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DigiGate-700™ System
Installation Manual
Including Uni-MUX

WORLD CLASS SECURITY SOLUTIONS

DigiGate-700™ System
Installation Manual

ELECTRONIC DOCUMENT AND ACROBAT® READER

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Table of Contents

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Terms and Conditions of Purchase

PURCHASER understands that unless otherwise specified on a Digitech Sales Order Copy, or other contractual agreement, neither installation nor the warranty thereof, is included in this agreement.

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 on the reverse side of this agreement, on a signed Digitech Sales Order Copy, or in executed contractual agreements, properly installed, are sufficient to complete the installation as required. Should additional materials be necessary, they may be purchased at current catalog prices.

Should any part of the system be lost, stolen, 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. Otherwise, this purchase is subject to the Digitech Written Limited Warranty, the details of which are available on request.

PURCHASER agrees to pay the purchase price indicated on the stated terms reflected on a Digitech Sales Order Copy or in contractual agreements. Thereafter, interest shall be charged on any 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.

By installing or using Software provided with this purchase, PURCHASER indicates acceptance that the software is part of a system consisting of the software and the hardware it controls, that the software is meant to be installed on only one computer (including Network Terminals, if so noted), and that 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.

This agreement shall be interpreted and governed by the laws of the State of North Carolina. The PURCHASER represents that this Agreement 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.

Written Limited Warranty

Effective with products delivered on or after July 1, 2003:

Digitech International, Inc. (SELLER) warrants to you, the original PURCHASER, that for the stated warranty term, Digitech will, at no extra charge, repair or replace with new or reconditioned parts, any of its manufactured components, which is defective in material or workmanship, provided the original part has been installed and maintained properly and is returned for inspection and verification of warranty coverage. The decision to repair or replace will be at the discretion of the manufacturer. The warranty period shall be two years on all Digitech manufactured equipment, with the exception of camera equipment and vertical gate operators, which carry a one-year warranty and the DigiView Digital Recorder, which carries a three-year warranty. Original equipment manufacturer's warranties will apply to all other equipment supplied by Digitech, acting as a value-added reseller. All returned parts and products become the property of Digitech International, Inc. Labor and incidental costs to uninstall original parts and re-install replacement parts provided under this Limited Warranty shall be the responsibility of the PURCHASER. This Limited Warranty does not include service, replacement, 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 Digitech.

Limited Warranty service may be obtained by pre-paid delivery of the product to the warranty service location during the warranty period, providing a Return of Materials Authorization Number (RMA) has been issued. 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 a product is defective as described above, PURCHASER'S sole remedy shall be repair or replacement as provided herein. 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, or for any claim by any other party, even if SELLER has been advised of the possibility of such damages. PURCHASER acknowledges and it is agreed between the parties hereto that the SELLER is not an insurer and that the SELLER's exclusive liability is contained in this statement.

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.

System Hardware Repair Policy

RMA's

Equipment to be repaired may be sent to Digitech International, Inc. after a <u>Return Material Authorization</u> number has been issued by the Customer Service Department. The items should be shipped prepaid to:

Digitech International, Inc.
Attn: RMA/Repair
409 New Leicester Highway
Asheville, NC 28806

S*ervice & Repair Telephone/Fax Numbers*
Phone: (828) 250-9767 Fax: (828) 250-0799

A detailed packing list showing the <u>Return Material Authorization Number</u>, 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.

In 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 agreement.

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 and charged 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 68.00
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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Chapter 1 – Introduction and System Overview

Introduction

Digitech International is always looking to improve the products and services that it offers. To this extent we are releasing this new and updated version 2.1 of our installation manual. This installation manual is separate from the operations manual that the manager uses to run the DigiGate™ software on a day-to-day basis.

This manual is intended for use by both the novice and experienced installer. For the novice, this manual instructs the installer on the methods of installing the Digitech-700™ system, and attempts to prevent some of the more common installation problems that may occur in a site. We encourage the experienced installer to read this manual as well, for over time some of the procedures for installing components of the Digitech-700™ Security System may have changed.

We ask that the installer read all of the sections pertaining to their installation before starting the installation of the system. This will help insure that the installer has the all the correct components, parts and tools to perform the installation successfully, that the pre-installation requirements for each part of the system have been met, and that the installation of the Digitech-700™ system is performed in the most satisfactory manner.

At various places in the manual there will be a sign in the margin to alert the reader that there is a **Tip**, **Note**, **Warning**, or **Danger** on the page to the right of the sign that should be observed. **Notes** or **Tips** give additional information or shortcuts that may help your situation. **Warnings** alert you to situations or procedures that may damage the equipment. **Danger** alerts a situation or procedure that may cause physical injury or death. These signs are listed below.

💡 **- Tip or Note** ⚠️ **- Warning** ⚡ **- Danger**

Due to the complexity of some installations, those systems may be sent with additional instructions detailing the connections of the system. If you have any questions about the system installation, do not hesitate to call for assistance. Digitech International hours of operation are from 8AM till 8PM EST, Monday through Friday, except for major holidays. The number is 1-800-523-9504. If you have a Project Manager specifically assigned to your site you may ask for them personally. If not, the service department can take your call.

The installation of gate operators is covered in instructions that are shipped with each operator.

Video system installation is covered in a separate manual.

Wireless Door Alarm installation is covered in a seperate manual.

General Warnings and Requirements of the Digitech-700™ System

1. High Voltage may be present in some phases of the installation. Always follow standard electrical safety procedures when working on any electrical system.

2. When connecting wires to the screw terminals of the DigiGate equipment, the terminals should be torqued to 7lb/in.

3. All relay outputs of the DigiGate system are suitable for switching resistive or general purpose loads @ 24VAC / VDC, 1 amp current.

4. The fuse (F1) for the system controller board is rated 1.5 Amps @ 250V.

5. The fuses for the Keypad Interface board are rated as follows:

    F1 and F3 are rated .5 Amps @ 250V.

    F2 and F4 are rated 1.5 Amps @ 250V.

6. Fuses F1 and F2 for Door Alarm and Keypad MUX boards are rated at 2 AMPS @ 250V.

7. Splicing of any Digitech cable is NOT permitted and may be grounds for warranty revocation. Responsibility for correction will be at the installer's expense.

8. All Digitech system cables are low voltage (24 Volts) circuits and must be run in separate conduits from high voltage wires.

9. At several points in this manual, the requirement for components of the Digitech-700™ system to be connected to an electrical ground is stated. It is very important for the protection of the system that the electrical grounds on the site be correct. It is recommended that all buildings on the site be connected together on the same electrical ground. If separate electrical services are used, then it is recommended that the building grounds be tied together though a grounding cable.

10. All electrical outlets of the Digitech-700™ system should be properly grounded. An ideal electrical ground should read 5 Ohms or less to Earth Ground. The maximum acceptable reading is 25 Ohms to Earth Ground. Verification of proper electrical system grounding is not the responsibility of Digitech International or the installers.

11. Several parts of the Digitech-700™ Access System require High Voltage AC power outlets to be installed per the pre-installation and electrical requirements listed for these components. Materials, labor and any associated costs to provide specified High Voltage AC, are not the responsibility of Digitech International or the installer. This limitation applies to all equipment provided by Digitech International and is not limited to only the equipment listed in this manual.

12. The instructions and specifications in this manual are specifically designed for the installation of the Digitech International Digitech-700™ Access System. Any variance from these specifications or instructions without written consent from Digitech International is prohibited. Failure to comply with the specifications set forth in this manual may result in the installer being held liable for both labor and materials needed to bring the system into compliance.

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System Overview

The DigiGate 700™ System consists of several separate components. This section will show the individual components of the system, explain what each component is used for, and how they interconnect. The following sections will show the installation instructions for the individual components of the system.

Figure 1-2, **Page 1-4**, is a block diagram drawing of the system.

Refer to the drawing while reading this section.

The System Controller

This is the heart of the DigiGate 700™ system. All sites will have a system controller (or SYSCON) as part of the gate access system. The controller box is 15" long by 11" wide and 3-3/4" deep. It is powered by a separate power transformer, or by a battery backup supply, depending on the accessories that were purchased. **Figure 1-1** is a picture of a System controller with the lid closed and with it open.

Figure 1-1

By looking at **Figure 1-2**, you can see the controller and what it is connected to in the system. The office computer connects to the system controller through a RS-232 cable that may be up to 50 feet in length. The office PC (not provided by Digitech International) is what runs the DigiGate software, and is used to program the system controller. Once programmed, the system controller can run the system without the PC being on. The Syscon has an internal battery that will keep it's programming in memory during a power failure.

Inside the Syscon are two circuit boards. The top board is the Keypad Interface board. It is used to connect the keypads to the Syscon, and to control the various devices such as gates and door strikes. It has 4 green LED's on the top right of the board that shows the status of the fuses.
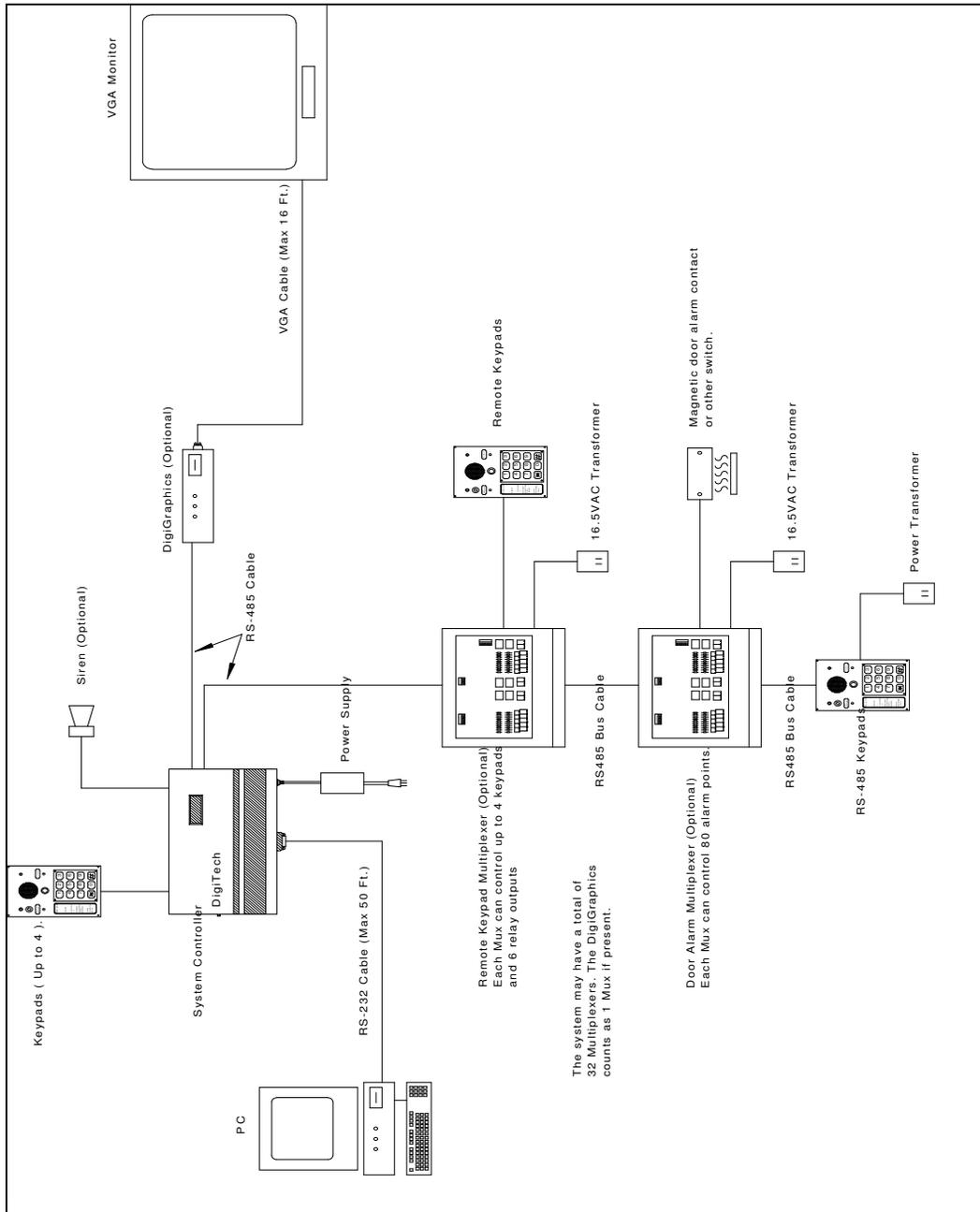
Figure 1-2

The bottom board is the Syscon board. It has the communications port that connects to the office PC, and has the RS-485 port for communication with other parts of the DigiGate system. It connects to the keypad interface board, and has a relay that is used to control various devices (most often a siren, in the case of door alarm systems). On the board are 5 red LED's, to show the status of the power to the board, and the status of the two communication ports.

The Syscon stores the access codes and other tenant information. When the codes are used at the keypads, the Syscon determines if it is a valid access code, and energizes the appropriate device. It also will disarm the unit in a door alarm system, and send information to the graphics controller if it is part of the system. The Syscon will keep a log of the activity at the site (up to 2000 entries), and will automatically upload this information to the PC when it runs the DigiGate program during daily operation.

Options for the System Controller

1. Battery Backup Power Supply: (DIGITECH Part # 1400-720) Provides power to run the system controller in the event of a power failure. Also supplies the siren power in Door Alarm systems.
2. Internal Piezo Buzzer: Door alarm systems have an internal buzzer inside the system controller, connected to an auxiliary relay. This sounds in addition to the siren when an alarm is triggered.

DigiGate 700 Keypads

The DigiGate keypads are used by the tenants to enter their access codes to allow access through the gates or doors on the site. They are connected to the keypad interface board (in the Syscon) in most systems. Systems that have more than 4 keypads, or ones that have keypads in remote locations on the site may use a Keypad Multiplexer to connect the keypads to the system. The keypads get their power from the interface board that they connect to. Relay outputs for the 700 keypad are located on the board the keypad is connected to.

The model 700 keypad connects to the interface board through an 11-conductor cable that is shielded and has a bare drain wire. This wire is provided by Digitech International and may not be substituted or spliced. The keypad also has a built in intercom that in most cases is connected to a master intercom station in the office, through a 2 or 3 conductor (depending on the intercom system used) 18 gauge shielded wire.

Options for the Keypads

1. CCD Camera (Color or B/W): Some keypads may have a covert CCD camera built into the keypad. These will need an additional 2-conductor wire for power to the camera, along with the Co-ax cable for the video output.
2. Keypad Heater: Keypads may have a keypad heater w/ thermostat built-in. This will require a 2-conductor wire for the heater power to be pulled to the pad.

Note: that keypad options require that more wires be run to the keypad location and that larger conduit to the keypad locations may be needed.

RS-485 Keypads (DigiGate-700LX)

These keypads are an optional piece of equipment, and are connected to the system controller through the RS-485 Data cable. They can operate independently of the keypad I/O board or a keypad Multiplexer. Features of these keypads include:

1. A built in relay that can be used to control any access device.

2. Can run off of 12 Volts, DC or AC power.

3. A magnetic tamper switch on the keypad to sound the siren if the keypad is removed from the enclosure.

4. Two input points built onto the keypad that allow monitoring of climate control doors, door alarms or motion detectors.

5. The same options that are used on the standard keypad are available on the RS-485 keypad as well. These are the pinhole video camera, and the keypad heater. The built-in intercom substation is standard with all keypads unless the "Classic" version is ordered, in which case the intercom is not present.

6. The code format for the keypad can be one of several types. The customer can enter their code as "code*", "*code#" or "code#". This is set at the factory.

DigiGate-700 LC and 700CR Keypads

The 700LC Keypad has the same features as the RS-485 Keypad listed above, with the addition of a 4 line x 20 character display on the faceplate, and the deletion of the 2 status LED's. This display shows a greeting message when the keypad is idle, and displays other messages in response to a successful code input, a bad password, a delinquent tenant, and others. These messages are programmed when the system is ordered, and some of the messages may be changed by the manager. See the DigiGate 700 Windows operating manual for more information on 700LC Keypad programming.

The 700CR Keypad has all of the features of the 700LC keypad, and also has a magnetic card reader or proximity card reader built in.

DigiGraphics Controller

The DigiGraphics is an optional piece of equipment that is connected to the Syscon through a 2-conductor RS-485 interface cable, and to a VGA monitor. The monitor shows a color overhead representation of the site, with the individual units shown with their numbers. The system controller tells the graphics controller the status of the units. The graphics controller draws the site plan, and colors the units depending on the status. The graphics controller is also connected to a remote control receiver for the input of the commands to the graphics. The DigiGraphics is powered by 115VAC.

Uni-Muxes

Uni-Muxes are multi-function RS-485 devices that are used for the connection of door alarms, keypads and relays. Different "daughterboards" are installed to customize the capabilities of each Uni-Mux. The number of items that they can have connected depends on the daughterboards that are installed, but cannot exceed the following totals.

110 Door Alarm Connections and 2 relays or;
4 Keypads and 6 relays or;
22 Relays.

Door Alarms and keypads cannot both be connected on the same MUX.

Uni-Muxes are usually mounted on or inside the building that has the devices they are connected to. In some cases they may be placed in/on a different building.

Uni-Muxes connect to the system controller through a 2 conductor shielded RS-485 communications wire, and are daisy chained together with this cable. Each Uni-Mux is powered by a separate 12VAC transformer, or a 12VDC battery backup zoned supply.

Door alarms, or alarm points, connect to the Uni-Muxes through a 50 conductor, 24 gauge unshielded cable. Forty-Eight of the conductors are used and two are spares. Note that this is the ONLY unshielded wire that is used in Digitech International systems.

Keypads connect to Uni-Muxes using the 11 cond w/ bare drain, 22 gauge shielded wire.

Intercoms

The standard intercom for a Digitech International system is a 3 station master intercom, either flush mounted or desk mounted, that is connected to the intercom substations that are built into the Digitech keypads, or to independent substations. Adding additional substations above three will require a larger master station. The subs connect to the master station using a 2 or 3-conductor shielded wire, depending on the intercom layout.

Special paging systems and voice messaging systems may be incorporated into the intercom system. If this is the case, a special system description and wiring diagram will be issued for that system.

Remote intercoms (DigiCall) use a different manual for installation. They also use a different (3-twisted pair) wire.

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Sirens and Alarm Panels

On a Door Alarm system, one or more sirens will be installed at the site for an audible indication of an alarm. Some of them may have a built in strobe light as well. The sirens are connected through a 12VDC power supply to a relay output on the system controller, or on one of the MUX boxes.

The sirens are self-contained, and are able to be mounted almost anywhere. Typically, the siren will be mounted on the side of the office building, facing into the site. Larger sites may have more sirens placed in remote areas of the site, for better coverage.

Options for sirens:

1. Battery Backup: If the system has a battery backup power supply for the system controller, the siren will get its power from this backup supply. This is so the siren will still function in the case of a power outage.

2. Alarm Panels: In some situations, the siren may be connected to an Office alarm panel. See the section below.

Alarm Panels

Some sites may have an extra alarm panel for the protection of the office or apartment area. These panels can be connected to alarm contacts on the office/apt doors, and to motion detectors in the office area.

This panel will have at least one keypad for the purpose of arming and disarming the panel. The door contacts and motion detectors will be connected to delayed zones on the panel, so as to allow time for the manager to enter or leave the protected area without setting off the alarms.

If the site has such a panel, and if the system has door alarms on the units, then the output of the system controller relay is tied into a 24 hour armed zone on this panel. The siren is connected to the alarm panel instead of the system controller. This allows both systems to use one siren.

These alarm panels can be connected to a phone line, and can be programmed to dial a reporting station in case of an alarm. The use of one of these panels is the only way to have telephone reporting with a Digitech International door alarm system.

Wireless Alarms

The Digitech system has wireless door alarms (DigiGuard2™) that can be used to protect units. The installation instructions for the wireless alarms are in a separate manual.

Chapter 2 - System Controller Installation

Mounting Location – Standard Sites.

(See Appendix to this section for notes and diagrams dealing with "Remote" or non-manned sites.)

The System Controller (Syscon) is mounted in the building that contains the PC that is used to run the DigiGate software. The RS-232 cable that connects the computer to the Syscon is limited to 50 ft in length, so the controller must be mounted in a place that this cable can reach the PC, with the cable remaining hidden. Most offices have the PC on a countertop behind the front desk, so it may be possible to mount the controller under this counter.

1. Install the controller in a location that is as easily accessible as possible, with room for the door on the case to open fully, and still have the cables going to it hidden. Remember the 50 ft. limit on the RS-232 cable.

2. Do not place the controller in a location that will be blocked and require that office furniture, file cabinets, etc. be moved to gain access to the Syscon.

3. In the case of systems that have cabinets and Plexiglas displays, these cabinets may have a lower section with doors that is provided for the placement of the Syscon and other equipment. Unless absolutely necessary, Do Not put the System Controller in the cabinet behind the Plexiglas display panel. An exception to this is if the cabinet is open and accessible from the back.

4. If possible, install the controller so as to have the door open to the right, and the cables enter / connect to the controller from the bottom. Leave enough clearance around the controller for the wires to run neatly to the Syscon.

Electrical Requirements

1. The System Controller power supply will plug into a grounded 115VAC outlet, and this outlet should be on the same electrical circuit as the office PC.

2. The controller should be connected to an electrical ground through the grounding wire provided in the controller. This should be via a bus bar and ground wire, to the closest electrical ground. This can be the center wing nut of a surge suppresser, electrical panel, cold water pipe, or ground rod.

Pre-Installation Requirements

1. The area that the System Controller is being installed in should be finished to the point that there is little or no danger of the controller or it's wiring being damaged by further work in the area.

2. Power to the controller will be necessary before the controller can be tested. This does not preclude installation.

3. Depending on the location of the controller and the office PC, it may have been necessary to install conduit to run the cable(s) from the System Controller to the PC, and to the other devices in the system. This conduit should be present before installation can be completed.

4. The PC that the Syscon is to be connected to must have an available COM Port on the back for connection of the Digitech International communication cable. If there is not an available port on the back of the PC, the PC will have to have a port added or be modified to allow connection to an existing COM port. This is not the responsibility of the installer or Digitech International. The owner of the site will have to have a port added, or have the PC modified to accept the connection of the Digitech International system, at the cost of the owner. The DigiGate 700 system can use any port from COM1 to COM4, as long as no other software or equipment is using that port.

5. The PC should have any "Hibernation" or "Power Standby" features disabled. The location of these features differs between operating systems and for some OEM manufacturers of PCs. Please refer to the PC's documentation to locate these features. **Note: Failure to disable the features can cause the PC to experience communications problems with the DigiGate system.**

Installing the System Controller

NOTE: The order of installation presented for the controller may be altered. In other words, it is not necessary to install the keypads before the gate vend wires or the RS-232 cable to the PC, and so on. The only thing is that the power should be the last thing to be connected. If you wish to test some parts of the system without having the rest of the items connected to the controller you may do this, but disconnect the power to the controller when connecting up the remaining parts of the system.

Connecting the System Controller to the Office PC

There are 2 different ways the Syscon can be connected to the office PC; depending on if the RS-232 surge suppresser is part of the package. This is an optional item that can be added to the basic system. (Digitech Part # 4311-221)

Method A - Without the RS-232 suppresser

1. Locate the RS-232 cable that comes with the DigiGate 700 system. It has 9 pin DB connector ends on it, and can be 6, 25 or 50ft long. One end of the cable has a female plug on it, and the other end has a male plug.

2. The female plug is connected to the back of the office PC. It will connect to a port that has male pins sticking out of it. The port may be labeled in one of the following ways.

   a. COM
   b. SERIAL
   c. I/O

3. Connect the plug to the port, and tighten down the thumbscrews into the standoffs on the PC.

NOTE: It is important that the plug be securely fastened to the COM port. Failure to do this can result in erratic communications to the controller, and cause errors in the operation of the software. If the hold down points for the port are missing, alert the owner so as to have them replaced.

4. Route the cable neatly to the System Controller. Leave approximately 2 feet of slack at the PC, so as to allow for movement of the PC.

5. Connect the male end of the cable to the 9-pin port on the System Controller. Make sure to tighten down the thumbscrews into the mounting standoffs.

Method B - With the RS-232 suppresser

1. Follow **Steps 1-3** as in **Method A**.

2. Mount the RS-232 suppresser in the immediate vicinity of the System Controller. The suppressers ground wire should connect to the same ground as the Syscon.

3. Connect the cable from the PC to the suppresser. Tighten down the thumbscrews.

4. Use the 6ft RS-232 M-F cable provided, to connect the suppresser to the Syscon.

Example of Direct Connection   Example of Suppressor Connection

Figure 2-1

Connecting the System Controller to the Standard 700 Series Keypads

Note: These instructions are for the standard DigiGate 700 Keypads. The DigiGate 700LX and 700LC keypads use a 2 conductor wire for communication, and their instructions start on page 2-18. Please review your system order and determine which model of keypad you are using before continuing.

The relay outputs for Standard 700 keypads are located on the board the keypad connects to. Please confirm which type of keypad you are using before pulling wires.

1. Route the keypad cables to the System Controller, keeping them hidden as much as possible, and neatly bundled together with any other wires running to the controller. Feed the cables into the controller though one of the knockouts on the bottom of the box, leaving approximately 15" of cable inside the Syscon. Each standard keypad cable should be marked as to which keypad it is connected to. (i.e. "Enter Keypad", "Exit Keypad", etc.)
    Note: Each standard 700 keypad uses a separate cable to connect to the controller. Do not daisy chain these keypads on a single cable.

2. Strip off 12" of the gray outer insulation from the cable(s). This should leave you eleven 22 gauge insulated wires, and 1 bare drain wire (per standard keypad cable). Trim off the shield foil down to the outer cable jacket. Separate the black wire with white stripe from the rest of the wires. Trim the bare drain wire down to 6" in length, and the remaining wires down to approximately 4" from the end of the outer cable jacket. Strip off 1/4" of insulation from each insulated wire.
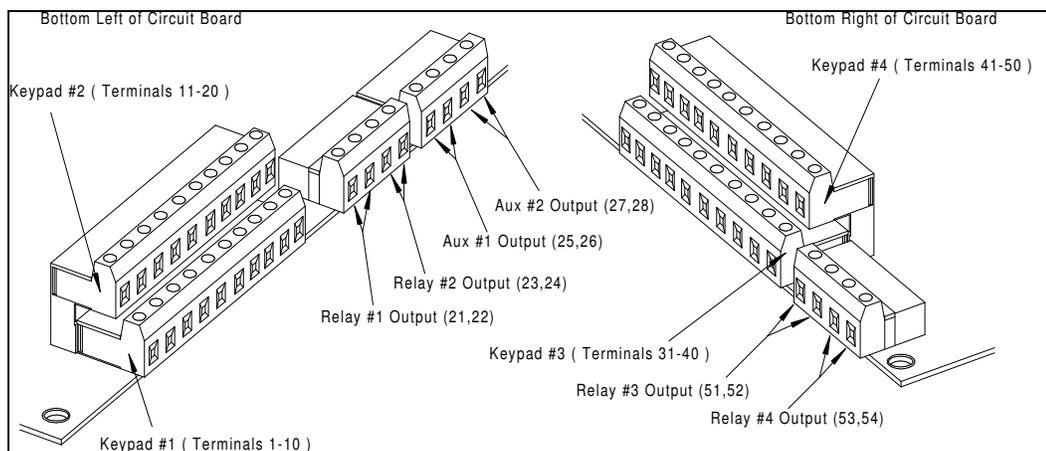
Figure 2-2

3. Put a piece of heat shrink tubing over the bare wire, so as to leave about 1" at the end uncovered, then connect it to the case ground using the BUSS bar located on the bottom of the controller.

NOTE: It is <u>very important</u> that the drain wire is connected to the case ground, and that it be covered. The ground connection is necessary for surge suppression, and noise reduction in the intercoms. Covering the wire insures that the wire will not touch any exposed components inside the case and cause a short circuit.

4. Use **Figure 2-2** and **Figure 2-3**, and **Table 2-1** and **Table 2-2** to connect the remaining wires to the keypad plugs inside the Syscon. Each keypad is assigned to a "port" in the software, and it is important that the keypads be connected to the correct ports for correct operation. Systems that have many keypads and devices will have a special sheet detailing, which keypads connect to what ports. The configuration table 2-2 only covers the basic systems.

5. Repeat the procedure for each keypad that is connected to the System Controller.

6. After all of the keypads have been connected to the controller, go to **Page 2-11** for instructions on connections to gate operators or **Page 2-13** for instructions on connections to door strikes.
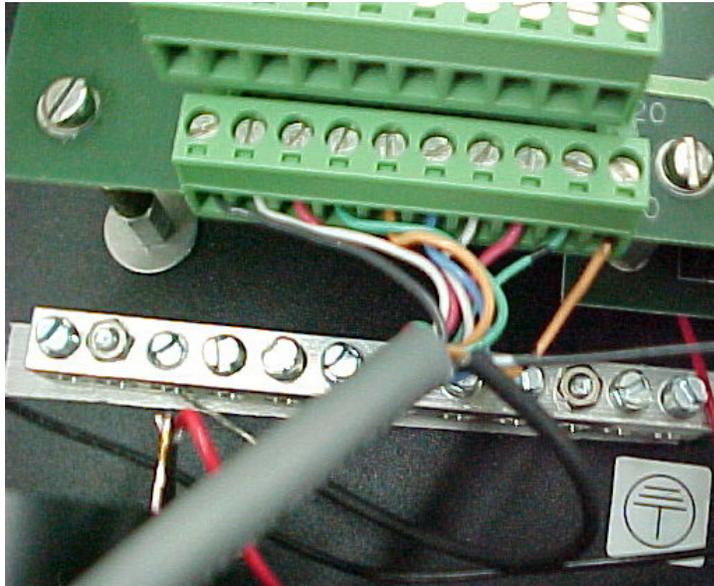
Figure 2-3

Wire Color	Kypd #1	Kypd #2	Kypd #3	Kypd #4
Black	1	11	31	41
White	2	12	32	42
Red	3	13	33	43
Green	4	14	34	44
Orange	5	15	35	45
Blue	6	16	36	46
White w/ Black Stripe	7	17	37	47
Red w/ Black Stripe	8	18	38	48
Green w/ Black Stripe	9	19	39	49
Orange w/ Black Stripe	10	20	40	50
Black w/ White Stripe	56	57	58	59

Table 2-1

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Note: Examples below are for Standard 700 Keypads only.

System Configuration	Connections
One Enter Keypad One Exit Keypad One Gate Operator	Enter Keypad Connects to Keypad Port #1 Exit Keypad Connects to Keypad Port #2 Gate Operator connects to Relay #1 output (21, 22) Connect jumper wire from Terminal #21 to Terminal #23 Connect jumper wire from Terminal #22 to Terminal #24
One Enter Keypad Two Exit Keypads One Gate Operator	Enter Keypad Connects to Keypad Port #1 Exit Keypad#1 Connects to Keypad Port #2 Exit Keypad #2 Connects to Keypad Port #3 Gate Operator connects to Relay #1 output (21, 22) Connect jumper wire from Terminal #21 to Terminal #23 Connect jumper wire from Terminal #22 to Terminal #24 Connect jumper wire from Terminal #23 to Terminal #51 Connect jumper wire from Terminal #24 to Terminal #52
One Enter Keypad Two Exit Keypads Two Gate Operators	Enter Keypad Connects to Keypad Port #1 Exit Keypad#1 Connects to Keypad Port #2 Exit Keypad #2 Connects to Keypad Port #3 Gate Operator #1 connects to Relay #1 output (21, 22) Gate Operator #2 connects to Relay #3 output (51, 52) Connect jumper wire from Terminal #21 to Terminal #23 Connect jumper wire from Terminal #22 to Terminal #24
Two Enter Keypads Two Exit Keypads Two Gate Operators	Enter Keypad#1 Connects to Keypad Port #1 Exit Keypad#1 Connects to Keypad Port #2 Enter Keypad#2 Connects to Keypad Port #3 Exit Keypad #2 Connects to Keypad Port #4 Gate Operator #1 connects to Relay #1 output (21, 22) Gate Operator #2 connects to Relay #3 output (51, 52) Connect jumper wire from Terminal #21 to Terminal #23 Connect jumper wire from Terminal #22 to Terminal #24 Connect jumper wire from Terminal #51 to Terminal #53 Connect jumper wire from Terminal #52 to Terminal #54

Table 2-2

Connecting the System Controller to Gate Operators and Door Controls

The System Controller has several relay outputs on it that can be used to control gate operators, door strikes, magnetic locks, or other entry control devices. When a code is used at the keypad, the software will energize the appropriate relay to open the gate, or to unlock the door. Each keypad is assigned to a relay in the software setups. These instructions cover the standard systems. Some special systems that require many keypad and relay connections will come with a setup sheet detailing where those connections are made.

1. Route the 2 conductor cable(s) from the gate operator(s) to the System Controller, keeping them hidden as much as possible, and neatly bundled together with any other wires running to the controller. Feed the cables into the controller though one of the knockouts on the bottom of the box, leaving approximately 8" of cable inside the Syscon. Strip off about 6" of the gray insulation from the cable. This will leave you with 2 insulated wires and a bare drain wire. Trim off the shield foil down to the outer cable jacket. Strip off 1/4" of insulation from each insulated wire.

2. Put a piece of heat shrink tubing over the bare wire, so as to leave about 1" at the end uncovered and connect the drain wire to one of the BUS bars located on the bottom of the controller.

3. Using **Figure 2-2** and **Figure 2-3**, and **Table 2-2**, connect the two wires for each gate operator to the appropriate relay terminals. Some systems need short jumper wires connected between relay terminals for the system to operate correctly. Make sure that these jumper wires are installed as listed in **Table 2-3**, **Page 2-9**.

💡 **NOTE:** The gate vend wires are not polarity sensitive.

