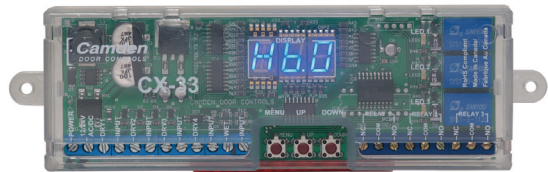


Electrified Locks, Relays and Timers

# CX-33 Advanced Logic Relay

## INSTALLATION INSTRUCTIONS

Firmware Version 3.2



### THIS PACKAGE INCLUDES:

- 2 - #6 x 3/4" Self Tapping Screws
- 1 - 1-1/2" x 1-1/2" Velcro
- 1 - 50Ω, 1W Resistor

## 1. GENERAL DESCRIPTION

The CX-33 is the latest generation multi-purpose logic control. It is designed to be versatile yet user friendly with easy to understand terminology and adjustments. The 15 different operating modes ensure it will be useful in nearly every automatic door or security application.

A total of 5 inputs (4 dry, and one wet or powered) allow for more flexibility in wiring to different types of activating devices. The wet or powered input is useful when connecting to 3-terminal radio receivers, telephone entry systems panels, or for connecting to motors when used as a Lock-out Relay.

The 3 buttons for mode selection, including separate UP and DOWN buttons, offer fast and easy programming. The large 3-segment display is the easiest to view and understand in the industry.

A total of 3 heavy-duty 3 amp relays allow for varied sequencing applications. For example, in restroom use, the third relay is ideal for "Occupied" or "In Use" signage.

(Note: outputs are dry, not powered.)

## 2. SPECIFICATIONS

Model	CX-33
Dimensions	7/8" H x 6" W x 2" D (22mm x 152mm x 51mm)
Enclosure	Clear plastic case
Mounting	(2) #8 screws or Velcro
Operating Temperature	-22° F to 185° F (-30° C to 85° C)
Display	Multi-segment LED
Programming	MENU, UP & DOWN buttons
Operating Voltage	12/24 Volts, AC/DC
Current Draw	105 mA standby, 320 mA max.
Inputs	4 x "dry" contacts; and 1 x "wet" contact (4.5 - 120V AC/DC, Optically isolated, non-polarity sensitive)
Response Time	0.5 seconds
Relay Output	3 x Form C (SPDT)
Relay Contact Rating	3 amps @ 24 VDC
Time Delays	Hold 1 timer: 0 - 50 seconds Delay 1 timer: 0 - 15 seconds Hold 2 timer: 0 - 50 seconds Delay 2 timer: 0 - 60 seconds Hold 3 timer: 0 - 50 seconds

## CX-33 Advanced Logic Relay

### INSTALLATION INSTRUCTIONS

## 3. INSTALLATION

**IMPORTANT:** Do not apply power to the unit until you have read the instructions fully and made the required adjustments.

### Mounting

The CX-33 should be mounted in a clean dry location out of direct contact with the elements. Suitable locations include inside a metal enclosure, operator header, or above a false ceiling.

The Display & LED's are visible through the clear plastic case, which also has cutouts for the programming buttons and terminal strips. Once the unit has been wired and adjusted, it may be tucked up into the operator header or affixed using the supplied Velcro or 2 sheet metal screws.

### Wiring

Wiring of this unit is dependent on the mode desired, however the following commonalities apply:

The unit will operate on 12 or 24 volts, AC or DC. Connect to Terminals 1 & 2, which are non-polarity sensitive.

**NOTE:** We *highly* recommend the use of a regulated power supply when powering equipment in certain modes such as the barrier-free washroom application where the strike power may be maintained from a few minutes to many hours. We offer a low-cost board-only regulated power supply - CX-PS13, which will supply clean, filtered & regulated 12 or 24VDC power for the strike and CX-33.

### General Programming Instructions

To enter the program mode, press the MENU button. The current operating mode will display. Each time you press the MENU button, the CX-33 will advance and cycle through all MENU options. These are:

Display	Description	Parameters
M	Mode you are in	1-15
H, then 1	Relay 1 Hold Time	0.0 to 50 Seconds
d, then 1	Relay 2 Delay Time	0.0 to 15 Seconds
H, then 2	Relay 2 Hold Time	0.0 to 50 Seconds
d, then 2	Relay 3 Delay Time	Depends on Mode
H, then 3	Relay 3 Hold Time	0.0 to 50 Seconds
d	Sets the display ON or OFF during operating mode	ON or OFF
A	Input delay on Activate. If other than 0.0 is selected, then the input must be held in for the time period chosen before the CX-33 will activate.	0.0 to 10 Seconds
1	Set Dry Input 1 to activate on normally open or normally closed contact.	N/O or N/C
2	Set Dry Input 2 to activate on normally open or normally closed contact.	N/O or N/C
3	Set Dry Input 3 to activate on normally open or normally closed contact.	N/O or N/C
4	Set Dry Input 4 to activate on normally open or normally closed contact.	N/O or N/C
5	Set Dry Input 5 to activate on normally open or normally closed contact.	N/O or N/C

Use the UP and DOWN buttons to change the value of each MENU item. (Holding a button down will increase the speed of scrolling). If you do not touch any button for 10 seconds, the CX-33 will return to Operating Mode. If you return to Program Mode within 10 minutes, you can resume where you left off. Otherwise the program will start with the first menu item, which is Mode.

**Factory Reset (Defaulting the CX-33)**

To return the CX-33 back to its factory default settings you will need to remove power, then hold down the “MENU” button while powering up the CX-33. Once started you will see the firmware version listed then a number “1” will be displayed. Reconnect your power and press the “MENU” button once then use the “UP” or “DOWN” button to advance to the desired mode.

**Factory Default Values:**

**Table 1**

Mode	Parameter											
	H1	D1	H2	D2	H3	D	A	Dry 1	Dry 2	Dry 3	Dry 4	Wet 1
1	4.0	1.0	2.0	1.5	2.0	ON	0.0	NO	NO	NO	NO	NO
2	4.0	1.0	2.0	1.5	2.0	ON	0.0	NO	NO	NC	NC	NO
3	4.0	1.0	2.0	1.5	2.0	ON	0.0	NO	NO	NC	NC	NO
4	4.0	1.0	2.0	1.5	2.0	ON	0.0	NO	NO	NO	NO	NO
5	4.0	1.0	2.0	1.5	2.0	ON	0.0	NO	NO	NO	NO	NO
6	4.0	1.0	2.0	1.5	2.0	ON	0.0	NO	NO	NO	NO	NO
7	4.0	1.0	2.0	1.5	2.0	ON	0.0	NO	NO	NO	NC	NO
8	4.0	1.0	2.0	1.5	2.0	ON	0.0	NO	NO	NO	NC	NO
9	4.0	1.0	2.0	1.5	2.0	ON	0.0	NO	NO	NO	NO	NO
10	4.0	1.0	2.0	1.5	2.0	ON	0.0	NO	NO	NO	NC	NO
11	4.0	1.0	2.0	1.5	2.0	ON	0.0	NO	NO	NO	NC	NO
12	4.0	1.0	2.0	1.5	2.0	ON	0.0	NO	NO	NO	NC	NO
13	4.0	1.0	2.0	1.5	2.0	ON	0.0	NO	NO	NO	NO	NO
14	4.0	1.0	2.0	1.5	2.0	ON	0.0	NO	NO	NO	NC	NO
15	4.0	1.0	2.0	1.5	2.0	ON	0.0	NO	NO	NO	NO	NO

**Programmable Inputs**

The Dry and Wet Inputs are programmable to accept either a Normally Open contact or a Normally Closed contact. Table 1 shows the default settings for all modes.

Changes made to the inputs are saved and will remain even through a power cycle. Once the Mode is selected, changes to the inputs can be programmed. If the Mode is changed, the inputs are set to their default values for that mode. If the Mode is set back to the previous mode, **all input programming changes are lost, and the default values are restored.**

For example, the mode is set to Mode 7. *Dry 4 is reprogrammed to accept a NO contact. The mode is changed to Mode 8 and then changed back to Mode 7. Dry 4 is now defaulted to accept a NC contact.*

**Wet Input**

The Wet Input activates at 4.5V AC/DC and will deactivate at 2.8V AC/DC. Some older telephone entry panels outputting wet signals, do not typically reduce their output to 0V when inactive. There is typically a stray voltage that can exceed 3v which does not deactivate the Wet Input. In these cases, please use the provided 50Ω, 1Watt resistor in series with the Wet Input.

## CX-33 Advanced Logic Relay

### INSTALLATION INSTRUCTIONS

Setup Instruction Applications:			
Mode	Application	Location	
Mode 1	3-Relay Switching Network	Section 3A	Page 4
Mode 2	2-Door Airlock (Timed)	Section 3B	Page 4
Mode 3	2 Door Airlock (Latching)	Section 3C	Page 5
Mode 4	Bi-Directional Door sequencer with lock	Section 3D	Page 5
Mode 5	Apartment / Condo Applications	Section 3E	Page 5
Mode 6	Access Control Applications	Section 3F	Page 6
Mode 7	Restroom Control (normally unlocked)	Section 3G	Page 6
Mode 8	Restroom Control (normally locked)	Section 3H	Page 6
Mode 9	Lock-out Relay with switching network	Section 3J	Page 7
Mode 10	Low Energy S.A.M. with switching network	Section 3K	Page 7
Mode 11	Mag Lock with N.O. Fire Alarm input	Section 3L	Page 8
Mode 12	Mag Lock with N.C. Fire Alarm input	Section 3M	Page 8
Mode 13	Special Purpose Sequencer	Section 3N	Page 8
Mode 14	Delayed Egress Mode	Section 3P	Page 8
Mode 7	Lock-Down Mode	Section 3Q	Page 8
Mode 15	Bi-Directional with Access Control Sequenced with Access Control Input	Section 3R	Page 9
System Inspection Instructions			Page 9
Technical Specifications & Warranty			Page 9

### 3A (Mode 1): 3 Relay Switching Network

This mode sequences all 3 relays (in one direction), using what we call “mixed mode triggering”. Some popular applications include basic strike and operator installations, smoke evacuation, stairwell doors, or latching applications.

Refer to **Diagram 1**, (Page 11) for the following connections.

For momentary devices, wire to either DRY 1 or WET 1 input terminals. Wire a maintained device to DRY 3 input if you wish to hold relay 1 (a lock for example). Wire a maintained device to DRY 2 input if you wish to hold relays 2 & 3 (ie -door operators).

Input number 4 is for latching applications. Each momentary switch closure will toggle relays 2 & 3.

Once input and output connections are made, program the unit according to the General Programming Instructions on page 1, and walk-test the installation. Timing adjustments may need to be made.

If Hold time is = 0, the relay doesn't turn on. If Delay time = 0, then the relay comes on immediately. For example, if you wish to set Relay 2 & 3 to both come on at the same time, set D2 time to zero (0.0).

In addition, you can add a “Delay-on-activate” (or nuisance delay) to this mode by setting time via Step 8 of the Program Mode. If this feature is used, any input will have to be held for at least the time indicated on the display **before** the CX-33 will activate. If this feature is not wanted, set the time to zero (0.0)

Once the desired operation is achieved, proceed to Section 4, Pg 9 for **System Inspection Instructions**.

### 3B (Mode 2): 2 Door Timed Airlock

Utilizing door position switches (Camden CX-MDC or equivalent), this mode ensures that only one door in an airlock will be open at a time. Each output hold time is adjustable from 1 – 50 seconds. 3 outputs allow for one of the doors to have an electric lock and a door operator. (Alternatively, the doors could have locks only and no operators.)

Refer to **Diagram 2**, (Page 12) for the following connections.

Wire the activating device(s) for Door #1 to DRY 1 terminals. Wire the activating device(s) for Door #2 to DRY 2 terminals. Wire the respective door contact switches to Inputs 3 & 4. (The contact circuit must be closed when the door is closed).

Wire the outputs as shown. If a lock is not used, set H1 & D1 timers to zero (0.0), and Relay 1 will be ignored.

Once input and output connections are made, program the unit according to the General Programming Instructions on page 1, and walk-test the installation. Timing adjustments may need to be made.

*It is NOT recommended to add the "Delay-on-activate" (or nuisance delay) feature in this mode!*

Once the desired operation is achieved, proceed to Section 4, Pg 9 for **System Inspection Instructions**.

### **3C (Mode 3): 2 Door Latching Airlock**

Utilizing door position switches, (Camden CX-MDC, or equivalent) this mode ensures that only one door in an airlock will be open at a time. Providing the opposite door is closed, one switch activation will latch open (unlock) the door, and the second activation on the same input will allow the door to close (lock). 3 outputs allow for one of the doors to have an electric lock and a door operator. (Alternatively, the doors could have locks only and no operators.)

The CX-33 is unique in the industry because it also provides the ability to add an adjustable "Walk-away" time. If the door input has been activated but the door has not been opened, the relay will reset (re-lock). Both doors have their own respective adjustable timers. (If the time is set to zero, then this feature is disabled).

Refer to **Diagram 3**, (Page 13) for the following connections. Wire the activating device(s) for Door #1 to DRY 1 terminals.

Wire the activating device(s) for Door #2 to DRY 2 terminals. Wire the respective door contact switches to Inputs 3 & 4. (The contact circuit must be closed when the door is closed).

Wire the outputs as shown. If a lock is not used, set H1 & D1 timers to zero (0.0), and Relay 1 will be ignored.

Once input and output connections are made, program the unit according to the General Programming Instructions on page 1, and walk-test the installation. Timing adjustments may need to be made.

