

# VAX Two-Door Controller Quick Start Guide

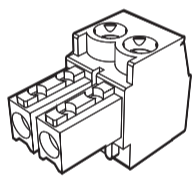


Part Number	Motion Sensor	Color
VAX-2D-REX	Yes	Black
VAX-2D	No	Black

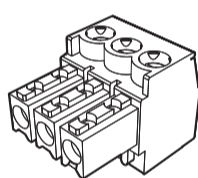
## Package Contents



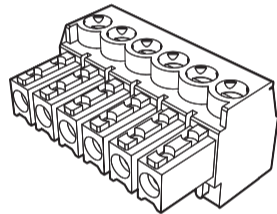
VAX Two-Door Controller - x1



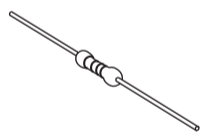
2P Connector x 4



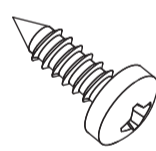
3P Connector x 2



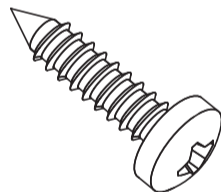
6P Connector x 2



Supervisor Input Resistor(1K $\Omega$ ) x 8



Cover screw x 2



Wall screw x 4

## UL 294/S319/Safety EN 60950-1, A2 Compliance Notices

This product complies with the following UL294 Access Control Performance Levels when installed as part of the Listed VAX system :

Endurance Level IV (100,000c) Line Security Level I

Wiring methods shall be in accordance with the National Electrical Code (ANSI/NFPA70), CSA C22.1, Canadian Electrical Code, Part I, Safety Standard for Electrical Installations, Part I, local codes, and the authorities having jurisdiction. All interconnecting devices must be UL Listed, low-voltage Class 2 power limited. The minimum permissible wire size to be used shall not be less than 26 AWG (0.24 mm<sup>2</sup>).

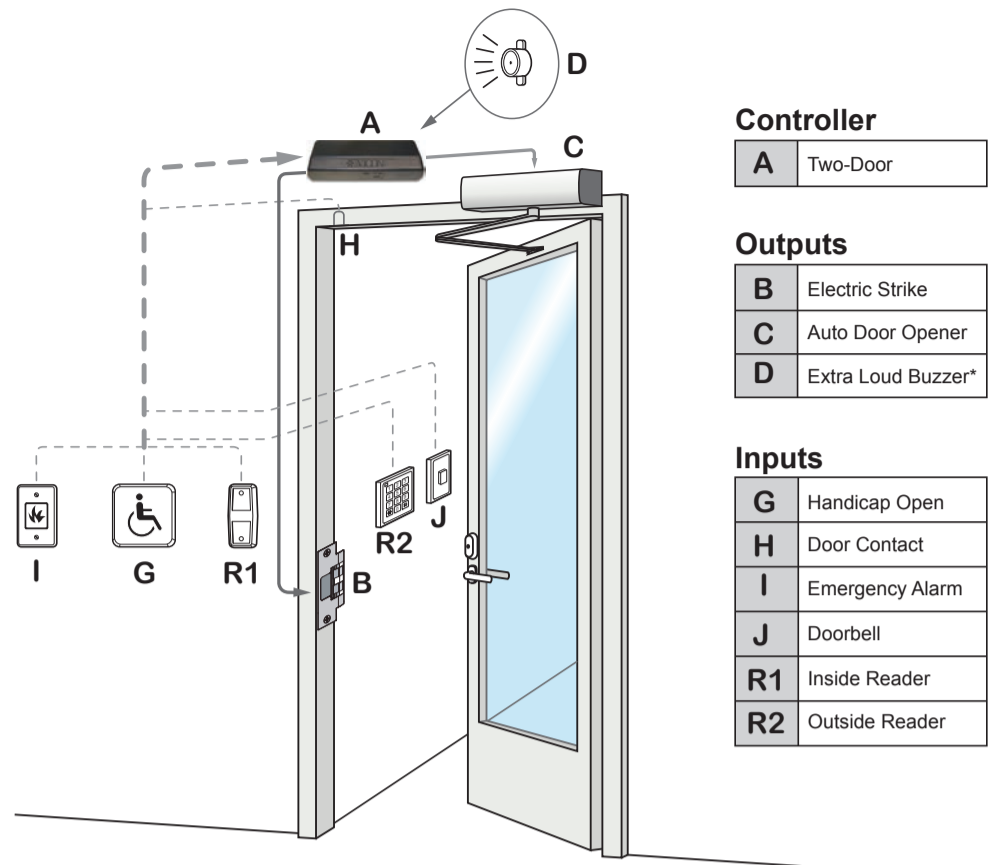
Products have been evaluated for "Indoor Use" only, and to be installed within the "protected" or "restricted" area. This product is not intended for outside wiring as covered by Article 800 in the National Electrical Code, NFPA 70. Products are not intended to be installed or mounted in air-handling spaces. Products are intended to be installed by manufacturer trained service installers only.

All recommended connected peripherals such as power supplies, UPS/battery backups, PoE switches, electrified strikes, readers require to be UL Listed.

