

# TECHNICAL Practice

**TELECOM SOLUTIONS FOR THE 21ST CENTURY**

## C-2000B

**Advanced Door/Gate  
Entry Phone Controller**

November 21, 2013

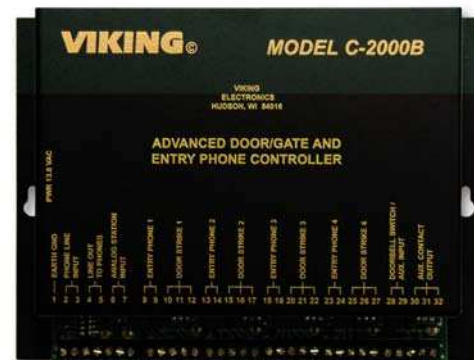
## Add Entry Phones and Doorstrike Control to an Existing Line Or Securely Operate Multiple Doorstrikes

The **C-2000B** now offers two operational modes for added flexibility.

In the Single Line Ring Through Mode, the **C-2000B** allows single line phones to share a phone line with 1 to 4 entry phones. Tenants may converse with visitors and activate a contact closure to control gates or strikes. The **C-2000B** provides entry phone "Caller ID" and "Call Waiting Caller ID" and a "Call Waiting" tone when the phone lines is in use. Tenants may gain entry at each location by entering a keyless entry code.

In the Analog Station Dial Through Mode, the **C-2000B** allows 1 to 4 entry phones to share one analog PABX extension or telephone line and place outgoing calls. When a remote party answers, they can converse with visitors and activate a contact closure to control gates or strikes. Monitoring entry phones, forcing doorstrike relays to operate or remote programming of the **C-2000B** can be accomplished by calling the analog PABX extension or telephone line connected. Authorized personnel may gain entry at each location by entering a keyless entry code.

In either operational mode, the secure relay control of the **C-2000B** prevents the entry phone from dialing the activation code on the keypad of the entry phone or using a hand held touch tone dialer. An auxiliary input is available for connecting a lighted doorbell switch, a common garage door opener/receiver or an auxiliary keyless entry keypad.



## Features

- Allows 1-4 entry phones to share a single telephone line with a residential or business telephone system
- Compatible with the following Viking entry phones:
  - **E-10A, E-20B, E-30, E-35, E-40, E-50, E-60, E-65, E-70, and E-75** Phones
  - **K-1500-7** Stainless Steel Panel Phone
  - **K-1700-3 and K-1705-3** Phone with Keypad
  - **K-1900-8** Stainless Steel Panel Phone with Keypad
  - Or use with any analog touch tone phone
- **Provide entry phone activated chimes and whole house paging when used with an SLP-1 or SLP-4**
- Up to 6 different keyless entry codes / "one time use" keyless entry codes per entrance
- Up to 6 master keyless entry codes for use at any entrance
- **Analog Station Dial Through Mode allows entry phones to connect to analog PABX station or telephone line**
- Optional "Privacy Number" allows only selected visitors to call from an entry phone
- Provides "Caller ID" and "Call Waiting Caller ID"
- Produces "Call Waiting" tones
- Lighted doorbell switch input to activate entry phone call
- One set of normally open and normally closed contacts available for each entry phone
- Programmable contact activation time
- Auxiliary input to activate timed auxiliary contacts

## Applications

- Add one to four entry phones to your standard home or office phones to provide:
  - Door communication
  - Door entry
  - Gate entry
  - Keyless entry
- Provide commercial or residential security via two-way handsfree communication at the door and gate
- Connects in series with a single phone line or to a phone system's unused line input (loop start trunk input)
- High security building entry systems
- Doorstrikes and gates in conjunction with entry phones or hot-line/panel phones

<http://www.vikingelectronics.com>

## Specifications

**Power:** 120VAC / 13.8VAC 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  
**Relay Contacts:** 5A @ 30VDC/250VAC  
**Ring Output:** 8 REN, capable of ringing (16) 0.5 REN phones  
**Talk Battery:** 40V DC  
**REN:** 0.1A  
**Connections:** (32) cage clamp screw terminals

# 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 St, 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 ever 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:AAEQ##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:AAEQ##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-2000B 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-2000B 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-2000B, 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:

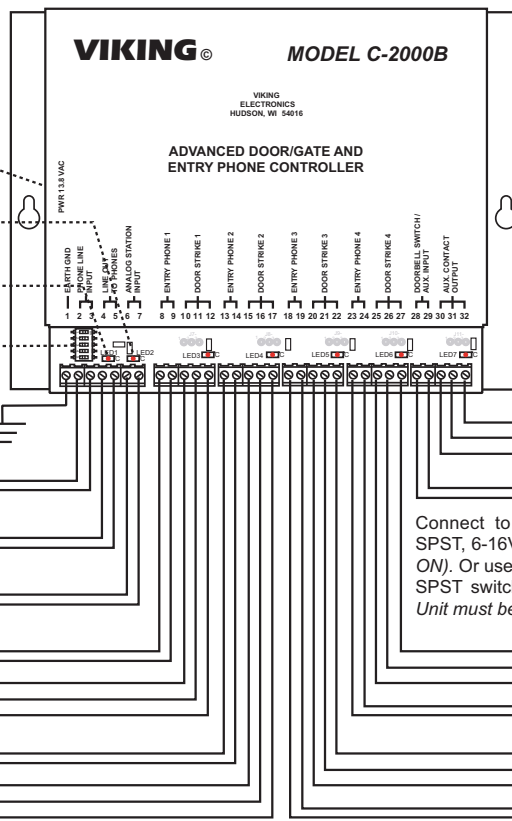
Remain on the line and briefly explain to the dispatcher the reason for the call. Perform such activities in the off-peak hours, such as early morning or late evenings.

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.

# Features Overview



**Note:** The C-2000B is not recommended to be installed in combination with the TR-1 Toll Restrictor. Contact your local C.O. for toll restriction requirements.

**\* Note:** For doorstrike / magnetic lock information, contact your local locksmith.

- Power Input** (13.8VAC @1.25A adapter included)
- Analog Station Mode LED:** Indicates unit is in Analog Station Mode (DIP switch 5 ON)
- Phone Mode LED:** Indicates unit is in Phone Mode (DIP switch 5 OFF)
- DIP Switches:** (see Installation section D)
- Optional Earth Ground:** To increase surge protection, fasten a wire from the screw terminal to Earth Ground (grounding rod, water pipe, etc.)
- C.O. / Phone Line Input:** (If installing without a CO line in "Single Line Ring Through Mode", "5" must be programmed. See page 6, section D.)
- Line Out to Telephones:** (can connect to an unused line / trunk input on a phone system. DIP switch 5 OFF)
- Analog Station Input:** (can be connected to an unused analog PABX/KSU station port. DIP switch 5 ON)

N.C. **Auxiliary Relay**  
COM  
N.O. **Contact Output**

**Doorbell Switch / Auxiliary Input**

Connect to a doorbell switch (lighted or non-lighted) momentary SPST, 6-16V bulb. **Note:** Unit must be in Doorbell Mode (DIP switch 1 ON). Or use as an Auxiliary Input, allowing connection to a momentary SPST switch, keyed switch, postal lock with limit switch, etc. **Note:** Unit must be in Auxiliary Contact Mode DIP switch 1 must be OFF.

N.C. **\* Door Strike 4**  
COM  
N.O. **Relay Contact Output**

**Entry Phone 4 Input**

N.C. **\* Door Strike 3**  
COM  
N.O. **Relay Contact Output**

**Entry Phone 3 Input**

# Operating Modes

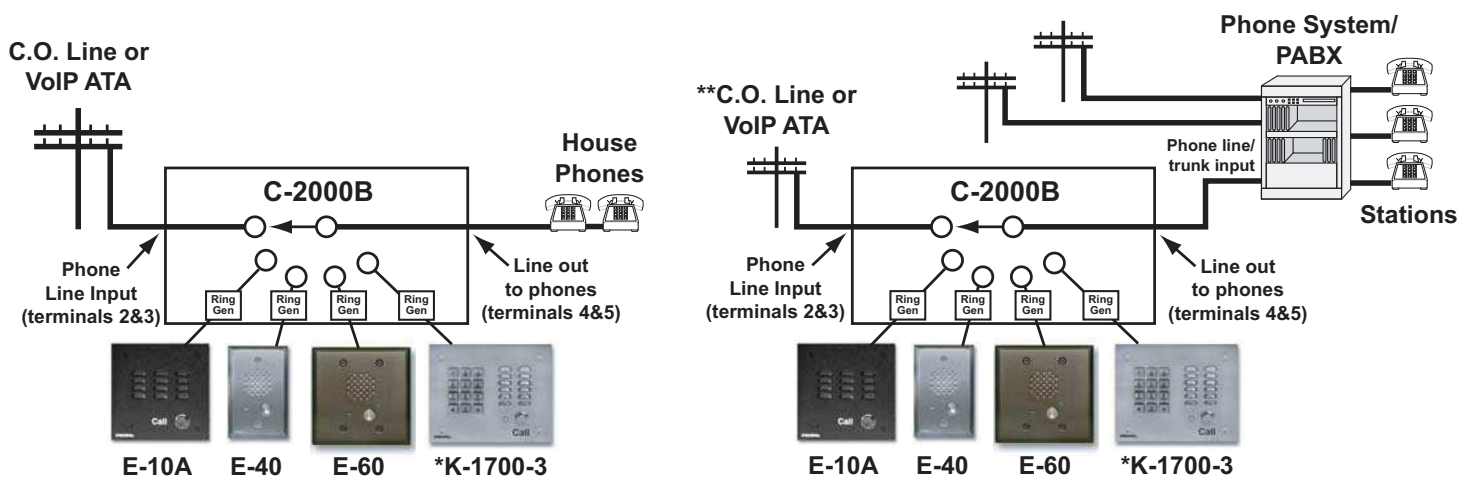
**IMPORTANT:** Please read the following sections to determine which **C-2000B** mode works best for your application.

The **C-2000B** has two operational modes built in, called the “Single Line Ring Through Mode” and “Analog Station Dial Through Mode”. The “Single Line Ring Through Mode” is the residential “line sharing” mode that existed in all previous versions of the **C-2000B** controller. The “Analog Station Dial Through Mode” is a new mode added in **C-2000B** that allows entry phones to connect to one common analog PABX extension or telephone line and use that line to dial out. The controller then acts as a multiple Entry Phone and secure relay controller, with keyless entry capability if needed.

## A. Single Line Ring Through Mode (DIP Switch 5 OFF)

This mode is used in many residential entry applications (typical residence with a single telephone line and single line phones). The controller provides a “line sharing” function so the phones in the house can make and receive calls on the telephone line as normal. When an entry phone is activated, the **C-2000B** rings the house phones in a custom double ring cadence and caller ID data is generated to identify which entry phone is calling. If a house phone is already on a phone call when the entry phone is activated, the controller provides call waiting beeps to the house phone (and call waiting caller ID information). The person on the house phone has the option of putting their phone call on hold to talk with the entry phone. While communicating with an entry phone, the house phones can dial a touch tone command to activate the doorstrike relay. The house phones also have the ability to monitor an entry phone or force a doorstrike relay to operate through touch tone commands. Touch tone keyless entry codes can be programmed per entry phone to provide keyless entry.

