

Rhino
Quick Start
Guide

Rhino Quick Start Guide

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Background

Strong Identity Authentication

Innometriks develops and manufactures a suite of hardware and software products that provide strong identity authentication for mission critical environments. Strong identity authentication verifies an individual's identity using technologies including biometrics, smartcards, Public Key Infrastructure (PKI) and digital signatures to provide a level of assurance above and beyond that available through simple PIN, password or non-smartcard ID card mechanisms. Strong identity authentication provides greater protection of critical assets and sensitive information.

The Company's strong identity authentication offerings fill critical compliance gaps that exist in current generation physical access control systems (PACS). Although fully functional and well within their operational life span, most installed PACS fail to meet the credential verification and identity authentication requirements set forth by the U.S. Government identity programs known as Personal Identity Verification (PIV) and Transportation Workers Identity Credential (TWIC). Innometriks product offerings also fill important roles in commercial facility security, time and attendance and other applications where positive identity of individuals is of paramount importance.

What Makes Innometriks Different

Innometriks' Products complement, not compete against, existing physical access control solutions. Innometriks offerings fill critical compliance gaps that exist in current generation physical access control systems. This strategy allows for existing vendors, who have a large installed base of non-compliant physical access control systems, to become compliant by merely replacing their non-compliant readers with Innometriks devices.

The Rhino

The Rhino is implemented on an open source software platform, embedded Linux, providing unprecedented flexibility in integrator and end user customization. The Rhino offers flexible configuration options for fingerprint sensors, environmental implementation (waterproof housing & enclosure heaters) and system connectivity (Ethernet, RS485, and industry standard Wiegand interfaces). Further, the Rhino line features bright, easy to read color displays and multifunction keypad to deliver an optimal user experience. Each Rhino configuration is packaged in an extremely durable metal housing engineered for application in harsh operating environment, indoors and out.

Power Requirements

The Rhino reader requires nominally 12VDC at 750 milliamps to operate correctly. The Rhino installed with the heater option for extreme outdoor conditions requires nominally 12VDC at 3amps to operate correctly. The wiring to deliver power to the reader should conform to proper electrical installation

practices and codes, and should be of a gauge required to deliver the required voltage and current to the reader without excessive loss or heating.

Power Cabling

Innometriks recommends power cabling of no less than 18 gauge be used for installation of standard (no heater) Rhino devices.

The table below provides some guidance for standard stranded cabling with respect to distance, gauge and current (at 12VDC) and can be used to select the proper cable for powering the units.

Total Branch Current in mA

Wire Gauge	250	500	1000	1500	2000	2500	3000	3500
12	3023	1511	756	504	378	302	252	216
14	1901	950	475	317	238	190	158	136
16	1194	597	299	199	149	119	100	85
18	751	376	188	125	94	75	63	54

Maximum distance in feet

Reader Communication

Communications for the reader will be handled either via a CAT5 cable or RS485. When connecting via Ethernet standard Ethernet cables should be used and standard Ethernet distances should be adhered to. For RS485 communications standard CAT5 cable, a twisted pair 24AWG wire, can be used. It is also possible that a stranded cable can be used. In either case however it is recommended in a noisy environment that a shielded cable be utilized.

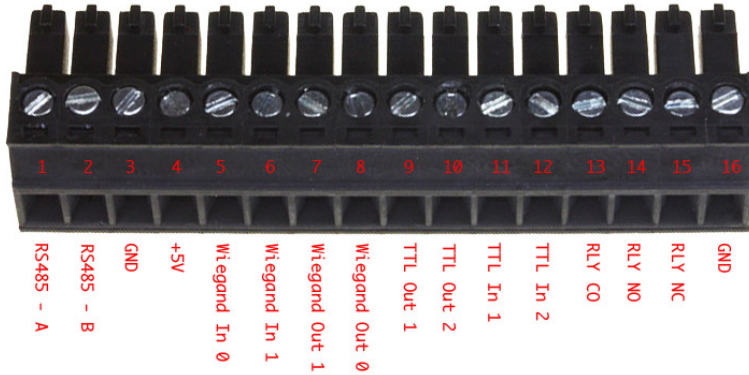
For Wiegand communications it is recommended that you consider your environment to determine the need for shielded cable. The Rhino reader has the ability to send and receive Wiegand data. Wiegand output is typically used to send authentication data to a PACS panel. Wiegand input allows the reader to accept input from external Wiegand devices like a magnetic stripe reader. It is recommended that you adhere to standard Wiegand distance limitations of 500 feet and would use twisted pair cable from 20AWG to 24AWG.