4. It is recommended that a SPST switch (not provided) be installed in the office for each gate operator that the system is connected to. This switch is mounted in a convenient location behind the rental counter, and is connected in parallel with the gate operator vend wires. This allows the manager to open and close the gate(s) without having to use the computer or gate access system.

💡 **NOTE:** If door strikes or mag locks are to be connected to the System Controller, go to **Page 2-13** for further instructions.

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Connecting to Door Strikes and Mag Locks

The main difference in connections for gate operators and door strikes / mag locks is that door strikes require a separate power source to operate. A transformer usually provides this, as Digitech International systems cannot be connected to high voltage control circuits. The drawing below shows the connection for a typical door strike. Most systems use the "Fail Secure" type of strike. This means that if the power goes out, the strike remains locked. These types of strikes are connected through a "Normally Open" relay and a power supply.
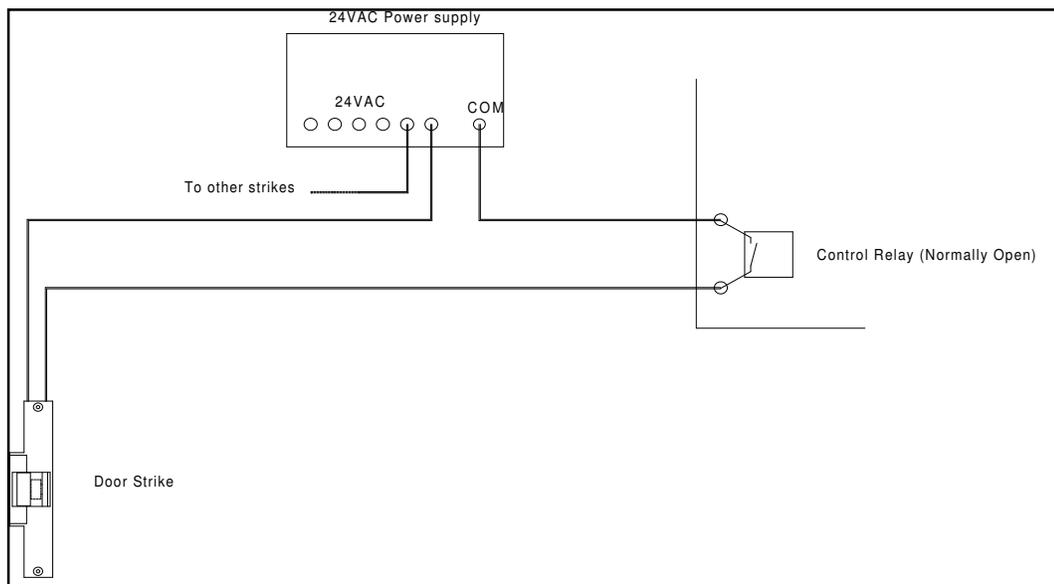
Figure 2-4

The control relay shown in Figure 2-4 is located on the System Controllers top board, or on an optional MUX board connected to the system. Typically, if the strike is being controlled from Keypad #1, then the strike is connected to Relay #1, and so on.
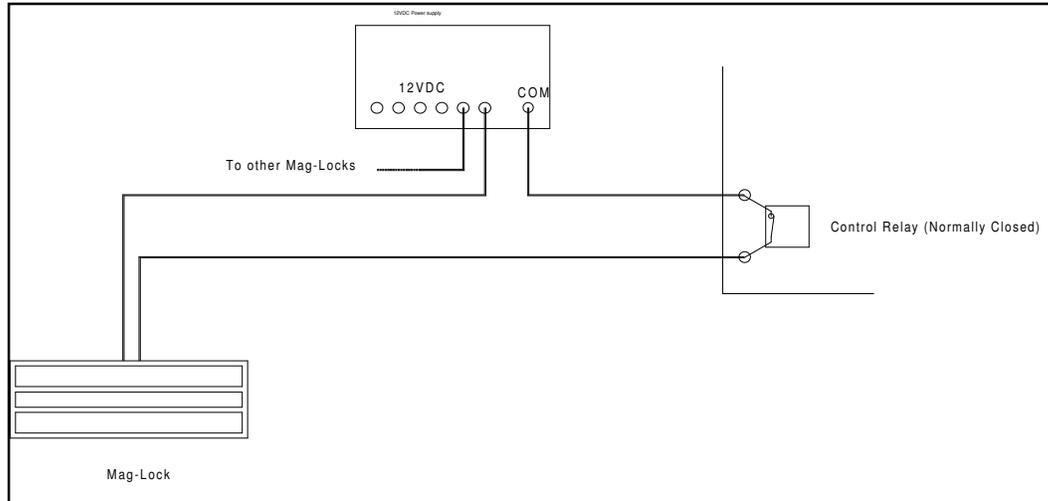
Figure 2-5

Mag locks, and "Fail Safe" door strikes, are connected through a "Normally Closed" relay. This means that if the power goes out, the door strike will unlock, or the Mag-lock will release. **Figure 2-5** shows the connections for these circuits. Note that door strikes use 24VAC while Mag locks use 12VDC.

To change the output of any one relay on the System Controllers top board, or on a MUX board, follow the instructions below.

1. Note on the drawing below, that there is a jumper on the circuit board directly above the terminals for each relay. Each jumper has 3 pins sticking up out of the board, and a black plastic "Shorting Plug" covers 2 of these pins.

2. If the plug is across the center and right pin, as shown in **Figure 2-6** below, then the relay output for those terminals is set as "Normally Open". This is the default position as shipped from the factory.

3. To change the relay output <u>for one particular set of 2 terminals</u>, use a pair of needle nose pliers, and move the shorting plug for those terminals to the CENTER and LEFT pins.
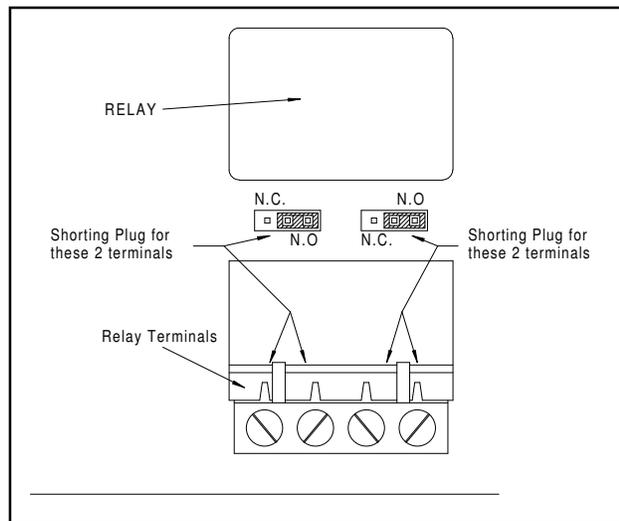
Figure 2-6

Connecting the DigiGraphics to the System Controller - Optional

The DigiGraphics is an optional piece of equipment that not all sites will have. These instructions cover the connection of the graphics to the controller. The graphics connects to the System Controller through a shielded 18 gauge 2-conductor RS485

communications cable. For the instructions on the installation of the graphics unit, see Section 4.

1. Route the RS485 cable from the graphics unit to the location of the Syscon, with the wire hidden and bundled neatly with any other cables going to the controller.

2. Run the cable into the Syscon through one of the knockouts on the bottom right of the controller. Leave about 10" of cable inside the controller.

3. Strip back about 8" of the outer insulation from the cable, and trim away the foil shield. This will leave you a red and a black insulated wire, and a bare drain wire. Strip off 1/4" of insulation from each insulated wire.

    4. Put a piece of heat shrink tubing over the bare wire, so as to leave about 1" at the end uncovered and connect it to the grounding BUSS bar located on the bottom of the controller.

NOTE: It is <u>very important</u> that the drain wire is connected to the case ground, and that it be covered. The ground connection is necessary for suppression and reliable communications. Covering the wire insures that the wire will not touch any exposed components inside the case and cause a short circuit.

5. **Figure 2-7**, **Page 2-13**, shows the connection of the cable to the System Controller board. The insulated wires connect to plug P2 on the lower board, Black to 5 and Red to 6.

NOTE: There may be wires already connected to P2. When connecting up the wires from the graphics place them in parallel with the existing wires and make sure that these existing wires remain connected to their original terminals. See Figure 2-9 on the next page.
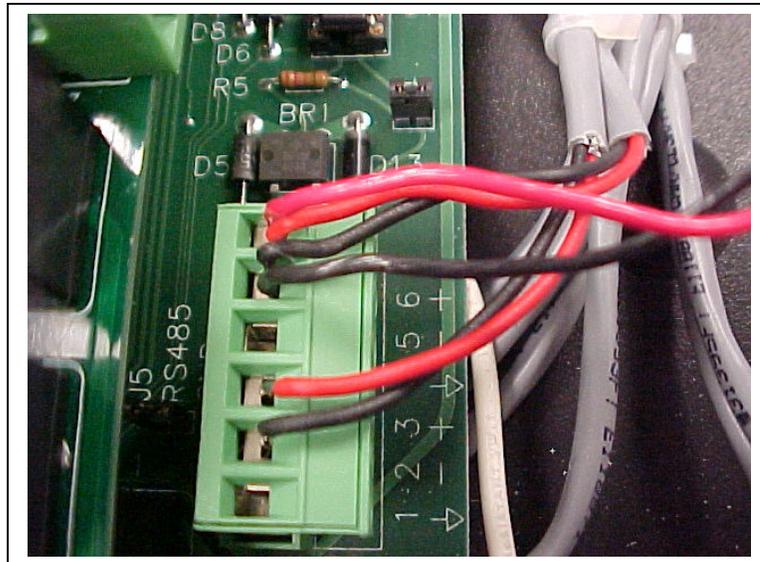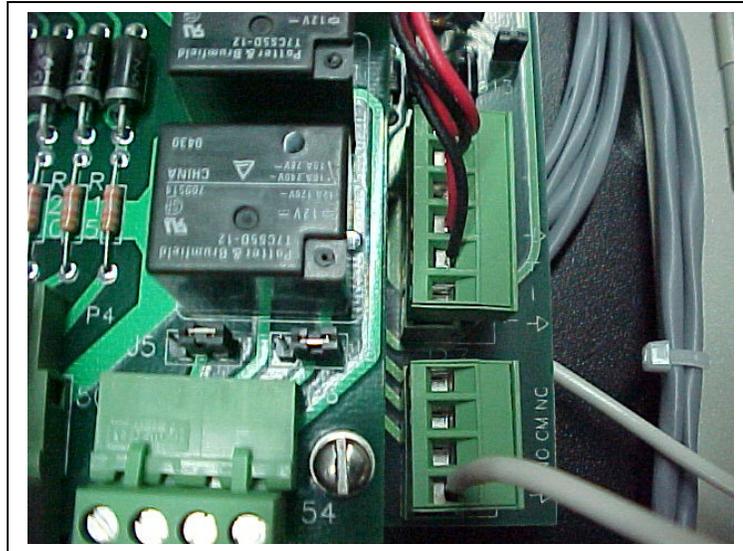
Figure 2-7

Connecting RS485 Devices to the System Controller - Optional

There are various RS485 devices that can be connected to the System Controller to expand the capacities of the Digigate system. These devices include UniMUXes, 700LX and LC Keypads, the DigiGuard Wireless Receiver, and others.

RS485 devices connect to the System Controller through a shielded 18-gauge 2-conductor communications cable. For the instructions on the installation of multiplexers, see section five (UniMUX) or section six (Keypad MUX). 700LX and 700LC installation is covered in chapter 3, starting at page 3-11.

1. Route the RS485 cable from the devices to the location of the Syscon, with the wire hidden and bundled neatly with any other cables going to the controller.

NOTE: The cable that runs from the Syscon to the RS485 devices is daisy chained from one to the next. RS485 lines have only two branches, and the branching can only occur at the Syscon. See the instructions for the devices that you are connecting for more detail on the routing of RS485 lines.

2. Run the cable into the Syscon through one of the knockouts on the bottom right of the controller. Leave about 10" of cable inside the controller.

3. Strip back about 8" of the outer insulation from the cable, and trim away the foil shield. This will leave you a red and a black insulated wire, and a bare drain wire. Strip off 1/4" of insulation from each insulated wire.

    4. Put a piece of heat shrink tubing over the bare wire, so as to leave about 1" at the end uncovered and connect it to the ground BUSS bar located on the bottom of the controller.

NOTE: It is very important that the drain wire is connected to the case ground, and that it be covered. The ground connection is necessary for suppression and reliable communications. Covering the wire insures that the wire will not move and touch any exposed components inside the case, causing a short circuit.
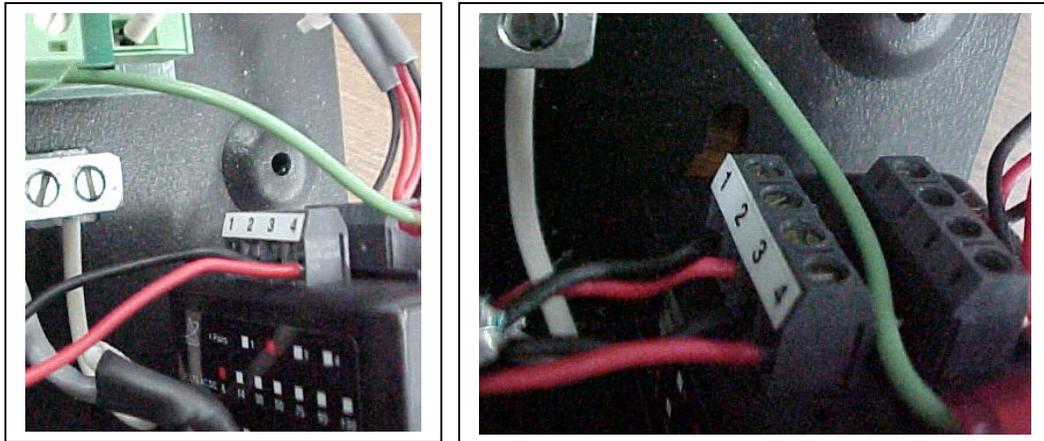
Figure 2-8

5. **Figure 2-8** shows the connection of the cable to the suppresser located inside the System Controller. The suppresser is pre-wired to the controller board.

6. The insulated wires from the first RS485 line connect to the suppresser, Black to 1 and Red to 2.

7. If a second line is connected to the suppresser, Black is on 3, and Red to 4.

💡 **NOTE:** If your system has **two** outgoing lines to RS485 devices (Not counting the DigiGraphics and DigiGuard Wireless Receiver), then remove jumper J4 located beside plug P2 on the System Controller board. (shown below). Otherwise the jumper is connected across both pins.

Figure 2-9

![digitech INTERNATIONAL]
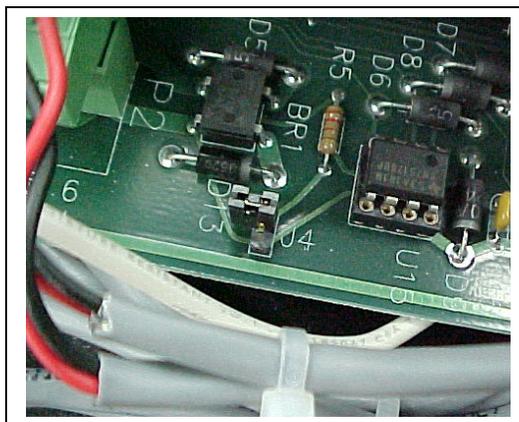
Connecting the System Controller to Sirens or Office Alarm Panels

With systems that have door alarms, the Syscon will attach either directly a local siren, or to a burglar alarm panel in the office. Connection to a BA panel allows the system to be monitored over a phone line to a reporting station. The BA panel would then be connected to the siren. Note that some systems may have more than one siren, and these siren(s) may be connected to a relay output on a MUX board in lieu of the System Controller or BA panel.

If the System Controller has a battery backup power supply, see **Page 2-20**. Siren and Alarm panel installations are covered in **Chapter 7**.

Connecting the Siren directly to the System Controller Without Battery Backup

1. Route the 2-conductor cable from the siren to the location of the Syscon, with the wire hidden and bundled neatly with any other cables going to the controller.

2. The wires coming from the siren are polarity sensitive.   Make sure to observe the polarity of these connections.

3. Route the positive wire from the siren to the positive lead of a 12VDC transformer. (This transformer is supplied just for the siren, and should not have any other equipment connected to it.)

4. The negative lead of the power supply connects to the common (COM) terminal of the System Controller relay. Connect the normally open (N.O.) terminal to the negative lead coming from the siren. **See Figure 2-10.**
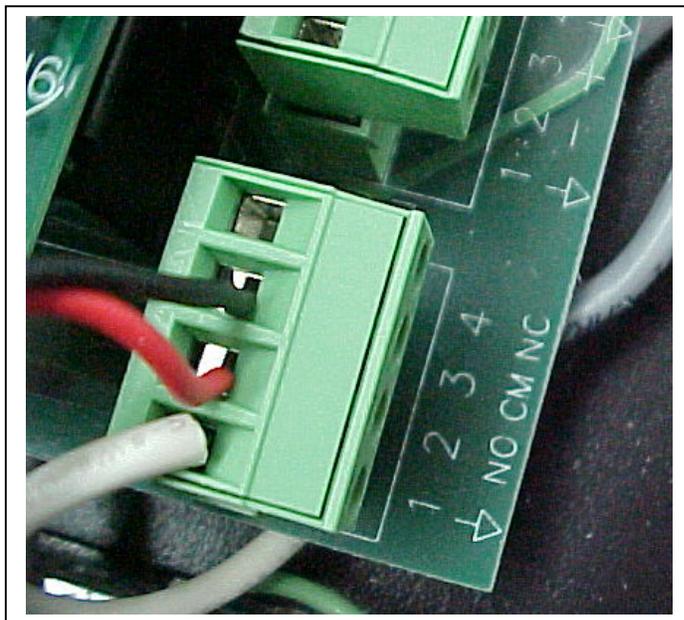
Figure 2-10

Connecting the Siren to the System Controller using the Battery Backup

1. Route the 2-conductor cable from the siren to the location of the Syscon, with the wire hidden and bundled neatly with any other cables going to the controller.

2. The wires coming from the siren are polarity sensitive.   Make sure to observe the polarity of these connections. **See Figure 2-11.**

3. Route the positive wire from the siren to the battery backup power supply for the System Controller. The instructions for the connection of the battery backup supply to the Syscon are on **Page 2-20**. Connect it to a positive terminal in the supply.

4. From a negitive terminal inside the battery backup supply, connect a wire to the common (COM) terminal of the System Controller relay. **See Figure 2-10.**

5. Connect the normally open (N.O.) terminal of the Syscon relay to the negative lead coming from the siren.
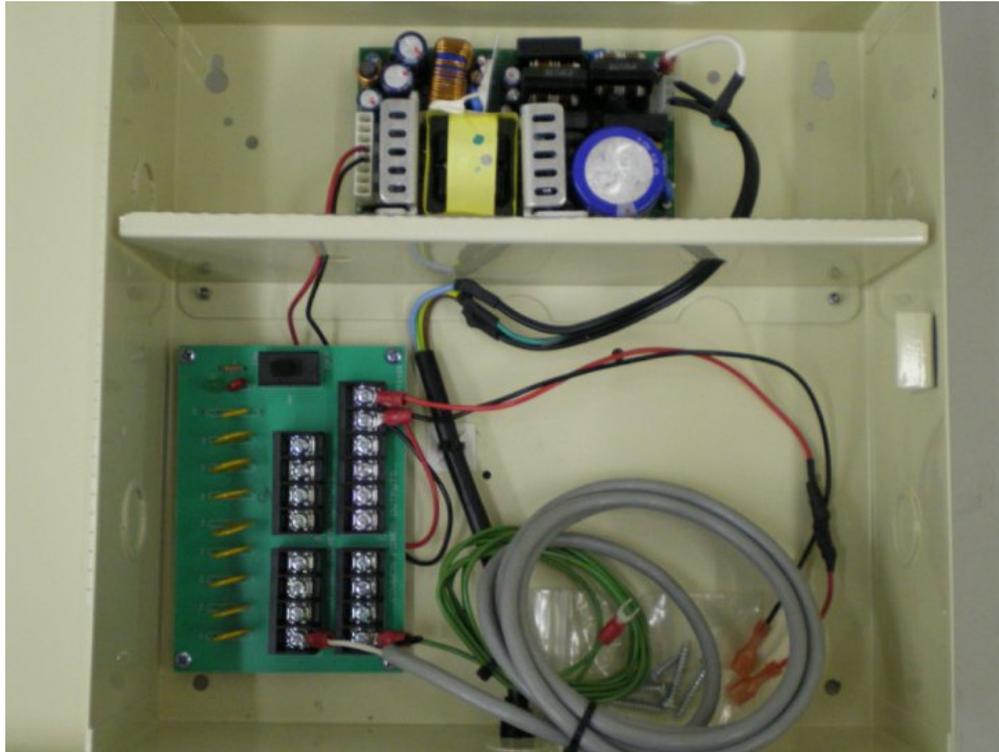
Figure 2-11

Connecting the System Controller to Office Alarm Panels

The System Controller is connected to the office alarm panel at some sites. Sometimes Digitech International supplies this panel and at other times a third party Alarm Company may supply it. These instructions cover the connection of the alarm panel to the System Controller, and have a description of the programming necessary for the alarm panel. They do not cover the programming of the alarm panel. Please refer to the manual supplied with the alarm panel for instructions on its programming.

☀ **NOTE:** The default time that the Syscon relay will activate is set at 2 minutes, and is controlled by a setting in the system's software. When using the system with alarm panels, this time should be set to 2 seconds. Please contact Digitech International for instructions on changing the default time of the System Controller relay.

1. Route a 2 conductor wire from the alarm panel to the System Controller, Keeping it hidden as much as possible, and bundled neatly with the other wires running to the controller. Pull the wire into the controller through one of the knockouts on the bottom right. Leave about 6" of wire inside the controller.

2. Strip off about 4" of the outer insulation from the cable, then strip 1/4" of insulation from each of the 2 conductors. Connect one of the wires to the common (COM) terminal #3 on the System Controller plug P3, shown in **Figure 2-12**. Connect the other wire to the normally closed (NC) terminal #4.

☀ **NOTE:** If the alarm panel requires an End-of-Line resistor, put one in series with the lines running to the Syscon.

3. Inside the alarm panel, connect the 2-conductor wire to an available zone. The zone should be programmed as follows: Armed 24 Hrs, instant response (No delay).

Figure 2-12

digitech INTERNATIONAL
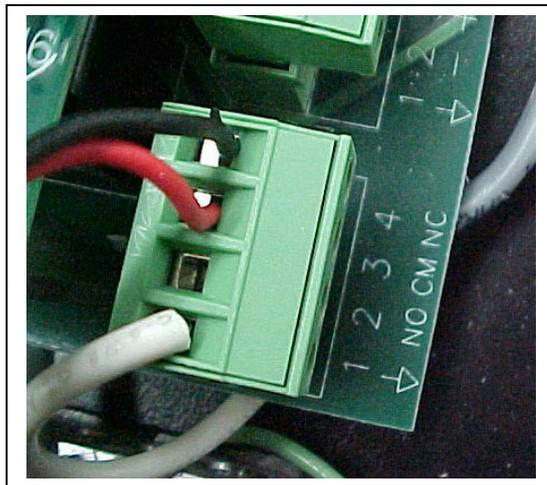
Connecting the System Controller to it's Power Supply

The last step in the System Controller installation is the connection of the power supply. Power should only be applied to the Syscon after all connections to it have been made. If necessary, you may hook power up to the controller to test items that have been connected, then remove power to finish installation of other items.

NOTE: Before connecting the power supply, you will need to connect the memory power jumper inside the Syscon. This jumper connects the internal memory battery to its circuit, and allows the controller to remember access codes for the keypads if the power is removed from it. The controller is shipped with this jumper off to keep from draining the battery completely. The jumper is located in the upper center of the bottom board inside the controller. **Figure 2-13**
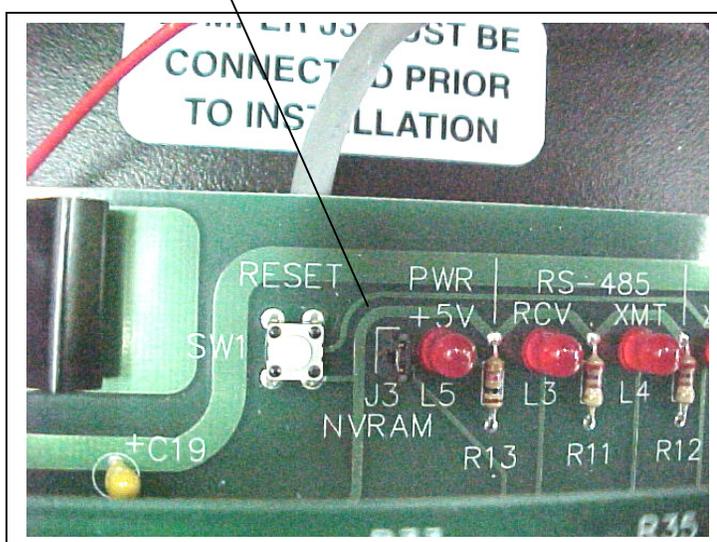
Figure 2-13

The black shorting plug will be on only one of the pins of the jumper. Pull it off, and then replace it so as to cover both of the pins.

If the System Controller has a battery backup supply with it (DI part # 1400-720), follow the directions on the next page.

The System Controller power supply is a small black case about 2" x 4". It has a hard wired cord on one end that is connected to a three pin, round plug that has a ring on it to tighten it to the connector on the Syscon. This plug is keyed so it can only go in one way. A standard AC power cord is plugged into the other side of the power supply, then into a grounded AC outlet. After power up, the System Controller board should have one red LED on, and the keypad interface board should have all 4 green LED's lit.

NOTE: If all other components have been installed, proceed to section 9 for testing the system.

Connecting the System Controller to the Battery Backup

The System Controller Battery Backup is meant to supply power to the DigiTech™ System Controller in the event of a power failure. This will allow the gate system to operate (provided that the Gate Operator also has a battery backup) for a period of time while the AC power is out (Approximately 3-5 Hours, depending on equipment installed).

Refer to **Figure 2-15** while installing the backup panel.

1. The surge suppresser (if supplied) will plug into a 115VAC outlet. Use an outlet as close to the System Controller as possible. This outlet should be grounded. The red LED on the suppresser will light if the outlet is grounded. If the LED does not come on, use a different outlet, or have a qualified electrician ground the outlet that you wish to use. Using an ungrounded outlet will void the warranty of the Digitech International equipment. Remove the center screw that holds the cover plate on the outlet, and use the screw in the center of the suppresser to fasten the suppresser to the outlet.

2. Connect the green ground wire from the backup panel to the center wingnut on the surge suppresser that was installed in **Step 1**. Keep this wire as short as possible and avoid 90-degree bends. If there is no suppresser, then the ground wire should attach to the nearest electrical ground. The system Controller should have it's ground wire attached here as well.

Figure 2-14

3. If the system is equipped with door alarms it will have a siren connected to the System Controller. Use one "fused output" and one "common" terminal inside the backup panel for power to the siren. For complete siren connection details, see **Page 2-20**.

NOTE: DO NOT use the AUX OUT to power keypads or any device other than the site siren for door alarm systems.

4. Inside the backup panel, connect the positive and negative leads to the battery. The battery power LED (left) should light.

5. Plug the System Controller power plug into the power jack on the bottom right of the System Controller, and then plug the AC cable from the battery backup into the suppresser. The power switch in the top of the power supply circuit board should be turned on. The AC ON LED in the backup panel should light.

⚠ **DANGER:** High Voltage AC power is present inside the case of the battery backup.

After power up, the System Controller board should have at least one red LED on, and the keypad interface board should have all 4 green LED's lit.

If all other components have been installed, proceed to section 9 for testing the system.

Figure 2-15

![digitech INTERNATIONAL]
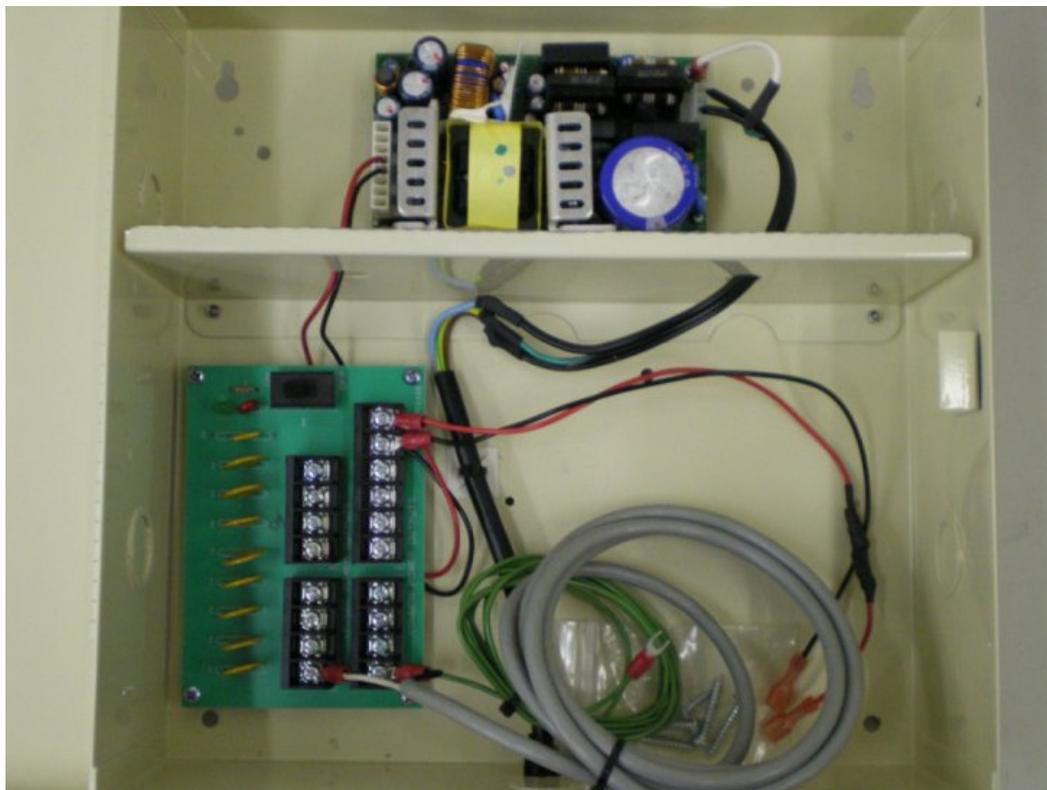
Appendix: Remote Systems

Remote systems are ones that are installed in locations that do not have an office or a PC that is directly connected to the system controller. The syscon is connected instead to a modem, which is in turn connected to a phone line.

Communication to the system controller is then initiated from a PC remotely, through the telephone line / modem.

In these situations, the system controller will probably not be installed in a normal office environment. Digitech can provide custom enclosures that contain the system controller, a battery backup, a modem, and a heater / fan. This enclosure can be mounted outside on a building, or on a set of posts near the gate operator.

Figure 2-16 below shows an example of the remote enclosure mounted to a building.
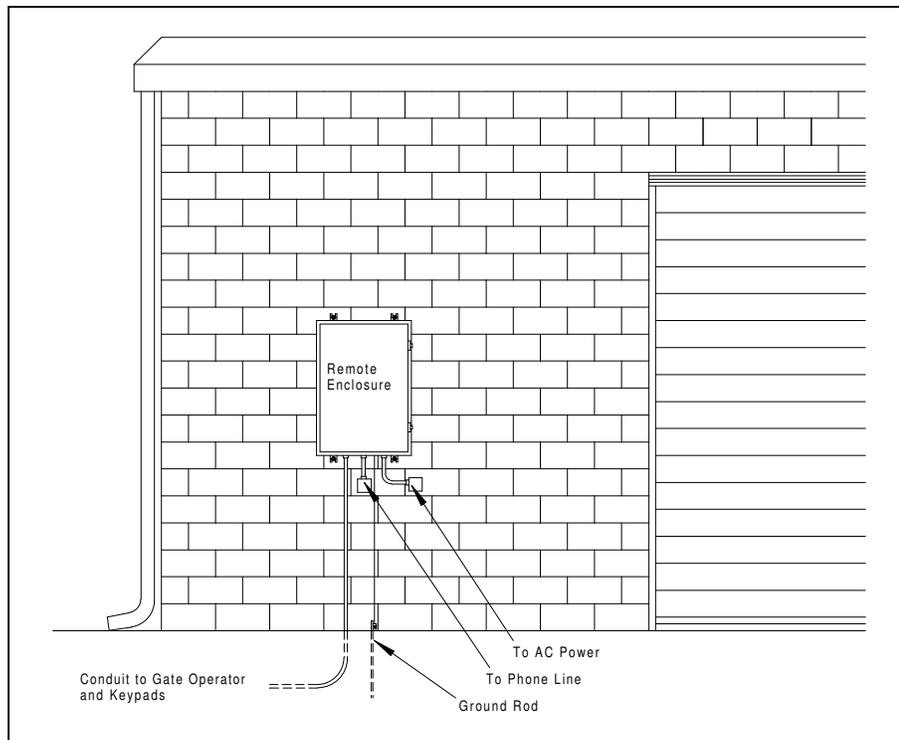
Figure 2-16

Figure 2-17 below shows an example of the remote enclosure mounted to a set of posts at the gate operator.
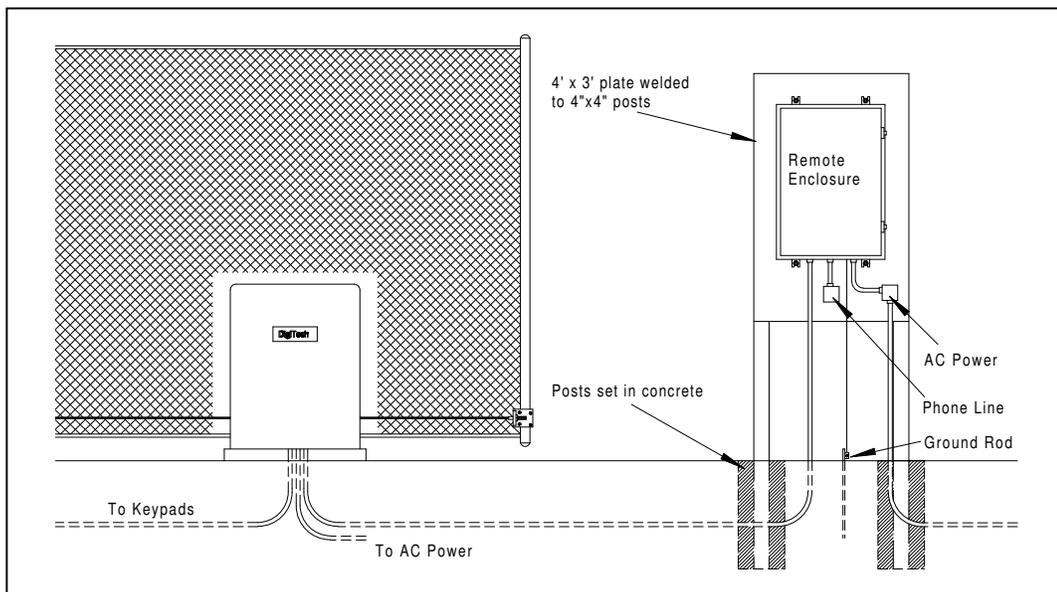
A dedicated telephone line or high speed internet (Cable or DSL modem with a Static IP address) will be required at the location of the system controller, depending on the type of connection used. The remote enclosure should be placed so as to allow access to the enclosure, and so that the door can open fully for maintenance. AC power is routed into the enclosure through one of the knockouts in the bottom, and is connected to the terminal strip provided in the junction box located in the lower right of the enclosure.

