

VICON ACCESS CONTROL

High-Security Readers and Cards



Overview

Vicon's series of high-security smartcard readers is based on the proven MIFARE® contactless digital radio frequency identification (RFID) technology, a leading industry standard for contactless smartcards. The readers interface with Vicon Access Control (VAX) system by complying with the Wiegand communication protocol or OSDP (Open Supervised Device Protocol), depending on the model ordered, with the benefit of enhanced smartcard encryption and optional DESFire® EV1 and EV2 support. They offer value added features such as MAXSecure™ and ValidID™ that provide increased security of data.

The readers support a number of VAX smartcard and tag technologies. These cards and tags are passive devices, eliminating maintenance by requiring no battery. Refer to the Ordering Information table for details on all models.

Product at a Glance

- ▶ Optimized for MIFARE DESFire EV1 and EV2
- ▶ Contactless smartcard reader; models with read ranges of up to 1.5 or 8 in.
- ▶ 13.56 MHz frequency
- ▶ Models that support Wiegand or OSDP output interface
- ▶ Mounts to single gangbox or door and window frames (mullion), model dependent
- ▶ IP67 rated
- ▶ Powered by 12 VDC

Specifications

Smartcard Readers

Model	VAX-D3R	VAX-D5R
Technology:	MIFARE DESFire EV1 and EV2	
Frequency:	13.56 MHz	
Read Range ⁴ :	Up to 1.5 in. (38 mm)	Up to 3 in. (76 mm)
Interface:	Wiegand ABA Track II or OSDP (Open Supervised Device Protocol), model dependent	
Audio Tone:	Beeper included standard	
LED:	Four-state standard (red, green, amber and off)	
Technologies Supported ⁶ :	Interoperable with CSN ⁷ (may include ISO 14443 and ISO 15693 compliant protocols and Sector (may include Delta Card Sector ⁸ as well as FIPS201 [PIV Type A], TWIC, and CAC credentials)	
Cards Supported:	Vicon VAX cards and tags, including VAX-DE2, VAX-DK1-3, VAX-DK4-3, VAX-DC1-1 and VAX-DC4-1*	
Voltage ³ :	+5 - 14 VDC; linear power supply recommended	
Current:	135 mA typical @12 VDC	
Cabling ⁵ :	24 AWG minimum, multi-conductor stranded with an overall foil shield (ex. Belden 9535 or similar)	
Mounting ¹ :	Mullions, including metal door and window frames and flat surfaces	Metal or plastic US single wall gangbox and flat surfaces
Dimensions (W x H x D):	1.7 x 3.2 x 0.7 in. (43 x 81 x 18 mm)	3 x 4.6 x 0.4 in. (76 x 117 x 10 mm)
Weight:	3 oz (85 g)	4 oz (113 g)
Color Options:	Black snap-on cover included (standard)	
Indoor/Outdoor Installation:	Electronics sealed in weather- and tamper-resistant epoxy potting	
Operating Temperature:	-40° F to 149° F (-40° C to 65° C)	
Certifications:	FCC, ICC, CE; IP67 ²	

* Also compatible with VAX-CSM-2P, VAX-CSM-2S, VAX-CSC-2 and VAX-CSK-2. Refer to VAX Mobile datasheet.

NOTES:

- Spacer included standard for installations on metal. Depending on environment, additional spacing may be required.
- Self evaluated.
- Linear power supplies are recommended for best operation.
- Using VAX-DC1-1 Smartcard with 12 VDC at the reader. Other credentials may be less.
- For example, Belden 9535 or similar, supporting the five conductors comprising the physical layer of the Wiegand interface (power, ground, data 0, data 1, and/or beeper and LED). Alternatively, Belden 9539 or similar, for all reader functions. Contact your access control system manufacturer for their specific requirements.
- Technologies supported may include MIFARE® Classic, MIFARE® DESFire® EV1 & EV2, MIFARE UltraLight® and MIFARE® Plus, as well as other credential types.
- CSN = Card Serial Number
- Examples include, but are not limited to, VAX-DC1-1 and VAX-DK1-3.

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Specifications

Smartcards

Model	VAX-DE2	VAX-DC1-1/VAX-DC4-1	VAX-DK1-3/VAX-DK4-3
Technology:	Smartcard		
Frequency:	Excitation (13.56 MHz)		
Operation:	Passive (no battery)		
Type:	Dye sublimation	Clamshell	Key tag (fob)
Formats:	Wiegand (26-bit); ABA Track II magnetic stripe (clock and data)		
Slot Punch:	Vertical and horizontal indicators	Standard vertical slot	Standard reinforced brass eyelet
Marking:	Date code and ID		
Technology Supported:	Vicon VAX readers, including VAX-D3R and VAX-D5R		
Imaging:	Supports dye sublimation imaging	Use a glossy adhesive overlay for color dye sublimation printing or print directly on card	NA
Read Range:	Up to 2.5 in. (64 mm)	Up to 3 in. (76 mm)	Up to 0.75 in. (19 mm)
Options:	Custom printing of company logos, URL, telephone numbers available		
Material:	Composite PET plastic	ABS	ABS
Dimensions (W x H x D):	2.1 x 3.4 x 0.031 in. (53 x 86 x 0.79 mm)	2.2 x 3.4 x 0.06 in. (56 x 86 x 1.5 mm)	1.2 x 1.5 x 0.15 in. (30 x 38 x 3.8 mm)
Weight:	0.23 oz (6.4 g)	0.3 oz (9 g)	0.16 oz (4.5g)
Color:	Glossy white	Off-white	Gray

Ordering Information

Model Number	Description
VAX-D3R	SMARTCARD READER; designed to be mounted to door or window frames (mullion); up to 1.5-in. reading range
VAX-5R	SMARTCARD READER; designed to be mounted to a standard single gangbox wall switch box; up to 3-in. reading range
Smartcards	
VAX-DE2	SMARTCARD; printable; 2 Kbyte memory
VAX-DC1-1	SMARTCARD; clamshell style; 1 Kbyte memory
VAX-DC4-1	SMARTCARD; clamshell style; 4 Kbyte memory
VAX-DK1-3	SMARTCARD; small tag; designed to be carried on a key ring; 1 Kbyte memory
VAX-DK4-3	SMARTCARD; small tag; designed to be carried on a key ring; 4 Kbyte memory

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