User manual

MIFCM

Version	Date	Author	Description
V1.00	11.03.2020	Tpa	First version

Contents

1. Introduction

MIFCM is a Radio Frequency Identification (RFID) -reader to automatically and uniquely identify and track inventory and assets. Transponders can be read without line of sight. Read range can be up to a several centimeters depending on transponder size and shape.

2. Technical Specification

2.1. Operating voltage, power, electrical interfaces

Current consumption is 300 mA max.

Operating voltage range are 11,4 – 12,6 VDC.

2.2. Functions and properties

2.2.1. Product description

Reader supports Mifare Classic 13,56 MHz technology. The reader is controlled with serial communication commands or depending on software it can function independently.

2.2.2. Led

LED and its controls can be connected to I/O interfaces.

2.2.3. Buzzer

Buzzer is optional. Its controls can be connected to I/O interfaces.

2.2.4. Housing

The reader has mounting holes in the corners of the PCB.

2.3. Interfaces

2.3.1. Reader Interface

The reader can be equipped with RS232 and optional RS485. Wiegand is an option.

2.3.2. Interface output

The reader uses Idesco serial communication protocol.

2.3.3. Cable

The reader's serial communication and power are connected to separate connectors.

2.4. Performance

2.4.1. Reading distance

Reading distance with IA013CM antenna is minimum 9 mm.

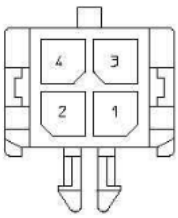
2.4.2. Communication speed

Baud rates 9600, 19200, 57600, 115200 can be selected. Default is 19200 bauds.

2.4.3. Used commands

Command	Description	Mifare® low level
'Q'	Version Query	
's'	Select	Select
'l'	Login [sector, keytype, key]	Authentication
'r'	Read [block]	Read
'w'	Write [block]	Write
'wv'	Write value [block]	
'wm'	Write master keys	
'-'	Decrement	Decrement
'+'	Increment	Increment
'='	Copy block	Restore
'a1'	Read all 1K byte data blocks	
'a2'	Read all 1K byte data blocks and sector trailers	
'a4'	Read all 4K byte data blocks	
'a5'	Read all 4K byte data blocks and sector trailers	
'baud'	Baud [00, 01, 02, 03, 04]	
'dg'	Green led	
'dr'	Red led	
'dn'	Leds off	
'db'	Buzzer on	
'dq'	Buzzer off	
'pon'	Antenna power on	
'poff'	Antenna power off	
'tt'	Change reader timeout value	
't'	Transfer data string	

2.5. Connector for power and serial communication:



Connector pins:
1. GND
2. VDC
3. TxD. RS232
4. RxD. RS232

Connector type is 43045-0410, MicroFit 3.0, Molex

2.6. Antenna

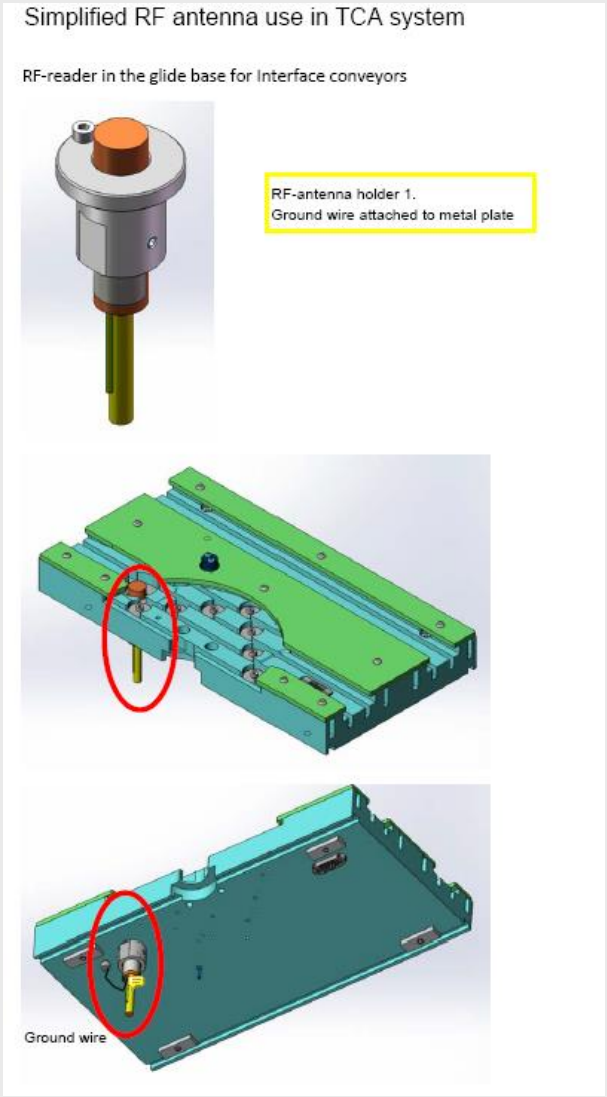
IA013CM antenna is used with MIFCM 2.1 reader. The connector type is SMA.

