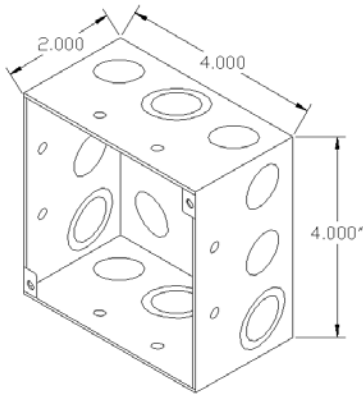


Figure A.3 4"x4"x2" electrical box

Keep in mind when the Controller is remotely located, at least two 4"x4"x2" electrical boxes are needed at the zone. One box is used to mount the Receiver near the door as mentioned above and the second box is used as a junction box for the composite cable (where connections are made to wires that "branch" to the individual system components).

Receiver Mounting Options

If you receive your system equipment and determine that the Receiver needs to be changed from an Internal to External mounting or visa versa, contact your Accutech Representative about acquiring the proper faceplate.

Receiver Positioning/Stagger Tuning

Position the Receiver within approximately 6 feet of the center of the monitored zone or door opening. It is permissible to mount it beyond 6 feet, but do not exceed 15 feet from the center of the zone or door opening.

The recommended location for the Receiver unit is up and out of the way such as above the doorframe or above drop ceiling panels if possible. Receivers monitor 40 feet outward in every direction; therefore, they should be positioned approximately **70** feet apart.

If the Receivers of adjacent zones need to be closer than 70 feet (Figure A.4), implement Stagger Tuning (page 4-6) to avoid crosstalk (activated Tag from one zone being detected in another zone).

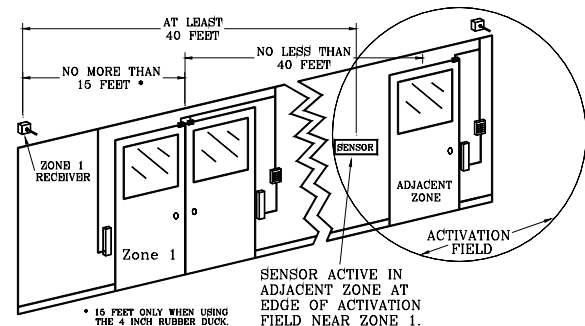


Figure A.4 ES 2100 Zone Receiver spacing

Connecting the Receiver

Whether internally or externally mounted, the wire connections from the Receiver to the Controller are the same (see Figure A.5).

NOTE: The internally mounted Receiver is provided with a factory-installed interconnect cable. There should be no reason to ever disassemble it. If however it should need replacement for any reason use an 18-inch piece of 22-gauge 4-conductor non-shielded cable.

