

# TECHNICAL Practice

**TELECOM SOLUTIONS FOR THE 21ST CENTURY**

**C-4000**

**Apartment/Office  
Entry Controller**

July 11, 2014

**Provide 4 Door Entry Points with Keyless Entry (or  
Optional Card Readers) for up to 250 Apartments or Offices**



The **C-4000** converts any four touch tone phones into multi-number auto dialers that will store up to 250 telephone numbers in non-volatile memory. Use with Viking's **K-1700-3** or **K-1900-8** phones to provide vandal resistant handsfree or handset communication from entry points to apartments or offices.

When a call initiated by the **C-4000** is answered by an apartment or business tenant, a built-in contact closure may be activated to control an electric gate or door strike.

Up to 250 entry codes may also be programmed providing tenants with keyless entry or optional **PRX-1** Card Readers may be added for proximity card entry.

The **C-4000** can be programmed locally or remotely using a standard Touch Tone phone. The **C-4000** has built-in user dialing restriction to help prevent unauthorized calls and toll fraud.

## Features

- RS-232 Port for programming via a PC
- Remote or local Touch Tone programmable
- Supports 4 entry points
- Supports 4 Wiegand type card readers
- Compatible with Viking's vandal resistant **K-1700-3**, **K-1900-8** or any Touch Tone phone
- Non-volatile memory (no batteries required)
- Stores 250 tenant Touch Tone phone numbers and 250 entry codes
- Programmable tenant's relay activation code
- Programmable Master entry code & Maintenance Personnel entry codes
- Programmable call timer
- Normally open and normally closed relay contacts for controlling door strikes, magnetic locks, gates, etc.
- Touch Tone toll restriction
- Allows 911 and 311 outside calls (Programmable)
- **LOG BUS** data output for logging entry events

Phone... 715.386.8861

[info@vikingelectronics.com](mailto:info@vikingelectronics.com)

<http://www.vikingelectronics.com>

## Applications

- Complete entry system to service 4 entry points when used with these Viking products:
  - **K-1700-3** Handsfree Speaker Phone (**DOD# 157**) **OR**
  - **K-1900-8** Wall Phone with Handset (**DOD# 362**) **AND**
  - **D-Series** Tenant Directories (**DOD# 158**) **AND**
  - **PRX-1** Proximity Card Reader (**DOD# 221**) **OR**
  - **PRX-2** Keypad / Proximity Card Reader (**DOD# 219**) **OR**
  - **PRX-3** Proximity Card Reader (**DOD# 228**) **OR**
  - **PRX-4** Wiegand Keypad (**DOD# 199**)
- Multi-tenant, gated communities
- Office parks and multi-business complexes

## Specifications

**Power:** 120V AC/13.8V AC 1.25A, UL listed adapter provided  
**Dimensions:** 210mm x 159mm x 45mm (8.25" x 6.25" x 1.75")  
**Shipping weight:** 1.5kg (3.2 lbs)  
**Environmental:** 0° C to 32° C (32° F to 90° F) with 5% to 95% non-condensing humidity  
**Talk Battery Output:** 32V DC nominal  
**DTMF dialing speed:** 120ms on/100ms off  
**Relay contact ratings:** 5 Amps @ 30V DC/250V AC  
**Maximum Wiegand Run:** **PRX-1:** 305m (1000 ft), **PRX-2:** 91m (300 ft), **PRX-3** (using 3 pairs for power): 305m (1000 ft), **PRX-4:** 610m (2000 ft)  
**Maximum LOG BUS Run:** 1610m (5280 ft, 1 mile), 24 AWG wire  
**Connections:** (40) cage clamp screw terminals

# Warranty

## IF YOU HAVE A PROBLEM WITH A VIKING PRODUCT, PLEASE CONTACT: VIKING TECHNICAL SUPPORT AT (715) 386-8666

Our Technical Support Department is available for assistance Monday 8am - 4pm and Tuesday through Friday 8am - 5pm central time. So that we can give you better service, before you call please:

1. Know the model number, the serial number and what software version you have (see serial label).
2. Have your Technical Practice in front of you.
3. It is best if you are on site.

### RETURNING PRODUCT FOR REPAIR

The following procedure is for equipment that needs repair:

1. Customer must contact Viking's Technical Support Department at 715-386-8666 to obtain a Return Authorization (RA) number. The customer **MUST** have a complete description of the problem, with all pertinent information regarding the defect, such as options set, conditions, symptoms, methods to duplicate problem, frequency of failure, etc.
2. Packing: Return equipment in original box or in proper packing so that damage will not occur while in transit. Static sensitive equipment such as a circuit board should be in an anti-static bag, sandwiched between foam and individually boxed. All equipment should be wrapped to avoid packing material lodging in or sticking to the equipment. Include ALL parts of the equipment. C.O.D. or freight collect shipments cannot be accepted. Ship cartons prepaid to:  
**Viking Electronics, 1531 Industrial Street, Hudson, WI 54016**
3. Return shipping address: Be sure to include your return shipping address inside the box. We cannot ship to a PO Box.
4. RA number on carton: In large printing, write the R.A. number on the outside of each carton being returned.

### RETURNING PRODUCT FOR EXCHANGE

The following procedure is for equipment that has failed out-of-box (**within 10 days of purchase**):

1. Customer must contact Viking's Technical Support at 715-386-8666 to determine possible causes for the problem. The customer **MUST** be able to step through recommended tests for diagnosis.
2. If the Technical Support Product Specialist determines that the equipment is defective based on the customer's input and troubleshooting, a Return Authorization (R.A.) number will be issued. This number is valid for fourteen (14) calendar days from the date of issue.
3. After obtaining the R.A. number, return the approved equipment to your distributor, referencing the R.A. number. Your distributor will then replace the product over the counter at no charge. The distributor will then return the product to Viking using the same R.A. number.
4. **The distributor will NOT exchange this product without first obtaining the R.A. number from you. If you haven't followed the steps listed in 1, 2 and 3, be aware that you will have to pay a restocking charge.**

## WARRANTY

Viking warrants its products to be free from defects in the workmanship or materials, under normal use and service, for a period of one year from the date of purchase from any authorized Viking distributor or 18 months from the date manufactured, whichever is greater. If at any time during the warranty period, the product is deemed defective or malfunctions, return the product to Viking Electronics, Inc., 1531 Industrial Street, Hudson, WI., 54016. Customer must contact Viking's Technical Support Department at 715-386-8666 to obtain a Return Authorization (R.A.) number.