The **C-2000B** can also be connected in series between the C.O. line and the line/trunk input of a phone system. The operation remains the same as the single line residential application described above, but you must first access the line/trunk in order to monitor an entry phone or force a doorstrike relay.

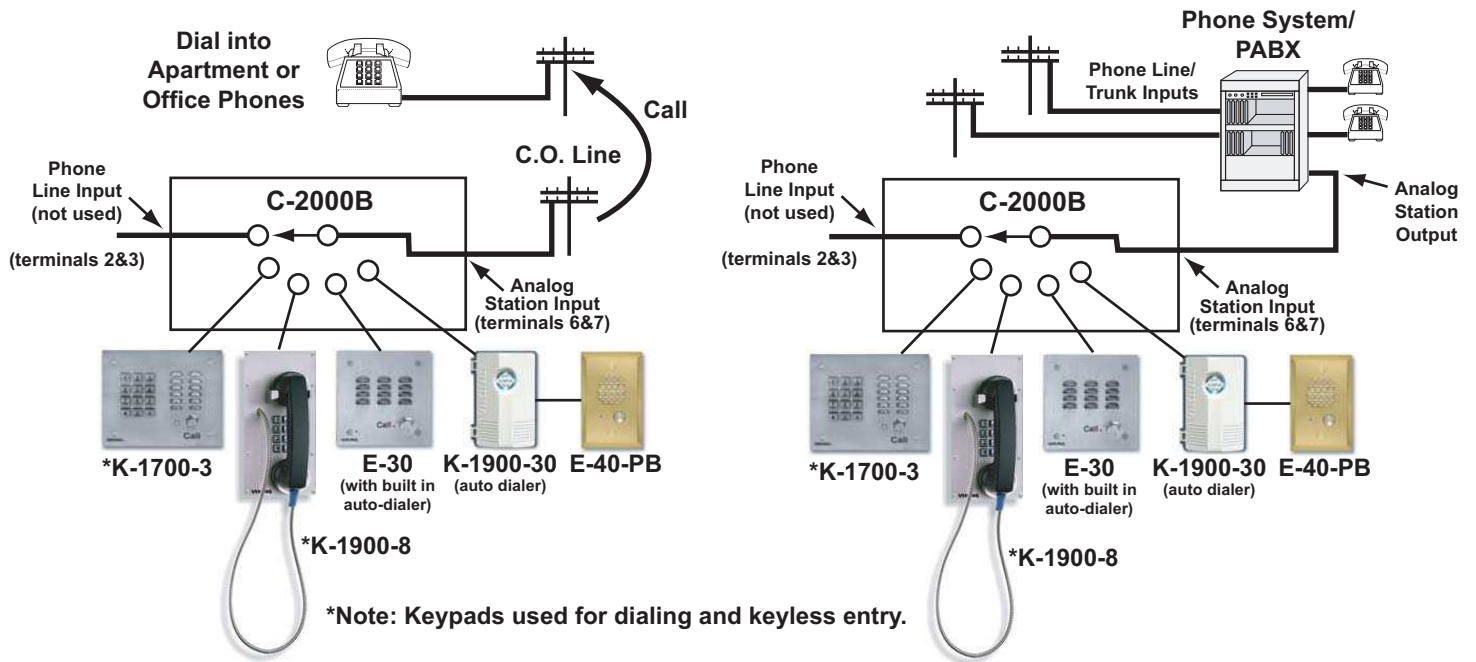


\* **Note:** Keypads used for keyless entry only.

\*\* **Note:** A C.O. line is not required, but the unit must be programmed with (\*5), see page 6, section D.

## B. Analog Station Dial Through Mode (DIP Switch 5 ON)

In this mode, the entry phone is allowed to access the analog PABX extension or telephone line the **C-2000B** is connected to and then use that line to call an extension or telephone number. When the remote party answers the call, they can dial a touch tone command to activate the doorstrike relay. If one of the entry phones is using the line and a second entry phone goes off hook, it will receive a busy signal (generated by the **C-2000B**) until the line becomes available. In this mode, custom double ring cadence from the Entry Phone is not compatible, no caller ID data is generated by the controller and no “entry phone identifier beeps” are provided when the call is answered. Monitoring an entry phone or forcing a doorstrike relay to operate is accomplished by calling the analog PBX extension or telephone line connected to the **C-2000B** and entering a valid touch tone command. Remote programming of the **C-2000B** and any of the Viking hands-free entry phones connected is also possible in this mode. Touch tone keyless entry codes can be programmed per entry phone to provide keyless entry.



## SINGLE LINE RING THROUGH MODE

**IMPORTANT:** The following Installation and Applications, Programming and Operation sections (pages 4-11) are for use in the **Single Line Ring Through Mode** only (DIP switch 5 OFF). This mode is used in the majority of residential entry applications (typical residence with a single telephone line and single line phones). See the complete mode description on page 3.

## Installation and Applications

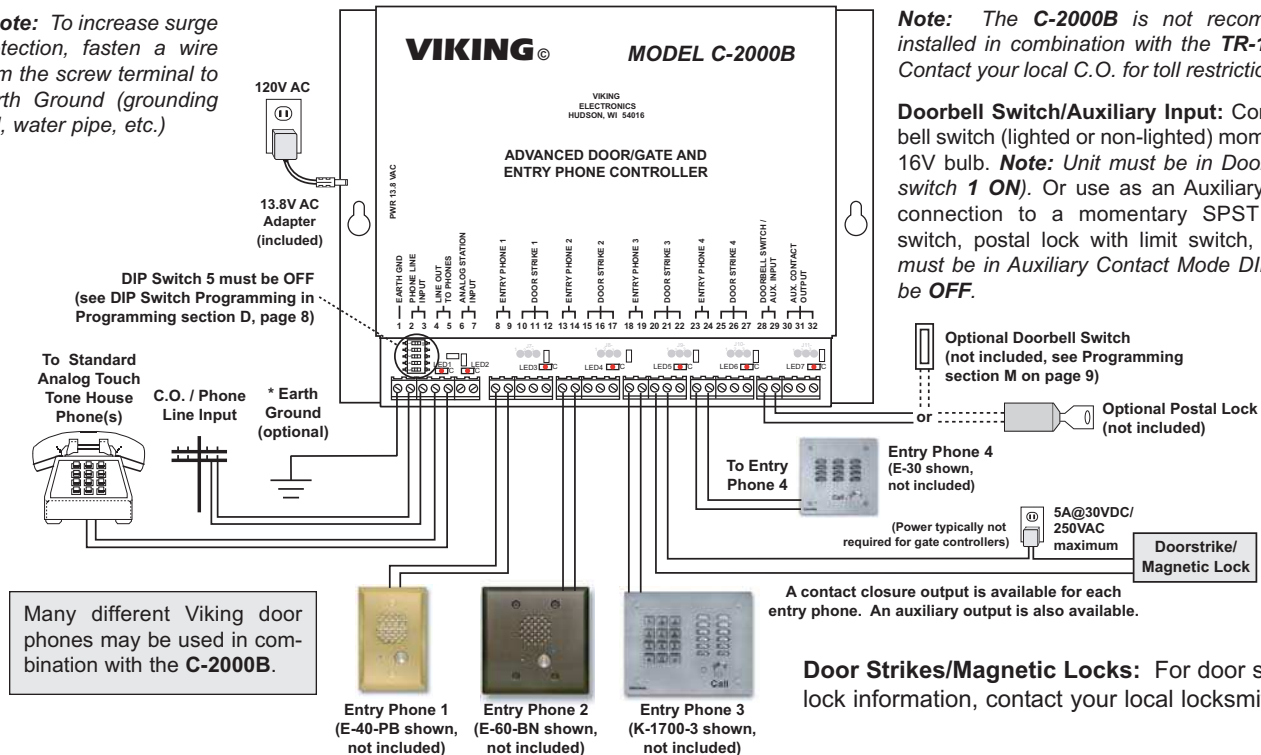
**!** **IMPORTANT:** Electronic devices are susceptible to lightning and power station electrical surges from both the AC outlet and the telephone line. It is recommended that a surge protector be installed to protect against such surges.

### A. One to Four Entry Phones Sharing a Single Phone Line with House Phones

\* **Note:** To increase surge protection, fasten a wire from the screw terminal to Earth Ground (grounding rod, water pipe, etc.)

**Note:** The C-2000B is not recommended to be installed in combination with the TR-1 Toll Restrictor. Contact your local C.O. for toll restriction requirements.

**Doorbell Switch/Auxiliary Input:** Connect to a doorbell switch (lighted or non-lighted) momentary SPST, 6-16V bulb. **Note:** Unit must be in Doorbell Mode (DIP switch 1 ON). Or use as an Auxiliary Input, allowing connection to a momentary SPST switch, keyed switch, postal lock with limit switch, etc. **Note:** Unit must be in Auxiliary Contact Mode DIP switch 1 must be OFF.

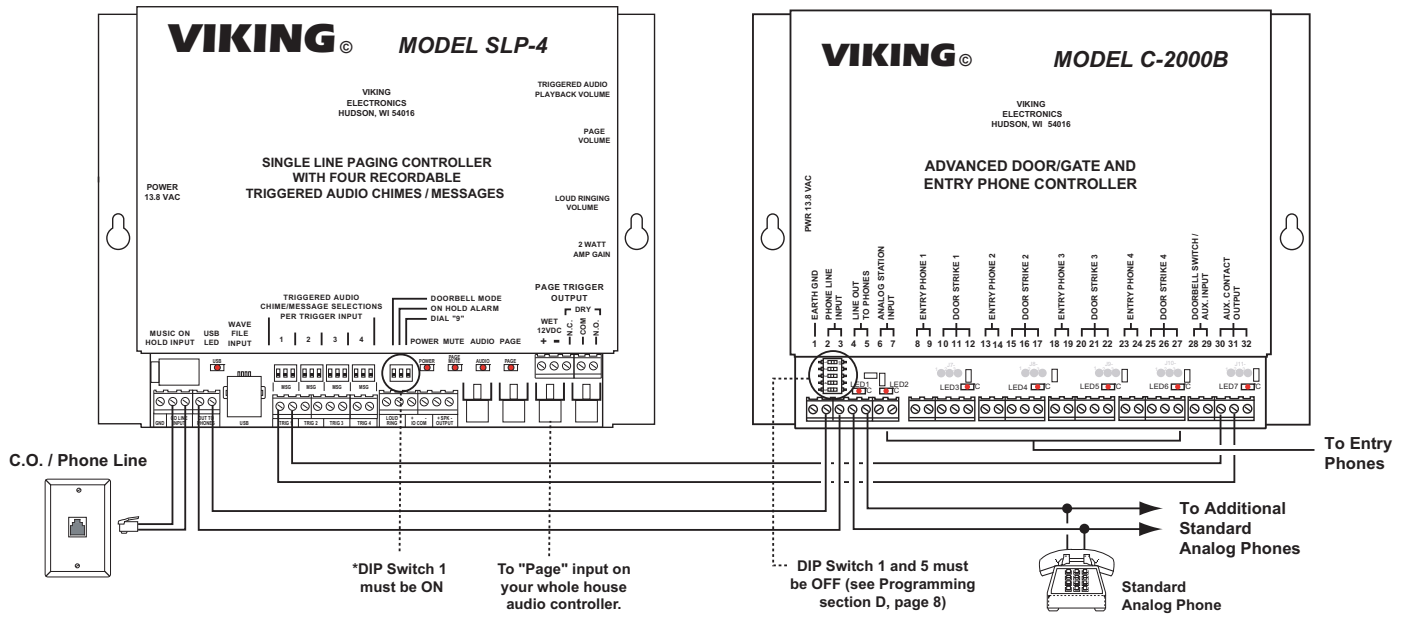


A contact closure output is available for each entry phone. An auxiliary output is also available.