In addition TTL input provides a way to accept dual LED return and single line return, typically called Green LED and Red LED/Buzzer to provide user feedback such as Access Granted, Access Denied, and Enter PIN. TTL output provides a means of adding external authentication status devices such as stack lights.

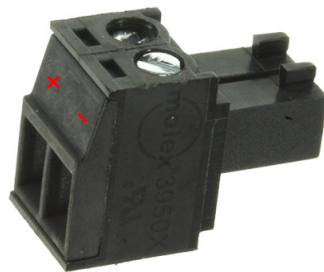
Molex Connector Wiring

It is best to wire both the Molex input/output and power connectors while they are free of the Rhino unit.

Input/Output Connector:

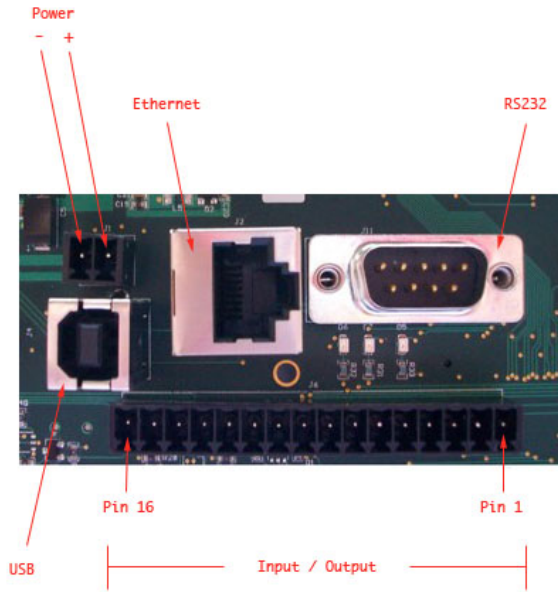


Power Connector:



12 Volt DC

Rhino board level view of connections:



Input/Output Connections

RS485

The EIA-485 differential line consists of two pins:

Pin 1 RS485-A, '-', TxD-/RxD-, or inverting pin

Pin 2 RS485-B, '+', TxD+/RxD+, or non-inverting pin

Wiegand

The reader interface uses standard Wiegand wiring conventions. The Rhino reader uses Wiegand Out to send data to the PACS panel, and Wiegand In to receive data from an external device such as a magnetic stripe reader. Connect the wire properly to the terminal block on the appropriate board node. Following is a typical, but not universal, wiring guide. Refer to the Panel/Reader/Keypad Wiring Guide for guidelines related to your specific PACS, reader or keypad.

Pin 3 Ground for Wiegand Input Device – Typically black external input device wire. Ground for Rhino 5 VDC power for external Wiegand input devices.

Pin 4 Power for Wiegand Input Device - Typically Red external input device wire. Supplies 5 VDC power for external Wiegand input devices.

Pin 5 Wiegand In 0 - Typically orange reader wire to the DATA0 terminal. Used to receive data from an external Wiegand input device.

Pin 6 Wiegand In 1 - Typically brown reader wire to the DATA1 terminal. Used to receive data from an external Wiegand input device.

Pin 7 Wiegand Out 1 - Typically green reader wire to the DATA1 aka W1 aka Data Low terminal. Used to send data to a PACS panel or other external device.