This warranty does not cover any damage to the product due to lightning, over voltage, under voltage, accident, misuse, abuse, negligence or any damage caused by use of the product by the purchaser or others.

Viking's sole responsibility shall be to repair or replace (at Viking's option) the material within the terms stated above. VIKING SHALL NOT BE LIABLE FOR ANY LOSS OR DAMAGE OF ANY KIND INCLUDING INCIDENTAL OR CONSEQUENTIAL DAMAGES RESULTING DIRECTLY OR INDIRECTLY FROM ANY BREACH OF ANY WARRANTY EXPRESSED OR IMPLIED, OR FOR ANY OTHER FAILURE OF THIS PRODUCT. Some states do not allow the exclusion or limitation of incidental or consequential damages, so this limitation may not apply to you.

THIS WARRANTY IS IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING THE WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, WHICH ARE HEREBY EXCLUDED BEYOND THE ONE YEAR DURATION OF THIS WARRANTY. Some states do not allow limitation on how long an implied warranty lasts, so the above limitation may not apply to you.

### FCC REQUIREMENTS

This equipment complies with Part 68 of the FCC rules and the requirements adopted by the ACTA. On the side of this equipment is a label that contains, among other information, a product identifier in the format US:AAAEQ##TXXXX. If requested, this number must be provided to the telephone company.

The REN is used to determine the number of devices that may be connected to a telephone line. Excessive REN's on a telephone line may result in the devices not ringing in response to an incoming call. In most but not all areas, the sum of the REN's should not exceed five (5.0). To be certain of the number of devices that may be connected to a line, as determined by the total REN's, contact the local telephone company. For products approved after July 23, 2001, the REN for this product is part of the product identifier that has the format US:AAAEQ##TXXXX. The digits represented by ## are the REN without a decimal point (e.g., 03 is a REN of 0.3). For earlier products, the REN is separately shown on the label.

The plug used to connect this equipment to the premises wiring and telephone network must comply with the applicable FCC Part 68 rules and requirements adopted by the ACTA. If your home has specially wired alarm equipment connected to the telephone line, ensure the installation of this C-4000 does not disable your alarm equipment. If you have questions about what will disable alarm equipment, consult your telephone company or a qualified installer.

If the C-4000 causes harm to the telephone network, the telephone company will notify you in advance that temporary discontinuance of service may be required. But if advance notice isn't practical, the telephone company will notify the customer as soon as possible. Also, you will be advised of your right to file a complaint with the FCC if you believe it is necessary.

The telephone company may make changes in its facilities, equipment, operations, or procedures that could affect the operation of the equipment. If this happens, the telephone company will provide advance notice in order for you to make the necessary modifications to maintain uninterrupted service.

If trouble is experienced with the C-4000, for repair or warranty information, please contact:

**Viking Electronics, Inc., 1531 Industrial Street, Hudson, WI 54016 (715) 386-8666**

If the equipment is causing harm to the telephone network, the telephone company may request that you disconnect the equipment until the problem is resolved.

Connection to Party Line Service is subject to State Tariffs. Contact the state public utility commission, public service commission or corporation commission for information.

#### WHEN PROGRAMMING EMERGENCY NUMBERS AND (OR) MAKING TEST CALLS TO EMERGENCY NUMBERS:

Remain on the line and briefly explain to the dispatcher the reason for the call. Perform such activities in the off-peak hours, such as early morning or late evenings.

It is recommended that the customer install an AC surge arrester in the AC outlet to which this device is connected. This is to avoid damaging the equipment caused by local lightning strikes and other electrical surges.

### PART 15 LIMITATIONS

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

# Definitions

**26 Bit Wiegand Format:** The industry standard data output of access control card readers.

**Directory:** A posting of tenant's names and what number to dial for visitors who wish to request access.

**Entry Code:** The number that when it matches either a Keyless Entry, or a Proximity Card number, allows access. Each Tenant may have their own unique Entry Code that is easily changed or removed when a tenant moves out.

**Entry Point:** A door or gate allowing access into a secure or controlled area.

**Facility Code:** A 3-digit number that each proximity card contains in order to provide greater security. Usually the cards used at a given building all have the same facility code. By programming cards with different facility codes, these cards can have access to certain doors. Using this feature, the entry system can be set up for "zones".

**Keyless Entry:** A way for tenants to let themselves in, by entering a 4-6 digit Touch Tone Entry Code on any one of four entry phones.

**LOG BUS:** A two wire data bus. Data is sent as 1200 baud ASCII characters at TTL levels (0-5 Volt). Any RS-232 port designed to receive TTL levels can receive log bus data directly on the "Receive Data" and "Signal Ground" pins.

**Memory Location:** The number used when programming that stores the location of a tenant's phone number and entry code. This is also the tenant's number, which would appear on a directory, that a visitor would dial to call a tenant.