**Door Strikes/Magnetic Locks:** For door strike/magnetic lock information, contact your local locksmith.

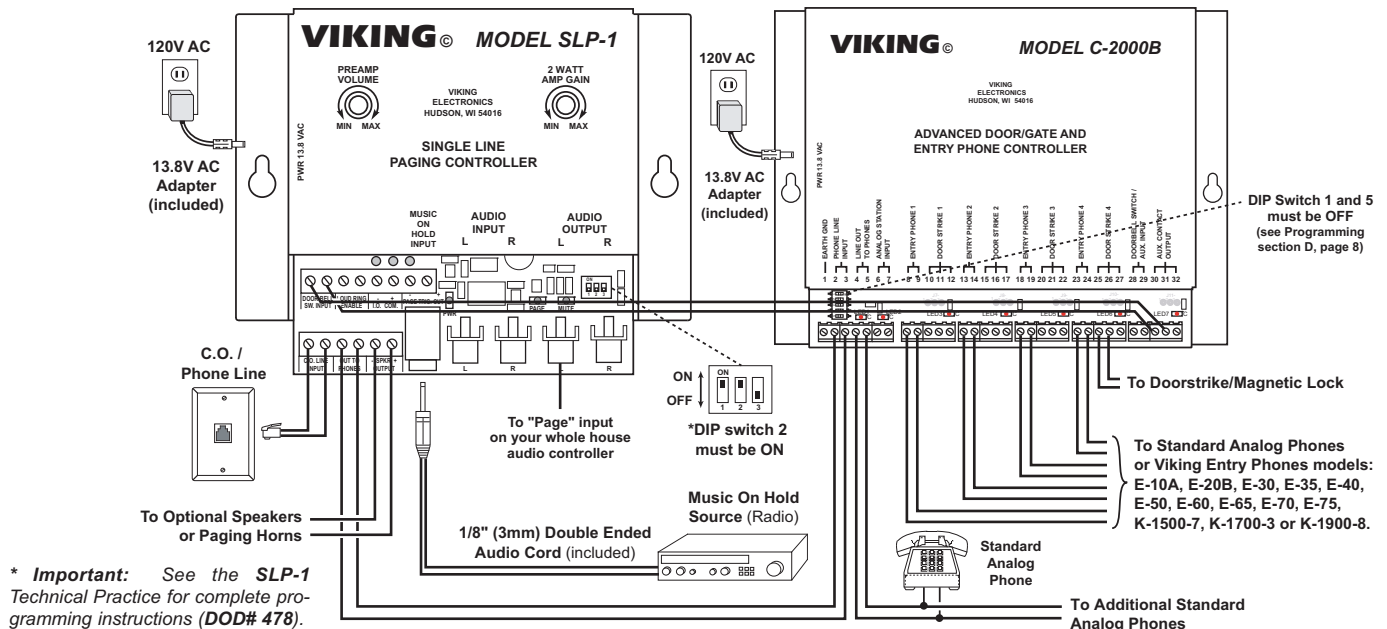
## B. Provide Paging with Four Different CD Quality Door Chimes and Control of up to Four Entry Phones and Doorstrikes from a Single Phone Line with the Viking C-2000B and SLP-4

The **SLP-4** can be used with the Viking **C-2000B** entry phone controller. The phone line first runs through the **SLP-4**, then runs through the **C-2000B** before continuing on to the house phones. The **C-2000B**'s normally open Aux Contact Output connections, when wired to the **SLP-4**'s Trig1 input, will play the **SLP-4**'s DIP Switch selected recorded door chime whenever Entry Phone 1, 2, 3 or 4 call in. To provide up to 4 different door chimes, the **SLP-4**'s "Doorbell Mode" dip switch must be turned ON, and the **C-2000B** must have the "Auxiliary Contact Mode" enabled (DIP switch 1 OFF) and have the auxiliary contact programmed for "Entry Phone Triggered Ring Cadence Activation" (3#60). Entry phone ringing can also be disabled (0#62). \* **IMPORTANT:** See the **SLP-4** Technical Practice for complete programming instructions (DOD# 479).



## C. Provide Whole House Paging, Control Up to 4 Entry Phones and Doorstrikes and Provide Entry Phone Triggered Unique Front and Back Door Chimes from a Single Phone Line

**Note:** To provide unique front and back door chimes, the **C-2000B** must have the "Auxiliary Contact Mode" enabled (DIP switch 1 OFF) and have the auxiliary contact programmed for "Entry Phone Triggered Ring Cadence Activation" (3#60). Entry phone ringing can also be disabled (0#62). If CCTV video control is required, up to (2) **VC-1000**'s can be used. See **Programming** section B, page 7.

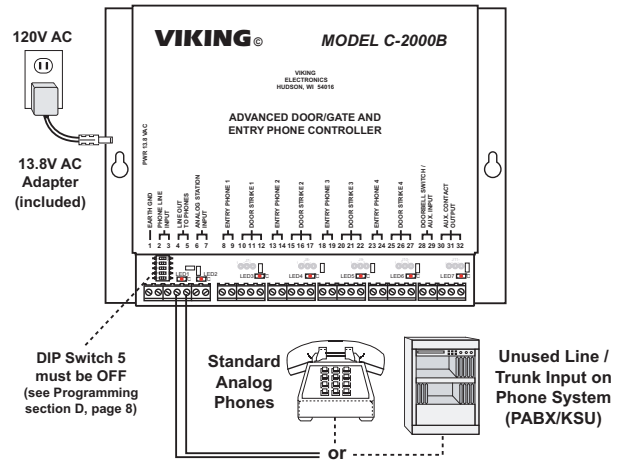


\* **Important:** See the **SLP-1** Technical Practice for complete programming instructions (DOD# 478).

## D. Using a C-2000B without a C.O. Line

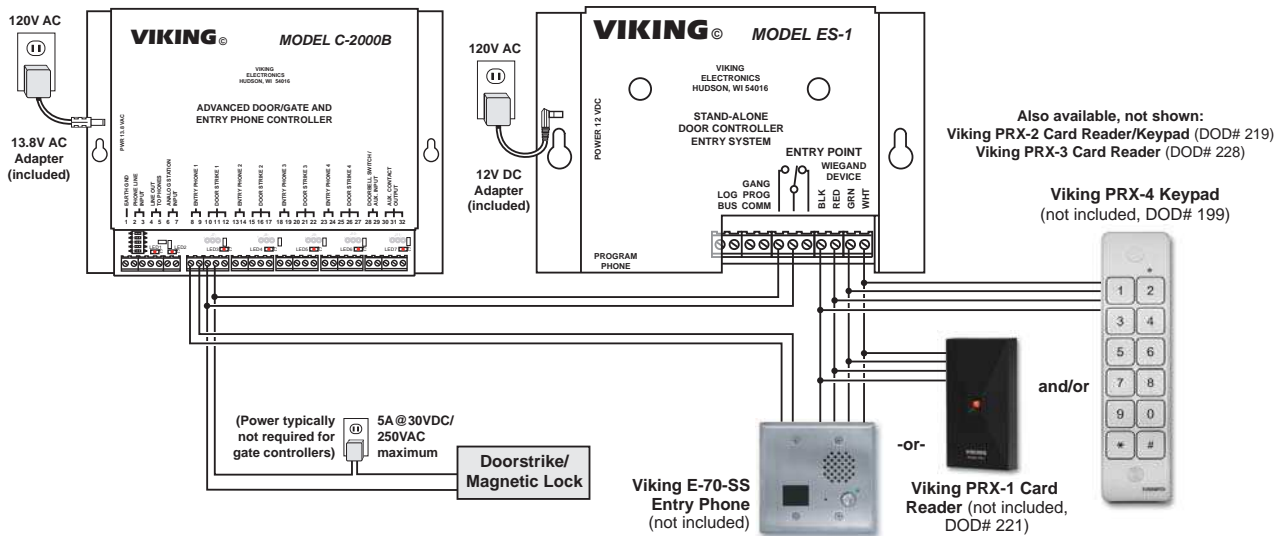
The C-2000B can also be used without a C.O. line. This is ideal for connecting the C-2000B to an unused trunk/line input of your phone system or connecting to phones used only for doorbox communication.

|                |   |
|----------------|---|
| <b>Step 1.</b> | Connect the power, required entry phones and doorstrike outputs (if required) as shown in section A.                                |
| <b>Step 2.</b> | Connect an analog phone or unused phone system (PABX/KSU) line /trunk port to terminals 4 & 5, "LINE OUT TO PHONES" on the C-2000B. |
| <b>Step 3.</b> | Access programming as shown in <b>Programming</b> section A, 2. below. Enter *5, two beeps should be heard.                         |
| <b>Step 4.</b> | Enter additional desired programming, then hang-up the phone and place DIP switch 2 back to the <b>OFF</b> position.                |



## E. Using the C-2000B with an E-70, E-75, Proximity Card Reader or a Keyless Entry Keypad

|                |  |
|----------------|--|
| <b>Step 1.</b> | Program the ES-1 "Relay Activation Time" to match the "Doorstrike Activation Time" on the C-2000B. |
| <b>Step 2.</b> | Connect the ES-1 relay output in parallel with the doorstrike output contacts on the C-2000B.      |
| <b>Step 3.</b> | Connect the entry phones and doorstrike outputs (if required) as shown in section A.               |



# Programming

## A. Accessing Programming

### 1. Accessing the Programming Mode with a Security Code

|                |  |
|----------------|--|
| <b>Step 1.</b> | Come off-hook with any house phone (device) connected to terminals 4 & 5, <b>LINE OUT TO PHONES</b> .                          |
| <b>Step 2.</b> | Enter *# followed by the 6-digit security code (factory set to <b>845464</b> , V-I-K-I-N-G, see <b>Programming</b> section C). |
| <b>Step 3.</b> | A double beep will indicate that you have accessed the programming mode.   |
| <b>Step 4.</b> | You can now touch tone program the features listed in section B.   |
| <b>Step 5.</b> | When finished programming, hang up.  |

