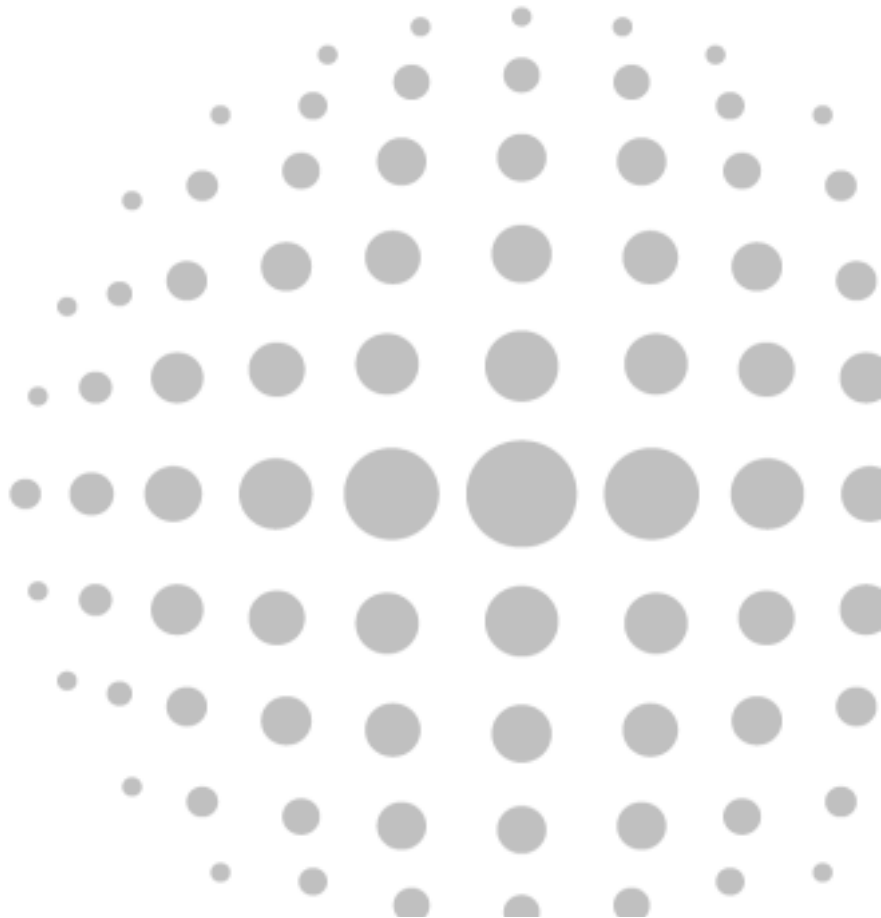




# DigiGuard™ Door Alarm Installation and Operation Guide



DigiGuard™ Door Alarm  
Installation and Operation Guide



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## **ELECTRONIC DOCUMENT AND ADOBE® ADOBE® READER**

An electronic version of this document is available. Please call Digitech International, Inc. to receive your CD containing a PDF version viewable with **Adobe® Acrobat® Reader**.

See Appendix A - “**Adobe® Acrobat® Reader**” for complete instructions.

**Table of Contents**

Table of Contents ..... i

Conventions used in this Guide ..... iii

Software License Agreement ..... iv

Warranty and Special Provisions ..... v

Terms and Conditions of Purchase ..... vi

System Hardware Repair Policy ..... vii

    General ..... vii

    Warranty Repairs ..... vii

    Non-Warranty Repairs ..... vii

        Repair Costs ..... vii

            Bench Repair Charges: ..... vii

            Replacement Parts & Sub-Assemblies: ..... vii

    Terms ..... vii

Chapter 1 Introduction ..... 1-1

    How to Reach Digitech International, Inc. .... 1-1

    Introduction ..... 1-2

    System Overview ..... 1-2

    Pre-Installation Considerations ..... 1-3

        Site Design and Placement of Repeaters ..... 1-3

        Site Electrical Service ..... 1-4

    Electrical Phase Coupling ..... 1-5

        Coupler Installation ..... 1-5

            Power Mains Connectors ..... 1-5

            Low Voltage Connector ..... 1-6

Chapter 2 Installing the Door Transmitter ..... 2-1

    Introduction ..... 2-2

    Mounting the Door Transmitter and Magnet ..... 2-3

        Roll Up Doors ..... 2-3

        Garage Type Panel Roll-Up Doors ..... 2-7

        Swing Doors ..... 2-8

            Mounting the Transmitter and Magnet ..... 2-8

    Battery Connection and Replacement ..... 2-9

        Installing the Battery ..... 2-9

        Replacing the Battery ..... 2-9

Chapter 3 Installing the Repeater Units ..... 3-1

    Introduction ..... 3-2

    Placement Considerations ..... 3-2

        Transmission Lines ..... 3-2

        Power Connections ..... 3-2

    Mounting the Repeater ..... 3-3

    Optional Battery Backup ..... 3-4

Chapter 4 Installing the System Receiver ..... 4-1

    Introduction ..... 4-2

    Placement Considerations ..... 4-2

    Mounting the Antenna ..... 4-3

    Connection to the System Controller ..... 4-4

---

Chapter 5 System Programming and Operation ..... 5-1

    Introduction ..... 5-2

    Adding Units ..... 5-2

    Modifying Units ..... 5-4

Chapter 6 Testing and Troubleshooting ..... 6-1

    DigiGuard™ Testing Procedures ..... 6-2

        Testing Door Transmitters On Vacant Unit Doors ..... 6-2

        Testing Door Transmitters On Rented Unit Doors ..... 6-3

    Troubleshooting the DigiGuard™ System ..... 6-3

        Transmitter Does Not Report To The PC ..... 6-3

        Repeater Does Not Come Online ..... 6-3

        Repeater Is Not Transmitting To Receiver ..... 6-4

        All Repeaters Fail to Come Online ..... 6-4

        Receiver Does Not Come Online ..... 6-4

    Repeater-Receiver Communication ..... 6-5

        <BIU> LED Is On Constantly ..... 6-5

        <BIU> LED Is On Constantly and No <PKD> Lights Are On ..... 6-5

Appendix A Adobe® Acrobat® Reader ..... A-1

    The Electronic Document ..... A-2

    Adobe® Acrobat® Reader ..... A-2

Appendix B Door Transmitter S/N Worksheet ..... B-1

    DigiGuard™ Door Transmitter S/N Worksheet ..... B-2

### Conventions used in this Guide

<u>Format/Symbol</u>	<u>Definition</u>	<u>Example</u>
<b><i>Bold Arial Italic</i></b>	Represents Menu selections or Screen objects to select	Move the cursor to the <b>Set</b> button
< <b>Arial</b> > text in braces	In the Software - represents a key on the PC Keyboard  On hardware items, this will represent a device (i.e. plug, chip, jumper, cable, etc) on a board or a control device.	Press < <b>Enter</b> >  Remove the < <b>J3</b> > jumper.
"Courier Regular"	Actual text the user is to enter or text displayed on the screen..	Type "CD\DIGI" and press < <b>Enter</b> >. Do Not type the Quotation marks!
<b>Times text</b>	Bold text in the Guide's normal font means to perform a task.	Select the <b>Unit Setup</b> tab.
" "	Quotations around the Guide's normal font will be used to represent other sections in the guide or to emphasize the text enclosed in quotes.	(See the "System Setup" section on page ...)
• •	Used to indicate an item in a list or one step in a procedure. Numbers will also be used for this.	• Select the <b>Unit Setup</b> tab. • Click on <b>Unit Type</b> .
1. 2.	Also used to indicate an item in a list or a step in a procedure. Bullets will also be used for this.	1. Select the <b>Unit Setup</b> tab. 2. Click on <b>Unit Type</b> .
< <b>Key1</b> >< <b>Key2</b> >	Multiple keyboard keys indicate that you should push the first key and hold it down while pressing the second key.	Press < <b>Ctrl</b> >< <b>C</b> > to copy the contents.
{c1   c2}	Indicates a User Choice from the items. Each choice is separated by a vertical bar.	Select { <b>OK</b>   <b>Cancel</b> } based on the situation.

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1. PURCHASER understands that unless otherwise specified in writing and agreed to by both parties, neither installation nor the warranty thereof, is included in this Agreement.

