COSEC VEGA CPM MIFARE SMART

Quick Installation Guide

MATRIX
SECURITY SOLUTIONS

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IMPORTANT SAFETY INSTRUCTIONS

When using your COSEC CPM MIFARE SMART Reader, basic safety precautions should always be followed to reduce the risk of fire, electrical shock, and injury to persons. In addition, the following should also be followed:

1. Read and understand all instructions.

2. Follow all warnings and instructions marked on the product.

3. Do not use liquid cleaners or aerosol cleaners. Use a damp cloth for cleaning. If necessary, use mild soap.

4. Do not use this product near water, such as bath-tub, wash bowl, kitchen sink, laundry tub, in a wet basement, or swimming pool.

5. This product should be operated only from the type of power source indicated on the marking label in the end/host product. If you are not sure of the type of power supplied to your installation site, consult your dealer or local power company.

6. Never push objects of any kind into this product or through the cabinet slots as they may touch voltage points or short out parts that could result in fire or electric shock. Never spill liquid of any kind on the product.

7. To reduce the risk of electric shock, do not disassemble this product by yourself, but take it to qualified service whenever service or repair is required. Opening or removing the covers may expose you to dangerous voltages or other risks. Also, incorrect reassembly can cause electric shock when the unit is subsequently used.

8. Unplug this product from the Direct Current (DC) power source and refer to qualified service

Personnel under these conditions:

a. When the power supply cord or plug is damaged or frayed.

b. If liquid has been spilled on the product.

c. If the product does not operate normally after following the operating instructions in this manual. Adjust only those controls that are covered by the operating instructions in this manual. Improper adjustment of other controls that are not covered by this manual may damage the unit and will often require extensive work by a qualified technician to restore normal operation.

d. If the product exhibits a distinct change in performance.

GENERAL

The MATRIX COSEC CPM MIFARE SMART MODULE is an elegant looking reader which can be mounted to metal door frame (mullion) or any flat wall surface. MATRIX COSEC CPM MIFARE SMART MODULE Reader uses an electronic module in epoxy potting that ensures successful operation even in harsh environments.

The COSEC VEGA CPM MIFARE SMART MODULE design eliminates using external amplifiers, filters, antenna driver and even micro-controller. Approximately 6K flash memory is free for custom specific applications.

The reading distance varies according to antenna size. The practical read range is between 2-8 centimeters. Typically read range is 5cm.

SPECIFICATION

Model	COSEC VEGA CPM MIFARE SMART
Write/Read Range	2-8 cm
Power/Current	5 - 5.5VDC (12VDC adapter through host product)
Working Frequency	13.56 MHz
Operating Temperature	-40 to 85°C
Dimension in mm	71.4 x 43.4
Weight	20 g