Please refer to the VAX UL Reference document for more comprehensive information available downloadable from our website. Hard copy of the VAX UL Reference Manual document is available, please call

- To shut down the unit/controller cards, disconnect the network cable from the unit.
- Only a qualified person should install and handle the system.
- The unit gets up to 48 VDC from any PoE switch it is used with.
- The VAX units are not connected to the electric line.
- Grounding is not required.
- A nylon cable gland needs to be installed in the access hole where the cables enter the case.
- Units powered by PoE must use a detachable network cable.
- This is an indoor unit with an operating temperature range of 32° – 122° F (0° – 50° C).

## Installation Example



### Controller

A Two-Door

### Outputs

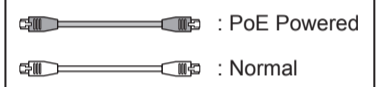
B	Electric Strike
C	Auto Door Opener
D	Extra Loud Buzzer*

### Inputs

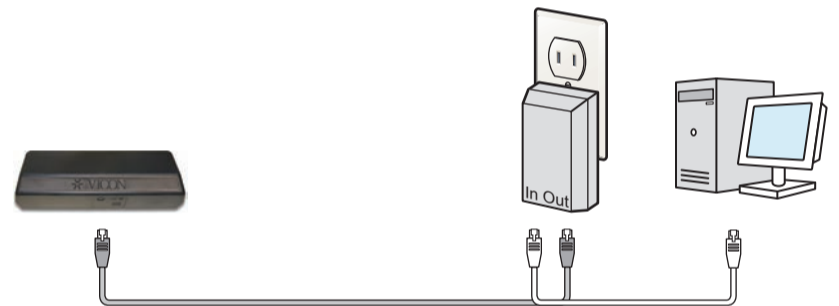
G	Handicap Open
H	Door Contact
I	Emergency Alarm
J	Doorbell
R1	Inside Reader
R2	Outside Reader

