INSTALLATION INSTRUCTION
CENCON® SWING BOLT SERIES

CENCON
ATM SECURITY LOCK

TABLE OF CONTENTS

KABA
MAS®

Please read all instructions carefully before you install and use your Cencon ATM Security Lock. This will help you avoid unnecessary costs and concerns resulting from improper installation.

The installation instructions are the basis for Security Agency Approvals. The lock installation must be done in accordance to these instructions in order to maintain the labeled approval level.

Cencon Lock Parts for Installation

Not Shown in Photo: Nylon Dial Spacer, Metal Dial Mounting Washer, Lubricant, Keypad Mounting Screws, Dial Mounting Screws.

Cables

Lock Case Mounting Screws (3)

Breakout Box

Front Cover & Keypad Assembly

Lock Case Assembly

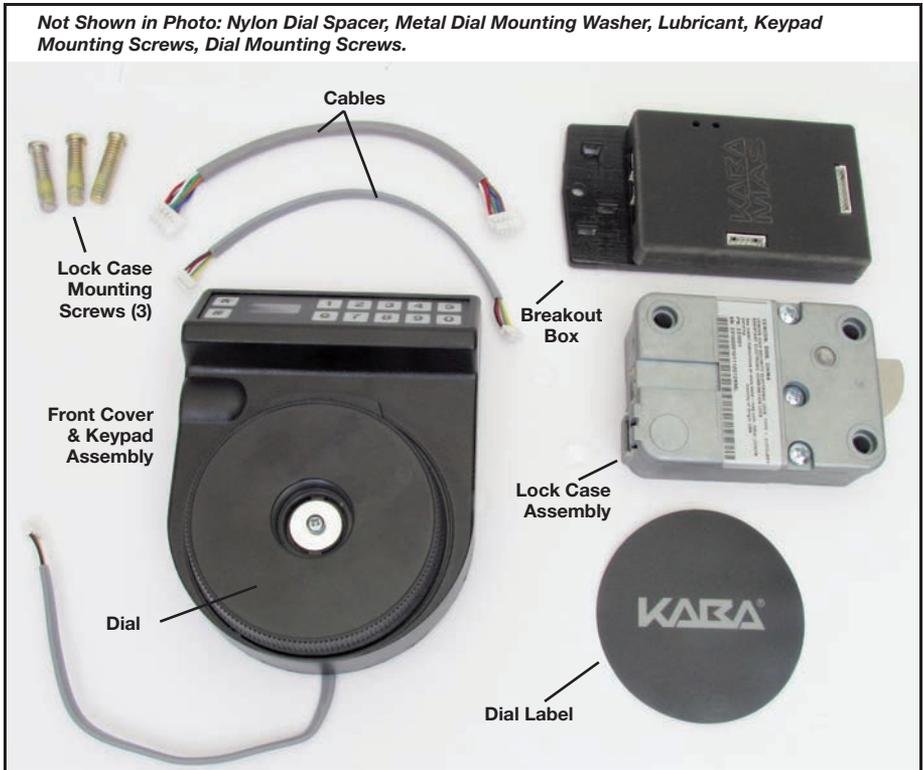**Dial**

KABA

Dial Label

Figure 1 - Parts

The installation instructions are the basis for Security Agency Approvals. The lock installation must be done in accordance with these instructions in order to maintain the labeled approval level.

In order to maintain VdS Class 2/EN 1300 Class B lock approval levels in a container where multiple locks are required, special considerations must be observed. The lock must be the first one secured by the boltworks. Check the locked status of the container with the handle of the boltworks.

