

rfid as a feature



SkyeModule M1



13.56MHz OEM Reader/Writer

FEATURES:

- Tagnostic™
- Serial UART, I2C, SPI, RS232
- 8 GPIO Capable Sink/Source 15 mA
- Configurable Power Schema
- Simple and Intuitive API
- Efficient HW/ SW Design

BENEFITS:

- Variety of Tag Vendor Choices
- Easy to Embed
- Drive Peripherals (PLC, LED, Sensor)
- Low Power Consumption
- Fast Integration /Time to Market
- Low Cost and Small Size

Product Overview

The SkyeModule™ M1 provides a low power, high performance, and cost effective platform designed to enable any device with RFID reader technology. The M1 is a multi-protocol 13.56MHz OEM module capable of reading and writing to transponders based on ISO 15693, ISO 14443A, and ISO18000-3 air-interface protocols. The M1 features an on-board antenna as well as the ability to attach a standard 50 Ohm external antenna for improved read-range. Four interface options are available to provide communication to a variety of host systems: RS232 or TTL/ serial, I2C, and SPI. With its' on-board power regulator circuit, the M1 can operate from 1.8-5.0V; while the power management intelligence allows current to be set as low as 60 μ A (Sleep Mode) making it ideal for use in battery operated devices. Further power efficiency is gained by use of the Start-Up command in which one stores a command to be executed once the M1 is awake from Sleep Mode. The M1 has 8 programmable GPIO pins for the addition of peripheral devices. Software-adjustable baud rates from 4800 to 57600 bits per second offer compatibility with most systems. Field upgradeable firmware provides forward compatibility for adding future tag protocols and features.

Applications

The SkyeModule M1 has been created specifically to address a wide spectrum of applications offering the most flexibility in the industry. Some areas in which the M1 has been successfully integrated include:

- Medical equipment for the healthcare and pharmaceutical industries
- Industrial equipment requiring embedded RFID technology
- Kiosks and vending machines
- Mobile devices including printers, hand-helds, and sensor networks

With the variety of host interfaces, supply voltages, and configurable parameters, customers found the M1 easy to embed in these devices.



SkyeModule M1

About Skyetek:

SkyeTek, Inc., maker of ReaderWare™ is the leading supplier of RFID reader software and reference designs that enable the pervasive adoption of RFID technology. SkyeTek's Tagnostic™ reader technology works with most industry standard tags and smart labels, its low power requirements and a small form factor make it the optimal choice for embedding into new or existing products. SkyeTek's RFID reader technology is available in several formats including reader modules, hardware reference designs, and the ReaderWare™ software suite. SkyeTek markets to OEM customers in targeted vertical markets with several high-volume licensing options available. For more information about SkyeTek, visit www.skyetek.com or call 720-565-0441.

SkyeTek is based in Colorado.
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Transponder Support¹

| 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 |
| LRI64 | 64 | ST Microelectronics | ISO15693 |
| LRI512, LRI2K | 0.5K, 2K | ST Microelectronics | ISO15693 |
| EM 4135 | 2.2K | EM Microelectronics | ISO15693 |
| PicoTag ³ | 2K, 16K | Inside Contactless | Proprietary |
| Mifare ² | 1K, 4K (byte) | Philips, Infineon | ISO14443A |
| Mifare Ultralight ³ | 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 |

¹Firmware version dependent
²ID only
³No Anti-Collision

Frequency
13.56 MHz +/- 7 kHz

Physical
Length: 40mm
Width: 38mm
Height: 5.7 mm

Current Consumption
Sleep Mode- 60 µA
Idle Mode- 10mA
Scan Mode- 110mA

Antenna
Internal or external
50 ohm port

Supply Voltage
1.8-5.0V

Host Communication Interfaces/ Data Rates
UART(RS232 and TTL):
4800-57600 bps
I2C up to 400 kHz
SPI up to 3MHz

Accessories
EA1 external antenna
(94mmx94mm)

Compliance
FCC Part 15.225

Transponder Communication Rate

26 kbps ISO 15693
106 kbps ISO 14443A

Effective Range
Internal Antenna,
48 mm x 76 mm ISO 15693
transponder: 8.5 cm
Internal Antenna,
38 mm x 22.5 mm ISO 15693
transponder: 5.8 cm
(Individual results may vary with environment)

Other Offerings from SkyeTek

SkyeTek provides a variety of reader technology at both 13.56 MHz (HF) and ~900 MHz (UHF). The M1-Mini, also part of the SkyeModule HF line, offers an even smaller design with comparable features. ReaderDNA is a comprehensive reference design available for component level integration of RFID reader technology, including complete design files, BOM, and test fixtures. ReaderWare, an open-architected software suite residing on all SkyeTek's modules and available with ReaderDNA, provides intelligence to the RFID reader hardware. The SkyeModule M8 is a low power, compact, UHF reader compatible with EPC and ISO transponders. All SkyeModules are controlled via the Skyetek Protocol, a powerful but simple communication protocol that grants the user access to all features of an RFID transponder. Further, they have been designed with flexible and modular embedded software that allows one to select only the desired features.