\*Optional Internal Extra Loud Buzzer

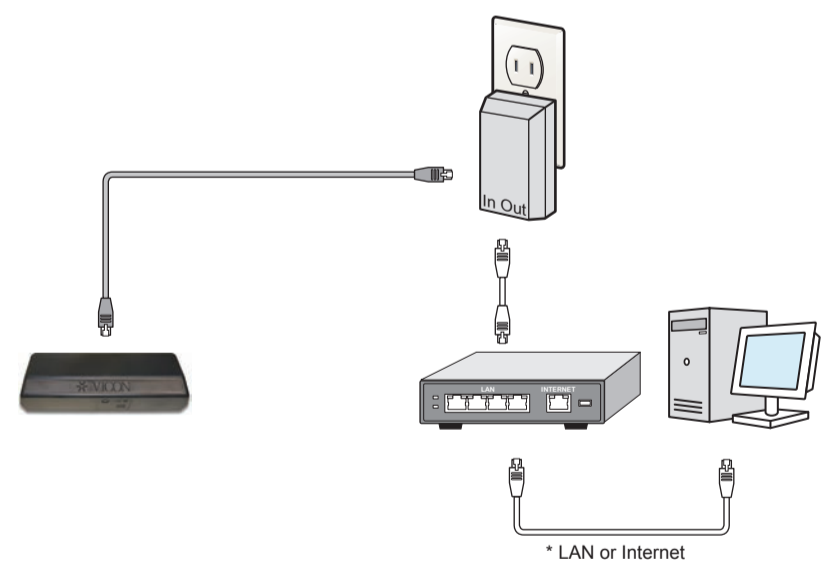
## Networking Examples



### 1 Controller - PoE Injector - PC (Direct)

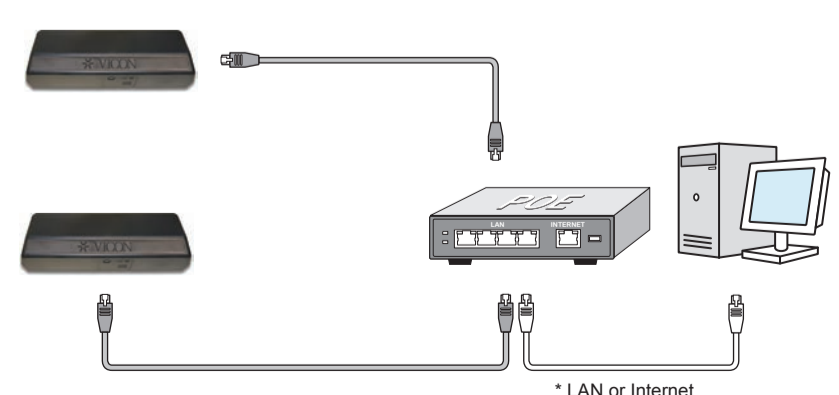


### 2 Controller - PoE Injector - Router - PC



\* LAN or Internet

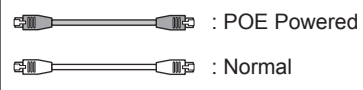
### 3 Controllers - PoE Router - PC



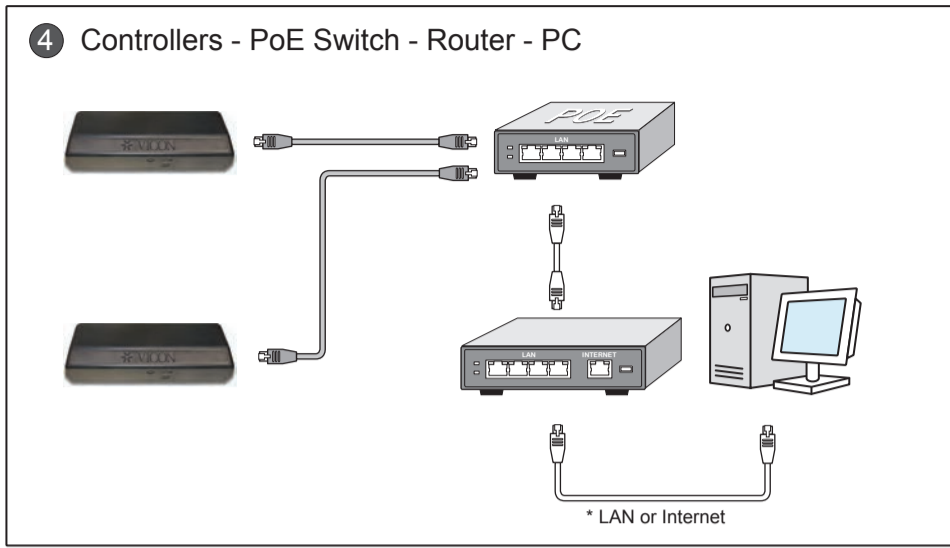
\* LAN or Internet

# Networking Examples

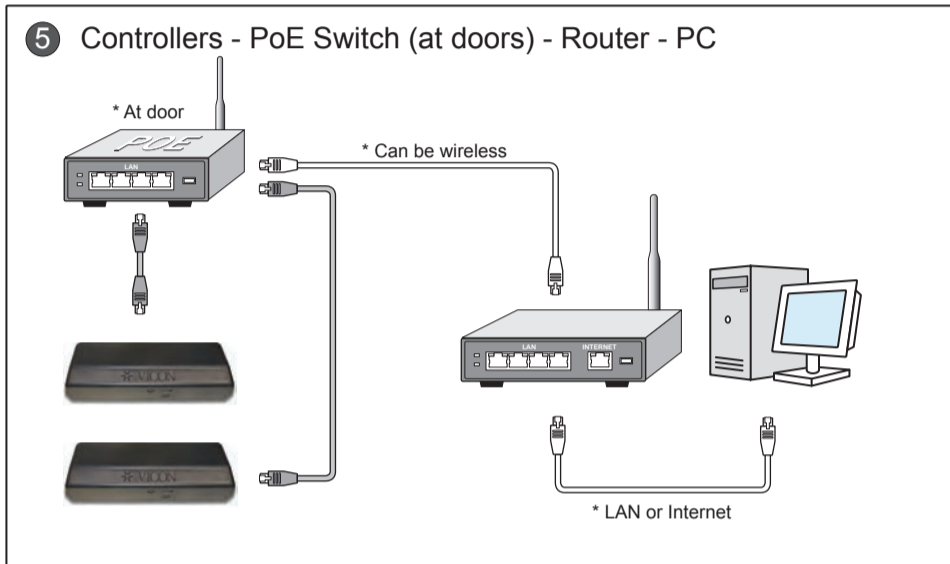
(Continued)



## 4 Controllers - PoE Switch - Router - PC



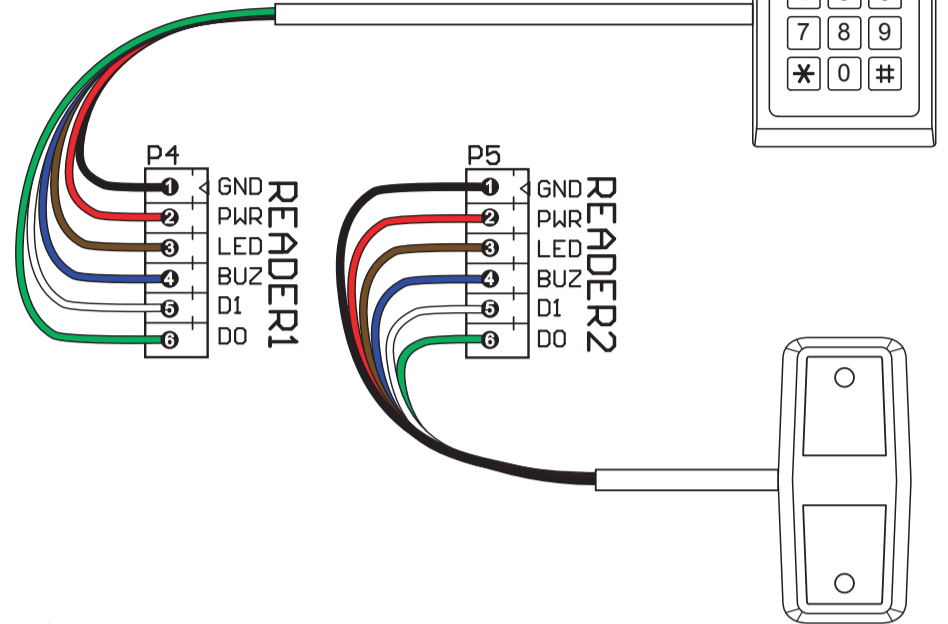
## 5 Controllers - PoE Switch (at doors) - Router - PC



# Readers & Usage Example

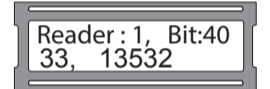
## Wiring Specification

Ground	Black and shield wires	1
Power (12V DC)	Red wire	2
LED	Brown wire	3
Buzzer	Blue wire	4
Data 1	White wire	5
Data 0	Green wire	6



### Note : Reader Test

- Get in Setup Menu Edit Mode by pressing Enter Key and hold.
- Select Reader Test menu. ( ↑ ↓ Enter keys )
- Scan a card or press numbers and # ( keypad reader only ). LCD shows the data information.