BASIC TOOLS AND MATERIALS NEEDED

- Medium Phillips head screwdriver (#2) (recommended magnetized tip)
- ESD wrist band

Recommended, but not required:

- Torque screwdriver (30 inch-pounds/3.4 Newton-Meters capacity)
- Loctite® 262 (Red) for use on lock case mounting screws

WARNING: *Kaba Mas locks are protected from 25,000 V Electrostatic Discharge (ESD) damage when correctly installed. Follow these precautions to avoid ESD damage when installing the lock:*
- *Handle the keypad assembly by the outer edge only.*
- *Use an ESD wrist band grounded to the lock or container during installation.*

PREPARE FOR NEW INSTALLATION OF THE LOCK

1. Using the lock parts along with the template provided, establish the exact location for the drilled and tapped holes.

Caution: *The lock case must be mounted exactly according to the template if mounted over the cable routing hole. Otherwise, the lock case must be mounted so that no part of the case covers the cable routing hole.*

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2. The cable hole diameter can be a minimum of .406" (10.3mm) to a maximum of .438" (11.1mm). The .406" (10.3mm) diameter is recommended. The cable hole must be deburred.
3. The dial assembly mounting screws require drilled and tapped holes to 3/8" (9.5mm) depth if possible (minimum 1/4" or 6.4mm depth required.) Drill either the two horizontal mounting holes or the two vertical holes.
4. When mounting the lock unit (i.e., integrating it into a boltwork), make sure the lock bolt has clearance to freely move to its end positions and the shifting force works only in the axial direction (direction of movement). Lateral forces should not be exerted on the lock. A minimum clearance of 1/20" (1.27mm) is required between the flat edge of the bolt and the inside contact edge of the strike. (See Figure 2.)
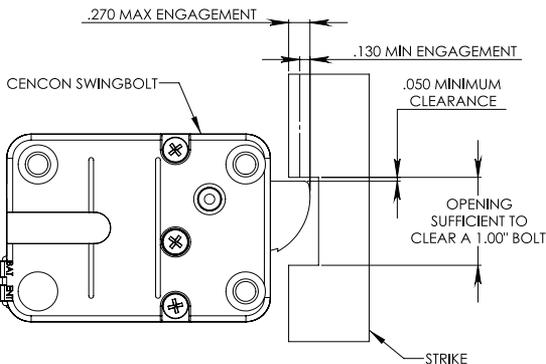

.270 MAX ENGAGEMENT
.130 MIN ENGAGEMENT
.050 MINIMUM CLEARANCE
CENCON SWINGBOLT
OPENING SUFFICIENT TO CLEAR A 1.00" BOLT
STRIKE

Figure 2 - Swing Bolt Clearances and Positioning

.215 MAX ENGAGEMENT

.130 MIN ENGAGEMENT

CENCON SWINGBOLT
WITH ALTERNATE BOLT

.050 MINIMUM
CLEARANCE

OPENING
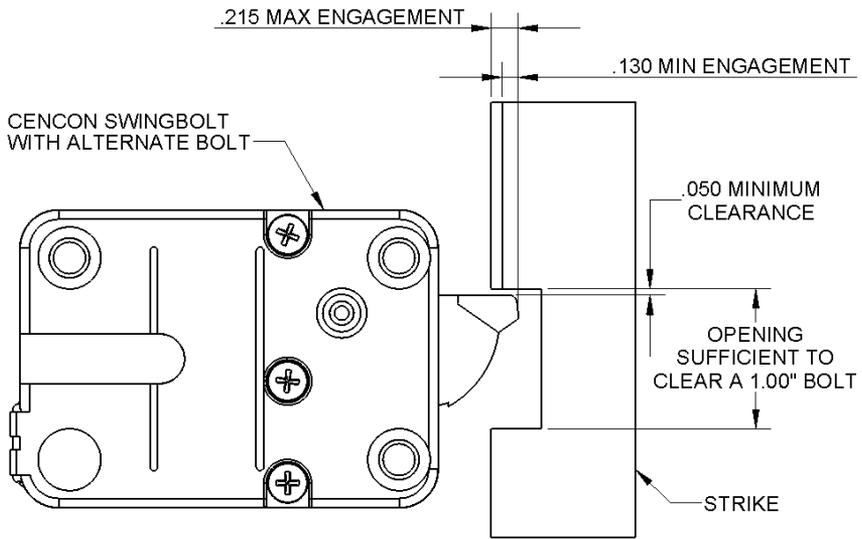SUFFICIENT TO
CLEAR A 1.00" BOLT

STRIKE

Figure 3 - Swing Bolt Hole Location Diagram

PART I: INSTALL FRONT HOUSING ASSEMBLY

NOTE: *Front housing should be complete in the box. If not, run through steps 1-4.*

