

# ThingMagic M1-Mini



Diameter: 25.4mm Height: 3 mm nom

## Features & Benefits:

- Smallest HF Reader on Market
- Easy to Embed in Devices for Fast Integration
- Certifications:
  - FCC Modular – USA
  - IC – Canada
  - R&TTE – EU-RED
- Reads Wide Variety of Tags
- Configurable Power Scheme
- Simple and Intuitive API
- Low Power Consumption

## Smallest Embedded HF RFID Reader

ThingMagic M1-Mini is the world's smallest, self-contained, multi-protocol embedded HF RFID reader. Designed to enable any device with RFID reader technology, this low power, high performance 13.56 MHz Original Equipment Manufacturer (OEM) module is capable of reading to transponders based on ISO 15693 and ISO 14443A<sup>2</sup> air interface protocols. It also writes to ISO 15693 tags.

ThingMagic M1-Mini features an on-board antenna and the ability to attach a standard 50-ohm external antenna for improved read-range. With three available interface options, ThingMagic M1-Mini provides communication to embedded host systems. Its on-board power regulator circuit allows operation from 3.2-6V. The power management intelligence allows current to be set as low as 50  $\mu$ A (Sleep Mode), making it ideal for use in battery operated devices. Further power efficiency is gained by use of the Start-Up command. Software adjustable baud rates from 4,800 to 57,600 bits per second offer choices to accommodate host processor requirements.

With the variety of host interfaces, supply voltages, and configurable parameters, the ThingMagic M1-Mini is easy to embed.

## Applications

- Medical Equipment for Healthcare and Pharmaceutical Industries
- Industrial Equipment
- Kiosks and Vending Machines
- Mobile Devices, including Printers, Handhelds, and Sensor Networks



# ThingMagic M1-Mini

Ordering Information			
Shielded Module with TTL Firmware		SM-MN-SH	
Shielded Module with I2C Firmware		SM-MN-SH-I2C	
Shielded Module with SPI Firmware		SM-MN-SH-SPI	
Shielded Module with External Antenna Support		SM-MN-EX-SH	
Shielded Module Evaluation Kit		EV-MN-SH	
Transponder Support <sup>1</sup>			
Product Name	Memory (bits)	Manufacturer	Protocol
Tag-It	HF-I 2K	Texas Instruments	ISO15693
I-Code SL2	1K	Philips	ISO15693
My-d	2.5k,10K	Infineon	ISO15693
LRI512	0.5K	ST Microelectronics	ISO15693
EM 4135	2.2K	EM Microelectronics	ISO15693
PicoTag <sup>3</sup>	2K 16K	Inside Contactless	Proprietary
Mifare <sup>2</sup>	1K 4K (byte)	Philips Infineon	ISO14443A
Mifare Ultralight <sup>2</sup>	0.5K	Philips	ISO14443A
GemWave	ID only	TagSys	Proprietary
Tag-It HF	0.25K	Texas Instruments	Proprietary
I-Code SL1	0.5K	Philips	Proprietary
AT88RF319	32K	Atmel	ECMA-319
<sup>1</sup> Firmware Version Dependent / <sup>2</sup> Tag ID Only / <sup>3</sup> No Anti-Collision			
Frequency	Antenna		Physical
13.56 MHz +/- 7 kHz	Internal or external 50 ohm port		Diameter: 25.4mm Height: 3 mm nom
Host Communication Interfaces/ Data Rates	Effective Range	Current Consumption	Transponder Communication Rate
UART (TTL): 4800-57600 bps I2C up to 400 kHz SPI up to 3MHz	Internal Antenna, 48 mm x 76 mm ISO15693 transponder: 5.0 cm Internal Antenna, 38 mm x 22.5 mm ISO 15693 transponder: 3.5 cm (Individual results may vary with environment)	Sleep Mode- 60 µA Idle Mode- 15mA Scan Mode- 60mA	26 kbps ISO 15693 106 kbps ISO 14443A
Supply Voltage		Certifications	
3.2 - 6V		ETSI EN 300-330 (RED 2014/53/EU), R&TTE FCC 15.225 Full Modular Certification IC (Industry Canada)	

## ABOUT JADAK:

JADAK, a business unit of Novanta, is a market leader in machine vision, RFID, barcode, printing, and color and light measurement products and services for original equipment manufacturers. The company designs and manufactures embedded detection and analysis solutions that help customers solve unique inspection, tracking, scanning and documenting. The company is ISO 9001 and ISO 13485 registered.

Novanta is a trusted technology partner to OEMs in the medical and advanced industrial technology markets, with deep proprietary expertise in photonics, vision and precision motion technologies.

ThingMagic is the JADAK line of RFID products.

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