*It is NOT recommended to add the "Delay-on-activate" (or nuisance delay) feature in this mode!*

Once the desired operation is achieved, proceed to Section 4, Pg 9 for **System Inspection Instructions**.

### **3D (Mode 4): Bi-Directional Door Sequencer**

This mode sequences all 3 relays in both directions, also known as bi-directional door sequencing.

A basic 2-door sequencer with just two inputs and two outputs is

shown in **Diagram 4a** (Page 14). A more complex sequencer utilizing 4 switch inputs, and allowing for one door with an electric lock is shown in **Diagram 4b** (Page 15).

DRY 1 or WET 1 inputs sequence Relay 1 to Relay 2 to Relay 3.

DRY 2 input sequences Relay 3 to Relay 1 to Relay 2.

Input 3 only sequences Relay 1 to Relay 2, and Input 4 only activates Relay 3.

If a relay (Relay 1 for example) operation is not desired it can be turned off by setting the time delays to zero (in this example H1 & D1).

Once input and output connections are made, program the unit according to the General Programming Instructions on page 1, and walk-test the installation. Timing adjustments may need to be made.

In addition, you can add a "Delay-on-activate" (or nuisance delay) to this mode by setting time via Step 8 of the Program Mode. If this feature is used, any input will have to be held for at least the time indicated on the display before the CX-33 will activate. If this feature is not wanted, set the time to zero (0.0).

Once the desired operation is achieved, proceed to Section 4, Pg 9 for **System Inspection Instructions**.

### **3E (Mode 5): Apartment/Condo Application**

This application is for a switching network (or make/break relay) that controls an apartment or condo front door. When a visitor arrives and calls a tenant on the phone entry system the tenant can "buzz down" and unlock the door for the visitor. During this operation, a courtesy switch is put into the circuit enabling the user to press the switch and open the door. Once the lock releases, the courtesy switch is removed from the circuit. The inside switch will always unlock and open the door.

Refer to **Diagram 5**, (Page 16) for the following connections.

The CX-33 allows for dry and/or powered momentary connections to the Interphone panel (DRY 1 and WET inputs respectively). Wire the "Courtesy Switch" to DRY 2 input. Wire the inside switch to DRY 3 input. An optional Key switch can be added for use by tenants - wire to either DRY 1 (to unlock only), or DRY 3 (to unlock and open door). An optional Fire Panel Input can be connected to DRY 4.

Output #1 is for the electric lock, and Output #2 is for the door operator.

Once input and output connections are made, program the unit according to the General Programming Instructions on page 1, and walk-test the installation. Timing adjustments may need to be made.

In addition, you can add a "Delay-on-activate" (or nuisance delay)

## CX-33 Advanced Logic Relay

### INSTALLATION INSTRUCTIONS

to this mode by setting time via Step 8 of the Program Mode. If this feature is used, any input will have to be held for at least the time indicated on the display before the CX-33 will activate. If this feature is not wanted, set the time to zero (0.0)

Once the desired operation is achieved, proceed to Section 4, Pg 9 for **System Inspection Instructions**.

### 3F (Mode 6): Access Control Application

This application is for a control relay that takes a maintained signal and unlocks a door for an extended time. During this time, an exterior momentary switch is put into the circuit to allow the door to activate automatically. After the access system or time-clock has released the signal, the door relocks, and the exterior switch is removed from the circuit. At any time, the inside switch will unlock and open the door.

Refer to **Diagram 6**, (Page 17) for the following connections.

The CX-33 allows for dry and/or powered maintained connections to the Access System / time clock (DRY 1 and/or WET inputs respectively). Wire the Exterior momentary Switch" to DRY 2 input. Wire the inside momentary switch to DRY 3 input. An optional Key switch can be added for use by tenants - wire to either DRY 1 (to unlock only), or DRY 3 (to unlock and open door). DRY 4 Input is used if you wish to connect a Fire Alarm Panel.

Output #1 is for the electric lock, and Output #2 is for the door operator.

Once input and output connections are made, program the unit according to the General Programming Instructions on page 1, and walk-test the installation. Timing adjustments may need to be made.

In addition, you can add a "Delay-on-activate" (or nuisance delay) to this mode by setting time via Step 8 of the Program Mode. If this feature is used, any input will have to be held for at least the time indicated on the display before the CX-33 will activate. If this feature is not wanted, set the time to zero (0.0)

Once the desired operation is achieved, proceed to Section 4, Pg 9 for **System Inspection Instructions**.

### 3G (Mode 7): Normally Unlocked Restroom

In this mode, control of a single occupant barrier-free washroom is obtained. It allows the user to lock and secure the door from the inside by depressing a Push-to-Lock button (once door is in the closed position). The exterior wall switch is removed electronically from the circuit.

To exit the washroom, simply exit manually via the store-room function lever-handle set (the Door Contact Switch resets the relay),

or, press the interior wall switch to unlock and signal the door operator. The door remains unlocked upon closure (see Mode 8 for normally locked doors). The CX-33 also provides a relay dedicated for "Occupied" & "Door Locked" signage.

Refer to **Diagram 7**, (Page 18) for the following connections.

The outside wall switch, inside wall switch, and Push-to-Lock switch are all N.O. momentary switches. Connect as shown. The Door Contact Switch circuit must be closed when the door is closed and open when the door opens.

A fail-safe electric strike is recommended and connects to Relay 1 (although a fail-secure strike can also be used). The automatic door operator connects to Relay 2, and the signage connects to Relay 3. (As a reminder, no power is provided on the relay outputs – they are dry contacts).

Once input and output connections are made, program the unit according to the General Programming Instructions on page 1, and walk-test the installation. Timing adjustments may need to be made.

*It is NOT recommended to add the "Delay-on-activate" (or nuisance delay) feature in this mode!*

Once the desired operation is achieved, proceed to Section 4, Pg 9 for **System Inspection Instructions**.

### 3H (Mode 8): Normally Locked Restroom

In this mode, control of a normally locked single occupant barrier-free washroom is obtained. It allows the user to secure the door from the inside by depressing a Push-to-Lock button. The exterior means of ingress is removed electronically from the circuit.

To exit the washroom, simply exit manually via the store-room function lever-handle set (the Door Contact Switch resets the relay), or, press the interior wall switch to unlock and signal the door operator. Exiting the washroom resets the relay, and the door is re-locked upon closure.

The CX-33 also provides a relay dedicated for "Occupied & "Door Locked" signage (recommended).

Refer to **Diagram 8**, (Page 19) for the following connections.

The outside means of ingress – Keypad, Key switch, or Prox-reader, plus the inside wall switch, and Push-to-Lock switch are all N.O. momentary devices. Connect as shown. The Door Contact circuit must be closed when the door is closed and open when the door opens.

A fail-secure electric strike is typically used, although a fail-safe strike can also be used. Connect to Relay 1. The automatic door operator connects to Relay 2, and the signage connects to Relay 3. (As a reminder, no power is provided on the relay outputs – they are dry

contacts).

As a safety feature, the door cannot be “secured” via the “Push-to-Lock” button until the door is completely closed (to prevent kids from pressing the lock button and running away).

Once input and output connections are made, program the unit according to the General Programming Instructions on page 1, and walk-test the installation. Timing adjustments may need to be made.

*It is NOT recommended to add the “Delay-on-activate” (or nuisance delay) feature in this mode!*

Once the desired operation is achieved, proceed to Section 4, Pg 9 for **System Inspection Instructions**.

### **3J (Mode 9): Lock-out Relay Plus**

This mode combines, for the first time, a lintel mount safety sensor lock-out relay (LOR) with a switching network (aka make/break relay). The voltage sensing circuit can be utilized with motors/controls up to 120 volts AC/DC. The adjustable hold timer (lock-out) is then matched to the door closing time. “Cancellation” inputs are provided for connection to rail-mounted door beams.

In addition, three inputs and two relays are provided for the switching network function.

Refer to **Diagram 9**, (Page 20) for the following connections.

#### **LOR Circuit:**

A parallel connection is made to the two motor wires running from the Operator (motor) to its control. If the motor is AC, then polarity is not an issue. The CX-33 is triggered by the AC voltage going from high to low.

If the motor is DC, then the wires are polarity sensitive. If Relay 3 LED doesn't illuminate when the door is closing, then just reverse the two terminal connections at the CX-33.

Input 1 is for the N.O. relay contacts of the photo beam. The beams are typically mounted at the end of guide rails and designed to reset the LOR in the event anyone should walk into the swing path when the door is in the closing cycle.

Relay 3 output is to be connected in SERIES with the safety device and the Safety Circuit of the operator.

#### **Optional Switching Network:**

Wire the activating device(s) to DRY 1, DRY 2 or DRY 3 terminals. Wire the outputs as shown to Relays 1 & 2.

Once input and output connections are made, program the unit according to the General Programming Instructions on page 1, and walk-test the installation. Timing adjustments may need to be made.

*It is NOT recommended to add the “Delay-on-activate” (or nuisance delay) feature in this mode!*

Once the desired operation is achieved, proceed to Section 4, Pg 9 for **System Inspection Instructions**.

### **3K (Mode10): Low Energy SAM Plus**

This mode combines a Low-Energy Secondary Activation Module (SAM) with a switching network (aka make/break relay). Utilizing a door position switch input, this mode enables or disables a door mounted presence sensor. The sensor is put into the circuit when a wall switch is pressed (a Knowing Act). This allows an object or person in the path of the door to be detected. The door will not close until the object or person leaves the door swing path. The sensor remains in the circuit until the door is closed.

When the door is opened manually, the safety sensor is not in the circuit and the door operator functions as a manual door closer.

A unique feature of the CX-33 is the automatic reset feature. If a switch has been pressed, but the door has not opened within 60 seconds (because it is locked, for instance), the unit will reset. This will save wear and tear on the lock and operator.

In addition, one input and two relays are provided for the switching network function.

Refer to **Diagram 10**, (Page 21) for the following connections.

#### **SAM Circuit:**

Connect the momentary activating switch(es) to DRY 3 input. The door mounted sensor connects to DRY 2 input, and the magnetic contact switch connects to DRY 4 input. The contact switch circuit must be closed when the door is closed, and open when the door opens.

Relay 3 output is to be connected to the Activate circuit of the door operator.

#### **Optional Switching Network:**

Wire the activating device(s) to DRY 1 terminals. Wire the outputs as shown to Relays 1 & 2.

Once input and output connections are made, program the unit according to the General Programming Instructions on page 1, and walk-test the installation. Timing adjustments may need to be made.

*It is NOT recommended to add the “Delay-on-activate” (or nuisance delay) feature in this mode!*

Once the desired operation is achieved, proceed to Section 4, Pg 9 for **System Inspection Instructions**.

### 3L (Mode 11): Mag Lock with N.O. Fire Alarm

Commonly seen in hospital corridors, this version of a switching network (make/break relay) is specifically designed for doors with mag locks.

A wall switch signals the relay, which unlocks, and opens the door for an adjustable time. Utilizing the door position switch, the CX-33 will not re-apply power to the magnetic lock until the door is fully closed. The relay also provides for a normally open Fire Alarm input, which when activated, unlocks the door and disables the wall switch inputs.

Refer to **Diagram 11**, (Page 22) for the following connections:

Momentary switches connect to DRY 1 and/or WET terminals. Maintained devices connect to DRY 2 input (optional). The N.O. Fire Alarm signal is wired to DRY 3 input, and the Door Position Switch connects to DRY 4 input. The circuit must be closed when the door is closed, and open when the door opens.

The magnetic lock connects to the Common and N.C terminals of Relay 1. The door operator connects to the Common and N.O. terminals of Relay 2. Relay 3 output is optional.

Once input and output connections are made, program the unit according to the General Programming Instructions on page 1, and walk-test the installation. Timing adjustments may need to be made.

*It is NOT recommended to add the "Delay-on-activate" (or nuisance delay) feature in this mode!*

Once the desired operation is achieved, proceed to Section 4, Pg 9 for **System Inspection Instructions**.

### 3M (Mode 12): Mag Lock with N.C. Fire Alarm

This mode is identical to Mode 11 (Section 3L) except the Fire Alarm input is a N.C. circuit (rather than N.O.). See previous section for wiring and adjustments, & refer to **Diagram 12**, (Page 23).

### 3N (Mode 13): Special Purpose Sequencer

In this mode, Input 1 sequences Relays 1 & 2, Input 2 sequences Relays 2 & 3. Input 3 sequences Relays 1 - 2 - 3, and Input 4 sequences Relays 1 - 3 - 2.

Refer to **Diagram 13** (Page 24) for connections. Once input and output connections are made, program the unit according to the General Programming Instructions on page 1, and walk-test the installation. Perform any timing adjustments.

In addition, you can add a "Delay-on-activate" (or nuisance delay) to this mode by setting time via Step 8 of the Program Mode. If this feature is used, any input will have to be held for at least the time indicated on the display **before** the CX-33 will activate. If this feature is not wanted, set the time to zero (0.0)

Once the desired operation is achieved, proceed to Section 4, Pg 9 for **System Inspection Instructions**.

### 3P (Mode 14): Delayed Relay Activation

Refer to **Diagram 14** (Page 25) for connections. In this unique mode, a Switch connected to Input 1 will cause Relay 1 to fire immediately, but not allow Relays 2 & 3 to fire until a pre-set elapsed time has expired. The user must push and hold the switch for this length of time. A Fire alarm input is provided – DRY 2 or WET 1. A Bypass or Shunt Keyswitch is connected to DRY 3, and a N/C door position switch is connected to DRY 4.

Output 1 is for a local siren, Output 2 is for the electric lock, and Output 3 is for status monitoring.

Once connections are made, power up and adjust H1 time for the length of time switch 1 must be pressed. H2 time is the minimum ON time for Relay 2 (lock).