1. Route the end of the lock cable with the Molex Pico-Spox™ connector from the back of the container door through the cable routing hole. (See Figure 4.)
2. Remove the front cover from the keypad/base assembly.
3. Hold the keypad/base assembly in the upright position (i.e., the keypad is positioned at the top) and hold the keypad in place. Guide the cable through the cable receiving hole from the back of the keypad/base assembly.
   4. Route the lock cable toward the keypad so the cable will not be pinched by the generator. Gently lift the keypad board assembly and guide the cable up through the cable receiving hole in the keypad/base assembly. (See Figure 5.)
5. Insert the Molex Pico-Spox™ connector on the end of the cable into the header on the keypad with proper orientation. (See Figure 6.)

Figure 4

Figure 5

4
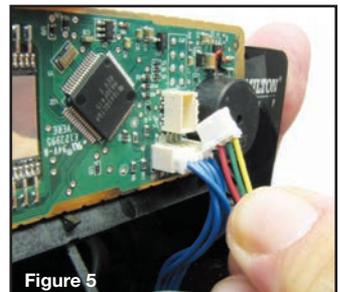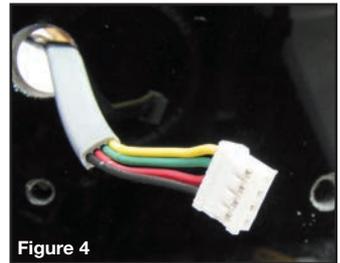
6. Insert the spindle from the back of the keypad/base assembly. (See Figure 7.)
7. Using ground strap, position the keypad/base assembly firmly against the container door and attach it to the container door/ground using the two #8- 32 (or M4-0.7) keypad/base assembly mounting screws. (See Figure 8.) Do not fully tighten screws.
8. Position the lock cable and the keypad so that it will not be pinched when the front cover is snapped into place.
9. Pull excess cable through to the inside of the container.
10. Tighten the keypad/base assembly mounting screws (Torque 17-20 lbs., 1.9-2.25 N-M). Make sure the ground cable is routed so that it's secured by the keypad/base assembly mounting screws. (See Figure 8.)
11. Center the front cover over the keypad/base assembly and gently snap into place.
12. Mount the front cover to the keypad/base assembly using the round mounting holes on the cover and the three #6-32 mounting screws (Torque 14-16 lbs., 1.6-1.8 N-M). (See Figure 9.)
13. Place the nylon dial spacer over the spindle.
14. Place the dial onto the spindle and seat into the dial bushing. Push gently on the dial so that the gear on the generator seats properly into the gear teeth on the dial.
15. Plug the Molex Pico-Spox™ cable into the lock case ENT port in order to test the lock. (See Figure 10.)
16. Test the operation of the lock before completing the installation of the front cover by verifying the following:
    • Ensure the dial turns freely without scraping.
    • Power the lock by turning the dial briskly in any direction until the display prompts Gen 2/ EC.

Key in the Factory Combination. (Enter "502550") If the combination is entered successfully, the lock will display **OPr**. Rotate the container handle to unlock. Then rotate the handle back to the locked position.

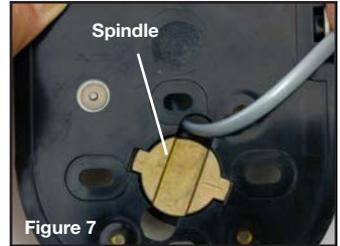**Note:** *After correctly entering a valid combination, you must retract the bolt within 4-6 seconds.*
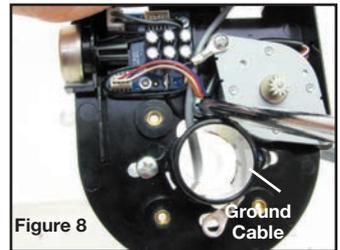