2. The PURCHASER hereby recognizes and agrees that the system is a custom integrated system that may include both hardware and software, designed particularly for the premises, and the PURCHASER recognizes and agrees that it shall have no subjective right to refuse the system. PURCHASER understands that the materials specified by properly executed Purchase Order or Sales Order copy, properly installed, are sufficient to complete the installation as required. Should additional materials be necessary, they may be purchased at current catalog prices.

3. Digitech International, Inc. (SELLER) warrants products of its own manufacture to be in good working order for a period of 360 days from the date of purchase from the SELLER. Should this product fail to be in good working order at any time during this 360 day warranty period, SELLER will, at its option, if all sums owed are paid up to date, repair or replace this product with either reconditioned or new parts at no additional charge, provided the original parts are returned for inspection and verification of warranty coverage. All returned parts and products become the property of Digitech International, Inc. Labor and incidental costs to uninstall original parts and reinstall replacement parts provided under this Limited Warranty shall be the responsibility of the PURCHASER. This Limited Warranty does not include service or repair of damage to the product resulting from accident, disaster, misuse, or abuse; extraneous causes including lightning and transient currents; or modifications of the product not specifically approved by SELLER. Original equipment manufacturer's warranties will apply to all other equipment supplied by SELLER when acting as a value-added reseller. To the maximum extent permitted by applicable law, SELLER and its suppliers disclaim all other warranties, either express or implied, including but not limited to implied warranties of merchantability and fitness for a particular purpose, with regard to the software, hardware, and accompanying written materials. This Limited Warranty gives you specific legal rights that may vary from jurisdiction to jurisdiction. Limited Warranty service may be obtained by pre-paid delivery of the product to the warranty service location during the 360-day warranty period. Claimant agrees to insure the product or assume the risk of loss or damage in transit, to prepay shipping charges, and to use the original shipping container or equivalent. If this product is not in good working order as warranted above, PURCHASER sole remedy shall be repair or replacement as provided above. In no event shall SELLER be liable for any damages, including any lost profits, lost savings, or other incidental or consequential damages arising out of the use of, or inability to use such product, even if SELLER has been advised of the possibility of such damages, or for any claim by any other party. It is agreed between the parties hereto that the SELLER is not an insurer, that the SELLER's exclusive liability is contained in this statement.

Should any part of the system be damaged or destroyed by fire, water, or extraneous causes, whether or not subject to the PURCHASER's control; the repair, replacement work, and reinstallation shall be carried out at the expense of the PURCHASER. PURCHASER agrees that the SELLER's obligation hereunder relates solely to the system as provided by the SELLER, and the SELLER shall not be liable for any loss or damage incurred by the PURCHASER caused by PURCHASER's installation, alteration to, removal of, or tampering with the system.

4. PURCHASER agrees to pay the purchase price indicated on the properly executed Purchase Order or Sales Order copy. The purchase price, less any deposits, shall be paid as specified on the Sales Order copy or Purchase Agreement. Thereafter, interest shall be charged on the due and unpaid balance at a rate equal to one and one-half percent (1 1/2%) per month from the due date until paid in full. In no event shall the interest be greater than the maximum permitted by applicable law. If the SELLER deems it necessary to employ an attorney or collection agency to collect this account or any part thereof, the PURCHASER agrees to pay actual, reasonable attorney fees or collection costs.

Following a reasonable time after delivery of equipment, but in no event to exceed 30 days, acceptance of the equipment is deemed to have occurred and the PURCHASER thereby waives any complaint or any other objection arising under this Agreement as to the delivery of the equipment.

5. By installing or using Software provided with this purchase, PURCHASER indicates acceptance of the Conditional Software License Agreement included with the Software. Under this License, the Software may be supplied to PURCHASER with a temporary activation code. Once all purchase terms have been complied with, including all payments as agreed, a Software Registration will be issued with a permanent activation code. If PURCHASER does not accept the terms of the Software License, PURCHASER must return the Software in its original package together with all other items and materials supplied by SELLER under this Agreement.

6. This Agreement shall be interpreted and governed by the laws of the State of North Carolina.

7. The PURCHASER represents that the Agreement described by the Sales Order copy or Purchase Agreement, along with this statement of Terms and Conditions of Purchase, constitutes the entire Agreement between PURCHASER and SELLER and that no other agreements, promises, representation, undertakings, warranties, express or implied, except those expressly set forth herein have been relied upon by PURCHASER, or have been made to PURCHASER by SELLER, its agents, or employees, and that no modification of this Agreement shall be claimed by PURCHASER subsequent to the execution hereof unless first reduced to writing and executed by the parties hereto. Further, the PURCHASER acknowledges and agrees that the SELLER has not made, and the PURCHASER is not relying upon any representation or warranties, express or implied, except as contained herein, and any and all implied warranties are hereby expressly waived by PURCHASER.

**System Hardware Repair Policy**

**General**

Equipment to be repaired may be sent to Digitech International, Inc. after a Return Authorization Number has been issued. The items should be shipped prepaid to:

**Digitech International, Inc.  
Attn: Repair Department  
409 New Leicester Highway  
Asheville, NC 28806**

**Service & Repair Telephone/Fax Numbers**

Phone: (828) 250-9767 Fax: (828) 250-0799

A detailed packing list showing the Return Authorization Number, quantity, product, purchase order number for any out-of-warranty repairs, return address, telephone number and any special instructions must be included with the shipment. Equipment shipments made on a COD basis will be refused.

Each returned item shall have a written description of the defect on the packing list.

Upon receipt by Digitech International, Inc., each shipment will be inspected to verify all items are received as listed, and that defects are due to failure under normal usage, not user negligence. Damaged or defective items which are not covered by warranty will be handled according to the non-warranty repair policy.

**Warranty Repairs**

Each DigiGate system and major sub-assembly bears a warranty expiration date.

Defective units still under warranty will be repaired as stated in the original warranty.

The warranty period for repaired items shall be 90 days or the remainder of the original warranty period, whichever is greater.

**Non-Warranty Repairs**

Defective items not covered under warranty will be repaired at a cost based on the current charges in effect at the time of the repair.

The warranty period for repaired items shall be 90 days from the date of shipment from Digitech International, Inc.

**Repair Costs**

These published service and repair costs are subject to change without notice.

**Bench Repair Charges:**

Hourly rate .....	\$65.00
Minimum charge .....	1 hour

**Replacement Parts & Sub-Assemblies:**

Subject to the prices in effect at the time of repair.

**Terms**

All shipments to Digitech International, Inc. are to be prepaid. Freight shipments to Digitech International, Inc. on a COD basis will be refused.

Digitech International, Inc. will pay surface freight charges on the return of repaired units under warranty. Air freight charges will be added to the repair fee. All freight, shipping and handling charges will be billed to the customer on units out of warranty.

Repair and air freight charges will be invoiced to customers who have established credit lines with Digitech International, Inc. Repaired items returned to companies doing business on a COD basis will be subject to the COD fee, which will be added to the repair charge.

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### Included in this Chapter

<b>How to Reach Digitech International, Inc. ....</b>	Corporate Address Internet and E-Mail Telephone and Fax
<b>Introduction .....</b>	General description Differences from a wired system
<b>System Overview .....</b>	Transmitters Repeaters Receiver
<b>Pre-Installation Considerations .....</b>	Site Design and Placement of Repeaters Site Electrical Service

### **How to Reach Digitech International, Inc.**

#### CORPORATE ADDRESS

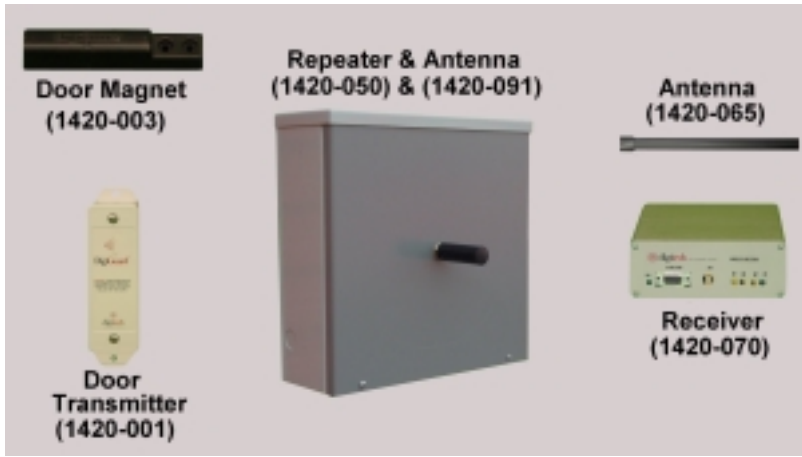
Digitech International, Inc.  
409 New Leicester Highway  
Asheville, NC 28806

#### INTERNET & E-MAIL

Our Web site is  
[www.digitech-intl.com](http://www.digitech-intl.com)  
E-Mail to Sales at  
[sales@digitech-intl.com](mailto:sales@digitech-intl.com)  
E-Mail to Service at  
[techsupport@digitech-intl.com](mailto:techsupport@digitech-intl.com)  
Submit drawings by E-Mail to  
[drawings@digitech-intl.com](mailto:drawings@digitech-intl.com)

#### TELEPHONE AND FAX

Main Office 828.250.9767  
Fax Line 828.250.0799  
Technical Support 800.523.9504  
Technical Support Fax 828.250.9491



**Figure 1-1**

### Introduction

The DigiGuard™ system was designed from the ground up to operate in the self-storage environment. Instead of using off-the-shelf commercial or industrial parts, Digitech International, Inc. has engineered a custom solution to meet the needs of most self-storage facilities. DigiGuard™ is a supervised system, meaning the system verifies receipt of transmission from each device.

