ILCO
™
by Kaba

# INSTALLATION GUIDE

Remote Access Controller - 660G

# Table of Contents

# 1.0   Introduction and Disclaimers

## Target Audience

Please read and follow all directions carefully. These instructions are designed for use by lock installers or anyone who is familiar with common safety practices and competent to perform the steps described herein.

For a typical installation, no professional electrician is required because the RAC 660G is a low voltage installation system.

Kaba Lodging Systems is not responsible for damage or malfunction due to incorrect installation.

## Safety Procedures

Installation is to be done following standard safety procedures with adequate equipment prescribed herein and wearing adequate protection for body safety. Power is to be off during the installation process as well as for any maintenance procedures.

## Technical Assistance

**For technical assistance call
1-800-906-4526**

**OR**

**Visit the Kaba Support Website:**

**http://connect.kabalodging.com**

## Warnings and Cautions

⚠ **!** Please read and follow all directions carefully.

⚠ **!** Important: Carefully inspect windows, doorframe, door, etc. to ensure that the recommended procedures will not cause damage. Kaba Ilco's standard warranty does not cover damages caused by installation.

⚠ **!** Important: The RAC 660G should always be installed in a secured room or facility with controlled access to prevent access to the system.

⚠ **!** Caution: Wear safety glasses when making the holes.

# 2.0   Product Description

## 2.1  Features

The RAC 660G is designed to operate electrical locking or control devices where a stand-alone electronic lock is not practical. The system **can control any door or access point from up to 100 feet (30 m)** away. The 2X6 Keypad can be mounted directly on doorframes, while the 3X4 Keypad is wall mounted.

The RAC 660G is a simple access control solution for 1 Keypad providing features as per the features list on page 3. See figure 1 for a typical configuration.

Figure 1

**RAC 660G**

**Power Adapter**

**Keypad**
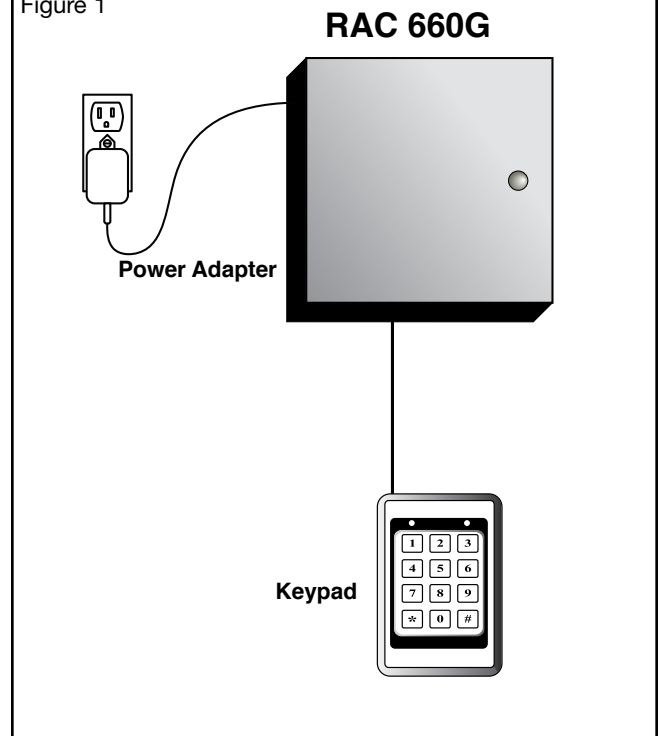
# 2.0 Product Description (Continued)

| Feature List 2.1: | |
|---|---|
| **Feature** | **RAC 660G** |
| Variable access delay | Standard |
| Power failure 3-day auto-recovery; real time clock (RTC) | Standard |
| Infrared (IR) programming & auditing | Standard |
| Relay bypassing (passage function) | Standard |
| Keypad reader | Standard |
| Unlock delay programmable by Dip Switches | Standard |
| Fire Alarm Input | Standard |
| Remote Unlock input (No Audit) | Optional |
| Request to Exit (REX) input | Optional |
| Single relay output | Standard |

## 2.2 Components



Figure 2
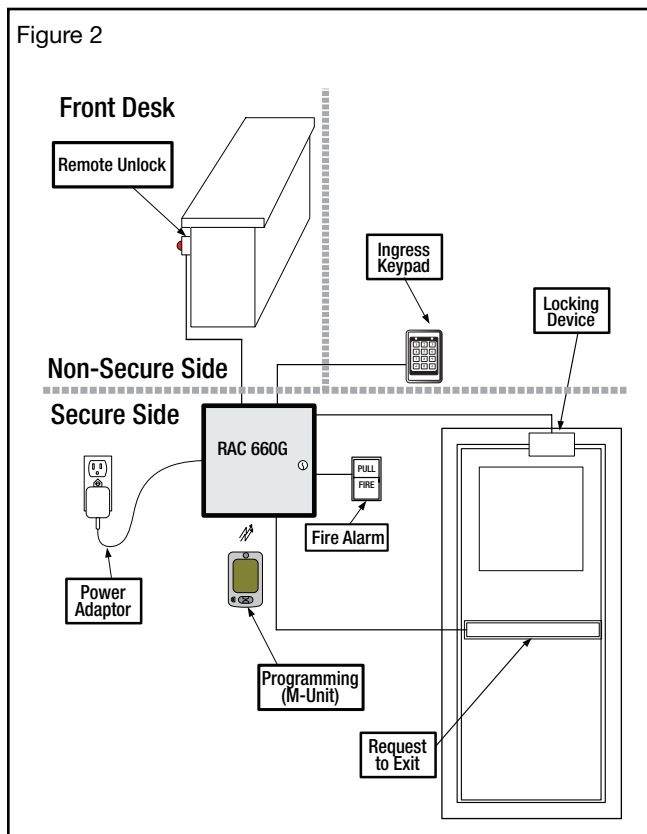
## 2.2.1 Keypad readers

Two types of keypads are available:



Figure 3



Figure 4

3 x 4 Wall mount          2 x 6 Narrow. Doorframe style
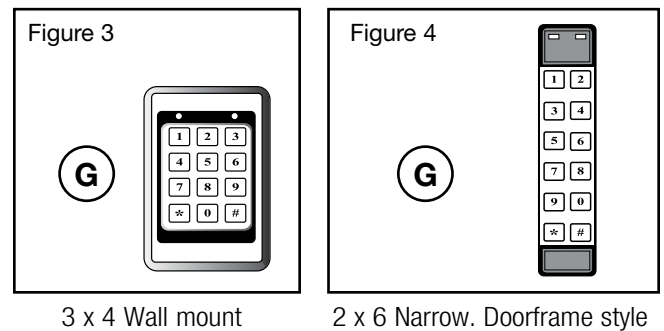
### 2.2.2 Controller box

(A) Enclosure with cover; metallic frame which contains the controller board, Knockouts are available on 3 sides of the box to give a wide range of possible installation configurations.
(B) Controller board; main board that controls all the features of the RAC 660G system.
(D) Cam-lock with key; included to provide controlled access to the enclosure and secure locking for the system.



