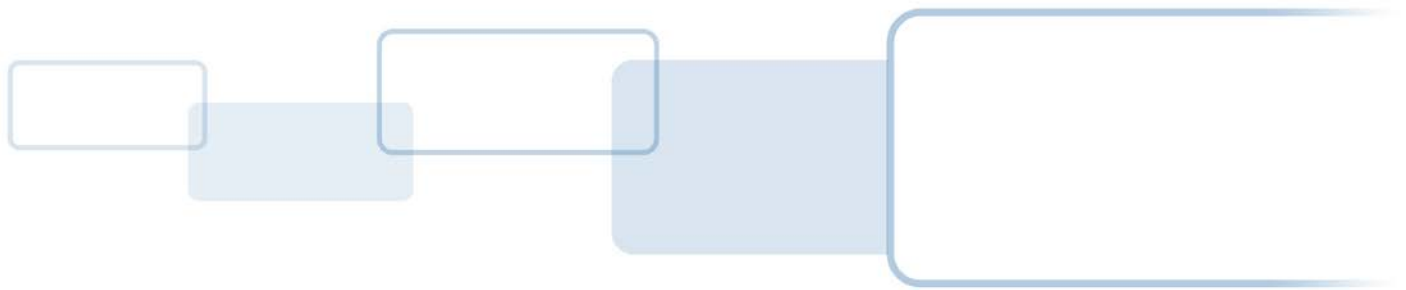




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# VertX<sup>®</sup>

## V100, V200 and V300

### Installation Guide

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## Introduction

HID's VertX open platform is flexible and scalable to permit economic and high performance access control solutions for a wide range of applications. The VertX units interconnect through different sub-networks and protocols to a standard TCP/IP network with the capability of a variety of applications.

The VertX Interface Panels are designed for control by a VertX V1000 Access Controller. The V100 Door/Reader Interface panel controls two sets of door devices or one door with Card In/Card Out (a reader on both sides of the same door). The V200 Input Monitor Interface panel monitors as many as 16 input points. The V300 Output Control Interface panel controls as many as 12 output relays.

## Parts List

V100, V200 and V300	Quantity
Interface Panel	1
Mounting screws	4
2.2K EOL resistors	32
Quick Installation Guide	1

**Note:** VertX Interface panels require installing a V1000 Controller. See the V1000 Wiring Diagram Example.

## Product Specifications

Description	Specification
Power Supply	12-16VDC
Maximum Current at 12VDC per unit	1 Amp
Average operating current at 12VDC	V100 - 450mA (with two R40 iCLASS Readers)
	V200 - 60mA
	V300 - 75mA
Operating temperature range	32°-120°F (0°-49°C)
Humidity	5% to 85% non-condensing

## Cable Specifications

Cable Type	Length	Specification
RS-485 *	4000 feet (1220 m) to host	Using Belden 3105A, 22AWG twisted pair, shielded 100Ω□ cable, or equivalent.
Input Circuits *	500 feet (150 m)	2-conductor, shielded, using ALPHA 1292C (22AWG) or Alpha 2421C (18AWG), or equivalent.
Output Circuits *	500 feet (150 m)	2-conductor, using ALPHA 1172C (22AWG) or Alpha 1897C (18AWG), or equivalent.
Wiegand	500 feet (150 m) to reader	ALPHA 1299C, 22AWG, 9-conductor, stranded, overall shield. Fewer conductors needed if all control lines are not used.
Power Supply +12 VDC IN	----	Refer to your Power Supply Installation Guide.

- Minimum wire gauge depends on cable length and current requirements.

## Overview

The following outlines what is required to installing VertX interface panels.

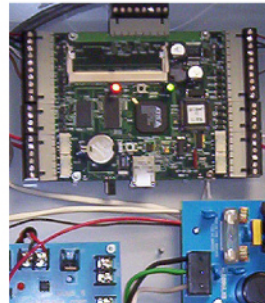
### 1 Preparations



Preparations include reading through this document.