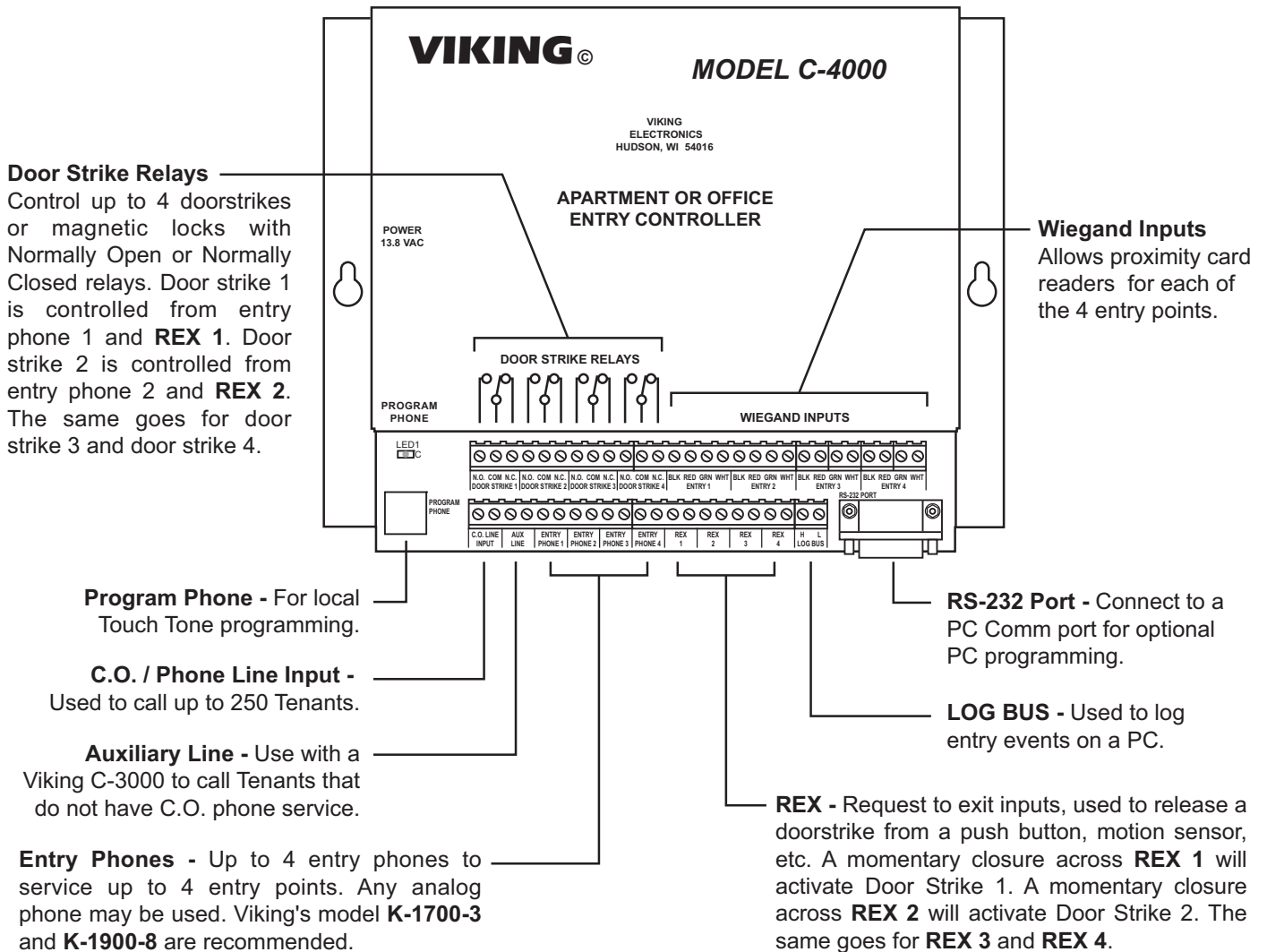
**Proximity Card:** A credit size card that identifies itself when within close proximity of a reader. Card "swiping" is not necessary. The card contains a 3 digit Facility Code, a 5 digit Internal Card number and a 5 digit External Printed number, that may or may not match the Internal number.

**Proximity Card Reader:** A device used to read the data from a Proximity Card when it's held within a few inches of the reader.

**Relay Activation Code:** The one or two digit Touch Tone code a tenant enters on their phone to allow a visitor access.

**Tenant's Phone Number:** Since the **C-4000** uses a phone line to call tenants through the public telephone network, the tenant's actual phone number is programmed into the **C-4000**.