### 2. Accessing the Programming Mode Locally (Security Code Bypass Mode)

**Note:** This mode is useful for programming the C-2000B without a telephone line connected.

|                |  |
|----------------|--|
| <b>Step 1.</b> | Move DIP switch 2 from <b>OFF</b> to <b>ON</b> (Security Code Bypass Mode, see <b>DIP Switch Programming</b> section D). |
| <b>Step 2.</b> | Come off-hook with any house phone connected to terminals 4 & 5, <b>LINE OUT TO PHONES</b> .                             |
| <b>Step 3.</b> | A double beep will indicate that you have accessed the programming mode.   |
| <b>Step 4.</b> | You can now touch tone program the features listed in section B.   |
| <b>Step 5.</b> | When finished programming, hang up and move DIP switch 2 to the <b>OFF</b> position.                                     |

### 3. Accessing the Programming Mode Remotely

|                |  |
|----------------|--|
| <b>Step 1.</b> | Call into the <b>C-2000B</b> from a touch tone phone. <b>Note:</b> Call in from another line to avoid C.O. busy signals, etc.                        |
| <b>Step 2.</b> | Answer the call from any house phone (device) connected to terminals <b>4 &amp; 5, LINE OUT TO PHONES.</b>   |
| <b>Step 3.</b> | From either phone enter <b>*#</b> followed by the six digit security code (factory set to <b>845464</b> , see <b>Programming</b> section <b>C</b> ). |
| <b>Step 4.</b> | A double beep will indicate that you have accessed the programming mode.   |
| <b>Step 5.</b> | You can now touch tone program the features listed in section <b>B</b> .   |

**Note:** Programming from a cell-phone may not be suitable in areas with weak coverage.

### B. Quick Programming Features

|  | Enter Digits           | - then - | Memory Location |
|--|------------------------|----------|-----------------|
| Privacy Number (factory disabled) .....  | 0-6 digits (0-9)       | +        | #00             |
| Entry phone 1 keyless entry codes (factory disabled) .....                                   | 4-6 digits (0-9)       | +        | #11 - #16       |
| * Entry phone 1 one time use keyless entry codes (factory disabled) .....                    | 4-6 digits (0-9)       | +        | *#11 - *#16     |
| Entry phone 2 keyless entry codes (factory disabled) .....                                   | 4-6 digits (0-9)       | +        | #21 - #26       |
| * Entry phone 2 one time use keyless entry codes (factory disabled) .....                    | 4-6 digits (0-9)       | +        | *#21 - *#26     |
| Entry phone 3 keyless entry codes (factory disabled) .....                                   | 4-6 digits (0-9)       | +        | #31 - #36       |
| * Entry phone 3 one time use keyless entry codes (factory disabled) .....                    | 4-6 digits (0-9)       | +        | *#31 - *#36     |
| Entry phone 4 keyless entry codes (factory disabled) .....                                   | 4-6 digits (0-9)       | +        | #41 - #46       |
| * Entry phone 4 one time use keyless entry codes (factory disabled) .....                    | 4-6 digits (0-9)       | +        | *#41 - *#46     |
| Master keyless entry codes (factory disabled) .....  | 4-6 digits (0-9)       | +        | #51 - #56       |
| * Master one time use keyless entry codes (factory disabled) .....                           | 4-6 digits (0-9)       | +        | *#51 - *#56     |
| Doorstrike 1 activation time (.5 - 99 secs, factory set to 5 secs) .....                     | 2 digits (00-99)       | +        | #19             |
| Doorstrike 2 activation time (.5 - 99 secs, factory set to 5 secs) .....                     | 2 digits (00-99)       | +        | #29             |
| Doorstrike 3 activation time (.5 - 99 secs, factory set to 5 secs) .....                     | 2 digits (00-99)       | +        | #39             |
| Doorstrike 4 activation time (.5 - 99 secs, factory set to 5 secs) .....                     | 2 digits (00-99)       | +        | #49             |
| <b>** Auxiliary Contacts:</b>  |                        |          |                 |
| Auxiliary contact timing (.5 - 99 secs, factory set to 00 = .5 secs, DIP switch 1 off) ..... | 2 digits (00-99) ..... | +        | #59             |
| 1. Entry phone triggered timed activation (factory setting, DIP switch 1 off) .....          | 1 .....                | +        | #60             |
| 2. Entry phone triggered continuous activation .....   | 2 .....                | +        | #60             |
| 3. Entry phone triggered ring cadence activation .....                                       | 3 .....                | +        | #60             |
| 4. Auxiliary input triggered timed activation .....  | 4 .....                | +        | #60             |
| Maximum entry phone ring count (1 - 99 rings, factory set to 5 rings) .....                  | 2 digits (01-99)       | +        | #61             |
| Enable entry phone ringing (factory setting) .....   | 1                      | +        | #62             |
| *** Disable entry phone ringing .....  | 0                      | +        | #62             |
| Security code (factory set 845464) .....   | 6 digits (0-9)         | +        | #47             |
| Enable entry phone Caller ID (factory setting) .....   | *1                     |          |                 |
| Disable entry phone Caller ID .....  | *2                     |          |                 |
| Entry phone calls give custom double ring cadence (factory setting) .....                    | *3                     |          |                 |
| Entry phone calls give standard ring cadence .....   | *4                     |          |                 |
| Dial "9" to access an outside line .....   | *5                     |          |                 |
| Instant outside line access (factory setting, for use with private dial tone) .....          | *6                     |          |                 |
| Enable doorstrike latching/toggle commands (factory setting) .....                           | *7                     |          |                 |
| Disable doorstrike latching/toggle commands .....  | *8                     |          |                 |
| Enable entry phone identifier beeps (factory setting) .....                                  | *9                     |          |                 |
| Disable entry phone identifier beeps .....   | *0                     |          |                 |
| Ignore touch tones to program an entry phone .....   | ##1 - ##4              |          |                 |
| Reset all programming to factory default settings .....                                      | ###                    |          |                 |

\* **Note:** A keyless entry code can be programmed for **EITHER** an unlimited number of uses or one time use, **NOT** both. There can be a maximum of 6 keyless entry codes and/or one time use keyless entry codes per entrance.

\*\* **Note:** Auxiliary contact programming is only to be used if the **C-2000B** is in the **Auxiliary Contact Mode** (DIP switch 1 OFF), see **DIP Switch Programming** section **D**.

\*\*\* **Note:** Only entry phone call waiting Caller ID will function in this mode, standard entry phone Caller ID will not.

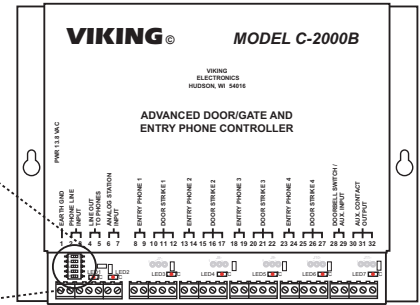
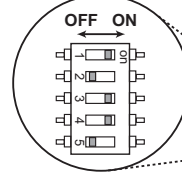
### C. Security Code

This six digit number can be used to access the programming mode. The 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. To change the security code, access programming (see **Programming** section **A**). Enter six digits 0-9 followed by **#47**. If you have forgotten your security code, follow the steps in **Programming** section **A, 2. Accessing the Programming Mode Locally (Security Code Bypass Mode)**. **Note:** The security code must be six digits in length and can **NOT** contain a \* or #.

## D. Dip Switch Programming

| Switch | Position | Description  |
|--------|----------|--|
| 1      | OFF      | Auxiliary Contact Mode   |
| 1      | ON       | Doorbell Mode (factory setting)                                  |
| 2      | OFF      | Normal Operation Mode (factory setting)                          |
| 2      | ON       | Security Code Bypass Mode  |
| 3      | OFF      | * Entry Phone automatic disconnect (CPC) disabled                |
| 3      | ON       | Entry Phone automatic disconnect (CPC) enabled (factory setting) |
| 4      | OFF      | Entry Phone busy signal disabled                                 |
| 4      | ON       | Entry Phone busy signal enabled (factory setting)                |
| 5      | OFF      | Single Line Ring Through Mode (factory setting)                  |
| 5      | ON       | Analog Station Dial Through Mode                                 |

DIP Switches shown in the factory default positions



\* **Note:** Viking handsfree entry phones require CPC for faster automatic disconnect.

## E. Privacy Number

The "Privacy Number" is factory disabled so an entry phone off-hook will automatically ring the house phones. If a "Privacy Number" is programmed, the visitor must touch tone dial the number to be able to call into the house. The "Privacy Number" may be from 1 to 6 digits and is stored in location "#00". To disable the "Privacy Number," clear the number's memory location by entering "#00" without any previous digits.

## F. Keyless Entry Codes and One Time Use Keyless Entry Codes

Each entry phone may have a combination of up to 6 keyless entry codes or one time use keyless entry codes for touch tone keyless entry. The keyless entry codes may be from 4 to 6 digits in length and are stored in locations #11 - #16 for entry phone 1, #21 - #26 for entry phone 2, #31 - #36 for entry phone 3, and #41 - #46 for entry phone 4. Up to 6 master keyless entry codes may be from 4 to 6 digits in length and are stored in locations #51 - #56. The master keyless entry codes can be used at any entry phone. To change any of the keyless entry codes to one time use, insert a \* in front of the specific memory location during programming (ie: "\*#11"). To clear any keyless entry codes, simply enter the location number (ie: "#11" or "\*#11") without any previous digits.

## G. Door Strike Activation Time

A single pole double throw relay is available for each entry phone (a second set of contacts are available on solder pads only), and each may be programmed with its own "doorstrike" activation time (programmed in seconds). Each time must be 2 digits (Example: 00 = 1/2 sec) and is stored in locations #19, #29, #39 and #49 for relays 1 through 4 respectively. All activation times are factory set to 05 (5 sec) **Note:** A buzz sound will be heard in the house phone and entry phone, indicating the door strike relay has been activated and visitors can now open the door.

## H. Entry Phone Caller ID

The C-2000B is factory set to send "Caller ID" and "Call Waiting Caller ID" information from the entry phones. If "Caller ID" is not required, enter "\*2" while in programming to disable the C-2000B from sending "Caller ID" and "Call Waiting Caller ID" data to the house phones. Enter "\*1" to enable "Caller ID" and "Call Waiting Caller ID" data (see **Operation** section A). Entry phone Caller ID is not programmable and is factory set to display "Entry Phone 1", "Entry Phone 2", "Entry Phone 3", and "Entry Phone 4" on your telephone's Caller ID display. Custom Caller ID messages can be factory programmed, contact Viking Product Support at 715-386-8666 for more information.