Figure 5
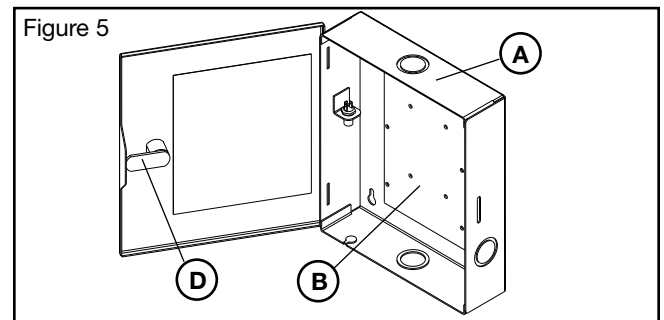
### 2.2.3 Locking devices

The RAC 660G provides one relay output that can be used to control one of the following locking devices. Either an Electric Strike (H) or an Electromagnetic Lock (I) or a Garage Door Opener (J).



Figure 6

### 2.2.4 Other optional components

The RAC 660G is a flexible Access Control Solution and can be combined with the following:

* Exit Devices
* Motion Detectors
* Panic Bars
* Request to Exit (REX) button
* Remote Unlock Button
* Key Override.

**NOTE: Refer to section 4 for further installation information.**

# 3.0 Checklist and Exploded Views

## 3.1 Parts and Tools List

For letter designation refer to figure 7 on following page.
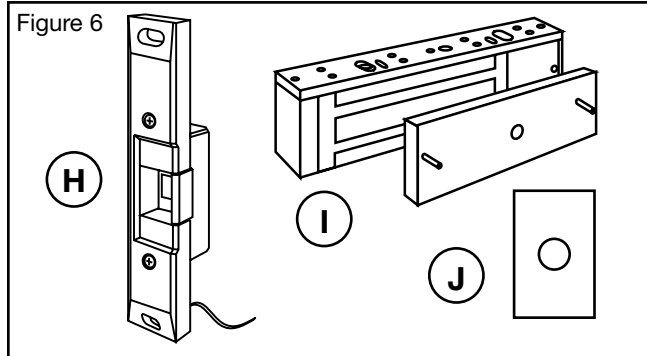
### Controller Box includes:

(A)  RAC 660G enclosure complete with access panel
(B)  RAC 660G controller board
(C)  Power jack cable assembly (not shown)
(D)  Cam lock

**Note: All items above come factory installed.**

### Hardware Bag includes:

(N)  4x Philips wood screw #8 x 1-1/4"
(O)  4x Nylon anchor #6 − 10
(P)  4x Concrete anchor #7 − 9
(Q)  1x Strain relief connector with locking nut
(R)  1x Strain relief bushing
(S)  2x Diode-rectifier
(T)  5x #8 steel flat washer
(U)  3x Crimp terminal B connector

### Power Adaptor includes:

(E)  1x International 12 VDC output adaptor with integrated power cable and Interchangeable AC outlet prongs.
     or
(F)  1x North American 12 VDC output adaptor with integrated power cable.

### Keypad includes:

(G)  1x keypad

### Locking Device

(H)  1x Electric strike
(I)   1x Electromagnetic Lock
(J)  Garage opener

### Programming Device

PALM (purchased separetely)

### Other Optional Components

(K)  REX (Request to Exit) NO or NC
(L)  Remote Unlock (Not shown) NO or NC

### Mandatory tools required:

* Safety glasses
* Electric drill
* 9/64" (3.5 mm) drill bit
* 7/32" (5.6mm) drill bit
* 1/4" (6.5 mm) drill bit
* 3/8" (9.5 mm) drill bit
* Philips screwdriver (#2)
* Slotted screwdriver tip width 3/32"
* Adjustable wrenches
* Crimp tool (18-22 AWG)
* Pliers
* Wire cutter / stripper
* Tie wraps

### Optional tools:

* Hammer or rubber mallet
* Awl or center punch
* Ink marker
* Tape
* Tape measure
* Fine steel file
* Cleaning supplies (drop cloth, vacuum)

# 3.0 Checklist and Exploded Views (Continued)

## 3.2 Exploded View

Figure 7

**Controller Box**

A

D

B

**Keypad Ingress**

G

2 x 6          or          3 x 4

**Peripherals / Optional Devices**

H

I

J

K

**Hardware Bag**

5x
T

4x
O

4x

2x
S

3x
U

P

1x
R

1x
Q

4x
N

**Power Adaptor**

F

North American

E

International

# 4.0 System Installation Overview

**NOTES:**
- For Installation of the keypad readers refer to the manufactures installation instructions.
- The RAC 660G provides ingress (entry) access to locations where stand alone locking devices cannot be used.

## 4.1 Pre-Installation Procedures

Before starting:
- Ensure that all cabling is available for the required wiring of peripherals as indicated in the instructions supplied with each product to be connected.
- Be sure to have all tools listed on the tool list in section 3.1.
- Be sure to have every component available as ordered for the RAC 660G system being installed, refer to the parts list in section 3.1.

### Step 1: Identify secure location for the controller box

> ⚠ **!** Important: Access to the control panel must be restricted to authorized personnel only. (ex: service)

> ⚠ **!** Important: If no AC power source is available near the desired control box location, a certified electrician must install an electrical outlet within 6 ft max of the RAC 660G system.

- If possible, the control panel should be mounted at a workable height with clearance to completely open the access panel near an unswitched AC power source.

- Make sure that the controller box can be secured to the wall or ceiling using the screws and anchors provided in the hardware bag.

- The controller box can be either placed horizontally in the ceiling or vertically on a concrete, wood, or plaster wall.

- The temperature in the chosen location must be between 32°F to 120°F (0°C to 49°C).

- The controller box must be in a location sheltered against **exterior elements, weather hazards and dripping wate**r.

- Do not use cord and wall outlets for mounting of the controller box. The unit must be fixed with the hardware supplied.