*It is NOT recommended to add the "Delay-on-activate" (or nuisance delay) feature in this mode!*

Once the desired operation is achieved, proceed to Section 4, Pg 9 for **System Inspection Instructions**.

**Note: Not for use as UL compliant delayed egress.**

### 3Q (Mode 7): Lock Down Mode

In this mode, during normal operation the all-active switches (both connected to Input 1) trigger the auto door operator. When desired, a "Lock-Down" switch located remotely (in a school office for instance) will activate the door lock, and disable the door switch input. A separate output can drive a status LED / light. When the "Reset" button (connected to Input 4) is momentarily depressed the door unlocks, and the system resets.

Refer to **Diagram 7a** (page 26) for connections. The allactive switches and Lock-down Switch are all normally open switches. The RESET switch is normally closed. Connect as shown. A fail-safe electric strike, or mag lock should be used. Input 2 allows for an optional secure entry keypad (or similar), or connection to a fire alarm.

Once connections are made, power up and program the unit according to the General Programming Instructions on page 1, and walk-test the installation. Adjust H1 time for the lock time, D1 for the time between the lock and operator, and H2 for the time delay for the auto door operator. D2 and H3 are not used in this mode.

*It is NOT recommended to add the "Delay-on-activate" (or nuisance delay) feature in this mode!*

Once the desired operation is achieved, proceed to Section 4, Pg 9 for **System Inspection Instructions**.

### **3R (Mode 15): Bi-Directional Door Sequencer with Access Control Input**

This mode sequences all 3 relays in both directions, also known as bi-directional door sequencing. Refer to **Diagrams 15 & 15b** on pages 27 and 28.

Access control systems can be connected to the WET input to unlock the door before sequencing the operators. The door remains unlocked while there is a maintained signal on the WET input.

DRY1 input is only active while there is signal on the WET input. DRY 1 input sequences Relay 1 to Relay 2 to Relay 3. DRY 2 input sequences Relay 3 to Relay 1 to Relay 2. DRY 2 input will always unlock the door before sequencing.

Input 3 only sequences Relay 1 to Relay 2, and Input 4 only activates Relay 3.

If a relay (Relay 1 for example) operation is not desired it can be turned off by setting the time delays to zero (in this example H1 & D1).

Once input and output connections are made, program the unit according to the **General Programming Instructions** on page 1 and walk-test the installation. Timing adjustments may need to be made.

In addition, you can add a "Delay-on-activate" (or nuisance delay) to this mode by setting time via Step 8 of the Program Mode. If this feature is used, any input will have to be held for at least the time indicated on the display before the CX-33 will activate. If this feature is not wanted, set the time to zero (0.0)

Once the desired operation is achieved, proceed to Section 4, Pg 9 for **System Inspection Instructions**.

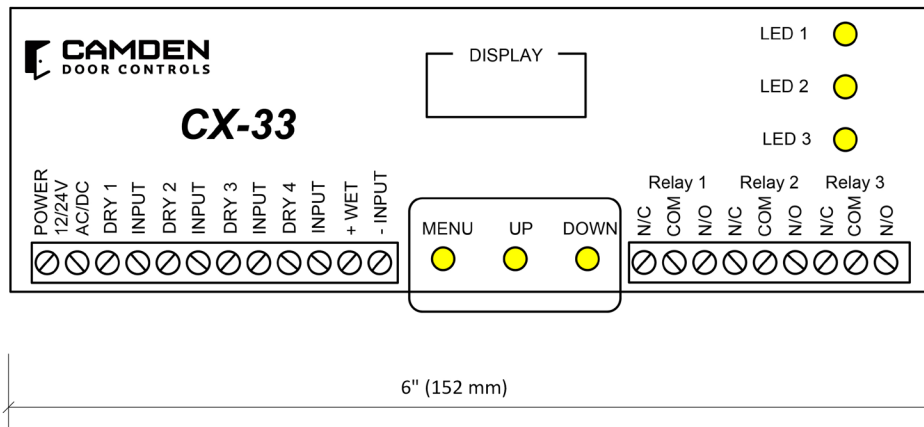
## **4. SYSTEM INSPECTION INSTRUCTIONS**

After the Installation and operational check of the system:

1. Place any applicable labels on the door (as per ANSI A156.10 or A156.19 guidelines).
2. Instruct the owner on door system operation and how to walk-test it. This should be checked on a daily basis.
3. Instruct the owner on what to do if the door or any of its components become damaged.
4. Strongly recommend to the owner that the complete entry be inspected twice a year as part of the service agreement, or at least once per year as per AAADM guidelines.

## **5. WARRANTY**

Camden Door Controls guarantees the CX-33 to be free from manufacturing defects for 3 years from date of sale. If during the first 3 years the CX-33 fails to perform correctly, it may be returned to our factory where it will be repaired or replaced (at our discretion) without charge. Except as stated herein, Camden extends no warranties expressed or implied regarding function, performance or service.



Connector	Terminal	Label	Function
P1	1	Power Input	12/24 Volts AC/DC
	2	12/24V AC/DC	Non-polarized
	3	Dry 1	Non-powered Input 1
	4	Input	
	5	Dry 2	Non-powered Input 2
	6	Input	
	7	Dry 3	Non-powered Input 3
	8	Input	
	9	Dry 4	Non-powered Input 4
	10	Input	
	11	+Wet	5 to 120 Volts AC/DC
	12	-Input	Powered input
P2	1	N/C	(Relay 1)
	2	Common	Output 1
	3	N/O	
	4	N/C	(Relay 2)
	5	Common	Output 2
	6	N/O	
	7	N/C	(Relay #)
	8	Common	Output 3
	9	N/O	

**CAMDEN**  
DOOR CONTROLS

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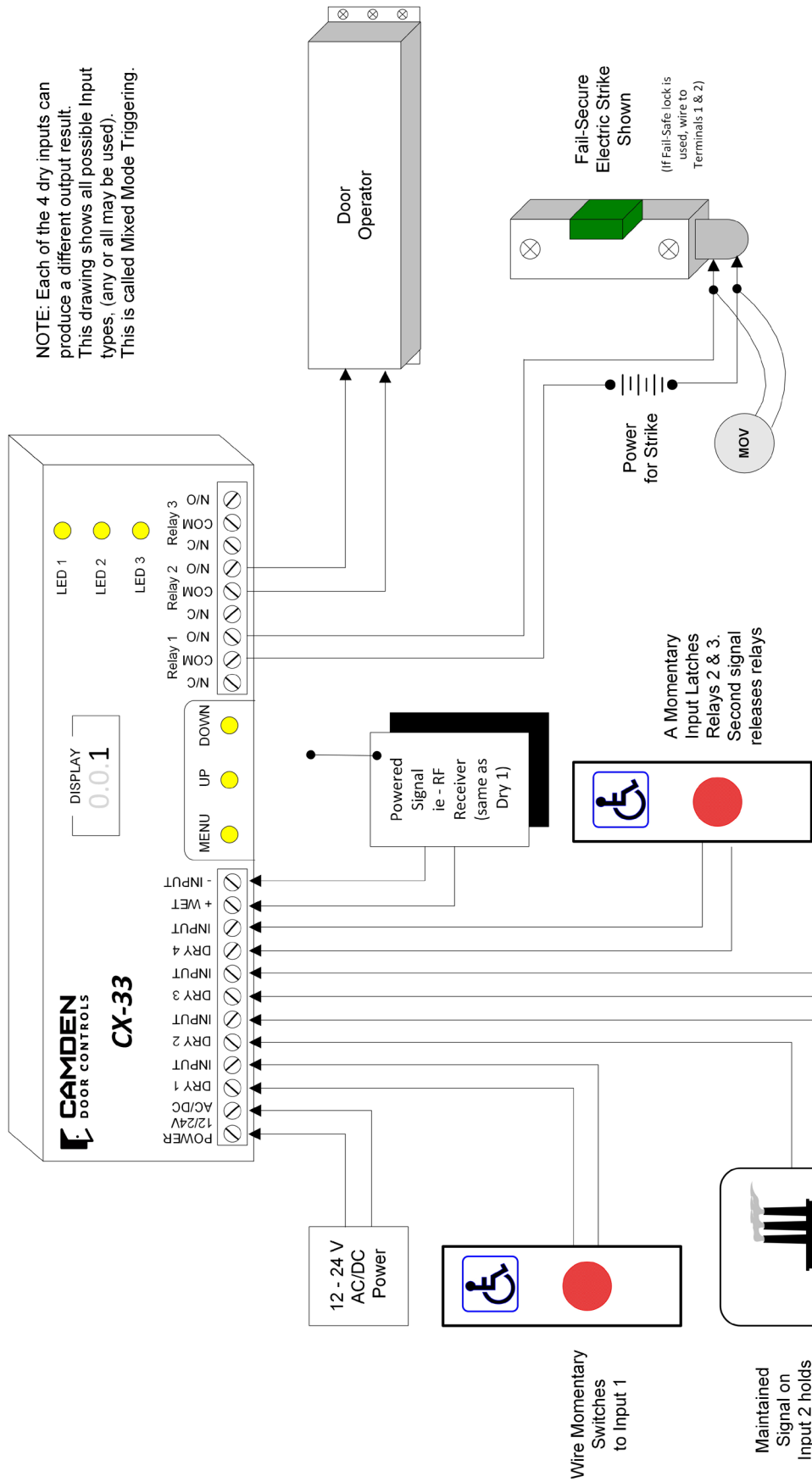
**Camden Door Controls**

SCALE: NONE    DRAWN BY: DGW    DATE: 08/13/13    REVISED:

**CX-33 Diagram A, Electrical and Mechanical**

DRAWING No: DRG-CX-33-A    FILENAME: CX-33 Electrical and Mechanical.vsd

NOTE: Each of the 4 dry inputs can produce a different output result. This drawing shows all possible Input types, (any or all may be used). This is called Mixed Mode Triggering.

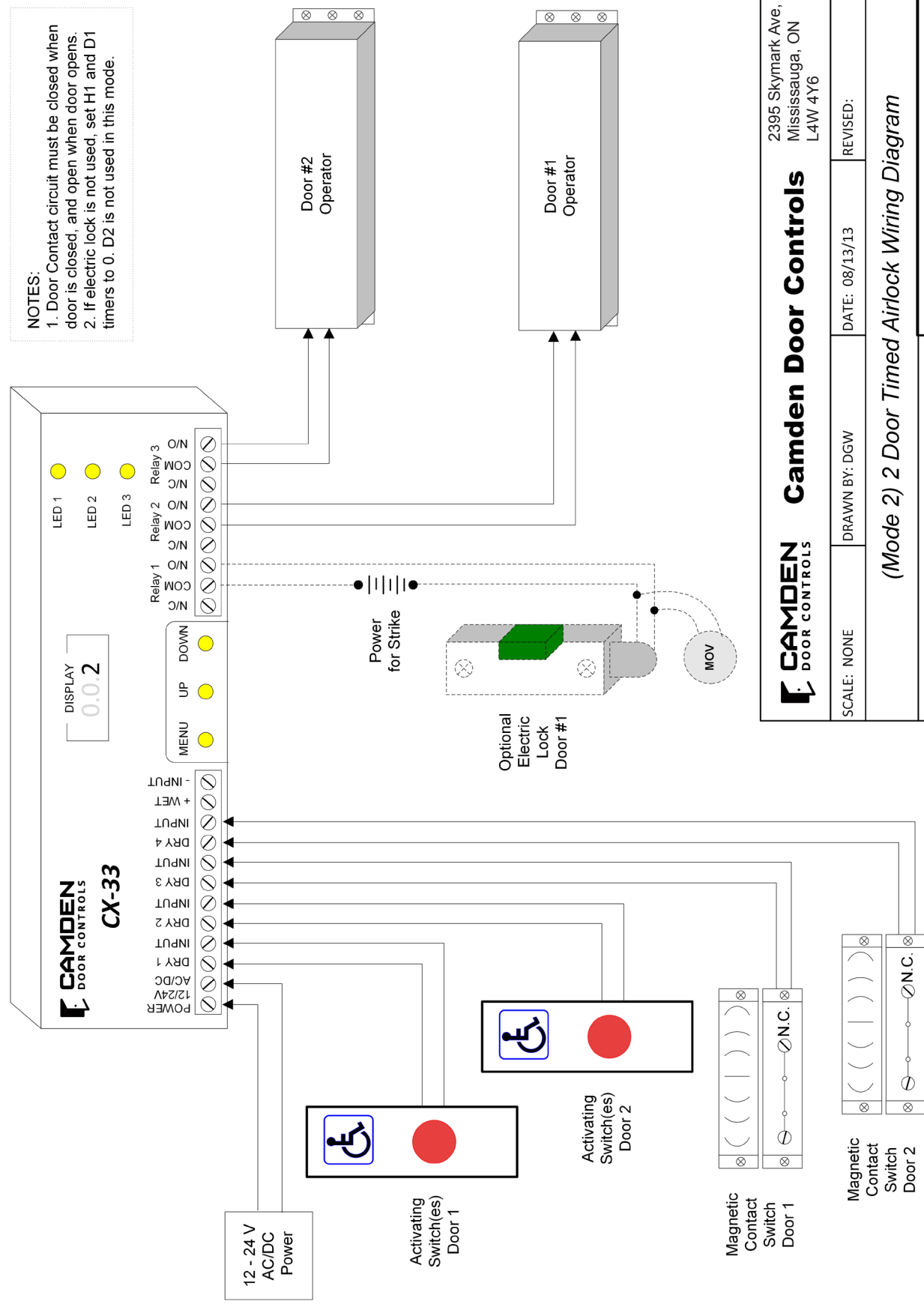


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SCALE: NONE	DRAWN BY: DGW	DATE: 07/05/13	REVISED:
Diagram 1 (Mode 1) Basic Switching Network Wiring Diagram			
DRAWING No: DRG-CX-33-01		FILENAME: CX-33 Diagram 1.vsd	

**NOTES:**  
 1. Door Contact circuit must be closed when door is closed, and open when door opens.  
 2. If electric lock is not used, set H1 and D1 timers to 0. D2 is not used in this mode.