The controller should be connected to an electrical ground through the grounding wire provided in the controller. This should be via a bus bar and ground wire, to a ground rod installed outside the building the controller is in, or below the remote enclosure. Connection directly to the electrical system ground is also acceptable.

When provided with a remote enclosure, the System Controller is already connected to it's modem. If it is not located inside a remote enclosure, then the system controller will need to be connected to the modem or network adapter that is provided with the system. If the site has a high speed internet connection, they may use a DigiPort network adapter. Separate instructions are provided for connection of the DigiPort.

Telephone modems are connected through a 25 Pin Male/Female RS232 cable. The modem also has a power transformer that will need to connect to an Uninteruptable Power Supply (UPS), and a phone line will connect to the LINE jack on the modem. After the modem is powered on, the system controller is then powered up. The modem must be powered up before the system controller so that the controller can initialize the modem correctly.

Installation Notes

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Chapter 3 – Keypad Installation

DigiGate-700 Standard Keypads
Note: Instructions for installing 700LX and 700LC Keypads start on page 3-11. LX and LC keypads use different wire than standard keypads. Please make sure that you pull the correct wire for the keypad type that you are installing. Output relays for Standard 700 Keypads are located on the board the keypad is connected to. Relays for 700LX and 700LC Keypads are located on the keypad itself. Please verify your control relay locations before pulling wires.

Mounting Locations:

Keypads at Gates:

The standard method for keypad mounting is on a gooseneck stand, on one or both sides of a gate operator. Different gate operator types require different mounting positions.

With Slide Gate operators and Vertical Lift Gates the keypads need to be a minimum of 15' away from the gate. With Barrier Arm Gates the keypads can be as close as 9'-6". Swing Gate operators have the exit keypad further back, depending on the size of the gate. **Figure 3-1** shows the keypad and gooseneck, along with the required concrete pad and conduit. Bollard placement is also shown.

NOTE: The conduit into the center of the concrete pad should stub up 2" above the pad surface and into the bottom of the gooseneck stand.

If the keypad is to have any optional items installed then it is recommended that 1" conduit be used, as the optional items require extra wires to be pulled to the keypad.

NOTE: The ground rod shown at the concrete pad (Figure 3-1) is only needed when installing 700LX or 700LC type keypads, and is not needed for standard 700 keypads.

NOTE: Some facilities may use the Digitech HD stand instead of the gooseneck. Separate instructions are included with that stand for installation, including the preparation of the concrete pad and the routing of conduit to the stand.

The conduit for the keypad will either run directly to the office or other location where the Digitech International system controller is installed, or it may run to the gate operator pad. At the operator pad there would be another conduit that continues on to the system controller location. If the keypad is connected to a keypad UniMux, then the conduit should run to that location.

Gooseneck extensions are available. (Digitech Part # 1400-101). These extenders are 12" long and increase the distance that the keypad sticks out into the driveway.

Top View

3.5 ft

Front of enclosure should be even with bollards.

Bollards are 4" Schedule 40 pipe (Concrete filled).
Bollards are 3-1/2ft tall and extend 3ft into a concrete base.
Top of bollard should be rounded.

Overhead view of concrete pad
w/ bolt pattern.

3/4" or 1" Conduit

Ground Rod

10.000

1.500

2.000

3.000

3.000

10.000

Back of pad

Solid line is for standard enclosure. Dashed line
is for deep enclosure. Dimension is from centerline.

NOTE:. For 700LX and 700LC Keypads ONLY.
5/8" x 8' Copper Clad ground rod
through pad and into ground below.
Aprox 3" of rod above surface of pad,
and postioned in the rear of the pad
as shown.

Grade Level

3/4" or 1" Conduit

14.500

11.500

8.750

43.500

Cover slides down over bolts.

22.000

18.000

Figure 3-1

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Keypads at Doors:

The Digitech International keypad may be used to control access through doors that use door strikes or magnetic locks. These keypads use the same enclosure as on the gooseneck stand, but they are mounted directly to a wall or column beside or near the door they are to control. **Figure 3-2** below shows a keypad and enclosure mounted on a concrete block wall.

concrete block wall

As an alternate route, conduit may run hidden inside masonary wall to overhead.

3/4" Conduit

5/16" x 1-1/2" masonary bolt

90 degree pulling elbow

3.000
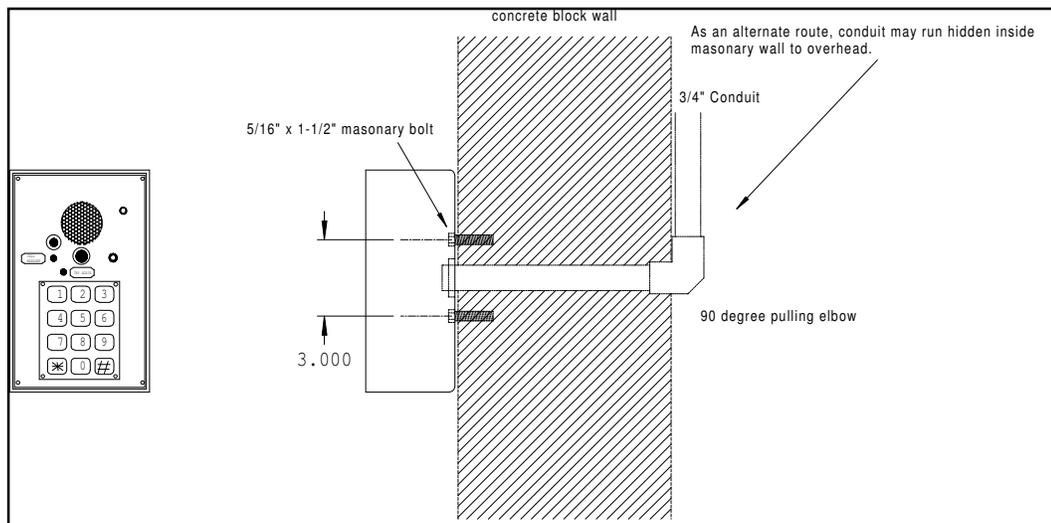
Figure 3-2

The back of the enclosure has a 3" square bolt pattern that is centered on a 1" hole for the 3/4" conduit. Mounting hardware depends on the type of wall on which you are mounting the keypad. **Figure 3-2** above shows a concrete block wall so 5/16" x 1-1/2" concrete expansion bolts are used.

NOTE: When mounting keypads that have cameras in them, to other than goosenecks, it may be necessary to mount the keypad higher than the standard 48" above the floor, as shown in **Figure 3-4**. This allows the camera to get a good view of the person using the keypad.

NOTE: Keypads mounted on a fence may require the welding of a steel plate to the fence to provide a mounting surface for the keypad. Make sure that any keypads that are mounted on fences cannot be operated by reaching through the fence or gate.

NOTE: Local regulations or American Disability Act requirements may place the keypads at different heights than the ones listed here. Refer to these regulations if they are in effect in your areas.

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For Keypads that are mounted to sheet metal walls or unit partitions, use **Figure 3-3**.
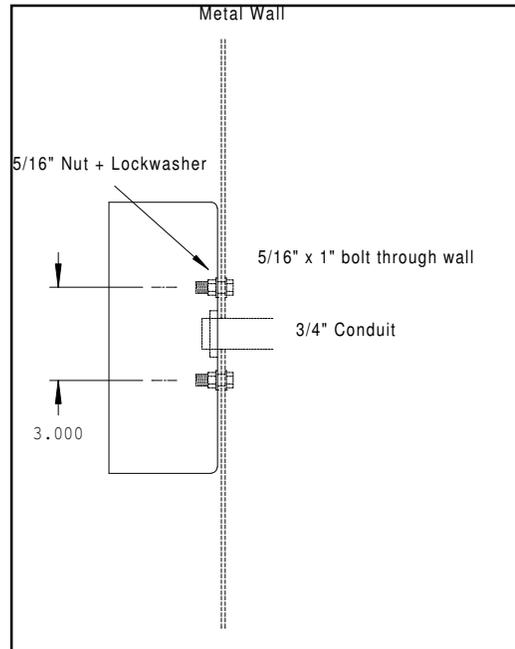
Figure 3-3

You will need to drill holes in the partition matching the pattern on the back of the enclosure. Use 5/16" x 1" bolts with washers from the inside of the partition through the wall, and secure them with 5/16" nuts and lockwashers. Depending on the thickness of the partition, longer bolts may be needed. Make sure to keep the bolts and conduit stub as short as possible, so when the keypad is installed the bolts or the conduit do not touch any components on the back of the keypad.

If installing the enclosure onto drywall, use 5/16" Toggle bolts to secure it to the wall.
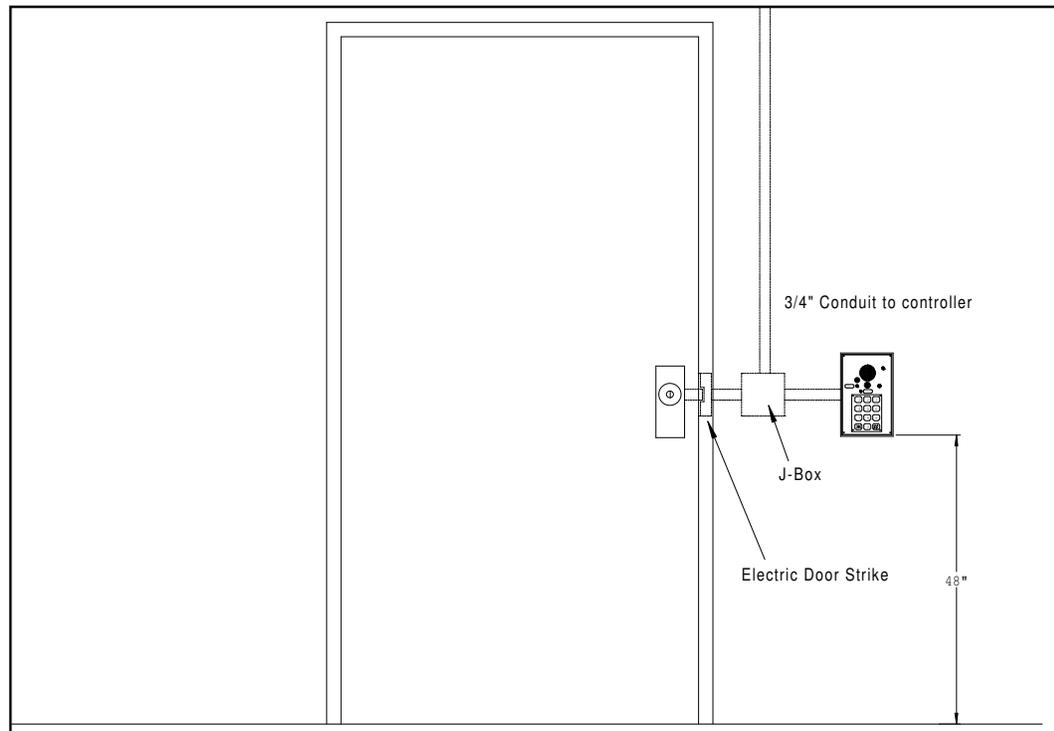
Figure 3-4

Figure 3-4 shows a keypad mounted beside a single swing door, which has a door strike in the jamb. The conduit from the keypad runs to a junction box. From the junction box the conduit runs to the strike, and also back to the controller. In some cases the controller for the keypad may be in the same building as the keypad, or it may be in another building. The wires from the door strike should run to the same location as the wires for the keypad. If the keypad is equipped with an intercom then the wires for the intercom will run to the master intercom in the office. If the keypad has a video camera, this would require the Co-Ax cable for the camera be run to the office.

Electrical Requirements:
The Standard 700 keypad and all of its accessories are powered from external sources. No local power is required at the keypad locations. 700LX and 700LC keypads require power. See page 3-11.

If mounting the keypad above an elevator call button, use **Figure 3-5**.
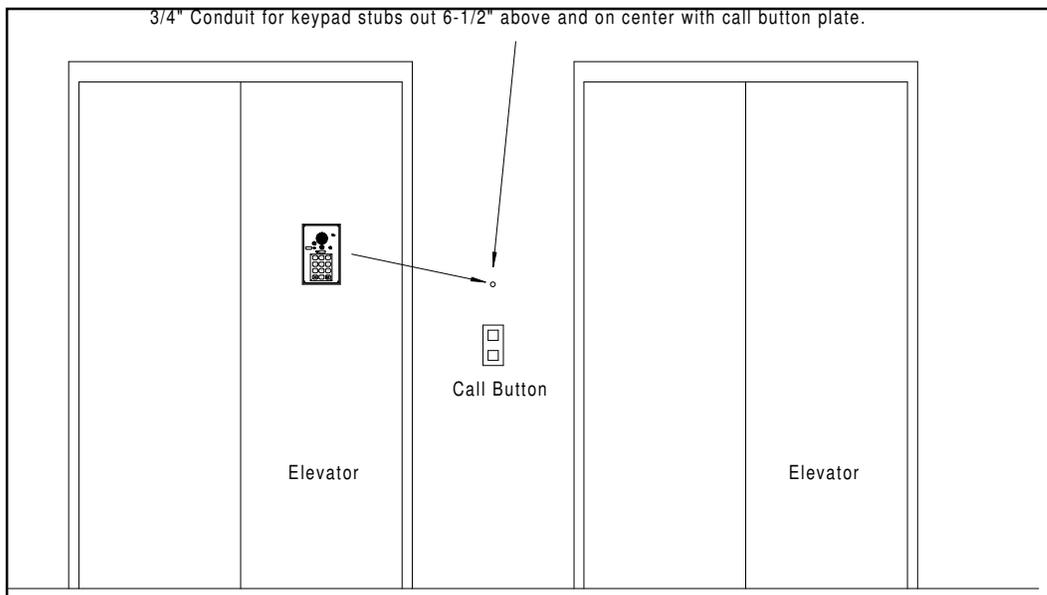
Figure 3-5

Pre-Installation Requirements:

1. The concrete pad must be poured and dry before the keypad installation can be performed. See **Figure 3-1, Page 3-2** for concrete pad layout.

2. LX and LC Keypads should have a ground rod installed at the keypad location, as per **Figure 3-1, Page 3-2**.

3. Conduit must be run from the pad to the keypad controller location, and the wire(s) must be pulled from the System Controller in the office, or from a Keypad Multiplexer, to the concrete pad.

4. All cables to the keypad are low voltage cables and CANNOT be run in conduit with high voltage cables.

5. Standard 700 Keypads require one 11 conductor, 24 Gauge, shielded wire to be pulled to the keypad. Each keypad uses a separate wire. Do not daisy chain keypads on this wire. Optional equipment may require additional wires.

💡 **NOTE:** Optional Intercom: Intercoms systems require a shielded two, three, or six-conductor cable from the keypad to the master station, depending on the intercom system type.

💡 **NOTE:** Optional Keypad Cameras: Keypads with built in cameras require an additional 2 conductor 18 Gauge wire for power, and a RG-59 Co-Ax cable for Audio/Video signal. See **Page 3-9** for full instructions on Keypad camera installation.

💡 **NOTE:** Optional Keypad Heaters: Keypads that have built in heaters and thermostat pads will need an additional 2 conductor 18 Gauge wire pulled from the office to the keypad. See **Page 3-10** for more instructions on keypad heater installation.

Parts Needed (Not provided by Digitech International):

The installation of the gooseneck stand will require 4 bolts to hold the stand to the concrete pad. Use (4) 1/2" x 4.25" Red Head concrete anchors w/ washers and lockwashers. Another option is to set bolts in the concrete when pouring the pad, and use nuts and washers to hold down the stand. The ground rod, not provided by Digitech, should be a 5/8" x 8' copper clad rod. If attaching the keypads to a wall, see **Pages 3-3 and 3-4** for details on the recommended hardware.

Installing the Keypad:

🔅 **NOTE:** For keypads that do not use gooseneck stands, mount the enclosure at the proper location, and follow these instructions from **Step 4**.

1. Pull the cables for the keypad with 5ft out of the conduit. Thread this cable through the gooseneck stand and center the gooseneck stand over the conduit.

2. Slide the bottom cover up to the top of the gooseneck. Position the gooseneck in the correct direction and location. Mark the locations of the four holes to be drilled into the concrete pad. Remove the stand and drill the four holes 4-1/2" deep, using a 1/2" masonry bit.

3. Reposition the gooseneck stand on the concrete pad and line up the mounting slots with the drilled holes. Insert the mounting bolts and tighten securely. Slide the cover over the bottom of the stand.

4. Thread the cables through the keypad enclosure, and mount the enclosure to the gooseneck stand / wall. There is a label in the bottom back of the enclosure. Use this label to orient the top / bottom of the enclosure.

5. Strip 6" of the gray cover off of the 11-conductor cable. Strip a 1/4" of insulation off of each insulated wire. Connect the wires to the terminal plug on the back of the keypad as shown in the **Table 3-1**, below, and in **Figure 3-6**. If the built-in intercom is not going to be used on this keypad, trim the bare drain wire off.

Black Wire	Terminal 1
White Wire	Terminal 2
Red Wire	Terminal 3
Green Wire	Terminal 4
Orange Wire	Terminal 5
Blue Wire	Terminal 6
White Wire w/ Black stripe	Terminal 7
Red Wire w/ Black stripe	Terminal 8
Green Wire w/ Black stripe	Terminal 9
Orange Wire w/ Black stripe	Terminal 10
Black Wire w/ White stripe	Terminal 12

Table 3-1

See Notes 2 and 3

J2   J1

1 2 3 4 5 6 7 8 9 10 11 12 13 14

Black
White
Red
Green
Orange
Blue
White-Black
Red-Black
Green-Black
Orange-Black
Black-White

Bare Drain Wires
(See Note 1)

11 Conductor
Keypad Cable

Intercom Wire
(See Note 2)

Note 1. The bare drain wires from both the Keypad
Cable and the Intercom Cable connect together
using the crimp supplied in the hardware package.

Note 2. If you are using a two wire intercom connect the station
to 11 and the negative to 13.   J1 In and J2 Out.

If you have a three wire intercom, connect the station
to 11, the negative to 14 and the 'E' to13.   J1 Out and J2 Out.

Note 3. Telephone Intercoms use a six conductor wire and special
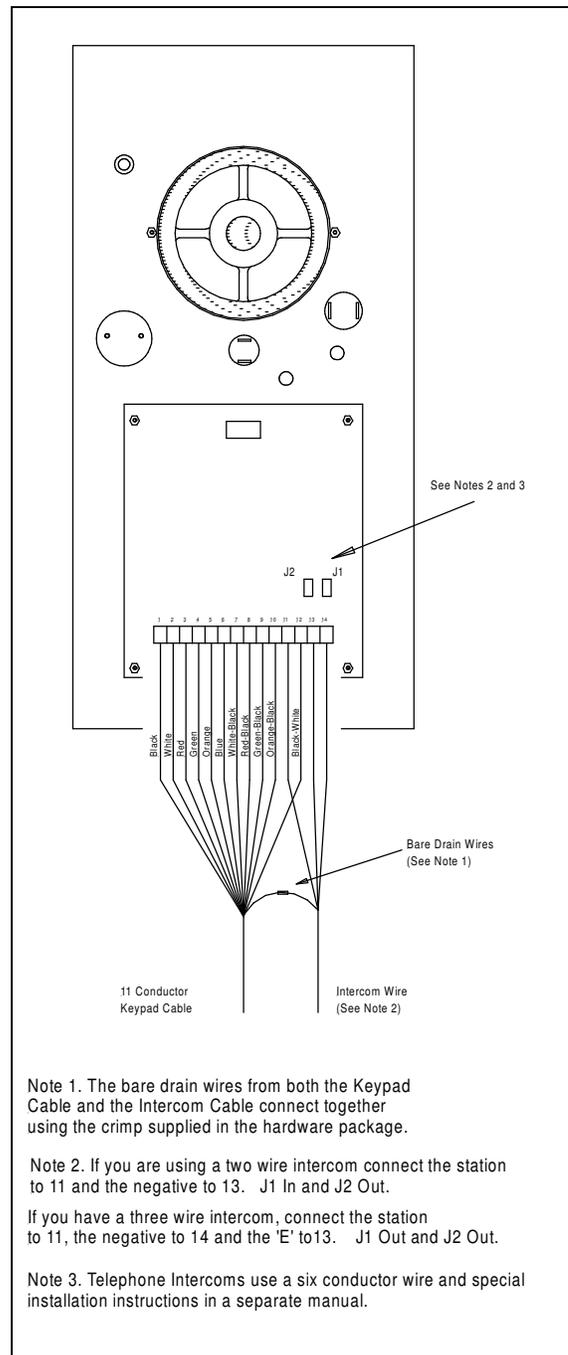installation instructions in a separate manual.

Figure 3-6

6. If the built-in intercom is not being used with this keypad, skip to **Step 10**.

7. Strip off 6" of the gray insulation from the shielded intercom cable. Strip 1/4" of insulation from each insulated wire. Connect the bare drain wires of the keypad cable and the intercom cable, using a wire nut or crimp. Cover the drain wires with a short piece of heat shrink tubing

   Note: It is <u>very important</u> that these drain wires are connected together, and that they be covered with the tubing. This connection is necessary for suppression, and noise reduction in the intercoms. Covering the wires insures that they will not touch any exposed components on the back of the keypad and cause a short circuit

8. **For Two Wire Systems:** Connect the Red wire to terminal #11. Connect the Black wire to terminal #13. Jumper J1 should be ON, Jumper J2 should be OFF.

9. **For Three Wire Systems:** Connect the Red wire to terminal #11. Connect the Black wire to terminal #14. Connect the White wire to terminal #13. Jumpers J1 and J2 should both be OFF.

💡 **NOTE: Telephone Intercom systems use a six-conductor wire and have a separate installation manual.**

10. If the keypad has a camera, go to the next step. Otherwise skip to **Step 14**.

11. Trim off the Co-ax cable coming out of the enclosure, so that about 6" of cable is hanging out. Attach a BNC connector onto the co-ax cable, per the instructions for the connector.

12. Slide a 4" length of heat shrink tubing over the BNC connector and the cable, and then attach the connector to the female plug that is wired to the back of the keypad. Slide the heat shrink tubing back over the connectors, and seal it so as to cover the exposed metal. This is to keep the connectors from shorting against the components on the back of the keypad.

13. Strip back 3" of the gray insulation from the 2-conductor 18-gauge power cable, then strip 1/4" of insulation from the two exposed wires. There is a two-position phoenix connector wired to the back of the keypad. It is labeled "+" and "-". **Observe polarity** (Usually Red is + and Black is -) and connect the 2 wires to this plug. This cable will connect to a **DC** power supply that is in the office or other remote location. Both black & white and color keypad cameras use a **12VDC** transformer.

⚠️ **WARNING: Connecting this camera to a 24VAC supply or with reverse polarity will damage it!**

14. If the keypad has a heater and thermostat, go to the next step. Otherwise skip to **Step 21**.

15. The power for the heater is supplied through a 2-conductor 18-gauge wire. This wire is connected to a **12VDC** power supply that is located in the office or other remote location.

💡 **NOTE:** This is a separate power supply from the one used to power the keypad camera. Do Not use the same power supply for both the keypad camera and heater.

16. Strip off 4" of the gray outer insulation from the power cable, then 1/4" from each of the insulated wires.

17. Using heat shrink tubing and crimps / wire nuts, connect one of the incoming power wires to one of the white wires from the heater pad. This pad is already attached to the back of the keyboard, and will have 2 white wires coming out of it. (The pad is not polarity sensitive.)

18. Clean an area on the upper back inside of the enclosure with acetone or mineral spirits. Peel off the tape backing from the thermostat pad, and then stick the pad in the cleaned area of the enclosure.

19. Connect the remaining white wire from the heater pad to one of the white wires on the thermostat pad.

20. Connect the other white wire from the thermostat pad to the remaining wire of the 2-conductor cable. Make sure that all connections are insulated.

21. Neatly coil the remaining cables into the enclosure. Using the supplied 4 Allen screws, mount the keypad assembly to the keypad enclosure.

22. Using the touch up paint supplied, cover any scratches on the enclosure that may have occurred during installation.

DigiGate700LX and 700LC Keypads

The DigiGate LX and LC Keypads have been engineered to add flexibility and economy for specific applications within some facilities. They use the **2 conductor RS-485 Data line for communications**. These keypads offer features that the standard 700 keypad does not have.

Some features of these keypads are:

1. Has a built in relay that can be used to control any low voltage access device.
2. Uses 12VAC (Transformer) or 12VDC (Battery Backup) for power.
3. Has a magnetic tamper switch on the keypad to sound the siren if the keypad is removed from it's enclosure.
4. Has two input points built onto the keypad that allow monitoring of climate control doors, door alarms or motion detectors.
5. The code format for the keypad can be one of several types. The customer can enter their code as "code*", "*code#" or "code#". This is set by switches on the circuit board.
6: The address of the RS-485 device is selectable using two rotary switches located on the circuit board.
7: Each circuit board has built-in optical isolation (up to 500 Volts) for the RS-485 data wires.
8: The 700LC Keypad has a 4x20 LCD display that is used to show various messages to the tenants.

Mounting Locations:

The DigiGate LX/LC Keypads can mount anywhere that the standard keypad can. Please refer to the beginning of Section 3 for mounting instructions. The LC Keypad uses a different style of enclosure which mounts sideways. The bolt pattern on the back of the enclosure is the same as the standard keypad and it will fit on the same stands.

Electrical Requirements:

The DigiGate LX/LC Keypads require a power transformer to operate. The transformer is supplied by Digitech International and is 12VAC, or a zoned battery backup 12VDC supply. Both of these power supplies will need to plug into a 115VAC outlet.

Note that any optional accessories on the keypad are powered from other sources. Depending on which accessories are used, other power transformers may be needed. You cannot use the same transformer that powers the DigiGate LX /LC Keypad for any of the optional accessories.

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Pre-Installation Requirements:

1. The concrete pad must be poured and dry before the keypad installation can be performed. See **Figure 3-1**, **Page 3-2** for concrete pad layout. Note that LX and LC keypads require an earth ground connection at the keypad and may require the installation of a ground rod.

2. Conduit must be run from the keypad location to the System Controller, or the previous RS485 device in the chain, for connection of the RS-485 Data line. Depending on the layout of the site, another conduit may be needed to continue the RS485 data cable to the next device in the chain. In addition, if using the intercom, a cable will need to be routed back to the master intercom location. The pinhole camera option will have a co-ax cable routed to the video control system. If using the relay on the back of the keypad for control purposes, a cable will be routed from the keypad to the device being controlled.

3. All cables to the keypad are low voltage cables and CANNOT be run in conduit with high voltage cables. Any low voltage cable can share a conduit with any other low voltage cable.

4. The DigiGate LX/LC Keypad requires a minimum of one 2 conductor 18 Gauge shielded wire for the RS-485 Bus line. This will be pulled from the keypad location to the System Controller, or to the nearest MUX box, depending on the layout of the RS-485 bus network. Depending on the layout of the RS-485 network, there may also be an outgoing two-conductor cable that connects to another device.

5. The DigiGate LX/LC Keypad requires one 2 conductor 18 Gauge shielded wire for power. This is routed back to the location of the power supply for the keypad.

6. Depending on the intercom system used, the keypad will require either one three conductor, or one two conductor, 18 Gauge shielded wire to be routed from the keypad to the intercom master station. Note: Remote telephone intercoms (DigiCall) use a three twisted pair wire. See separate install instructions for DigiCall systems.

7. (Optional Keypad Cameras) Keypads with built in cameras require an additional 2 conductor 18 Gauge wire for power, and a RG-59 Co-Ax cable to be pulled from the office to the keypad location. See **Page 3-20** for full instructions on Keypad camera installation.

8. Keypads that have built in heaters and thermostat pads will need an additional 2 conductor 18 Gauge wire pulled from the office to the keypad. See **Page 3-20** for more instructions on keypad heater installation.

Parts Needed (Not provided by Digitech International):

The installation of the gooseneck stand will require 4 bolts to hold the stand to the concrete pad. The recommended hardware is (4) 1/2" x 4.25" Red Head concrete anchors w/ washers and lock washers. Another option is to set bolts in the concrete when pouring the pad, and use nuts and washers to hold down the stand. If attaching keypads to a wall, see **Pages 3-3 and 3-4** for details on the recommended hardware.

Running the RS-485 Communication lines:

💡 **NOTE:** The System Controller communicates with the DigiGate-485™ Keypad through the RS-485 Bus cable. This is an 18 gauge two conductor shielded wire supplied by Digitech International. The RS-485 line runs from the System Controller to the RS-485 Keypads and Multiplexers out on the site. There are a few rules to understand when running the RS-485 Bus cable.

1. The RS-485 Keypads and Multiplexers are daisy chained together on the RS-485 data wire. An example is shown below in Figure 3-9. The RS-485 line runs from the System Controller to the closest Mux or keypad, then on to the next one, and so on.

2. The order in which the RS-485 Keypads and Multiplexers are connected does not matter. For example, MUX#9 could be connected first in the chain, then MUX#5, then a keypad, and so on.

3. The installer will route the RS-485 bus in such a manner so as to not have more than 2 branches of the bus line, as shown in the example below. Branching can happen only at the System Controller. In some cases the RS-485 routing will already be marked on the plans that the installer receives. The routing of the lines is usually dependent on the conduit that has been installed at the site, and the locations of the MUX boxes.

4. The RS-485 Data cable is shielded and has a bare drain wire inside. It is very important that this drain wire be connected as shown in the installation instructions for the LX / LC Keypads (**Page 3-19)** and the System Controller (**Page 2-17)**. Failure to connect the drain wire can cause intermittent system operation and reduces the system protection.
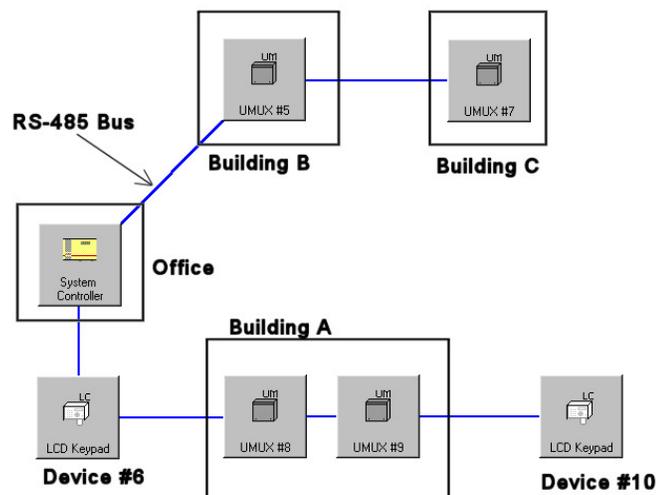
Figure 3-9

Installing the Keypad:

💡 **NOTE:** For keypads that do not use gooseneck stands, mount the enclosure at the proper location, and follow these instructions from **Step 4**.

1. Pull the cables for the keypad about 5ft out of the conduit. Thread all the cable through the gooseneck stand and center the gooseneck stand over the conduit.

2. Slide the loose cover on the bottom of the gooseneck stand up to the top of the gooseneck. Position the gooseneck in the correct direction and location. Mark the locations of the four holes to be drilled into the concrete pad. Remove the stand and drill the four holes 4-1/2" deep, using a 1/2" masonry bit.

3. Reposition the gooseneck stand on the concrete pad and line up the mounting slots with the drilled holes. Insert the mounting bolts and tighten securely. Slide the loose cover over the bottom of the stand.

4. Thread the cables through the keypad enclosure, and mount the enclosure to the gooseneck stand / wall. Make sure to mount the enclosure right side up.