## Features Overview

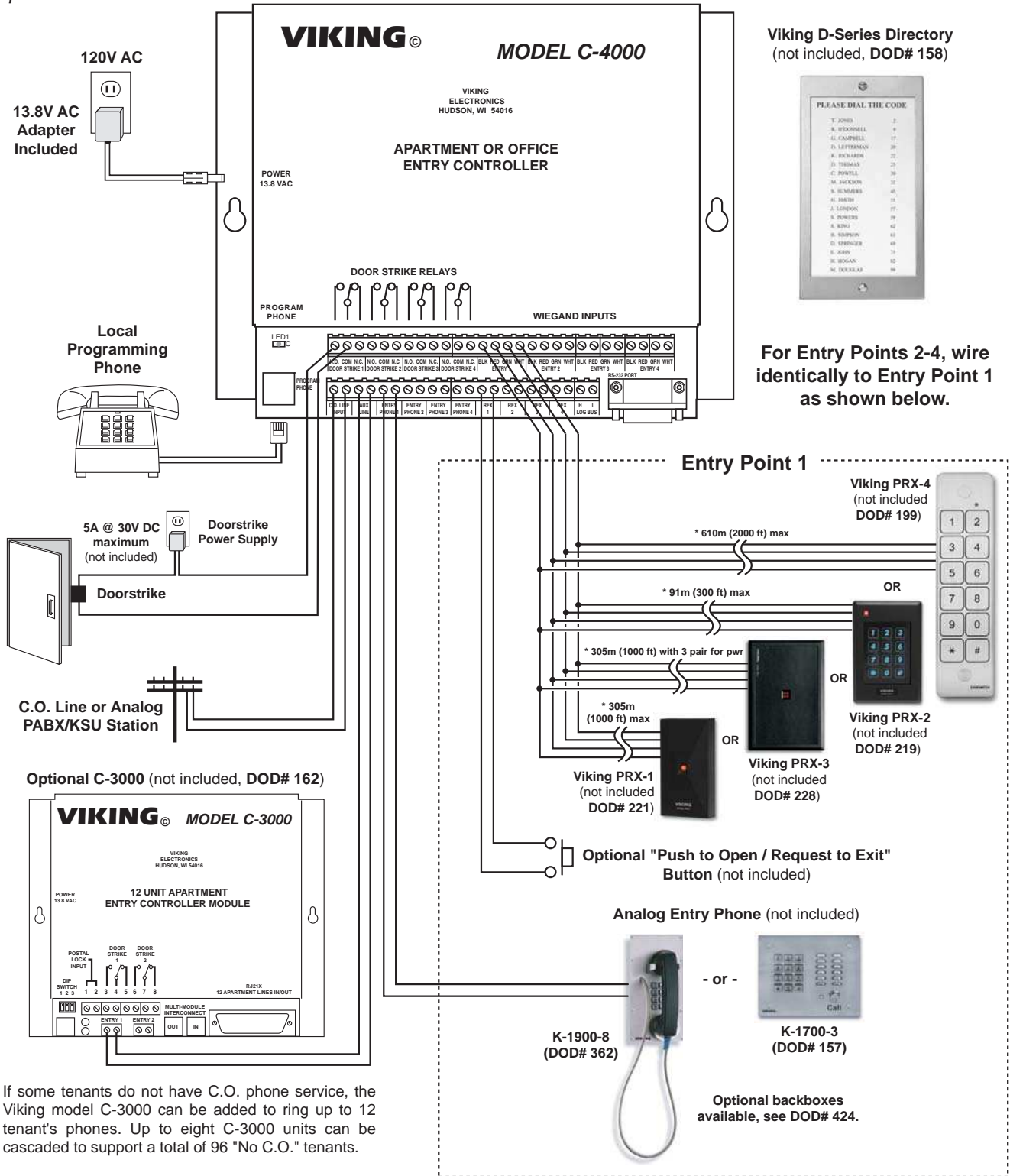


# Installation

**! IMPORTANT:** Electronic devices are susceptible to lightning and power station electrical surges from both the AC outlet and the telephone line. It is recommended that a surge protector be installed to protect against such surges.

## A. Basic Wiring

**Note:** The diagram below shows only one of up to four possible entry phones, REX buttons, door strikes, and Wiegand inputs connected.

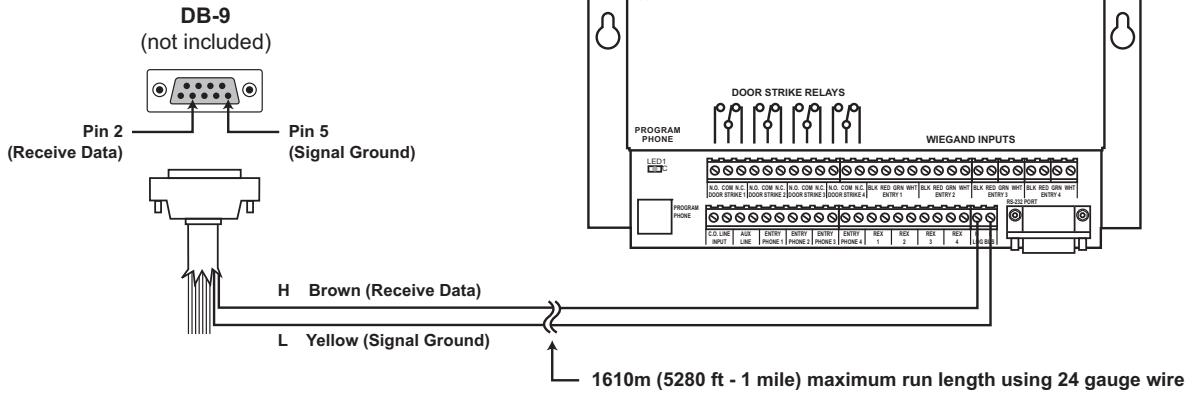


If some tenants do not have C.O. phone service, the Viking model C-3000 can be added to ring up to 12 tenant's phones. Up to eight C-3000 units can be cascaded to support a total of 96 "No C.O." tenants.

\* **Note:** Maximum Wiegand run length is 1000 feet using 24 gauge wire when using the Viking model **PRX-1** proximity card reader, 300 feet for the **PRX-2** card reader/keypad, 1000 feet for the **PRX-3** (using 3 wire pairs for power), and 2000 feet for the **PRX-4** keypad. Run length is reduced to half if two share the same wire run from the same **C-4000** entry point. Run lengths can be doubled by doubling up on the **BLACK** and **RED** 24 gauge wire, or using 21 gauge (or larger) wire. Certain electrically noisy locations might require shielded wire.

## B. Optional LOG BUS Wiring

The **C-4000** transmits 1200 baud ASCII data from the **LOG BUS** screw terminals. Log Bus data is sent each time there is an entry point event, and includes: an entry point ID number, if the entry was valid or non-valid, the facility code, and the card number (or keypad entry code).