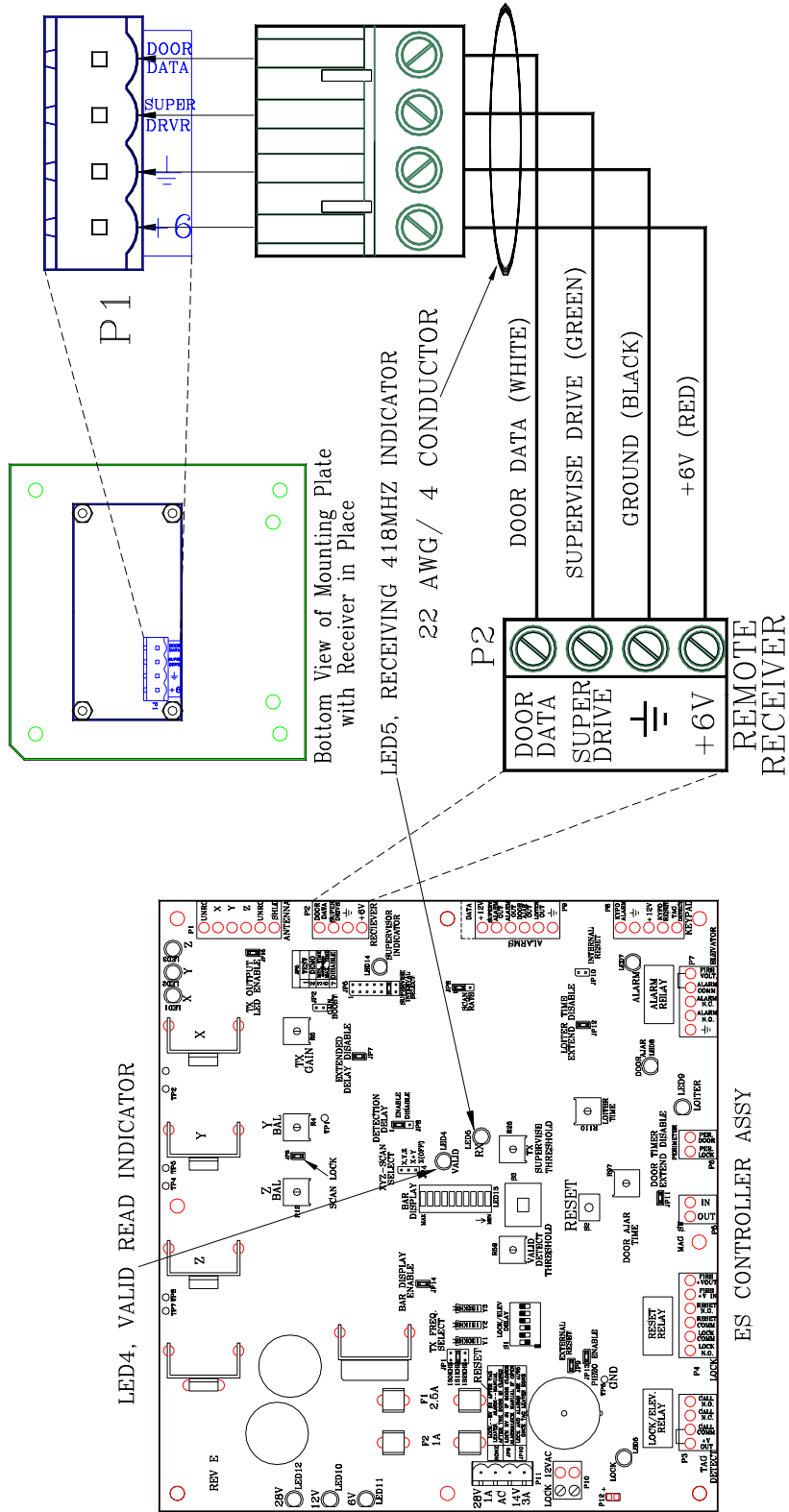


Figure A.5
Connecting the ES 2100 Receiver to the Controller

Adjusting the Receiver

The Receiver is factory set for optimum performance, and as such, it should not be necessary for you to make any adjustments to it.

However, there are some exceptions:

- When protecting a wide hallway, it may be desirable to increase the Receiver sensitivity to assure optimum detection.
- When two or more zones are located in close proximity (less than about 40 feet apart), it may be desirable to decrease the Receiver sensitivity to eliminate the effects of crosstalk (activated Tags from one zone being detected in another zone).

To adjust a Receiver, refer to Figure A.1 or A.2 and use the following instructions:

1. Around the access hole for potentiometer R11 on a Receiver, a decal marks the minimum and maximum settings. The factory setting is approximately halfway between the minimum and maximum marks. The Receiver will not work outside these marks. When adjusting, it is best to stay within 1/16" of a turn of the factory setting.
2. As you adjust, remember to verify that there is adequate coverage (but no crosstalk) in the zone and adjacent zones.
3. To *decrease* the Receiver's sensitivity, ***slowly*** turn potentiometer R11 clockwise toward the minimum setting on the R11 decal.
4. To *increase* the Receiver's sensitivity, ***slowly*** turn potentiometer R11 counterclockwise toward the maximum setting on the R11 decal.

Composite Cable (Part #200355)

- Lock Cable
- Technical Specifications

NOTE: For easier installation, Accutech Composite Cable (Part # 200355) was replaced with Composite Cable (Part # 200371) on June 1st, 2004 and is no longer in production.

For information on the new composite cable (Part # 200371), see page 2-2.

Accutech offers a “composite” cable (Figure A.7; Part # 200355) for wire runs from the Controller to a Junction Box when the Controller is mounted away from the zone.

At the zone, use the cable kits supplied with the system to run from the Junction Box to the individual components at the zone.

When wiring composite cable, use the same color code throughout the Accutech System (Figure A.7).

Lock Cable

If your installation includes a Lock, but it does not have to comply with NFPA101, run 18-gauge, 2-conductor from the Controller to the Lock.

If your installation includes NFPA101 compliant Locks, use 22-gauge, 12 conductor cable to make the connection between the Controller and the Lock (see Figure A.6 and Chapter 11).