2.7. Host Device

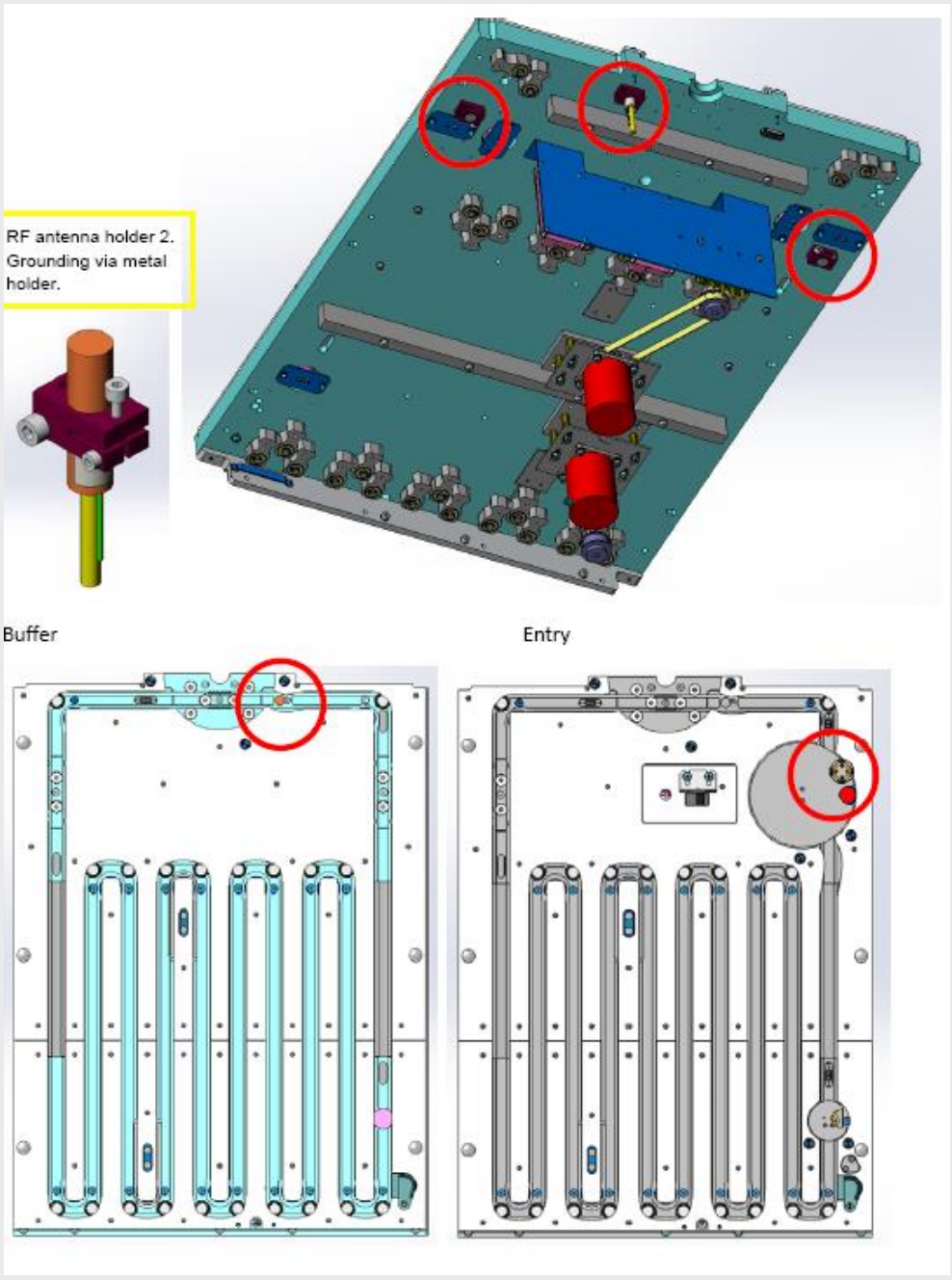
MIFCM does not have power supply regulation on the module. It uses regulated 12V voltage supply which is supplied by I/O card of host device. The used I/O card model is either INOUT3R or INOUT3X