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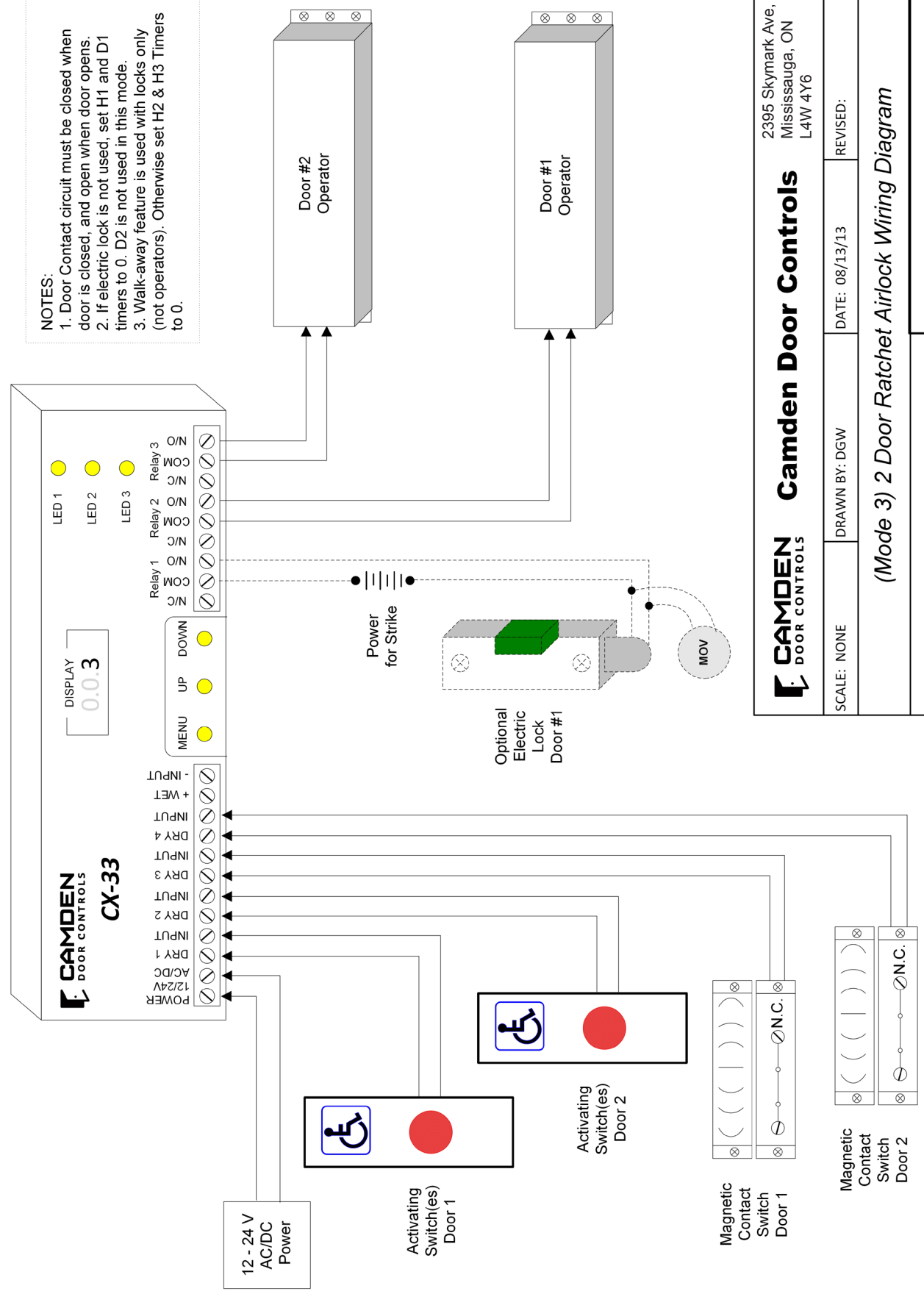
SCALE: NONE DRAWN BY: DGW DATE: 08/13/13 REVISED:

(Mode 2) 2 Door Timed Airlock Wiring Diagram

DRAWING No: DRG-CX-33-02 FILENAME: CX-33 Diagram 2.vsd

**NOTES:**

1. Door Contact circuit must be closed when door is closed, and open when door opens.
2. If electric lock is not used, set H1 and D1 timers to 0. D2 is not used in this mode.
3. Walk-away feature is used with locks only (not operators). Otherwise set H2 & H3 Timers to 0.

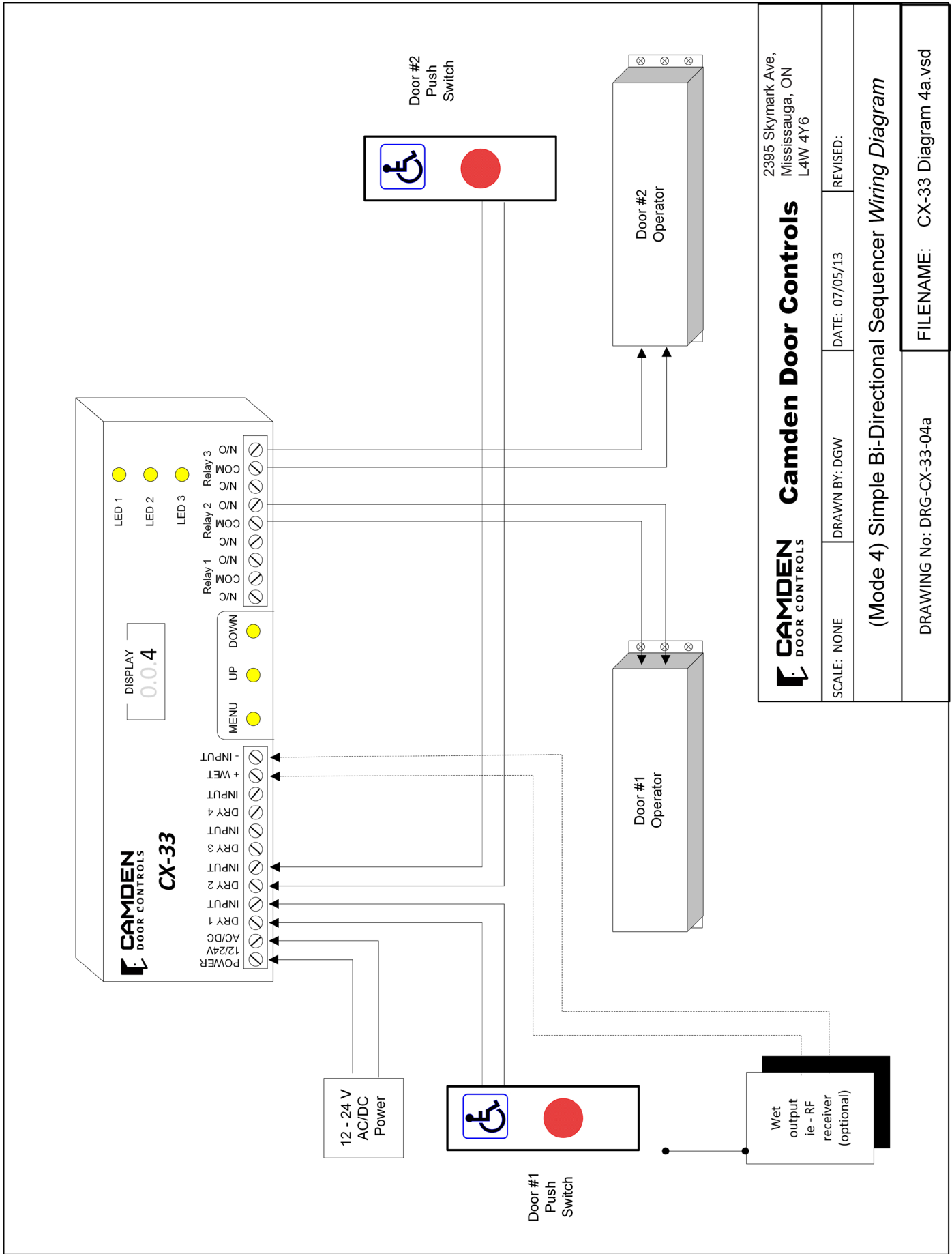


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SCALE: NONE	DRAWN BY: DGW	DATE: 08/13/13	REVISED:
<b>(Mode 3) 2 Door Ratchet Airlock Wiring Diagram</b>			

DRAWING No: DRG-CX-33-03	FILENAME: CX-33 Diagram 3.vsd
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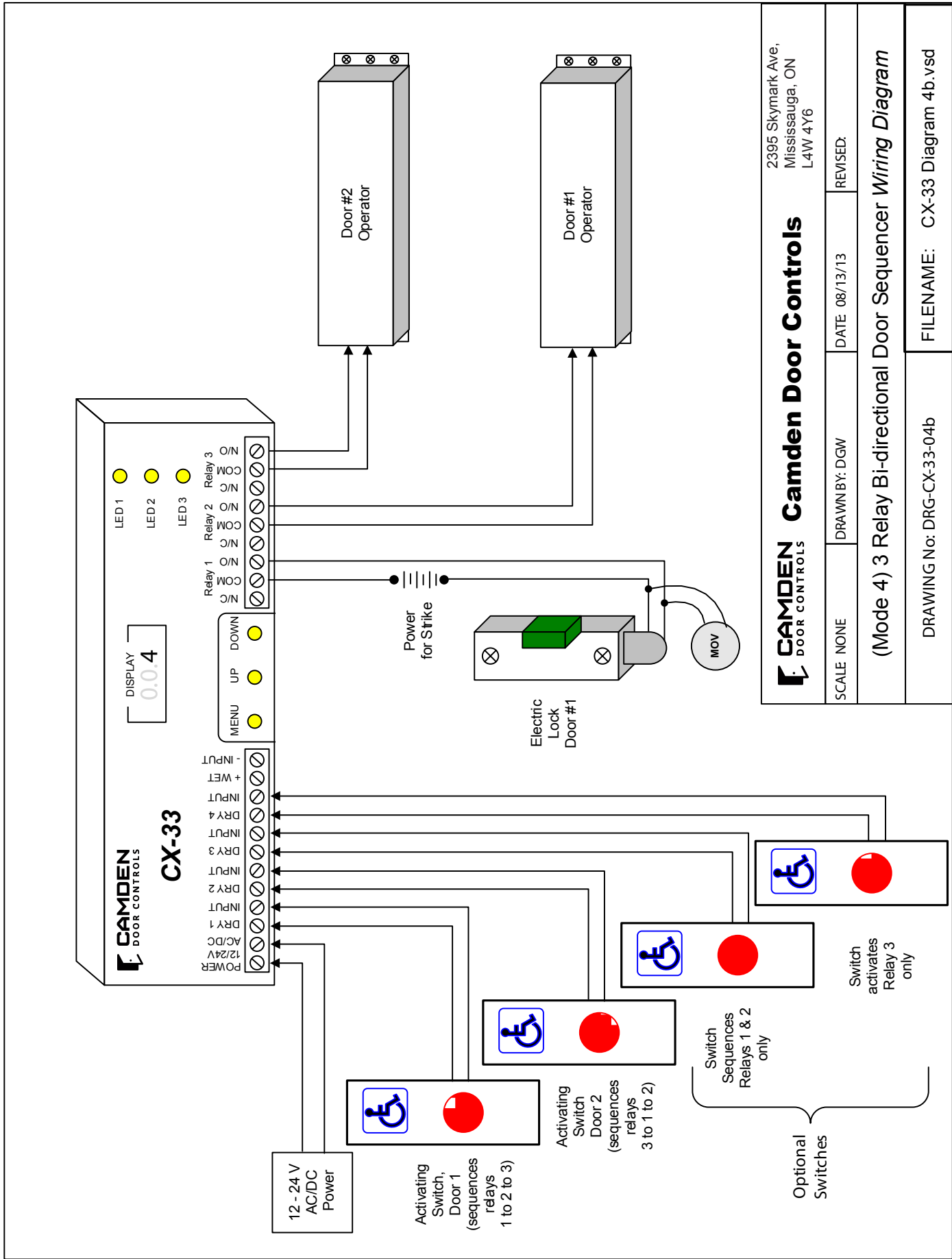
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SCALE: NONE      DRAWN BY: DGW      DATE: 07/05/13      REVISED:

**(Mode 4) Simple Bi-Directional Sequencer Wiring Diagram**

DRAWING No: DRG-CX-33-04a      FILENAME: CX-33 Diagram 4a.vsd



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SCALE: NONE DRAWN BY: DGW DATE: 08/13/13 REVISED:

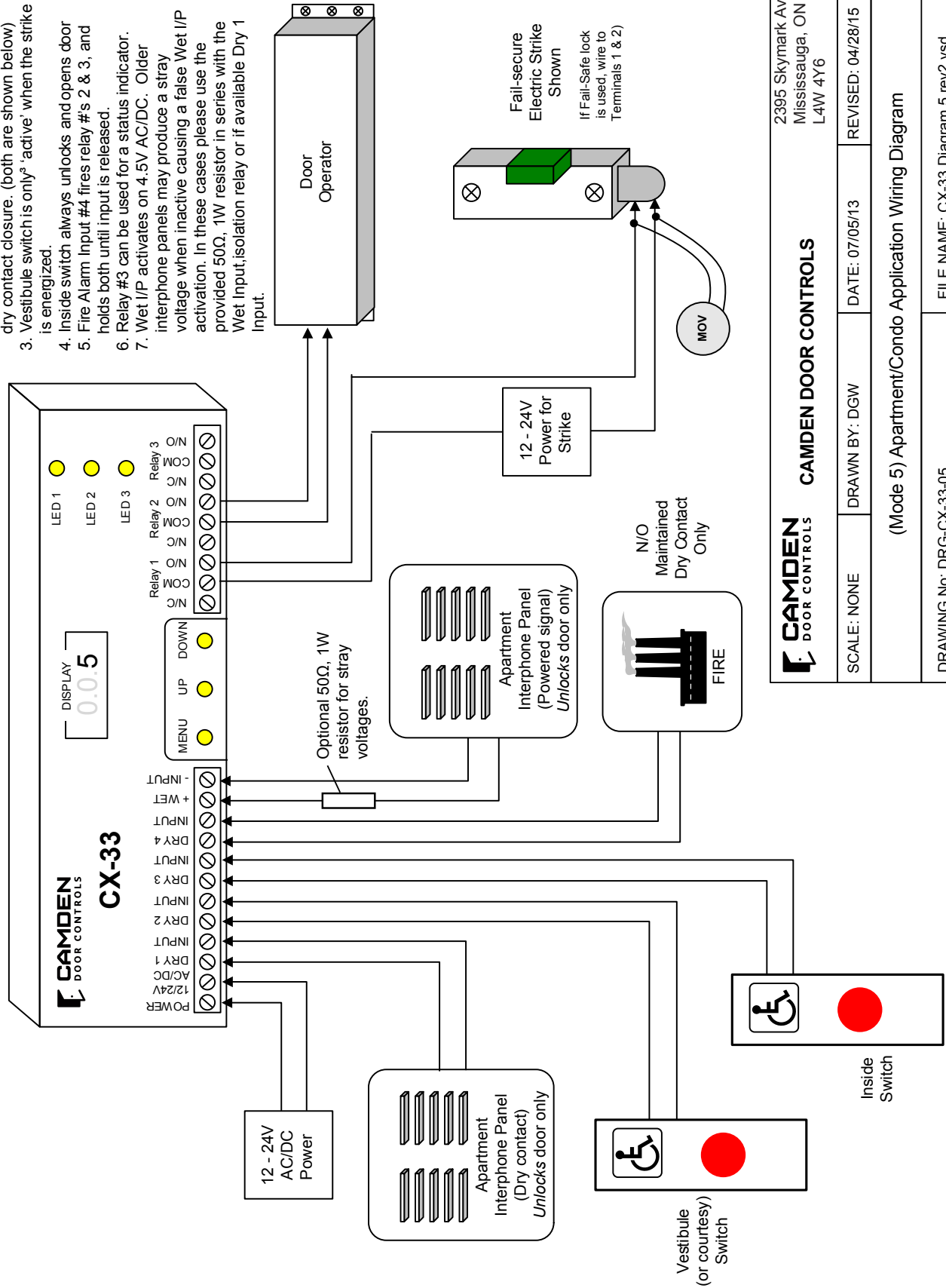
**(Mode 4) 3 Relay Bi-directional Door Sequencer Wiring Diagram**

DRAWING No: DRG-CX-33-04b

FILENAME: CX-33 Diagram 4b.vsd

**NOTES:**

1. All inputs are momentary.
2. Enterphone signal may be wet (powered) or dry contact closure. (both are shown below)
3. Vestibule switch is only 'active' when the strike is energized.
4. Inside switch always unlocks and opens door
5. Fire Alarm Input #4 fires relay #'s 2 & 3, and holds both until input is released.
6. Relay #3 can be used for a status indicator.
7. Wet I/P activates on 4.5V AC/DC. Older interphone panels may produce a stray voltage when inactive causing a false Wet I/P activation. In these cases please use the provided 50Ω, 1W resistor in series with the Wet Input, isolation relay or if available Dry 1 Input.



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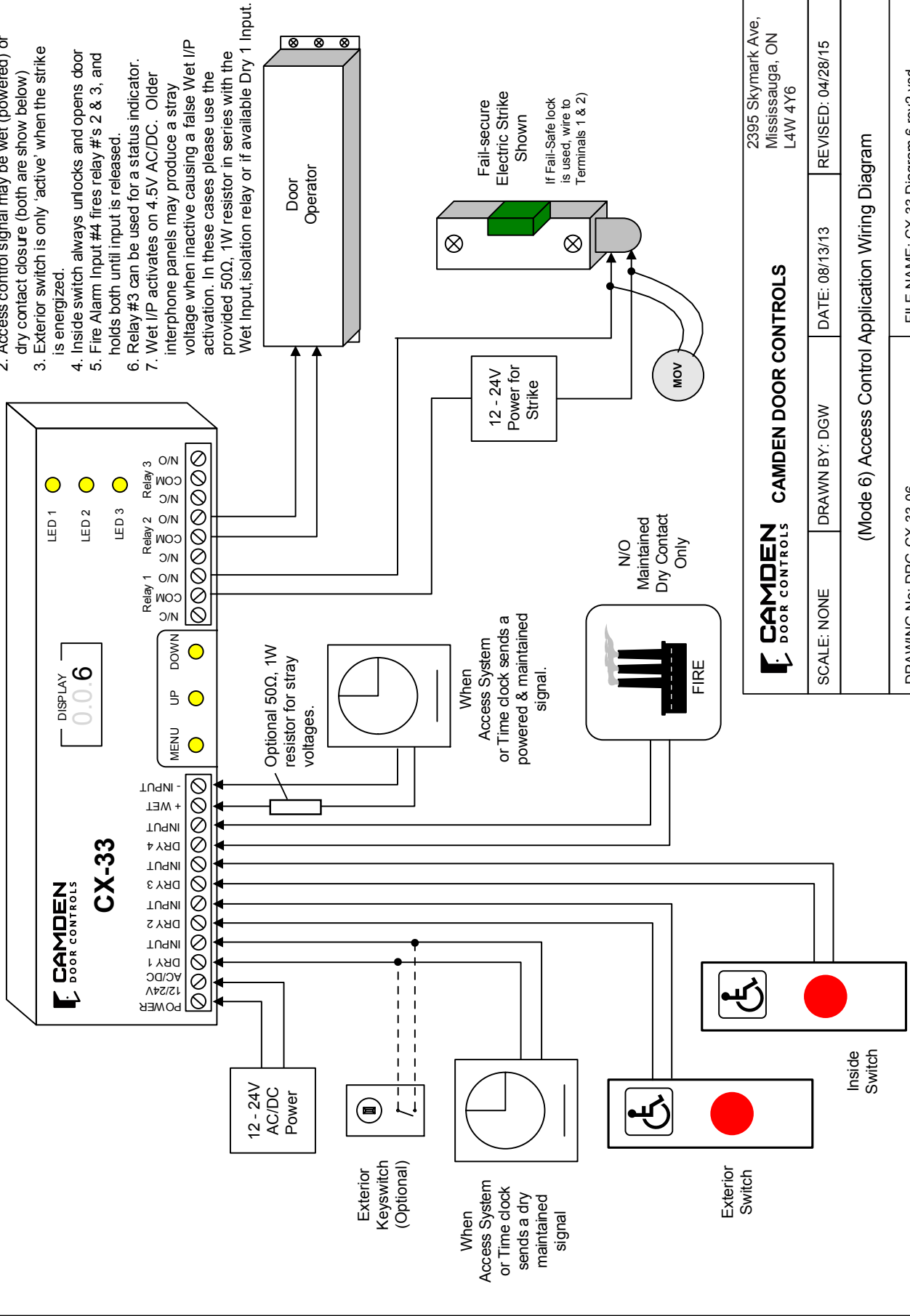
SCALE: NONE	DRAWN BY: DGW	DATE: 07/05/13	REVISED: 04/28/15
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(Mode 5) Apartment/Condo Application Wiring Diagram

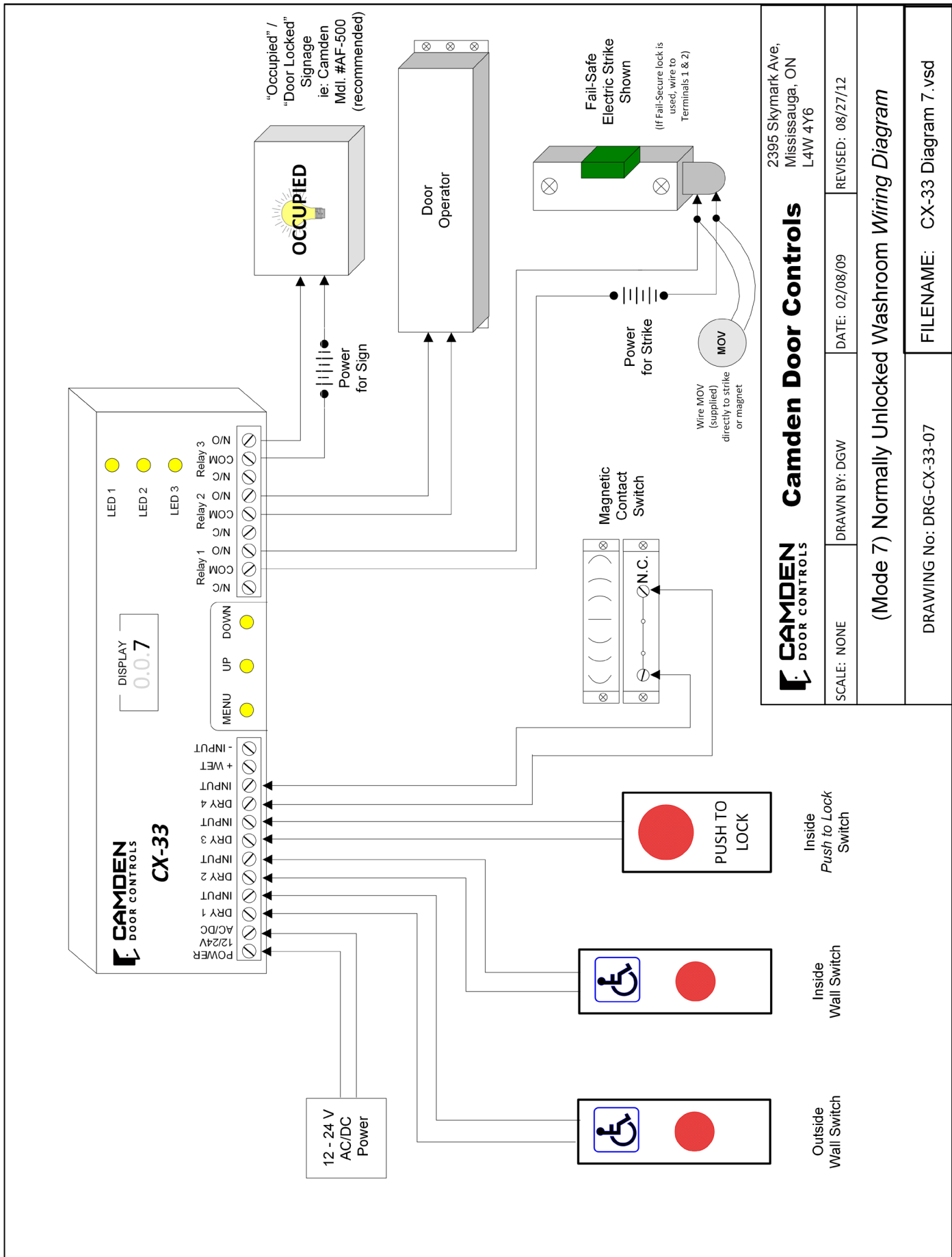
DRAWING No: DRG-CX-33-05 FILE NAME: CX-33 Diagram 5 rev2.vsd