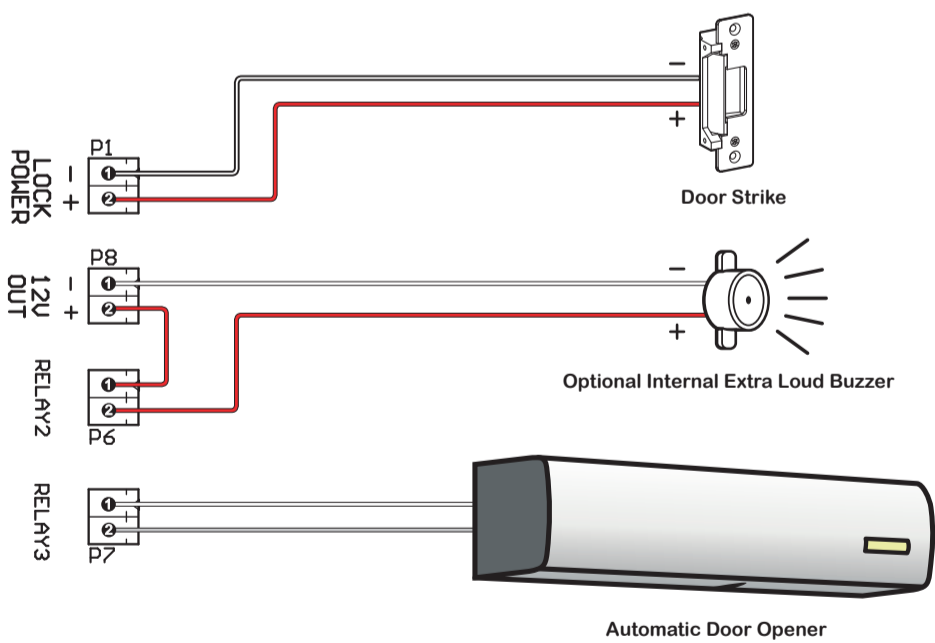


# Outputs & Usage Example

## Specification

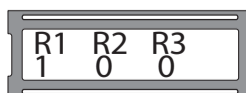
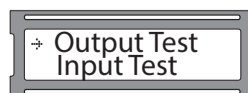
P1 (Relay1, Lock power)	Lock power relay, 1 GND, 2 12V DC 500mA
P8 (12V DC out)	12V DC output, 1 GND, 2 12V DC 200mA
P6 (Relay2)	24V DC 500mA limit
P7 (Relay3)	24V DC 500mA limit

\* All the relay outputs are configurable.  
For example, Relay2 can be configured to a door strike.



### Note : Output Test

- Get in Setup Menu Edit Mode by pressing Enter Key and hold.
- Select Output Test menu. ( ↑ ↓ Enter keys )
- Toggle selected relay by pressing Enter. ( Select change : ← → keys, 0 = Off, 1 = On )