2.8. Antenna grounding

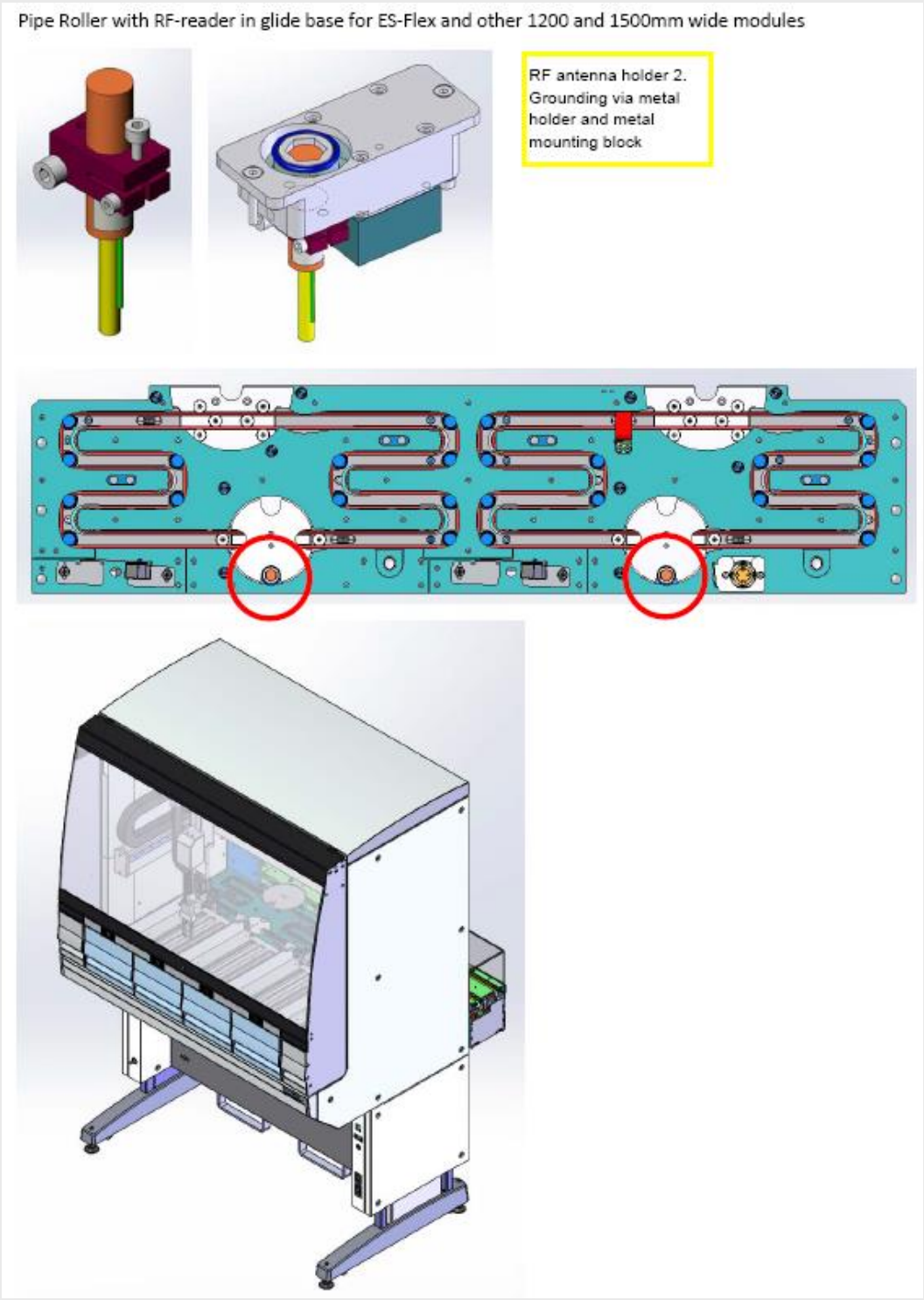
The antenna must be grounded with the grounding wire to specific part of end-product. The grounding points are at RF-antenna holders (holder1 metal plate and holder 2 metal holder). Antenna grounding is presented in pictures 1, 2 and 3.



Picture 1. Antenna holder 1. Ground wire attached to metal plate



Picture 2. Antenna holder 2. Grounding via metal holder



Picture 3. RF antenna holder 2. Grounding via metal holder and metal mounting block

2.9. Installation

MIFCM must be professionally installed.

The only permitted type of antenna is IA013CM. Use of any other antenna is not permitted.

Due to the unique market and function targeted by this product, this product needs a trained professional engineer to configure and integrate this product into the final host configuration.

The product will not be sold via retail or directly to the general public or by mail order. It will be sold to authorized dealers or installers only.

The intended use of this product is not for consumers and general public.

The MIFCM and antenna IA013CM must be assembled in the space which is reserved for them in the host system. The tag can only be read when it is within the reading distance of the antenna, which is less than a few centimeters depending on tag type.

The product will be installed inside the host system. It will not be possible to replace either MIFCM or IA013CM or both later without disassembling the host system first.

This product can be Installed by licensed or authorized professionals.

The installation requires special knowledge of the host system, its functions and operations.

3. FCC 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.

This device contains license-exempt transmitter(s)/receiver(s) that comply with Innovation, Science and Economic Development Canada's license-exempt RSS(s). Operation is subject to the following two conditions:

1. This device may not cause interference.
2. This device must accept any interference, including interference that may cause undesired operation of the device.

L'émetteur/récepteur exempt de licence contenu dans le présent appareil est conforme aux CNR d'Innovation, Sciences et Développement économique Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes:

1. L'appareil ne doit pas produire de brouillage;
2. L'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

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