Figure 6

Spindle
Figure 7
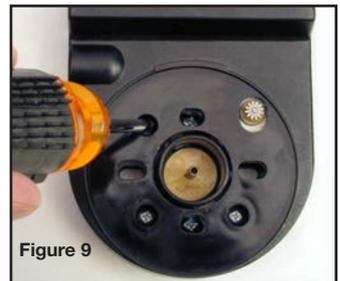

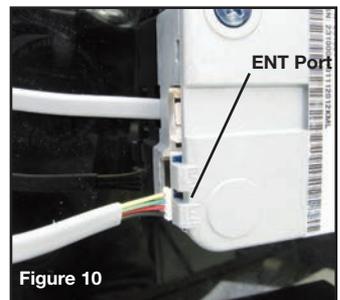**Figure 8**   Ground Cable

Figure 9

ENT Port
Figure 10

17. Unplug the Molex Pico-Spox™ cable from the lock case and lay the case aside.
18. After successfully testing lock operation, hold the cover assembly in place and remove the dial.
19. Apply a small amount of lubricant to the gear on the generator, the bearing surface of the dial (the portion that fits into the dial bushing of the base assembly), and the teeth around the edge of the dial.
20. Place the dial onto the spindle and seat into the dial bushing. Push gently on the dial so that the gear on the generator seats properly into the gear teeth on the dial.
21. Insert the #4-40 dial mounting screw through the metal dial mounting washer. Then insert the dial mounting screw/washer assembly into the spindle and tighten the dial mounting screw.

Caution: *To meet the requirements of certain approval agencies, a tamper evident dial label may have been included with your lock. It is important that the next step of the installation be completed very carefully, allowing the dial label to be applied correctly on the first attempt. If the tamper evident dial label is removed after initial application, a part of the label will stay on the dial. A new label would need to be ordered.*

22. Orient the lip of the dial to the upright position and apply the dial label to the dial. The Kaba logo should be aligned horizontally. (See Figure 11.)
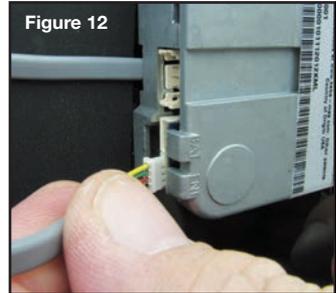
BREAKOUT BOX INSTALLATION

1. Take the double sided taped provided and mount it in a suitable location that will be under the boltworks cover. (See Figure 12.)
2. Attach the Molex Pico-Spox™ from the keypad into the ENT port on the lock. (See Figure 15.)
3. Attach the 10 pin serial connector to the lock case and then to the Breakout Box. (See Figures 14-15.)
4. Attach the Molex Pico-Spox™ cable to the BAT port on the lock and the other end to the Breakout Box. (See Figures 16-17.)
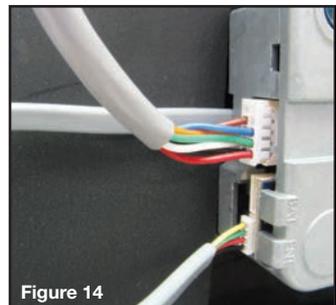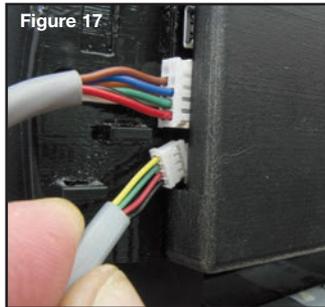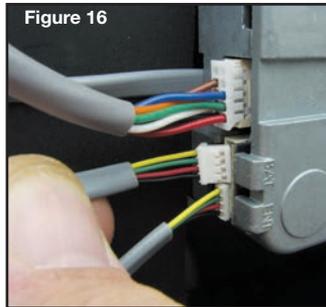

Lip of Dial

Figure 11

Figure 12

Figure 13

Figure 14

6

Figure 15

Figure 16

Figure 17

PART II: INSTALL LOCK CASE ASSEMBLY

WARNING: *Do not take the lock case assembly apart. The lock will not operate if the back cover has been removed.*

1. Ensure the cable lays in the cable channel as you mount the lock case assembly to the inside of the container door using the three 1/4-20 (or M6-1) screws (Torque 25-30 lbs., 2.8-3.4 N-M), allowing 1/20" (1.27mm) clearance between the lock bolt and the container locking bar. (See Figure 2 for proper clearances and positioning when installing a swing bolt.)