The system operates in the 900 MHz frequency range which allows higher power transmission than other devices. The system transmits in an unrestricted frequency, therefore interference from other sources could degrade the efficiency of the system. Also, the range of any wireless device is dependent on the material in surrounding structures, RF interference, equipment placement, and many other factors.

The Door Transmitter is equipped with a tamper device. Any attempt to enter an alarmed unit or to tamper with the transmitting device will trigger an alarm.

### System Overview

The DigiGuard™ system consists of three devices. **Figure 1-1**

1. Door Transmitters and their accompanying Magnets which are placed on each individual unit.
  2. Repeaters and their Antenna, which are located throughout the facility at specified locations.
  3. A Receiver and Antenna, which are located in the main office and connected to the System Controller.
- The Receiver processes both door transmitter signals and signals from Repeaters.

To overcome the problem of transmission of signals from Repeater to Repeater, the DigiGuard™ system has been designed to use the proven technology of converting signals to travel along electrical power lines, eliminating inefficiencies. This is the ONLY system that can ensure that signals received at the Repeater can be transmitted reliably to the Receiver. Other systems require exact placement of Repeaters to ensure reliable airwave communication.

**Figure 1-2**

### **Pre-Installation Considerations**

#### **Site Design and Placement of Repeaters**

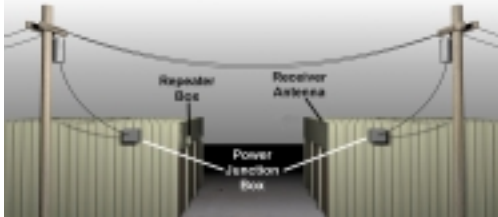
Planning must be done to ensure that all Door Transmitters can communicate with at least one Repeater or the Receiver. Repeaters are used to capture signals that cannot reach the Receiver directly. The Receivers and Repeaters are powered by 120/ 240 VAC. The Door Transmitters use a lithium battery with a ten year calculated battery life.

Each Door Transmitter is uniquely numbered and marked with a Serial Number on the back of the case. As each Transmitter is installed, the Serial Number MUST be recorded in conjunction with the Unit number it is installed on. This information will be required to set up the DigiGate-700™ software for correct reporting.

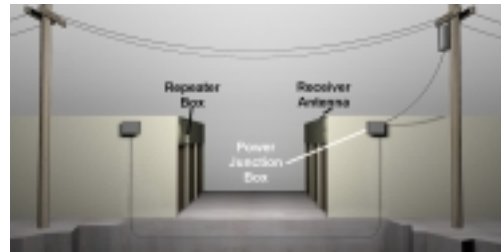
Door Transmitters are normally mounted in the upper left corner of the door or on the opposite side of the frame from the door latch.

Repeaters can be mounted inside or outside of the building, depending on the unit door locations. Each Repeater requires 120/240 VAC power. The Repeaters should be mounted so the antenna is at approximately the same height or slightly above the Door Transmitters. This provides the best coverage of the facility, and requires the least number of Repeaters for the installation.

The Receiver communicates with the System Controller over an RS-485 communication line. Normally the Receiver would be located in or near the office. The antenna that is used with the Receiver should be mounted horizontally for best reception. The maximum antenna cable length is 25'.



**Figure 1-3**



**Figure 1-4**

### Site Electrical Service

Digitech International, Inc. recommends that the Repeaters be installed on the same electrical service and phase as the Receiver in the office. “Electrical Service” refers to the incoming electrical power from the utility company. If this is not possible, phase couplers must be used to bridge the electrical service, thus allowing the Repeater signal to be transmitted to the Receiver over the electrical lines.

**Figure 1-3** shows a layout that is **unacceptable**. The Repeater and the Receiver are on two separate electrical services. Because the signal cannot travel through the transformers, it requires a phase coupler to have any communication between the two devices.

**Figure 1-4** shows an **acceptable** layout. With the Repeater and the Receiver both on the same electrical service, the signal will have a path from the Repeater to the Receiver.

Working closely with your electrical contractor to plan the power requirements will ensure proper connections and efficient signal communication.

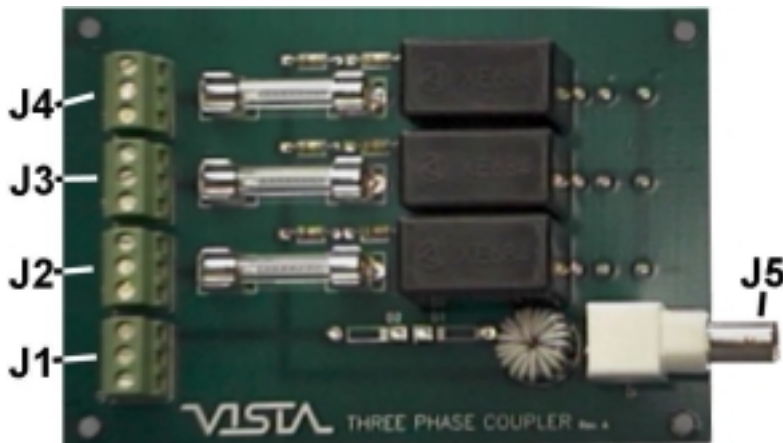


Figure 1-5

### Electrical Phase Coupling

When the system Repeaters and Transmitter cannot be on the same power service, phase couplers are used to shorten the signal path. **Figure 1-5**

These couplers are installed in a junction box mounted next to the electrical panel with a short conduit connection to the panel.

The DigiGuard™ system cannot communicate between two different electrical services. The Three Phase Coupler provides a way of transferring a communications signal from one system into the other with Power Mains operating from 0-250V, AC or DC.

The Coupler was specifically selected for its multiple international safety agency compliance.

### Coupler Installation

#### Power Mains Connectors

1. The Coupler connects to Power Mains via four connectors; **<J1>** (common), **<J2>** (phase), **<J3>** (phase), and **<J4>** (phase). Each connector has three screw down terminals that are connected together. This allows a wire to be cut and the two ends inserted into separate terminals on the same connector, connecting the two wires back together, as well as connecting them to the coupling circuit. This provides easy connection to a phase without a separate termination block.
2. **<J1>** Common. This is the signal return path and should be connected to neutral making sure that all couplers on the network use neutral as the Common.
3. **<J2>** Power Mains. This can be any one of up to three phases. The maximum voltage is 250V AC or DC referenced to **<J1>**. The maximum voltage referenced to another power main **<J3>** or **<J4>** is 500V AC or DC.
4. **<J3>** Same as **<J2>**.
5. **<J4>** Same as **<J2>**.



