

# ThingMagic M2



66mm L x 36mm W x 5mm H

## Features & Benefits:

- Fast integration and time-to-market
- Unparalleled investment protection
- Cost-effective and highly scalable
- Miniscule footprint
- Peripheral devices for encryption algorithms and key storage
- Common Blade technology for maximum design and solution flexibility
- Greatest tag compatibility, with TagIQ
- Minimal power consumption and maximum read range
- Software Adjustable Host Interfaces: UART (TTL), SPI, USB, I<sup>2</sup>C
- 7 General Purpose I/O Pins
- Simple and intuitive API

## Multi-Protocol, Secure HF RFID Reader

ThingMagic M2 combines High Frequency (HF) tag and protocol support and outstanding performance in an embedded reader/writer module. With industry-leading privacy protection and anti-counterfeiting/anti-tampering technology, the M2 includes standards-based security that is used in the defense and financial services industries. M2 can read and write to transponders based on the ISO14443 (parts 2, 3, and 4) and ISO15693 air interface and communications standards. It also supports standard encryption algorithms (DES, 3DES, and AES), secure functions (SHA and MD5), and an internal Pseudo-Random Number Generator (PRNG).

ThingMagic M2 is performance-optimized for best-in-class output power (200mW), noise reduction, and power management. M2 uses advanced Universal Reader Architecture and SkyeAPI to abstract frequency, protocol, and tag selection and automate functions from the application. With advanced tag technology, it recognizes unique characteristics of each tag to maximize read/write performance.

Its small size enables this module to fit into almost any new or existing Original Equipment Manufacturer (OEM) design.

## Applications

- Product Authentication and Anti-Counterfeiting
- Handheld Reading/Encoding
- Inventory Management, Item Level Tagging
- Consumables
- Patron Management
- Asset Tracking
- Label Printing/Encoding



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# ThingMagic M2

| Ordering Information   |   |  |  |
|--|---|--|--|
| Module-CF  | SM-M2-CF  |  |  |
| Module-MH  | SM-M2-MH  |  |  |
| M2 Evaluation Kit  | EV-M2-00  |  |  |
| Physical   |   |  |  |
| Dimensions   | CF: 66mm length, 36mm width, 5mm height; MH: 70mm length, 53mm width, 9mm height  |  |  |
| Weight   | CF: 8.7 grams; MH: 10.5 grams   |  |  |
| Frequency  | 13.56 MHz +/- 7 kHz   |  |  |
| Air Interface  | Manufacturer  | Product Family   | Tags   |
| ISO 15693  | NXP<br>TagSys<br>ST Micro<br>Infineon<br>Fujitsu<br>Texas Instruments<br>EM Micro | ICODE<br>370 Series<br>Long Range<br>Vicinity<br>FerVID<br>Tag-It<br>EM Series | SLIX-/S/L, SLI-/S/L<br>370L-/HL/DL, 370S-DM<br>LRI/1k/2k, LRIS/2k/64k<br>SRF55V/01P/02P/10P/02S/10S<br>MB89R11/9B/8C<br>Standard, Pro, Plus<br>EM4/033/133/233 |
| ISO 14443A   | NXP<br>Verayo   | MIFARE<br>Vera   | Classic/1k/4k, Ultralight/C, DESFire<br>EV1<br>M1, M4  |
| ISO 14443B   | ST Micro  | Short Range  | SRI/2k/4k/512, SRIX4k, SRT512  |
| Antenna  |   |  |  |
| Options  | Internal or 50Ω MMCX (female) output for external connection                      |  |  |
| External Range Vicinity  | 16 cm   |  |  |
| External Range Proximity   | 8 cm  |  |  |
| Data/Control Interface   |   |  |  |
| Peripheral I/O Connection  | 7 programmable GPIO pins, ISO 7816 smart card slot (optional)                     |  |  |
| Power Consumption  |   |  |  |
| Sleep Mode:  | 4 mA  |  |  |
| Idle Mode:   | 75 mA   |  |  |
| Scan Mode:   | 175 mA  |  |  |
| Host Interface, Data Rates   |   |  |  |
| UART (TTL):  | 9.6-115.2 kbps  |  |  |
| SPI:   | Mode 1 up to 4 Mb/s   |  |  |
| USB:   | 2.0 Full Speed 12 Mb/s  |  |  |
| I <sup>2</sup> C:  | 100/400 kHz   |  |  |
| Transponder  |   |  |  |
| Communication Rate   | ISO 14443A: 106 kbps<br>ISO 14443B: 106 kbps<br>ISO 15693: 26 kbps                |  |  |
| Air Interface Protocols  |   |  |  |
|  | ISO 14443 A/B (parts 2-4)<br>ISO 15693  |  |  |
| Compliance   |   |  |  |
| FCC Part 15.225<br>EN 300-330, EN301-489, EN 61000-4-3, RoHS<br>AS/NZS 4268:2003<br>DGT LP002<br>HKTA 1035<br>IDA TS SRD<br>ETSI EN 300-330 (RED 2014/53/EU) |   |  |  |
| Temperature  |   |  |  |
| Operating Temp   | -10°C to 70°C   |  |  |
| Storage Temp.  | -20°C to 85°C   |  |  |

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## Software & Security

SkyeAPI C/.NET API  
Skyeware 4  
SkyeOS  
SkyeSecurity Encryption DES,3DES, AES, MIFRARE and CryptoRF Support  
SkyeSecurity Clone/Tamper Protection

**Specifications subject to change without notice.**

## 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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