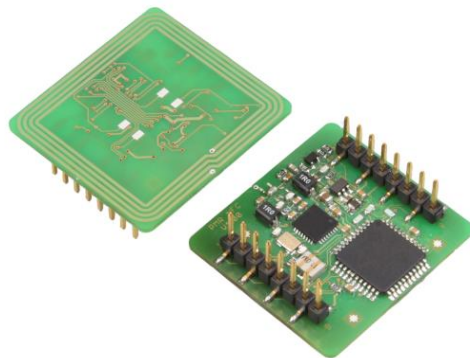# MINI READER MIFARE NFC

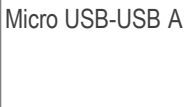## 13.56MHz Contactless Reader/Writer

Elatec's Mini Reader MIFARE NFC is designed for integration into machines, handheld computer or any other device. The focus has especially been set on size, low power, price and flexibility. Thanks to its compact dimensions, integration directly on a PC board is possible.
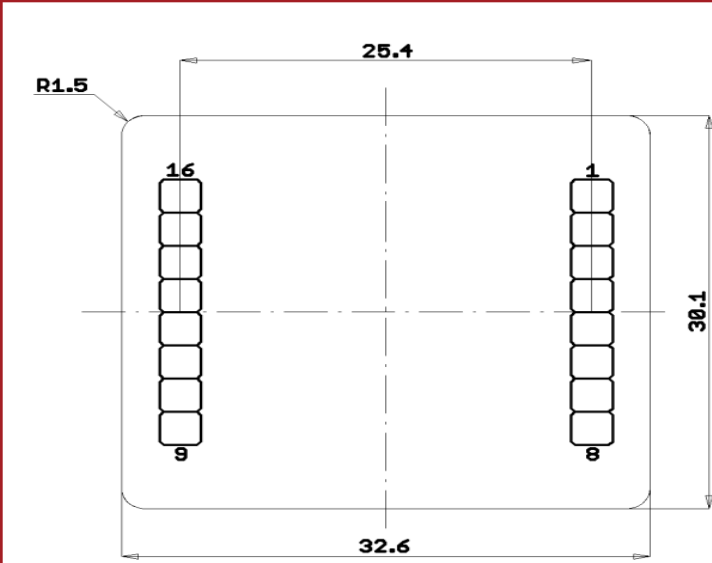
Outstanding features are: 4 user-configurable ports (to be configured as input or output), beeper support and an integrated high-performance antenna. The simple ASCII or Binary protocol enables quick software development cycles. All host communication is done via SPI or asynchronous serial TTL interface. The module offers positions for placement for two LEDs that can be controlled by software. An external Secure Access Module (SAM) is supported for enhanced security and cryptographic performance. This enables the application to perform secure transactions, e.g. payment terminals etc.

Key Features:

- 3.15 – 5.5 V DC
- Compact design (33x30x11mm) – integrated antenna
- Serial TTL or SPI interface
- ASCII or Binary protocol
- 4 GPIOs
- Supports connection of ISO7816 compatible SAM cards
- Low Power (< 2µA)
- Industrial operating temperature: -25°C to +80°C
- Pin Compatible Downgrade from TWN4 MultiTech HF Mini Reader T4MR-F
- Step Model Data on request

Technical Data	
Housing	without
Frequency	13.56 MHz
Dimensions (L x W x H)	32.6mm x 30.1mm x 11.2mm / 1.28inch x 1.19inch x 0.44inch
Power Supply	3.15 – 5.5 V DC
Current Consumption	RF field off: 10mA RF field on: typically 80mA Power Down: < 2µA
Temperature Range	Operating: -25°C up to +80°C (-13°F up to +176°F) Storage: -40°C up to +85°C (-40°F up to +185°F)
Communication Parameters	9600 Baud, 8N1 (Default) – up to 115200 Baud
Relative Humidity	5% to 95% non-condensing
Antenna	Integrated
Read- / Write Distance	Proximity, depending on tag and environment
Supported Transponders	▪ ISO14443A: MIFARE Classic 1k & 4k, MIFARE Classic 1k & 4k EV1[4], Mini, DESFire EV1[3], Plus S&X, Pro X, SmartMX, Ultralight, Ultralight EV1[4], Ultralight C, NTAG2xx[4] ▪ SLE44R35, SLE66Rxx (my-d move), LEGIC Advant[1], PayPass[2] ▪ ISO14443B: Calypso[2], CEPAS[2], Moneo[2], PicoPass[2], SRI512, SRT512, SRI4K, SRIX4K ▪ ISO18092 / NFC: NFC Forum Tag Type 1-4 ▪ Sony FeliCa[1]
Certifications	CE, RoHS-II compliant
Weight	Approx. 4g
Order Code	T3MR-FC1	CAB-U9	T3MK-F
Description	Mini Reader MIFARE NFC	Cable Micro USB-USB A	Development Board Mini Reader MIFARE NFC with reader T3MR-FC1 and USB Cable CAB-U9

1) UID Only 2) UID Only – read/write on request 3) AES only   4) r/w, enhanced security features planned

Drawing (Component Side)		Pinning		

Pin spacing 2,54mm

Pin	Name	Description
1	RESET	Asynchronous reset
2	PWRDWN	Hard power down
3	GND	Ground
4	VCC	3.3 – 5V
5	RXD/MOSI	UART/SPI receiver input
6	TXD/MISO	UART/SPI transmitter output
7	SCK	SPI serial clock input
8	SS	SPI slave select input
9	VSAM	3.0V regulated supply for SAM
10	SAM_IO	Bidirectional SAM I/O line
11	GPIO3	General purpose input/output 3
12	GPIO2	General purpose input/output 2
13	GPIO1	General purpose input/output 1
14	GPIO0	General purpose input/output 0
15	SAM_CLK	SAM clock output
16	SAM_RST	SAM reset output