Pin 8 Wiegand Out 0 - Typically white reader wire to the DATA0 aka W0 aka Data High terminal. Used to send data to a PACS panel or other external device.

TTL

TTL Out is typically used to convey authentication status to TTL LEDs, light stacks or to control external relays. TTL In is typically used to pass PACS panel Pass/Fail/PIN output back to the reader.

Pin 9 TTL Out 1 - Output is 3 VDC

Pin 10 TTL Out 2 - Output is 3 VDC

Pin 11 TTL In 1 or Red LED/Buzzer – Typically Brown wire from PACS panel Red LED/Buzzer

Pin 12 TTL In 2 – Typically Orange wire from PACS panel Green LED

Relay

Relay Open/Close is typically used in environments where the reader is used independent of a PACS system. Relay can be used to control magnetic and electric strikes.

Pin 13 RLY CO or Common – Relay common

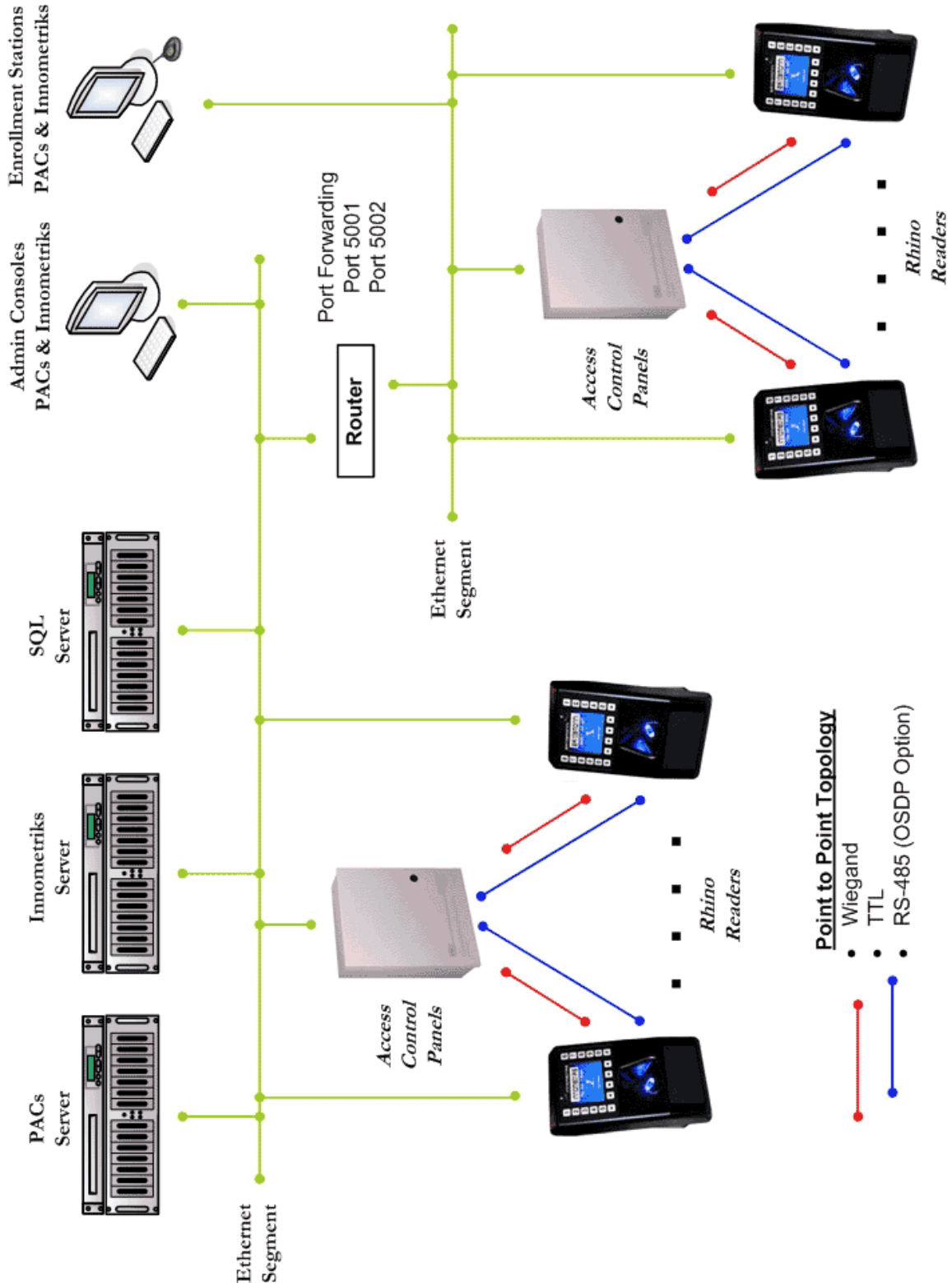
Pin 14 RLY NO or normally open – Example, electric door strike