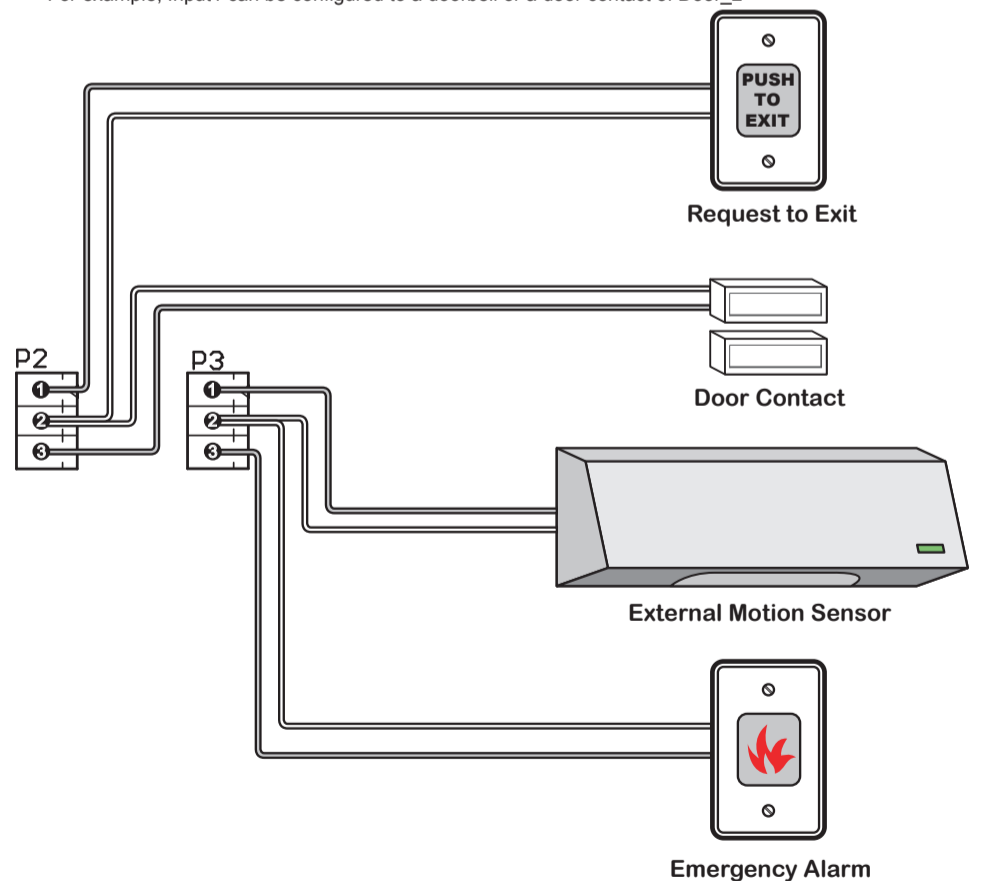


# Inputs & Usage Example

## Specification

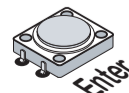
P2 1-2 Pin (Input1)	1 Input	2 Common (GND)
P2 2-3 Pin (Input2)	2 Common (GND)	3 Input
P3 1-2 Pin (Input3)	1 Input	2 Common (GND)
P3 2-3 Pin (Input4)	2 Common (GND)	3 Input

\* All the inputs are configurable.  
For example, Input1 can be configured to a doorbell or a door contact of Door\_2



### Note : Input Test

- Get in Setup Menu Edit Mode by pressing Enter Key and hold.
- Select Input Test menu. ( ↑ ↓ Enter keys )
- LCD displays current input states. ( D = Digital, S = Supervised, O = Open, C = Closed )

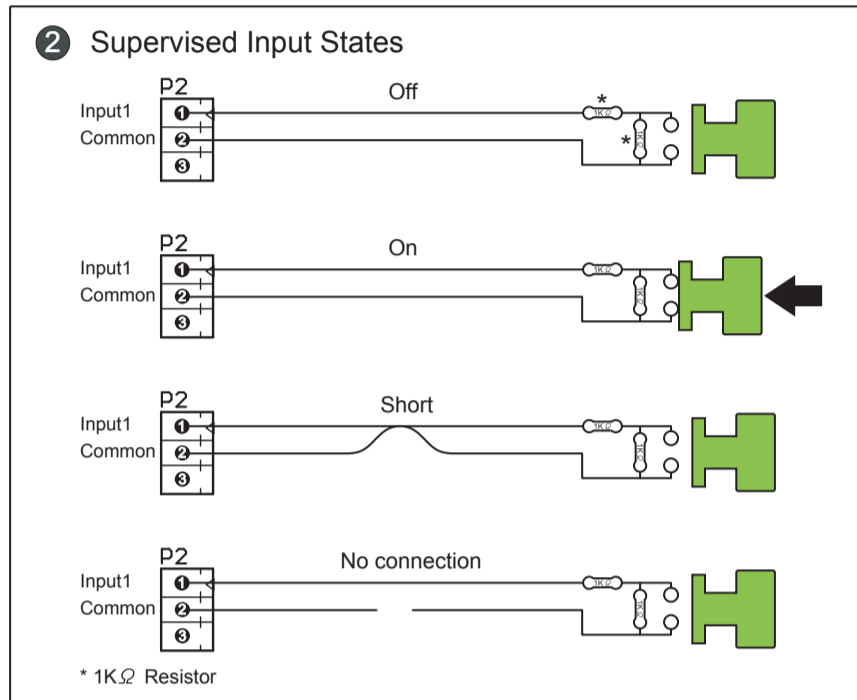
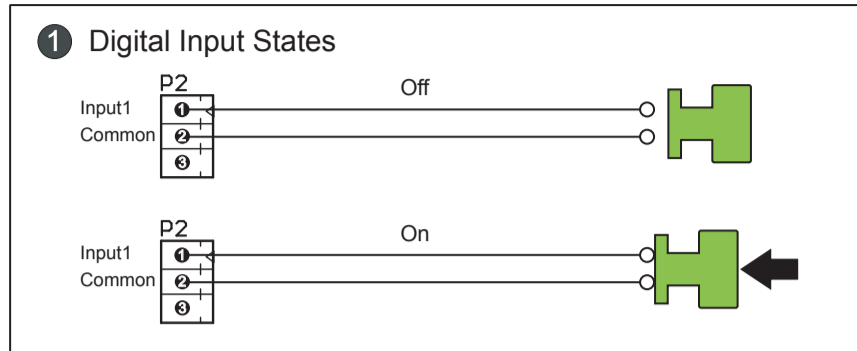