Pin Definition

Table 1 shows the general pin attributes of COSEC CPM MIFARE SMART

Pin	Symbol	Type	Description
1	**TDO / OUT0**	**O**	**test data output for boundary scan interface / general purpose output 0**
2	**TDI / OUT1**	**I/O**	**test data input boundary scan interface / general purpose output 1**
3	**TMS / OUT2**	**I/O**	**test mode select boundary scan interface / general purpose output 2**
4	**TCK / OUT3**	**I/O**	**test clock boundary scan interface / general purpose output 3**
5	**SIGIN /OUT7**	**I/O**	**Contactless communication interface output. / general purpose output 7**
6	**SIGOUT**	**O**	**Contactless communication interface input.**
7	**DVDD**	**PWR**	**digital power supply buffer [1]**
8	**VDD**	**PWR**	**power supply**
9	**AVDD**	**PWR**	**analog power supply buffer [1]**
10	**AUX1**	**O**	**auxiliary outputs: Pin is used for analog test signal**
11	**AUX2**	**O**	**auxiliary outputs: Pin is used for analog test signal**
12	**RXP**	**I**	**Receiver input pin for the received RF signal.**
13	**RXN**	**I**	**Receiver input pin for the received RF signal.**
14	**VMID**	**PWR**	**internal receiver reference voltage [1]**
15	**TX2**	**O**	**transmitter 2: delivers the modulated 13.56 MHz carrier**
16	**TVSS**	**PWR**	**transmitter ground, supplies the output stage of TX1, TX2**
17	**TX1**	**O**	**transmitter 1: delivers the modulated 13.56 MHz carrier**
8	**TVDD**	**PWR**	**transmitter voltage supply**
19	**XTAL1**	**I**	**Crystal oscillator input: Input to the inverting amplifier of the oscillator. This pin isalso the input for an externally generated clock (fosc = 27.12 MHz)**
20	**XTAL2**	**O**	**crystal oscillator output: output of the inverting amplifier of the oscillator**
21	**PDOWN**	**I**	**Power Down (RESET)**
22	**CLKOUT / OUT6**	**O**	**clock output / general purpose output 6**
23	**SCL**	**O**	**Serial Clock line**
24	**SDA**	**I/O**	**Serial Data Line**
25	**PVDD**	**PWR**	**pad power supply**
26	**IFSEL0 / OUT4**	**I**	**host interface selection 0 / general purpose output 4**
27	**IFSEL1 / OUT5**	**I**	**host interface selection 1 / general purpose output 5**
28	**IF0**	**I/O**	**interface pin, multifunction pin: Can be assigned to host interface RS232, SPI, I2C, I2C-L**
29	**IF1**	**I/O**	**interface pin, multifunction pin: Can be assigned to host interface SPI, I2C, I2C-L**
30	**IF2**	**I/O**	**interface pin, multifunction pin: Can be assigned to host interface RS232, SPI, I2C, I2C-L**
31	**IF3**	**I/O**	**interface pin, multifunction pin: Can be assigned to host interface RS232, SPI, I2C, I2C-L**

Table1. Pin description...***continued***

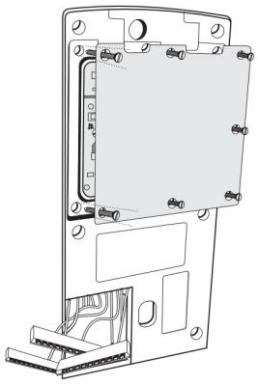
Pin	Symbol	Type	Description
32	IRQ	O	interrupt request: output to signal an interrupt event
33	VSS	PWR	ground and heat sink connection

[1] This pin is used for connection of a buffer capacitor. Connection of a supply voltage might damage the device

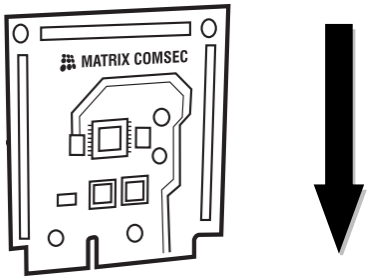
INSTALLATION

Insert the RF reader module “COSEC VEGA CPM MIFARE SMART”, matching the connector pins on the module with those provided on the card reader slot.

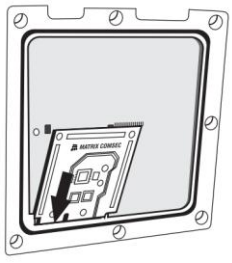
1. Remove the back cover of your device by removing all screws as shown in Figure.



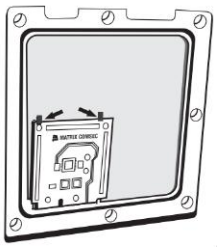
2. Hold the Card Personality Module with the smooth surface towards you, and the narrower end facing down as shown in Figure.



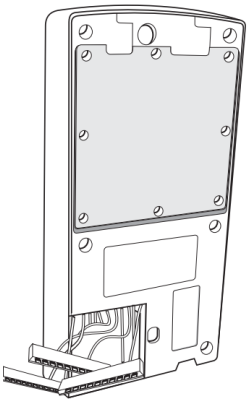
3. Lower the module in this position into the CPM slot as shown in Fiure.



4. Press the free end of the module inwards with your fingertips to lock it in place as shown in figure.



5. Replace the back cover as shown in fugure.



ANTENNA

COSEC VEGA CPM MIFARE SMART Antennas are PCB based with different dimensions and having around 2µH +/- 2% µH inductance.