Note: *The lock case assembly can be mounted in bolt up position or bolt down position for all mounting locations. The movement of the boltworks must, however, contact the bolt on the flat edge, not on the rounded side of the bolt. It is recommended that you use Loctite® 262 (Red) on the lock case mounting screws.*

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Basic Lock Operations

For the complete Cencon lock and software operating instructions in FLM, Route, and Bank modes, please see the Cencon Reference Manual on the documentation section at www.kaba-mas.com.

Opening Lock in Shelved Mode

Each lock is shipped from the factory in Shelved Mode. The "one time only" combination feature is not available when the lock is shelved. Instead, the Shelved Mode combination is used to open the lock. The default Factory Combination is set to 50-25-50. The default combination may be changed, in which case the new combination would be used to open the lock while in Shelved Mode. The correct opening procedure for a shelved lock is:

1. **Power Lock → EC**
   Turn the dial briskly in any direction until the letters **EC** (**E**nter **C**ombination) appear in the display window.
2. **EC → Enter Shelved Mode Combination → OPr**
   Enter the current Shelved Mode combination, whether it be the Factory Combination of 50-25-50 or a new Shelved Mode combination, by sequentially pressing those digits on the lock keypad. The LCD will display the numbers as the combination is entered. When the combination has been correctly entered, the LCD will read **OPr**, meaning "**OP**en **r**ight."
3. **OPr → Retract Bolt**
   Rotate the container handle to unlock the lock.
4. **Open Door**
5. **Close Door**
6. **Extend Bolt** Rotate the container handle to extend the bolt.

Change the Shelved Mode combination

1. **Power Lock → EC**
   Turn the dial briskly in any direction until the letters **EC** (**E**nter **C**ombination) appear in the display window.
2. **EC → Enter Shelved Mode Combination → OPr**
   Enter the current Shelved Mode combination (either 50-25-50 or a changed Shelved Mode combination) by sequentially pressing those digits on the lock keypad. The numbers will be displayed on the LCD as they are entered. When the combination has been correctly entered, the LCD will read **OPr**, meaning "**OP**en **r**ight."
3. **OPr → Retract Bolt**
   Rotate the container handle to unlock the lock.
4. **Open Door**
5. **Power Lock →**
   Turn the dial briskly in any direction until **CLb** is displayed.
6. **CLb → Press #8 → EcF**
   Press the "#" button followed by the "8" button. **EcF** (**E**nter **c**urrent **F**actory combination) will be displayed.

7. **EcF → Enter Current Shelved Mode Combination → EnF**
   Enter the current shelved mode combination, "**EnF**" (**E**nter **n**ew **F**actory combination) will be displayed.
8. **EnF → Enter New Combination → CnF**
   Select and enter the new combination. "**CnF**" (**C**onfirm **n**ew **F**actory combination) will be displayed.
9. **CnF → Enter New Combination**
   Enter new combination again to confirm. **EOP** (**E**nd **o**f **P**rocess) will be displayed.
10. **Extend Bolt**
    Do not close the door. Rotate the container handle to extend the bolt.
11. **EC → Enter New Shelved Mode Combination → OPr**
    Turn the dial briskly in any direction until the letters **EC** (**E**nter **C**ombination) appear in the display window. Enter the new shelved mode combination by pressing those digits on the lock's keypad. The numbers will be displayed on the LCD as they are entered. When the combination has been correctly entered, the LCD will read **OPr**, meaning "**OP**en **r**ight."
12. **OPr → Retract Bolt**
    Rotate the container handle to unlock the lock.
13. **Close Door**
14. **Extend Bolt**
    Rotate the container handle to extend the bolt.