Pin 15 RLY NC or normally closed – Example, magnetic door strike

Ground

The ground pin should be connected to the PACS panel ground. Reader to panel communication issues are often traced back to an improper panel ground. PLEASE CONNECT TO PANEL GROUND.

Pin 16 GND, Ground or Common – Black external reader wire



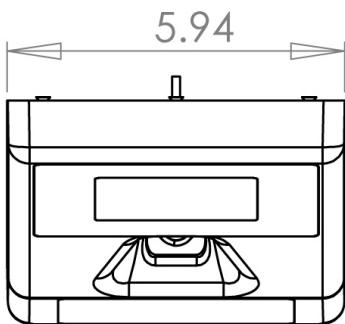
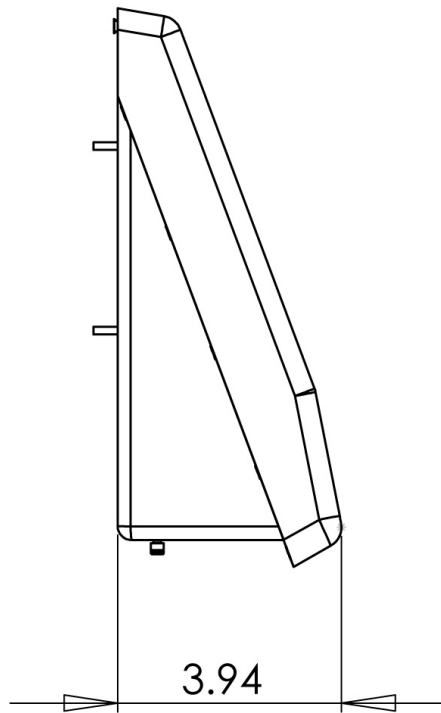
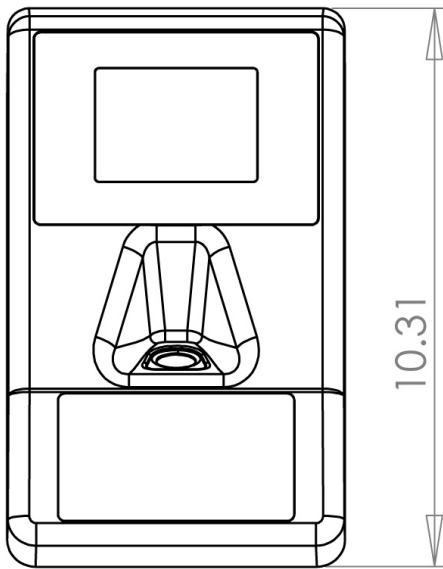
Point to Point Topology