### 2 Hardware Installation



Hardware Installation includes mounting and wiring the interface panel(s).

## Step 1 Preparations

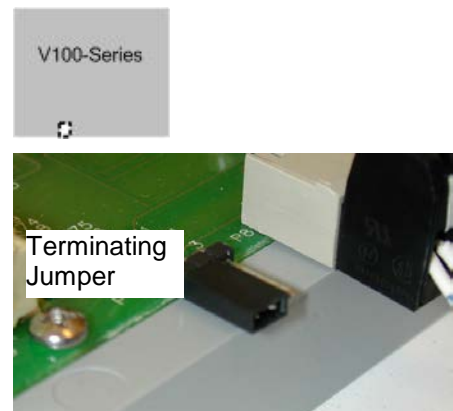
### 1.1 What you need before getting started

Prior to starting the installation, completely read this guide.

**CAUTION: VertX Interface panels are sensitive to Electrostatic Discharges (ESD). Observe precautions while handling the circuit board assembly by using proper grounding straps and handling precautions at all times.**

### 1.2 V100, V200, or V300

1. If attaching the V100-Series panel to the end of the RS-485 bus, install a terminating jumper to the **In** position on the termination resistor pins, P8 on the cover (P10 on the PCB) of the V100, V200 and V300.
2. If the V100-Series panel is being installed as part of an array, or in a third party enclosure, follow the directions provided by the Integrator or Dealer.



## Step 2 Hardware Installation

### 2.1 Mounting

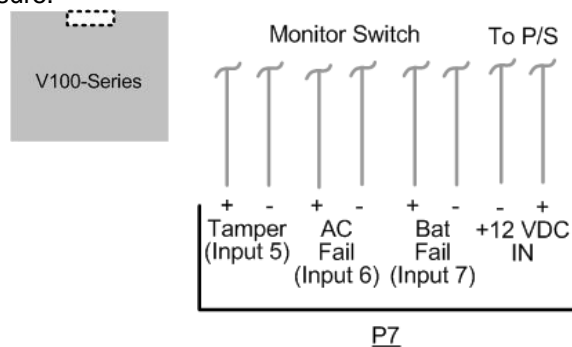
1. Always mount the interface panels in a secure area.
2. Mount using the four mounting screws (provided) or other appropriate fasteners. Place the fasteners in the corner holes of the base.
3. Stack the VertX devices with or without the cover. Do not remove the plastic base. Position the VertX devices in such a way as to provide room for wiring, air-flow and cable runs.

**CAUTION: Stacking the VertX devices without the cover risks the danger of breaking the LEDs unless spacers are used for separation.**

### 2.2 Wiring VertX

**CAUTION: Connectors on the VertX devices are positioned to be mirror images and are not interchangeable once the installation is complete. Therefore, you cannot unplug a connector from one side and plug it into the corresponding connector on the other side.**

1. **Power and Alarm input connections (All VertX units):**  
Connect power by providing 12VDC to the **P7 or P9** connector. +12VDC goes to **P7 Pin 1 or P9 Pin 8** and ground to **P7 Pin 2 or P9 Pin 7**. Batt Fail, AC Fail, and Tamper switch inputs are wired as shown in the table. Connect the Bat Fail and AC Fail inputs to battery low/failure and AC failure contacts provided on the power supply. Connect the Tamper input to a tamper switch on the enclosure.



Pin #	P7
1	+12VDC
2	Ground
3	Bat Fail -
4	Bat Fail +
5	AC Fail -
6	AC Fail +
7	Tamper -
8	Tamper +

- 2 **Reader Connections (V100):** Connect Wiegand or clock-and-data interfaces to a V100 using the connection table shown. You can connect up to 10 signal lines for the reader. Use as many of the signal lines as required for your reader interface.  
**Note:** Connect the data return line to the same ground as the reader power if the reader is not powered by the VertX units 12VDC.