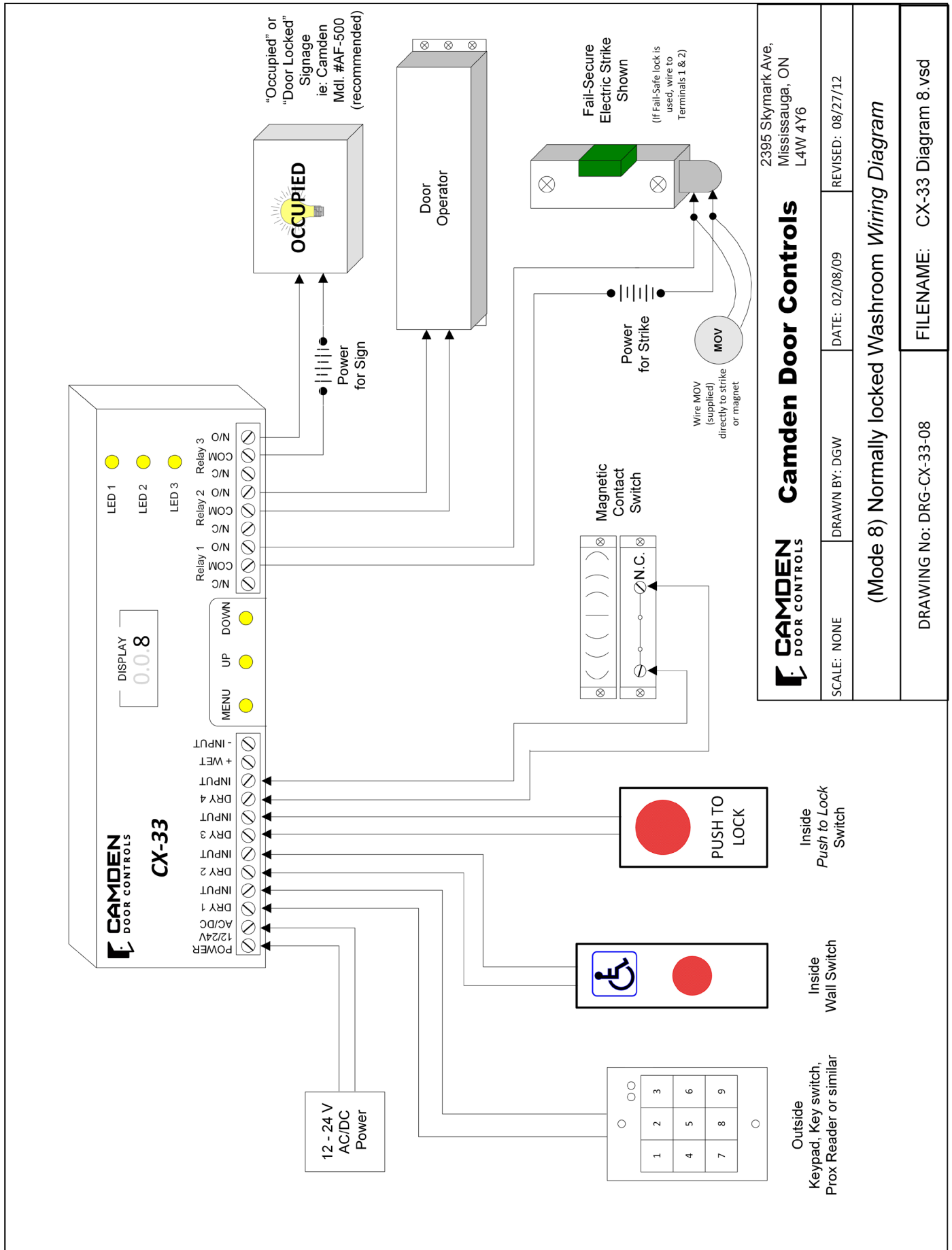
**NOTES:**

1. Dry 1 & Wet Inputs are maintained, while reminder are momentary.
2. Access control signal may be wet (powered) or dry contact closure (both are show below)
3. Exterior switch is only 'active' when the strike is energized.
4. Inside switch always unlocks and opens door
5. Fire Alarm Input #4 fires relay #s 2 & 3, and holds both until input is released.
6. Relay #3 can be used for a status indicator.
7. Wet I/P activates on 4.5V AC/DC. Older interphone panels may produce a stray voltage when inactive causing a false Wet I/P activation. In these cases please use the provided 50Ω, 1W resistor in series with the Wet Input; isolation relay or if available Dry 1 Input.



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SCALE: NONE	DATE: 08/13/13
DRAWN BY: DGW	REVISED: 04/28/15
(Mode 6) Access Control Application Wiring Diagram	
DRAWING No: DRG-CX-33-06	FILE NAME: CX-33 Diagram 6 rev2.vsd





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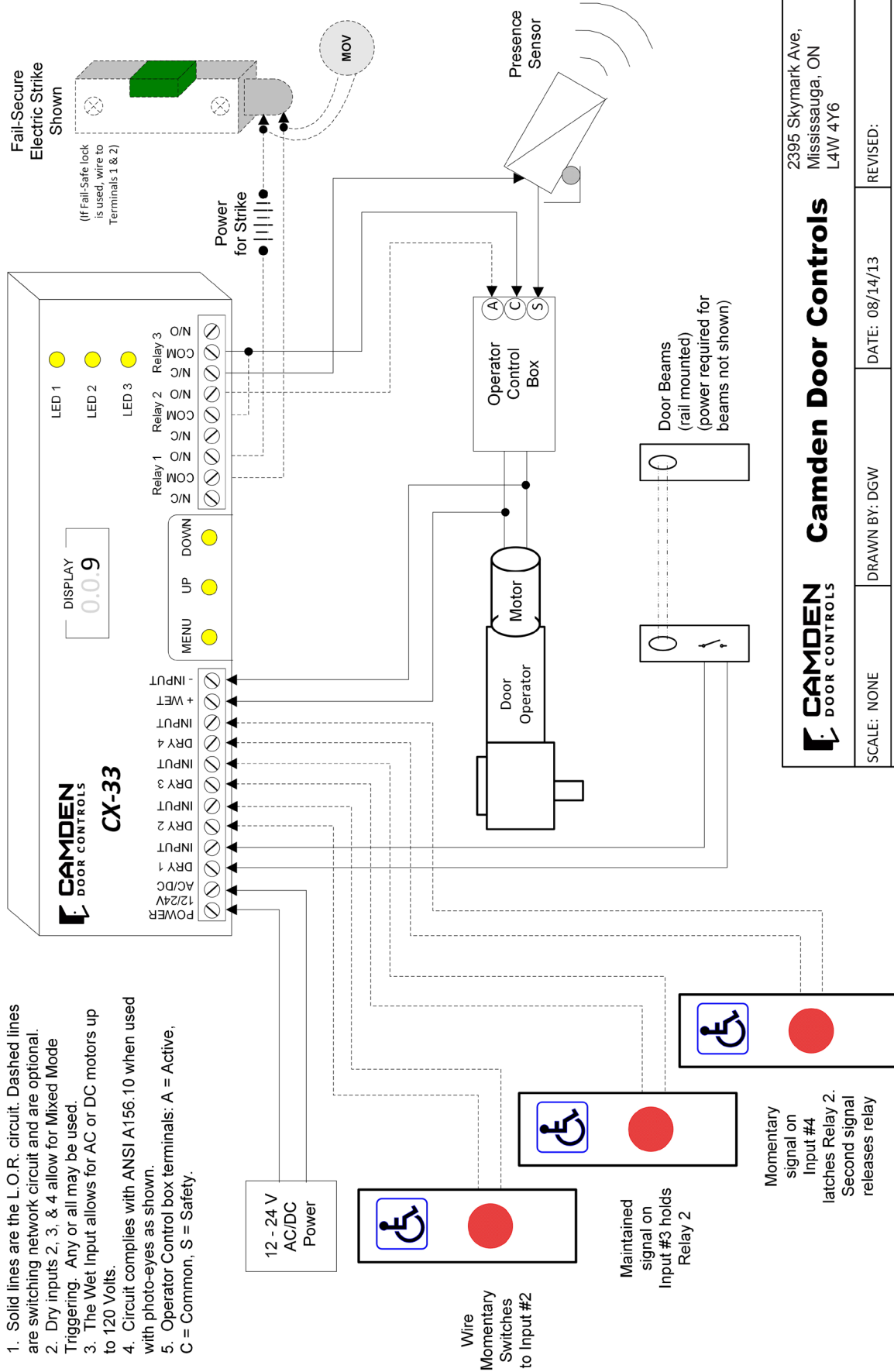
SCALE: NONE    DRAWN BY: DGW    DATE: 02/08/09    REVISED: 08/27/12

**(Mode 8) Normally locked Washroom Wiring Diagram**

DRAWING No: DRG-CX-33-08    FILENAME: CX-33 Diagram 8.vsd

**NOTES:**

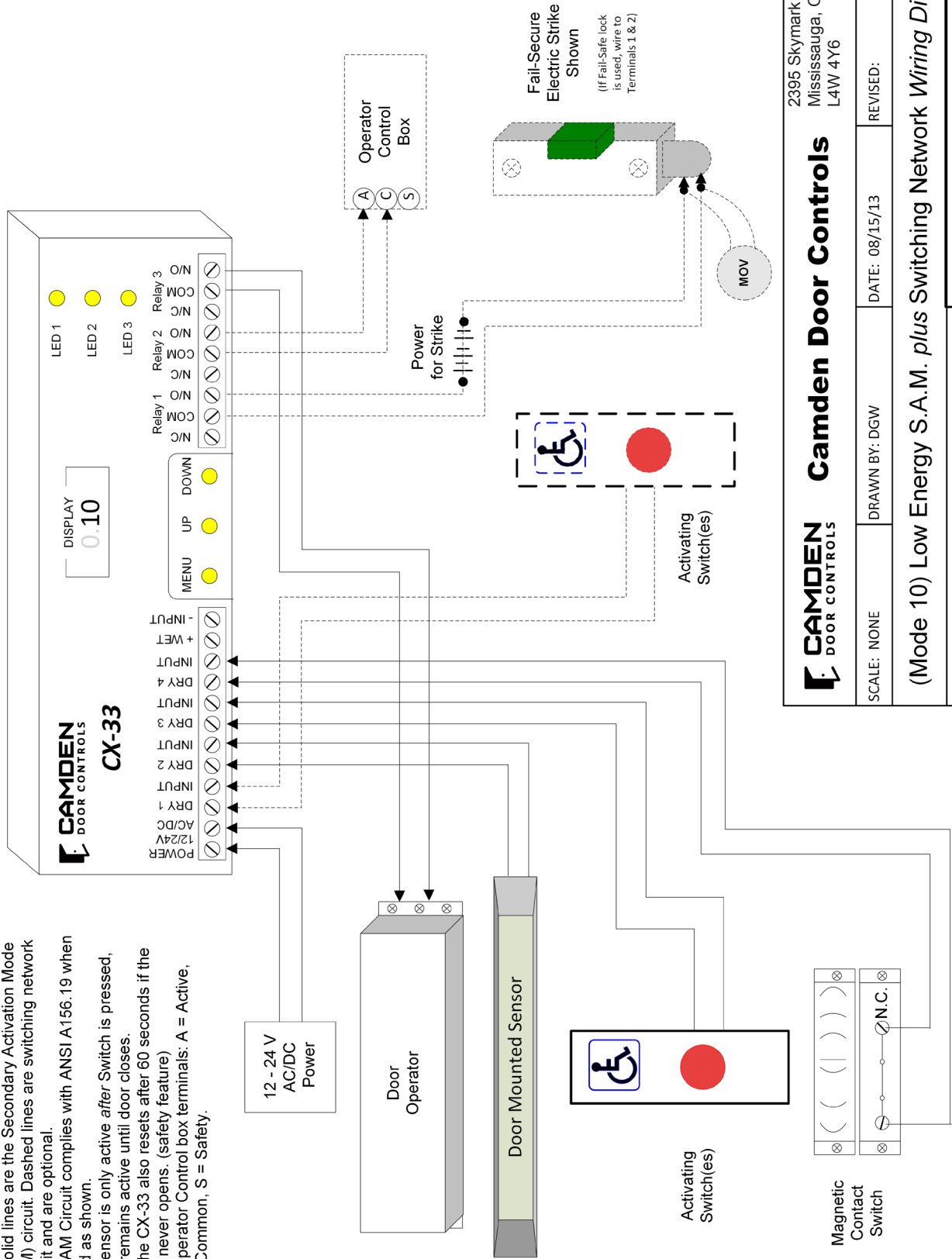
1. Solid lines are the L.O.R. circuit. Dashed lines are switching network circuit and are optional.
2. Dry inputs 2, 3, & 4 allow for Mixed Mode Triggering. Any or all may be used.
3. The Wet Input allows for AC or DC motors up to 120 Volts.
4. Circuit complies with ANSI A156.10 when used with photo-eyes as shown.
5. Operator Control box terminals: A = Active, C = Common, S = Safety.



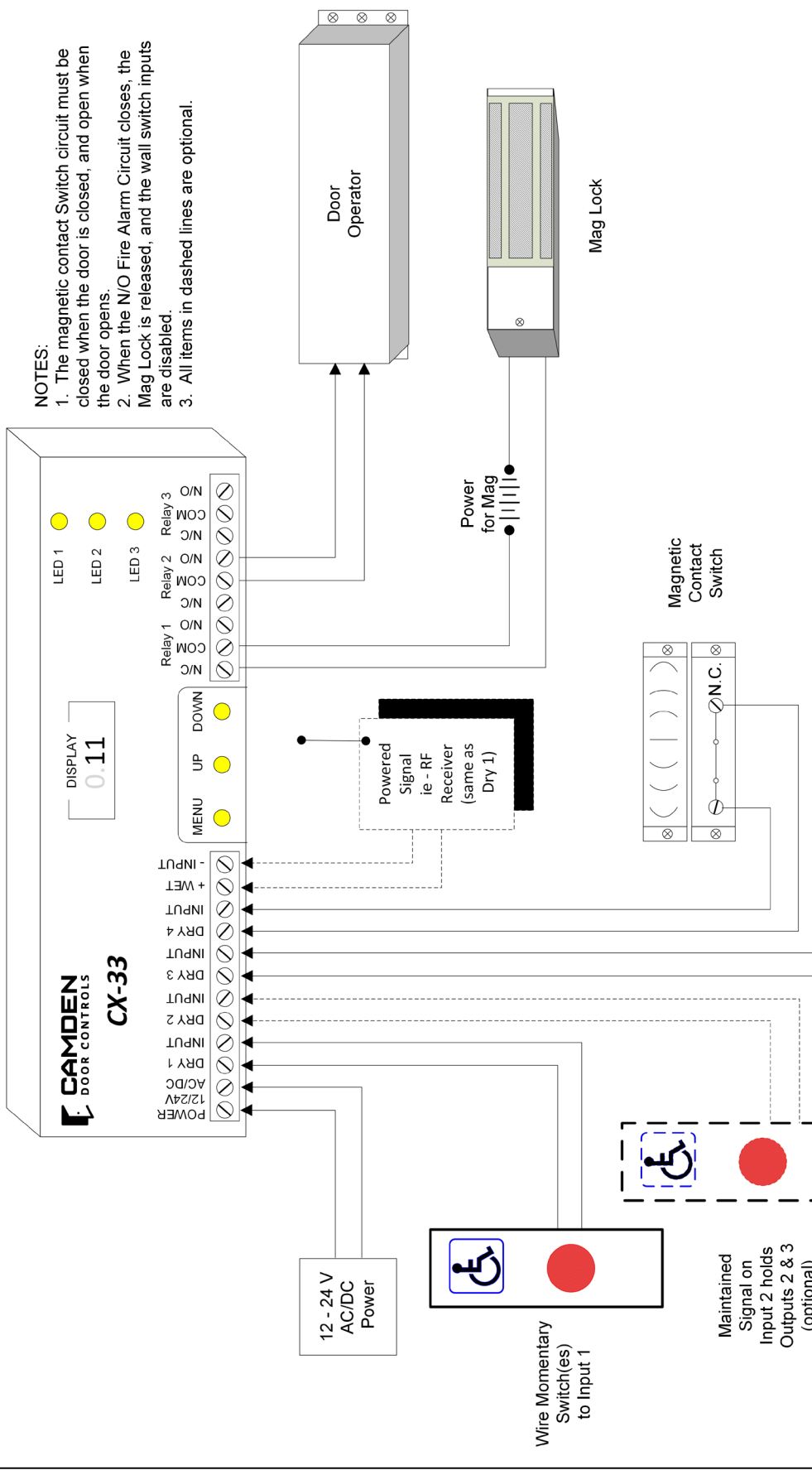
<b>Camden Door Controls</b> 2395 Skymark Ave, Mississauga, ON L4W 4Y6			
SCALE: NONE	DRAWN BY: DGW	DATE: 08/14/13	REVISED:
<b>(Mode 9) L.O.R plus Switching Network Wiring Diagram</b>			
DRAWING No: DRG-CX-33-09		FILENAME: CX-33 Diagram 9.vsd	