Wrong Try Penalty: *If the shelved mode combination is entered incorrectly a lightning bolt will appear and will continue to flash until the LCD powers down after 30 seconds or until the key is held down. 5 simultaneous wrong combination attempts will result in a "LCO" condition (LockOut). If this occurs, let the lock power down for at least 5 minutes, and then enter the correct combination to open the lock, clearing the LCO condition.*

Gen2 Lock Menu Command List

 # #   Display Audit Count (opening count)
 # 0   Perform SA Key Operations (audit download, resync, clock set, bank user table download, etc.)
 # 1   Display Lock Level
 # 2   Display Lock's Serial Number
 # 3   Display Lock's Total Audit Count
 # 4   Display Last Close Seal
 # 8   Change shelved-mode or bank user's combination
 # 50   Enable Remote Administration
 # 70   Display Active Modes and Activator Identification
 # 71   Display Internal UTC/GMT Date/Time
 # 72   Display Local Date/Time
 # 73   Display Key Type and Key Serial Number
 # 74   Display Door Contact Switch Status
 # 76   Display Activated Mode's Software Level
 # 77   Display Personal Identifier Clock
 # 78   Display Last Opening, Local Date/Time
 # 79   Display Activation Event, Local Date/Time

Lock requires mode user key to be presented.
All the prompts that request that a user key (blue FLM, yellow Route, or green Bank) will do so by displaying the "IPI" after the command is entered. The difference to note is that #73 and #77 will be reading and displaying information unique to a particular key, whereas ##, #4, #72, #76, #78, and #79 are reading which particular mode this key is associated with (FLM, Route, or Bank) and then displaying information for that entire mode.

Previous to a lock being activated in any mode, the prompts ##, #4, and #70, 72, 76, 78 and 79 will display the error. #72 only applies to Gen2 locks activated with a USB Key Box.

After a particular mode is shelved, the ## and #4 prompts will still display "" to give information about a mode the last time it was active, though the remaining #7x prompts mentioned will start showing the error again.

Cencon Lock LCD Terminology

The first step in learning the operation of the Cencon Lock is understanding what is shown on the display.

Note: *The Cencon LCD uses a 7-segment font, displaying up to 3 characters at a time. Some displays will be a mixture of numbers and both capital and lower case letters.*

Lock Displays/Prompts Used on Swing Bolt Gen2

1. = **DL** Dial briskly in either direction to power the lock.
2. = **EC** Enter Combination
3. = **OPr** Turn bolt handle to open the container door.
4. = **CLb** (**Change Key** Function Activated)
5. = **E**nter **C**urrent combination (Shelved mode/Factory)
6. = **E**nter **N**ew combination (Shelved mode/Factory mode)
7. = **C**onfirm **N**ew **c**ombination (Shelved mode/Factory mode)
8. = Lightning Bolt (Error); usually wrong combination
9. = **L**ock**O**ut condition due to 5 lightning bolts
10. = **I**nsert **P**ersonal **I**dentifier (key) 1
11. = **C**lose Seal number (where 0 is a number)
12. = **EOP** (**E**nd **O**f **P**rocess)
13. = "**?**" displayed when the command key (#) is pressed
14. = (##) - **S**eal **C**ount** for an active mode by user key
15. = (##) - **S**eal count** for a Shelved mode by user key
16. = (#1) - **L**ock firmware code **L**evel
17. = (#1) - **H**ardware **L**evel of lock back cover
18. = (#2) - **S**erial **N**umber of lock back cover
19. = (#3) - Total (**A**ll modes) opening Count
     **Seal count, Opening Count, and Audit Count are terms used interchangeably throughout the documentation.
21. = Indicates **G**en**2** lock during power-up
22. = **R**emote **L**ock **O**ut signal; keypad entry is prevented
23. = (#71) - **UTC**/GMT date and time of lock
24. = (#71) - Date, starting with **Y**ear, then Month, then Day
25. = (#71) - Time, starting with **H**our, then Minute, then Second
26. = (#73) - **C**encon **i**Button (key) Model Number
27. = (#73) - **C**encon iButton (key) Serial Number
28. = (#74) - **OP**ened **D**oor
29. = (#74) - **CL**osed **D**oor
30. = (#74) - **N**o door **C**ontact **C**onnection
31. = (#77) - UTC/GMT date and time on **P**ersonal **I**dentifier Key's **C**lock

For a full listing of Lock LCD Terminology, including displays only shown while the lock is activated, refer to the Cencon 4 Software Reference Manual, Appendix C.