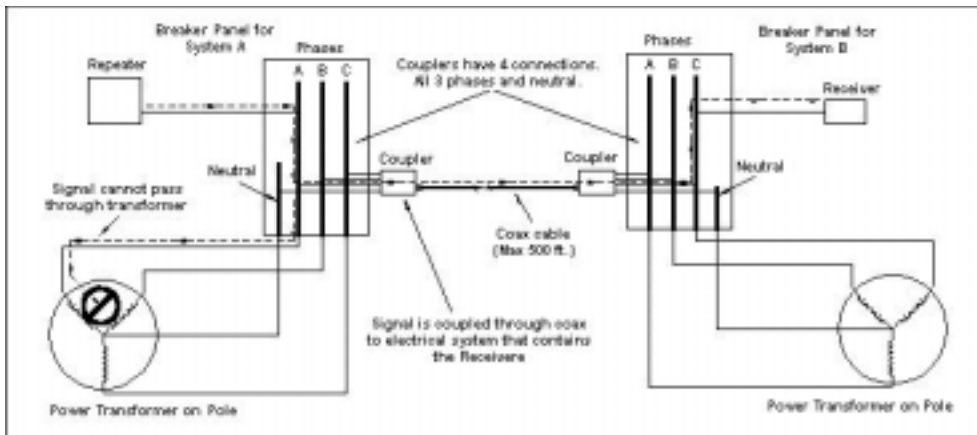


Figure 1-6

### Low Voltage Connector

1. When the Receiver and any of the Repeaters are on different electrical services, the low voltage BNC connector, **<J5>**, is used to pass the signal from one service to another with RG-59 coax cable. **Figure 1-6**
2. This RG-59 cable is limited to 500 feet in length.

## Chapter 2

# Installing the Door Transmitter

### Included in this Chapter

<b>Introduction</b> .....	Description of Door Transmitter
<b>Mounting the Door Transmitter and Magnet</b> .....	Roll-Up Doors Garage Type Panel Roll-Up Doors Swing Doors
<b>Battery Connection and Replacement</b> .....	Installing the Battery Replacing the Battery



Figure 2-1



Figure 2-2

### Introduction

The Door Transmitter, **Figure 2-1**, is housed in an environmental plastic enclosure. The enclosure has been designed for outdoor use, and has a UV inhibitor in the material. The enclosure is also moisture sealed with a gasket between the cover and case of the enclosure.

The Door Transmitter is equipped with a tamper switch. Removing the cover of the Transmitter or placing another magnet near the case will trigger the tamper alarm.

The Transmitter must be mounted on the door frame with the Magnet, **Figure 2-2**, mounted on the door. The proper alignment of these two components will ensure that the reed switch array will operate correctly when the door is opened and the Magnet moves away from the Transmitter. Proper orientation of the door switch will also ensure that the antenna is oriented correctly for maximum antenna gain. The magnet is a heavy duty design which allows for greater tolerance, preventing the possibility of false alarms from minor movements of the door.

The Transmitter/Magnet assembly should be mounted on the opposite side of the door from the door hasp on a roll-up door to avoid hitting the Transmitter with the hasp. On swing doors, mount the Transmitter/Magnet assembly on the opposite side of the door from the hinges to provide adequate separation of the Magnet on opening of the door. Mounting is shown on the left of a roll-up door since most hasps are mounted on the right. On swing doors, the mounting is shown on the right since most hinges are on the left.

If the facility's configuration is different, rotate the entire assembly, Transmitter and Magnet, keeping the orientation of the Magnet and Transmitter the same.

**NOTE:** If the site has garage type doors or other non standard doors, or any damaged doors or frames, notify Digitech International, Inc. at 800.523.9504, or contact the Reseller for specific instructions before attempting to install this system.



Figure 2-3



Figure 2-4

## Mounting the Door Transmitter and Magnet

### Roll Up Doors

1. When installing the Door Transmitter on roll up doors, it should be mounted vertically in the upper left corner of the door jamb. The Magnet is mounted horizontally on the door and aligned with the ridge on the Transmitter case. **Figure 2-3**
2. The Magnet mounts horizontally in a recess on the corrugated door to provide clearance when the door rolls up. **Figure 2-3**
3. Use the DigiGuard™ mounting template (P/N 1420-200) for placement and marking of the holes to mount both the Transmitter and the Magnet. **Figure 2-4**
4. Place the larger vertical bar on the door frame with the horizontal smaller bar in one of the recesses on the door approximately 3" below the top of the door frame.

**Note:** If the door hasp is mounted on the left side of the door, invert the mounting template and use it upside down on the right side of the door. The bar in the recess will be lower on the door than stated in Step 4.

5. Mark all holes and remove the template.

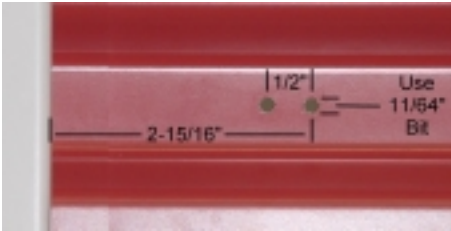


Figure 2-5



Figure 2-6

6. Center punch all the marks to keep the drill from walking off the marks.
7. Drill the holes for the Magnet with a 11/64" bit. **Figure 2-5**
8. Place a rivet (Digitech P/N 2840-008, supplied) in each hole on the Magnet and place it through the drilled hole in the door.
9. Finish securing the Magnet with the rivets. **Figure 2-6**

**CAUTION: DO NOT use the Magnet as a template for the drill. The close tolerance on these rivet holes is to insure a stable mounting of the Magnet to the door. Drilling through the rivet holes in the Magnet will enlarge them and leave the Magnet less than ideally secure and stable.**

**Note: Figure 2-6** shows the proper mounting of the Magnet for optimum performance. The vertical ridge down the center of the Magnet should be aligned in the center of the Transmitter case.

The Magnet has been designed to be easily mounted on existing doors. The rivet holes are located on the right so the Magnet can be mounted with minimum effort. The rivet holes on the Magnets have very close tolerances to provide tight, stable installation. Do not substitute the size of the rivets shipped with the Magnets and do not use the Magnet as a jig for drilling.



Figure 2-7



Figure 2-8

10. If mounting the Transmitter on an aluminum or wood surface, drill the holes using a 9/64" bit. If the mounting surface is not metal or wood, drill the hole 1/4" to hold an appropriate anchor (not supplied) for the #8 screw. **Figure 2-7**
11. Record the Serial Number of the Transmitter and the unit number for later entry into the DigiGate-700™ software. See **Appendix B**
12. Secure the Transmitter using the #8 x 3/4" screws supplied with the case. **Figure 2-8**



**Figure 2-9**



**Figure 2-10**

**NOTE:** Placing the Magnet closer than 1/2" to the Transmitter will affect the tamper alarm. The Magnet should be from 5/8" to 3/4" from the Transmitter when the door is fully closed.

13. **Figures 2-9** and **Figure 2-10** show the completed installation.



Figure 2-11



Figure 2-12

### Garage Type Panel Roll-Up Doors

1. Installing the Door Transmitters on garage type panels is the same as standard roll-up doors with the Transmitter and Magnet on the opposite side from the door hasp.
3. The Magnet cannot mount behind the door frame as it did on the standard roll up door.
4. Since less of the magnet is positioned behind the Transmitter, the magnetic strength is less and the Transmitter should be mounted with a gap about 1/4" less than a standard roll-up door. **Figure 2-12**

**NOTE: If the door hasp is mounted on the left side of the door, mount the Transmitter upside down on the right side of the door as in the standard roll-up door installation.**

**NOTE: The Transmitter should be approximately 1/2" to 5/8" from the Magnet and should be tested to insure correct operation.**

The differences are:

2. The Transmitter and Magnet should be mounted in the vertical center of a panel to prevent knocking the Magnet off the door when it is raised. Mounting it near the top or bottom edge of the panel will bring it too close to the top of the door frame when the door is rolled up. **Figure 2-11**





**Figure 2-13**

### Swing Doors

When installing the Door Transmitter on swing doors, the Transmitter should be mounted vertically and inverted (upside down for the right side door frame) or in its standard configuration for the left side door frame.

The Transmitter and Magnet should be mounted on the side of the door opposite from the hinges (the latch side). The gap between the Transmitter and the Magnet should be 1/2 inch and as close to the top of the door as possible.

The ridge on the Magnet should align about 1/4" above (toward the center of the transmitter) the ridge on the Transmitter case.

### Mounting the Transmitter and Magnet

1. Mount the Transmitter vertically at the upper corner of the door frame, as stated above, opposite the hinged side of the door. The edge of the case should be approximately 1/4" from the edge of the door frame.
2. The Magnet is mounted vertically on the door with the ridge alignment for the Magnet/Transmitter case as stated above.
3. The gap between the Magnet and the Transmitter case should be 1/2".
4. Place the Transmitter housing as shown in **Figure 2-13**
5. Use the holes in the flanges as a template, mark the holes for the mounting screws.
6. Drill these holes using a 9/64" bit.
7. Record the Serial Number of the Transmitter and the unit number for later entry into the DigiGate-700™ software.
8. Secure the Transmitter using the #8 x 3/4" screws supplied with the case.
9. Place the Magnet in the proper position and mark the holes.
10. Drill using an 11/64".
11. Place a rivet (Digitech P/N 2840-008, supplied) in each hole on the Magnet and place it through the drilled hole in the door.
12. Finish securing the Magnet with the rivets.

