VICON

DATA READERS QUICK START GUIDE
PROXIMITY CARD READERS 125KHZ

This Quick Start Guide is intended for experienced installation technicians. It is a basic reference to ensure all connections are properly made. Installation and wiring of systems must be in accordance with the National Electrical Code, ANSI/NFPA 70.

1.0 Introduction
A key component of a physical security electronic access control system, a proximity card reader is based on RFID technology. In operation it is capable of reading data stored on a proximity credential via radio frequency and without physical contact, and then passing the data obtained to the physical access control system. Access control systems typically manage and record the movement of individuals through a protected area, such as a locked door.

This Quick Start Guide is intended for experienced installing technicians. It is a basic reference to ensure all connections are properly made. Models include P-300, P-400, P-403, P-405, P-410, P-453, P-455, P-500, P-530, P-610, P-710 and P-900, as well as variants supporting several card and tag technologies. For additional information please reference Vicon's website www.vicon-security.com.

2.0 Mounting Provisions
Each reader may be installed on either indoors or outdoors.

	VAX-300R	VAX-500R
Mullion Mount		
Single-gang Wall Mount*		

*Plastic or metal.

3.0 Reader Wiring

Wiegand		Magstripe	
Conductor	*Function*	*Conductor*	*Function*
Red	DC (5-16 VDC)	Red	DC (5-16 VDC)
Black	Ground	Black	Ground
Green	Data 0	Green	Data
White	Data 1	White	Clock
Brown	Red LED[a]	Brown	Red LED
Orange	Green LED[b]	Orange	Green LED
Yellow	Card Present	Yellow	Card Present
Blue	Beeper	Blue	Beeper
Violet	fleaPower	Violet	fleaPower
Drain	Shield Ground	Drain	Shield Ground

NOTES:
[a]Single Line LED: This is the standard operating mode and does not make use of the Orange conductor. The LED is Red when the reader is idle and flashes when a card is presented. The LED turns Green when the Brown Conductor is pulled low by the access control panel.

[b]Dual Line LED: This mode makes use of both the Brown and Orange conductors. The Brown conductor controls the Red LED and the Orange conductor controls the Green LED. LED states are determined by the access control system option and capability.

4.0 Cable Requirements
24 AWG minimum, multi-conductor stranded with an overall foil shield, for example Belden 9535 or similar. Per the SIA's Wiegand specification, maximum cable length is 500-feet (152 m).

5.0 Output Formats
Wiegand (industry standard 26-bit Wiegand and custom Wiegand formats)
Magnetic Stripe (ABA Track II, clock and data, with card present)

6.0 Grounding
Shield (drain) continuity must run from the reader to the access panel. Shield (drain) and reader ground must be tied together at the access panel and connect to an earth ground at one point.

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www.vicon-security.com

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Vicon Part Number: 8009-8277-00-01 Rev 11.15

7.0 Power
Reader may be powered by the access panel. A linear power supply is recommended for best operation.

8.0 Voltage
5 to 16 VDC. 12 VDC at the reader is recommended for best operation.

Model	VAX-300R	VAX-500R
Current Draw	70 - 110 mA	70 - 110 mA

9.0 Connection
Connection must be done in accordance with NFPA 70.
Do not connect to a receptacle controlled by a switch.

10.0 Troubleshooting
1. When the reader is first powered on it will beep 4 times and the LED will illuminate red.
2. Presenting a supported access credential will result in the reader beeping and the LED flashing once.

NOTE: The access panel controls LED functionality, such as switching the LED to green.

If the reader does not recognize the card or tag (no beep, no LED flash) or exhibits short read range, please see the table below for possible causes and solutions.

Possible Cause	Corrective Action
Incorrect cabling	Verify gauge, connections and cabling length
Not enough power	12 VDC recommended, 5 VDC at reader is minimum
Incorrect card used	Verify if card technology is supported
Reader/access panel not properly grounded	Earth ground needed - verify shield and reader ground are tied at access panel and connect to ground at one point
Supply generating interference	Linear power supply recommended, verify switching power supply before use

Should any of the corrective actions mentioned above not improve performance, disconnect the reader from the access panel and power it with a separate power supply or 9 VDC battery, and re-test card functionality. By powering the readers separately, most variables that may lead to reduced performance can be eliminated. Should the problem persist, please contact Vicon Technical Support.

FCC compliance Statement: 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, and
(2) this device must accept any interference received, including interference that may cause undesired operation.

Product can be used without license conditions or restrictions in all European Union countries, including Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Luxembourg, The Netherlands, Portugal, Spain, Sweden, and the United Kingdom, as well as other non-EU countries, including Iceland, Norway, and Switzerland.

Many Vicon readers carry the following certifications:

Intertek

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