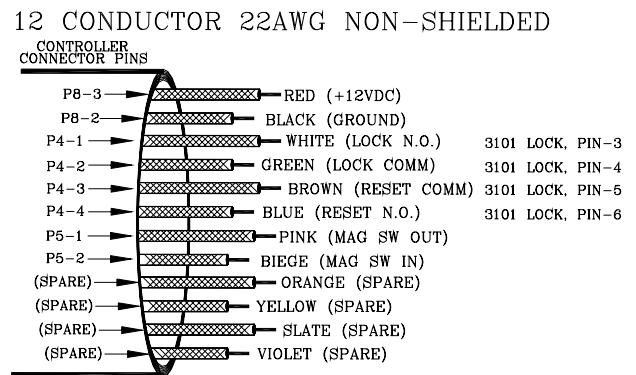


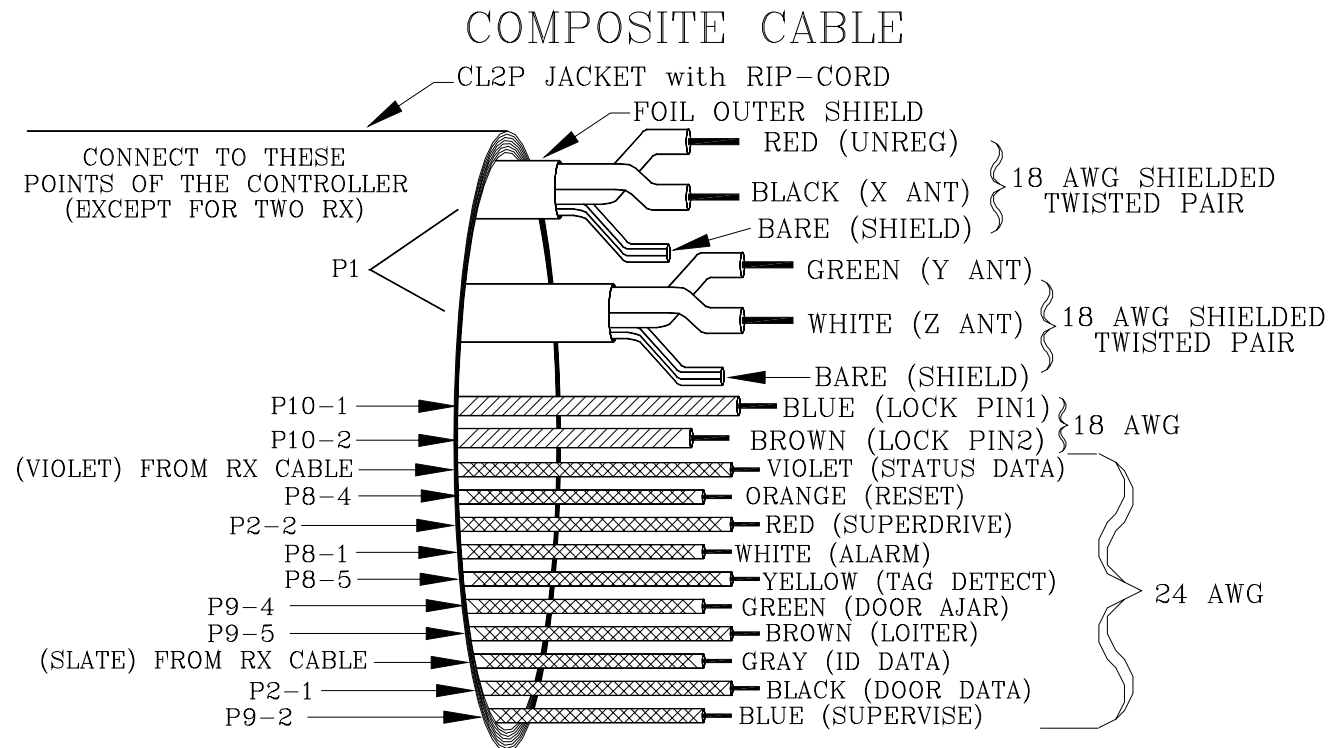
Figure A.6 Lock Cable Color Code

Technical Specifications

The technical specification for Composite Cable (Part # 200355)

- 2 Pair of AWG x 7/.0152 T.C., 0.012 Teflon Color Code: black/red; green/white 0.001 polyester tape binder over each pair, 18 AWG x 7/.0152 T.C. drain, 0.0015 aluminum/polyester shield, foil and drain.
- 2-Conductor 18 AWG x 7/.0152 T.C., 0.008 Kynar, Color Code: brown, blue.
- 10 Conductor 24 AWG x 7/32 T.C., 0.008 Kynar, Color Code: red, green, brown, blue, orange, yellow, violet, gray, white, and black.
- polyester binder over core
- Nylon rip cord
- 0.020 black smoke guard jacket, 0.370 nominal O.D.
- UL Type CL

Figure A.7 Composite Cable (Part # 200355) Conductor Uses and Color Code



Tag styles (gray and/or yellow colored)

- ES 2200 System Tags
- IS 3200 System Tags
- BR 4200 System Tags

NOTE: Gray and/or yellow Tag case styles are no longer in production and are replaced with bar-coded Tag case styles. For more information, see Chapter 6.