### Step 2: Identify location(s) for the keypad reader and required peripherals

> ⚠ **!** Important: All peripherals used by any RAC 660G user must be placed at standard height, prescribed by any local building legislation or regulations.

For ingress function, the keypad readers must be placed **within 100 feet (30m)** from the controller box. The keypad should be installed near the access door it controls at user's height. The location should be obvious and ergonomically efficient to any user.

### Keypad:

The space to use the keypad reader must be large enough to allow adequate clearance.

### Remaining peripherals:

Determine the location required for any other RAC 660G system peripherals (REX button, remote unlock, etc) and ensure that all required cabling is available as needed.

### Step 3: Set the desired access delay

The RAC 660G system factory default setting for the delay on access devices is 3 seconds. To change the value configure the controller board (B) dipswitch SW2 settings as per Annex A, Table 3.

### Step 4: Install strain relief

One strain relief (Q) is provided in the hardware bag to secure the wires leading into the controller box and help prevent the possibility of wire tampering.



Figure 8

**Compression Nut**
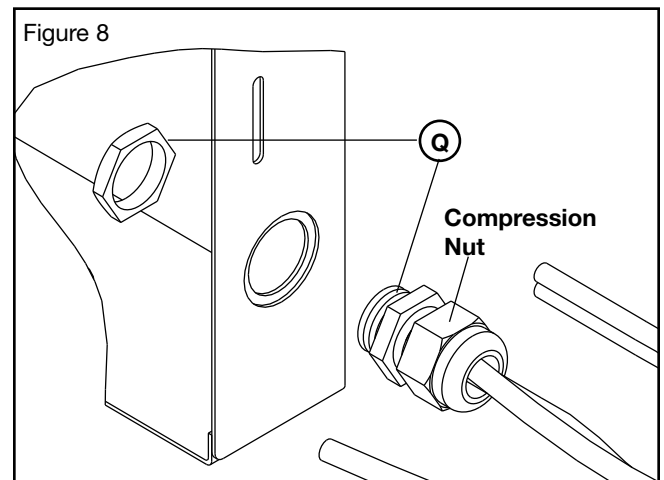
**NOTE:** The strain relief (Q) provided in the hardware bag has an opening diameter that is variable to allow for a variety of wires to be routed into the controller box. Do not attempt to route an excessive amount of wires. If extra strain relief(s) is required please contact Kaba.

# 4.0 System Installation Overview (Continued)

Determine the routing needed for the wiring of the RAC 660G peripherals (keypads, locking mechanism, etc) and as required select the knock-out(s) on the controller box to remove for installation of the strain relief(s).

To remove the selected knock-out(S), from the inner side of the controller box, use a hammer and screwdriver, and tap out the small metal disk.

Noting the amount of wires to route into the desired location, insert the strain relief and secure with the locking nut as shown in figure 8. Route all wires of the peripherals, into the controller box (A), leaving some extra length for subsequent steps. Tighten the compression nut of the strain relief (Q) and pull on the wires to ensure the desired strain relief effect is obtained.
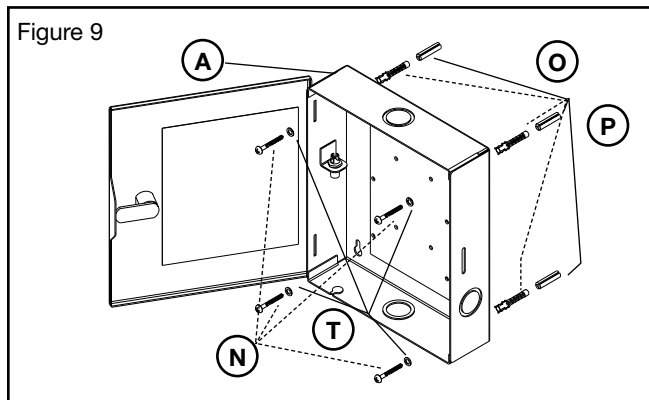
> ⚠ **!** CAUTION: Do not plug power adaptor into the AC outlet before the end of installation.

## 4.2 Installation Procedures

### Step 5: Mounting the controller box

1.  With proper tools, install the control panel in the desired location, using the screws, washers and required anchors in the hardware bag.



Figure 9

**NOTE:** For easier access it is recommended to remove the access panel before installation. If needed, keep it nearby to refer to the wiring label or refer to Annex A at the end of this manual.

> ⚠ **!** CAUTION: Wire routing must be according to any local building codes or legislations.

2.  Two types of power adaptors are available dependant of the countries where controller box is to be installed.

*   (E) For international applications;
    mainly Europe, UK or Australia using 220 VAC to 240 VAC, 50-60 Hz

    or

*   (F) For North American applications using 120 VAC, 60Hz

> ⚠ **!** CAUTION: The following steps are to be done after the appropriate power adaptor is selected, cables routed through the strain relief bushing (R) and secured, as per to step 8.

### Power adaptor (E) or (F)

1.  Prior to installing the International power adaptor (E), select the appropriate AC outlet prong from the set depending on the standard AC power source inlet in the country where the controller box is being installed.

2.  Fix the selected prong outlet on the International power adapter (E).

3.  **Out of the controller box**, route the wires to the AC power source and secure the wire (recommended with tie wraps).

4.  **In the controller box**, plug the power adaptor (E or F) cable into the power jack cable assembly (C) mounted in the inner wall of the controller box.

## Step 6: Connect wiring

> ⚠ **CAUTION: Do not exceed the maximum cable length indicated by the manufacturer of products being connected.**

> ⚠ **CAUTION: Refer to the wiring diagram in Annex A, or refer to label located inside the enclosure's cover. Follow the applicable steps depending on what peripherals need to be installed.**

> ⚠ **IMPORTANT: All peripheral wires are to be routed through the strain relief (Q) except the power adaptor (E or F); see step 4 for more details.**

> ⚠ **IMPORTANT: For peripherals, choose the appropriate wire gauge depending on the distance between the peripheral being installed and the controller board (B) Refer to manufactures wire gauge installation selections. Respect all building codes and local legislation relative to the wiring required.**

1. If the controller box is to be interfaced to a fire alarm panel, remove the jumper wire connected between pins 3 and 4 of J18 on the controller board (B) and complete the fire panel installation as desired.

2. If a request exit (REX) button (K) is being used, mount the button at the desired location and run a 2-conductor, cable from the control panel to the REX button location. Connect as per Annex A, Table 1.

**NOTE:** Refer to manufactures wire gauge installation selections.

**NOTE:** A motion detector may also be used for request exit. If this is required, use the same connection instructions as indicated above.

