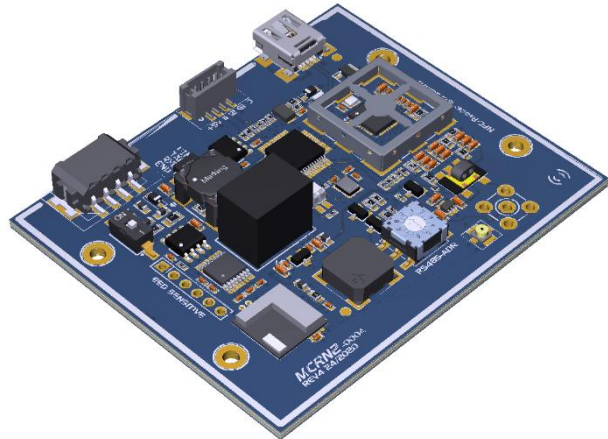


MCRN2 RFID/NFC Advanced Reader Module

MCRN2 R 1.2
Dec. 21, 2020

Key Features

Frequency	13.56 MHz
Interface	USB 2.0, RS232/RS485, BLE
Standards	ISO14443A/B, ISO15693
Supported Cards & Transponders	MIFARE® DESFire/Plus MIFARE® Classic/Ultralight NTAG I-Code
Antennas	Internal & external
Relay	Ext. 2x 1.2A/30V
Power supply	+8V to +28V DC or USB Bus



1 DESCRIPTION

The MCRN2 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	+8	-	+28	V
IIN	Input Current (VIN=+12V)	-	50	200	mA
VR	Maximum Reverse Voltage	-	+60	-	V
TA	Ambient Temperature Range	-30	-	+85	°C
VTVS	TVS Clamping Voltage	-	38.9	-	V
IPEAK	TVS Peak Pulse Current	-	10.3	-	A
PDISS	TVS Power Dissipation	-	-	400	W
RS485-VOD	Differential Output (RL=54Ω)	+1.5	+2	+3.3	V
RS485-A/B	Input Voltages	-8V	-	+13	V
RS485-A/B	Output Voltages	-	+3.3	-	V
RS232 Receiver	Input Voltages	-30	-	+30	V
RS232 Transmitter	Output Voltages	±5	±5.2	-	V
RELAY	Max. 1.2A / 30VDC				
ESD Performance					
RS485-A/B	IEC 61000-4-2 (ESD) ±15kV (air), ±8kV (contact)				
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				

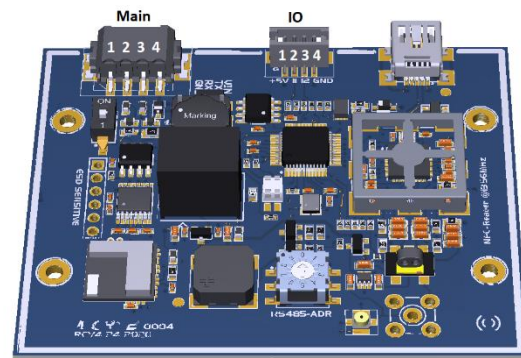
3 PROTECTIVE FEATURES

- Reverse polarity protection
- Overvoltage transient protection
- Thermal shutdown
- Current limiting
- ESD protection
- Short circuit protection

4 CONNECTOR PINOUT

Main Connector	RS232 Mode	RS485 Mode
1	GND - Ground	GND - Ground
2	RX Input	B
3	TX Output	A
4	+VIN (+8 to +28 VDC)	+VIN (+8 to +28 VDC)

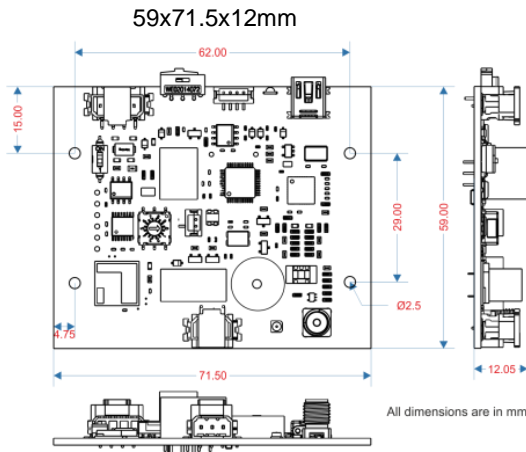
IO Connector	LED Mode	Output Mode	IIC Mode
1	+5VDC	+5VDC	+5VDC
2	LED1 cathode input	Output1	SCL - Clock
3	LED2 cathode input	Output2	SDA - Data
4	GND - Ground	GND - Ground	GND - Ground



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



6 ANTENNAS & READING RANGE

The reading range of the internal and external antennas are as below. Both internal and external antennas can be operated at the same time (RF-Switch).

Antenna	MCRN2 Internal Antenna	MCRANT-3040 External Antenna	MCRANT-1010 External Antenna
Size	59x71.5mm	30x40mm	90x91mm
ISO14443 ISO Card	80mm	60mm	100mm
ISO14443 KeyFob	40mm	40mm	50mm
ISO15693 ISO Card	100mm	150mm	150mm
ISO15693 KeyFob	60mm	60mm	80mm

7 FEATURES

- USB 2.0 Full-Speed interface
- RS232/485/TTL up to 230K Baud
- Rotary switch for network addressing and switchable 120 Ohm termination resistance
- Bluetooth® Smart Interface (BLE 4.1)
- Tri-color RGB LED indicator
- Full NFC support
- Integrated and external antennas
- 1 x Relay 2A/30VDC
- 2 x GPIO
- Buzzer and optional Real Time Clock
- 8MBit external flash memory
- Bootloader for firmware update
- Power over USB
- +8V to +28V DC power supply (optional +5V version)
- 50mA @ +12V 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	RS485	BLE	RELAY	Int. ANT	Ext. ANT
MCRN2-U000	X					X	
MCRN2-U100	X			X		X	
MCRN2-1110	X		X			X	
MCRN2-1100	X	X				X	
MCRN2-1000	X	X		X	X	X	X