5. Figure 3-10 below shows the circuit board of the DigiGate LX / LC Keypad. Refer to this while making wire connections.
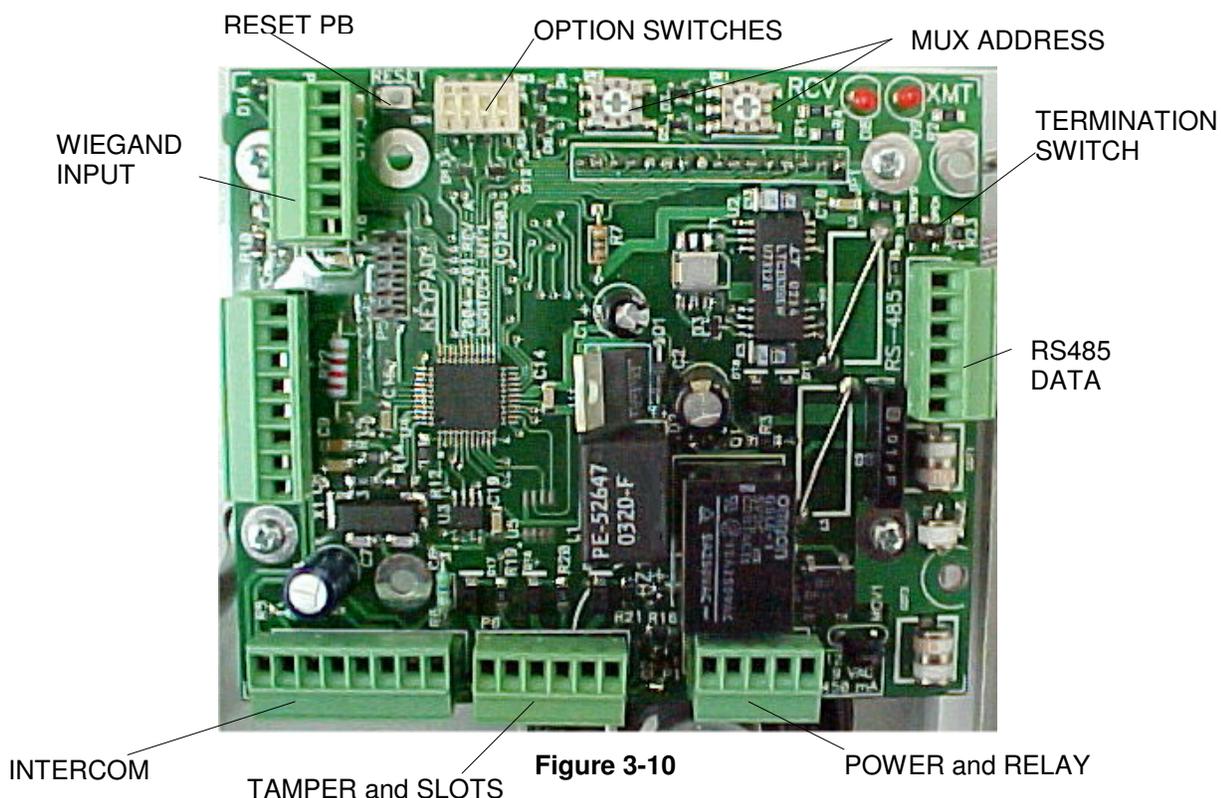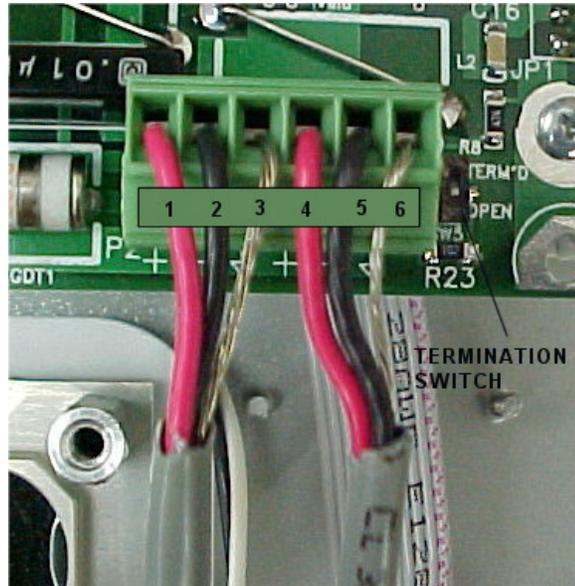
Figure 3-10

Figure 3-11

6. The first connection is the RS-485 Data line.

7. Strip back 1/2" of the gray cover off of the RS-485 Bus cable. Strip 1/4" of insulation off of each of the wires. Connect the red wire to Terminal #1 on connector P2 as shown above. Connect the black wire to terminal #2. The bare shield wire is connected to terminal #3. <u>Cover the bare shield wires with heat shrink or tape so that the wires do not short to anything when the keypad is placed into the enclosure.</u>

NOTE: It is <u>very important</u> that the drain wire be connected as shown. This connection is necessary for suppression, and noise reduction in the data lines. <u>Do Not connect the bare drain wires to the enclosure.</u>

8. If the RS-485 line continues on to another device in the chain, connect the outgoing lines to terminals #4, 5 and 6 on connector P2 as shown above.

NOTE: If the keypad is the last device on the RS-485 line, set the termination switch SW5 to TERMD. If the RS-485 line continues on to another device, then the switch is set to OPEN.

9. Connection of the Aiphone intercom is next. This is an optional step. If you have no intercom, skip to step #13
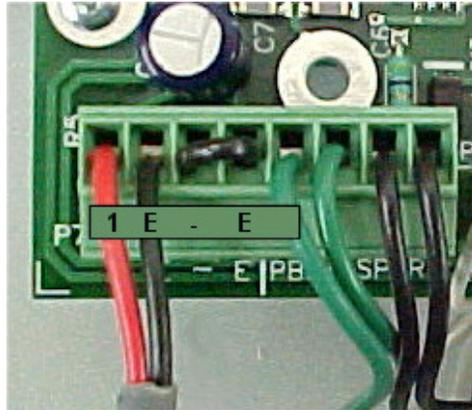

Figure 3-12

10. Strip back 1" of the gray cover off of the intercom cable. Strip 1/4" of insulation off of each of the wires. The bare drain wire connects to ground at the master station end.

11. Two Wire Systems: Connect the Red wire to terminal #1 on connector P7. Connect the Black wire to terminal E. Place a jumper wire between terminals E and -. This is the connection shown in Figure 3-12 above.

12. Three Wire Systems: Connect the Red wire to terminal #1 on connector P2. Connect the White wire to terminal #E. Connect the Black wire to terminal -. Do not connect a jumper between E and -.

13. If this keypad has an optional camera, proceed to the next step. Otherwise skip to **Step 17**.

14. Trim off the Co-ax cable coming out of the enclosure, so that about 6" of cable is hanging out. Attach a BNC connector onto the co-ax cable, per the instructions for the connector.

15. Slide a 4" length of heat shrink tubing over the BNC connector and the cable, and then attach the connector to the female plug that is wired to the back of the keypad. Slide the heat shrink tubing back over the connectors, and seal it so as to cover the exposed metal. This is to keep the connectors from shorting against the components on the back of the keypad.

16. Strip back 2" of the gray insulation from the 2-conductor 18-gauge power cable, then strip 1/4" of insulation from the two exposed wires. Cut off any bare drain wire that this cable may have. There is a two-position phoenix connector wired loose to the back of the keypad. It is labeled "+" and "-". Observe the power polarity. (Usually Red is + and Black is -) and connect the 2 wires to this plug. This cable will connect to a **DC** power supply that is in the office or other remote location. Both black & white and color keypad cameras use a **12VDC** transformer. Do not use the same power supply transformer for the camera that is used for the keypad itself.

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⚠ **WARNING: Connecting this camera to a 24VAC supply will damage it!**

17. If the keypad does not have a heater and thermostat, skip to **Step 24**.

18. The power for the heater is supplied through a 2-conductor 18-gauge wire. This wire is connected to a **12VDC** power supply that is located in the office or other remote location.

💡 **NOTE:** This is a separate power supply from the one used to power the keypad camera, or the one for the keypad itself. **Do Not** use the same power supply transformer for both the keypad camera and heater.

19. Strip off 4" of the gray outer insulation from the heater power cable, then 1/4" from each of the insulated wires.

20. Using heat shrink tubing and crimps / wire nuts, connect <u>one</u> of the incoming power wires to <u>one</u> of the white wires from the heater pad. This pad is already attached to the back of the keyboard, and will have 2 white wires coming out of it. (The pad is not polarity sensitive.)

21. Clean an area on the upper back inside of the enclosure with acetone or mineral spirits. Peel off the tape backing from the thermostat pad, and stick the pad in the cleaned area of the enclosure.

22. Connect the remaining white wire from the heater pad to one of the white wires on the thermostat pad.

23. Connect the other white wire from the thermostat pad to the remaining wire of the 2-conductor cable. Make sure that all connections are insulated.

24. If the keypad is going to have an access device connected to it's relay, proceed with the next step. Otherwise, skip to **Step 29**.

25. You will have a 2 conductor wire routed to the keypad location from the device that you wish to control. This may be a gate operator, a door strike, a mag-lock, or any other type of access device. Control voltage must be 24 volts or less.

💡 **NOTE:** Some types of access devices, such as door strikes and mag-locks need a power supply to operate. This power will be supplied from a transformer that will be plugged into an AC outlet. It must be an independent power supply and the transformer for the keypad, keypad camera, or keypad heater <u>cannot</u> be used for this purpose.

26. Connection for the relay is shown in **Figure 3-13** on the next page.

Figure 3-13

27. If the device needs a Normally Open contact, connect one wire to terminal NO on connector P1. The other wire would connect to terminal C.

28. If the device needs a Normally Closed contact, connect one wire to terminal NC on connector P1. The other wire would connect to terminal C.

29: The last connection is power. If using 12VAC then a plug in transformer supplies the power. If using a battery backup 4 zone power supply, then the voltage will be 12VDC. See page 3-27 for more instructions on zoned power supplies.

30. Connect the two power wires from the supply to terminals #4 and 5 on connector P1 as shown above in Figure 3-13. Polarity does not matter on this connection.

31. Connector P5 has the inputs for the tamper switch, and two programmable input points (Labeled PASS and DOOR). The tamper switch is pre-wired to the plug and is mounted on the top back of the keypad. The magnet for the tamper switch is placed inside the enclosure so that it lines up with the switch when the keypad is placed into the enclosure.

32. If your system is not using the programmable input points on the keypad, then proceed to step 34 on the next page.

33: If your system does uses these 2 input points, special instructions will have been provided detailing which devices connect to these terminals. An example is detailed below.

Example: A keypad is placed at a door leading into a climate controlled building and controlling a door strike. An alarm contact is placed on the door and is connected to the DOOR input terminals on connector P5. A pushbutton is placed on the inside of the door and is connected to the PASS input terminals on connector P5.

When the keypad is used with a valid code, the door will unlock, and the alarm contact will be disarmed for approximately 2 minutes. This allows the tenant to open the door and enter without setting off the alarm

If the door is held open for longer than this period of time, a buzzer connected to the system controller will sound in the office alerting the manager that someone has propped open the door. The exit pushbutton will unlock the door and shunt the contact as well. If the door is opened without the keypad or the pushbutton being used, then a different alarm will sound.

This is only one example of what these input points could be used for. Note that special programming is required in the software if these points are used.

34: On the back of the keypad there is a 2' length of green wire. At the opposite end of this wire will be a large wire lug.

35: **If the keypad enclosure is mounted on a gooseneck stand:** Connect the ground wire to the ground rod at the bottom of the gooseneck stand.

If the keypad enclosure is mounted on a metal building: Connect the large wire lug to the back of the keypad enclosure, securing it between one of the mounting bolts and the enclosure.

If the keypad enclosure is mounted on concrete, brick, or other non-metallic surface: Connect the end of the wire to a good earth ground connection. This may require removing the large wire lug from the end of the wire, and extending it to reach. The wire should be kept as short as possible.

To insure a good ground connection, any painted surfaces at the connection points should have the paint removed so that bare metal is showing.

This ground connection is important for the suppression circuitry of the keypad to function properly. Failure to connect the keypad to earth ground will increase the susceptibility of the keypad or other Digitech equipment to damage.

36: The connections to the keypad are complete, but before power is applied to the keypad it will need to have it's option switches, and MUX address set. Figure 3-14 below shows the switches for setting the options, as well as the address.
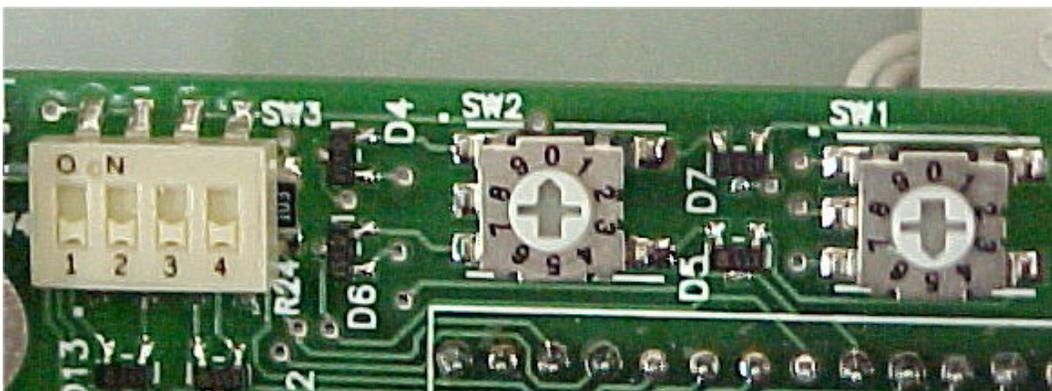

Figure 3-14

To set the code format (How the code is entered at the keypad), use option switches #1 and #2.

For Code* , set both switches to OFF. This is the default.

For Code# , set #1 to ON, #2 to OFF.

For *Code# , set #1 to OFF and #2 to ON.

For overseas use in Japan, set #1 and #2 both to ON.

37: Option switch #3 is used to select if a magnetic card reader or a Wiegand device is attached to the circuit board plug P4. If a magnetic card reader is used, switch #3 is set to OFF. If a Wiegand device is used, it is set to ON.

38: Option switch #4 is used to set the "Baud Rate" (2400 or 9600) that the circuit board communicates with the System Controller. Unless otherwise specified by a Digitech technician, leave this switch set to OFF (2400 baud).

39: The **MUX Address** of the board is set using the two rotary switches. Each board on the system has a unique address, and cannot have the same address as another board. Setting two boards to the same address will cause the DigiGate system to operate incorrectly. Please confirm the MUX number when setting the address.

40: Switch SW1 sets the "ones" digit of the address, and SW2 sets the "tens" digit. In figure 3-14, the board is set to MUX address #5. Use a small screwdriver to point the arrow of the rotary switch towards the correct number. See figure 3-14 for an example.

Note: Changing the switch settings while the keypad is powered up will have no effect until the keypad is powered down and then back on, or until the RESET button is pressed.

41: Coil wires into the enclosure, and then fasten the keypad to the enclosure using the four hex head screws provided.

42: Power up the keypad. The startup screen should display the board # and the settings for the option switches, as shown in the third line of the display in figure 3-15 below.
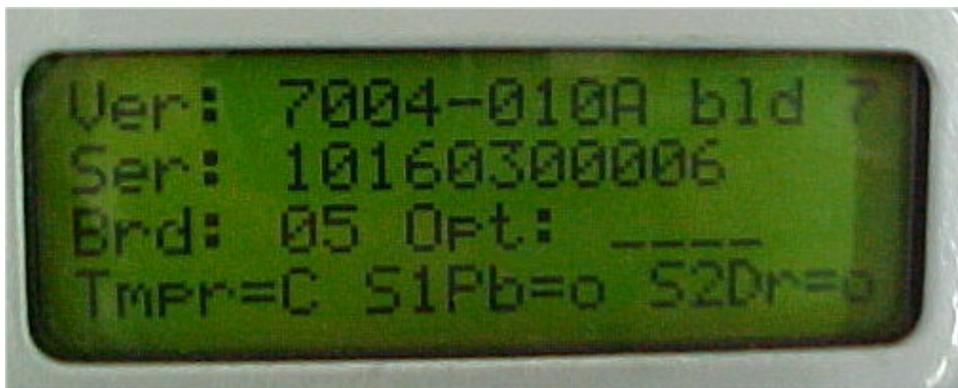

Figure 3-15

After about 10 seconds, the default message of the LCD will then appear.

Optional Card Readers or Wiegand Devices:

Some keypads may have optional card readers, or Wiegand devices (such as a proximity card reader or a radio remote control receiver) attached or wired to them. These devices connect to plug P4 of the circuit board, as shown in figure 3-16 below.
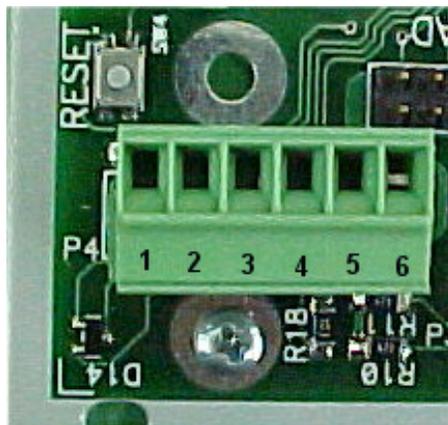
Figure 3-16

In the case of magnetic card swipes and proximity card readers that are directly mounted on the keypad faceplate or enclosure, the wires from the device will already be pre-connected to the plug. Only one device can be connected to this port.

For external devices, the following connections are made. Refer to the documentation that comes with the device for the designation of each wire. Any unused wires from the device should be insulated.

Magnetic Card Swipes: (Set Option switch #3 to OFF)

        Terminal 1. +5 Volts

        Terminal 3. Data

        Terminal 4. Clock

        Terminal 6. Ground

Wiegand Devices: (Set Option switch #3 to ON)

        Terminal 1. +5 Volts

        Terminal 2. Data 1 (Jumper to terminal 4)

        Terminal 3. Data 0

        Terminal 4. Jumper to terminal 2

        Terminal 6. Ground

After power up, trigger the device by swiping or presenting a card, or triggering a radio remote control. The keypad should act as if a code had been entered on the keyboard.

Installation Complete

Zoned Power Supply Connection:

This device is meant to supply power to up to eight DigiTech™ RS-485 Keypads (LX or LC), to avoid having to have local 115VAC power at each Keypad location. Battery backup of the Keypad is also done by this supply. <u>Keypads powered by a local transformer are not supplied with a battery backup.</u>

This supply is the same supply that may be used for Uni-Mux boxes (Chapter 5). One supply may have both Keypads and Uni-Mux boxes connected to it, but may not exceed 8 devices in total. Refer to **Figure 3-17** on the next page while installing the power supply. (The large gray cable shown in the picture is not present in zoned power supplies for keypads)

⚡ **DANGER:** High voltage AC power is present inside the case of this power supply.

1. A 115VAC outlet will need to be at the location of the zoned supply.

⚠ **WARNING:** The supply is not rated for outdoor use. Installation is to be indoors only.

2. Each keypad will have a 2-conductor wire for power. This pair of wires is connected to terminals #4 and #5, on Plug P1. This plug is located in the lower right of the keypad motherboard and is orange in color. The plug is not polarity sensitive and the negative and positive wires may connect to either (but not the same) pin.

💡 **TIP: 18 gauge wire may be used for runs up to 500 feet.**

3. Home run the 2-conductor power wires from each individual device to the location of the power supply.

⚠ **WARNING: <u>Do not "daisy chain" the power to multiple devices on a single wire</u>.**

4. Connect each pair of wires to a set of terminals on the power supply. Use a "Fused Power Output" and a "Common Power Output) connection terminal for each wire pair.

💡 **NOTE:** This supply automatically senses the input voltage (115VAC or 220 VAC) and does not have a voltage selector switch.

5. Plug the AC cable from the supply into the wall outlet. Switch on the output power switch on the top of the output board. The AC ON LED in the supply should light.

6. Verify that each keypad connected to the supply is operational and has a minimum of 12VDC at the power terminals on the keypad circuit board.

7. While observing correct polarity, connect the supplied 4/AH 12VDC battery to the battery wires.
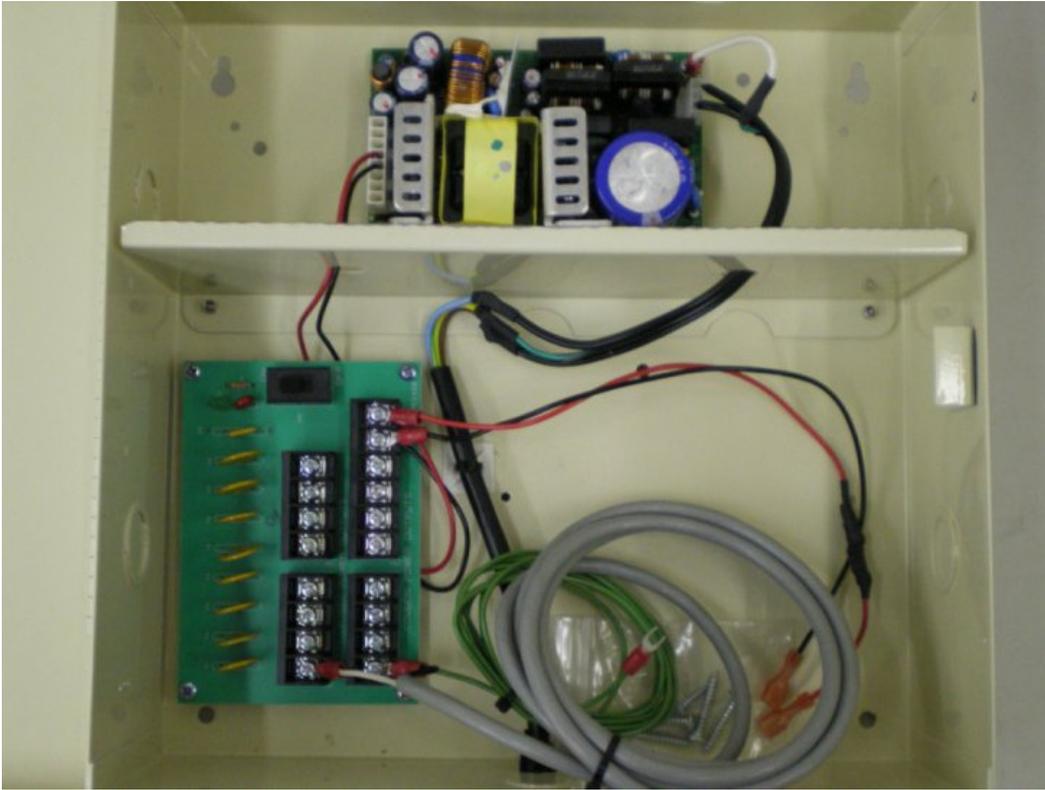
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Figure 3-17

Installation Notes

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Chapter 4 - DigiGraphics Installation

The individual parts for the DigiGraphics unit consists of the graphics controller, remote receiver and handheld remote control, RS-485 converter module, USB key, and SVGA monitor.

Mounting Locations

The DigiGraphics and its associated equipment are installed in the office. Some systems that have the DigiGraphics will have a special cabinet built for the graphics and video equipment to be installed into, and this cabinet will have a Plexiglas panel on the front.

The SVGA monitor is installed in the cabinet, behind the area on the plex panel that is labeled "SYSTEM DISPLAY". It will connect to the graphics controller through a SVGA cable. It will be necessary to mount the controller in a location that is close enough to the SVGA monitor to allow the connection of the cable. The SVGA cable is provided with an extension cord if needed. (Maximum distance 15 feet)

The graphics controller may be placed on a shelf assigned for it inside the cabinet, or it may be placed outside the cabinet in an area reserved for it. Cables that are routed to the graphics controller should be hidden as much as possible.

The DigiGraphics controller should be placed in an area where it is accessible, to allow the easy update of it's software in the event a change is made to the site plan. Leave enough slack in the cables running to the unit to allow it to be moved if needed.

On systems that do not have a cabinet / plex, the controller will be placed in the area of the owners choosing. The SVGA monitor and the remote receiver would be set on top of the controller in this event. Some sites may have a flat screen monitor mounted on the wall or hanging from the ceiling.

Note: The graphics controller looks similar to a PC. Do not confuse the controller with the office PC. The graphics controller should have a label on the front that says "DigiGraphics"

Electrical Requirements

1. The DigiGraphics controller will require 2 grounded 115 VAC power outlets within 3 cable feet of the controller location.
2. The VGA monitor will require a grounded 115 VAC power outlet within 3 cable feet of the monitor location.

These outlets should be on the same electrical circuit breaker as the rest of the Digitech International security system components that are in the office.

Pre-Installation Requirements

1. The area that the graphics controller is being installed in should be finished to the point that there is little or no danger of the controller or it's wiring being damaged by further work in the area.

2. Power to the controller will be necessary before the controller can be tested. This does not preclude installation.

3. Depending on the location of the graphics controller and the system controller, it may have been necessary to install conduit to run the RS-485 cable from the system controller to the graphics controller. This conduit should be present before installation can be completed.

Installing the DigiGraphics

1. Place the graphics controller in the location provided for it. Allow enough space behind the graphics unit for the connection of the cables.

2. Inside the box with the graphics generator is the RS-232/485 converter. This unit is approximately 2-1/2" long by 2" wide. It will have a 50-foot length of 18-gauge 2 conductor shielded wire pre-connected to it. This converter uses a 12VDC power transformer (included).

3. The transformer will have a length of wire already connected to it. The positive wire is marked with a stripe and a label, but you should **check the polarity of the wires with a meter before connecting them to the converter**. Negative connects to GRND, and positive to V+, (See **Figure 4-1** below **)**.

⚠ **WARNING:** Reversed polarity will destroy the converter!

Figure 4-1

4. Plug the converter into the 9 pin male port on the back of the graphics controller labeled "COM1: 485". Make sure that the screws are tight connecting the adapter, converter and DigiGraphics.
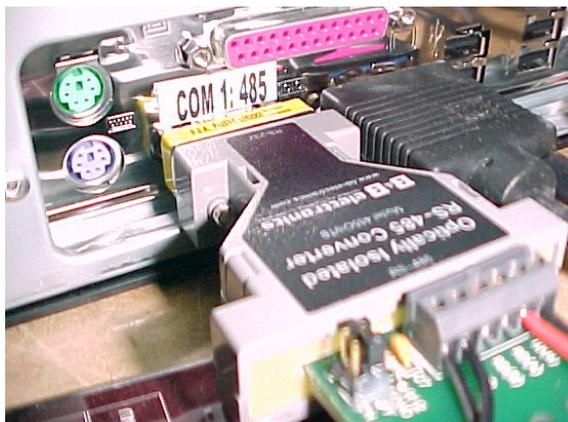

Figure 4-2

💡 **NOTE:** It is important that the converter be securely fastened to the port. A loose connection may cause intermittent operation.

5. Route the two conductor wire to the location of the system controller, keeping it hidden and neatly bundled with any other wires running to the syscon, and connect it to the syscon as per the instructions on **Page 2-12** of this manual. Excess wire length may be trimmed off.

6. Place the SVGA monitor in the location provided for it, and route the SVGA cable to the location of the graphics controller. Use the SVGA extension cable if needed. Plug the cable into the female 15-pin SVGA port on the back of the controller.

7. On systems that have a plex / cabinet, the remote receiver mounts in a cutout in the front of the plex. Feed the cable through the plex, and then insert the remote receiver into the cutout. Secure the cable to the back of the plex, and route it to the back of the graphics controller. (Some remote receivers may attach from the back of the plex).

💡 **TIP: Figure 4-3** on the next page shows the typical mounting location. On systems that have no cabinet, the receiver will be placed near the SVGA monitor. The receiver should be visible from the locations the manager will use the remote control from, as it has line of sight operation. Avoid placing the remote near a strong light source.

![digitech INTERNATIONAL logo]
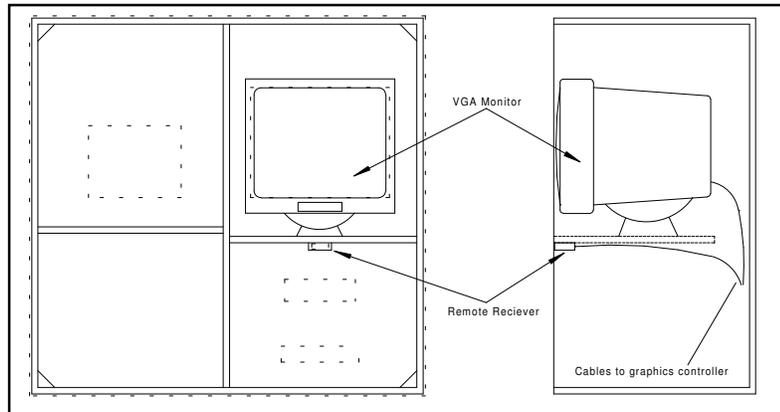
Figure 4-3

8.   Route the cable from the remote receiver to the back of the graphics controller. Plug the receiver's cable into the connector that is labeled "COM2:REMOTE", and tighten down the attachment screws

9.   In the box with the remote control is the USB key, shown in **Figure 4-4** below.

Figure 4-4

Figure 4-5

10. Plug the USB key into one of the USB ports on the **BACK** of the graphics controller, as shown in **Figure 4-5**. Do not plug the key into any port on the front of the controller. Do not force the key into the port. If it does not easily slide in, flip it over and try again.

10. Plug the SVGA monitor into an outlet and turn on the monitor.

11. Plug the RS-485 converter's transformer into a 115VAC outlet.

12. Plug the graphics controller into its outlet. Turn on the controller. It takes about 20 seconds for the program to load and display the site plan for the facility on the SVGA monitor.

NOTE: Due to the time required to generate the graphics programming, some sites may be shipped with a generic "Digitech Mini Storage" site plan that will display on the screen. Once the programming is completed for the site, the new USB key will be shipped to the site.

NOTE: When changes are made to the unit layout of a site, a new USB key must be sent from Digitech International if the graphics plan is to be updated as well.

NOTE: To update the graphics controller when a new USB Key arrives, turn off the power to the DigiGraphics controller and remove the old key. Place the new key in the same port the old key was in, then turn the power back on the DigiGraphics controller. The new site plan will load and update automatically. Please return the old key to Digitech International.

13. Adjust the screen size and position of the display on the VGA monitor with the monitor's front panel controls.
14. Testing of the graphics system will be discussed in Chapter 9.
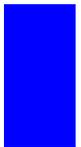
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Chapter 5 - Door Alarm Installation

Introduction

💡 **NOTE:** This chapter addresses Digitech International, Inc.'s wired door alarm system. **DigiGuard**, Digitech's wireless door alarm system, is covered in a separate manual, "**DigiGuard™ Door Alarm Installation and Operation Guide**", **P/N: 1200-182**

💡 **NOTE:** As of 12/1/2005, there has been a radical change in the Digitech hard-wired door alarm system. The multiplexer circuitry, trunk cables, and door switches have all been modified from their previous versions. In addition to thoroughly reading this section of the manual dealing with the installation procedure, please review Digitech document "Changes to the Digitech Hard-Wired Door Alarm System" for a complete listing of all the differences between the two systems.

Overview of Operation:

The Digitech International, Inc. wired door alarm system connects a sensor on each unit door on a facility to the System Controller (Syscon), allowing the monitoring of the door's opening and closing. At the same time the Entry keypad is used by the customer to access the site, the alarm contacts for their units are disarmed. When the Exit keypad is used to leave the site, the units will be re-armed. If a unit is armed and is opened without the proper code being used at the keypad, the alarm will be activated. Optionally, the software can re-arm a unit door at a set time (up to 1 hour) after the door has been closed; regardless of if the exit keypad is used.

The door alarm system is designed for easy installation and wiring. On some systems, the assignment of the Uni-Muxes and the wiring connections for each door are determined by Digitech International, Inc. prior to the start of installation. If this is the case, a set of drawings showing the units in the facility will be provided to the installer along with a set of Door Connection Worksheets for each Uni-Mux. The computer software will also be pre-loaded with the unit numbers, and the mux/slot assignment for each unit.

If the units have not been pre-assigned, the installer is provided with blank worksheets (Door Connection Worksheet) to note the assignment of the units as they are wired. These worksheets are on the last five pages of this section. Make copies as needed. When the site has been wired and tested, **copies of the completed sheets should be sent to Digitech International, Inc. by the installer**.

The basic system for a site with hard-wired door alarms consists of at least one Keypad or other access control device at the entrance to the facility, a Syscon assembly, and one or more Universal Multiplexer (Uni-Mux) boards. Each Uni-Mux can have up to 110 doors assigned to it, and the system can control up to 64 485 devices (of which the Uni-Mux is one type). The system has a limit of 4,000 doors that can be connected. This number might increase in the future.

> 💡 **NOTE:** Throughout this section, the term "Door" refers to a set of normally closed dry contacts, and may not necessarily be a door contact. These contacts could also be from infrared beams, motion detectors, or other devices.

The hard-wired door alarm system consists of the following components

1. The Uni-Mux assembly (minimum of one motherboard per 110 doors)

   Each assembly consists of

   a. One (1) Motherboard with built-in LCD screen

   b. A minimum of one (1) common wire alarm daughterboard. Each daughterboard can connect up to 22 door contacts. Each Uni-Mux can control up to five daughterboards.

   c. One (1) 12VAC or 12VDC power transformer. (If a zoned battery backup power supply is used (P/N 4025-603K), there will be no transformer.)

   d. Three foot 16 gauge ground wire.

2. An individual switch contact and magnet for each door to be alarmed. These may consist of several types, depending on the doors.

   a. Track Mount contact: Designed to be mounted on the track of a roll-up door. Each contact will have a switch, magnet, 2 short rivets, 2 long rivets with washers, 2 nuts and bolts, and an L-bracket for mounting the switch.

   b. Floor Mount contact: For mounting on the floor below the roll-up door curtain. Each contact will have a switch, magnet, 4 screws and anchors, and an L-bracket for mounting the magnet.

   c. Swing Door contact: For use on swinging unit doors. Each contact will have a 3/8" press-in switch with shroud, a button magnet with washer, and a self-tapping screw.

   d. Fire Door or Access Door contact: For use on fire exit doors, or on doors that access controlled areas. Each contact will have a 3/4" press-in switch, and a 3/4" press-in magnet.

   e. Latch Switch: Used on roll up or swing doors. Mounts to the frame or track with two short self-tapping screws. The door latch breaks the magnetic field. The door latch must be constructed of a ferrous (magnetic) material for these switches to work.