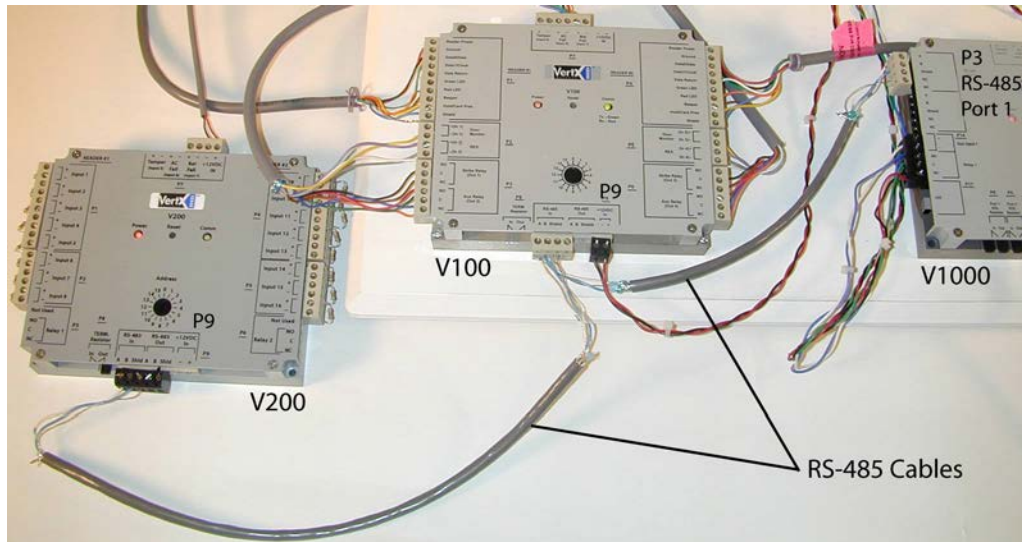


Pin #	V100 P1	V100 P4
1	Reader Power	Shield Ground
2	Ground	Hold
3	Data 0 / Data	Beeper
4	Data 1 / Clock	Red LED
5	Data Return	Green LED
6	Green LED	Data Return
7	Red LED	Data 1 / Clock
8	Beeper	Data 0 / Data
9	Hold	Ground
10	Shield Ground	Reader Power

### 3. RS-485 Connections –

Connect the V100 panel to the V1000 controller through the RS-485 cable. See the V1000 Quick Install Guide for further information.

**CAUTION: The V1000 RS-485 Ports 1 & 2 (P1) are a common bus and therefore cannot have panels with duplicate Interface Addresses assigned. The same is true of the V1000 RS-485, Ports 3 & 4 (P4). For example, two panels, both with Interface Address 0 (factory default), cannot be connected to Ports 1 and/or 2 (P1).**



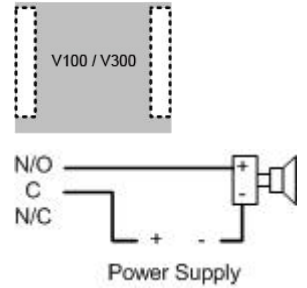
4. **Interface Address** – Set the interface address by turning the **Address** dial. Ensure that the V100 Interface Address is documented in the Hardware Installation Worksheet (found in the back of the HID VertX V1000 Quick Install guide).



- 5. Output Connections (All VertX units)** – All Output connections are used for general purpose controls. The following table shows where the various outputs are located. Pin numbers shown use the convention “NO/C/NC”. For example, Output 1, V2000: P3 Pin1 is NO (Normally Open,) Pin 2 is C (Common,) and Pin 3 is NC (Normally Closed).

