VAX Single-Door Controller
Quick Start Guide

Package Contents

- VAX Single-Door Controller x1
- 2P Connector x 4
- 3P Connector x 2
- 6P Connector x 2
- Supervisor Input Resistor(1KΩ) x 8
- Cover screw x 2
- Wall screw x 4

Networking Examples

1. Controller - PoE Injector - PC (Direct)
2. Controller - PoE Injector - Router - PC
3. Controllers - PoE Router - PC

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 mm²).

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

Quick Start Guide

- 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).
Networking Examples

Controllers - PoE Switch - Router - PC

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

Outputs & Usage Example

Specification

<table>
<thead>
<tr>
<th>P1 (Relay1, Lock power)</th>
<th>Lock power relay, GND, 12V DC 500mA</th>
</tr>
</thead>
<tbody>
<tr>
<td>P8 (12V DC out)</td>
<td>12V DC output, GND, 12V DC 200mA</td>
</tr>
<tr>
<td>P6 (Relay2)</td>
<td>24V DC 500mA limit</td>
</tr>
<tr>
<td>P7 (Relay3)</td>
<td>24V DC 500mA limit</td>
</tr>
</tbody>
</table>

* 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 = + Enter keys, 0 = Off, 1 = On )

Input Test

Reader Test

Readers & Usage Example

Wiring Specification

<table>
<thead>
<tr>
<th>Ground</th>
<th>Black and shield wire</th>
</tr>
</thead>
<tbody>
<tr>
<td>Power (12V DC)</td>
<td>Red wire</td>
</tr>
<tr>
<td>LED</td>
<td>Brown wire</td>
</tr>
<tr>
<td>Buzzer</td>
<td>Blue wire</td>
</tr>
<tr>
<td>Data 1</td>
<td>White wire</td>
</tr>
<tr>
<td>Data 0</td>
<td>Green wire</td>
</tr>
</tbody>
</table>

Inputs & Usage Example

Specification

<table>
<thead>
<tr>
<th>P2 1-2 Pin (Input1)</th>
<th>Input, Common (GND)</th>
</tr>
</thead>
<tbody>
<tr>
<td>P2 2-3 Pin (Input2)</td>
<td>Common (GND), Input</td>
</tr>
<tr>
<td>P3 1-2 Pin (Input3)</td>
<td>Input, Common (GND)</td>
</tr>
<tr>
<td>P3 2-3 Pin (Input4)</td>
<td>Common (GND), Input</td>
</tr>
</tbody>
</table>

* All the inputs are configurable. For example, Input1 can be configured to a doorbell.

Note: Input Test

Get in Setup Menu Edit Mode by pressing Enter key and hold.

Select Input Test menu. ( Enter keys )

Reader Test

Reader: 1, Bit: 40

33, 13532

Request to Exit

Door Contact

External Motion Sensor

Emergency Alarm

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.

VICON INDUSTRIES INC. WWW.VICON-SECURITY.COM
Vicon part number: 8009-8274-00-03  Rev. 618
**Input Types**

<table>
<thead>
<tr>
<th>Specification</th>
<th>Digital*</th>
<th>Off (DO), On (DC)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Supervised*</td>
<td>Off (SO), On (SC), Short (DC), No connection (DO)</td>
</tr>
</tbody>
</table>

* Software selectable

1. **Digital Input States**
   - Input1 Common
     - On
     - Off
   - Input2 Common
     - On
     - Off
   - Input3 Common
     - Short
     - No connection

2. **Supervised Input States**
   - Input1 Common
     - On
     - Off
     - Short
     - No connection

* 1KΩ Resistor

**Board I/O and Connections**

**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**
- **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

**Dimensions**

- VICON

**Board I/O and Connections**

- LEDs
  - D1: System heartbeat
  - D2: Server log on/off state
  - D3: On, Server log off
  - D4: Motion detected
  - D5: Door opened
  - D6: Relay 2 on
  - D7: Relay 1 on
  - D8: Reader data flow
  - D9: Reader 2 data flow
  - D10: Power
  - D24: CPU Power
  - LINK: Ethernet link
  - ACT: Ethernet Activity

- Connectors
  - P1: Relay, DC 12V wet contact
  - P2: Input1, Common, input2
  - P3: Input 3, Common, input4
  - P4: Reader 1
  - P5: Reader 2
  - P6: Reader 3
  - P7: DC 12V out
  - P8: Reader module
  - P9: Reader 2 data flow
  - P10: Sensor module
  - P11: Expansion
  - P12: Expansion
  - P13: Ethernet

- Keys
  - SW1: Left, down
  - SW2: Right, up
  - SW3: Enter, get in
  - SW4: Esc, exit

- Etc
  - LS1: Tamper sensor
  - BZ1: Embedded buzzer
  - P20: LCD display
  - VR1: LCD contrast
### Motion Sensor

**Specification**

<table>
<thead>
<tr>
<th>Sensor Type</th>
<th>PIR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Detection Range</td>
<td>5 m</td>
</tr>
<tr>
<td>Detection Angle</td>
<td>H: 94°, V: 80°</td>
</tr>
<tr>
<td>Detection Zone</td>
<td>64 zones</td>
</tr>
</tbody>
</table>

### Cable Requirements

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

* Unless otherwise specified by manufacturer.

** Recommended the following T568B wiring for both ends.

### T568B (TIA/EIA568B) Wiring

- White/Orange
- Orange
- White/Green
- Blue
- White/Blue
- Green
- White/Brown
- Brown

### Single Door Typical

(with motion, single reader, door contact, auto door opener)

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

### 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.

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