3. Fifty conductor 24 gauge solid core unshielded cable. For connection of the individual door switches to the Uni-Mux. The amount of cable provided depends on the site requirements.

4. Two conductor 18 gauge shielded cable, for running the RS-485 bus lines.

5. UG crimp connectors: Two (2) per switch, for connecting the individual switches to the 50 conductor trunk cables.

NOTE: Each of the door switches has a different method of mounting. They will be discussed in detail in the following pages. The Uni-Mux mounting is discussed in the **Uni-Mux Installation** section of this chapter.
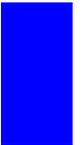
Electrical Requirements

1. For Uni-Muxes that <u>do not use</u> the Digitech 4 zone RS-485 device battery backup power supply (P/N 4025-603K - see page 5-32), each Uni-Mux assembly will require one (1) 115VAC duplex electrical outlet at the location of the Uni-Mux box. If possible, these outlets should be wired on a separate circuit breaker from any other electrical equipment.

2. Uni-Muxes that do use the Digitech 4 zone RS-485 device battery backup power supply will require one (1) 115VAC duplex electrical outlet at the location of the power supply.

3. Each Uni-Mux assembly is required to be connected to an electrical ground. Connection to any of the following is acceptable: Grounded EMT conduit, metal building frame (provided that the building is grounded), grounded cold water pipe, electrical panel ground, or an 8' 5/8" diameter copper clad ground rod. See details of the Uni-Mux ground connection on page 5-28.

Pre-Installation Requirements

A. Door Switches

  1. The door that the switch is being connected to should be completely installed and working correctly.

     a. Roll-up doors should have the doorstop installed and the door springs set to the proper tension. The door should roll up and down freely without binding. The door should be secure in its track, and the track secured to the wall.

     b. Swing doors should be level and true with the frame, with no more than a 1/2" gap and no less than a 1/8" gap from the top of the door to the frame.

B. Trunk cables

  1. The trunk cables run from the Uni-Mux boxes to the individual units that the trunk cable connects to. Any conduit that is needed to route these wires must be installed.

  2. Conduits penetrating firewalls must be approved and sealed per local fire codes.

  3. Construction in the areas where trunk cables run should be finished to the point that there is little or no danger of the wires being damaged after installation by further construction in the area.

C. RS-485 Bus Lines

  1. The RS-485 bus line runs from the Syscon in the office, in a daisy chain fashion, to the Uni-Mux boxes and any other RS-485 devices on the bus. Any conduit that is needed to route these wires must be installed.

  2. Conduits penetrating firewalls must be approved and sealed per local fire codes.

  3. Construction in the areas where RS-485 bus lines run should be finished to the point that there is little or no danger of the wires being damaged after installation by further construction in the area.

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D. Uni-Mux Assemblies
1. The required conduit should be installed, for connection of the Uni-Muxes to the door switches, for the connection to the Syscon, and for any power connections.
2. AC outlet power is not needed to the Uni-Mux power supply for the Uni-Mux to be tested, as they may be tested using a 12VDC battery at the Uni-Mux location. AC outlet power is necessary for final installation.

Door Switch Installation

Correct installation of the Digitech International hardwired door alarm system starts with the installation of the individual door switches and magnets. The following pages detail the specifications for the installation of the various types of switches.

The door switch itself is a sealed switch that is Normally Open (except for the Latch type switch). When in proximity to a magnetic field, the switch closes. The switch is mounted in a position so that the closure of the unit's door brings the magnet into alignment with the switch. The Uni-Mux board identifies this closure as a secure door. When the door is opened, the magnet is moved away from the switch. This allows the contacts to open and the Uni-Mux identifies this as an open door.

In the case of Latch type switches, the contact is Normally Closed, and proximity to a magnetic field opens the switch. When the door is closed and the latch is in position, the field is broken and the switch shows closed.

NOTE: The door switches used with the Uni-Mux <u>do not have diodes built into them</u>. They are standard switches and have no polarity.

List of Switch Part Numbers (Note: These part numbers are different than those for switches used with the matrix style alarm system.)

Track mount switches (PN# 1301-038)

Swing door switches (PN# 1301-030)

Floor mount switches (PN# 1301-059)

Fire and Access door switches (PN# 1301-080)

Latch switches (PN# 1301-015)

Track Mounted Switch Installation

1.The track switch comes in one of two ways:

      A: With a Z bracket, as separate pieces which will need assembly.

      B: With an L bracket, as separate pieces which will need assembly.
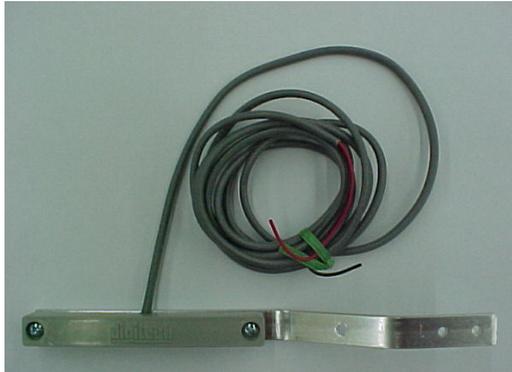

Figure 5-1

2.   Hold the bracket and switch onto the door track above the door stop as shown in **Figure 5-2**. With the door closed and the latch locked into the track, position the magnet onto the door curtain directly behind and parallel with the switch. Mark the magnet's position, then take down the bracket.

⚠ **WARNING: Do Not attach the bracket to the doorstop in any way!**

⚠ **NOTE:** It is very important that the magnet be aligned directly behind the switch when the door is in the closed position. Also, the gap between the switch and the magnet must be two inches or less. Improper magnet alignment will cause intermittent operation and false alarms.

Figure 5-2

3.   Drill the two 1/8" holes through the door and mount the magnet in the position that was marked in step 2. Use the two .125" x .765" pop rivets. Refer to **Figure 5-3**.

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💡 **NOTE:** <u>**You must rivet from the outside of the door curtain as shown in Figure 5-3**</u>. This may require the door to be rolled up and around into the unit to be able to access the two 1/8" holes from the outside of the door curtain. <u>Riveting from the inside will cause the rivet ends to scratch the door curtain</u>!

💡 **NOTE:** <u>**Make sure that the washer is used between the rivet and the magnet as shown in Figure 5-3**</u>. Failure to use the washer will cause the rivet to split the magnet case, and the magnet will fall off the door.

⚠️ **WARNING:** <u>Do Not use glue or any other adhesive to attach the magnet to the door curtain</u>.
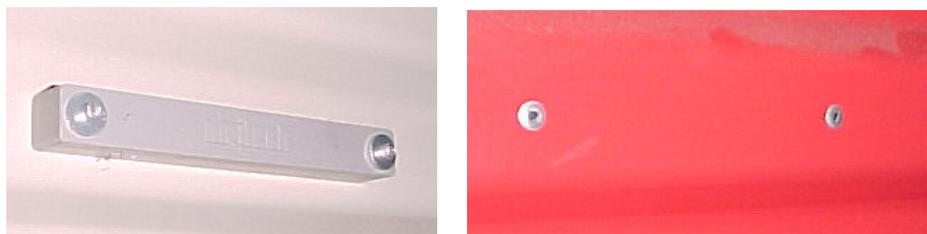

Figure 5-3

4. Mount the bracket onto the door track, above the stop so it aligns with the magnet. Drill the track and use the two .125" x .325" pop-rivets provided to secure the bracket to the track. Double check that the magnet and switch come into alignment when the door is closed and locked.

Figure 5-4

💡 **NOTE:** It may be necessary to bend the bracket in to achieve the 2" maximum allowed gap between the switch and the magnet. Get it as close as possible, while also allowing the door to roll up and down without interference from the bracket or switch.

5. Secure the wire from the switch to the overhead, using wire ties, so the switch wire is out of the way and cannot be damaged by the door mechanism. Go to page 5-13 for details on connection of the switch wires to the trunk cable.

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Swing Door Switch Installation

On units that have swing doors, the recessed switch should be used.

1. Drill or punch a 3/4" hole through the center of the header, <u>approximately 12" away from the hinge side of the door</u>. Take care not to oversize the hole.
2. Push the switch collar into the hole that was drilled.
3. Feed the wires for the switch through the collar, and press the switch into the collar until it is flush.

Figure 5-5

4. Mark the top of the door directly under the location of the switch. Mount the button magnet to the door using the washer and self-tapping screw provided with the magnet. <u>The washer goes between the door and the magnet</u>. Do not over tighten the screw, because this can break the magnet. The gap between the magnet and the switch should be no more than 1/2".
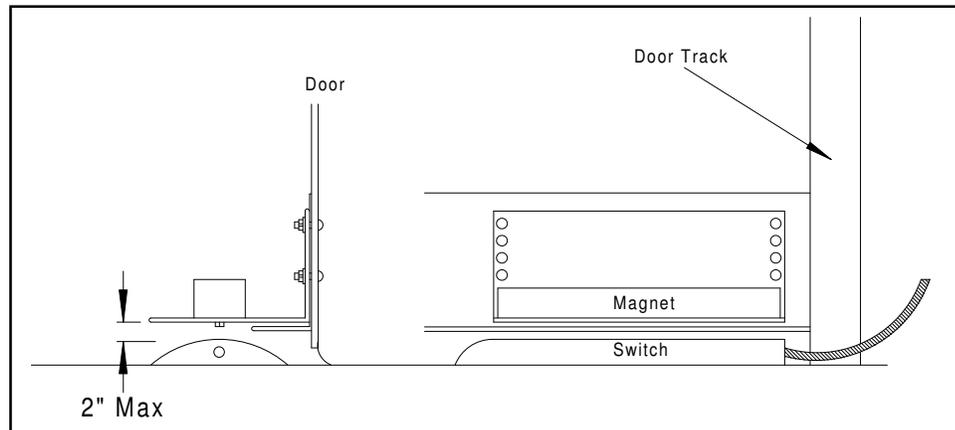
Figure 5-6

💡 **NOTE:** Some bending of the door header and frame may be necessary to obtain the proper gap for the magnet and switch. Extremely large gaps may need to use two of the isolation washers between the magnet and the door if bending of the frame is not possible. Use of two washers will require a longer screw, which is available from Digitech.

5. The wires will route up to the trunk cable for connection. See page 5-13 for details on attaching the switch wires to the trunk cables. Secure all loose wire to walls inside of the unit. Excess wire length may be trimmed off before connection to the trunk cables.

Floor Mount Switch Installation

1. Position the switch and magnet inside the door to the far left or right side. Mark the positions of the L-bracket holding the magnet to the door, and the switch on the floor. Make sure that the alignment of the switch and magnet is as shown in Figure 5-7 before drilling holes.

Figure 5-7

🔆 **NOTE:** The maximum gap from the magnet to the switch is 2", with the door closed and the latch shut into the track. If the magnet is not centered over the switch when the door is closed, intermittent operation of the switch may result.

2. After marking the position of the switch and the bracket, drill out the holes in the floor and use the screws and anchors to mount the switch.

3. Mount the L-bracket and magnet onto the door curtain, so that it aligns properly with the switch. The magnet can be moved on the bracket for adjustment.

🔆 **NOTE:** Depending on the door type, it may be necessary to place the magnet on the bottom side of the L-bracket to achieve the proper 2" gap.

4. The switch has a length of armored cable attached. This will run up beside the door to the overhead of the unit. The cable may be run inside a channel beside the door if one exists, or in an optional conduit that may be installed for this purpose.

5. After routing the cable to the overhead, secure the cable to prevent it from being damaged and go to page 5-13 for instructions on connection to the trunk cables.

Fire Door Switch Installation

Sometimes sensors are placed on the fire exit doors or other non-standard doors of a building. These doors use a 3/4" recessed contact and magnet. (Some of these doors may use a track mount style contact mounted to the doorframe instead.)

1. Conduit, or another method of accessing the inside of the doors frame, must be installed for these types of doors.
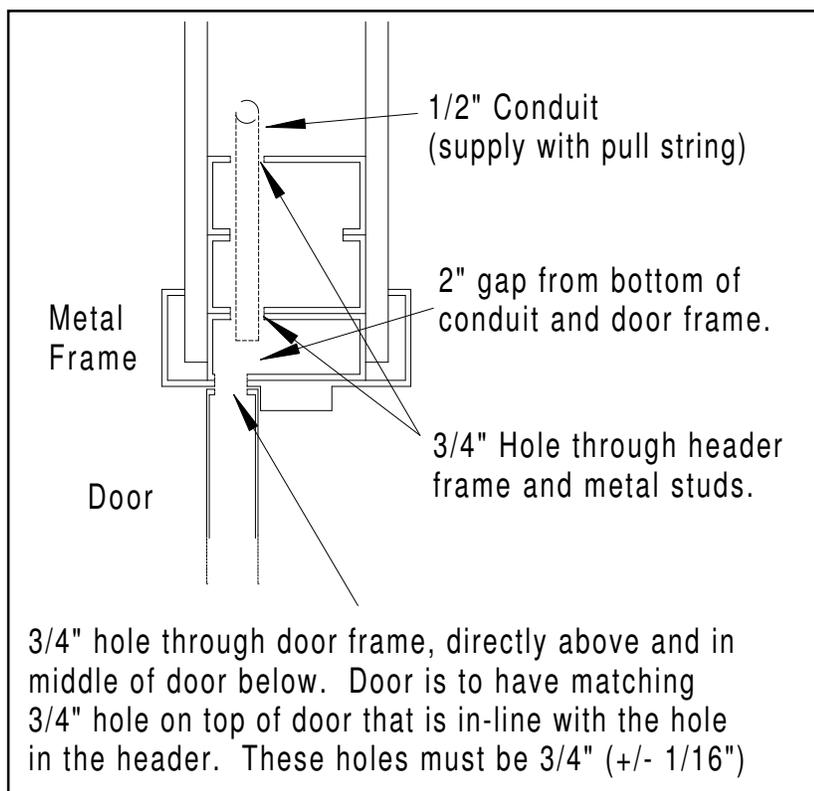

1/2" Conduit
(supply with pull string)

2" gap from bottom of
conduit and door frame.

Metal
Frame

3/4" Hole through header
frame and metal studs.

Door

3/4" hole through door frame, directly above and in
middle of door below. Door is to have matching
3/4" hole on top of door that is in-line with the hole
in the header. These holes must be 3/4" (+/- 1/16")

Figure 5-8

2. The wires from the switch are fed into the 3/4" hole in the door header, through the 1/2" conduit, and back to the location of the trunk cable they will connect to. This may require a length of 2-conductor wire to be added onto the end of the switch wires.
3. Press fit the switch into the door header, and then the magnet into the top of the door. The gap between the magnet and the switch should be no more than 3/4".
4. See page 5-13 for instructions on connecting switch wires to the trunk cables.

Latch Switch Installation

Latch switches (also called Quick-Switches) are a new method of alarming doors. The switch and magnet are in one self-contained unit. This unit has a slot the door latch is inserted into when the door is closed. The door latch must be made of a ferrous material (ferrous means a magnet would be attracted to the latch) for the switch to work correctly. Some door latches are not ferrous and will not work with this type of switch. Contact the door manufacturer to determine if the specified doors will work.

When the latch breaks the magnetic field, the switch closes. This indicates to the Digitech system that the door is closed. The latch must completely enter the slot of the switch for the switch to operate reliably.

Figure 5-9 shows the latch switch mounting.

Figure 5-9

1. Line the switch up with the door down and latched, so the door latch extends into the switch as shown.
2. Use the two short .325" self-tapping screws to fasten the switch to the door track.

    Note: Do not use the longer self-tapping screws that are provided with the wire ties in the hardware package. Using screws that are too long will interfere with the movement of the door curtain.

3. Route the switch wire to the overhead for attachment to the trunk cables. Make sure the wire is not exposed and cannot be damaged by the door mechanism.

Trunk Cable Routing and Connections

The wiring from the Uni-Mux assemblies to each door is handled by "trunk" cables. The trunk cable is a 50 conductor, 24-gauge solid core non-shielded cable. The trunk cable connects to the Uni-Mux board, and is routed through the building(s) to each of the units assigned to that board.

Each trunk cable can connect to up to 44 doors. Each Uni-Mux board can have up to 110 sets of contacts connected to it, depending on the number of door alarm daughterboards installed in the Uni-Mux. (One trunk cable can be connected to two daughterboards.)

It is suggested that cable markers be used by the installer, so the individual trunk cables can be identified in the building. The cables can be marked with the Uni-Mux number and daughterboard they connect to. For example, Uni-Mux #6 and daughterboards A and B would be marked as 6AB.

💡 **NOTE:** The trunk cable does not have to be in a conduit while it is inside the building, however, it must be protected from being cut or shorted by sharp metal edges. Use grommets, bushings, or other materials to protect the wire when it passes over or through walls or partitions (protective materials not supplied by Digitech International, Inc.).

⚠ **WARNING:** Do not run the trunk cables in parallel with unshielded AC power lines or near light fixtures. Do not splice the trunk cables.

When the trunk cable reaches the end of its run, strip about 3" of the outer insulation away from the wires. Separate out the following four wires:

Black with Blue Stripe
Black with Green Stripe
Black with Orange Stripe
Black with Silver Stripe

Strip about 1/4" of insulation from these four wires, and use a wire nut to connect them all together.
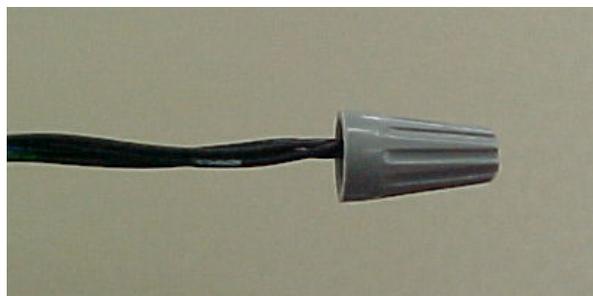

Figure 5-10

Cut the remaining wires each to a different length, and then tape up the wires as shown below. Do not allow the ends of these wires to short to each other, to the metal building, or to any electrical ground. In some situations, it may be necessary to place the end of the trunk cable in a junction box to satisfy local electrical codes.
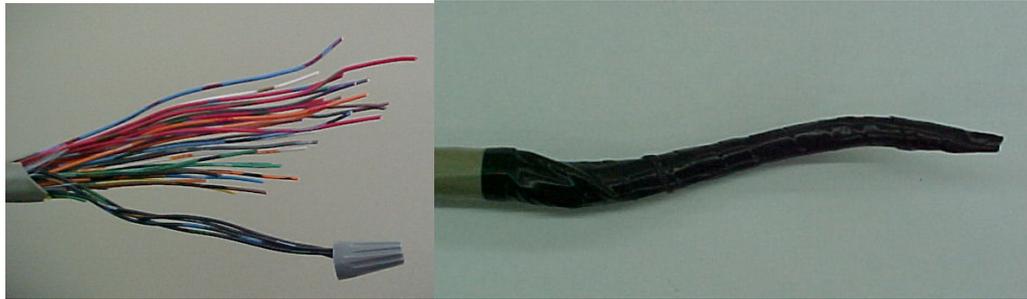

Figure 5-11

Before the installation is completed, the trunk wires should be secured neatly to the overhead of the building, on top of (**Figure 5-12**), or inside units. The routing of the trunk cables should be kept hidden as much as possible, and secured to prevent the wires from being snagged or damaged by tenant activities. If the wire is inside the unit, make sure it cannot sag down into the door curtain. <u>Stretching the wire between the walls of the unit is not sufficient</u>. It must be securely fastened to the ceiling or wall a minimum of once every 5' of travel.

Figure 5-12

Connection of the Switch Wires to the Trunk Cable

The wires from each switch connect to the trunk cable above the door the switch is mounted on. Four of the wires in the trunk cable are common (ground) and 44 of the wires are for the individual doors. This leaves two wires as spares.

When connecting the doors, the installer will use a worksheet to find the color code of the trunk wire used to connect a particular door. Each door has one side of the switch connected to a common wire, and the other side of the switch connected to a wire that is used for that switch only.

NOTE: Depending on the system, the installer may be provided with the drawings of the trunk cable routing to units, and with the worksheets for connection. Experienced installers may design their own trunk wire routing and connections. If the wiring is determined on site, copies of the worksheets should be provided to Digitech International, Inc.

NOTE: Switches in the common-wire door alarm system do not have any polarity. Do not use polarized switches (with built-in diodes) for connection to the common wire alarm system.

NOTE: For persons installing a Digitech Door Alarm system for the first time, **it is highly recommended** that connections to one daughterboard and trunk cable be made and tested for correctness, before the rest of the connections are made to the system.

The next page shows an example of a worksheet. The unit numbers would be filled in with the units the trunk cable connects to. In this example, the connections would be made to daughterboards A and B on Uni-Mux #5. These would be slots 1 through 44 (22 on each daughterboard).

Door Alarm Connection Worksheet

Uni-Mux # ___5___ **Daughterboards** ___A/B___ .

SLOT / PIN	UNIT #	Color	Common	SLOT / PIN	UNIT #	Color	Common
1/1A		Rd/Blu	Blk/Blu	23/1B		Brn/Yel	Blk/Org
2/2A		Rd/Org	Blk/Blu	24/2B		Brn/Pur	Blk/Org
3/3A		Rd/Grn	Blk/Blu	25/3B		Brn/Wht	Blk/Org
4/4A		Rd/Wht	Blk/Blu	26/4B		Org/Blk	Blk/Org
5/5A		Rd/Brn	Blk/Blu	27/5B		Org/Wht	Blk/Org
6/6A		Wht/Blu	Blk/Blu	28/6B		Org/Yel	Blk/Org
7/7A		Wht/Org	Blk/Blu	29/7B		Org/Red	Blk/Org
8/8A		Wht/Grn	Blk/Blu	30/8B		Org/Pur	Blk/Org
9/9A		Wht/Wht	Blk/Blu	31/9B		Slate/Red	Blk/Org
10/10A		Wht/Brn	Blk/Blu	32/10B		Slate/Pur	Blk/Org
11/11A		Blu/Yel	Blk/Blu	33/11B		Slate/Blk	Blk/Org
12/12A		Blu/Pur	Blk/Grn	34/12B		Slate/Wht	Blk/Wht
13/13A		Blu/Wht	Blk/Grn	35/13B		Slate/Yel	Blk/Wht
14/14A		Blu/Blk	Blk/Grn	36/14B		Grn/Red	Blk/Wht
15/15A		Blu/Red	Blk/Grn	37/15B		Grn/Yel	Blk/Wht
16/16A		Pur/Brn	Blk/Grn	38/16B		Grn/Wht	Blk/Wht
17/17A		Pur/Org	Blk/Grn	39/17B		Grn/Pur	Blk/Wht
18/18A		Pur/Blu	Blk/Grn	40/18B		Grn/Blk	Blk/Wht
19/19A		Pur/Wht	Blk/Grn	41/19B		Yel/Grn	Blk/Wht
20/20A		Pur/Grn	Blk/Grn	42/20B		Yel/Org	Blk/Wht
21/21A		Brn/Blk	Blk/Grn	43/21B		Yel/ Wht	Blk/Wht
22/22A		Brn/Red	Bll/Grn	44/22B		Yel/Blu	Blk/Wht

Colors are listed as Jacket Color/Stripe Color
Spares are Blk/Brn and Yel/Brn

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To connect a switch to the trunk cable, follow these steps:

1.   At the point where the switch wire will connect with the trunk, cut lengthwise into the outer insulation of the trunk cable approximately 3" and expose the individual insulated wires inside the trunk.

NOTE: Take care not to cut into the individual wires inside the trunk cable. A special cable-stripping tool will be provided with the system for this task. Adjust the stripping tool so that the blade tip is just barely visible from the side. Test on a short piece of scrap cable before using on an installed trunk cable.

Figure 5-13

Figure 5-14

2.   The two wires coming from the switch connect to the trunk cable using two of the UG connectors. Do not strip either of the wires. The UG connector is designed to electrically connect the two wires together. It has a gel inside of it that protects the connection from corrosion and aids in the electrical conduction.
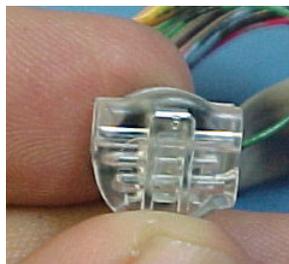

Figure 5-15

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3. Snap the pass through side of the UG connector over the trunk wire, making sure it is on the correctly colored wire for the unit being connecting. **The wire must be inserted all the way into the connector**. If the UG connector can slide freely up and down the trunk wire after it is on (before crimping), it is satisfactory.
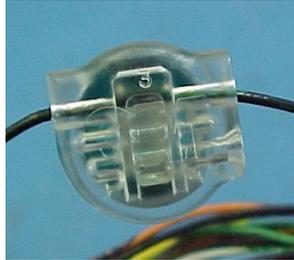

Figure 5-16

4. Push the wire from the switch into the other side of the connector. **Make sure the wire goes all the way into the connector**.
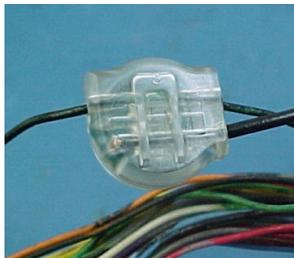

Figure 5-17

5 Hold the wires to prevent them from coming out of the connector and use the supplied crimping tool to press the green button down into the clear plastic of the connector. Make sure that the green button is flush with the clear part of the connector.

Figure 5-18

⚠ **WARNING:** Be careful when crimping the UG connectors. Excessive force will break the connector. A special tool is provided with the system for this purpose, and it is designed to properly crimp the connector without breaking it.

5. Attach the remaining wire from the door switch to the proper colored trunk cable for that door, using another UG connector.
6. Use wire ties to bundle up the switch wires and trunk cable. Secure the wires neatly to the overhead, walls, or on top of the unit, so they are out of sight and not subject to damage from the door mechanism.

Testing of the door alarms is covered in Section 9, "Testing the System".

Running the RS-485 Communication Lines

The Syscon communicates with RS-485 devices through the RS-485 bus cable. RS-485 devices include, but are not limited to, the following:

LX and LC Keypads

Uni-Mux and Keypad Mux Assemblies

DigiGraphics Controller

DigiGuard Wireless Receiver

The bus cable is an 18 gauge 2-conductor shielded cable supplied by Digitech International, Inc. The RS-485 bus runs from the Syscon to the RS-485 devices out on the site. There are a few rules to understand when running the RS-485 bus.

1. All RS-485 devices (except for the DigiGuard wireless receiver and the DigiGraphics Controller) are daisy-chained together on the RS-485 bus cable. **Figure 5-19** on the next page shows an example of an RS-485 cable run from the Syscon to the RS-485 devices.

2. The order in which the Uni-Muxes are connected does not matter. For example, the RS-485 device set at address #9 could be connected first in the chain, then address #5, and so on.

3. **The RS-485 cable must be routed so there are no more than two branches**, as shown in Figure 5-19. **Branching can happen only at the Syscon**. In some cases the RS-485 routing will already be marked on the plans the installer receives. The routing of the lines is usually dependent on the conduit installed at the site, and the locations of the RS-485 devices.

4. The RS-485 bus cable is shielded and has a bare drain wire inside. It is **very important that this bare wire be connected as shown in the installation instructions** for the Uni-Mux (Page 5-30), RS-485 Keypads (Page 3-19), Keypad Mux (Page 6-XX), and the Syscon (Page 2-17). Failure to connect the drain wire as shown may cause undesirable operation of the system and will reduce the system's built in surge suppression capabilities.

The RS-485 cable should be pulled from the Syscon to the device locations in preparation for installation. Leave enough extra wire at each end of the runs to connect the devices. Some installers may find it easier to mount the devices and then run the RS-485 cable afterwards.
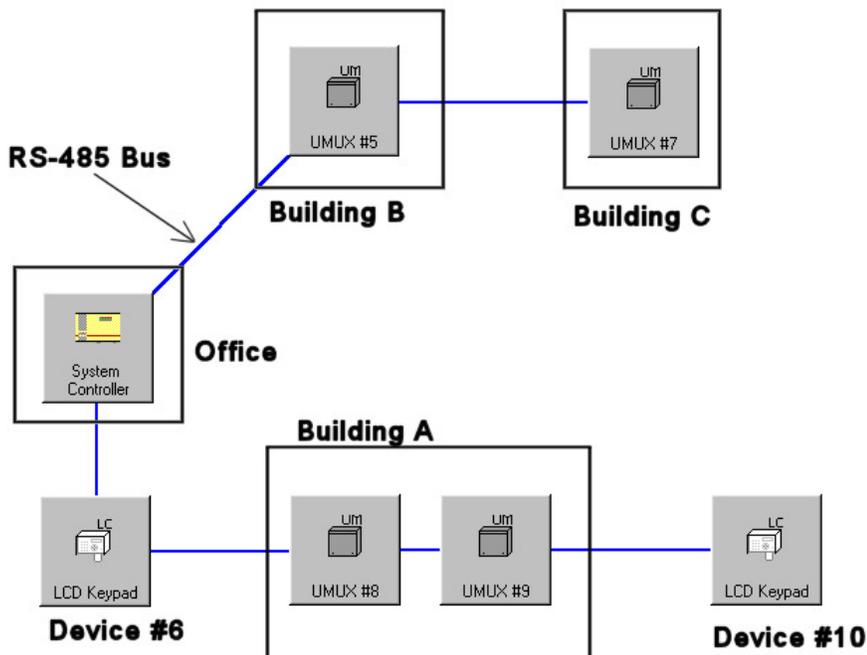
Figure 5-19

In the example above, the Syscon is in the office. The RS-485 cable is pulled from there to the keypad outside, then to two Uni-Mux assemblies in Building A, and ends at the LCD keypad. A second branch, which can only start at the Syscon, is pulled from the Syscon to a Uni-Mux in Building B, and then to another Uni-Mux in Building C.

💡 **Note:** Devices that are at the end of a branch will have the termination switch turned ON. For the location of the switch, see page 5-30 for Uni-Mux assemblies, page 3-19 for keypads, and page 2-19 for the Syscon. Devices that are not at the end of the line should have the termination switch set in the OFF position. **Failure to correctly terminate the RS-485 devices can cause erratic communications on the RS-485 data bus, thereby having a detrimental effect on the operation of the system.**

In the example above, Uni-Mux #7 and the LCD Keypad (Device #10) are at the end of the line, so they would be terminated. The other devices would not be terminated.

Uni-Mux Installation

The Uni-Mux is the interface from the door switches to the Syscon. Many sites have multiple buildings. To keep from having to pull the trunk wires for the doors in these building to the main building, the Uni-Mux board is designed to be installed in or on the building where the units it connects to are located.

The equipment layout sheet that will come with the system will show where the Uni-Mux boxes are to be mounted, and which building(s) they control. Experienced installers may lay out their own Uni-Mux locations and trunk routing.

The next few pages will cover the different methods of mounting the Uni-Mux boxes, followed by the instructions for connection of the wires to the Uni-Mux.

There are some general requirements in all cases for Uni-Mux installation.
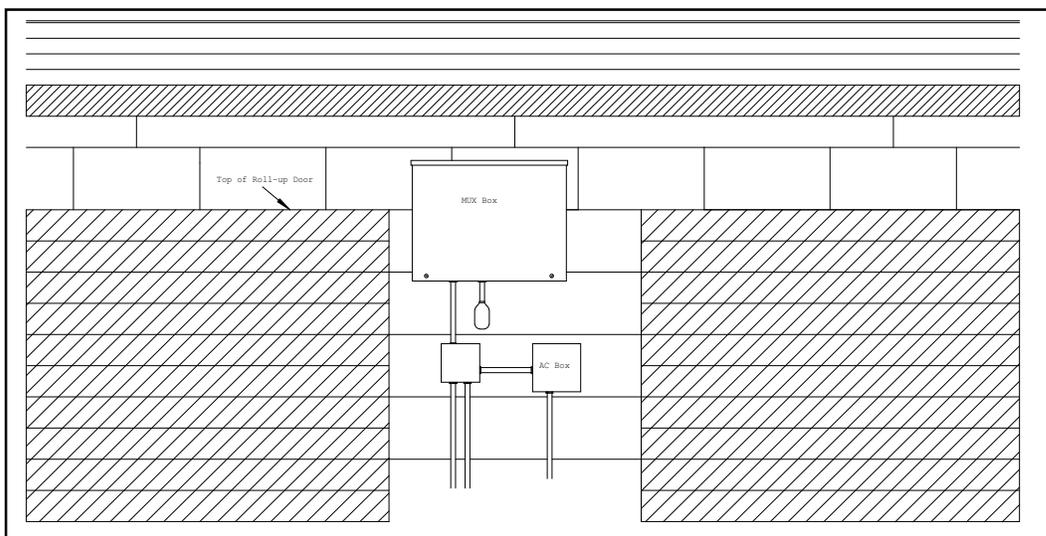
1. If not using the zoned Uni-Mux power supply, there will need to be a 115 VAC outlet at each Uni-Mux location for power to the Uni-Mux transformer. Each Uni-Mux will require a single 115VAC duplex outlet.
2. If the Uni-Mux is being powered by the battery backup zoned supply (Digitech Part # 4025-603K), there will need to be a 115 VAC outlet at the zoned supply location.
3. **The ground wire inside of all Uni-Mux boxes will be connected to one of the following: A 5/8" x 8' ground rod driven into the ground, a grounded EMT conduit, a grounded cold water pipe, the metal frame of a building connected to ground, or to the electrical service ground at the electrical panel. Ground connections should always be kept as short as possible**.

⚠ **WARNING: Uni-Mux boxes should never be placed inside units that are rented to the public**. Access may be needed to the Uni-Muxes for troubleshooting if there is a problem with the system.

⚠ **WARNING:** If mounting the Uni-Muxes indoors, **do not** mount them directly above access doors, fire doors, or elevator doors so that a technician on a ladder servicing the Uni-Mux would block traffic through the portal or be in danger from traffic through the door or elevator.