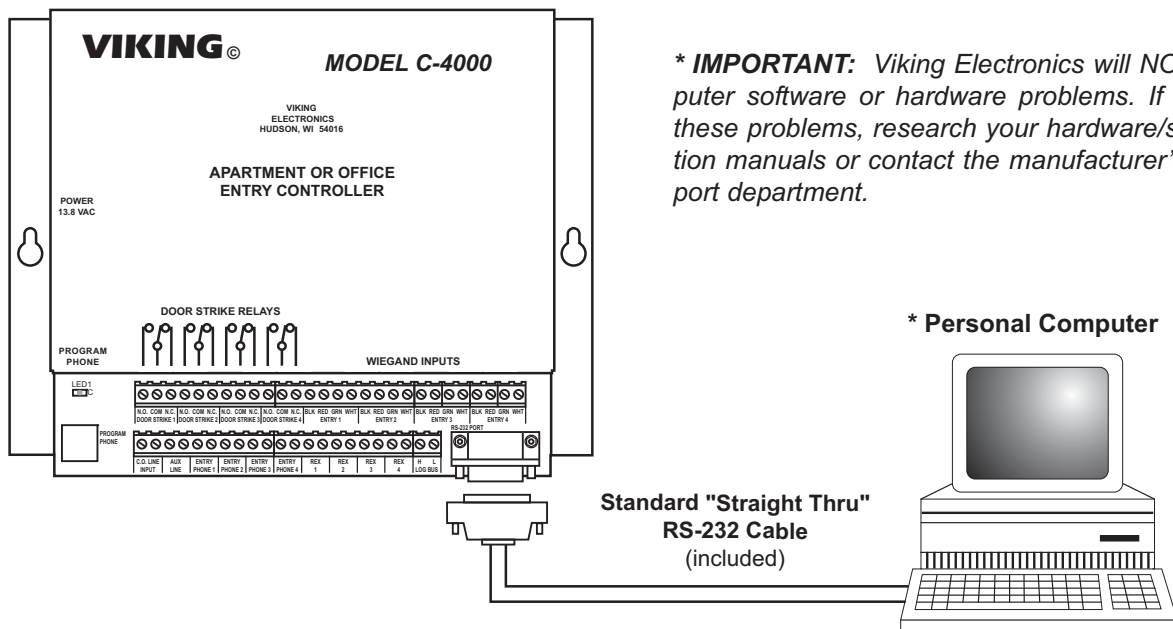
If the RS-232 input of a PC, printer, etc. is capable of receiving TTL level RS-232 signals, then the **LOG BUS** can be wired directly into the RS-232 "Receive Data" and "Signal Ground" pins to receive ASCII data. Windows "Hyper-Terminal" can be used to receive the data on a PC. Use the settings in the chart at the right:

Communication Software Configuration	
Com	Your serial port (1-4)
Baud Rate	1200
Data Bits	8
Stop Bits	1
Parity	none
Flow Control	none

## C. Optional PC Programming Wiring

Programming the **C-4000** can be done with a Touch Tone phone or by using a PC. If using PC programming, use a serial port connection as shown below and visit [www.vikingelectronics.com](http://www.vikingelectronics.com) to download free **C-4000** programming software. Compatible with any Windows based PC running Windows 98 or higher, the software allows programming of all **C-4000** parameters using the computer.

**Note:** After PC programming is accomplished, it is recommended to not use Touch Tone programming to make changes, as these changes will not show in the PC programming data base. If Touch Tone programming is used to make changes, be sure to make those same changes in the PC programming data base to keep it accurate.



**\* IMPORTANT:** Viking Electronics will NOT support computer software or hardware problems. If you experience these problems, research your hardware/software instruction manuals or contact the manufacturer's technical support department.

# Touch Tone Programming

**Note:** While the **C-4000** is being programmed, guests are not able to call up to a tenant because the hardware and/or phone line is unavailable. A busy signal will be given indicating that the system is busy. Tenants can still use keyless entry codes and card readers for access at any entry point during programming.

## A. Accessing the Programming Mode

### 1. Remote Programming

<b>Step 1.</b>	Connect the <b>CO LINE</b> port to a C.O. line or analog PABX/KSU station.
<b>Step 2.</b>	From a Touch Tone phone, call the line connected to the <b>C-4000</b> .
<b>Step 3.</b>	When the <b>C-4000</b> answers, enter "*" followed by the six digit security code, factory set to <b>845464</b> (see section <b>B</b> on the following page). A double beep will indicate that programming has been entered.
<b>Step 4.</b>	Program as shown in sections <b>C - K</b> .
<b>Step 5.</b>	To exit programming, do NOT enter any Touch Tones for approximately 20 seconds. Three beeps will be heard, followed by an automatic disconnect.

### 2. Local Programming

<b>Step 1.</b>	Connect a phone to the <b>PROGRAM PHONE</b> jack.
<b>Step 2.</b>	Come off hook. A double beep will indicate that programming has been entered. <b>Note:</b> The double beep might be delayed if a call is in progress.
<b>Step 3.</b>	Program as shown in section <b>C - K</b> .
<b>Step 4.</b>	To exit programming, simply hang up the phone.

## B. Security Code

A six digit number is used to access remote programming. This security code has been factory set to **845464** (V-I-K-I-N-G). It is recommended that you change the security code to a personal 6 digit number as follows:

<b>Step 1.</b>	Access programming as shown in section <b>A</b> .
<b>Step 2.</b>	Enter your new security code followed by <b>##5</b> .
<b>Step 3.</b>	To exit remote programming, do NOT enter any Touch Tones for at least 20 seconds.

**Note:** The security code must be six digits in length and **MUST NOT** contain a \* or #. If you have forgotten your security code, see **Local Programming** in section **A**.

## C. Tenant's Phone Numbers and Entry Codes

The **C-4000** can be programmed with up to 250 tenant phone numbers and up to 250 tenant entry codes, 5 maintenance personnel entry codes and 1 master entry code. A tenant can activate the door strike, keyless, from the entry phone by dialing a "#" followed by their 4-6 digit entry code, or by using a proximity card with its 5 digit card number programmed as the entry code. When a given tenant moves out of the complex, the phone number and entry code for that tenant may be cleared without affecting any other tenant's phone numbers or entry codes. **Note:** The entry codes should all be the same number of digits, either 4, 5 or 6. If using Wiegand devices (**PRX-1**, **PRX-2**, **PRX-3** or **PRX-4**), entry codes must be 5 digits in length. An entry code may be programmed without a phone number.

**WARNING:** If using a Viking model **PRX-4** keypad, do not program the **C-4000** to accept entry code 65535, because this number is the **PRX-4**'s error code.

**IMPORTANT:** 26-bit Wiegand data limits the entry code range from 00001 to 65534, when using Wiegand devices such as the **PRX-1**, **PRX-3**, **PRX-4**, etc.