**NOTE:** Do NOT drill through the mounting holes on either Magnet or Transmitter.



Figure 2-14



Figure 2-15



Figure 2-16



Figure 2-17

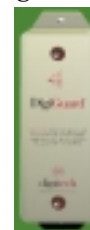


Figure 2-18

### Battery Connection and Replacement

The DigiGuard™ system uses a custom lithium battery pack. The battery is rated for a minimum operational life of ten years. The lithium battery ensures long life of the Door Transmitter over wide temperature ranges. Using an alkaline or a non-approved battery can damage the Door Transmitter and will void the warranty. The battery is installed from the factory. The following instructions are provided for installing as well as changing the battery. Always disarm the system before doing any work on the system.

#### Installing the Battery

1. Remove the screws from the Transmitter cover.
2. Remove the cover.
3. Plug the connector from the battery to the pins on the Transmitter board. **Figure 2-14**
4. Place the battery in the case above the top holding pin. **Figure 2-17**
5. Replace the cover and secure with the screws removed in Step 1. **Figure 2-18**

**NOTE:** Pay attention to the orientation of the battery connector. The battery will only connect in one direction. Forcing the battery connector onto the pins can damage the Board. Also, pay attention to the orientation of the cover with the case. Align the ridge on the top right of the cover with the ridge on the case.

**Putting the cover on backwards can damage the Transmitter Board.**

#### Replacing the Battery

1. Remove the screws from the Transmitter cover.
2. Remove the cover.
3. Unplug the battery's connector from the two pins on the Transmitter Board. **Figure 2-15**
4. Replace the old battery with the new Digitech replacement battery, connecting the plug on the pins. **Figure 2-16**
5. Place the battery in the case above the top holding pin and mount with wires toward the antenna. **Figure 2-17**
6. Replace the cover and secure with the screws removed in Step 1. **Figure 2-18**

**NOTE:** Do not recharge, disassemble, or dispose of in heat above 212 deg. F. Replace only with Digitech P/N 1420-1015. May present fire or burn hazard if mistreated.

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Included in this Chapter

**Introduction** ..... Repeater Description  
Theory of Operation

**Placement Considerations** ..... Transmission Lines  
Power connections

**Mounting the Repeater** ..... Exterior  
Interior

**Optional Battery Backup** ..... Installation

**WARNING!**

**High voltage is present inside the Repeater enclosure. Make sure that power is disconnected from the Repeater prior to removing the cover.**

**Also, use extreme caution when removing the cover from the Repeater unit. If the cover drops when the screws are removed, the antenna cable connected to the Board inside may be pulled loose, damaging the Repeater Board and the antenna cable.**

**Repeater requires connection to 120VAC High Voltage power. Installation should be performed by a qualified electrician.**



Figure 3-1



Figure 3-2

### Introduction

Digitech International, Inc. recommends that the Repeaters be installed on the same electrical service and phase as the Receiver in the office. “Electrical Service” refers to the incoming electrical power from the utility company. If this is not possible, phase couplers must be used to bridge the electrical service, thus allowing the Repeater signal to be transmitted to the Receiver over the electrical lines.

The DigiGuard™ Repeater is a unit that receives the signal transmitted from the Door Transmitter, **Figure 3-2**, by way of an antenna mounted on the Repeater, **Figure 3-1**. The Repeater is mounted on the wall, with its antenna at approximately the same height or slightly above the Transmitter. The Repeater then transmits the signal to the DigiGuard™ Receiver over the facility power lines. This unique system ensures that the signal will be received without the Repeater having to communicate with other Repeaters. The Repeater enclosure also contains an optional battery backup system to maintain transmission in power outage situations. The facility’s power lines do not have to be active to transmit data to the DigiGuard™ Receiver.

Depending on the facility layout, there may be multiple repeaters located throughout the facility.

### Placement Considerations

#### Transmission Lines

Transmission lines, cellular antennas, and other types of high power transmission devices may have an effect on any RF device. If there are similar devices on or near the facility, it is recommended that a site survey be performed to ensure that there will be no interference.

#### Power Connections

Repeaters require 120 or 240 VAC. There are several options for power depending on the configuration of the facility.

The AC power connects to the terminal block under the Repeater Board. The terminals are labelled for the appropriate wires; Line, Neutral, and Ground.

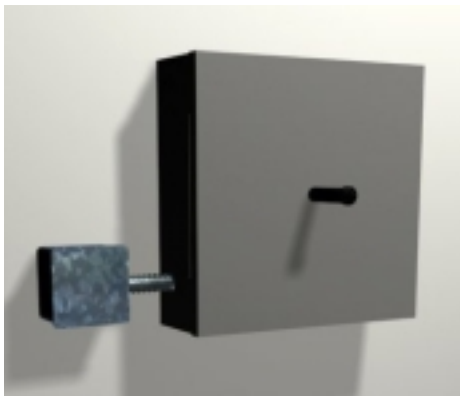


Figure 3-3

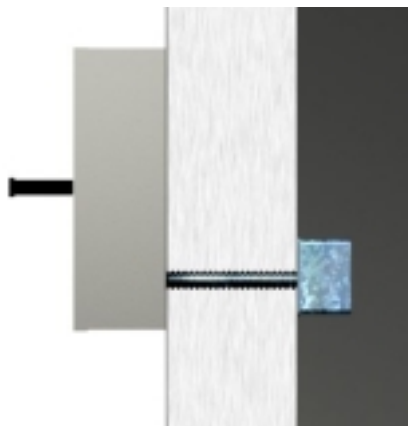


Figure 3-4

### Mounting the Repeater

There are four (4) knockouts available on the Repeater box to use as access for the power line, one on each side (1/2"), and two in the lower back of the box (3/4"). It is recommended that the knockouts on the left of the box be used if possible, because the connections for incoming AC power are on the left side.

**Figures 3-3** shows the conduit from a junction box to the left side of the Repeater. **Figure 3-4** shows the conduit from a junction box, through the wall to the back of the Repeater.

The Repeater should be mounted with the antenna at or slightly above the approximate height of the Transmitters.

The Repeaters need to be on the same electrical service and phase as the System Receiver in the office to allow effective electrical transmission of the signals received. (See Page 1-4) Electrical Service refers to the incoming electrical power from one transformer.

When the location for the Repeaters has been determined, mount the Repeaters firmly to the buildings, using appropriate fasteners for the surface that the Repeater is mounted on.

The Repeater is shipped from the factory without the antenna mounted on the Repeater's cover. After the Repeater is mounted to the building, screw the antenna onto the fitting in the center of the cover. Do not over tighten.

**NOTE: Mounting hardware is not supplied by Ditech International, Inc. The installer should provide the appropriate fasteners for the mounting surface.**

**WARNING: Always make sure that power is disconnected from the Repeater prior to opening the case. High Voltage is present!**



Figure 3-5



Figure 3-6

### Optional Battery Backup

The battery backup board comes installed from the factory. The battery is shipped in a separate box to insure safety. Hook up the battery only after installation is complete.

The battery and the backup board directly above it will maintain power in a power outage situation and recharge the battery when power is restored to normal. **Figure 3-5**

The backup board is connected to the battery with a red wire from the +12V terminal on the board to the red Positive terminal on the battery; and a black wire from the Neg. terminal on the board to the black Negative terminal on the battery. **Figure 3-6**

**WARNING: Make sure the AC power is OFF before attempting to connect the Repeater.**

The board connects to the *AC* power through the terminal block under the Repeater Board. The black wire from the left terminal of the pair labelled *AC* on the Backup Board, is connected to the terminal opposite the *Line* (Line) label on the terminal block under the Repeater Board. A white wire from the right terminal of the pair labelled *AC* on the Backup Board, is connected to the terminal opposite the *Neu* (Neutral) label on the terminal block under the Repeater Board. The green wire is connected to the terminal opposite the *Gnd* (ground) label on the terminal block under the Repeater Board.

