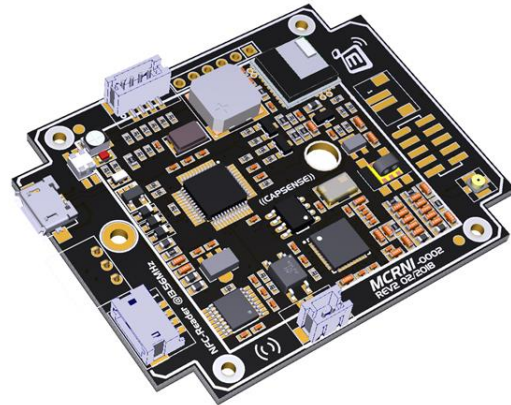


MCRN1 RFID/NFC Card Reader Module

MCRN1 R 1.0
Oct. 4, 2018

Key Features

Frequency	13.56 MHz
Interface	USB 2.0, RS232, BLE
Standards	ISO14443A/B, ISO15693
Supported Cards & Transponders	Girocard (Electronic Cash) EMV Credit Cards MIFARE® Family NTAG I-Code
Antennas	Internal or external
Relay	1A/30V Solid-state relay
Power supply	+5V or USB Bus



1 DESCRIPTION

The MCRN1 is an advanced NFC-Module and an optimal solution for companies searching after a professional solution. The design and interface possibilities could be individually customized and adjusted to the needs in the application. A powerful internal antenna can read tags up to 80mm distance.

2 ELECTRICAL

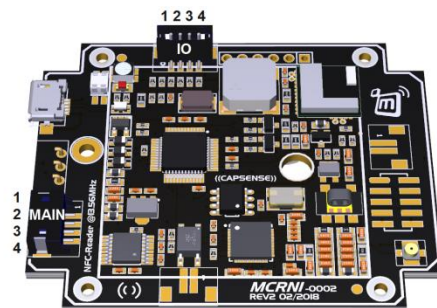
SYMBOL	PARAMETER	MIN	TYP	MAX	UNIT
VIN	Input Voltage	+4.5	+5	+5.5	V
IIN	Input Current	-	150	200	mA
VR	Maximum Reverse Voltage	-	+60	-	V
TA	Ambient Temperature Range	-30	-	+85	°C
RS232 Receiver	Input Voltages	-30	-	+30	V
RS232 Transmitter	Output Voltages	±5	±5.2	-	V
RELAY	Max. 1A / 30VDC				
ESD Performance					
RS232	IEC 61000-4-2 (ESD) ±15kV (air), ±8kV (contact)				
USB	ESD Protection for 2 high-speed I/O channels and VDD IEC 61000-4-2 (ESD) ±15kV (air), ±8kV (contact)				
MTBF	IEC 61000-4-4 (EFT) 40A (5/50ns), IEC 61000-4-5 (Lightning) 12A (8/20µs) 500.000h				

3 PROTECTIVE FEATURES

- Reverse polarity protection
- Short circuit protection
- Current limiting
- ESD protection

4 CONNECTOR PINOUT

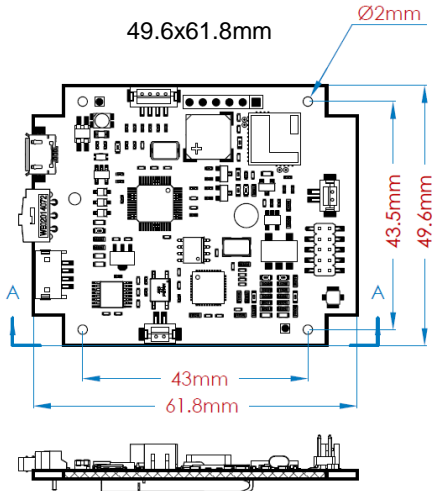
Main Connector	RS232 Mode		
1	+5V		
2	TX Output		
3	RX Input		
4	GND - Ground		
IO Connector	LED Mode	Output Mode	IIC Mode
1	+5VDC	+5VDC	+5VDC
2	LED1 cathode input	Output1	SCL - Clock
3	LED2 cathode input	Output2	SDA - Data
4	GND - Ground	GND - Ground	GND - Ground



5 USB INTERFACE SPECIFICATION

Interface Class	HID (Human Interface Device)
Speed	Full (12 Mbit/s)
Product ID	81B1h
Vendor ID	1FC9h
Device Descriptor	MT-MCRN
Endpoint0 00h	00h Control endpoint
Endpoint1 IN	81h interrupt endpoint to retrieve data
Endpoint1 OUT	01h interrupt endpoint to send data
Packet size	Fixed to 64 bytes (non-used bytes set to 00h) Multiple packets in case of bigger frames

6 DIMENSIONS



SECTION A-A (Scale 1:1)

7 FEATURES

- USB 2.0 Full-Speed interface
- RS232/TTL up to 230K Baud
- Bluetooth® Smart Interface (BLE 4.1)
- Tri-color RGB LED indicator
- Full NFC support
- Integrated or external antennas
- 1 x Relay 1A/30VDC
- 2 x GPIO
- Buzzer and optional Real Time Clock
- 8MBit external flash memory
- Bootloader for firmware update
- Power over USB
- +5V DC power supply
- 150mA @ +5V current consumption
- -30 to +85 °C ambient Temperature
- Crypto Functions
 - 256-Bit ECDSA Elliptic Curve Digital Signature Algorithm (SECP256R1)
 - 128-Bit AES Advanced Encryption Standard (ECB Mode)
 - SHA256 Secure Hash Algorithm

8 ORDERING CODES

ARTICLE NR:	USB	RS232	BLE	RELAY	Int. ANT	Ext. ANT
MCRN1-0000	X				X	
MCRN1-1000	X		X		X	
MCRN1-1100	X		X	X	X	
MCRN1-1110	X	X				X
MCRN1-2000	X	X	X	X	X	



6 ANTENNAS & READING RANGE

The reading range of the internal and external antennas are as below.

Antenna	MCRN1 Internal Antenna	MCRANT-1010 External Antenna	MCRANT-1313 External Antenna
Size	49.6x61.8mm	90x91mm	115x115mm
ISO14443 ISO Card	60mm	100mm	100mm
ISO14443 KeyFob	40mm	50mm	60mm
ISO15693 ISO Card	100mm	150mm	200mm
ISO15693 KeyFob	60mm	80mm	100mm