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Mounting the Uni-Mux on the outside of buildings or in interior hallways

1. On the next two pages are details for the conduit, the AC power box (if used), and the Uni-Mux box mounting on the side of the building. **Figure 5-20** and **Figure 5-21** If a zoned power supply is being used for the Uni-Mux, the AC power box is not present.

2. Because building the Uni-Mux is being mounted to may be constructed of any of several types of material (brick, concrete, metal, etc.), the **fasteners for attaching the Uni-Mux boxes to the building are not provided by Digitech International, Inc.** The installer must acquire the appropriate type fastener for the material being mounted to.

3. As shown in **Figure 5-20**, the Uni-Mux box should be mounted high up on the building wall, with the top of the Uni-Mux box approximately 1' below the roof edge in the case of single story buildings. Uni-Muxes mounted to the sides of multi-story buildings should be just above the top of the first floor unit doors. **Figure 5-20** shows the Uni-Mux on the side of a building between two units. The same applies for boxes mounted in interior hallways.
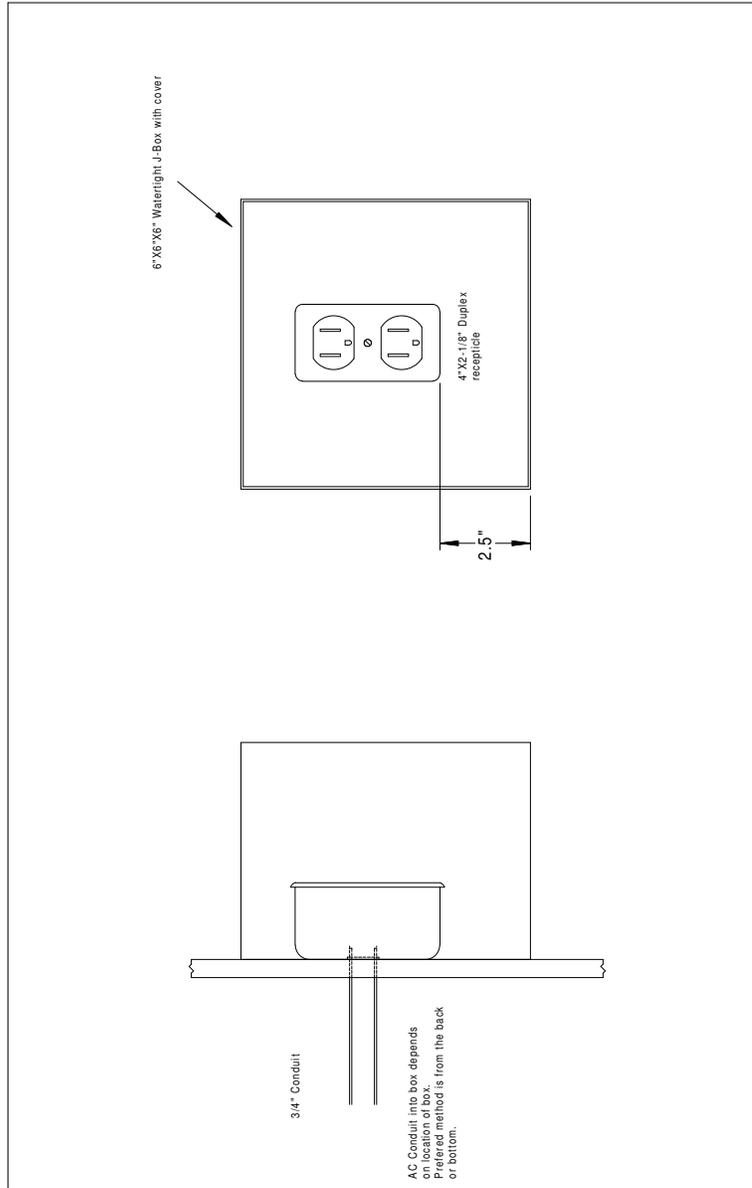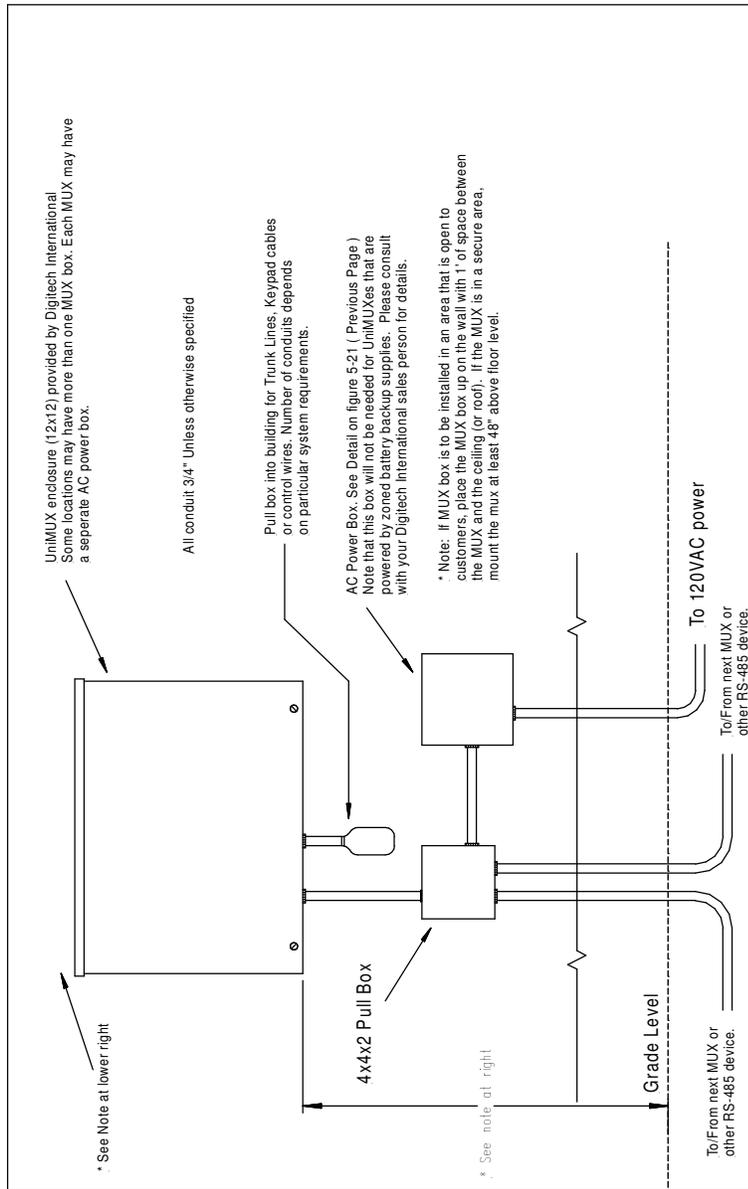

Figure 5-20

6"X6"X6" Watertight J-Box with cover

4"X2-1/8" Duplex receptical

2.5"

3/4" Conduit

AC Conduit into box depends on location of box. Prefered method is from the back or bottom.

Figure 5-21

UniMUX enclosure (12x12) provided by Digitech International Some locations may have more than one MUX box. Each MUX may have a seperate AC power box.

All conduit 3/4" Unless otherwise specified

Pull box into building for Trunk Lines, Keypad cables or control wires. Number of conduits depends on particular system requirements.

AC Power Box. See Detail on figure 5-21 (Previous Page) Note that this box will not be needed for UniMUXes that are powered by zoned battery backup supplies. Please consult with your Digitech International sales person for details.

* Note: If MUX box is to be installed in an area that is open to customers, place the MUX box up on the wall with 1' of space between the MUX and the ceiling (or roof). If the MUX is in a secure area, mount the mux at least 48" above floor level.

To 120VAC power

* See Note at lower right

4x4x2 Pull Box

To/From next MUX or other RS-485 device.

Grade Level

* See note at right

To/From next MUX or other RS-485 device.

Figure 5-22

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Mounting the Uni-Mux Inside Service Rooms

The preferred location for mounting a Uni-Mux is in an electrical or other service room inside the building. **Figure 5-23** at the bottom of this page shows the Uni-Mux boxes mounted on a plywood backboard, with an AC outlet placed beside them. This is the recommended method, however, the Uni-Mux may be mounted directly to the walls of the room if the backboard is not provided.

The wires inside the room running to the Uni-Mux box, or on the same floor of the building as the Uni-Mux, do not have to be inside conduit unless required by local codes. Wires to other floors should be in conduit where they penetrate the floor. Wires to other buildings should be in conduit.

Mount the Uni-Mux on the backboard or wall at a comfortable working height. Since they will not be exposed to the public, there is no need to mount them high on the wall.
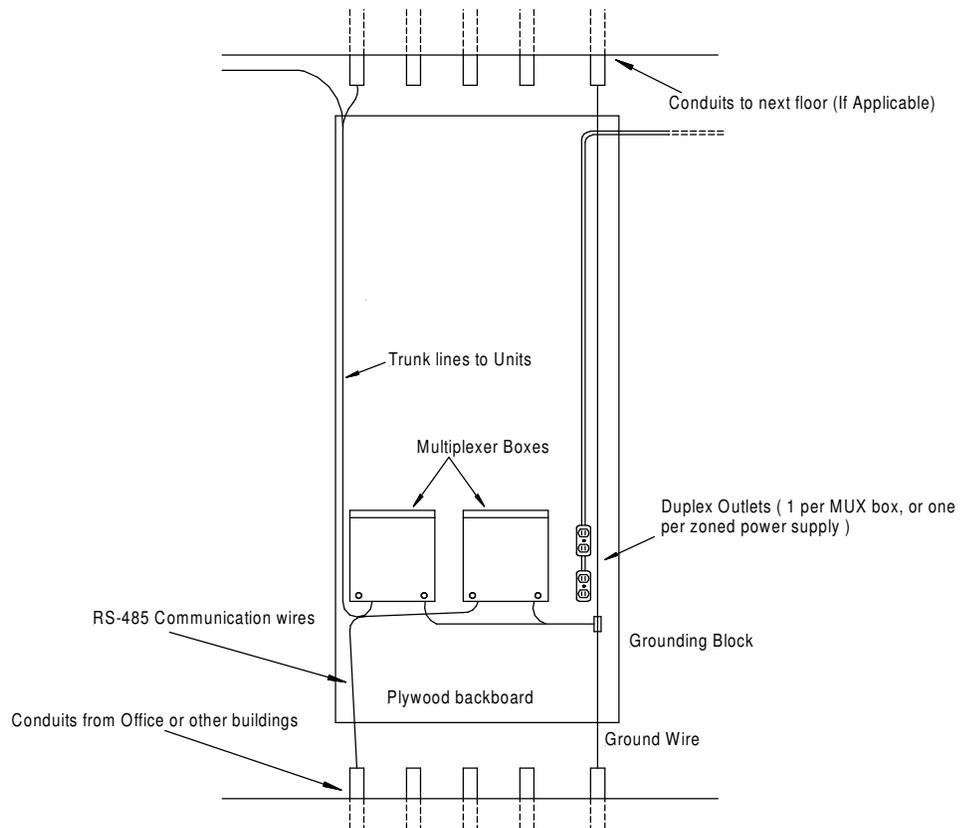
Figure 5-23

Connecting the Uni-Mux

The Uni-Mux assembly has one motherboard, and at least one daughterboard. Below is a picture of the motherboard, with an explanation of each item.
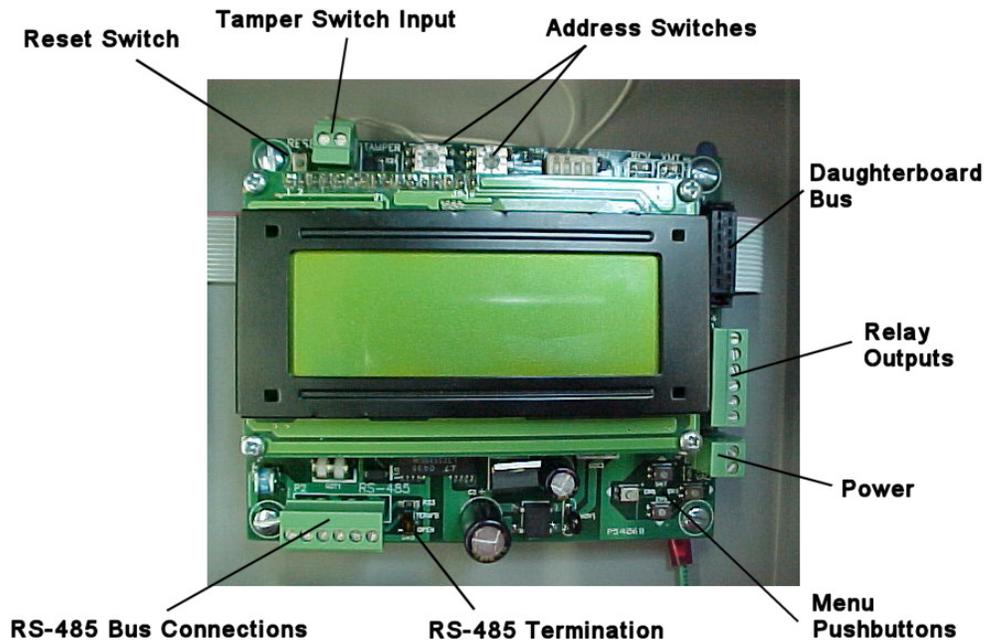

Figure 5-24

Starting in the upper left hand corner of the diagram above:

1. Reset Switch. Resets the board.

2. Tamper Switch Input. The two wires from the box cover tamper switch connect here.

3. Address Switches. Used to set the RS-485 address for this device. See page 5-31.

4. Daughterboard Bus. 14 conductor ribbon cable that connects the motherboard to the daughterboards inside the Uni-Mux.

5. Relay Outputs. Common, N/O and N/C outputs for the two relays on the motherboard.

6. Power. 12VDC or 12VAC, @ 450ma, power input.

7. Menu Pushbuttons. Used to navigate through the LCD screen menus.

8. RS-485 Termination Switch. Used to terminate the RS-485 bus. See page 5-30.

9. RS-485 Connections. The incoming and outgoing RS-485 cables attach here.

Daughterboards are installed inside the Uni-Mux as needed, depending on how many switches are supposed to connect to that Uni-Mux location. Up to 5 daughterboards can be installed. Each common wire door alarm daughterboard can connect up to 22 switches.

NOTE: Daughterboards can be of several different types. It is possible that not all daughterboards in a Uni-Mux will be common wire door alarm boards.

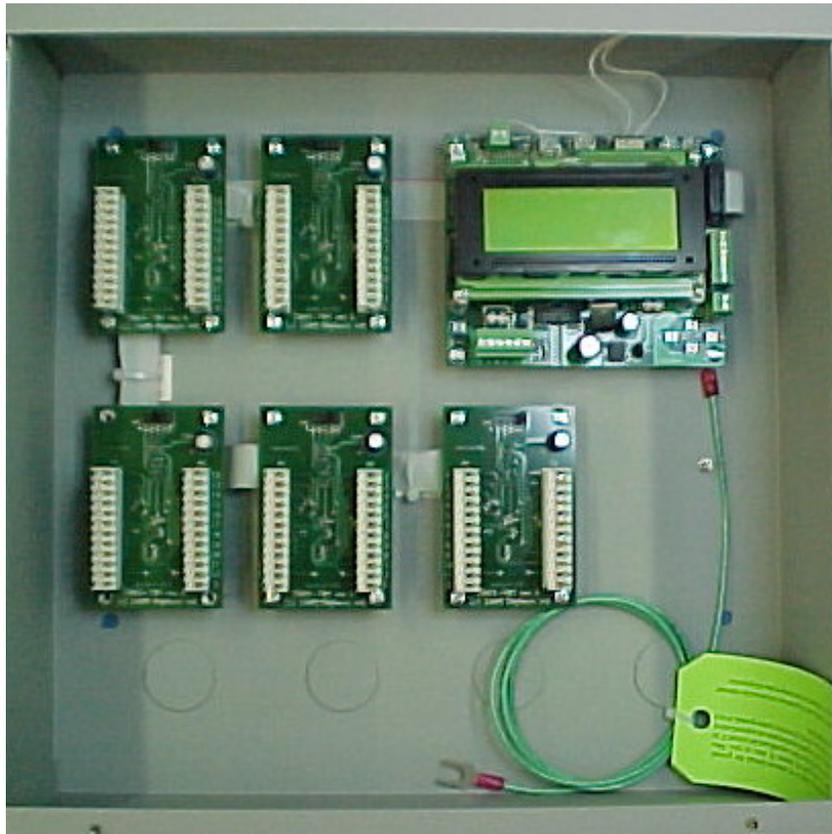Below is a picture of the Uni-Mux with 5 daughterboards installed.

Figure 5-25

The daughterboards are lettered, from A to E. Each daughterboard has an address jumper that sets the letter for that board. This is shown in the picture below.
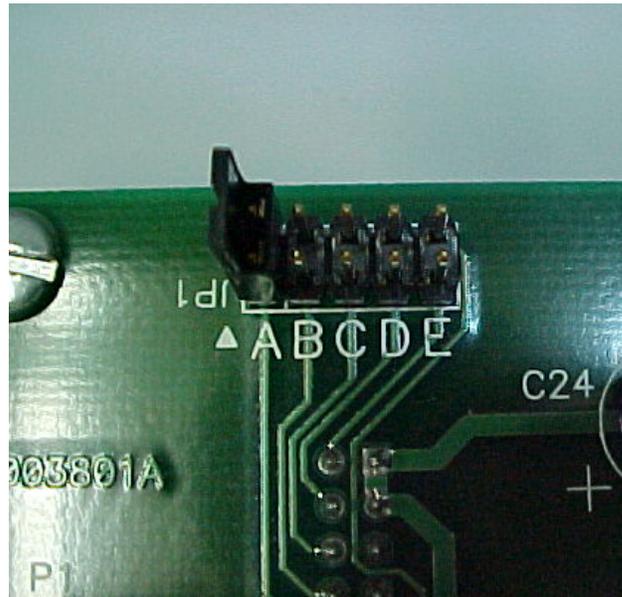
Figure 5-26

NOTE: Daughterboards in the same Uni-Mux assembly <u>must</u> have unique addresses. Two or more daughterboards with the same address jumper settings will cause incorrect operation of the system.

Use the following instructions to connect the Uni-Mux boxes. The connections are presented in this order.

1. Connection of ground.
2. Trunk cable connection.
3. RS-485 communications line connection.
4. Address switch settings.
5: Power transformer.

The order of installation of items 1-4 may be altered, but the power connection (5) should always be the last item hooked up. It is possible to do a preliminary test on the Uni-Mux box without having the RS-485 line connected. In this case, the power would be connected while the testing takes place, and then removed to connect the RS-485 line.

Connection of ground

1. Route the ground wire from inside the Uni-Mux enclosure, through one of the knockouts, to the grounding point. As discussed in the pre-install requirements and in the mounting instructions, this can be any of the following: Grounded EMT conduit, metal building frame, grounded cold water pipe, electrical panel ground, or a 8' 5/8" diameter copper clad ground rod. The wire to the ground should be run in as straight a line as possible, avoiding 90° bends and always running towards ground. Make sure the connection to ground is tight and free of paint or other non-conductive material.

Trunk cable connection

1. Route the trunk cables for the Uni-Mux into the box through one or more of the knockouts. Each trunk cable is identified by a number and a letter, such as "5AB" or "6CD". The number designates which Uni-Mux it connects to, and the letter designates which daughterboard(s) inside the Uni-Mux.
2. Trim each trunk cable, leaving approximately 8" of each trunk cable inside the Uni-Mux. Each trunk cable should be marked with its identity. It is very important to keep track of each trunk's identification. Connecting the wrong trunk wire to the wrong port will result in incorrect system operation.
3. Strip off 4" of the gray outer insulation from the cable(s). This should leave fifty 24 gauge insulated wires (per trunk cable). It is possible that not all wires in a trunk cable will be used. Fold any spare wires back along the cable and tape them up.

   ☼   **NOTE:** Do not strip the ends of the wires.

![digitech INTERNATIONAL logo]

4.   Using the special tool shown below in **Figure 5-27**, connect the trunk wires to the ports on the daughterboard. The wire is laid across the connector, and the tool is used to push the wire down into the teeth of the connector.
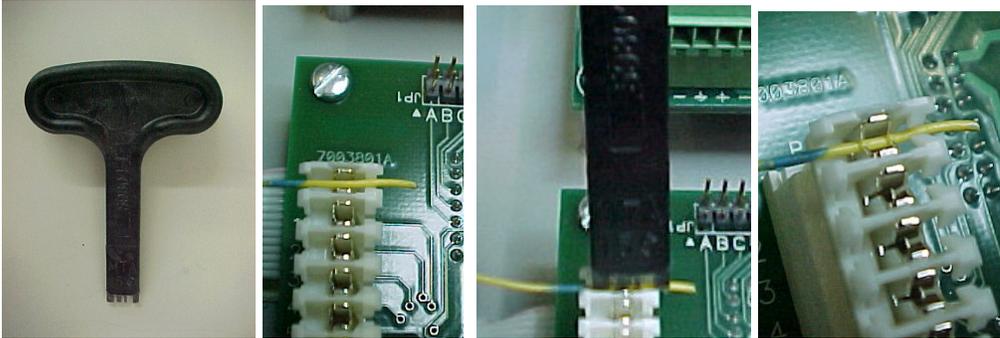
5.   **Figure 5-27**

⚠️ **WARNING: The correct tool must be used for the punchdown connections. Do not use a screwdriver or other tool to make the connections.**

6.   The port connected to depends on the "slot" the unit was assigned to, and the color of the wires assigned to that unit.

7.   Each daughterboard has pins numbered from 1 to 22, and two ground connections labeled as "G".

Daughterboard "A" is assigned slots 1 to 22.
Daughterboard "B" is assigned slots 23 to 44.
Daughterboard "C" is assigned slots 45 to 66.
Daughterboard "D" is assigned slots 67 to 88.
Daughterboard "E" is assigned slots 89 to 110.

8.   Each of the four common wires for the trunk cable is connected to a ground (G) pin on one of the daughterboards. The ground wires are as follows:

Black w/ Blue Stripe
Black w/ Green Stripe
Black w/ Orange Stripe
Black w/ White Stripe

💡 **NOTE:** If a wire is connected to the incorrect terminal, use a pair of needle nose pliers to pull the wire out of the terminal, cut away a small bit of the end of the wire to remove the "used" section, and reconnect the wire to the correct terminal.

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In the example worksheet below, Unit 1000 is assigned to slot #1 (which is pin #1 on Daughterboard A), and is connected to the Red wire with Blue Stripe. The Red/Blue wire would be connected to pin #1 in the upper left corner of daughterboard.

SLOT/PIN	UNIT #	Color	Common
1/1A	1000	Rd/Blu	Blk/Blu
2/2A	1001	Rd/Org	Blk/Blu
3/3A	1004	Rd/Grn	Blk/Blu
4/4A	1012	Rd/Wht	Blk/Blu

Connect the wires to the appropriate pins as per the worksheets for the site. Each site will have its own unique set of worksheets for connection.

RS-485 communications line connection

1. Connect the incoming RS-485 bus cable to the RS-485 connector (Plug P2) as shown below in Figure 5-28. Make sure the red wire is connected to positive (1), and the black to negative (2). Connect the bare shield wire to terminal 3. If there is no outgoing RS-485 line (this Uni-Mux is the last device on the RS-485 bus) then the termination switch (SW5) should be set to TERM'D.

2. If there is an outgoing line to another RS-485 device, connect it to Plug P2 as shown below. Connect the red wire to positive (4), and the black to negative (5). Connect the bare shield wire to terminal 6. The termination switch (SW5) should be set to OPEN.
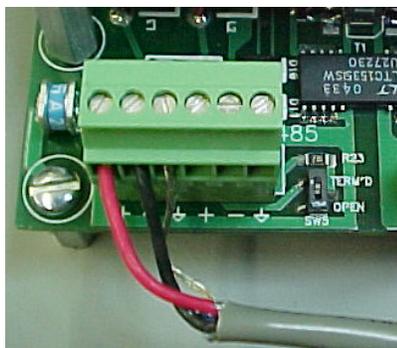
Incoming Connection Only
Switch SW5 set to TERM'D
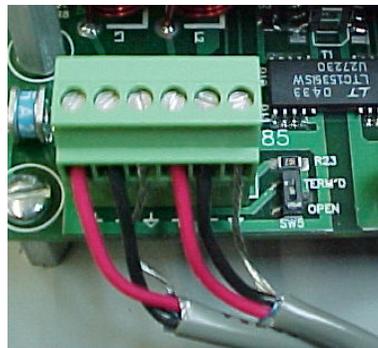
Incoming & Outgoing Connections
Switch SW5 set to OPEN

Figure 5-28

Address switch settings

1. The RS-485 address of the motherboard is set using two rotary switches. Each board on the system has a <u>unique address</u>, and cannot have the same address as another board. <u>Setting two boards to the same address will cause the DigiGate system to operate incorrectly</u>. Please confirm the Uni-Mux number when setting the address.

2. Switch SW1 sets the "ones" digit of the address, and SW2 sets the "tens" digit. In Figure 5-29 below, the board is set to Uni-Mux address # 6. Use a small screwdriver to point the arrow of the rotary switch towards the correct number for the Uni-Mux.

💡 **Note: Changing the switch settings while the Uni-Mux is powered up will have no effect until the Uni-Mux is powered down and then back on, or until the RESET button is pressed.**

   Note: The four DIP switches on SW3, located just to the right of the address switches, should all be set to the OFF position.
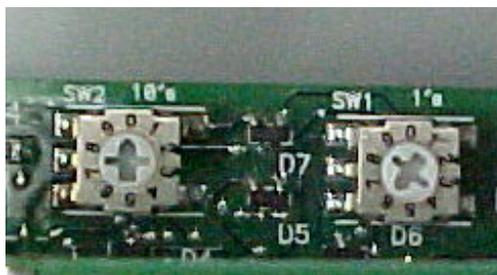

Figure 5-29

Power transformer

1. After all other connections have been made to the Uni-Mux, connect it to its power transformer or to the zoned power supply (see next page for instructions for the zoned supplies). The transformer is 12VAC and will plug into the AC receptacle that should be provided for each Uni-Mux box. Use 18 Gauge 2-conductor wire for the power connection. These wires connect to Plug P1 as shown below.
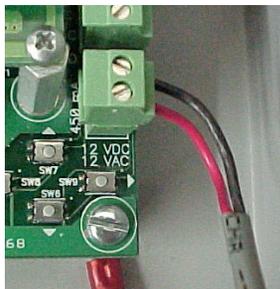

Figure 5-30

2. Bundle the wires neatly inside the Uni-Mux box. After testing has been completed (Section 9), place the cover on the box.

Relay Outputs:

The Uni-Mux motherboard has two relays built onto the board. The relay outputs are located on Plug P4, just above the power plug on the right side of the board. Relay 1 is the bottom three terminals, and Relay 2 is the top three terminals.

Each relay output has a Common, a Normally Closed, and a Normally Open connection terminal.

Connect any auxiliary devices specified for these relays to these terminals. The devices connected to these relay outputs can vary from system to system, and will be detailed in separate documentation provided with the system. **Voltage Max 24V. Current Max 1 Amp.**

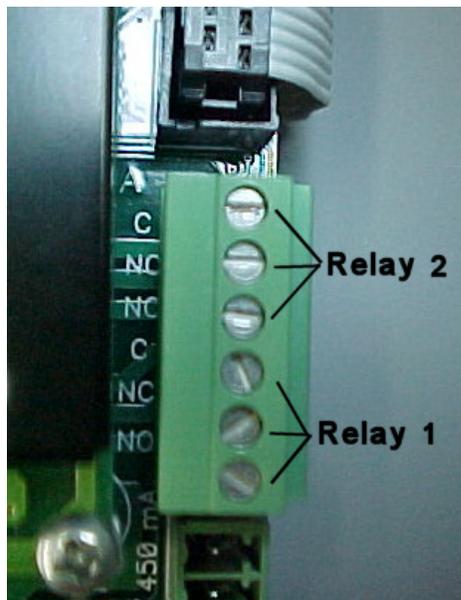Some common devices that might be connected to these relays include sirens and elevator control circuits.

Figure 5-31

Relay Board Connections (Optional):

Various optional daughterboards can be installed in the Digitech International Uni-Mux. One of these optional boards is the Relay module (Digitech Part # 7003-510). The relays on this module can be used to control devices such as gate operators, sirens, door strikes, Mag-locks, elevators, lighting control systems, or almost any other low voltage control circuit.

The Relay module has four dry contact relay outputs, and each output consists of a Common, Normally Closed and Normally Open connection. Each relay on the board is rated to switch a load of 24 volts @ 1 Amp.

⚠ **Note: Connection of voltages higher than 24 volts to the Relay module is not allowed. If control of high voltage circuits (such as lights) is required, an isolation relay must be installed <u>externally</u> from the Uni-Mux, and the Uni-Mux relay used to energize the low voltage coil of this relay.**

Anywhere from one to five Relay modules can be installed into a Uni-Mux. When installed in the same Uni-Mux with door alarm modules, Relay modules <u>must</u> be installed in higher address positions than the alarm modules. For example, in a Uni-Mux that has 3 door alarm modules and 2 Relay modules, the alarm modules would be in addresses A, B and C, and the Relay modules would be in address positions D and E. If the modules are not addressed correctly, the LCD screen on the motherboard will display "Incorrect Configuration" on the screen when the module is selected.

Relays are numbered on the Uni-Mux from 1 to up to 22. The first two relays on the Uni-Mux are the two built-in relays on the motherboard (Page 5-32). Each installed Relay module adds four more relays.

Connect controlled devices to the relay outputs as needed, based on the custom setups of the site. These setups vary by site, so instructions will be provided for these connections for each individual site.

Each relay on a module can be activated manually at the Uni-Mux location. From the main menu of the Uni-Mux, press the LEFT or RIGHT navigation buttons (located in the lower right corner of the motherboard, just below the LCD screen) until the correct relay module is selected, as shown in Figure 5-32 below.
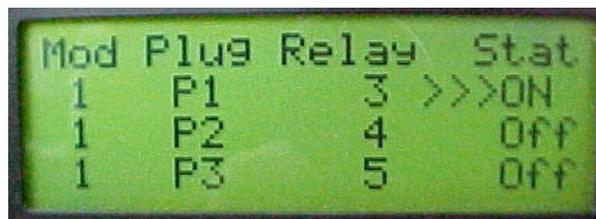

Figure 5-32

Press the DOWN button one time to change to the relay selection menu, as shown below.
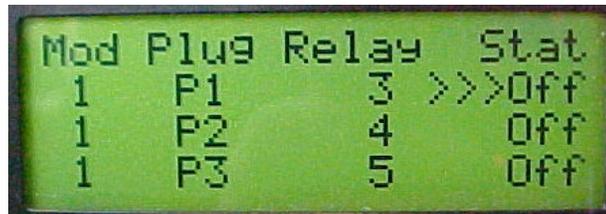
Figure 5-33

Push the DOWN arrow until the relay to be activated is selected by the three >>> arrows. Once it is selected, press the RIGHT button to change the relay state to ON.

Figure 5-34

Pressing the RIGHT button again will toggle the relay back to OFF.

Once finished, press the UP button to return to the relay module status screen. This screen will show the current open/closed status of the relays.

Figure 5-35

The relay status screen will change to reflect the status of the relays as they are activated by the access system or PC.

Zoned Power Supply Connection

This device is meant to supply power to up to eight Digitech International Uni-Mux boxes or keypads, to avoid having to have local 115VAC power at each device location. Battery backup of the Uni-Mux or keypad is also done by this supply. <u>Devices powered by a local transformer are not supplied with a battery backup.</u>

This supply may also be used to power DigiGate-700LX and 700LC keypads. One supply may have both keypads and Uni-Muxes connected to it, but may not exceed eight devices in total.

Refer to **Figure 5-36** on the next page while installing the power supply. (Note that the large gray cable shown in the picture is not present.)

⚠️ **DANGER:** High voltage AC power is present inside the case of this power supply.

1. A 115VAC outlet will need to be at the location of the zoned supply.

⚠️ **WARNING:** The supply is not rated for outdoor use. Installation is to be indoors only.

2. Each Uni-Mux box will have a 2-conductor wire for power. This pair of wires is connected to terminals #1 and #2, on Plug P1. This plug is located in the lower right of the Uni-Mux motherboard. The plug is not polarity sensitive and the negative and positive wires may connect to either (but not the same) pin. See page 5-26.

💡 **TIP: 18 gauge wire may be used for runs up to 500 feet.**

3. Home run the 2-conductor power wires from each individual device to the location of the power supply.

⚠️ **WARNING:** <u>**Do not "daisy chain" the power to multiple devices on a single pair of wires**</u>. **Each fused output is only rated for one device.**

4. Connect each pair of wires to a set of terminals on the power supply. Use a "Fused Power Output" and a "Common Power Output" connection terminal for each wire pair.

💡 **NOTE:** This supply automatically senses the input voltage (115VAC or 220 VAC) and does not have a voltage selector switch.

5. Plug the AC cable from the supply into the wall outlet. Switch on the output power switch on the top of the output board. The AC ON LED in the supply should light.

6. Verify that each Uni-Mux connected to the supply is operational and has a minimum of 12VDC at the power terminals on the Uni-Mux board.