## I. Entry Phone Ring Cadence

Entry phone calls are factory set to ring the house phones in a custom double ring cadence (.7 seconds on/.3 seconds off/.7 seconds on then 4 seconds off between rings), "\*3". The C-2000B can be programmed to give a standard ring cadence for entry phone calls (2 seconds of ring, and 4 seconds off between rings), enter "\*4" when in programming. Entry phone ringing can also be disabled by entering "0#62". This is useful when connecting the C-2000B to the SLP-1 to provide unique front and back door chimes.

## J. Outside Line Access

- Dial "9" to Access the Outside Line** - To program the C-2000B for C.O. dial tone, enter "\*5" while programming. To gain access to C.O. dial tone, dial a touch tone "9". **Note:** "\*5" must be programmed when connecting a C-2000B to an unused phone system trunk/line input and no C.O. line is connected to the C-2000B.
- Instant Outside Line Access (factory default)** - To program the C-2000B for private dial tone, enter "\*6" while programming. House phones will instantly have the outside line dial tone on an off-hook.

## K. Maximum Entry Phone Ring Count

The number of times an entry phone call will ring the house phones can be limited in programming. The programmable maximum ring count must be 2 digits and is stored in location "#61". The maximum ring count is programmable from 1 - 99 and factory set to (05) 5 rings.

## L. Ignore Touch Tones to Program Entry Phones (##1 - ##4)

This feature is useful if you have entry phones that require touch tone programming and can automatically answer inbound calls. All Viking handsfree entry phones have this capability. After entering the **C-2000B** programming mode and “##1” through “##4” is dialed, the **C-2000B** will send ring signal to the appropriate entry phone port. If the device on that port answers the line, the **C-2000B** connects the entry phone to the house phone and the **C-2000B** no longer reacts to any Touch Tones dialed from the house phones to the entry phone, allowing any programming the entry phone may require. If the entry phone does not answer within 5 rings (programmable – “maximum entry phone ring count”), 3 beeps will be heard and the **C-2000B** will exit the programming mode. When finished programming the entry phone, simply hang up the house phone and the **C-2000B** will exit the program mode and hang up the entry phone. Repeat this process for each entry phone that must be programmed.

## M. Doorbell Switch Input and Auxiliary Contact Output

### 1. Doorbell Mode (DIP Switch 1 ON - factory setting)

With the **C-2000B** in the doorbell mode (DIP switch **1 ON**), a normally open switch (SPST 6-16V lighted or non-lighted doorbell button, etc.) can be connected to terminals 28 and 29 (**DOORBELL SWITCH / AUX INPUT**). This switch should be located near entry phone 1. Door chime power (normally connected to a doorbell button) can be routed through terminals 30 and 31 (**N.O. AUX CONTACT OUTPUT**). A momentary closure on the **C-2000B DOORBELL SWITCH** input terminals will momentarily activate the **AUX CONTACT OUTPUT** terminals for the same duration, activating your door chime. Entry phone 1 will be called, automatically answer (see the Technical Practice for your entry phone) and begin ringing the house phones (terminals 4 and 5 **LINE OUT TO PHONES**). The house phones can then be answered, doorstrike commands entered, etc. (see **Operation** sections **A-E**). **Notes:** *Entry phone 1 ringing the house phones can be disabled in this doorbell mode, if it is desirable to have the doorbell chime but not the house phones ring. This option can only be used if there is only one entry phone on the C-2000B. Program the C-2000B with “0#62” (disable entry phone ringing). When the doorbell chimes, picking up a house phone will instantly connect the house phone to the entry phone. If the user presses the doorbell switch again while their call is either ringing the house phones or while talking to the house, the auxiliary relay will activate each time they press the doorbell switch (causing the doorbell to chime again).*

### 2. Auxiliary Contact Mode (DIP Switch 1 OFF)

With the **C-2000B** in the auxiliary contact mode (DIP switch **1 OFF**), the auxiliary contact output can be programmed (see **Programming** section **B**) to activate in 3 different patterns when entry phones 1-4 are off-hook. These patterns include a momentary activation, a continuous activation while the entry phone is in use, and a ring cadence pattern. A fourth programmed setting is also available for a timed activation of the auxiliary relay from a contact closure.

#### a. Entry Phone Triggered Timed Activation (5 second factory default with DIP switch 1 OFF)

With the entry phone triggered timed activation programmed (**1** followed by **#60**), when any entry phone is activated, the auxiliary contacts will activate for the programmed time (0.5 - 99 seconds) in memory location **#59** (see section **M** below).

#### b. Entry Phone Triggered Continuous Activation

With the entry phone triggered continuous activation programmed (**2** followed by **#60**), when any entry phone is activated, the auxiliary contacts will activate continuously (latch) until the entry phone disconnects. This is ideal for controlling video cameras, lights, etc. Also in this mode, when a house phone has dialed a monitor command (**#1**, **#2**, **#3** or **#4**) to connect to an entry phone, the **C-2000B** will latch the auxiliary relay during the “monitor” once the entry phone answers (so a camera or light can be activated while monitoring).

#### c. Entry Phone Triggered Ring Cadence Activation

With the entry phone triggered ring cadence activation programmed (**3** followed by **#60**), when entry phone 1 is activated, a repeating 1 second on and 3 seconds off auxiliary contact pattern is generated. When entry phone 2 is activated, a repeating double burst contact pattern is generated with 3 seconds off between patterns. When entry phone 3 or 4 is activated, unique contact patterns are generated for use with the **SLP-1** and **SLP-4**. The auxiliary contact pattern stops when the house phone answers the call from the entry phone. This is ideal for controlling visual ring indicators, or connecting to a model **SLP-1** or **SLP-4** for unique door chimes.

#### d. Auxiliary Input Triggered Timed Activation

With the auxiliary input triggered timed activation programmed (**4** followed by **#60**), a momentary contact closure on the **DOORBELL/AUX INPUT** will activate the auxiliary contacts for the programmed time (0.5 - 99 seconds in memory location **#59**, see section **M** below). The auxiliary contacts may be used to provide an additional relay or may be used to add doorstrike entry to an entry phone that does not have a touch tone keypad. The auxiliary input contacts may also be used for timed operation of other devices such as yard lights, etc. and can be triggered by the second set of auxiliary contacts (available through solder pads on the **C-2000B** PCB).

## N. Auxiliary Contact Timing

To program the length of time the “**AUXILIARY CONTACT**” is activated when triggered from an entry phone or the “**AUX INPUT**”, enter **00 - 99** followed by **#59**.

# Operation

## A. Visitors

When a visitor presses the call button (comes off-hook) on the entry phone, the **C-2000B** will begin ringing the house phones and entry phone “Caller ID” information is sent. If a house phone is on a C.O. call, call waiting tones and entry phone “Call Waiting Caller ID” information is sent. A touch tone “#” from the house phone will put the C.O. call on hold and connect the house phone to the entry phone (beeps will be heard, indicating which entry phone you are connected to). Enter Touch Tones “\*\*” to momentarily activate that entry phone doorstrike and return to the C.O. call or enter “#” to just return to the C.O. call without activating the doorstrike. If the doorstrike is activated, a buzz sound will be heard confirming the strike has been activated.

| Entry Phone | * Caller ID and Call Waiting ID |
|-------------|---------------------------------|
| 1           | “Entry Phone 1”                 |
| 2           | “Entry Phone 2”                 |
| 3           | “Entry Phone 3”                 |
| 4           | “Entry Phone 4”                 |

If you require the door strike to remain on continuously (ie: a truck delivery), enter Touch Tones “\*1” to continuously activate that relay and return to the C.O. call. A 5 second buzz sound will indicate the door strike relay is latched on. When the visitor calls in again (ie: they are finished unloading the truck), enter Touch Tones “\*0” to deactivate the relay. Alternatively, the doorstrike relay can be de-activated by going off-hook with any house phone and entering #1\*0 for doorstrike relay 1, #2\*0 for doorstrike relay 2, etc. See **Operation** section **C**. A short buzz will indicate the door strike relay is off.

\* **Note:** Custom entry phone Caller ID messages can be factory programmed. Contact Viking Product Support at 715-386-8666.

## B. Monitoring

Tenants may dial out to an entry phone that supports auto-answering capability by dialing “#1”, “#2”, “#3” or “#4” to call entry phones 1-4 respectively. All Viking Handsfree Entry Phones are equipped with an Auto-Answer feature.

## C. Activating Doorstrike/Gate

You may activate the doorstrike relay without calling out to the entry phone. Refer to the chart at the right for dialing strings. When you momentarily activate a doorstrike relay, it will activate for the amount of time specified in **Programming**, section **G**.

\* **Note:** The latch/toggle commands can be disabled (see **Programming** section **B**).

| Entry Relay | Momentarily Activate Doorstrike | * Latch Doorstrike | Un-Latch Doorstrike | * Toggle Doorstrike Relay |
|-------------|---------------------------------|--------------------|---------------------|---------------------------|
| 1           | #1**                            | #1*1               | #1*0                | #1*#                      |
| 2           | #2**                            | #2*1               | #2*0                | #2*#                      |
| 3           | #3**                            | #3*1               | #3*0                | #3*#                      |
| 4           | #4**                            | #4*1               | #4*0                | #4*#                      |

**CAUTION:** Some strikes are designed for intermittent operation only. The latch and toggle commands should NOT be used with these intermittent strikes, or damage to the strike may occur. Only use the latch and toggle commands with strikes designed for continuous operation.

## D. Privacy Number

The privacy number feature is useful for preventing unwanted (prank) entry phone calls from visitors. If a privacy number has been programmed, an off hook entry phone is given 4 seconds of dial tone to allow the visitor to enter the privacy number. If the visitor enters the correct privacy number, the **C-2000B** will ring the house phones. If they enter an incorrect number, they will be disconnected. If a privacy number is not programmed, then an off-hook entry phone will immediately ring the house phones. **Note:** The “Privacy Number” may be programmed with the first 6 digits of the actual home/office phone number. Visitors may dial the actual 7-digit phone number as if they are making an actual telephone call to the home/office.

## E. Keyless Entry Codes and One Time Use Keyless Entry Codes

Touch tone keyless entry codes may be used by the tenants to provide keyless entry. Each entry phone may have up to 6 keyless entry codes. There are also up to 6 master keyless entry codes which can be used at all four entry locations. If a keyless entry code has been programmed, an off-hook entry phone is given 4 seconds of dial tone before ringing the house phone. During this time a touch tone “#” + the “keyless entry code” may be entered.

A correct keyless entry code will provide a timed doorstrike activation for that entry phone location. One time use keyless entry codes function as described above but can only be used **ONCE**. After the one time use keyless entry code has been used, it is instantly cleared from the **C-2000B**'s memory. This is ideal for issuing keyless entry codes to service personnel, etc. **Note:** A short buzz sound indicates when the relay has been activated and the visitor can now open the door.