It is possible that there may be other black and red pairs of wires coming from under the Repeater Board. These will be inserted in the *Neg.* and *+12V* terminals on the backup Board respectively.

Replace the antenna cable to the connector on the Repeater Board and secure the cover.

# Chapter 4

## Installing the System Receiver

### Included in this Chapter

<b>Introduction</b> .....	General System Requirements
<b>Placement Considerations</b> .....	Relation and Limitations of Antenna to System Controller
<b>Mounting the Antenna</b> .....	Orientation and Mounting for Maximum Gain
<b>Connection to the System Controller</b> .....	The RS-485 Bus Connections





Figure 4-1



Figure 4-2

### Introduction

The System Receiver is located in the office and connects to the RS-485 bus (P2) on the System Controller board. An antenna is mounted on the eave of the building and connected with up to a 25' cable to the **ANT** fitting in the center of the end of the Receiver next to the serial port, **Figure 4-1**. The power cord plug on the other end of the Receiver and the power switch are shown in **Figure 4-2**.

Signals from the Door Transmitters and Repeaters reach the Receiver in two ways. First, from Transmitters to the Receiver's antenna; and secondly, from the Repeaters through the AC power lines.

### Placement Considerations

The Receiver will normally be located near the System Controller, if the antenna cable allows. The Receiver and the System Controller are connected by an RS-485 cable which will transmit over very long distances. The RS-485 cable has a DB9M fitting on one end to connect to the Receiver and 2 wires to connect to the RS-485 Bus (P2) on the System Controller board.

The antenna cable provided with the Receiver is of the maximum allowable length, 25'.

Because the antenna cable is the limiting factor in the placement of the Receiver, it may require mounting the Receiver on a wall at a position allowed by the antenna cable. The RS-485 cable can then be run to the P2 plug on the System Controller board.



**Figure 4-3**



**Figure 4-4**

### Mounting the Antenna

The antenna should be mounted first on the outside of the building near the eave. It is mounted horizontally with the bracket provided. **Figure 4-3** This bracket requires that the antenna be mounted on the corner of the building or on the roof, if there is a proper mounting surface. The long side of the antenna should be placed to face the units it will receive the signal from directly. If units are located at different angles to the antenna, the face of the antenna is best placed at a median angle to all units.

Run the antenna cable into the building in an appropriate manner and weather seal any openings.

The Receiver can then be mounted where it is easily connected to the antenna cable.

Connect the Receiver end of the antenna cable to the fitting marked **ANT** on the Receiver next to the RS-485 Socket. Hand tighten this fitting then use a wrench to tighten 1/8 turn. **Figure 4-4**



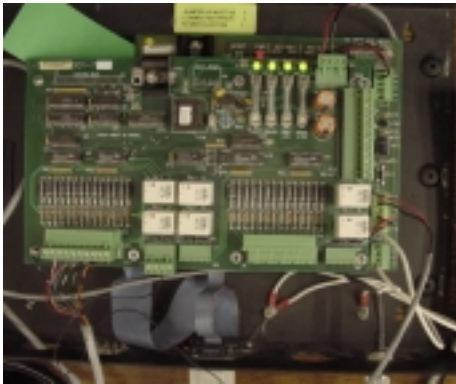
Figure 4-5



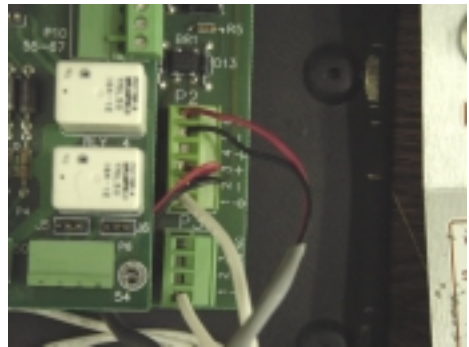
Figure 4-6

### Connection to the System Controller

After the Receiver is connected to the antenna cable and secured in its location, connect the DB9 fitting of the RS-485 cable to the Receiver and run the cable to the System Controller box. **Figures 4-5 & 4-6**



**Figure 4-7**



**Figure 4-8**

1. After opening the System Controller box, insert the cable through one of the cable holes in the bottom and connect the ends to the P2 Plug on the System Controller board.  
**Figure 4-7**
2. The red wire connects to one of the positive terminals and the black wire to the corresponding negative terminal. Connect the ground (shield) to Terminal 1 or 4. **Figure 4-8**  
**NOTE:** Other wires may populate all terminals on the plug. It is okay to connect the wires from the Receiver, parallel (in the same terminals) to those already installed. This will not affect operation of the system.
3. Close and secure the System Controller cover.

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# Chapter 5

## System Programming and Operation

### Included in this Chapter

<b>Introduction .....</b>	General Software Overview
<b>Adding Units .....</b>	Transmitter Serial Numbers Added to New Units
<b>Modifying Units .....</b>	Transmitter Serial Numbers Added to Existing Units

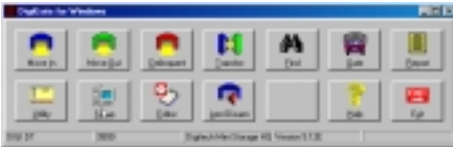


Figure 5-1

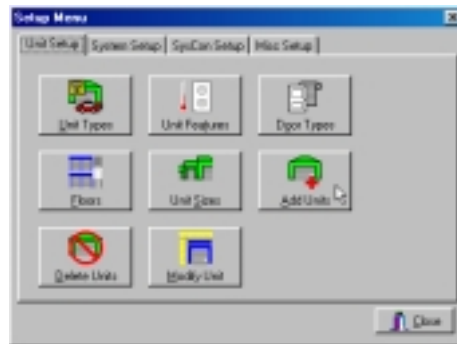


Figure 5-2

## Introduction

The operation of the DigiGuard™ Door Alarm System is programmed through the DigiGate-700™ software. The Door Transmitter Serial Number is entered for each unit, allowing the software to monitor the alarm state of the unit.

## Adding Units

1. From the **DigiGate-700™ for Windows Main Menu**, click on the **Setup** button.  
Figure 5-1
2. This will open the **Setup Menu** Window.  
Figure 5-2
3. Click on the **Add Units** button.



Figure 5-3

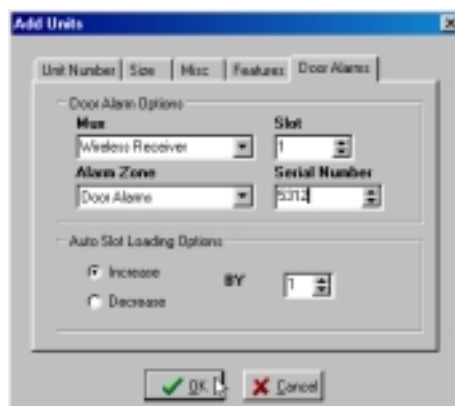


Figure 5-4

4. This will open the **Add Units** window. **Figure 5-3**
5. On the **Unit Number** tab, fill in the **Starting Unit Number** and the **Ending Unit Number** field with the same number. Leave the **Increment By** number as 1.
6. **Click** on the **Misc** tab and **select** the door type.
7. **Click** on the **Door Alarms** tab.
8. This will open the **Alarms** window of **Add Units**. **Figure 5-4**
9. **Select *Wireless Receiver*** from the **Mux** listbox and **Door Alarms** from the **Alarm Zone** list box.
10. These selections will activate the **Serial Number** field in the window.
11. Enter the Serial Number recorded from the Transmitter when it was installed.
12. Enter the Slot number. Each unit must have a unique Mux/Slot combination.

**NOTE:** The Serial Number, NOT the Slot Number, is what defines the Transmitter and allows correct reporting of the alarm status of the unit. If this number is incorrect, the unit will not report an alarm, and any alarm reported from the Transmitter will not show the correct unit number, if any.

13. **Click** on the **OK** button to return to the menu.

**NOTE:** A **Clear/Set/Download all Units** must be performed on the System Controller after entering all changes to the Unit information. See DigiGate-700™ User Guide. (P/N 1200-170)



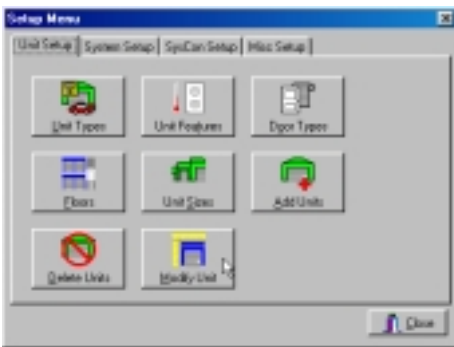


Figure 5-5



Figure 5-6

### Modifying Units

When the DigiGuard™ installation is to an existing Digitech International, Inc. system, each Transmitter's Serial Number will have to be added to the appropriate unit in the DigiGate-700™ program. This is done in the **Modify Units** section of the software.