# Input Types

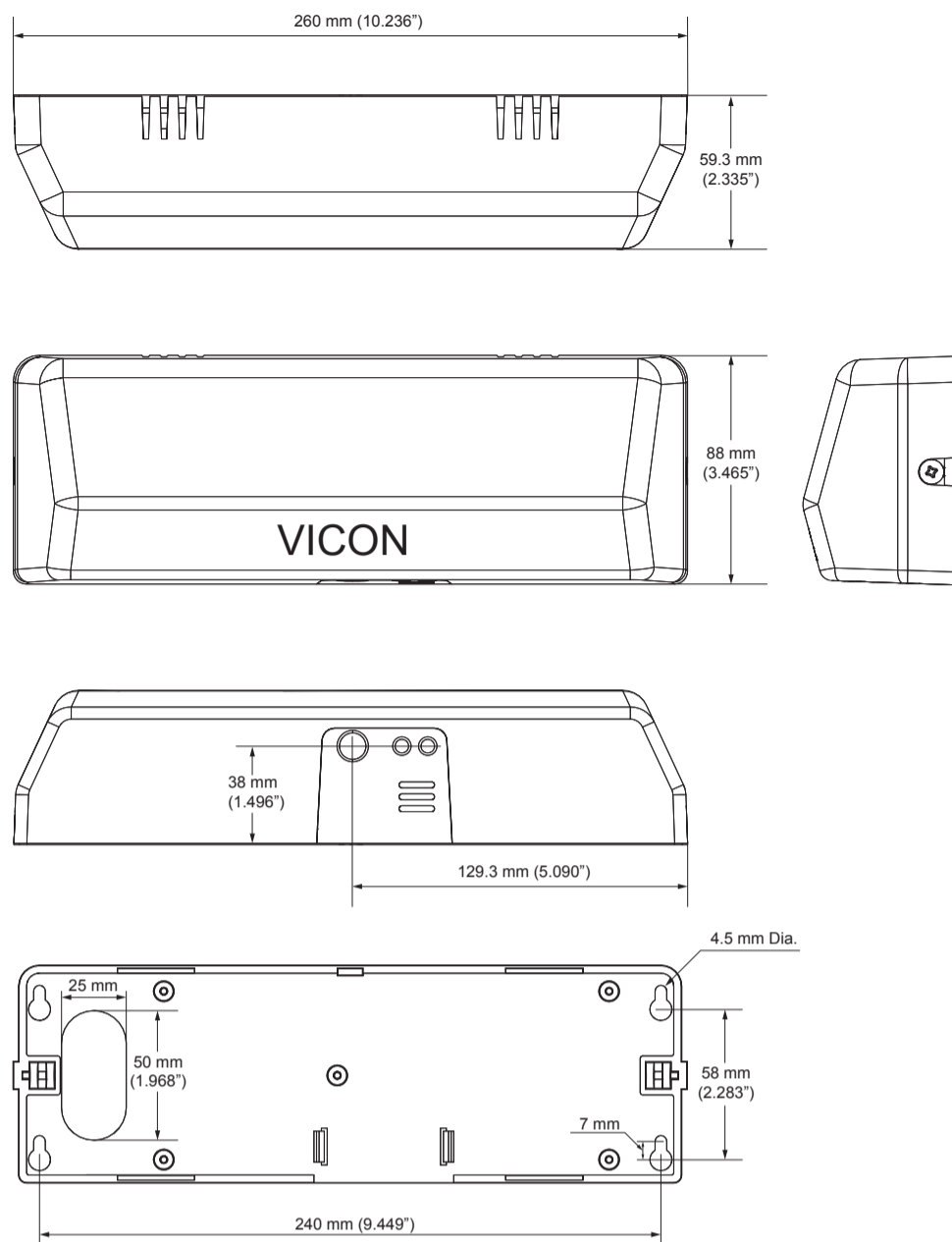
## Specification

Digital*	Off (DO), On (DC)
Supervised*	Off (SO), On (SC), Short (DC), No connection (DO)