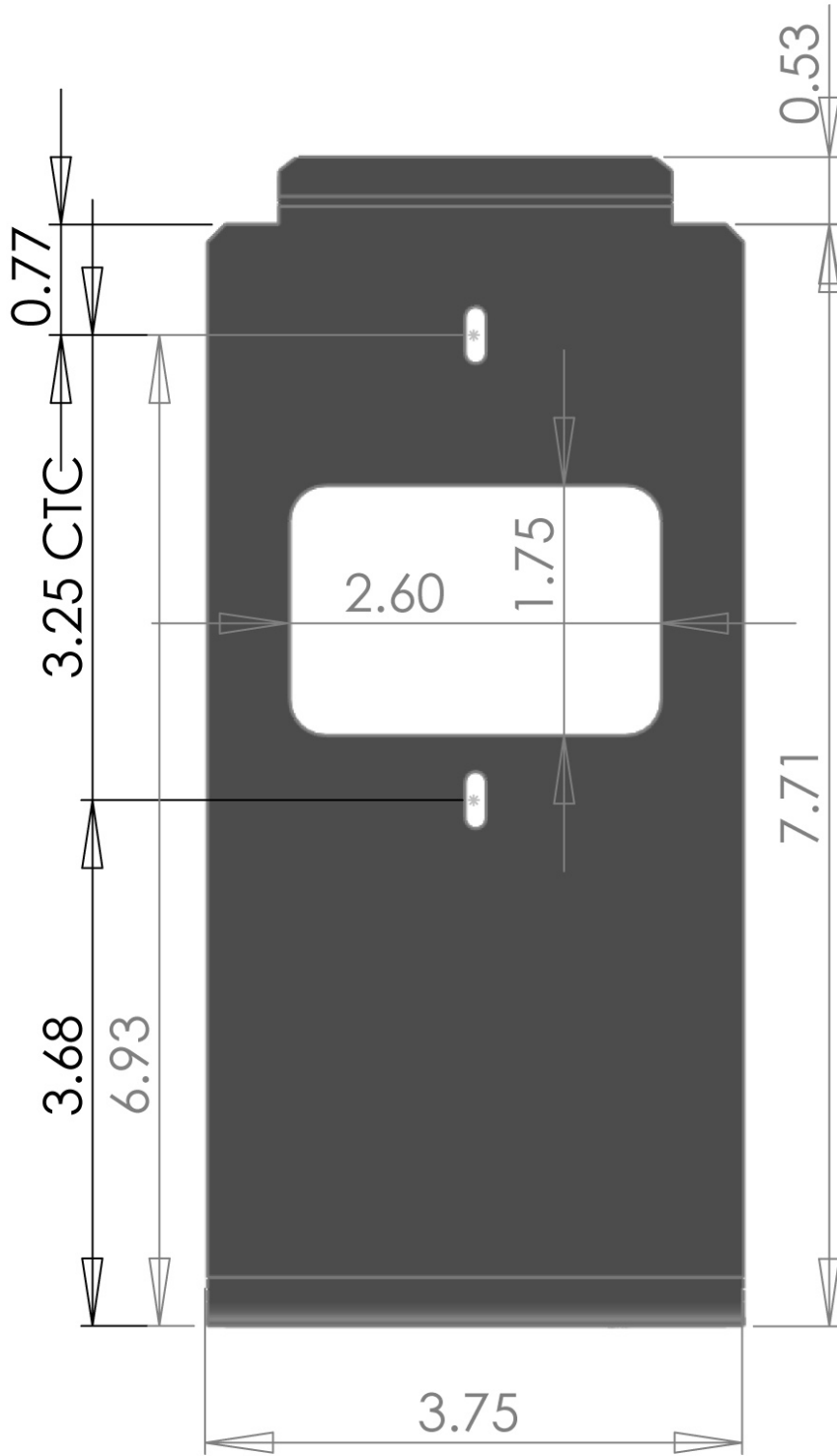
- Wiegand
- TTL
- RS-485 (OSDP Option)

Physical Installation

Dimensions:

- Length: 10.31"
- Width: 5.94"
- Depth: 3.94"
- Weight: ~ 4lbs
- Material: Aluminum





WALL MOUNTING PLATE