**NOTES:**

1. Solid lines are the Secondary Activation Mode (SAM) circuit. Dashed lines are switching network circuit and are optional.
2. SAM Circuit complies with ANSI A156.19 when wired as shown.
3. Sensor is only active after Switch is pressed, and remains active until door closes.
4. The CX-33 also resets after 60 seconds if the door never opens. (safety feature)
5. Operator Control box terminals: A = Active, C = Common, S = Safety.



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SCALE: NONE	DRAWN BY: DGW	DATE: 08/15/13	REVISED:
<b>(Mode 10) Low Energy S.A.M. plus Switching Network Wiring Diagram</b>			
DRAWING No: DRG-CX-33-10		FILENAME: CX-33 Diagram 10.vsd	



**NOTES:**

1. The magnetic contact Switch circuit must be closed when the door is closed, and open when the door opens.
2. When the N/O Fire Alarm Circuit closes, the Mag Lock is released, and the wall switch inputs are disabled.
3. All items in dashed lines are optional.

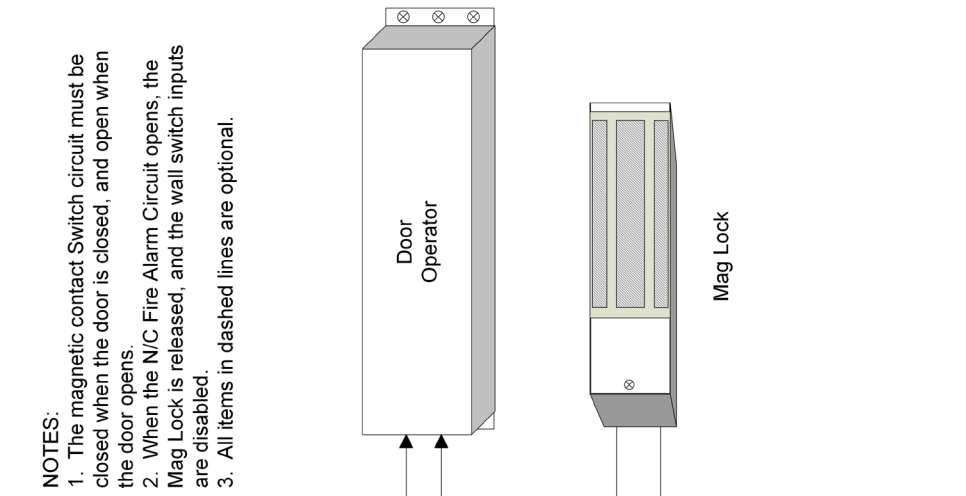
**CAMDEN DOOR CONTROLS** 2395 Skymark Ave,  
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**Camden Door Controls**

SCALE: NONE DRAWN BY: DGW DATE: 07/05/13 REVISED:

(Mode 11) Deactivation Timer for Mag Lock Wiring Diagram

DRAWING No: DRG-CX-33-11 FILENAME: CX-33 Diagram 11.vsd



**NOTES:**

1. The magnetic contact Switch circuit must be closed when the door is closed, and open when the door opens.
2. When the N/C Fire Alarm Circuit opens, the Mag Lock is released, and the wall switch inputs are disabled.
3. All items in dashed lines are optional.

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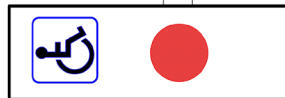
**Camden Door Controls**

SCALE: NONE DRAWN BY: DGW DATE: 07/05/13 REVISED:

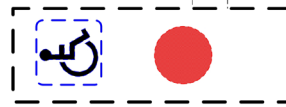
(Mode 12) Deactivation Timer for Mag Lock Wiring Diagram

DRAWING No: DRG-CX-33-12 FILENAME: CX-33 Diagram 12.vsd

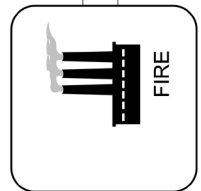
12 - 24 V  
AC/DC  
Power



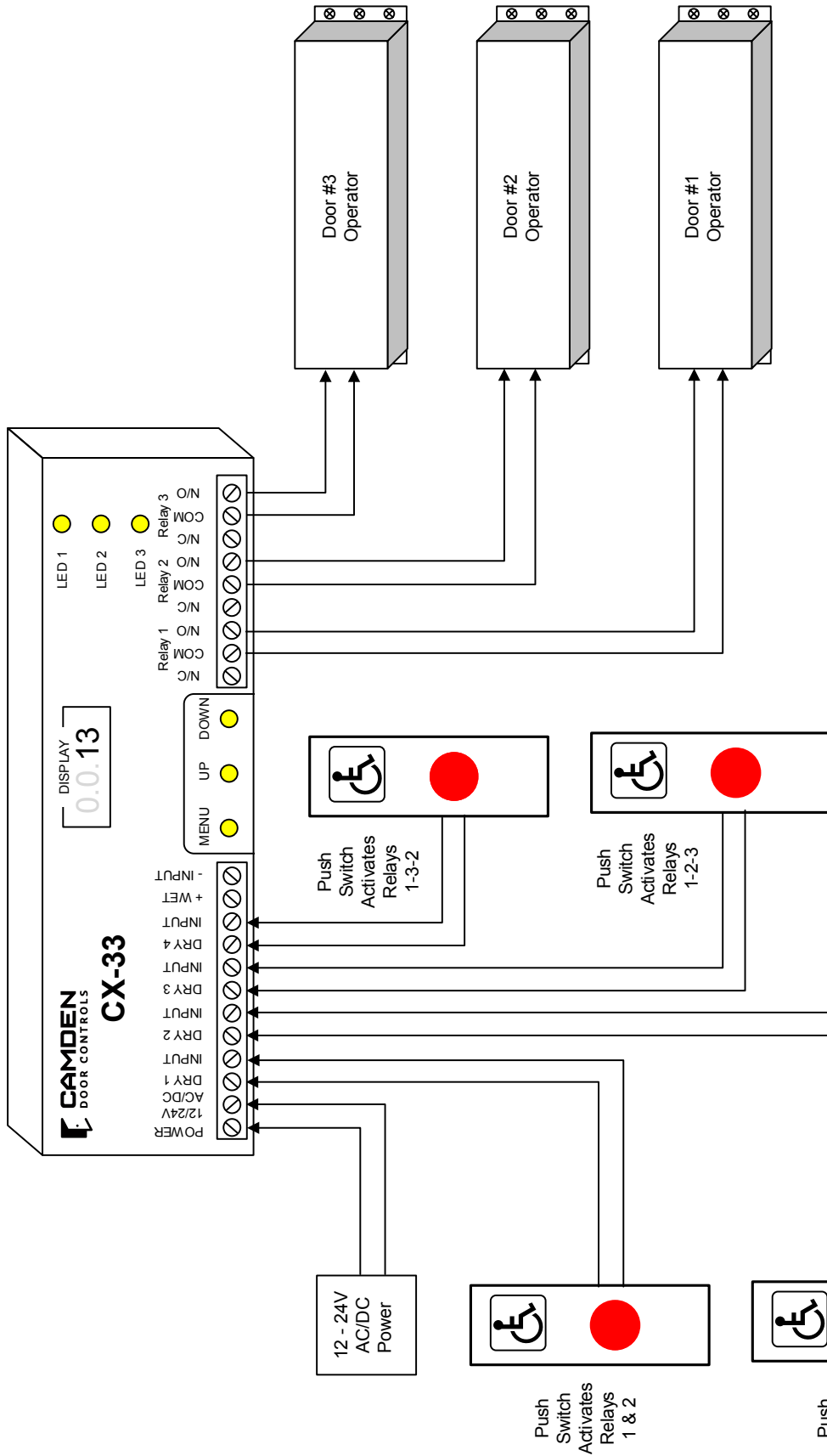
Wire Momentary  
Switch(es)  
to Input 1



Maintained  
Signal on  
Input 2 holds  
Outputs 2 & 3  
(optional)



Fire Alarm Input.  
N/C dry contact  
unlocks door  
and disables  
normal operation



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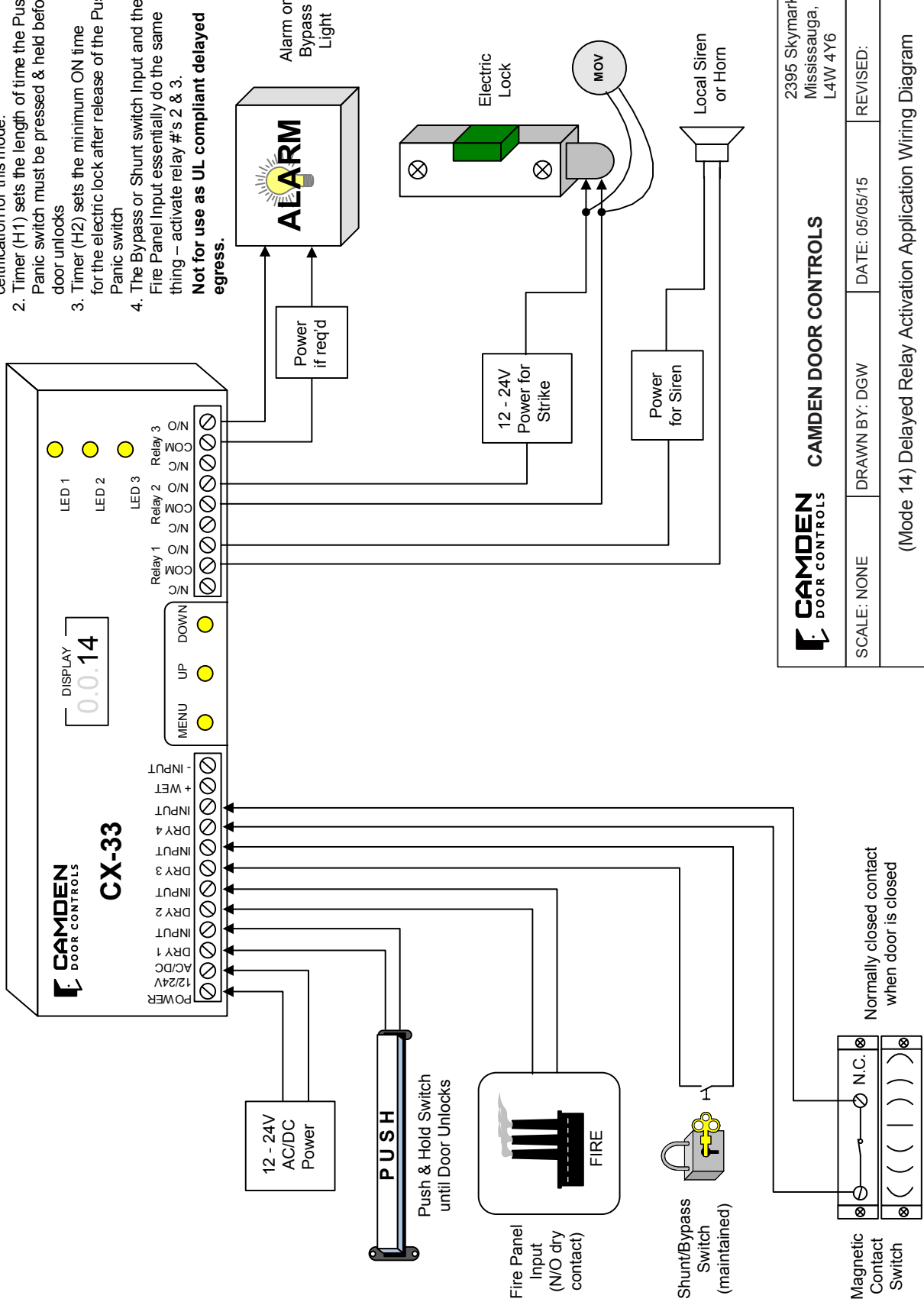
SCALE: NONE    DRAWN BY: DGW    DATE: 08/15/13    REVISED: 04/28/15