## F. Operation Commands

|   |     |
|---|-----|
| Activate doorstrike relay .....                           | * * |
| * Continuously activate (latch) doorstrike relay .....    | * 1 |
| Continuously de-activate (unlatch) doorstrike relay ..... | * 0 |
| * Toggle relay from last position .....                   | * # |
| Answer or disconnect an entry phone call .....            | #   |
| Monitor entry phone 1 .....                               | # 1 |
| Monitor entry phone 2 .....                               | # 2 |
| Monitor entry phone 3 .....                               | # 3 |
| Monitor entry phone 4 .....                               | # 4 |

**\* Notes:**

1. The latch commands can be disabled (see Programming section B).
2. The "toggle relay from last position" command ("\*#") will NOT be accepted when a house phone is connected to an entry phone. The toggle command will be accepted if a house phone goes off-hook and dials the toggle relay command without calling the entry phone ("#1\*#" to toggle doorstrike relay 1 from it's current position for example).

**CAUTION:** Some strikes are designed for intermittent operation only. The latch and toggle commands should NOT be used with these intermittent strikes, or damage to the strike may occur. Only use the latch and toggle commands with strikes designed for continuous operation.

# ANALOG STATION DIAL THROUGH MODE

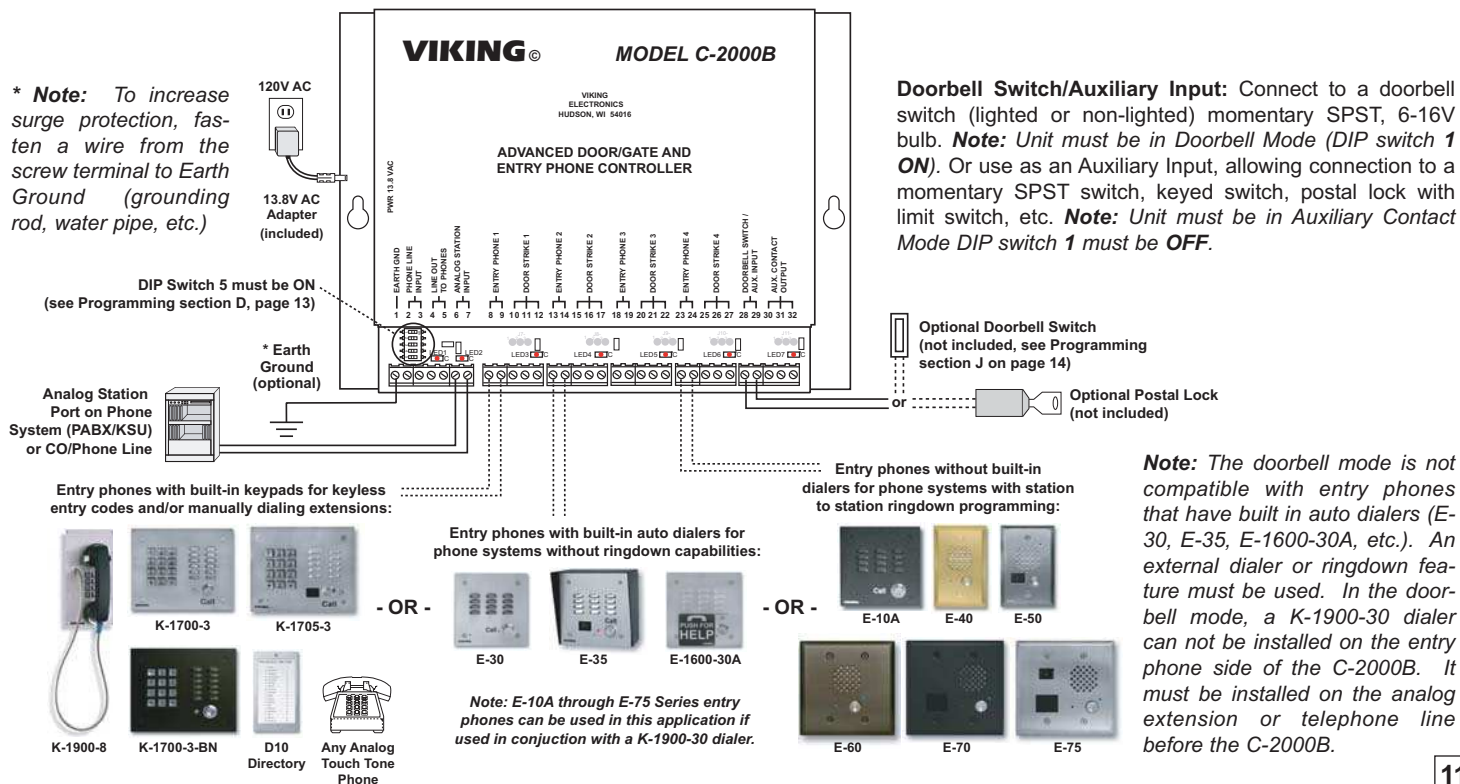
**IMPORTANT:** The following Installation and Applications, Programming and Operation sections (pages 11-16) are for use in the **Analog Station Dial Through Mode** only (DIP switch 5 ON). In this mode, the entry phone is allowed to access the analog PABX extension or telephone line the **C-2000B** is connected to. See the complete mode description on pages 3-4.

## Installation and Applications



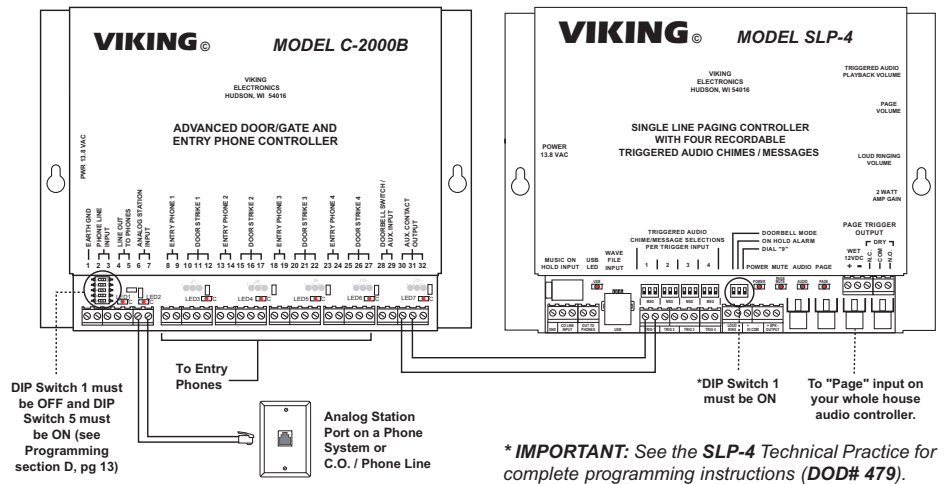
**IMPORTANT:** Electronic devices are susceptible to lightning and power station electrical surges from both the AC outlet and the telephone line. It is recommended that a surge protector be installed to protect against such surges.

### A. One to Four Entry Phones Connected to a Single Phone System Station Port or C.O. Line



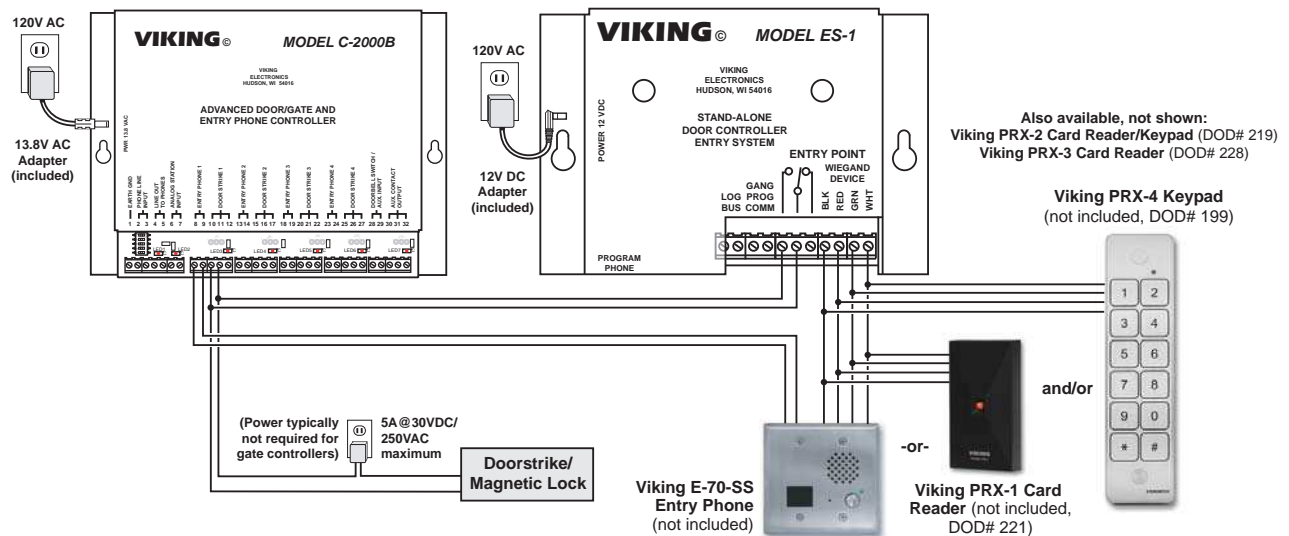
## B. Provide Four Different CD Quality Door Chimes and Control of up to Four Entry Phones and Doorstrikes with the Viking C-2000B and SLP-4

The **SLP-4** can be used with the Viking **C-2000B** entry phone controller. The **C-2000B**'s normally open Aux Contact Output connections, when wired to the **SLP-4**'s Trig1 input, will play the **SLP-4**'s DIP Switch selected recorded door chime whenever Entry Phone 1, 2, 3 or 4 call in. To provide up to 4 different door chimes, the **SLP-4**'s "Doorbell Mode" dip switch must be turned ON, and the **C-2000B** must have the "Auxiliary Contact Mode" enabled (DIP switch 1 OFF) and have the auxiliary contact programmed for "Entry Phone Triggered Ring Cadence Activation" (3#60). The voice page feature of the **SLP-4** can not be used in this application.