### 1. Programming a Phone Number Only

While in programming, enter the tenant's phone number + "#" + memory location number (**001 - 250**).

**Example:** 5551212 # 001

### 2. Programming a Phone Number and Entry Code

**Note:** If a phone number and an entry code are to be programmed into a memory location (001-250), they must be programmed together.

While in programming, enter the tenant's phone number + "#\*" + the entry code for the tenant (4-6 digits) + "#" + memory location number (**001 - 250**). **Example:** 5551212 #\* 123456 # 001

### 3. Programming an Entry Code Without a Phone Number

You are allowed to program an entry code in a memory location without programming a phone number. The memory location then becomes dedicated to entry code storage. This is programmed by entering "#\*" + the entry code (4 - 6 digits) + "#" + the memory location (**001 - 250**). **Example:** #\* 123456 # 001

#### 4. Adding a Master Entry Code

The master entry code is simply an additional entry code in memory position 000. If keyless entry is disabled (when card readers are used), this master entry code will still function as a keyless code. This is programmed by entering “#\*” + the master entry code (4 - 6 digits) + “#” + the memory location **000**.

**Example: #\* 123456 # 000**

#### 5. Adding Maintenance Personnel Entry Codes

The maintenance personnel entry codes are simply an additional 5 keyless entry codes in memory locations 251-255. This is useful when you require additional entry codes for a non-tenant (guard, maintenance worker, etc.) If keyless entry is disabled (when card readers are used) these entry codes will still function as a keyless code. This is programmed by entering “#\*” + the entry code (4 - 6 digits) + “#” + the memory locations **251-255**. **Example: #\* 123456 # 251**

#### 6. Deleting the Phone Number and Entry Code for One Memory Location

While in programming dial a “#” + memory location (**000 - 255**) to clear.

**Note:** *It is not possible to erase only the phone number or the keyless entry number. If either number needs to be changed, BOTH numbers must be reprogrammed.*

#### 7. Deleting All Phone Numbers and Entry Codes

While in programming, enter “###”. This will clear all phone numbers, entry codes and set all programming back to factory settings.

 **CAUTION:** *All phone numbers and entry codes will be permanently erased.*

### D. Programming Features Quick Reference

Features	Enter Digits	- then -	Memory Location
Tenant's phone numbers: 001-002 (0-32 digits), 003-250 (0-16 digits) .....	phone number	+	#001-250
Tenant's phone numbers and entry codes .....	phone number + #* + entry code +		#001-250
To add a * at any point in the dialing string .....	*#		
To add a # at any point in the dialing string .....	#		
Entry code only (4-6 digits) .....	#* + entry code	+	#001-250
Master entry code (4 - 6 digits) .....	#* + entry code	+	#000
Maintenance personnel entry codes (4-6 digits) .....	#* + entry code	+	#251-255
Clear one phone number and entry code .....	(no digits)	+	#001-255
PABX line access number: 1-3 digits + 3 sec pause (factory disabled) .....	1-3 digit	+	##2
Entry point 1 relay activation time (.5-99 sec, 00=.5 sec, factory set to 5 sec) .....	2 digits (00 - 99)	+	##31
Entry point 2 relay activation time (.5-99 sec, 00=.5 sec, factory set to 5 sec) .....	2 digits (00 - 99)	+	##32
Entry point 3 relay activation time (.5-99 sec, 00=.5 sec, factory set to 5 sec) .....	2 digits (00 - 99)	+	##33
Entry point 4 relay activation time (.5-99 sec, 00=.5 sec, factory set to 5 sec) .....	2 digits (00 - 99)	+	##34
* Relay activation code: one or two digits (factory set to 36) .....	1 or 2 digits (0 - 99)	+	##4
Security code (factory set to 845464) .....	6 digits (no # or *)	+	##5
Maximum call time : 0-99 sec (00=disabled, factory set to 40 sec) .....	2 digits (00 - 99)	+	##6
Disable tenant keyless entry .....	*1		
Enable tenant keyless entry (factory setting) .....	*2		
Disable ring-thru mode (factory setting) .....	*3		
Enable ring-thru mode .....	*4		
Enable 911 and 311 calling from entrance phones (factory setting) .....	*5		
Disable 911 and 311 calling from entrance phones .....	*6		
1 second pause anywhere in the dialing string .....	*8		
Access auxiliary line .....	*9		
Clear all phone numbers and keyless entry codes from memory and set all programming features back to factory settings .....	###		(CAUTION: Erases ALL programming!)

\* The relay may be activated with a single digit. When a single digit (0-9) relay activation code is programmed, the activation Touch Tone must be held for a minimum of 150 milliseconds.

**Notes:** Each pause uses a single digit. To clear a memory location, enter only the location (no digits). A **valid** programming entry will be indicated by a double beep. An invalid entry will be indicated with three beeps.

## E. Programming Examples

These examples would be entered after accessing programming as shown in section A.

Programming the C-4000...	Enter Digits
1. ...to dial 555-1234 when a "1" is entered at the entrance phone	5551234 #001
2. ...to dial a 9 and pause 3 seconds prior to dialing all numbers	9 ##2
3. ...to activate the door strike/magnetic lock when the tenant dials a "6"	6 ##4
4. ...to set entry code for tenant 3 to "9876" with phone number 555-1234	5551234#*9876 #003
5. ...to set an entry code for tenant 4 to "9876" without a phone number	#*9876 #004
6. ...to delete the entry code and phone number for tenant 5	#005
7. ...to set a maximum call time of 20 seconds	20 ##6
8. ...to set the master entry code to "123456"	#*123456 #000
9. ...to call position 1 of a C-3000 (aux. line) when 1 is dialed at entry phone	*901 #001

## F. Programmable Maximum Call Time

The **C-4000** can be programmed to limit the call time on the entry phone. The maximum call time is programmable from "00" (no maximum call time) to "99" (99 seconds and is factory set to "40" (40 seconds) (see **Programming**, section D). When the call timer is enabled (programmed to "01-99"), if a call exceeds the programmed time, both phones are provided with three beeps, indicating the termination of the call, then disconnected. This limits unnecessary and lengthy conversations, and limits the chances that a second entry phone gets a busy signal. When the call timer is disabled (programmed to "00"), there is no limit to the length of calls from the entry phone. Only a CPC disconnect signal from the telephone line, or hanging up the entry phone will disconnect the call.