(Mode 13) Special Sequencer Wiring Diagram

DRAWING No: DRG-CX-33-13    FILE NAME: CX-33 Diagram 13 rev.vsd

**NOTES:**

1. This product does not carry any UL Approval or certification for this mode.
  2. Timer (H1) sets the length of time the Push / Panic switch must be pressed & held before the door unlocks
  3. Timer (H2) sets the minimum ON time for the electric lock after release of the Push / Panic switch
  4. The Bypass or Shunt switch Input and the Fire Panel Input essentially do the same thing – activate relay #s 2 & 3.
- Not for use as UL compliant delayed egress.**



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SCALE: NONE

DRAWN BY: DGW

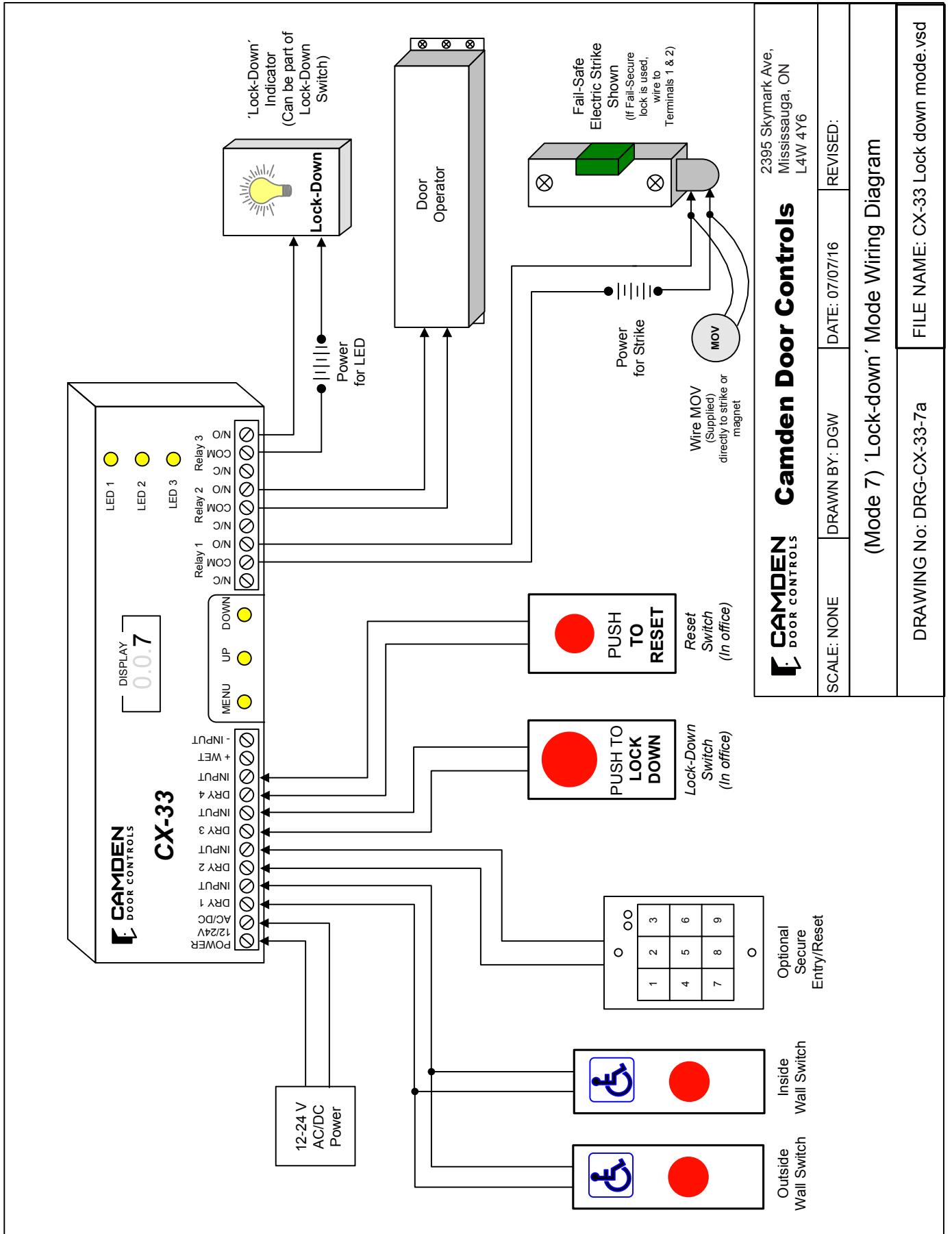
DATE: 05/05/15

REVISED:

(Mode 14) Delayed Relay Activation Application Wiring Diagram

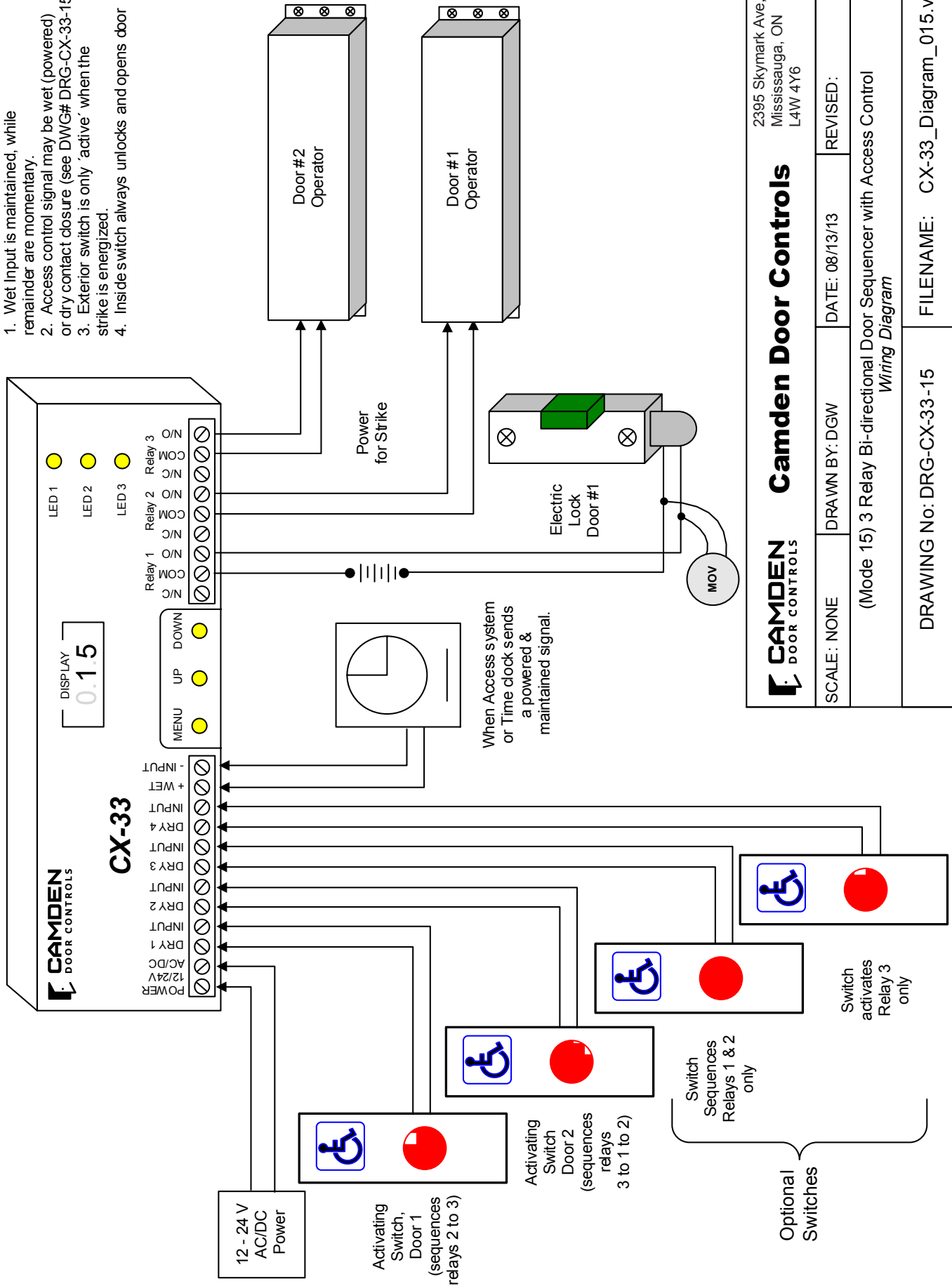
DRAWING No: DRG-CX-33-14

FILE NAME: CX-33 Diagram 14 rev. vsd



**NOTES:**

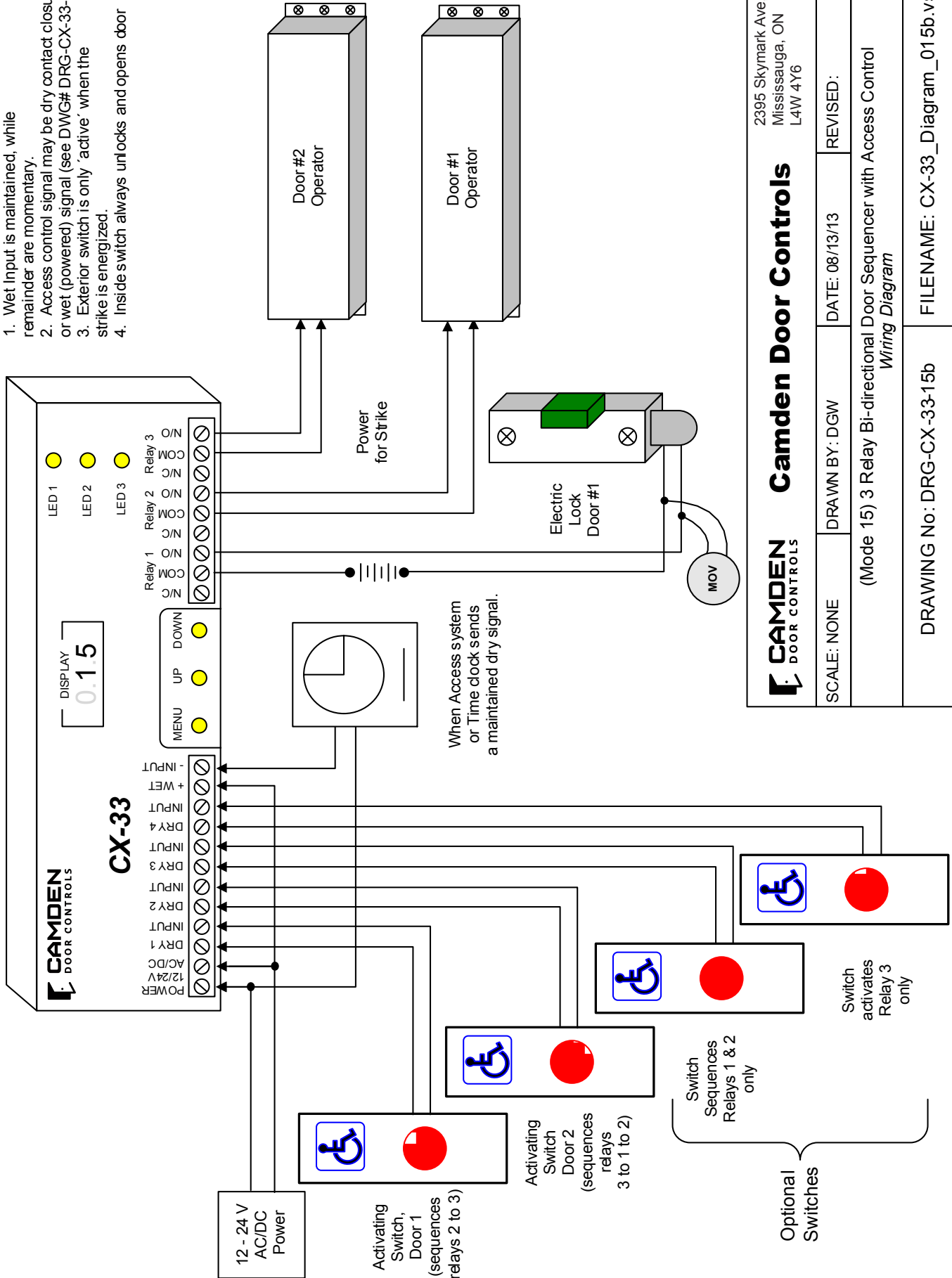
1. Wet Input is maintained, while remainder are momentary.
2. Access control signal may be wet (powered) or dry contact closure (see DWG# DRG-CX-33-15b)
3. Exterior switch is only 'active' when the strike is energized.
4. Inside switch always unlocks and opens door



<b>Camden Door Controls</b> 2395 Skymark Ave, Mississauga, ON L4W 4Y6			
SCALE: NONE	DRAWN BY: DGW	DATE: 08/13/13	REVISED:
(Mode 15) 3 Relay Bi-directional Door Sequencer with Access Control Wiring Diagram			
DRAWING No: DRG-CX-33-15		FILENAME: CX-33_Diagram_015.vsd	

**NOTES:**

1. Wet Input is maintained, while remainder are momentary.
2. Access control signal may be dry contact closure or wet (powered) signal (see DWG# DRG-CX-33-15)
3. Exterior switch is only 'active' when the strike is energized.
4. Inside switch always unlocks and opens door



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SCALE: NONE

DRAWN BY: DGW

DATE: 08/13/13

REVISED:

(Mode 15) 3 Relay Bi-directional Door Sequencer with Access Control  
*Wiring Diagram*

DRAWING No: DRG-CX-33-15b

FILENAME: CX-33\_Diagram\_015b.vsd