3. If a remote unlock button (L) is being used, mount the button at the desired location and run a 2-conductor cable from the controller board (B) to the remote unlock button location. Connect as per Annex A, Table 1.

**NOTE:** Refer to manufactures wire gauge installation selections.

4. Install a 2-conductor cable from the control panel to the location of the electric strike (H) or electromagnetic lock (I). Connect as per Annex A, Table 1.

**NOTE:** Refer to manufactures wire gauge installation selections.

5. Install the diode across the terminals of the electromagnetic lock (I) or, using the crimp terminal B connectors (U) provided in the hardware bag, install the diode across the two wires of the electric strike (H). Do not reverse the diode polarity, as indicated on the wiring diagram in Annex A.

> ⚠ **CAUTION: Diode must not be in contact with electromagnetic lock (I) or electric strike (H), or a short could be created. Diode ends might need to be cut shorter.**

**NOTE:** This step is not necessary if installing Rutherford Controls 83xx series electromagnetic lock.

6. Following local building code requirements, mount the electric strike (H) or electromagnetic lock (I) in the desired location and connect as per manufacturers' instructions. For connections into the controller box, connect as per Annex A, table 1.

## Step 7: Mounting and wiring keypad readers

**NOTE:** All keypad readers must be installed on a flat surface.

One Ingress keypad reader can be installed with the RAC 4.



Figure 10
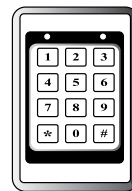
3 x 4 Wall mount          or          2 x 6 Narrow

# 4.0 System Installation Overview (Continued)

## Mounting Keypad Reader

!  IMPORTANT: The installation bag supplied with the kaypad reader includes screws for metal panel installation or insert and wood screws for drywall installation. Use the relevant screws according to which surface the keypad reader will be installed on.

!  IMPORTANT: Refer to drilling template in Annex C to select the drill size of the mounting holes for the keypad reader.

1. To install the keypad reader (G) in the desired location, use the template Annex C to mark the holes for the cable and screws.

2. Wearing safety glasses, drill the holes in the wall according to the diameters indicated in the drilling template dependent on the type of surface the keypad reader is installed on.

3. Connect the cable from the keypad reader (G) to the terminal blocks on the controller board (B) as per Annex A, Table 1.

4. Caution with keypad side table 5 or 12 volts. A jumper plug is installed on one of the pins. This is the default setting for 12 volt operation. Incorrect voltage selectable may cause damage refer to manufacturers specification document provided with reader.

## Step 8: Install strain relief bushing (for power adaptor only)

One strain relief bushing (R) is provided in the hardware bag to secure the power adaptor (E or F) cable leading into the controller box to help prevent the possibility of wire tampering.



Figure 12
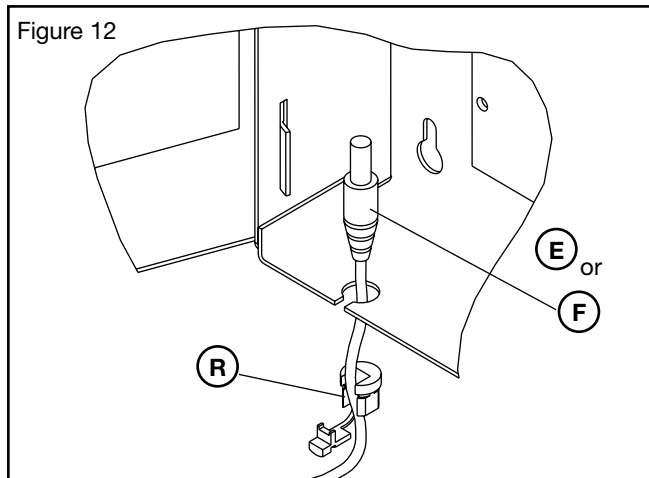
**NOTE:** The strain relief bushing (R) provided in the hardware bag has a movable attached plug. When the plug is removed, It leaves an opening that allows a double wire flat cable to be routed in.

Determine the routing needed for the wiring of the power adaptor (E or F) from AC power source to the controller box. Remove the keyhole knock-out, on the upper contour of the controller box.

To remove the knock-out, from the inner side of the controller box, use a hammer and screwdriver, and tap out the small metal disk.

Remove the movable plug from strain relief bushing (R), route the power adaptor (E or F) flat cable in. Leave a cable length long enough in the controller box to plug the power adaptor (E or F) cable into the power jack cable assembly (C) mounted in the inner wall of the controller box. To obtain the desired strain relief effect, firmly close the plug of the strain relief bushing (R) onto the flat cable.

Route the cable of the power adaptor (E or F) in the knock-out slot of the controller box. Insert the strain relief bushing (R) as per figure 12. The access panel of the controller box can now be closed

## Step 9: Completing the installation

1.  If the panel door was removed, reinstall the door on the RAC 4 enclosure

2.  Bend the two tabs of the panel door with pliers to a maximum of 30 degrees as shown in Figure 13.



Figure 13
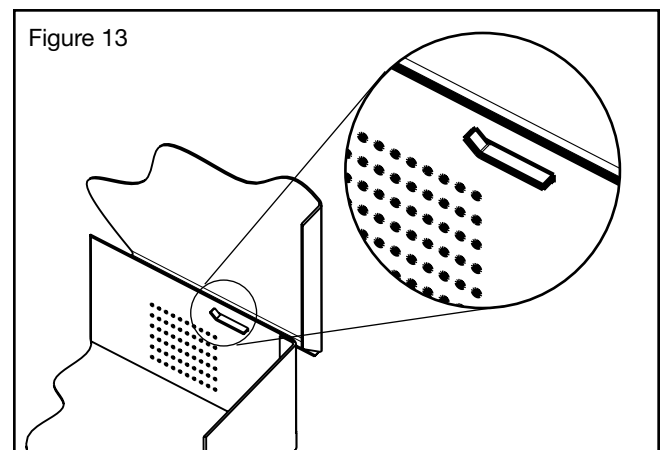
3.  Plug the power adaptor into the AC power source.

# 5.0 Setting and Operation

## 5.1 Testing

1. If not already done, connect the AC power adaptor, and / or turn on the AC current.

2. Verify that the Power Status LED on the panel is On.

3. Verify that the D43 LED on the controller board (C) blink continuously.

4. Activate the Bypass switch, SW3 on the controller board (C).

5. Verify that the locking device is activated.

**NOTE:** If the locking device is not activated, verify that the Fire Alarm input is properly connected, or a jumper wire is connected.