## G. Built-In Toll Restriction

The **C-4000** features built-in toll restriction. The unit will disconnect when it detects any Touch Tone generated by the entry phone, after speed dialing has been completed.

## H. Card Readers / Wiegand Keypads

One or two Wiegand type card readers or keypads can be added to each of the four **C-4000** entry points for card access control. **Notes:** *If neither visitor access nor keyless entry are required, a Viking model PRX-1 Card Reader is all that is needed and an entry phone is not required. If visitor access is not required, but keyless entry is required, a Viking model PRX-4 Keypad is all that is needed and an entry phone is not required.* Twenty-six bit Wiegand access cards, such as the Viking **PRX-C**, **PRX-C-ISO**, **PRX-FOB** and certain legacy HID® proximity protocols\*, identify themselves with an 8-digit number. The first 3 digits are considered the Facility Code and the last 5 are the card number.

The **C-4000** shares the entry code memory location for both keyless entry and card entry. In other words, the 5-digit card number or keypad entry, is to be programmed as the tenant's entry code if used. Unless facility codes are programmed, the **C-4000** will only need to match the 5-digit card number with any programmed entry code to allow access. For a higher level of security the access card's 3-digit Facility Code should be programmed in addition to the card number. The facility codes are to be programmed per each of the four entry points of the **C-4000**.

Each entry point can be programmed to accept up to 4 different Facility Codes. In this way, different groups of users can be issued access cards with different Facility Codes to create entry points in which some groups are allowed access, and/or other groups are not. This open form of creating "Zones" means each entry point can be its own unique zone.

**Note:** *If all 4 Facility Code locations are programmed to "000" (factory setting), the C-4000 will disregard the Facility Code all together, thus making access entry based only on the card number match with the programmed entry code.*

**Important:** *26 Bit Wiegand data limits the facility code range from 001 to 255. A facility code larger than 255 will not be accepted.*

When in programming, enter the 3-digit Facility Code of the access cards being used, then "#" and the memory locations as shown below. (Example: 123#911)

Programming Facility Codes	Enter Digits	- then -	Memory Location
Facility codes for entry point 1 .....	3 digits	+	#911-914
Facility codes for entry point 2 .....	3 digits	+	#921-924
Facility codes for entry point 3 .....	3 digits	+	#931-934
Facility codes for entry point 4 .....	3 digits	+	#941-944

\* HID and the HID logo are registered trademarks of HID Global Corporation, an ASSA ABLOY company. All other trademarks are the property of their respective owners.

## I. Disable Keyless Entry

By using Proximity cards instead of keyless entry, the building manager keeps control over the number of people that can let themselves into the building. If the card numbers are printed on the cards, tenants will quickly figure out the 5-digit printed card number also works as a keyless entry code. Disabling the ability to use keyless entry is therefore recommended when card readers are used. **Note:** *If keyless entry needs to be used in addition to proximity card readers, be sure to order cards with the printed number “offset” from the actual card number. This way only the security manager that knows the offset value can decode it.*

While in programming, enter “\*1” to disable keyless entry, or “\*2” to enable keyless entry. **Note:** *When disabled, the master and maintenance personnel entry codes still function as keyless entry.*

## J. Ring-Thru Mode

Inbound calls are normally answered by the **C-4000** so that remote programming is possible. If the ring-thru mode is selected, inbound calls are allowed to ring through to **Entry Phone 1**. While in programming, enter “\*4” to enable ring-thru mode or “\*3” to disable ring-thru mode.

## K. Using the “AUX” Line

The **C-4000** normally dials the tenant’s phone number from the “C.O.” connections, but can be programmed to dial out the “AUX” screw terminals. This is needed when integrating some tenants that don’t have C.O. phone service and Viking **C-3000s** are added. When programming a tenant’s phone number, add “\*9” as the first 2-digits of the phone number (or enter a “C” ahead of the phone number if programming from a PC) to have the **C-4000** call out on the “AUX” line.

# Operation

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## A. Visitor Access Control

When a visitor accesses an entry phone, simulated dial tone is heard. After the visitor enters the appropriate one to three digit tenant number (equal to memory locations 001-250 in programming), the **C-4000** dials the tenant’s phone number and bridges the phone line to the entry phone. If an un-programmed tenant number (memory location) is entered, a fast busy signal will be heard on the entry phone. When the tenant confirms the visitor’s identity, a one or two digit relay activation code may be entered from the tenant’s phone (factory setting is “36”). Two beeps will indicate that a valid activation code has been entered. A buzzing sound is then heard on the entry phone to indicate the door strike has been activated. If the visitor presses a Touch Tone or an incorrect relay activation code is entered, the unit will disconnect. A fast busy signal will also be returned to the entry phone if the telephone line has become disconnected. The **C-4000** can only make one call at a time. If a second phone comes off-hook while another entry phone is in use, it will be given a fast busy signal. **Note:** *To avoid busy signals on the entry phones, call waiting is recommended on each tenant’s phone line.*

Tenants that do not have C.O. telephone line service can be called through the Viking **C-3000** when wired to the “AUX” screw terminals of the **C-4000**. Each **C-3000** supports up to 12 tenants and up to 8 **C-3000s** can be added to support a total of 96 “No C.O.” tenants. If the **C-4000** is installed at a business where a PABX is used, the **C-4000** can be installed on a station of the PABX and be programmed to dial extension numbers on the PABX and/or dial 9 to place outbound C.O. calls.