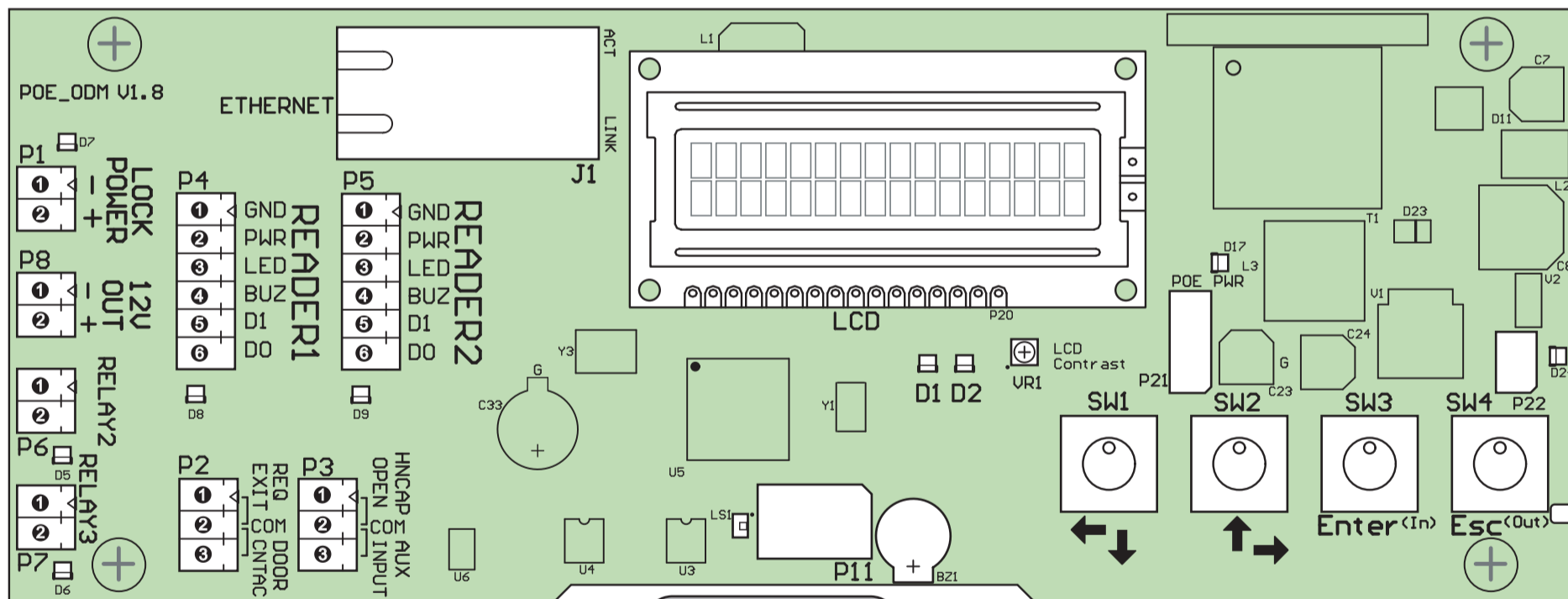
\* Software selectable



# Dimensions



# Board I/O and Connections



## LEDs

D1	System heart beat
D2	Server log on/off state Key pressed
D3	On: Server log off Blink: Server log in
D4	Green: Motion detected Red: Door Opened
D5	Relay2 on
D6	Relay3 on
D7	Relay1 on
D8	Reader1 data flow
D9	Reader2 data flow
D17	POE power
D24	CPU power
LINK	Ethernet linked
ACT	Ethernet Activity

## Connectors

P1	Relay1, DC 12V wet contact
P2	Input1, Common, Input2
P3	Input3, Common, Input4
P4	Reader1
P5	Reader2
P6	Relay2
P7	Relay3
P8	DC 12V out
P11	Sensor module
P21	Expansion
P22	Expansion
J1	Ethernet

## Keys

SW1	Left(←), down(↓)
SW2	Right(→), up(↑)
SW3	Enter, get in
SW4	Esc, exit

## Etc

LS1	Tamper sensor
S1	Motion sensor
BZ1	Embedded buzzer
P20	LCD display
VR1	LCD contrast

## Setup Menu View Mode

Get in	Press and hold Esc (beeps after 2 sec)
Get out	Esc
Move cursor	Up (Right), Down (Left)
Select menu	Enter
Exit menu	Esc

## Setup Menu Edit Mode\*

Get in	Press and hold Enter (beeps after 2 sec) Enter password**
Toggle cursor	Enter White blink: move Black blink: edit
Get out	Esc
Move cursor	Up (Right), Down (Left)
Select menu	Enter
Exit menu	Esc

## Note

\* For the first time installation, get in this mode and do following tests.

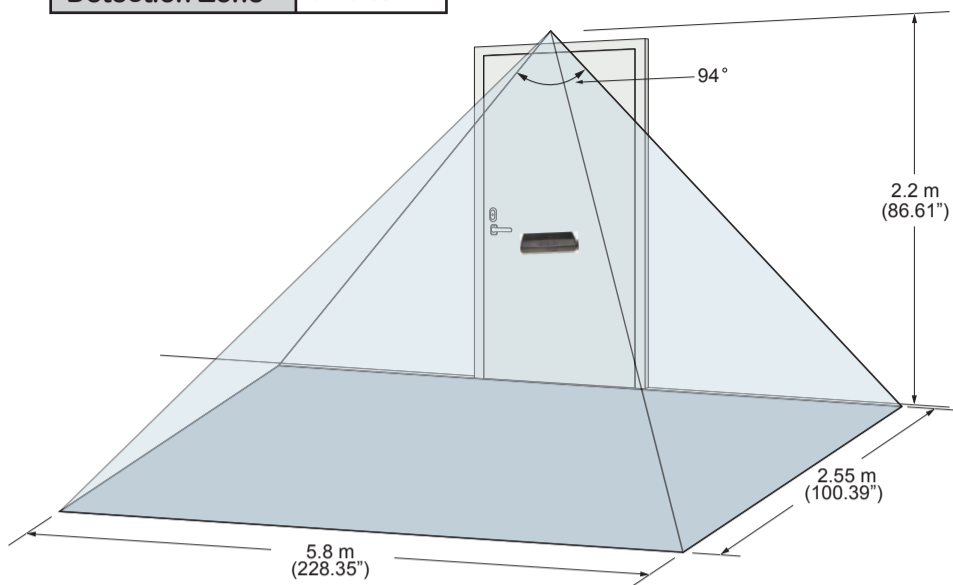
- Output Test : Toggle relays with Enter
- Input Test : Shows input states
- Reader Test : Shows scanned card info

\*\* Factory default password is 0000.  
Toll Free Tech Support: 1-800-34-VICON (800-348-4266)

# Motion Sensor

## Specification

Sensor Type	PIR
Detection Range	5 m
Detection Angle	H: 94°, V: 82°
Detection Zone	64 zones



## FCC Compliance Notices

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions:  
 (1) This device may not cause harmful interference.  
 (2) This device must accept any interference received, including interference that may cause undesired operation.