The module supports for different Matrix make antennas, the intentional radiator (COSEC VEGA CPM MIFARE SMART) may be operated with the antenna with which it is authorized.

Supports following antenna:

OPERATION

Matrix COSEC CPM MIFARE SMART is the wireless non-contact use of radio-frequency electromagnetic fields, for the purposes of identifying and tracking tags attached to objects.

The reader continuously emits RF carrier signals, and keeps observing the received RF signals for data.

The presence of a tag modulates the RF field, and the same is detected by the reader.

The passive tag absorbs a small portion of the energy emitted by the reader, and starts sending

Modulated information when sufficient energy is acquired from the RF field generated by the reader.

The reader demodulates the signals received from the tag antenna, and decodes the same for further processing.

This MIFARE SMART reader works with 13.56 MHz tags in credit card size shape cards. When you approach an RFID Tag close enough (2-8 cm) to the reader's coil, the reader will read the 10-digit unique ID of the Tag and transmit it as ASCII characters through the serial output with 2400 bits per second.

The circuit in the buzzer in end product/Door controller beeps when a Tag is read successfully.

Matrix COSEC MIFARE SMART Module support 13.56MHz Frequency.

FCC REGISTRATION INFORMATION

2.2 list of applicable FCC rules

This device complies with part 15.225 of the FCC rules.

2.3 Summarize the specific operation use conditions

This module can be used in household electrical appliances as well as lighting equipment's.

The input voltage to the module should be nominally 5.0 to 5.5V d.c.,

The ambient temperature of the module should not exceed 80˚C.

The antenna is not field replaceable. If the antenna needs to be change, the certification should be re-applied.

2.4 Limited module procedures

This module doesn't have shielding cover, which belongs to a Limited module and is applied to a fixed host; the name of the host is COSEC VEGA. Please refer to the INSTALLATION chapter (Page No.6 and 7) for details.

2.5 Trace Antenna

Not applicable

2.6 RF exposure consideration

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment.

This equipment should be installed and operated with minimum distance 5cm between the radiator & your body.

2.7 Antenna

Module only contains one PCB antenna. No additional external connectors.

2.8 Label and compliance information

FCC on the final system must be labeled with "Contains FCC ID: 2ADHNCOSEC02".

2.10 Addition testing, Part 15 subpart B disclaimer

The final host/module combination need to be evaluated against the FCC Part 15B criteria for unintentional radiators in order to be properly authorized for operation as a Part 15 digital device

The host integrator installing this module into their product must ensure that the final composite product complies with the FCC requirements by a technical assessment or evaluation to the FCC rules, including the transmitter operation and should refer to guidance in KDB 996369.

Frequencyspectrumtobeinvestigated

For host products with certified modular transmitter, the frequency range of investigation of the composite system is specified by rule in Sections 15.33(a)(1) through (a)(3), or the range applicable to the digital device, as shown in Section 15.33(b)(1), whichever is the higher frequency range of investigation.

To OEM Installer:

1. FCC on the final system must be labeled with “Contains FCC ID: 2ADHNCOSEC02”.

2. In the user manual, final system integrator must ensure that there is instruction provided in the user Manual to install or remove the transmitter module.

3. Transmitter module must be installed used in strict accordance with the Manufacturer’s instructions as described in the user documentation that comes with the product.

The user manual of the final host system must contain the following statements:

This device complies with Part 15 of the FCC rules. Operation is subject to 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 of this device.

The changes or modifications not expressly approved by the party responsible for compliance could void the user’s authority to operate the equipment.

To comply with the FCC RF exposure compliance requirements, this device and its antenna must not be co-located or operating to conjunction with any other antenna or transmitter, except if installed in compliance with FCC Multi Transmitter procedures.

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular Installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the Interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/television technician for help.

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MATRIX COMSEC

Head Office
394-GIDC, Makarpura, Vadodara - 390010, India
Ph: 18002587747
Email: Support@MatrixComSec.com

Website: www.MatrixSecuSol.com