ES 2200 System Tags

ES 2200 System Tags (Figure A.8) are small wristwatch-sized devices worn by a resident or attached to an asset. When a resident or patient enters a Tx Activation Field, the Tag sends a signal to the zone Controller, via the Receiver. The zone Controller processes this information for appropriate control action or response (e.g. sounding alarms, locking doors, etc.).

The ES 2200 System Tag band is made of nylon-reinforced vinyl with nylon mesh. The band is designed to resist tearing caused by pulling or chewing on the band. However, if the band becomes frayed or torn it will need to be replaced. In long-term applications, the band should be replaced periodically for cleanliness.

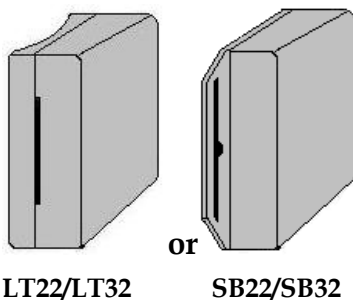


Figure A.8
The ES 2200 and IS 3200 System Tags
(bands not shown)

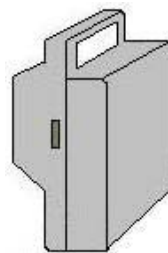
IS 3200 System Tags

In addition to the look and functionality of an ES 2200 System Tag, IS 3200 System Tags (Figure A.8) are assigned to a specific resident or asset (via the Tag Test Station and Accutech Software). Once assigned, the computer associates a name, room number and any other pertinent information about the resident/asset with that Tag.

BR 4200 System Tags

In addition to the functionality of an IS 3200 System Tag, BR 4200 System Tags (Figure A.9) will alarm if the band is removed or tampered with in any way.

BR 4200 System Tags are attached to infants with a conductive- fiber-stripped cloth band.



BR42

Figure A.9 The BR 4200 System Tag
(band not shown)

Testing Tags

For maximum protection of residents or assets, Accutech recommends Tags be tested on a weekly basis. There are 4 ways that you can test a Tag: enter a monitored zone, a TAD (Part #660021), a Tag Test Station (TTS), and/or the Keypad's Auxiliary LED (yellow) will light when a Tag is detected (optional, additional wire required).

Activating/Deactivating Tags

NOTE: The “Tag Signal Strength” LEDs of the TAD (see Figure A.10) indicate the current state of a Tag. Illuminated indicates the Tag is on; dormant indicates the Tag is off or is not functioning.

1. With no Tag in the TAD, slide the Power switch to the **On** position
The TAD Power LED illuminates.
If not, replace the TAD 9-volt battery and turn on the TAD.

NOTE: If a Tag is in the receptacle and the power to the TAD is cycled, the Tag may be turned on or off unintentionally.

2. Place the Tag into the tag receptacle on the back of the TAD unit in proper orientation for the Tag type (see Figure A.11)

NOTE: If the “Tag Signal Strength” LEDs illuminate, the Tag is on. If the “Tag Signal Strength” LEDs do not illuminate, the Tag is off.

3. To change the state of a Tag (from either on to off or off to on), press and release the **TAD** button
The *WAIT* LED will illuminate for about a second.
The “Tag Signal Strength” LEDs will change according to the state change (illuminating for on, dormant for off).



Figure A.10: The TAD front label

NOTE: The Power switch for your TAD may be located on the left side or top of the unit.

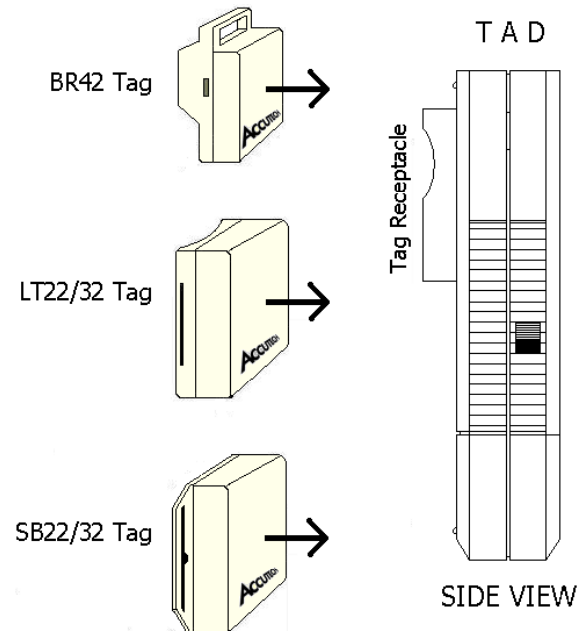


Figure A.11: Proper Tag Orientation

Installation Manual

Appendix B:

Jumpers, LEDs, Pots, Switches & Fuses