## C. Using the C-2000B with an E-70, E-75, Proximity Card Reader or a Keyless Entry Keypad

|                |   |
|----------------|---|
| <b>Step 1.</b> | Program the <b>ES-1</b> "Relay Activation Time" to match the "Doorstrike Activation Time" on the <b>C-2000B</b> . |
| <b>Step 2.</b> | Connect the <b>ES-1</b> relay output in parallel with the doorstrike output contacts on the <b>C-2000B</b> .      |
| <b>Step 3.</b> | Connect the entry phones and doorstrike outputs (if required) as shown in section A.                              |



# Programming

## A. Accessing Programming

### 1. Accessing the Programming Mode with a Security Code

|                |  |
|----------------|--|
| <b>Step 1.</b> | Call the station/extension the <b>C-2000B</b> is connected to.   |
| <b>Step 2.</b> | The <b>C-2000B</b> will answer the call and output a single beep.  |
| <b>Step 3.</b> | Enter <b>*#</b> followed by the six digit security code (factory set to <b>845464</b> , see <b>Programming</b> section C). |
| <b>Step 4.</b> | A double beep will indicate that you have accessed the programming mode.   |
| <b>Step 5.</b> | You can now touch tone program the features listed in section B, page 13.  |

### 2. Accessing the Programming Mode Locally (Security Code Bypass Mode)

|                |  |
|----------------|--|
| <b>Step 1.</b> | Move DIP switch 2 from <b>OFF</b> to <b>ON</b> (Security Code Bypass Mode, see <b>DIP Switch Programming</b> section D). |
| <b>Step 2.</b> | Call the station/extension the <b>C-2000B</b> is connected to.   |
| <b>Step 3.</b> | The <b>C-2000B</b> will answer the call and output two beeps to indicate you have accessed the programming mode.         |
| <b>Step 4.</b> | You can now touch tone program the features listed in section B.   |
| <b>Step 5.</b> | When finished programming, hang up and move DIP switch 2 to the <b>OFF</b> position.                                     |

## B. Quick Programming Features

|  | Enter Digits           | - then - | Memory Location |
|--|------------------------|----------|-----------------|
| Privacy Number (factory disabled) .....  | 0-6 digits (0-9)       | +        | #00             |
| Entry phone 1 keyless entry codes (factory disabled) .....                                   | 4-6 digits (0-9)       | +        | #11 - #16       |
| * Entry phone 1 one time use keyless entry codes (factory disabled) .....                    | 4-6 digits (0-9)       | +        | *#11 - *#16     |
| Entry phone 2 keyless entry codes (factory disabled) .....                                   | 4-6 digits (0-9)       | +        | #21 - #26       |
| * Entry phone 2 one time use keyless entry codes (factory disabled) .....                    | 4-6 digits (0-9)       | +        | *#21 - *#26     |
| Entry phone 3 keyless entry codes (factory disabled) .....                                   | 4-6 digits (0-9)       | +        | #31 - #36       |
| * Entry phone 3 one time use keyless entry codes (factory disabled) .....                    | 4-6 digits (0-9)       | +        | *#31 - *#36     |
| Entry phone 4 keyless entry codes (factory disabled) .....                                   | 4-6 digits (0-9)       | +        | #41 - #46       |
| * Entry phone 4 one time use keyless entry codes (factory disabled) .....                    | 4-6 digits (0-9)       | +        | *#41 - *#46     |
| Master keyless entry codes (factory disabled) .....  | 4-6 digits (0-9)       | +        | #51 - #56       |
| * Master one time use keyless entry codes (factory disabled) .....                           | 4-6 digits (0-9)       | +        | *#51 - *#56     |
| Doorstrike 1 activation time (.5 - 99 secs, factory set to 5 secs) .....                     | 2 digits (00-99)       | +        | #19             |
| Doorstrike 2 activation time (.5 - 99 secs, factory set to 5 secs) .....                     | 2 digits (00-99)       | +        | #29             |
| Doorstrike 3 activation time (.5 - 99 secs, factory set to 5 secs) .....                     | 2 digits (00-99)       | +        | #39             |
| Doorstrike 4 activation time (.5 - 99 secs, factory set to 5 secs) .....                     | 2 digits (00-99)       | +        | #49             |
| <b>** Auxiliary Contacts:</b>  |                        |          |                 |
| Auxiliary contact timing (.5 - 99 secs, factory set to 00 = .5 secs, DIP switch 1 off) ..... | 2 digits (00-99) ..... | +        | #59             |
| 1. Entry phone triggered timed activation (factory setting, DIP switch 1 off) .....          | 1 .....                | +        | #60             |
| 2. Entry phone triggered continuous activation .....   | 2 .....                | +        | #60             |
| 3. Entry phone triggered ring cadence activation .....                                       | 3 .....                | +        | #60             |
| 4. Auxiliary input triggered timed activation .....  | 4 .....                | +        | #60             |
| Maximum entry phone ring count (1-99 rings, factory set to 5 rings) .....                    | 2 digits (01-99)       | +        | #61             |
| Security code (factory set 845464) .....   | 6 digits (0-9)         | +        | #47             |
| Enable doorstrike latch/toggle commands (factory setting) .....                              | *7                     |          |                 |
| Disable doorstrike latch/toggle commands .....   | *8                     |          |                 |
| Ignore touch tones to program an entry phone .....   | ##1 - ##4              |          |                 |
| Reset all programming to factory default settings .....                                      | ###                    |          |                 |
| Hang up from programming .....   | ##7                    |          |                 |

\* **Note:** A keyless entry code can be programmed for **EITHER** an unlimited number of uses or one time use, **NOT** both. There can be a maximum of 6 keyless entry codes and/or one time use keyless entry codes per entrance.

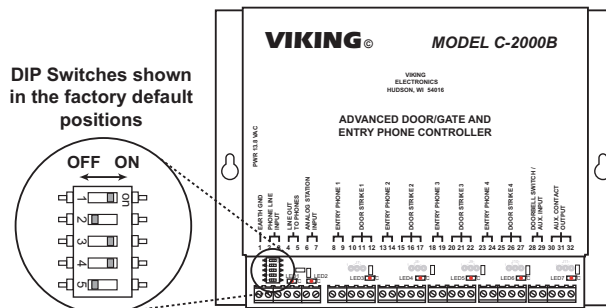
\*\* **Note:** Auxiliary contact programming is only to be used if the **C-2000B** is in the **Auxiliary Contact Mode** (DIP switch 1 OFF), see **DIP Switch Programming** section **D**.

## C. Security Code

This six digit number can be used to access the programming mode. The 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. To change the security code, access programming (see **Programming** section **A**). Enter six digits 0-9 followed by **#47**. If you have forgotten your security code, follow the steps in **Programming** section **A, 2. Accessing the Programming Mode Locally (Security Code Bypass Mode)**. **Note:** The security code must be six digits in length and can **NOT** contain a \* or #.

## D. Dip Switch Programming

| Switch | Position | Description  |
|--------|----------|--|
| 1      | OFF      | Auxiliary Contact Mode   |
| 1      | ON       | Doorbell Mode (factory setting)                                  |
| 2      | OFF      | Normal Operation Mode (factory setting)                          |
| 2      | ON       | Security Code Bypass Mode  |
| 3      | OFF      | * Entry Phone automatic disconnect (CPC) disabled                |
| 3      | ON       | Entry Phone automatic disconnect (CPC) enabled (factory setting) |
| 4      | OFF      | Entry Phone busy signal disabled                                 |
| 4      | ON       | Entry Phone busy signal enabled (factory setting)                |
| 5      | OFF      | Single Line Ring Through Mode (factory setting)                  |
| 5      | ON       | Analog Station Dial Through Mode                                 |



\* **Note:** Viking handsfree entry phones require CPC for faster automatic disconnect.

## E. Privacy Number

The "Privacy" number is factory disabled so an off-hook entry phone is automatically connected through to the analog PABX extension or telephone line. If a "Privacy Number" is programmed, an off-hook entry phone is provided with simulated dial tone and must touch tone dial the privacy number before they are connected to the analog PABX extension or telephone line. The "Privacy Number" may be from 1 to 6 digits and is stored in location "#00". To disable the "Privacy Number," clear the number's memory location by entering "#00" without any previous digits.

## F. Keyless Entry Codes and One Time Use Keyless Entry Codes

Each entry phone may have a combination of up to 6 keyless entry codes or one time use keyless entry codes for touch tone keyless entry. The keyless entry codes may be from 4 to 6 digits in length and are stored in locations #11 - #16 for entry phone 1, #21 - #26 for entry phone 2, #31 - #36 for entry phone 3, and #41 - #46 for entry phone 4. Up to 6 master keyless entry codes may be from 4 to 6 digits in length and are stored in locations #51 - #56. The master keyless entry codes can be used at any entry phone. To change any of the keyless entry codes to one time use, insert a \* in front of the specific memory location during programming (ie: "\*#11"). To clear any keyless entry codes, simply enter the location number (ie: "#11" or "\*#11") without any previous digits.

## G. Door Strike Activation Time

A single pole double throw relay is available for each entry phone (a second set of contacts are available on solder pads only), and each may be programmed with its own "doorstrike" activation time (programmed in seconds). Each time must be 2 digits (Example: 00 = 1/2 sec) and is stored in locations #19, #29, #39 and #49 for relays 1 through 4 respectively. All activation times are factory set to 05 (5 sec) **Note:** A buzz sound will be heard by the remote phone and entry phone, indicating the door strike relay has been activated and visitors can now open the door.

## H. Maximum Entry Phone Ring Count

The number of times a call will ring to an entry phone can be limited in programming. The maximum entry phone ring count determines the number of times an entry phone port will ring before the C-2000B hangs, when remotely calling the analog PABX extension or telephone line to monitor or program an entry phone. The programmable maximum ring count must be 2 digits and is stored in location "#61". The maximum ring count is programmable from 1 to 99 and factory set to (05) 5 rings..

## I. Ignore Touch Tones to Program Entry Phones (##1 - ##4)

This feature is useful if you have entry phones that require touch tone programming and can automatically answer inbound calls. All Viking handsfree entry phones have this capability. After entering the C-2000B programming mode and "##1" through "##4" is dialed, the C-2000B will send ring signal to the appropriate entry phone port. If the device on that port answers the line, the C-2000B connects the entry phone to the house phone and the C-2000B no longer reacts to any Touch Tones dialed from the house phones to the entry phone, allowing any programming the entry phone may require. If the entry phone does not answer within 5 rings (programmable – "maximum entry phone ring count"), 3 beeps will be heard and the C-2000B will exit the programming mode. When finished programming the entry phone, simply hang up the house phone and the C-2000B will exit the program mode and hang up the entry phone. Repeat this process for each entry phone that must be programmed.

## J. Doorbell Switch Input and Auxiliary Contact Output

### 1. Doorbell Mode (DIP Switch 1 ON - factory setting)

With the C-2000B in the doorbell mode (DIP switch 1 ON), a normally open switch (SPST 6-16V lighted or non-lighted doorbell button, etc.) can be connected to terminals 26 and 27 (DOORBELL SWITCH / AUX INPUT). This switch should be located near entry phone 1. Door chime power (normally connected to a doorbell button) can be routed through terminals 28 and 29 (N.O. AUX CONTACT OUTPUT). A momentary closure on the C-2000B DOORBELL SWITCH input terminals will momentarily activate the AUX CONTACT OUTPUT terminals for the same duration, activating your door chime. Entry phone 1 will be called, automatically answer (see the Technical Practice for your entry phone) and the entry phone is then connected to the analog PABX extension or telephone line. If the extension or phone line is a ringdown extension or an external dialer (model K-1900-5) is used, the call will ring the programmed number. When a remote party answers, doorstrike commands can be entered, etc. (see Operation sections A-E).