6. De-activate the bypass switch, SW3 on the controller board (C).

7. To test the kaypad reader enter a valid code. Verify that the door unlocks. The unlock time will correspond to the delay set by the DIP switches as per Annex A, Table 4.

8. If a REX button is connected, press it and verify that the door unlocks.

9. If a Remote Unlock button is connected, press it and verify that the door unlocks.

10. If the 660G is connected to a fire panel and the electromagnetic lock powered by the 12 VDC output of the 660G, verify that the electromagnetic lock or a fail-safe electric strike is deactivated when the fire alarm is active (open input).

11. The 660G is now ready to be Programmed.

## 5.2 Programming using an M-Unit

The controller can be programmed directly on the PCB via a PALM.

### Steps to program the RAC with PALM:

1. For step by step programming instructions, refer to www.kaba-ecode.com on line help getting started and maintenance unit.

2. Set the dip switch SW2 bank (OFF,OFF,OFF,OFF) refer to Access Delay Table SW2, Table 3, Annex A.

3. Toggle any one of the Four SW2 switches to ON. LED D45 should blink to indicate that the 660G is ready to communicate, LED D41 should be on.

4. On the PALM open the Oracode application software, select Door List, choose your door.

5. Hold the PALM in close proximity to D12 located near SW2 and tap "Program" on the PALM. When complete LED D41 should be on.

## 5.3 Reset to Factory Default

In the event the Door or Site ID of the premise is changed or a problem is suspected with the current configuration, the 660G will reset to default.

1. Note down the current DIP switch bank SW2 settings on the controller board (C) as this is the current delay setting for the peripherals used.

2. Set the switches on DIP switch bank SW2 on the controller board (C) to CFG #16 (OFF, OFF, OFF, OFF) as per Annex A, Table 4.

3. Verify that the initialization LED (D41) is OFF.

4. 660G is ready to be programmed. Refer to steps How to program the RAC 5.2.

5. Set the DIP switch positions back to the chosen access delay settings as noted above, or reset based on values shown in Annex A, Table 3.

## 5.4 Power Failure

In the event of an electrical failure, the system will recover automatically and should require no additional programming if the electrical power is restored within 3 days.

When electrical power is restored after a power failure, verify that a valid code is accepted normally with a single flash of the green LED on the keypad. If the green LED blinks twice, or if the code is refused, the 660G needs to be re-programmed (See section 5.2).

## 5.5 Loading Recommendations

> ⚠ **CAUTION: Do not exceed the load limitations of the control panel.**
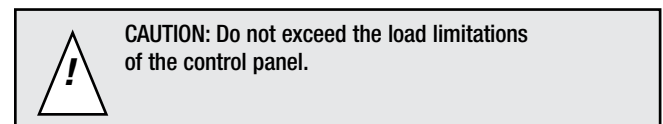
The maximum recommended load for all output relays in the keypad reader control panel is 1 Amp at 30 VDC. The current supplied by the controller board (B) for the locking device used is 0.75 Amps from connector J18, pin 1. Refer to Annex A, Table 1.
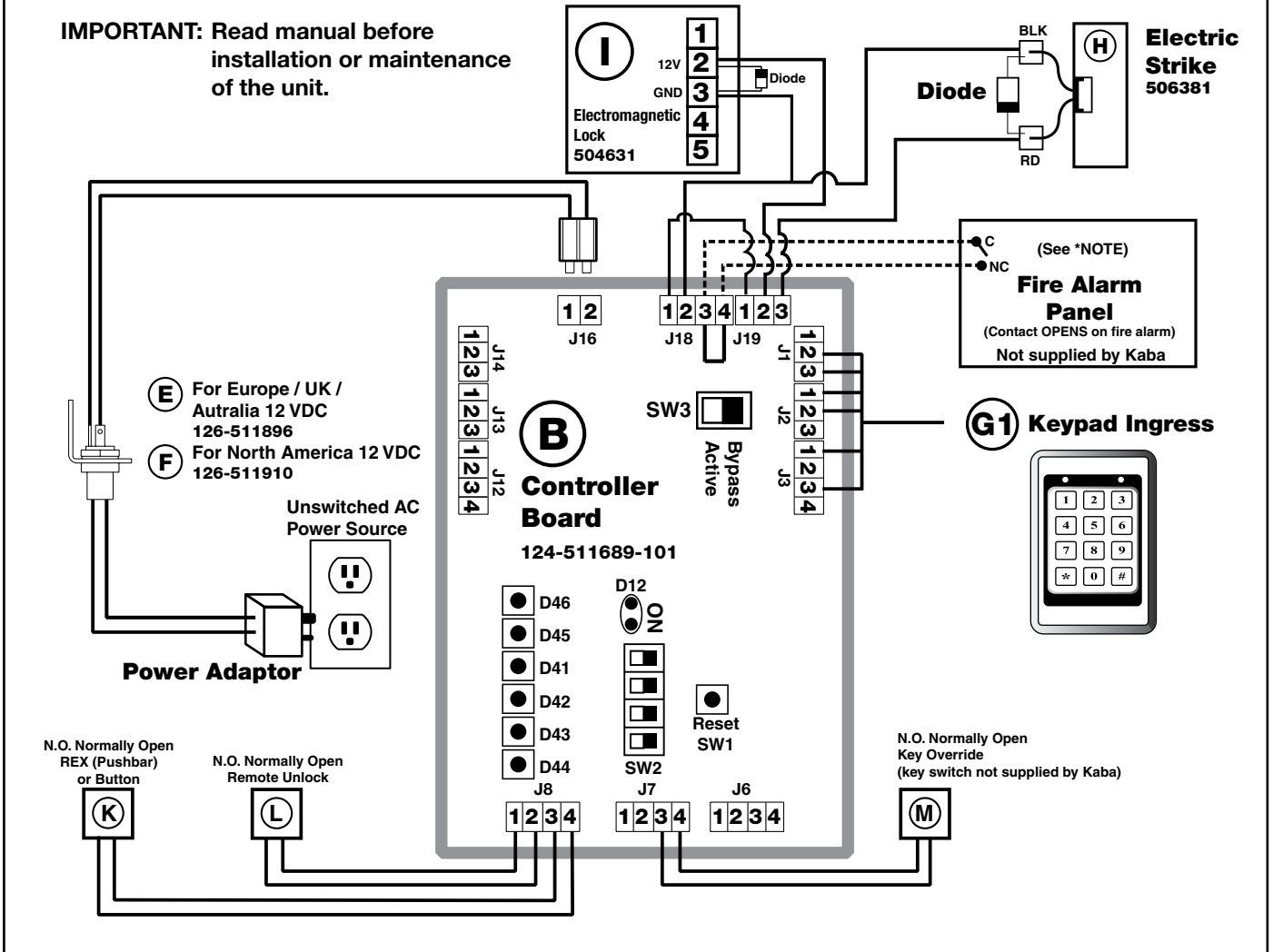
## 5.6 System Deactivation

In order to deactivate the keypad reader control panel, disconnect the AC power either by removing the power adaptor from the wall outlet, or by shutting off the main breaker switch for the AC line to the wall outlet the control panel is connected to.