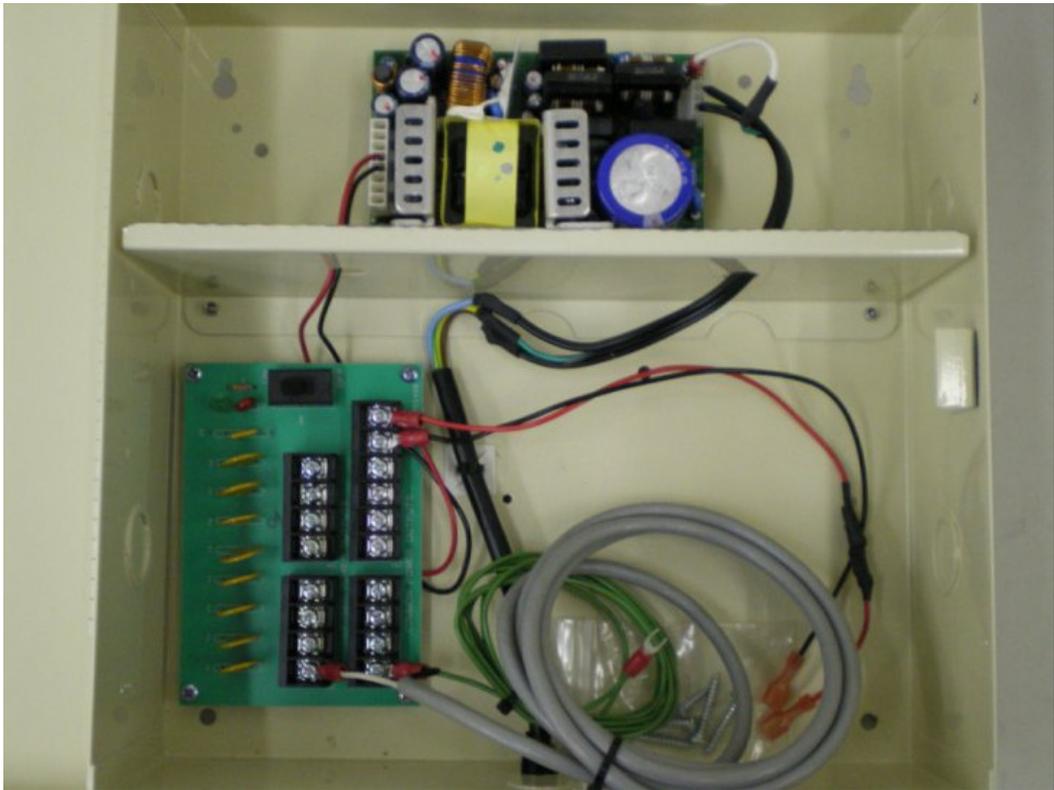7. Wile observing correct polarity, connect the 12VDC battery to the battery wires.

Figure 5-36

Door Alarm Connection Worksheet

Uni-Mux # _____   **Daughterboards** ___A/B___ .

SLOT/PIN	UNIT #	Color	Common	SLOT/PIN	UNIT #	Color	Common
1/1A		Rd/Blu	Blk/Blu	**23/1B**		Brn/Yel	Blk/Org
2/2A		Rd/Org	Blk/Blu	**24/2B**		Brn/Pur	Blk/Org
3/3A		Rd/Grn	Blk/Blu	**25/3B**		Brn/Wht	Blk/Org
4/4A		Rd/Wht	Blk/Blu	**26/4B**		Org/Blk	Blk/Org
5/5A		Rd/Brn	Blk/Blu	**27/5B**		Org/Wht	Blk/Org
6/6A		Wht/Blu	Blk/Blu	**28/6B**		Org/Yel	Blk/Org
7/7A		Wht/Org	Blk/Blu	**29/7B**		Org/Red	Blk/Org
8/8A		Wht/Grn	Blk/Blu	**30/8B**		Org/Pur	Blk/Org
9/9A		Wht/ Wht	Blk/Blu	**31/9B**		Slate/Red	Blk/Org
10/10A		Wht/Brn	Blk/Blu	**32/10B**		Slate/Pur	Blk/Org
11/11A		Blu/Yel	Blk/Blu	**33/11B**		Slate/Blk	Blk/Org
12/12A		Blu/Pur	Blk/Grn	**34/12B**		Slate/Wht	Blk/Wht
13/13A		Blu/ Wht	Blk/Grn	**35/13B**		Slate/Yel	Blk/Wht
14/14A		Blu/Blk	Blk/Grn	**36/14B**		Grn/Red	Blk/Wht
15/15A		Blu/Red	Blk/Grn	**37/15B**		Grn/Yel	Blk/Wht
16/16A		Pur/Brn	Blk/Grn	**38/16B**		Grn/Wht	Blk/Wht
17/17A		Pur/Org	Blk/Grn	**39/17B**		Grn/Pur	Blk/Wht
18/18A		Pur/Blu	Blk/Grn	**40/18B**		Grn/Blk	Blk/Wht
19/19A		Pur/ Wht	Blk/Grn	**41/19B**		Yel/Grn	Blk/Wht
20/20A		Pur/Grn	Blk/Grn	**42/20B**		Yel/Org	Blk/Wht
21/21A		Brn/Blk	Blk/Grn	**43/21B**		Yel/ Wht	Blk/Wht
22/22A		Brn/Red	Blk/Grn	**44/22B**		Yel/Blu	Blk/Wht

Colors are listed as Jacket Color/Stripe Color
Spares are Blk/Brn and Yel/Brn

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Door Alarm Connection Worksheet

Uni-Mux # _____   **Daughterboards** ___**C/D**__ .

SLOT/PIN	UNIT #	Color	Common	SLOT/PIN	UNIT #	Color	Common
45/1C		Rd/Blu	Blk/Blu	**67/1D**		Brn/Yel	Blk/Org
46/2C		Rd/Org	Blk/Blu	**68/2D**		Brn/Pur	Blk/Org
47/3C		Rd/Grn	Blk/Blu	**69/3D**		Brn/ Wht	Blk/Org
48/4C		Rd/Wht	Blk/Blu	**70/4D**		Org/Blk	Blk/Org
49/5C		Rd/Brn	Blk/Blu	**71/5D**		Org/Wht	Blk/Org
50/6C		Wht/Blu	Blk/Blu	**72/6D**		Org/Yel	Blk/Org
51/7C		Wht/Org	Blk/Blu	**73/7D**		Org/Red	Blk/Org
52/8C		Wht/Grn	Blk/Blu	**74/8D**		Org/Pur	Blk/Org
53/9C		Wht/Wht	Blk/Blu	**75/9D**		Slate/Red	Blk/Org
54/10C		Wht/Brn	Blk/Blu	**76/10D**		Slate/Pur	Blk/Org
55/11C		Blu/Yel	Blk/Blu	**77/11D**		Slate/Blk	Blk/Org
56/12C		Blu/Pur	Blk/Grn	**78/12D**		Slate/Wht	Blk/Wht
57/13C		Blu/ Wht	Blk/Grn	**79/13D**		Slate/Yel	Blk/Wht
58/14C		Blu/Blk	Blk/Grn	**80/14D**		Grn/Red	Blk/Wht
59/15C		Blu/Red	Blk/Grn	**81/15D**		Grn/Yel	Blk/Wht
60/16C		Pur/Brn	Blk/Grn	**82/16D**		Grn/Wht	Blk/Wht
61/17C		Pur/Org	Blk/Grn	**83/17D**		Grn/Pur	Blk/Wht
62/18C		Pur/Blu	Blk/Grn	**84/18D**		Grn/Blk	Blk/Wht
63/19C		Pur/Wht	Blk/Grn	**85/19D**		Yel/Grn	Blk/Wht
64/20C		Pur/Grn	Blk/Grn	**86/20D**		Yel/Org	Blk/Wht
65/21C		Brn/Blk	Blk/Grn	**87/21D**		Yel/ Wht	Blk/Wht
66/22C		Brn/Red	Blk/Grn	**88/22D**		Yel/Blu	Blk/Wht

Colors are listed as Jacket Color / Stripe Color
Spares are Blk/Brn and Yel/Brn

Door Alarm Connection Worksheet

Uni-Mux # _____   **Daughterboards** ___E___ .

SLOT/PIN	UNIT #	Color	Common
89/1E		Rd/Blu	Blk/Blu
90/2E		Rd/Org	Blk/Blu
91/3E		Rd/Grn	Blk/Blu
92/4E		Rd/Wht	Blk/Blu
93/5E		Rd/Brn	Blk/Blu
94/6E		Wht/Blu	Blk/Blu
95/7E		Wht/Org	Blk/Blu
96/8E		Wht/Grn	Blk/Blu
97/9E		Wht/ Wht	Blk/Blu
98/10E		Wht/Brn	Blk/Blu
99/11E		Blu/Yel	Blk/Blu
100/12E		Blu/Pur	Blk/Grn
101/13E		Blu/ Wht	Blk/Grn
102/14E		Blu/Blk	Blk/Grn
103/15E		Blu/Red	Blk/Grn
104/16E		Pur/Brn	Blk/Grn
105/17E		Pur/Org	Blk/Grn
106/18E		Pur/Blu	Blk/Grn
107/19E		Pur/ Wht	Blk/Grn
108/20E		Pur/Grn	Blk/Grn
109/21E		Brn/Blk	Blk/Grn
110/22E		Brn/Red	Blk/Grn

Colors are listed as Jacket Color/Stripe Color
Spares are Blk/Brn and Yel/Brn

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Installation Notes

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Chapter 6 – Uni-Mux Keypad Expansion Boards

The Uni-Mux can be used with optional Keypad daughterboards to provide inputs for the Digigate system. Typically these boards would be used to replace old style Keypad Multiplexers. Sometimes there is a need to expand the number of keypads but there is also a limited number of available RS485 addresses. The Uni-Mux with keypad daughterboards would allow for 4 standard keypads to be installed, but use only one RS485 address.

On the daughterboard there will be a chip that designates the code format of the standard keypads connected to that daughterboard.

1 = uses the ***code#** format.

2 = uses the **code*** format.

3 = uses the **code#** format.

Code designates the access code numbers assigned.

There may be other part numbers for special versions of the daughterboard chips.

Installation of the Uni-Mux itself (RS485 data lines, power and relay connections) is covered in Section 5 of this manual. This section will only cover the connection of the standard keypad daughterboard.

There are a few notes when dealing with these daughterboards.

1.   Keypad daughterboards cannot be used in the same Uni-Mux with Door Alarm daughterboards. They can be used together with relay daughterboards.

2.   The standard DigiGate 700 Keypads connected to these multiplexers are installed as per the instructions in **Chapter 3**.

💡 **TIP:** Any intercom wires or video wires from the keypads connected to the Uni-Mux will home run back to the office for connection to their respective intercom or video controller. They do not connect to the Uni-Mux in any way.

4.   Power for any of keypad options such as cameras or heaters should be installed in the same buildings as the keypads. This may require the addition of 115VAC electrical outlets beyond what is needed for the Uni-Mux itself.

5.   The relays used to control the access control devices (door strikes, gates, etc.) may be installed on the same Uni-Mux as the keypads. Your particular site setups should have a detailed listing of these relay connections. Please consult this documentation before making connections.

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Pre-Installation Requirements

A. Keypad Cables

    1. The 11 conductor keypad cables are run from the Uni-Mux to the standard keypads (one cable per keypad). Any conduit that is needed to route these wires must be installed.

    2. Any control wires that will be needed are routed from the devices being controlled (gate operators, door strikes, etc.) to the Uni-Mux. Some devices may need extra power supplies for their operation.

    3. Conduits that penetrate firewalls must be approved and sealed by local fire codes.

    4. Construction in the areas that the keypad cables run should be finished to the point that there is little or no danger of the wires being damaged after installation by further construction in the area.

Connecting Standard 700 Keypads to the Daughterboards

1. Route the keypad cables for that Uni-Mux into the box, using the knockouts provided. Leave approximately 10" of cable inside the Uni-Mux.

2. Strip off 2 to 3" of the gray outer insulation from the cable(s). This should leave eleven 22 gauge insulated wires, and 1 bare drain wire (per keypad cable). Trim off the shield foil down to the outer cable jacket.

3. Strip off 1/4" of insulation from each insulated wire.

4. Use **Figure 6-1** and **Table 6-1** to connect the wires to the keypad plugs inside the Uni-Mux. Note that pin 11 has two wires connected.

    Note: Each keypad is assigned to a "port" in the software, and it is important that the keypads be connected to the correct ports for correct operation of the system. Systems that have many keypads and devices to be controlled will have a special sheet detailing which keypads connect to what ports.

5. Repeat steps 2 - 4 for each keypad that is connected to the Uni-Mux.

6. After all of the keypads have been connected to the Uni-Mux, go to **Page 5-33** for instructions on relay connections. Relays 1 and 2 are located on the motherboard of the Uni-Mux. Relays 3 through 6 will be located on a daughterboard inside the Uni-Mux. (See page 5-34).

Figure 6-1

![digitech INTERNATIONAL]
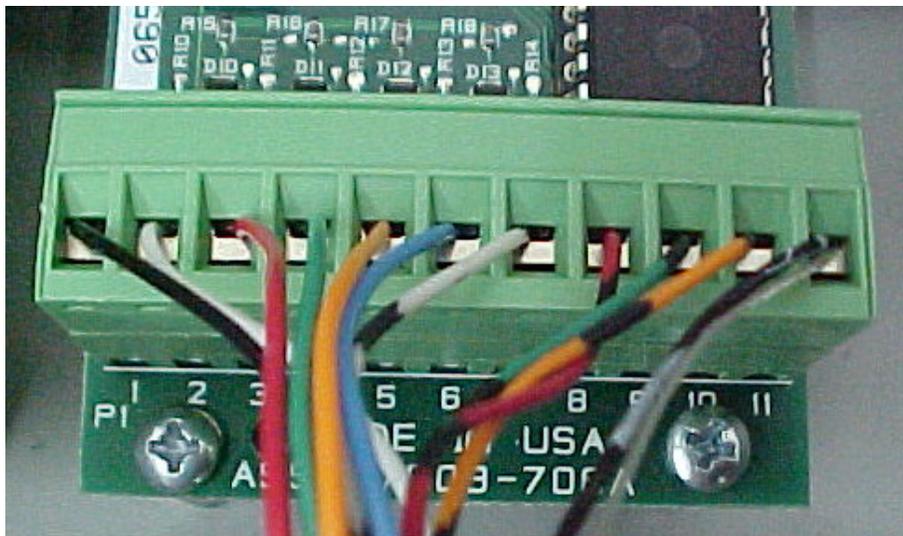
Wire Color	Daughterboard plug Pin #
Black	1
White	2
Red	3
Green	4
Orange	5
Blue	6
White w/ Black Stripe	7
Red w/ Black Stripe	8
Green w/ Black Stripe	9
Orange w/ Black Stripe	10
Black w/ White Stripe & Bare Drain	11

Table 6-1

Installation Notes

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Chapter 7 - Intercom Installation

⚠ **WARNING:** The telephone intercom system, **DigiCall**, uses a separate installation manual, and requires different wire to be pulled to the keypads and substations. If you are not sure of which type of system you have, please contact Digitech International.

The DigiGate keypads can be connected to an Aiphone Intercom system, and the keypads have been specially designed to emulate the LED substation that Aiphone uses. Due to impedance compatibility, the keypads can only be used with LAF or LEF master stations. If Aiphone NEM master stations are being used, special modifications have to be performed to the keypads to make them compatible.

Besides the substations built into the Digitech keypads, there may also be one or more independent substations on the site. Usually these are located in hallways or other interior areas of buildings.

Wire Specification

The DigiGate intercom system uses 18 Gauge shielded cable for the connections, which is provided by Digitech International. This cable is either two or three conductor, depending on the intercom equipment.

For systems that consist of a single master station and one or more substations, 2-conductor shielded cable is used.

For systems that have more than one master station, or that include background music adapters, overhead speakers or All Call adapters, 3-conductor shielded cable is used.

💡 **NOTE:** Systems that use more than one master station, <u>but do not have communication between masters</u>, may use a two-wire system. An example of this may be a system that has two master stations placed beside each other, to allow for a large # of substations to be connected.

The maximum distance the wire can be pulled from the master station to any substation or keypad is 1600 feet.

<u>Each substation has an individual cable that is home run to the master station location</u>. Only one substation or keypad can be connected to any one station on the master intercom. Placing two or more substations or keypads onto the same station on the master is not permitted.

💡 **NOTE:** The connection of the intercom wires at the keypad is covered in the Chapter for keypad installation **Chapter 3**, depending on the type of keypad.

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Independent Substation Installation

Mounting Location

The substations are installed in interior hallways and lobby areas in the buildings, to allow the customers to call the office from locations where there is no keypad. The site plan should be marked with the place for the installation of the substation. If there is any question on the location of the substation, ask the site superintendent or a representative of Digitech International for clarification. Below is **Figure 7-1** showing the substation mounting to a wall.
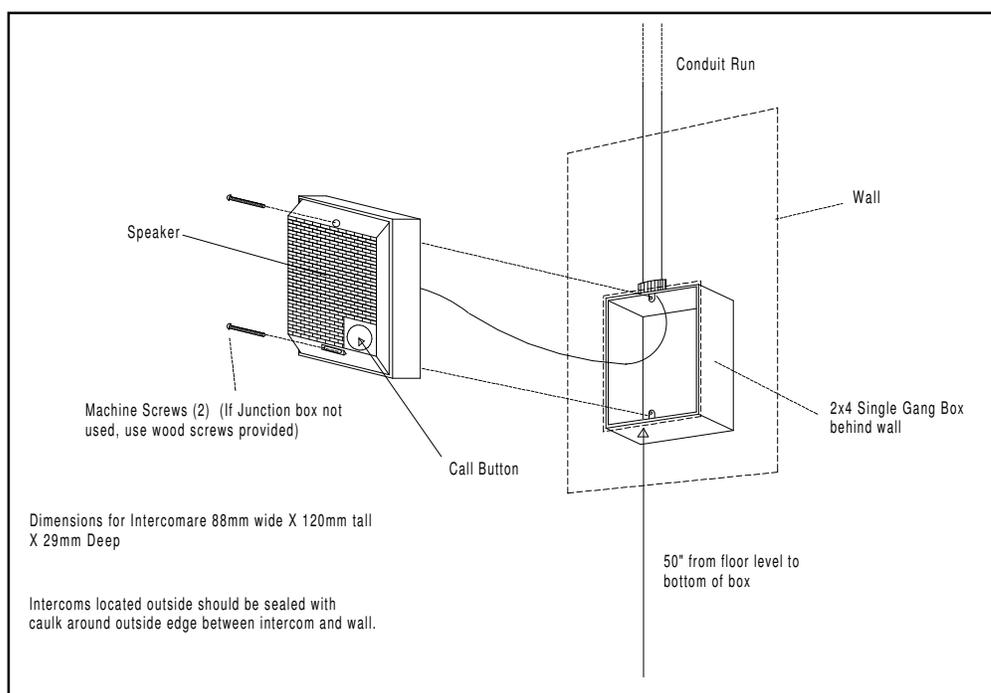
Figure 7-1

Electrical Requirements

Independent substations do not require power.

Pre-Installation Requirements

1. The area that the Substation is being installed in should be finished to the point that there is little or no danger of the station or its wiring being damaged by further work in the area.

2. Any conduits necessary to run the cable(s) from the intercom substation to the master station should be present before installation can be completed. Any gang boxes for mounting the substation should be in place.

Connecting the Substations

1. Route the shielded intercom wire into the mounting box for the substation. Leave about 6" of wire hanging out of the gang box.

2. Strip away 4" of the outer insulation of the cable. Cut the bare drain wire off, and trim off the shield foil.

3. Strip off 1/4" of insulation from each of the remaining wires.

4. The back of the substation has a terminal strip with three connectors, these are labeled "**1**", "**E**" and "**-**".

   a. For two wire systems, connect the RED wire to "1". The metal jumper that is between the "-" and "E" terminals should remain in place. If there is no jumper between these two terminals, place one there. Connect the BLACK wire to "-".

   b. For two wire systems, connect the RED wire to "1". Remove the metal jumper that is between the "-" and "E" terminals. Connect the BLACK wire to "-", and connect the WHITE wire to "E".

5. Coil the cable up into the cutout for the substation, and then mount the intercom to the wall and fasten it down using the hardware in the box. Two machine screws are provided for use with gang boxes, and two wood screws for use when gang boxes are not used.
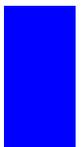
Master Station Installation

Mounting Location

There are two types of master intercoms, the flush mount and the desk mount. The flush mount is designed to be installed into a cutout on a wall or panel. The desk mount simply sits on a desk or countertop in the office.

Generally, if the DigiGate system comes with a flush mount master station, it is meant to be installed in the custom plexiglass display panel in the office.

Location of desk mount stations should be verified, and placed at the direction of the site construction superintendent, the owner of the site, or a representative of Digitech International.

NOTE: It is important that the mounting location be determined before pulling wires to the master station, as the intercom wires are not to be spliced.
With flush mount type intercoms, the intercom will have to be taken apart to install it. Use the back part of the intercom as a template to mark the mounting holes. On plex panels, the holes may already be pre-drilled.

NOTE: The hardware for mounting the master station is not provided. It is left to the installer to acquire the appropriate hardware for the surface being mounted to. Flush mount intercoms will require four screws or bolts/nuts for mounting.

WARNING: When mounting to plexiglass panels, take extra care when drilling any holes into the plex, and when tightening down the fasteners. The plex panel may break or crack if excessive force is used, or if incorrectly sized or dull drill bits are used.

Electrical Requirements

1. The Intercom master station is powered by a 12VDC transformer that is plugged into a 115VAC outlet. A two-conductor extension wire may be used to route the wire from the transformer location to the intercom master station.

NOTE: this is DC power so the installer should observe polarity when connecting up any extension wires.

2. If the master intercom is connected through suppressers in the office, then the suppressers should be connected through a bus bar to a ground rod outside the office, or to another acceptable electrical ground.

Pre-Installation Requirements

1. The area that the master station is being installed in should be finished to the point that there is little or no danger of the intercom or its wiring being damaged by further work in the area.

2. Power to the master station will be necessary before the intercom system can be tested. This does not preclude installation.

3. Any conduits necessary to run the cable(s) from the intercom master station to the substations should be present before installation can be completed.
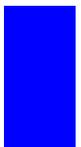
Connecting the Master Intercom - Two wire System

💡 **NOTE:** These connection instructions are for single master systems with substations that do not have background music or voice paging systems connected.

For the purposes of these instructions, both "keypad" and "substation" is the same thing.

1. Route the wires from the keypad substations, and from any independent stations to the location of the master station. Route the cables neatly, keeping them hidden as much as possible. This is especially important in the case of desk mount systems, where the wires will be exposed on the desk or countertop.

💡 **NOTE:** The installer should mark each substation cable with the substation location.

💡 **NOTE:** If the intercoms are to have surge suppressers added at the master station end, the wires should be routed to the location of these suppressers. Suppressers will be installed in a hidden location, and a length of cable used to connect the suppresser to the master station. This cable should be at least 3' long, to allow the suppresser to function correctly. An electrical ground is necessary at the suppresser location for connection.

2. Strip about 4" of the outer insulation from each of the incoming substation cables. Trim off the shield foil that is exposed. Take each of the incoming bare drain wires, and twist them together. Connect the bundle of drain wires with a wire nut, to a single short length of wire, and use this to connect the drains to electrical ground. Cover any exposed drain wires.

3. Strip 1" of insulation off of the black wires from each substation. Twist the ends of all of the black wires together. Get a short piece (1 foot or so) of black wire, and strip 1" off of one end. Connect it to the ends of all of the black substation wires, using a wire nut or crimp.

4. Strip 1/4" off of each of the incoming red substation wires.

5. Depending on the type of master intercom being connected, it may be necessary to take the intercom apart to get at the terminals for connection. This is usually done by taking off the clear plastic cover around the buttons on the front of the master station, and then removing the label behind it. This should expose one or more screws that are loosened to allow the intercom to come apart.

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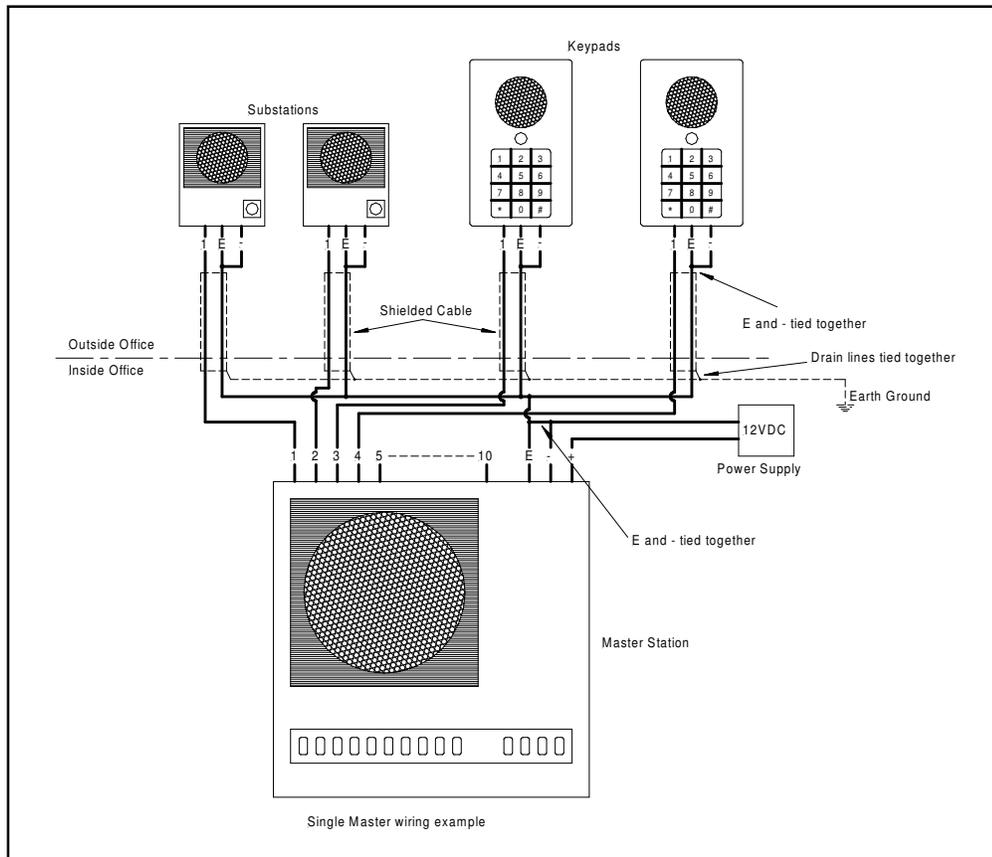
Figure 7-2

6. Route each of the red wires, and the single black wire, into the master station. Connect the single black lead to the terminal marked "E". There should be a metal jumper or a short piece of wire connecting the "E" terminal to the negative "-" terminal.

7. Each RED wire from the substations will connect to one of the numbered terminals on the master. Depending on the complexity of the system, the terminals that they connect to may already be shown on the system diagram that the installer may have received with the gate system. **Table 7-1; Page 7-8** gives an example of how the substations should be connected. The example shows a 5-station master

Station #	Location of substation
1	Entry Keypad
2	Exit Keypad
3	Keypad @ Building A door
4	Substation #1 in Building A hallway
5	Substation #2 in Building A hallway

Table 7-1

💡 **NOTE:** <u>You are not allowed to connect two substation wires to the same station input on the master</u>, as this can cause poor performance. If you do not have enough available stations on the master to connect all substations, then a larger master should be used, or an extra master added to the system.

8. After all of the individual substations have been connected, route the power wire to the master. The master uses a 12VDC transformer for power. Make sure that you observe polarity when making these connections. Connect the positive lead of the transformer to "+" and the negative lead to "-".

9. Re-assemble the master station. Mark on the master stations label, the location of each of the stations.

10. Plug the 12VDC power supply into its outlet.

💡 **NOTE: Chapter 9** has details on the testing of the intercom system.

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Connecting the Master Intercom - Three wire System

💡 **NOTE:** These connection instructions are for multiple master systems with substations, or master stations that have background music or digital voice (DigiCaster) systems connected.

💡 **NOTE:** For purposes of these instructions, both "keypad" and "substation" are the same thing.

1. Route the wires from the keypad substations, and from any independent stations to the location of the master station. Route the cables neatly, keeping them hidden as much as possible. This is especially important in the case of desk mount systems, where the wires will be exposed on the desk or countertop.

💡 **NOTE:** The installer should mark each substation cable with the substation location.

💡 **NOTE:** If the intercoms are to have surge suppressers added at the master station end, the wires should be routed to the location of these suppressers. Suppressers will be installed in a hidden location, and a length of cable used to connect the suppresser to the master station. This cable should be at least 3' long, to allow the suppresser to function correctly. An electrical ground is necessary at the suppresser location for connection.

2. Strip about 4" of the outer insulation from each of the incoming substation cables. Trim off the shield foil that is exposed. Take each of the incoming bare drain wires, and twist them together. Connect the bundle of drain wires with a wire nut, to a single short length of wire, and use this to connect the drains to electrical ground. Cover any exposed drain wires.

3. Strip 1" of insulation off of the black wires from each substation. Twist the ends of all of the black wires together. Get a short piece (1 foot or so) of black wire, and strip 1" off of one end. Connect it to the ends of all of the black substation wires, using a wire nut or crimp.

4. Strip 1" of insulation off of the white wires from each substation. Twist the ends of all of the white wires together. Get a short piece (1 foot or so) of white wire, and strip 1" off of one end. Connect it to the ends of all of the black substation wires, using a wire nut or crimp.

5. Strip ¼" off of each of the incoming red substation wires.

6. Depending on the type of master intercom being connected to, it may be necessary to take the intercom apart to get at the terminals for connection. This is usually done by taking off the clear plastic cover around the buttons on the front of the master station, and then removing the label behind it. This should expose one or more screws that are loosened to allow the intercom to come apart.
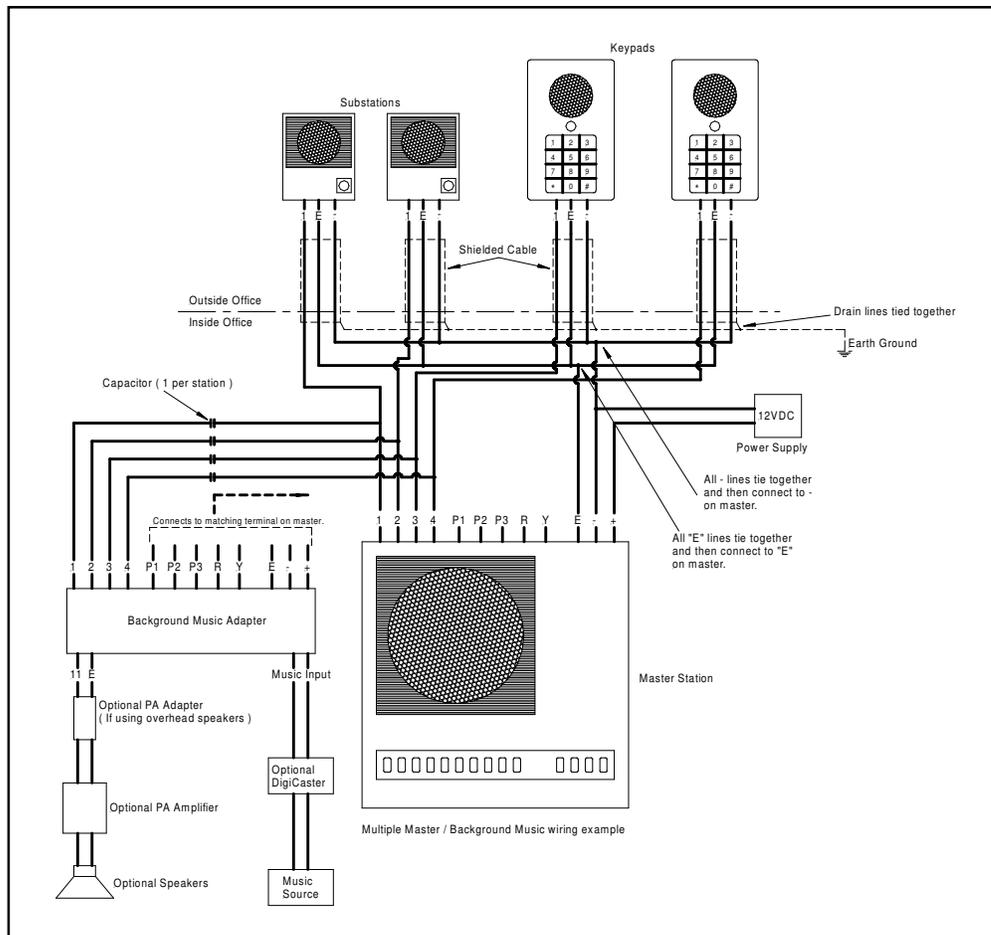
Figure 7-3

7. Route each of the red wires, the single black wire, and the single white wire, into the master station. . Connect the white lead to the terminal marked "E". Connect the black lead to the terminal marked "-". There should not be any jumper connecting the "E" terminal to the negative "-" terminal.

8. Each RED wire from the substations will connect to one of the numbered terminals on the master. Depending on the complexity of the system, the terminals that they connect to may already be shown on the system diagram that the installer may have received with the gate system. **Table 7-2, Page 7-11** gives an example of how the substations should be connected. The example shows a 5-station master. Some masters may have more or less stations, and not all of the stations may be used.

💡 **NOTE:** <u>You are not allowed to connect two substation wires to the same station input on the master,</u> as this can cause poor performance. If you do not have enough available stations on the master to connect all substations, then a larger master should be used, or an extra master added to the system.

9. After all of the individual substations have been connected, route the power wire to the master. The master uses a 12VDC transformer for power. Make sure that you observe polarity when making these connections. Connect the positive lead of the transformer to "+" and the negative lead to "-".

10. Connect any accessories to the master station, as per their wiring instructions. The example in **Figure 7-3, Page 7-10,** shows one possible configuration, for a background music adapter with an optional PA adapter and DigiCaster digital voice messaging system.

💡 **NOTE:** Because of the many different possible configurations for intercom systems, not all wiring examples can be shown here. <u>If you have any question on the connection of any component supplied by Digitech International, contact your Digitech representative</u>.

11. Re-assemble the master station. Mark on the master stations label, the location of each of the stations. **Table 7-2**

Station #	Location of substation
1	Entry Keypad
2	Exit Keypad
3	Keypad @ Building A door
4	Substation #1 in Building A hallway
5	Substation #2 in Building A hallway

Table 7-2

12. Plug the 12VDC power supply into its outlet.

💡 **NOTE: Chapter 9** has details on the testing of the intercom system.