#### Notes:

1. This option can only be used if there is only one entry phone on the C-2000B.
2. If the user presses the doorbell switch again while their call is being completed or while talking to the remote party, the auxiliary relay will activate each time they press the doorbell switch (causing the doorbell to chime again).
3. A K-1900-5 dialer can not be installed on the entry phone side of the C-2000B. It must be installed on the analog extension or telephone line before the C-2000B.
4. The doorbell mode is not compatible with entry phones that have built in auto dialers (E-30, E-35, E-1600-30A, etc.). An external dialer or ringdown feature must be used.

### 2. Auxiliary Contact Mode (DIP Switch 1 OFF)

With the C-2000B in the auxiliary contact mode (DIP switch 1 OFF), the auxiliary contact output can be programmed (see Programming section B) to activate in 3 different patterns when entry phones 1-4 are off-hook. These patterns include a momentary activation, a continuous activation while the entry phone is in use, and a ring cadence pattern. A fourth programmed setting is also available for a timed activation of the auxiliary relay from a contact closure.

#### a. Entry Phone Triggered Timed Activation (5 second factory default with DIP switch 1 OFF)

With the entry phone triggered timed activation programmed (1 followed by #60), when any entry phone is activated, the auxiliary contacts will activate for the programmed time (0.5 - 99 seconds) in memory location #59 (see section K page 15).

**b. Entry Phone Triggered Continuous Activation**

With the entry phone triggered continuous activation programmed (2 followed by #60), when any entry phone is activated, the auxiliary contacts will activate continuously (latch) until the entry phone disconnects. This is ideal for controlling video cameras, lights, etc. Also in this mode, when a house phone has dialed a monitor command (#1, #2, #3 or #4) to connect to an entry phone, the C-2000B will latch the auxiliary relay during the “monitor” once the entry phone answers (so a camera or light can be activated while monitoring).

**c. Entry Phone Triggered Ring Cadence Activation**

With the entry phone triggered ring cadence activation programmed (3 followed by #60), when entry phone 1 is activated, a 1 second on and 3 seconds off auxiliary contact pattern is generated. When entry 2 is activated, a double burst contact pattern is generated. When entry phone 3 or 4 is activated, unique contact patterns are generated for use with SLP-1 and SLP-4. In the Analog Station Dial Through mode, the pattern is only provided once when the entry phone first goes off-hook, versus repeating like the Single Line Ring Through mode. This is ideal for controlling visual ring indicators, or connecting to a model SLP-1 or SLP-4 for unique door chimes.

**d. Auxiliary Input Triggered Timed Activation**

With the auxiliary input triggered timed activation programmed (4 followed by #60), a momentary contact closure on the DOORBELL/AUX INPUT will activate the auxiliary contacts for the programmed time (0.5 - 99 seconds in memory location #59, see section K below). The auxiliary contacts may be used to provide an additional relay or may be used to add doorstrike entry to an entry phone that does not have a touch tone keypad. The auxiliary input contacts may also be used for timed operation of other devices such as yard lights, etc. and can be triggered by the second set of auxiliary contacts (available through solder pads on the C-2000B PCB).

**K. Auxiliary Contact Timing**

To program the length of time the “AUXILIARY CONTACT” is activated when triggered from an entry phone or the “AUX INPUT”, enter 00 - 99 followed by #59.

# Operation

**A. Visitors**

When a visitor presses the call button (comes off-hook) on an entry phone, the C-2000B connects the entry phone to the analog PABX extension or telephone line. The entry phone can then use the line to dial an unlimited quantity of digits but will be disconnected from the extension or telephone line if either a “\*” or “#” touch tone is dialed. When someone remotely answers the call, they can dial “\*\*” to momentarily activate that entry phone’s doorstrike or hang up to terminate the call if entry is not granted (or dial “#” then hang up). If the doorstrike has been activated, a buzz sound will be heard confirming the strike operation.

If you require the door strike to remain on continuously (ie: a truck delivery), enter Touch Tones “\*1” to continuously activate that relay. A 5 second buzz sound will indicate the door strike relay is latched on. When the visitor calls in again (ie: they are finished unloading the truck), enter Touch Tones “\*0” to deactivate the relay. A short buzz will indicate the door strike relay is off.

In this mode, no caller ID data is generated by the controller and no “entry phone identifier beeps” are provided when the call is answered. Keyless entry codes can still be programmed per entry phone to provide keyless entry in the Analog Station Dial Through mode (see Operation section E). If one entry phone is using the analog PABX extension or telephone line and a second entry phone goes off-hook, the second entry phone will receive C-2000B generated busy signal until the analog PABX extension or telephone line becomes available. Remotely monitoring entry phones, forcing doorstrike relays to operate or programming entry phones is possible by calling the analog PABX extension or telephone line connected to the C-2000B. When an entry phone is connected to the analog PABX extension or telephone line, the C-2000B disconnects the entry phone from the line and hangs up the analog PABX extension or telephone line when a touch tone “#” is detected. If a touch tone “\*” is detected, the C-2000B disconnects the entry phone from the line and waits up to 2 seconds for the second digit of a valid doorstrike relay command before hanging up the analog PABX extension or telephone line.

**B. Monitoring**

Remote monitoring to an entry phone that supports auto-answering capability is possible by calling the analog PABX extension or telephone line the C-2000B is connected to and dialing “#1”, “#2”, “#3” or “#4” to call entry phones 1 to 4 respectively (C-2000B provides a single beep upon answering). All Viking Handsfree Entry Phones are equipped with an auto-answer feature.

**C. Activating Doorstrike/Gate**

The doorstrike relays can be remotely activated without calling out to the entry phone. This is accomplished by calling the analog PABX extension or telephone line the C-2000B is connected to and dialing a four digit touch tone string. Refer to the chart at the right for the dial strings. When you momentarily activate a doorstrike relay, it will activate for the amount of time specified in Programming, section G.

\* Note: The latch commands can be disabled (see Programming section B).

| Entry Relay | Momentarily Activate Doorstrike | * Latch Doorstrike | Un-Latch Doorstrike | *Toggle Doorstrike Relay |
|-------------|---------------------------------|--------------------|---------------------|--------------------------|
| 1           | #1**                            | #1*1               | #1*0                | #1*#                     |
| 2           | #2**                            | #2*1               | #2*0                | #2*#                     |
| 3           | #3**                            | #3*1               | #3*0                | #3*#                     |
| 4           | #4**                            | #4*1               | #4*0                | #4*#                     |

**CAUTION: Some strikes are designed for intermittent operation only. The latch and toggle commands should NOT be used with these intermittent strikes, or damage to the strike may occur. Only use the latch and toggle commands with strikes designed for continuous operation.**

## D. Privacy Number

The privacy number feature was originally designed for the Single Line Ring Through mode and is a feature that prevents unwanted (prank) entry phone calls from ringing the phones in the house. To use the feature requires entry phones that have touch tone keypads, as a user/visitor must dial the correct privacy number on a keypad to ring the phones in the house. The privacy number feature will rarely be used in the Analog Station Dial Through mode, but having a privacy number programmed does affect the operation in this mode.

If a privacy number has been programmed, an off-hook entry phone is given 4 seconds of simulated dial tone to allow the visitor to enter the privacy number. If the visitor enters the correct privacy number, the **C-2000B** will connect the entry phone to the analog PABX extension or telephone line. If they enter an incorrect number, they will be disconnected. If a privacy number is not programmed, an off-hook entry phone is immediately connected through to the analog PABX extension or telephone line.

## E. Keyless Entry Codes and One Time Use Keyless Entry Codes

touch tone keyless entry codes may be used to provide keyless entry. Each entry phone may have up to 6 keyless entry codes. There are also up to 6 master keyless entry codes which can be used at all four entry locations. When keyless entry codes have been programmed, an off-hook entry phone is immediately connected to the analog PABX extension or telephone line. If a touch tone “#” is detected from the entry phone within 4 seconds, the **C-2000B** disconnects the entry phone from the analog PABX extension or telephone line and waits for the entry phone to dial the “keyless entry code”.

A correct keyless entry code will provide a timed doorstrike activation for that entry phone location. One time use keyless entry codes function as described above but can only be used **ONCE**. After the one time use keyless entry code has been used, it is instantly cleared from the **C-2000B**'s memory. This is ideal for issuing keyless entry codes to service personnel, etc. **Note:** *A short buzz sound indicates when the relay has been activated and the visitor can now open the door.*

Keyless entry codes also affect the operation of the auxiliary relay contacts, if the auxiliary contacts have been programmed to trigger when an entry phone has went off-hook. This is when DIP switch 1 is set to the off position and the **C-2000B** is programmed for “entry phone triggered timed activation” (“1#60”), “entry phone triggered continuous activation” (“2#60”) or “entry phone triggered ring cadence activation” (“3#60”). With no keyless entry codes programmed, the auxiliary relay activates immediately when the entry phone goes off-hook. When keyless entry codes are programmed, the auxiliary relay will not activate if “#” plus a valid (or invalid) keyless entry code is dialed but will activate immediately in either of these cases: The first digit dialed by the entry phone is not a “#” or no digits are dialed by the entry phone for 4 seconds.

## F. Operation Commands

|   | <b>touch tone<br/>Commands</b> |
|---|--------------------------------|
| Activate doorstrike relay .....                           | * *                            |
| * Continuously activate (latch) doorstrike relay .....    | * 1                            |
| Continuously de-activate (unlatch) doorstrike relay ..... | * 0                            |
| * Toggle relay from last position .....                   | * #                            |
| Answer or disconnect an entry phone call .....            | #                              |
| Monitor entry phone 1 .....                               | # 1                            |
| Monitor entry phone 2 .....                               | # 2                            |
| Monitor entry phone 3 .....                               | # 3                            |
| Monitor entry phone 4 .....                               | # 4                            |

### \* Notes:

1. The latch commands can be disabled (see **Programming** section B).
2. The “toggle relay from last position” command (“\*#”) will NOT be accepted when a remote phone is connected to an entry phone. The toggle command will be accepted if a remote phone calls the analog PABX extension or telephone line and dials the toggle relay command without calling the entry phone (“#1\*#” to toggle doorstrike relay 1 from it’s current position for example).

**CAUTION:** *Some strikes are designed for intermittent operation only. The latch and toggle commands should NOT be used with these intermittent strikes, or damage to the strike may occur. Only use the latch and toggle commands with strikes designed for continuous operation.*

## G. Programming the Entry Phones

Many of the Viking handsfree entry phones are touch tone programmed with the extension number or phone number to dial, silence timing, vox switching speed and other timing and/or dialing options. The **C-2000B** has a “ring entry phone” programming feature that allows the remote programming of these entry phones. For complete details, see “Ring Entry Phones” in **Programming** section I. In the Analog Station Dial Through mode, this feature allows you to remotely program the **C-2000B** or any of the entry phones used.

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