# 6.0 Annex A Wiring Diagram and Tables

# Remote Access Controller - 660G

**IMPORTANT:** Read manual before installation or maintenance of the unit.

**I** — Electromagnetic Lock 504631
12V, GND, 1 2 3 4 5

Diode

**H** Electric Strike 506381
BLK, Diode, RD

(See *NOTE)
C
NC
**Fire Alarm Panel**
(Contact OPENS on fire alarm)
Not supplied by Kaba

**E** For Europe / UK / Autralia 12 VDC 126-511896

**F** For North America 12 VDC 126-511910

J14, J13, J12
J16 — 1 2
J18 — 1 2 3 4
J19 — 1 2 3
J1, J2, J3

**B** Controller Board
124-511689-101

SW3 — Bypass Active

**G1** Keypad Ingress

Unswitched AC Power Source

**Power Adaptor**

D46, D45, D41, D42, D43, D44

D12 ON

Reset SW1

SW2

N.O. Normally Open REX (Pushbar) or Button
**K**

N.O. Normally Open Remote Unlock
**L**

J8 — 1 2 3 4
J7 — 1 2 3 4
J6 — 1 2 3 4

N.O. Normally Open Key Override
(key switch not supplied by Kaba)
**M**

# 6.0 Annex A Wiring Tables

**Table 1**

| Description | Controller | ID | Wire Color | Description | Controller | ID | Wire Color |
|---|---|---|---|---|---|---|---|
| | | | | **Controller Board (B) to Peripherals Connections (E), (F), (G1), (H), (I), (J), (K), (L), (M)** | | | |
| | J1-1 | 5V | NO WIRE | Fire Alarm (H) Strike or (I) Maglock | J18-1 | 12V LCK | - |
| | J1-2 | GND | BLACK | | J18-2 | GND | - |
| | J1-3 | 12V | RED | | J18-3 | FIRE ALM | BLACK |
| * G1 Keypad Ingress | J2-1 | 1 (Data 0) | GREEN | | J18-4 | GND | BLACK |
| | J2-2 | 2 (Data 1) | WHITE | (H) Strike or (I) Maglock (J) Garage Opener | J19-1 | COM | - |
| | J2-3 | 3 | NO WIRE | | J19-2 | NC | - |
| | J3-1 | 1 (Green LED) | BROWN | | J19-3 | NO | - |
| | J3-2 | 2 | NO WIRE | (E) Power or (F) Adaptor | J16-1 | 12V | RED |
| | J3-3 | 3 (Red LED) | YELLOW | | J16-2 | GND | BLACK |
| | J3-4 | 4 | NO WIRE | (M) Key Override | J7-3 | NO | - |
| (L) Remote Unlock | J8-1 | REM UNL GND | - | | J7-4 | GND | - |
| | J8-2 | | - | | | | |
| (K) REX | J8-3 | REX GND | - | | | | |
| | J8-4 | | - | | | | |

**Note:** Connections required are dependant on system options purchased.
**Note:** Part numbers indicated subject to change. Please refer to ordering guide for current numbering.
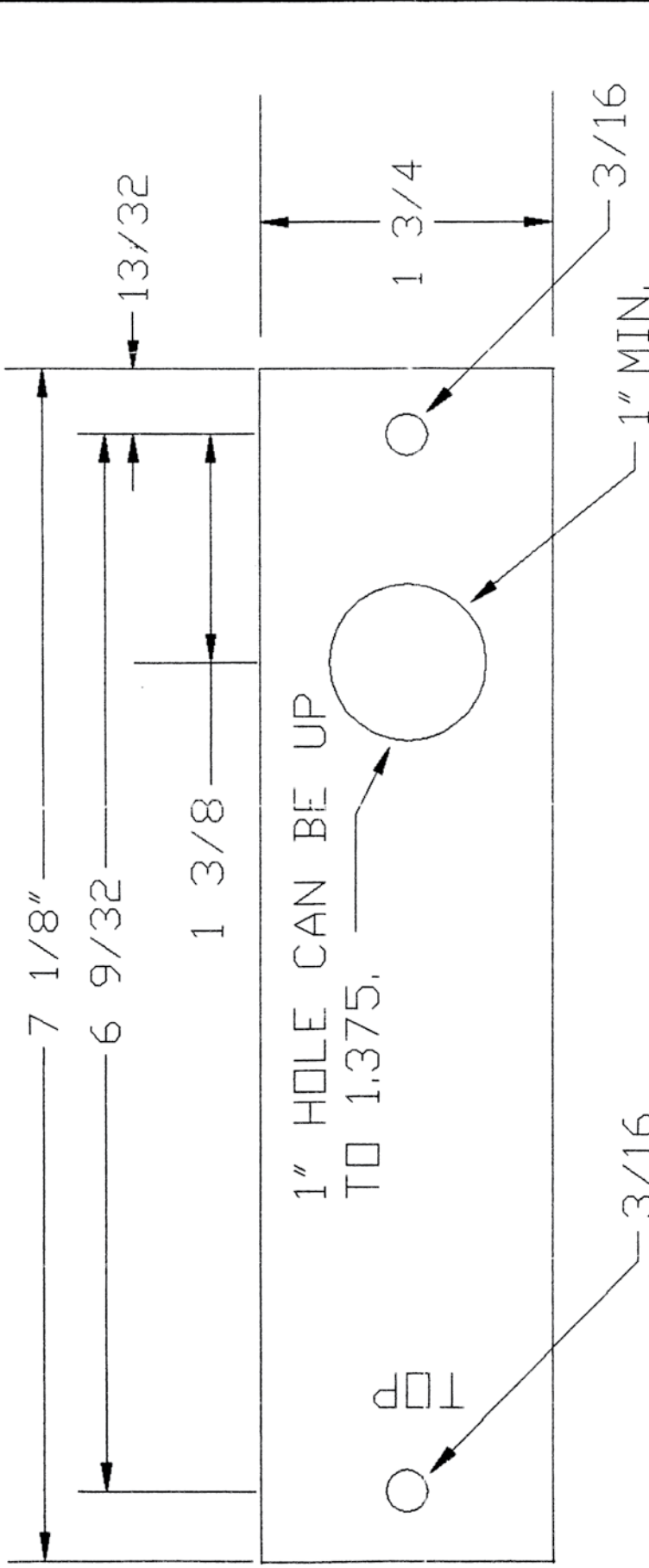
**Table 2**

| PCB Status LED's | |
|---|---|
| **LED** | **Description** |
| D46 | Keypad RED LED |
| D45 | Keypad GREEN LED |
| D41 | Initialization |
| D42 | Not Used |
| D43 | Normal Operation Blinking |
| D44 | Relay 0 |