## B. Tenant Keyless Entry

Each tenant may use their personal entry code to let themselves in by taking an entry phone off-hook and enter a “#” followed by their 4-6 digit personal entry code. Similar to visitor access above, if a second entry phone comes off-hook while another entry phone is in use, it will be given a fast busy signal. Dial tone will be available when the first call is complete. A valid keyless entry code will activate the door strike relay. If the ability to use tenant keyless entry codes is disabled because proximity card readers are used (see **Programming** section I), the master entry code and maintenance personnel entry codes will still remain functional as keyless entry.

## C. Tenant Card Reader Entry

An optional Wiegand device, such as the Viking **PRX-1** or **PRX-3** Proximity Card Reader, is fully supported (power and data) for each of the four entry points. The **C-4000** entry controller monitors the Wiegand devices for 26 bit Wiegand data. When a card is read, the data is compared against Facility Code and Entry Code data bases of the **C-4000**, and access is granted if a match is found.

## D. Ring-Thru Mode

If the Ring-Thru mode is selected (see **Programming** section J), incoming calls are allowed to ring through the **C-4000** to **Entry Phone 1**. If that door phone has an auto-answer feature, this will allow the user to “monitor” that entry way. The **C-4000** is still watching for the security code and will seize the line if a valid code is detected. In this manner, the **C-4000** may still be remotely programmed. In this mode the relay activation code may also be used to buzz in approaching guests. If the Ring-Thru mode is turned off, the **C-4000** will answer all inbound calls and watch for the security code for remote programming. **Note:** To utilize the Ring-Thru mode with a **K-1700-3** entry phone, DIP switch 5 on the **K-1700-3** must be in the **ON** position (**Fax Back Document 157**).

## E. AUX Line

Any tenant phone number that is programmed with a leading “\*9” (or enter a “C” ahead of the phone number if programming from a PC) will be dialed out the “**AUX**” screw terminal connections instead of the “**C.O.**” connections. The ability to dial out on one of two lines provides additional flexibility to some unusual installations. For example: Some tenants do not have C.O. phone service, so a Viking **C-3000** is used to ring those tenants phones, or some tenants phones are on PABX extensions, so the “**AUX**” line can be wired to that PABX for extension dialing. **Note:** When using a **C-3000** with the **C-4000**, the relay activation code in the **C-3000** should be “disabled” by accessing the programming mode of the **C-3000** and dialing “**##4**”.

## F. Request to Exit

If a “Push to Open” button, push bar switch, key switch, motion sensor, etc. provides a momentary contact closure to the **Request to Exit** screw terminals, the door strike relay will activate. This can be used for a receptionist to allow entry for visible guests, activate a gate for exiting tenants, provide key access for postal service, etc.

## G. Data Logging

Each time there is an entry point event, the **C-4000** will transmit 1200 baud ASCII data out of its **LOG BUS** screw terminals. An example of 5 different entry events is shown below. The **C-4000** outputs entry event data in real time, but does not time stamp.

Examples:	Simulated LOG BUS Output			
Valid Card Entry .....	1	V	255	12345
Valid Card Entry .....	3	V	132	06336
Non-Valid Keyless Attempt .....	1	N	KLS	8132
Valid Keyless Entry .....	2	V	KLS	708132
A guest was granted entry by ..... tenant in memory location 007	4	V	GST	007

Entry Point ID Number	↑	↑	↑	↑	Card number from Wiegand device or keyless code entered (keypad) or tenant memory location number if a guest called
If the entry attempt Valid (V) or Not Valid (N)	↑	↑	↑	↑	Facility Code from Wiegand device or (KLS) for keyless code, or (GST) if a guest called a tenant

## H. Entry Logger Software

Visit [www.vikingelectronics.com](http://www.vikingelectronics.com) to download free **ENTRY LOGGER** software. The software provides transaction logging for the **ES-1** and **C-4000** Entry Controller systems. Compatible with any Windows based PC running Windows 98 or higher, the software adds time and date stamps to each transaction, and allows user printing, record saving, and complete search capabilities.

**Product Support Line...715.386.8666**

**Fax Back Line...715.386.4345**

Due to the dynamic nature of the product design, the information contained in this document is subject to change without notice. Viking Electronics, and its affiliates and/or subsidiaries assume no responsibility for errors and omissions contained in this information. Revisions of this document or new editions of it may be issued to incorporate such changes.

Please use these charts to record the numbers programmed into the **C-4000** (use pencil).

Security Code: \_\_\_\_ \_\_\_\_ \_\_\_\_ \_\_\_\_ \_\_\_\_

Relay Activation Code: \_\_\_\_ \_\_\_\_

Memory Location	Apt #	Tenant's Phone #	Entry Code #
001			
002			
003			
004			
005			
006			
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008			
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071			
072			
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074			
075			

Memory Location	Apt #	Tenant's Phone #	Entry Code #
076			
077			
078			
079			
080			
081			
082			
083			
084			
085			
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087			
088			
089			
090			
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Memory Location	Apt #	Tenant's Phone #	Entry Code #
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Memory Location	Apt #	Tenant's Phone #	Entry Code #
226			
227			
228			
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230			
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232			
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### Additional Entry Codes

Memory Location	Description	Entry Code #
000	Master	
251	Maintenance Personnel	
252	Maintenance Personnel	
253	Maintenance Personnel	
254	Maintenance Personnel	
255	Maintenance Personnel	

### Access Card Facility Codes

Memory Location	Description	Facility Code
911	Entry Point 1	
912	Entry Point 1	
913	Entry Point 1	
914	Entry Point 1	

Memory Location	Description	Facility Code
921	Entry Point 2	
922	Entry Point 2	
923	Entry Point 2	
924	Entry Point 2	

Memory Location	Description	Facility Code
931	Entry Point 3	
932	Entry Point 3	
933	Entry Point 3	
934	Entry Point 3	

Memory Location	Description	Facility Code
941	Entry Point 4	
942	Entry Point 4	
943	Entry Point 4	
944	Entry Point 4	