**Note:** Relays are dry contact rated for 2Amps @ 30VDC.

Output number	V100	V200	V300
1	P3 Pins 1/2/3 Strike (lock) Relay 1	P3 Pins 2/3/4	P1 Pins 1/2/3
2	P3 Pins 4/5/6 Aux Relay 1	P6 Pins 3/2/1	P1 Pins 4/5/6
3	P6 Pins 6/5/4 Strike (lock) Relay 2		P1 Pins 7/8/9
4	P6 Pins 3/2/1 Aux Relay 2		P2 Pins 1/2/3
5			P2 Pins 4/5/6
6			P2 Pins 7/8/9
7			P4 Pins 9/8/7
8			P4 Pins 6/5/4
9			P4 Pins 3/2/1
10			P5 Pins 9/8/7
11			P5 Pins 6/5/4
12			P5 Pins 3/2/1



**CAUTION:** Some magnetic locks exhibit both high inrush current when activated and a high instantaneous break voltage when de-energized due to magnetic field collapse. It is recommended you use of a snubber circuit across the controlling relay terminals to protect the controlling relay contacts. Go to [support.hidglobal.com](http://support.hidglobal.com), see Solution 891 - How do I wire a High In-Rush Current locking device to VertX/Edge/Edge Solo?.

- 6. Input Connections (All V100-Series devices)** – Input connections are analog inputs used for a combination of specific functions such as Request-to-Exit (REX), Door monitor, etc. They can also be used as general purpose monitoring. Connect one side of the switch or contact to the + (plus) lead and the other to the – (minus) lead. The following table shows where the inputs are located. Pin numbers shown on the cover use the convention +/-.

The default REX input configuration is normally open (NO) unsupervised (no EOL resistors).

**However, the default door switch (DS) configuration is Normally Closed (NC), unsupervised (no EOL resistors).**

All other input points are defaulted for NO switches and are unsupervised (no EOL resistors).

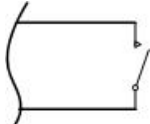


Any input can be configured as NO or NC, as well as unsupervised or supervised. They can be configured for supervisory resistors of 1K – 6K Ohm. The setup of supervised inputs should be done during configuration of the VertX devices via the host

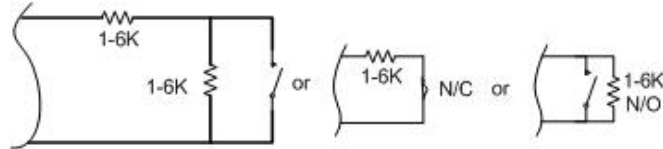
**Example:** Input 1, V1000 is: P14 Pin1 is + and Pin 2 is -.



Except for the door monitor, all other inputs default to NO, unsupervised:



Supervised inputs can be configured for:



Input Number	V100	V200	V300
1	P2 Pins 1/2 <i>Door Monitor</i>	P1 Pins 1/2	P6 Pins 2/1
2	P2 Pins 3/4 <i>REX input</i>	P1 Pins 3/4	P3 Pins 1/2
3	P5 Pins 4/3 <i>Door Monitor</i>	P1 Pins 5/6	P7 Pins 8/7 <i>Tamper</i>
4	P5 Pins 2/1 <i>Rex Input</i>	P1 Pins 7/8	P7 Pins 6/5 <i>AC Fail</i>
5	P7 Pins 8/7 <i>Tamper</i>	P1 Pins 9/10	P7 Pins 4/3 <i>Batt Fail</i>
6	P7 Pins 6/5 <i>AC Fail</i>	P2 Pins 1/2	
7	P7 Pins 4/3 <i>Batt Fail</i>	P2 Pins 3/4	
8		P2 Pins 5/6	
9		P4 Pins 10/9	
10		P4 Pins 8/7	
11		P4 Pins 6/5	
12		P4 Pins 4/3	
13		P4 Pins 2/1	
14		P5 Pins 6/5	
15		P5 Pins 4/3	
16		P5 Pins 2/1	
17		P7 Pins 8/7 <i>Tamper</i>	
18		P7 Pins 6/5 <i>AC Fail</i>	
19		P7 Pins 4/3 <i>Batt Fail</i>	

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