1. From the **DigiGate-700™ for Windows Main Menu**, click on the **Setup** button. **Figure 5-1, Page 5-2**
2. This will open the **Setup Menu** Window. **Figure 5-2, Page 5-2**
3. Click on the **Modify Units** button. **Figure 5-5**
4. This will open the **Modify Unit Information** window. **Figure 5-6**
5. Select the **Unit** to change.
6. Click on the **Edit** button.

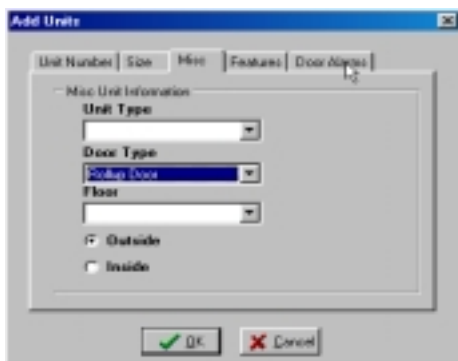


Figure 5-7



Figure 5-8

7. This will open the **Modify Unit ###** window.
8. **Click** on the **Misc** tab.
9. **Select** the correct **Door Type** from the list box. **Figure 5-7**
10. **Click** on the **Door Alarm** tab.
11. **Select *Wireless Receiver*** or **DigiGuard** from the **Mux** listbox, if not already selected.
12. Add or change the **Serial Number** field in the window.
13. Increment the Slot number. Each unit must have a unique Mux/Slot combination.

**NOTE:** The Serial Number, NOT the Slot Number, is what defines the Transmitter and allows correct reporting of the alarm status of the unit. If this number is incorrect, the unit will not report an alarm, and any alarm reported from the Transmitter will not show the correct unit number, if any.

14. **Click** on the **OK** button to return to the menu.

**NOTE:** A **Clear/Set/Download all Units** must be performed on the System Controller after entering all changes to the Unit information. See DigiGate-700™ User Guide. (P/N 1200-170)

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Included in this Chapter

<b>DigiGuard™ Testing Procedures .....</b>	Testing Door Transmitters On Vacant Unit Doors Testing Door Transmitters On Rented Unit Doors
<b>Troubleshooting the DigiGuard™ System .....</b>	Transmitter Does Not Report to the PC Repeater Does Not Come Online Repeater Is Not Transmitting To Receiver All Repeaters Fail to Come Online Receiver Does Not Come Online
<b>Repeater-Receiver Communication .....</b>	<BIU> LED Is On Constantly <BIU> LED Is On Constantly and No <PKD> Lights Are On

## DigiGuard™ Testing Procedures

Before testing of the DigiGuard™ alarm system, disconnect the power supply from all sirens.

The system must be fully installed and configured before testing. This includes installation of all Transmitter/Magnets, Repeaters, Receiver, and power line phase couplers; data entry of all units, Repeater Serial Numbers and Transmitter Serial Numbers into the system, and loading the System Controller with the unit and alarm information (performing a **Clear/Set/Download All Units** as described below).

As each Transmitter is installed, record the Serial Number on the Worksheet in **Appendix B**.

### Testing Door Transmitters On Vacant Unit Doors

1. From the **Utility** menu of the **DigiGate-700™** software, **click** the **Clear Controller** button and **click** on the **OK** button. Allow the operation to complete.
  2. Next, **click** the **Set Controller** button and **click** on the **OK** button. Allow the operation to complete.
  3. Verify that all Repeaters, and the DigiGuard™ Receiver, come on line. If all Repeaters do not come on line, go to the Repeater troubleshooting section.
  4. Next, **click** the **Download All Units** button and **click** on the **OK** button.
  5. From the **Main Menu**, **click** the **Arm/Disarm** button then on the **Arm/Disarm Unit** tab.
  6. **Select Rented and Vacant** from the **Options** and **Arm** from the **Alarm Status** list box.
  7. **Click** on the **OK** button.
  8. Wait for 30 minutes and observe the **Activity Log** without opening any doors.
  9. Note any units that give ALARM or TAMPER indications.
  10. ALARM may indicate that the Magnet is not close enough to the Transmitter. Check that the ridge on the Transmitter case is aligned with the Magnet.
  11. TAMPER may indicate that the Magnet is too close to the Transmitter, or the **Door Type** selected is incorrect, the wrong type Transmitter was used for a Swing Door, or the Transmitter is bad.
  12. Check the gap between the Magnet and Transmitter, the orientation and alignment of the Transmitter, and the **Door Type** setting of the unit in the **DigiGate-700™** software.
- Note:** If a Door Type or a Transmitter S/N is changed, testing must be restarted from **Step #1**. You must perform a **Clear/Set/Download**.
- For each vacant unit door:**
12. Open the door.
  13. Verify that the correct unit reports OPEN or ALARM .
  14. Close door.
  15. Verify that the correct unit reports CLOSED or SECURED.
- Note:** It may take a few minutes for the activity log to update, depending on the number of units and Repeaters at the site.
16. If the unit fails to report after a few minutes, go to the Transmitter troubleshooting section.

### Testing Door Transmitters On Rented Unit Doors

#### For each rented unit door:

1. Take a spare Magnet and place it on the Transmitter cover aligned with the ridge then remove it.
2. Verify that the correct unit reports TAMPER then TAMPER SECURE. An ALARM message may show as well.
3. If the unit fails to report TAMPER, the Magnet is mounted too close to the Transmitter, or the **Door Type** selected is incorrect, the wrong type Transmitter was used for a Swing Door, or the Transmitter is bad.
  4. Check the Magnet gap for the type of door being tested.
  5. In the DigiGate-700™ software, **click** on the **Setup** menu button.
  6. **Click** on **Modify Units** and **select** the unit number.
  7. **Click** on the **Edit** button then on the **Misc** tab.
  8. **Select** the correct **Door Type** and **click** on the **OK** button.
  9. If this does not correct the problem, go to the transmitter troubleshooting section.

### Troubleshooting the DigiGuard™ System

#### Transmitter Does Not Report To The PC

**Note:** This procedure is for a single Transmitter not reporting. If you have several Transmitters in an area not transmitting, the problem is more likely at a Repeater location.

1. Verify that the Serial Number programmed in the DigiGate-700™ software is the correct Serial Number for the Transmitter.
2. If not, correct the Serial Number. Perform a **Clear/Set/Download** and retest.
3. Verify that the battery is connected properly. Unplug for several seconds and reconnect the battery above the antenna (toward top of case).
  4. Remove the Transmitter from the door and place it near a Repeater that is online and reporting.
  5. Manually place a Magnet near the Transmitter to see if it reports correctly.
  6. If the Transmitter does not report then replace the Transmitter.
  7. If the Transmitter starts reporting when nearer the Repeater, adjust the location of the Transmitter when replacing it back on the door (possibly moving it to the other side of the door on roll-up doors ).

#### Repeater Does Not Come Online

1. Verify that the Repeater is connected to AC power, and that the power LED on the Repeater Board is on.
2. Press the **<RESET>** button on the Repeater Board. The Service light should flash several times. If the Service light stays on or continues to flash for more than several seconds, the Board is faulty and should be replaced.
3. Check that the Receiver is plugged directly into a power outlet, not into a UPS or surge-suppressor.
  4. Verify that the **<LINE>**, **<NEUTRAL>**, and **<GROUND>** wires are connected to the correct terminals in the Repeater box.
  5. Verify that all Repeaters and the Receiver are on the same electrical service and the same phase of that service, or that phase couplers have been installed correctly. See Chapter 1.
  6. Print out the setups and verify that the Serial Number programmed for the Repeater matches the actual Serial Number for the Repeater. The Repeater number is located on the Repeater Board and inside the case.