**Table 3**

| Access Delay Table - SW2 on Controller Board | | | | | |
|---|---|---|---|---|---|
| **CFG#** | **1** | **2** | **3** | **4** | **SEC** |
| 1 | ON | ON | ON | ON | 8 |
| 2 | OFF | ON | ON | ON | 1 |
| 3 | ON | OFF | ON | ON | 3 |
| 4 | OFF | OFF | ON | ON | 5 |
| 5 | ON | ON | OFF | ON | 10 |
| 6 | OFF | ON | OFF | ON | 15 |
| 7 | ON | OFF | OFF | ON | 20 |
| 8 | OFF | OFF | OFF | ON | 25 |
| 9 | ON | ON | ON | OFF | 30 |
| 10 | OFF | ON | ON | OFF | 35 |
| 11 | ON | OFF | ON | OFF | 40 |
| 12 | OFF | OFF | ON | OFF | 50 |
| 13 | ON | ON | OFF | OFF | 60 |
| 14 | OFF | ON | OFF | OFF | 90 |
| 15 | ON | OFF | OFF | OFF | 120 |
| 16 | OFF | OFF | OFF | OFF | RE-INIT |

13/32

1 3/4

3/16

7 1/8"

6 9/32

1 3/8

1" MIN.

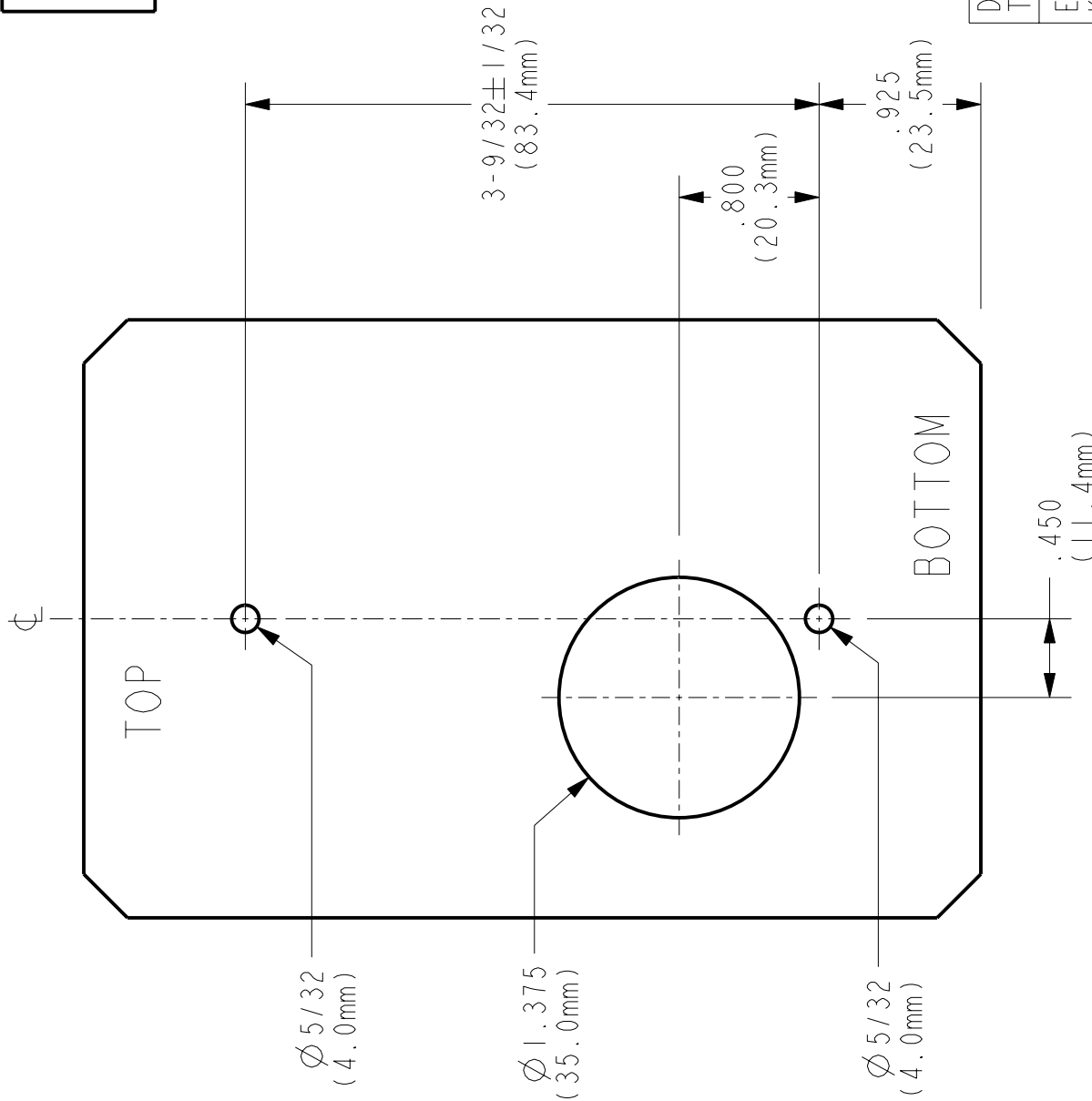1" HOLE CAN BE UP
TO 1.375.

3/16

TOP

MARK 3 HOLE LOCATIONS
DRILL 1" HOLE, HOLD KEYPAD AGAINST WALL, CHECK OTHER
HOLE LOCATIONS.
IF MOUNTING TO WOOD, DRILL
SMALL PILOT HOLES,
IF MOUNTING TO PLASTER
DRILL 3/16, INSTLL ANCHORS.