Query the Lock via Keypad

The Gen2 lock allows the user to gather information in the field simply by pressing keypad commands, sometimes presenting their user key, and then reading the LCD.

DISPLAY LOCK LEVEL (#1)

It is sometimes necessary to determine the code level of the Cencon Lock with which you are working. This can be done through the keypad with the level displayed on the LCD. Use the following procedure:

1. Power the lock by turning the dial counterclockwise until **EC** is displayed.
2. Enter the **#1** keypad command.
3. All Gen2 locks will display "**LL-**" , "**G 2**", followed by 4 sets of 3 numbers, followed by "**HL-**" with 2 number pairs. If the LCD instead shows the letters "**LL-**" followed by a string of number pairs then "**HL-**" followed by 2 number pairs, then this lock is a Gen1 lock.

DISPLAY SERIAL NUMBER (#2)

The Gen2 lock's Serial Number is a 9-digit number. To display the Lock Serial Number, press "**#**" and then "**2**" when "**EC**" is displayed.

Until a time when the first 3 digits of the 9-digit serial number are non-zero, the lock will only display 6 digits. The Gen2 Cencon lock will display a series of two or three 3-digit numbers, depending on what the value of the first three numbers of the serial number are. When taken together, this series of numbers is the serial number of the lock.

Example 1: Gen 2 Serial Number (9 digits with first 3 digits "000")
Serial number of the lock is "000023456"
The lock will display "**Sn-**" followed by a series of two 3-digit numbers: "**023**" "**456**"

Example 2: Gen 2 Serial Number (9 digits with first 3 digits non-zero)
Serial number of the lock is "001348729"
The lock will display "**Sn-**" followed by a series of three 3-digit numbers: "**001**" "**348**" "**729**"

DISPLAY TOTAL AUDIT COUNT (#3)

The lock always keeps track of how many times it has been opened (Total Audit Count) no matter in which mode the opening occurred, including Shelved Mode, FLM, Route, and Bank. To learn the Total Audit Count, press the pound symbol, "**#**," followed by the "**3**" whenever "**EC**" is displayed on the LCD. The display will flash two sets of numbers alternately on the screen. When taken as one four-digit number, this represents the Total Audit Count. For instance, if the LCD flashes "**AC-**" then "**00**" followed by "**07**," the lock has a Total Audit Count of "**0007**," meaning the lock has been opened seven times in all modes combined. This display can be cancelled by pressing the asterisk () button. The Total Audit Count does not reset when the lock is shelved. Once the counter exceeds 9999 openings, the Gen2 lock begins displaying more digits.

DISPLAY INTERNAL GMT (UTC) DATE/TIME (#71)

The UTC/GMT date and time are initialized in a Gen2 lock at the time of manufacture at Kaba Mas. When #71 is pressed, the current lock date & time are displayed. This display can be canceled by pressing the asterisk (*) key, or it will automatically be canceled when the lock powers down.

For each of the commands that displays either current or historic Date and Time (#71, #72, #78, and #79), the format is the same: Starting from the largest time increment (4-digit Year) and moving down to the smallest (2-digit second). For readability, the date and the time are broken apart by the "**Hr-**" (hour) prompt in the middle.
(For example, "**UtC**", "**Yr-**", " 20", " 09", " 12", " 25", "**Hr-**", " 22", " 30", " 59")

DISPLAY DOOR CONTACT SWITCH STATUS (#74)

The Gen2 lock has a 4-pin signal input cable to optionally use Door Contact switches and for a Remote Disable function. After installing the door contact switches, the customer will want to determine the status of these sensor, often while the lock is still in factory mode, and later when the lock is activated.
(For example, "**OPd**" for "OPened door", "**CLd**" for "closed door", or "**nCC**" for "no door contact connection" accordingly.)

Note: *Check for Remote Disable Signal by entering 50-25-50 and looking for "rLO" on display before closing door.*

Note: *The audit features, the software features associated with peripheral devices and systems, the optional USB interconnect box and its associated features, features involving the use of user keys, and other additional features have not been evaluated by UL..*