Connecting the intercom cables through suppressers

1. Determine the mounting location of the suppressers. There are two different ways, depending on the type of intercom used.

    A. If the intercom is a flush mount on a Plexiglas display, the suppressers will mount inside the cabinet. Attach the suppressers to one of the inside walls of the cabinet with the double-sided tape supplied, or with 1/2" wood screws. It may be easier to wire the suppresser first, and then mount it.

    B. For desk mount style master intercoms, mount the suppresser under the desk or countertop where the intercom is placed. These suppressers should be hidden.

2. Route the incoming substation wires to the location of the suppresser. Strip about 8" of the outer insulation from each of the cables. Trim off the shield foil that is exposed. Take each of the incoming bare drain wires, and twist the ends together.

    Connect the end of the bare drain wires to the same earth ground that the ground wire for the suppresser(s) will be attached to, using as short a piece of wire as possible. Cover any exposed bare drain wires.

3. A number of suppressers will be provided, depending on the number of stations on the master intercom, and how many wires are in each cable (Some systems use 2 wires, others use 3 wires). Each suppresser has 6 terminals on it.

    NOTE: See **Figure 7-4**.

4. Using the appropriate number of terminals on the suppresser(s), connect the wires coming from the substation to the "IN" side of the suppresser.

5. On the opposite side of the suppresser, connect a shielded cable to the terminals opposite the ones you connected the incoming station wires to. Make sure to maintain polarity by matching wire colors. Route this cable on to the master intercom location and make the connections there as you would normally.

    NOTE: Each of the cables from the suppresser(s) to the master station must be a minimum of 3 feet in length.

6. Connect the ground leads from each of the suppressers to an approved electrical ground.

To Master Intercom
(Min 3 feet cable)

OUT

IN

OUT

IN

Drain lines connect
to ground

1	2	3
4	5	6
7	8	9
*	0	#

Three wire example   Two wire example

Figure 7-4

digitech I N T E R N A T I O N A L
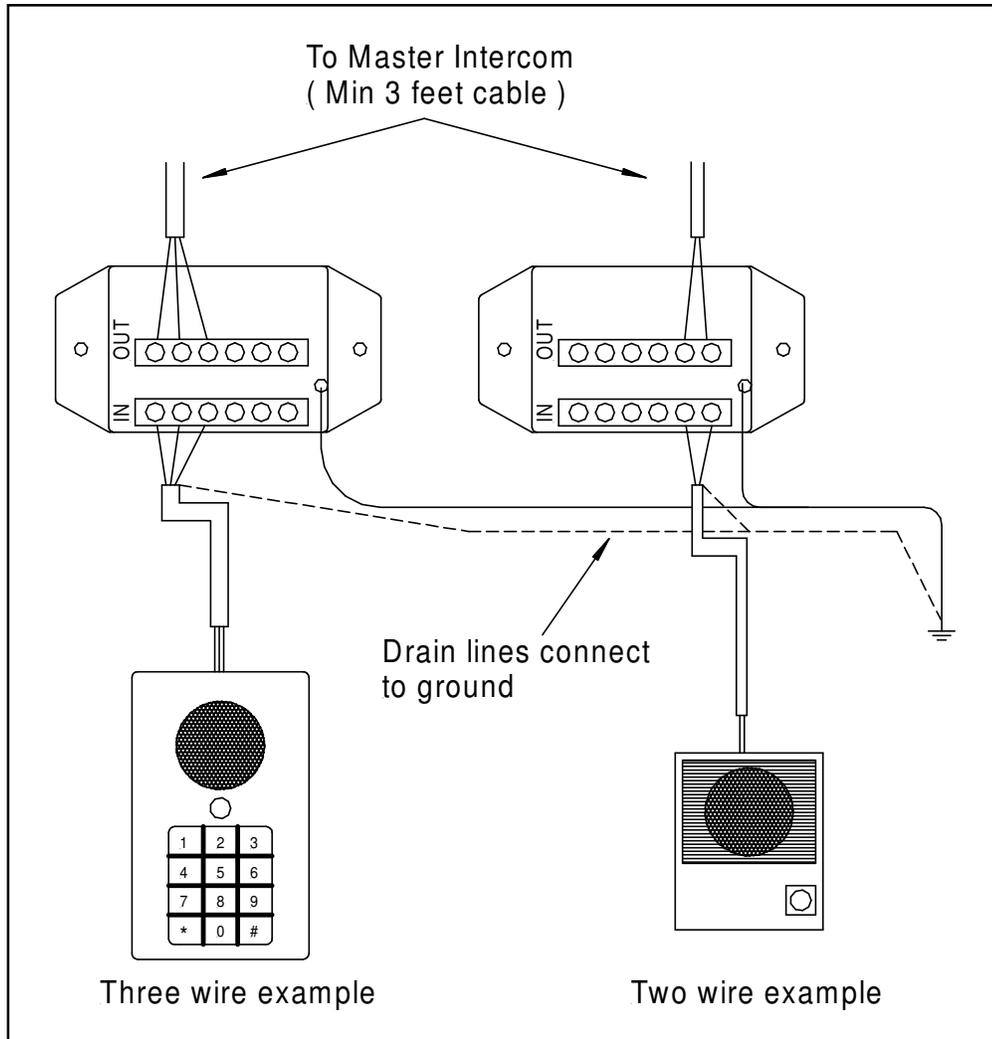
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Chapter 8 – Connecting to Alarm Panels

Some sites may have an optional alarm panel located in the office area. This panel is used for security in the office area when it is closed, and is also used to interface with monitoring stations that are off-site.

These alarms panels are generally connected to door switches that are mounted on the access doors to the office area, and also to motion detectors. If the site is equipped with individual unit door alarms, then the alarm panel may be connected to that system as well.

Digitech International may provide the alarm panel. If others provide the panel, these instructions are to be used when connecting the Digitech International individual door alarms to it.

To have off-site monitoring of the alarm panel, it will have to be connected to a phone line to be able to dial the reporting station. It is recommended that this phone line be a dedicated circuit that is not used for any other purpose.

💡 **NOTE:** Digitech International does not provide monitoring services. It is left to the facility owner to determine which of the commercial services they wish to connect to, at the cost of the owner. If Digitech International provided the alarm panel in the office, it will be compatible with all of the major formats that the reporting stations use.

Because there are several different models of panel that are provided by Digitech International, the installation and programming of the alarm panel is covered in the instructions that come with the panel. The instructions here cover the connection of the alarm panel to the individual door alarms on the site.

💡 **NOTE:** Digitech International recommends that the Digitech system not be connected to the office alarm panel for the first 30 days of <u>complete</u> system operation. Also, during this time, all units on the site (both <u>rented and vacant</u>) are armed. This is to allow for any misadjusted alarm contacts to be discovered, and for both the tenants and manager to become familiar with the system.

The mounting location, electrical requirements and pre-install requirements cover all alarm panels that are being installed and connected to the Digitech International system.

Mounting Location:

1. The alarm panel control keypad should be placed on a wall in an area of the office that is easy accessible by the manager when they enter the office. The site plan provided by Digitech International should show the location of the control keypad.
2. Depending on the type of panel being installed, the control unit may be separate from the control keypad. If this is the case, the unit should be mounted near the Digitech International system controller.

Electrical Requirements:

1. The alarm panel will run off an AC transformer plugged into a 115VAC outlet. The output voltage of the transformer depends on the model of alarm panel used, and the transformer is supplied with the panel.
2. Provide one duplex receptacle at the location where the transformer will plug in. The power wires may be extended from the transformers location to the alarm panel control unit.
3. The alarm panel should be connected to a ground rod or other approved electrical ground.

Pre-Installation Requirements:

1. The area that the alarm controller is being installed in should be finished to the point that there is little or no danger of the controller or it's wiring being damaged by further work in the area.
2. Power to the controller will be necessary before the controller can be tested. This does not preclude installation.
3. Depending on the location of the controller, the controllers keypad, the siren it connects to, and power for the controller, it may have been necessary to install conduit to run the cable(s) from the alarm controller to its peripherals, and to the Digitech International system controller. This conduit should be present before installation can be completed.
4. If the system is to be monitored, a phone line should be routed to the location of the alarm controller. **For maximum security, this line should be a dedicated circuit that is not used for any other purpose.**

Connecting to the System Controller:

NOTE: The default time that the Syscon relay will activate is set at 2 minutes, and is controlled by a setting in the system's software. When using the system with alarm panels, this time should be set to 2 seconds. Please contact Digitech International for instructions on changing the default time of the system controller relay.

1. Route a 2 conductor wire from the alarm panel to the system controller, Keeping it hidden as much as possible, and bundled neatly with the other wires running to the controller. Pull the wire into the controller through one of the knockouts on the bottom right. Leave about 6" of wire inside the controller.

2. Strip off about 4" of the outer insulation from the cable, then strip 1/4" of insulation from each of the 2 conductors. Connect one of the wires to the common (COM) terminal #3 on the system controller plug P3 (shown in the drawing below). Connect the other wire to the normally closed (NC) terminal #4.

NOTE: If the alarm panel requires an End-of-Line resistor, put one in series with the lines running to the Syscon.

3. Inside the alarm panel, connect the 2-conductor wire to an available zone. The zone should be programmed as follows: Armed 24 Hrs a day, instant response (No delay).

Figure 8-1

![digitech INTERNATIONAL]
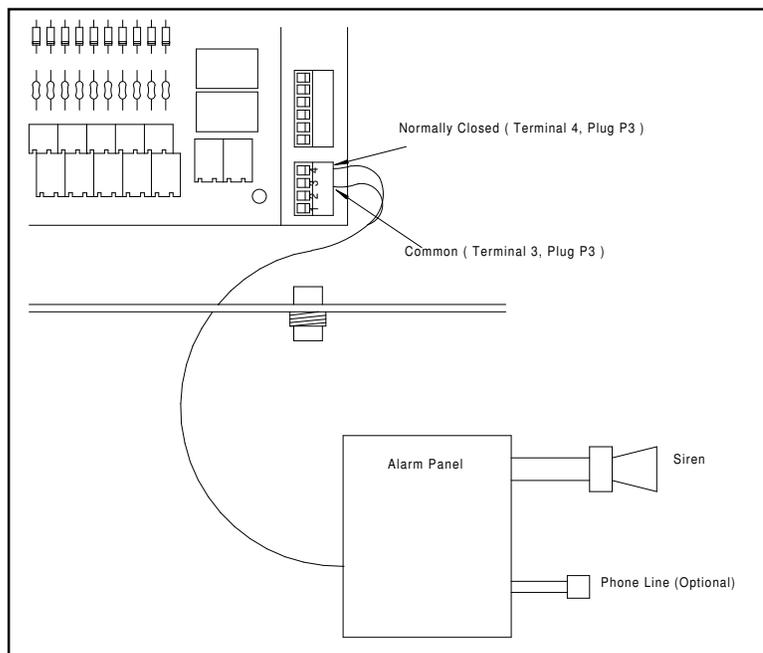
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Chapter 9 - Testing the System

Introduction

After the installation has been completed, the installer should test each aspect of the system to insure correct operation. The suggested order of testing is listed on the next page.

A few things to remember when testing the system:

1. Some parts of the access system may be tested out of the suggested order, as noted below.

   ➢ Testing the communications from the PC to the system controller may be done before the controller is connected to any other equipment.

   ➢ The intercoms may be tested before any other parts of the system.

   ➢ A partial test of a door alarm UniMUX box may be made after the door switches are connected to the multiplexer, but before the UniMUX is connected to the system controller through the RS485 Data Bus.

2. These procedures only test the access system and the intercoms. A separate test of any video system should be performed as well.

3. If a problem is discovered during testing, and the installer is unable to resolve the problem using normal troubleshooting procedures, they should call the technical support department at Digitech International. Technical support is available from 8AM to 8PM EST, Monday through Friday.

4. Several parts of these instructions refer to the operations manual for the DigiGate software. This is a separate manual provided to the site manager for the daily operation of the program.

Order of Testing

1. The System Controller
    A. Communications from the PC to the System Controller.
    B. Checking the version of the System Controller software.
    C. Checking the controller's battery backup power supply.
    D. Setting the controller.
2. Keypads
    A. Adding a unit number, and moving in an access code for testing.
    B. Testing the code at the keypads.
3. Intercoms
    A. Intercom operation.
    B. Testing the master stations and substations.
4. DigiGraphics
    A. Checking the remote control.
    B. Testing the graphics highlighting.
5. Door Alarms
    A. Checking the UniMUX using the built-in LCD screen.
    B. Confirming the door alarms using the PC and the DigiGraphics.

Testing the System Controller

The PC must be able to communicate with the system controller before the gate access system will work. Connection of the PC to the SYSCON is covered in **Chapter 2** of this manual.

NOTE: As noted on **Page 2-2** (The pre-install requirements for the syscon), the PC must have an available COM port for the system controller to connect to. This COM port may not be in use by any other peripheral device on the PC. A USB bus to COM adapter may be used (provided by Digitech) if no COM port is available.

1. Refer to the DigiGate operations manual and run the DigiGate program on the PC. If this is the first time the program has been run, it will attempt to locate which COM port the controller is connected to. After the auto detection has run, the main menu will be displayed. Select the utilities menu.

2. On the DOS version of the program, select "About" from the utilities menu. On the Windows™ version, select the "Version" button.

3. A window should display the serial number, and version level, of the DigiGate software installed on the PC. Below that will be the system controller version number (Example: 7002-034 Ver 8.15). If the screen displays the controller version number, then the PC is correctly communicating with the syscon. Press the "Enter" key, or select "OK" to close this window.

NOTE: If the version # says "No System Controller", then the PC and the syscon are not communicating. This problem must be resolved before testing can continue. Check the cable connections, and that the J3 jumper is connected inside the system controller (see page 2-23).

4. If the system controller has a battery backup power supply, test it by unplugging the transformer for the power supply. The red power LEDs inside the syscon should remain on.

5. From the utilities menu, select "Set Controller" then click on "OK". The PC will download the system setups to the syscon. The setups tell the controller what is connected to the system. How many boards and of what type, which keypads are connected, what relays are used, and so on. When the PC is done sending the information to the controller, the screen will automatically return to the utilities menu.

6. The activity log for both versions of the program will show the system coming on line. Each of the boards connected to the system controller will give a message, depending on the amount of equipment installed. You may have to scroll the activity log back up after it is done updating.

    A basic system with just the syscon and the keypad interface board should display:

    "(Date/Time) Keypad Board   Board Online"

7. If the system has a DigiGraphics unit, and it's installation has been completed, you should see:

    "(Date/Time) DigiGraphics   Board Online"

![digitech INTERNATIONAL logo]

8. If the system has any UniMUXes, and they are all connected to the controller, you should see both of these messages for each of the UniMUX boards. The # shown in the example below should be replaced by the UniMUX # that is coming online. The UniMUX numbers start with the number 5.

    "(Date/Time) UNIMUX ##   Board Online"
    "(Date/Time) UNIMUX ##   Tamper Open"

NOTE: If doors that are connected to a UniMUX have been opened and closed during testing, it is possible that they may show on the screen as ALARM messages when the MUX board they are connected to first comes online. To avoid this, before doing the "Set Controller" command, you may reset the MUXes by removing power from the UniMUX for about 30 seconds then plugging them back in.

NOTE: If the UniMUX box has a tamper switch installed, and the lid is closed, the line will read "Tamper Closed" instead of "Tamper Open"

9. If you have any RS-485 keypads (700LX or 700 LC) installed on the system, you should see the message below for each of these keypads.

    "(Date/Time) "Keypad Name"   Board Online"

    "(Date/Time) "Keypad Name"   Tamper Closed"

10. Systems equipped with door alarms should get the following message on the log:

    "(Date/Time) Door Alarm Zone   Zone Armed"

11. If you fail to get an online message for each piece of equipment that is installed then there is a problem with the RS-485 communications that needs to be resolved before testing can continue. Note that standard 700 keypads do not show online messages. Only LX and LC keypads show as online.

12. Depending on the equipment installed at the site, and the software setups, additional items may appear when the Set Controller" function is performed. If you have any questions about any items in the activity log, please speak with your Digitech representative.

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Testing the Keypads

After testing the communications to the controller, and setting the controller, you will need to test the keypads. To test them you will need to add a unit number to the system, and then assign an access code to that unit. This will place an access code into the controller and allow us to test all the keypads.

1. From the main menu of the DigiGate program, select the SETUP menu button. From this menu, select "Add Units".

2. We are going to create an "imaginary" unit in the system. This is a unit number that does not actually have a physical unit on the site. This unit number will be used by the managers to assign them an access code, and will allow them to use all of the keypads on the facility.

3. Enter the letters MANAGE for both the starting unit # and the ending unit #. (The unit numbers can use any combination of six letters and numbers). Do not enter any other information for this unit number. Select the OK button. This adds the unit number "MANAGE" to the database. Close the SETUP menu and return to the main menu.

4. Select the MOVE IN menu button. Enter the unit number MANAGE in the unit # field and press the ENTER key or select the OK button.

5. To move in a unit, we must input certain information into that unit. Have the manager select an access code for them to use. This access code may be from 1-10 digits long. (Digitech International recommends using an access code of at least 5 digits in length, and to not use repetitive numbers or a series of digits such as "77777" or "12345".) If the manager is not available, enter a simple code for testing purposes, and change the code later when the manager is available.

6. Enter the word "Manager" in the first and last name field. Select the "Access" tab and enter the access code into the "Access Number" field. Click on the "Keypad Zone" field and select "All Keypads" from the drop down list. Click on "Time Zone" and select "24 Hour Access" from the drop down list. Select the OK button at the bottom of the window. A pop up menu will ask if you want to "Link" units. Answer NO to this.

7. The unit has been moved in. Return to the main menu of the program so we can view the activity log.

8. Go to the keypad that is used to enter the gate and use the access code for the MANAGE unit. The gate should open for this code.

NOTE: If the gate operator installation has not yet taken place, continue on to the next step. After the operator has been installed you should repeat this test to insure the operator is working correctly.

NOTE: Some sites may have a door to enter the facility, instead of a gate. If this is the case then use the code at this keypad and check to see if the door strike or magnetic lock is released.

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9. Return to the office and check the activity log on the PC. The log should show an entry for the code that you used, similar to the example below:

    "(Date/Time)   "Keypad Name"   MANAGE   Enter Keypad"

10. Continue testing all of the remaining keypads using the access code assigned to the MANAGE unit. Each keypad should open the gate or door that it controls, and should record the correct keypad description in the activity log.

💡 **NOTE:** Systems that have many keypads, or have keypads that control access into restricted areas (such as elevators or interior units), will require special testing procedures that go beyond the scope of this manual. See the documentation that should be provided with these sites for a list of keypad zones and what tenants should be allowed into these areas. Call your project manager for the site at Digitech International if you have any questions about testing the system.

💡 **NOTE:** DigiGate 700LC (Liquid Crystal) keypads will display a message when used. Different messages are shown depending on the results of the code entry (Access Granted, Bad Password, Delinquent, etc.) These messages are pre-programmed into the Digitech system, but may be modified.

![digitech INTERNATIONAL logo]

Testing the Intercoms

These instructions cover testing of the basic intercom system. A basic system consists of a single master station and one or more substations. The substations may be built into a keypad or may be separate. If the intercoms that you are testing have more than one master station, or if it has music or paging added onto it, you should consult the information that came with the connection sheets for instructions on how to test the intercoms. If you have any questions on the testing procedure, contact your project manager at Digitech International.

NOTE: Telephone type intercom systems (DigiCall™) use a different testing procedure that is detailed in the installation and operations manual for the DigiCall™ system. Please refer to that manual if you have that type of intercom system.

1. With power on to the master station, and the OFF button pressed in, have an assistant go to the first keypad or substation location.
2. The assistant should press the "Call Button" on the keypad or substation for approximately 2 seconds. This will sound the buzzer at the master station, and the indicator light for that station should come on.
3. On the master station, press the station button that is lit.
4. Press the "Push to Talk" button and hold it down.
5. Speak from a distance of about one or two feet into the intercom master.
6. Release the "Push to Talk" button. Your assistant should reply. (Do not press the "Call Button" on the substation to reply, simply speak into the substation.)
7. The sound from the master and the substation should be clear and free of static or buzzing. Several different things can cause static or buzzing on the line.
   A. Incorrect connection of drain lines to ground, or the site's high voltage electrical system has one or more bad earth ground connections. Earth ground readings for all electrical panels and buildings in the site must be 25 ohms or less.
   B. Splices in the intercom line.
   C. RS-485 data lines running in proximity to the intercom wires, and the RS-485 line is not grounded correctly.
8. Push the OFF button on the master station, and have your assistant proceed to the next location. Repeat steps 2 through 8 for each keypad or substation
9. Intercom test complete.

Testing the DigiGraphics

NOTE: These test instructions are for optional equipment that may not be installed on all systems.

There are 3 pre-requisites for testing the DigiGraphics Controller:

1. The site plan must have been completed by Digitech International, and the disk containing the software for the plan should be installed in the graphics controller. If the plan has not been completed by DIGITECH the graphics monitor will show a generic "Digitech Mini Storage" site plan.

NOTE: The operation of the remote control and RS-485 communications with the graphics controller may be tested with the generic site plan.

2. The system controller must have passed its tests, and shown the DigiGraphics "Online". (See "Testing the System Controller" earlier in this chapter.)

3. The unit numbers must be programmed into the software.

When Digitech International designs the DigiGraphics plan, a drawing of the site will have been provided to Digitech by the owner or developer of the site. On this plan each one of the units would have been assigned a unit number. In some cases, Digitech may pre-program the unit numbers for the site into the PC software. To see if the unit numbers have been programmed into the software, follow these steps.

1. From the Main Menu of the program and select the REPORT menu.

2. From this menu, select "All Units".

3. If the numbers are already loaded into the software, the screen will display a list of unit numbers. If the numbers are present, then go on to the first step on **Page 9-10**.

If a blank list is displayed, (Not counting the MANAGE unit added earlier in the test of the keypads), then the numbers have not been added to the software. To add the unit numbers, refer to the daily operations manual under "Setting up the System".

NOTE: It is very important that the unit numbers added exactly match the unit numbers displayed on the DigiGraphics screen. (Example: Unit 001 is not the same as unit 1) If the software "Links" to a management program, the unit numbers may be transferred from the management software. This is discussed in more detail in the operations manual.

TIP: After the numbers have been added to the software it will be necessary to re-set the controller.

1. First you have to clear the controller's memory. Select the UTILITIES menu.
2. Select "Clear Controller" from the menu. Answer YES to the question "Do you want to clear the controller?"
3. Select "Set Controller" and then select the OK button. The PC will download the system setups to the syscon. After sending the setups it will define each of the unit numbers into the controllers memory.
4. Select the Utilities menu and then select "Download All Units" from the menu and click on OK. This will restore any access codes in the PC database back into the system controller's memory.

Testing DigiGraphics Controller Operation

1. The DigiGraphics monitor should be displaying the color site plan, and it should be scrolling across the screen. Check the unit numbers displayed for the site for correctness, and that any logos or address for the site that may be displayed on this screen are correct.

2. To test the remote control, point the remote at the receiver and press the STOP button. The site plan should stop scrolling.

3. Press the STATUS button on the remote. The screen should change to show the status screen. This screen shows the total number of rented, vacant, delinquent and onsite units. Check that the total number of units is correct for the site, and that any logos displayed in the background of this screen are correct. Press the END button to return to the site plan, and then press the SCAN button to have the plan scroll on the screen.

4. To test the highlighting of the units, find the first unit number on the facility. Do a move-in on this unit number to assign it an access code.

    Example: Unit 101 is the first unit on the facility. From the main screen of the software do a "Move In" on unit 101. Give it any access code you wish, the last name of "Test", a 24 hour time zone, and keypad zone of "All Keypads".   (The unit will be moved out after testing).

5. On the DigiGraphics display, the unit you "Moved In" to should change color from green to blue. This shows the status of the unit as rented.

6. At the keypad used to enter the facility, enter the access code that you assigned to the test unit.

7. Check on the DigiGraphics display. The test unit should change color from blue to flashing yellow. This shows the tenant "Onsite". At the bottom of the DigiGraphics screen is a log of the last activity. It should show the date and time, the name "TEST", and the description of the keypad that was used.

8. Use the access code for the test unit at the keypad that exits the facility (if present). The unit should change color back to blue on the graphics screen, and the activity log at the bottom of the screen should show the date and time, the last name "TEST", and the description of the keypad that was used.

9. From the main screen of the software, do a "Move Out" on the unit that you moved in. This will change the color of the unit on the graphics screen back to green.

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Testing the Door Alarms

NOTE: These test instructions are for optional equipment that may not be installed on all systems.

Complete testing of the Door Alarms requires that:

1. The system controller must have passed its tests, and shown all of the UniMUX Boxes "Online". (See "Testing the System Controller" earlier in this Chapter.)

2. The unit numbers, and the MUX and SLOT locations for each of the units must be programmed into the software. On most sites, Digitech International will have pre-loaded the unit numbers and their MUX and SLOT locations into the software. If you were provided with the connection worksheets for the door alarm switches, the software should already be set up. If you have any questions on this item, please call for technical support.

Partial testing of the Door alarms may be done after the doors have been connected to each individual UniMUX box and the UniMUX has been powered up, but before the above two requirements have been met.

Starting on **Page 9-12** are the instructions on how to use the built-in LCD screen to test the individual UniMUX boxes. This screen may be used by the installer to do an initial test of the doors connected to a UniMUX before it is connected to the system controller.

Observe that after the UniMUX has been connected to and is "On-Line" with the controller, each one of the doors on that UniMUX will need to be tested again to insure a complete testing of the door alarm system. These instructions start on page 9-3.

NOTE: It is not necessary to test the doors using the built-in LCD screen. You may wait until all of the UniMUX boxes are connected to the syscon and are On-Line, and test the doors at that time. However, it is recommended that novice installers use the built-in LCD screen to test each one of the UniMUX boxes as they are installed. Once experience in installing the system is gained, the pre-test step can be skipped.

NOTE: It is recommended that at least 2 people test the Door Alarms, and that they have 2-way radios for communications. This will make the testing procedure go much quicker.

NOTE: It is recommended that all Digitech sirens be disconnected during testing.

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If power is not available at the MUX when it is tested, the installer may use a 12VDC, 4 or 7 amp hour battery to power the MUX for the testing. The battery will last for several; hours, which is plenty of time to test all of the units connected to a MUX. To use the battery for testing, connect the positive and negative leads of the battery to the power plug on the UniMUX as shown below. Polarity of these connections is not important.
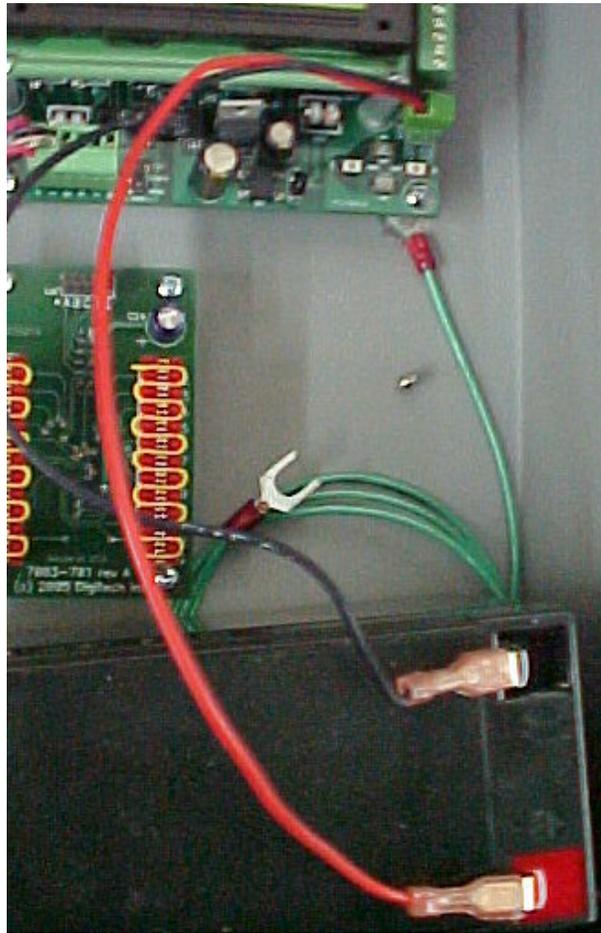
Figure 9-1

⚠ **WARNING:** Remember to disconnect the battery after you are done testing.

Pre-testing the Door Alarms with the UniMUX

The LCD screen on the UniMUX provides several menus which can be used to check the status of the doors connected to that particular UniMUX.

1.   When the UniMUX is first powered up, the following screen will be displayed. This screen will always show the last three activities that happened at this UniMUX.

Figure 9-2

2.   There are 4 pushbuttons, located at the bottom right corner of the motherboard, as shown below. Press the Down button to advance to the next menu.

Figure 9-3

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3.   The next screen will display similar to the one shown in Figure 9-4 below. The ADDR will reflect the board address that was set when the UniMUX was installed. VER shows the software version presently installed on this UniMUX. The Tamper switch state, and on / off state of the two motherboard relays (R1 and R2) is also shown.

Figure 9-4

4.   Press the RIGHT arrow button to advance to the status screen of the daughterboard that you wish to test. When different types of daughterboards are installed into a UniMUX, the common wire alarm daughterboards will always be in the first positions.

The screen below shows the door status for daughterboard # 1.

Figure 9-5

5.   The screen displays a number for each "Slot" that has a closed door, and a # symbol for each slot that has an open door. Each daughterboard has 22 slots for connection. The screen above is showing a daughterboard that has all 22 doors that are connected to it in a closed state. A closed connection is one where the slot input on the daughterboard plug is connected through the switch to the ground pin on the plug,

NOTE: Depending on your system layout, it is possible that not all slots on a daughterboard will be connected and therefore some slots on a module will always show as open (#). These testing instructions show a generic example and may not look exactly like how your site is wired. If you have any questions about how to test the door alarms, please contact your representative at Digitech International.

6.   When the connections were made to the UniMUX, a worksheet was used to show which unit connected to which slot on the daughterboard. (See Pages 5-14 and 5-29 for examples of the worksheet connections.) Refer to the worksheet for the UniMUX that you are testing, and find the units that are connected to the Daughterboard shown on the LCD screen.

7.   Open the first unit on the worksheet (In this example, the unit is connected to slot #1 on daughterboard A). The LCD screen should show the number 1 change to a # sign, as shown below.

Figure 9-6

8.   Close the unit door, and then open the next door listed on the worksheet (Slot #2). The screen should appear as below.

Figure 9-7

9. Continue on testing the doors connected to the first daughterboard, showing an open and close for each of the doors. Once finished, you can use the RIGHT arrow key to advance the menu to the next daughterboard, and continue the test until each common wire alarm daughterboard on the UniMUX has been tested.

Final Testing of the Door Alarms:

Once all of the UniMUX boxes have been installed and connected to their doors, and are brought On-Line with the system controller, the final testing of the door alarms can take place. These steps MUST be performed to insure correct operation of the door alarms.

Testing of the doors does not have to occur in any particular order. You may start with any door that you choose, depending on the layout of the site. The purpose of this test is to confirm that each of the doors is reporting properly to the PC and to the optional DigiGraphics display (if present).

1. The DigiGate program should be running on the office computer, and be on the main menu. Select the SETUP menu, then select the tab labeled "Syscon Setup". Click on the button labeled "Door Alarms". If the box for "Should units be disarmed when they are vacated?" is checked, click it to uncheck the box. Click on the radio button beside "Arm Vacant Units", and then click the OK button. The PC will send commands to the system controller to arm all of the vacant units. This may require a few minutes to complete. Once finished, close the setup menu and return to the main menu.

2. Starting with all of the doors shut, open and close each one of the doors on the site. Confirm that the correct door is shown opening and closing on the activity log of the PC in the office.

NOTE: When a door is opened for the first time after a "Set Controller" has been done, it will report "Closed" then "Alarm" to the activity log on the PC. After the door has been opened once, it will only report "Alarm" the next time it is opened.

3. If the site is equipped with a DigiGraphics, and the graphics is displaying a site plan for the facility you are testing, the unit that is opened should center on the screen and highlight in flashing red. The activity log at the bottom of the graphics should display the alarm message for the unit that was opened.

NOTE: The standard re-arm time for the door alarm system is 2 minutes. This means that two minutes after the alarm is set off by a door being opened, the system will re-arm itself. Another door opening does not reset this time period, so it is possible for the system to re-arm itself while you are in the process of opening another door for testing. When the system is re-armed, any doors that are currently flashing the red alarm status on the optional graphics display will return to their normal status.

NOTE: When a door that is in alarm status is closed, it will read "Secure" on the activity log. If the door is closed after the alarm zone has re-armed, it will read "Closed" on the log.

4. Continue opening and shutting the doors until all doors have been confirmed to work correctly.

5. After the doors have been tested. Connect the siren and open a door to test the operation of sirens connected to the system. After testing the siren it is recommended that it be disconnected for the first 30 days of operation of the system.

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6. From the "Reports" menu of the DigiGate program, select "Activity Reports" and then "Activity Log". Print out a report showing the testing of the doors. This report should have an entry showing that each door on the site was opened and closed. The report is verification that all of the doors have been tested and that they work correctly.

Send this report to the Digitech representative for the site, and keep a copy for your records.

7. Special door alarm systems that included Fire Exit doors or Climate Control doors may require additional testing. Systems such as these should include instructions on these items. If you have any questions on testing or troubleshooting of the door alarm system please call Digitech International technical support.

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Index

J

K

L

M

O

P

R

S

T

U

V

Z

Drawing Index

CHAPTER ONE

CHAPTER TWO

CHAPTER THREE

CHAPTER FOUR

CHAPTER FIVE

CHAPTER SIX

CHAPTER SEVEN

CHAPTER EIGHT

CHAPTER NINE

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DigiGate-700™ System
Installation Manual
Including Uni-Mux