NOTES: UNLESS OTHERWISE SPECIFIED

# 6.0 Annex B Drilling Template

NOTES:
- SYMBOLS: - ⩊ DEEP
           - ℄ CENTER LINE OF DOOR
           - ⌀ DIAMETER
           - ⟷ NOT TO SCALE

DO NOT REPRODUCE SUPPORT
CONTACT 1-800-906-4526 CUSTOMER

DRILLING TEMPLATE
TOUCHPAD 3X4X12

ESSEX MODEL RII 23B
KABA P/N 120-512093

KABA®
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Montreal,QC Canada
H4P 2G7
www.kaba-ilco.com

DATE 07JN07
ECN 12487

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EST DISPONIBLE SUR DEMANDE.

DT-512386    REV-1

SHEET 1 OF 1

3-9/32±1/32
(83.4mm)

.800
(20.3mm)

.925
(23.5mm)

TOP

BOTTOM

℄

.450
(11.4mm)

⌀5/32
(4.0mm)

⌀1.375
(35.0mm)

⌀5/32
(4.0mm)

NOTES:
- MARK 3 HOLE LOCATIONS
- DRILL ⌀1-3/8 HOLE, HOLD KEYPAD AGAINST WALL,
  CHECK OTHER HOLE LOCATIONS
- FOR WOOD DRILL SMALL PILOT HOLES
- FOR PLASTER DRILL ⌀3/16 AND INSTALL ANCHORS

# 6.0 Annex C Quick Troubleshooting Guide

The following sections show basic troubleshooting for some common problems that may occur during installation. Each section relates to a specific type of problem, namely:

- Power Troubleshooting
- Keypad Troubleshooting

- External Inputs Troubleshooting
- Locking Device Troubleshooting
- Relay Expansion Board Troubleshooting
- Programming and Auditing Troubleshooting

For detailed assistance, please contact Technical Support as indicated at the start of this manual.

## 1. Power Troubleshooting

| Symptom | Action |
|---------|--------|
| All controller board (B) LEDs are OFF | - Verify that the RAC 660G controller is connected properly to the power adaptor as per Annex A, Table 1. <br> - Verify that AC power is active for the wall mount power adaptor. <br> - If qualified, with a multi-meter verify that 12VDC is present across J16-1 and J16-2 with the power adaptor connected and AC power turned on. |

## 2. Keypad Troubleshooting

| Symptom | Action |
|---------|--------|
| No LED, No sound when key is pressed | - Verify that the RAC 660G is powered. <br> - Verify the wiring to the keypad |
| Test sequence (#, 0, *, 9, 8, 7, 6, 5, 4, 3, 2, 1,) not accepted | - Verify the wiring to the keypad |
| Code not accepted. | - Verify that the RAC 660G controller is active: the Access (D43) LED should blink. If not, reset the RAC 660G Controller: press the Reset switch (SW1) or disconnect and reconnect the power. <br> - Verify the wiring to the reader. <br> - Verify that the 660G is programmed (LED D41 should be on), If not, program it. <br> - Re-program the RAC 660G. |

## 3. External Inputs Troubleshooting

| Symptom | Action |
|---------|--------|
| Request to Exit does not work | - Verify that the REX LED (D33) on the RAC 660G controller turns on when the button is pressed. If not, verify the wiring to the Request to Exit button. <br> - Verify that the wires are connected to the normally Open and Common contacts of the request to Exit Button. |
| Remote Unlock does not work | - Verify that the Remote Unlock LED (D36) on the RAC 660G controller turns on when the button is pressed. If not, verify the wiring to the Remote Unlock button. |
| Key Override does not work | - Verify that the key override LED (D40) on the 660G controller turns on when the key override is activated. If not, verify the wirring to the key override. |

## 4. Locking Device Troubleshooting

| Symptom | Action |
|---|---|
| Locking Device always unlocked | - If the Locking Device Relay LED (D31) on the RAC 660G controller is ON:<br>  • Verify that the delay setting of the DIP switch (SW2) is correct.<br>  • Verify that the lock is in not Passage Mode.<br><br>- If the Locking Device Relay LED (D31) on the RAC 660G controller is OFF:<br>  • Verify that the Bypass switch is not active (Bypass LED, D21, is OFF).<br>  • Verify that the Fire Alarm input not active (Input contact closed, Fire Alarm LED, D47, is ON).<br>  • Verify the wiring to the locking device. |
| Locking device does not unlock | - If the Locking Device Relay LED (D31) turns on:<br>  • Verify that the Fire Alarm input is not active (Input contact closed, Fire Alarm LED, D47, is on).<br>  • Verify the wiring to the locking device.<br><br>- If a diode is installed on the locking device, verify the polarity.<br><br>- If the locking device Relay LED (D31) does not turn on:<br>  • Verify that the Request to Exit or Remote Unlock activation unlocks the door.<br>  • Verify that the card is encoded properly.<br>  • Verify that the RAC 660G is not in Lockout mode.<br>  • Verify that the RAC 660G is programmed properly. |
| Fire Alarm does not Unlock door | - Verify that the Fire Alarm input is connected to a Normally Closed contact.<br><br>- Verify that the Fire Alarm LED (D47) is normally on and turns off when the Fire Alarm is present.<br><br>- Verify that the 12V_Lock output of the RAC 660G controller is connected to the COMMON of the locking device relay. |
| Unit Resets when the relay activates to unlock the door. | - If the diode is installed on the Electric strike as per Annex A, verify the polarity of the diode.<br><br>- Verify the wiring to the locking device. |

## 5. Programming and Auditing Troubleshooting

| Symptom | Action |
|---|---|
| Cannot program or audit the RAC 660G | - Verify that the RAC 660G controller is active: the Access (D43) LED should blink. If not, reset the RAC 660G Controller (press the Reset switch (SW1) or disconnect and reconnect the power).<br><br>- Verify that the 660G enters programming mode when *,#,*,#, is pressed, or when a DIP switch (SW2) is toggled. The FUNC 1 LED (D45) blinks when the 660G is in programming mode.<br><br>- The 660G controller must still be in programming mode with LED (D45) blinking when the Program or Audit command is selected on the M-Unit.<br><br>- Verify that the M-Unit is pointing toward the infrared Transceiver (D12) located beside the DIP switch (SW2) during programming and auditing. The distance between the M-Unit and the 660G controller should be a few inches (3 to 6 inches).<br><br>- If the RAC 660G is not initialized (Initialization LED, D41, is OFF)<br><br>- If the RAC 660G was already initialized, it may need to be re-initialized:<br>  • Follow the instructions in section 5.3 "Reset to factory default". |

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