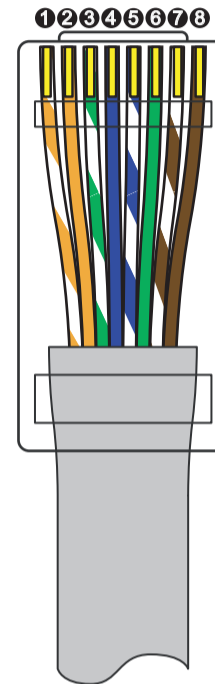
This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates,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

# Cable Requirements

Name	Maximum Distance	Cable Type	Code
PoE Cable**	100 m (328')	Twisted pair, 4 pairs	Cat5 100BASE-T or better
Reader Cable	152 m (500')	6 conductor stranded not twisted, 24 AWG or thicker, 100% overall shielded	Belden 9537 or equivalent
Door Strike Cable	152 m (500')	2 conductor stranded 18 AWG	Belden 9740 or equivalent*
Output Cable	152 m (500')	2 conductor stranded 22 AWG	Belden 8740 or equivalent*
Input Cable	152 m (500')	2 conductor stranded 22 AWG, shielded	Belden 8723 or equivalent*

\* Unless otherwise specified by manufacturer.  
 \*\* Recommended the following T568B wiring for both ends.

## T568B (TIA/EIA568B) Wiring

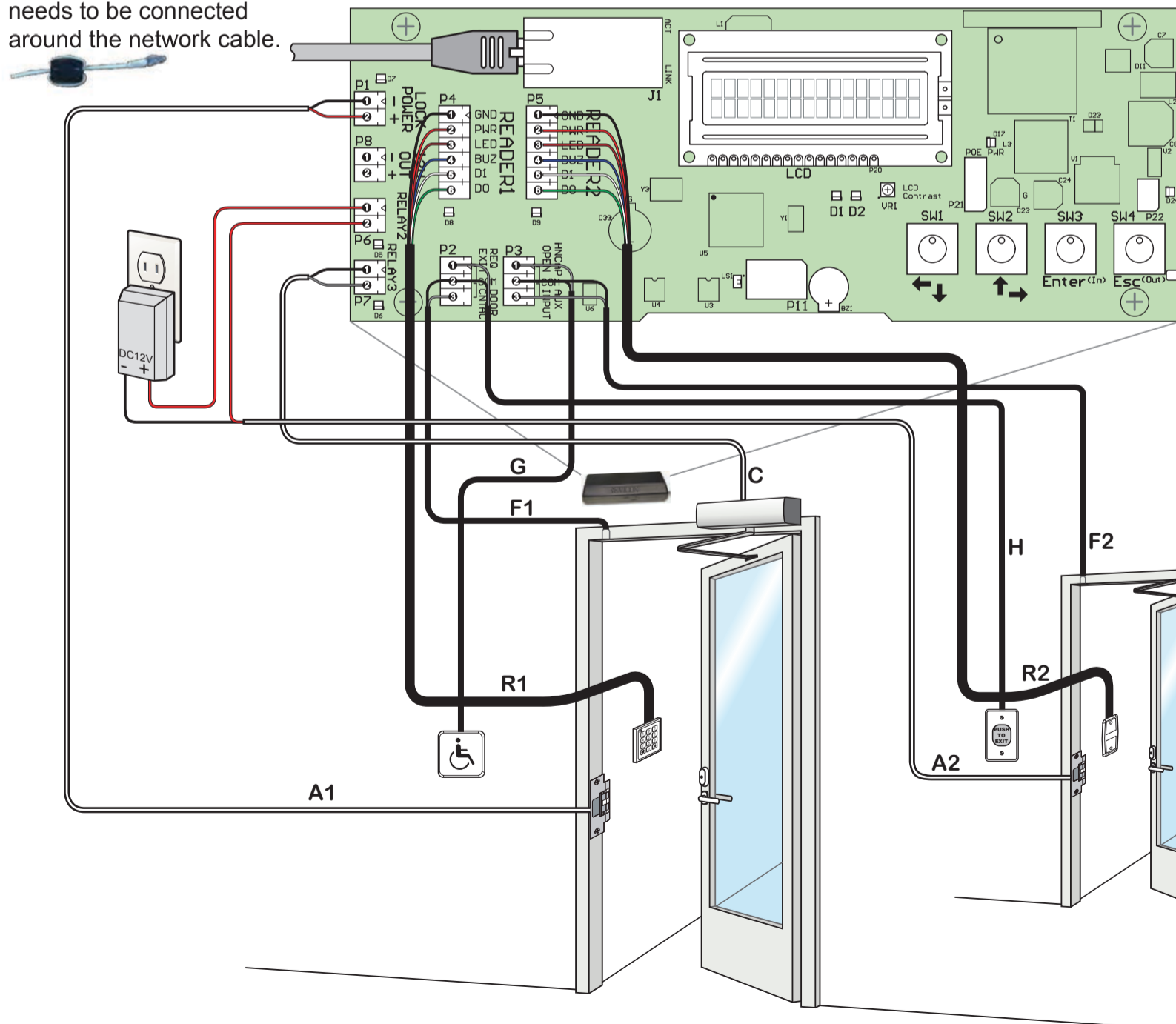


- 1 White/Orange
- 2 Orange
- 3 White/Green
- 4 Blue
- 5 White/Blue
- 6 Green
- 7 White/Brown
- 8 Brown

# Two Door Typical

(with motion, two readers, two door contacts, auto door opener)

A round cable snap (ferrite) needs to be connected around the network cable.



## Outputs

A1,A2	Wet Lock Power (12V DC 500mA)
C	Auto Door Opener (dry)

## Inputs

F1,F2	Door Contact (dry)
G	Handicap Button (dry)
H	Request to Exit (dry)
R1,R2	Readers

\*All inputs are configurable and interchangeable