### Repeater Is Not Transmitting To Receiver

1. Verify that the antenna is connected securely and not damaged.
2. Verify that the antenna cable is connected securely to the inside of the cover and to the connection on the board.
3. With the cover removed, take a Transmitter near the Repeater and place a Magnet near the Transmitter. Remove the Magnet. This will simulate Transmitter activity. Verify that the yellow **<XMIT>** and **<RCV>** LED's are flashing.
4. Intermittent operation of the Repeater can result from power line problems.
5. Check that the Receiver is plugged directly into a power outlet, not into a UPS or surge-suppressor.
6. Verify that the LINE, NEUTRAL, and GROUND wires are connected to the correct terminals in the Repeater box.
7. Verify that all Repeaters and the Receiver are on the same electrical service and the same phase of that service, or that phase couplers have been installed correctly. See Chapter 1.
8. Check to make sure that the **<PKD>** and **<BIU>** LEDs flash after the **<XMIT>** and **<RCV>** LEDs flash. This indicates that the information is being sent over the power line to the Receiver.
9. If problem still exists, contact technical support.

### All Repeaters Fail to Come Online

1. Check that the Receiver is plugged directly into a power outlet, not into a UPS or surge-suppressor.
2. Verify that all Repeaters and the Receiver are on the same electrical service and the same phase of that service, or that phase couplers have been installed correctly. See Chapter 1.
3. Check the **<BIU>** LED on the Receiver. It should be flashing. If on continuously, one of the Repeaters is faulty.
4. Power down each Repeater, one at a time until the **<BIU>** LED goes out.
5. Replace the faulty Repeater, the last one powered down.
6. If all Repeaters were powered down and the **<BIU>** LED is still on, replace the Receiver.
7. In extremely rare cases, another device that uses the power line for communication may interfere with the DigiGuard™ system.
8. If the problem continues contact Digitech International, Inc. Technical Support.

### Receiver Does Not Come Online

1. Check for the correct polarity in the connection of the RS-485 line to **<P2>** on the System Controller board.
2. Check that the shield is connected to **<P2>** in Terminal 1 or 4.
3. Make sure the 9-pin plug is connected securely to the Receiver.
4. Check the power light on the Receiver. The Receiver has a power switch and fuses built into the moulding where the power cord connects to the box.
5. Check the status of the RS-485 **<XMIT>** and **<RCV>** lights on the Receiver board. They should both be on almost constantly.
6. If neither are flashing, recheck the RS-485 connections.
7. If the **<RCV>** flashes but the **<XMIT>** doesn't, check the software setup for entry of the Receiver's Serial Number into the software as board #31.
8. If the problem continues contact Digitech International, Inc. Technical Support.

### Repeater-Receiver Communication

When a Repeater sends information to the Receiver the **<PKD>** (Packet Detect) LED should flash. This indicates that the Receiver has received a packet of information. The **<BIU>** (Band In Use) LED indicates that the band on the power line is currently being used. Normally you will see both LEDs flashing quickly and simultaneously.

#### **<BIU> LED Is On Constantly**

1. If the **<BIU>** LED is constantly on (on the Receiver) then check Repeaters to see if one has a **<PKD>** light that is constantly on.
2. If any Repeater is found with the **<PKD>** light on constantly, power down the Repeater, wait 10 seconds, and power it up again.
3. If the problem continues, replace the Repeater.

#### **<BIU> LED Is On Constantly and No <PKD> Lights Are On**

1. Power each Repeater down one at a time to see if the **<BIU>** light goes off.
2. If it does, that Repeater is causing the problem.
3. Power the Repeater down, wait 10 seconds and power it up again.
4. If problem is not corrected, Replace the Repeater.



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Included in this Chapter

1. **The Electronic Document** ..... Where and How?
2. **Adobe® Acrobat® Reader** ..... Installing or Updating the Reader.

## The Electronic Document

An electronic version of this document is available by calling Digitech International, Inc. A CD will be provided that contains a PDF version of this guide and is viewable with the **Adobe® Acrobat® Reader** v5.0. For those that do not have the **Acrobat® Reader** installed, or would like to upgrade to version 5.0, an installation program is also available. Call your sales associate for the media you require.

### Adobe® Acrobat® Reader

If upgrading to Acrobat® version 5.0 from a 3.x or 4.x version, the 3.x or 4.x version **MUST** be uninstalled, before installing the 5.0 version. Uninstalling the 3.x or 4.x version **AFTER** installing the 5.0 version will erase some necessary files and cause problems when running Acrobat® Reader.

To install and set up the electronic manual reader, **Acrobat® Reader**.

1. Place the **Digitech** CD into the CD-ROM drive.
2. On the **Windows** Task Bar, **click** on the **Start** button, then select **Run**.
3. **Click** on the **Browse** button.
4. Navigate to the CD-ROM drive {d:}, then to the “Acrobat” directory.
5. **Double click** on “Acrd4enu.exe”.
6. This will start the **Acrobat® Reader** installation program. Follow the instructions on the screen. When completed there will be an “**Acrobat Reader**” icon on the desktop.

Running **Acrobat® Reader**.

1. If this document was received as a file on a CD, it should be in the “User’s Guide” directory. The file may be copied to any location on the hard drive or run it directly from the CD by double clicking on the filename.
2. The Electronic Document will open in the **Acrobat® Reader**.
3. If a “No program associated with: {d:} \{path}\{document}.pdf” error is received, the **Acrobat® Reader** program must be installed as described above.

The **Acrobat® Reader** Manual is available from the Help menu in the **Acrobat® Reader** program and is also included on the CD in the “**Acrobat**” directory and may be viewed as described above and printed from the **Acrobat® Reader** program.

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Appendix B

Door Transmitter S/N Worksheet

Included in this Chapter

DigiGuard™ Door Transmitter S/N Worksheet ..... Worksheet Form





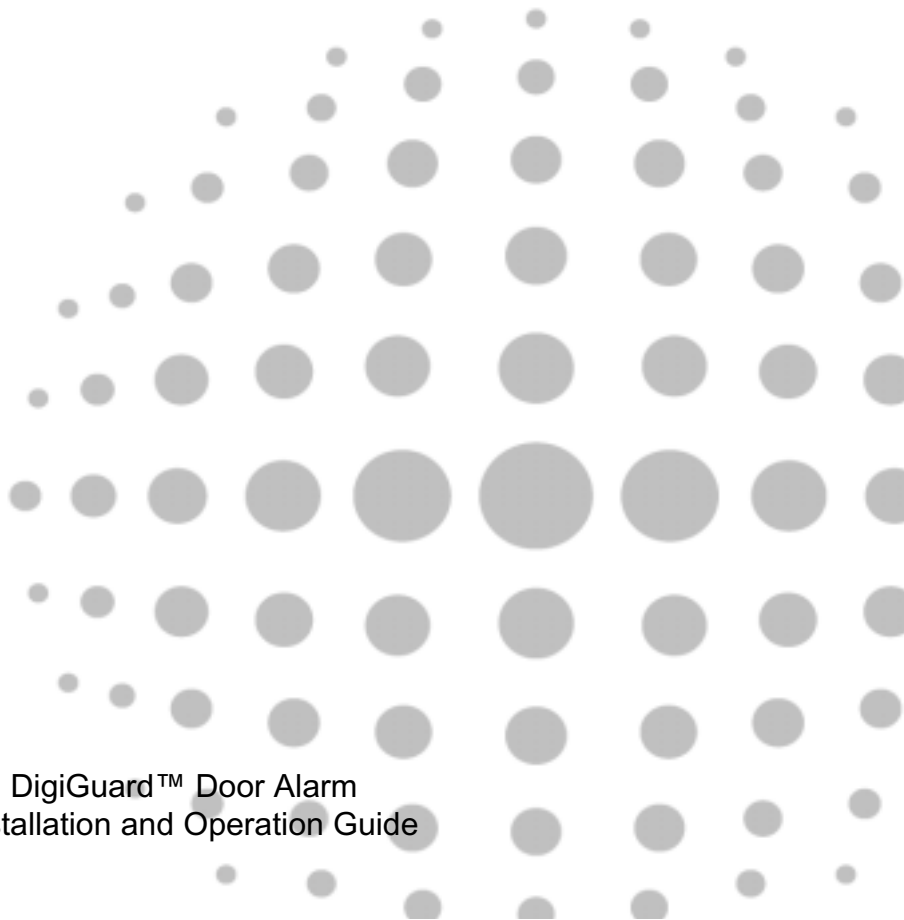
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P/N: 1200-182

**DigiGuard™ Door Alarm**  
**Installation and Operation Guide**