rfid as a feature

skyetek™

Skye**Module** M4

⌄ **Secure 13.56MHz OEM Reader/Writer with Solution-specific Firmware Personalities**

APPLICATIONS:

» Product Authentication

» Access Control

» Contactless Payment

BENEFITS:

» Tailored solutions for specific market applications

» Cost-effective and highly scalable

» Industry-leading open standards security

» Superior embeddability

» Fast integration and time-to-market

FEATURES:

» Small footprint – about the area of three standard postage stamps

» Greatest tag compatibility and performance with Tagnostic® & TagIQ™

» Minimal power consumption

» UART (TTL) Host Interface

» 4 General Purpose I/O

» Simple and intuitive API

Product Overview

The SkyeModule™ M4 extends SkyeTek's position as the leader in feature-rich, easy-to-integrate RFID modules. Designed to serve distinct market applications, the M4 provides industry-leading security and features expected of higher-priced readers at a ground-breaking price. The M4 offers three different firmware personalities to match application needs: Product Authentication, Contactless Payment, and Access Control. In addition, SkyeTek's Professional Services provides the engineering expertise to create custom solutions, making it fast and easy to add RFID as a feature to any product line.

Tailored solutions for specific market applications

Product Authentication personality delivering industry-leading privacy protection and anti-counterfeiting/anti-tampering through standards-based security methods including AES encryption and digital signature support. Strong security implemented on generic tags, saving 60–70% versus tags that use proprietary methods.

Access Control personality supporting standards 14443A and14443B and proprietary security solutions such as MIFARE and DESFire.

Contactless Payment personality offering support for all major providers - American Express, Discover, MasterCard, and Visa[1]

Ease of integration through the ReaderWare C API, a single library that abstracts, simplifies, and automates frequency, tag and protocol-specific functions from the programmer.

Tagnostic® support for more ISO 15693 and 14443 A/B tags than any other comparable reader, allowing customers to fully optimize their application.

TagIQ™ that recognizes the unique characteristics of each tag so that read/write performance is maximized for each individual tag type.

Performance optimization achieved through best-in-class output power (200mW), noise reduction technology, and power management – essential embeddability measures.

Unprecedented reader price-performance lower than the competition with further savings available through flexible licensing options that allow customers to manufacture modules at cost.

Applications

With three selectable personalities, the SkyeModule M4 has been created specifically for changing and diverse applications. The M4 is an optimal solution for the following:

- Access Control
- Product Authentication & Anti-counterfeiting
- Contactless Payment

[1]SkyeTek supports all major payment protocols. Customer is responsible for obtaining final certification for finished product.

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.

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M4 Common Specifications

Frequency
13.56 MHz ± 7 kHz

Physical 4 mounting holes
Length: 39 mm
Width: 36 mm
Height: 11.3 mm
(5 mm w/o connectors)

Environmental
Storage Temperature: -20°C to 85°C
Operating Temperature: -10°C to 70°C

Antenna Options
Internal or 50 Ω 2-pin header output for external connection

Power
Supply Voltage: 5.0 V ± 10%
Output Power: 50 - 200 mW
Current Consumption:
Sleep Mode: 4 mA
Idle Mode: 75 mA
Scan Mode: 130 mA
(230 mA w/internal antenna)

Communication
Host: UART (TTL) 9.6 - 38.4 kbps
I/O connector: 24-pin header or 8 through-holes
4 programmable GPIO pins

Pre-Scan Testing[1]
FCC 15.225   EN 300-330
EN 301-489   EN 61000-4-3
More regional pre-scans to follow

Personality Comparison

Specification	Product Authentication[2]	Contactless Payment[2, 3]	Access Control[2]
Air Interface Protocol	ISO 15693	ISO 14443A/B (parts 1-3)	ISO 14443A/B (parts 1-3)
Tag Support[4]	• TI Tag-It HF-I+* • TI Tag-It HF-I Pro / Std • NXP I-Code SLI SL2 (ICS20)* • ST LRI-512 • ST LRI-2K • ST LRIS-2K *Support secure memory	• **Mastercard** PayPass (Magnetic Stripe Protocol Ver 3.1) • **Visa** PayWave (Magnetic Stripe Data Application Protocol Ver 1.4.2) • **American Express** ExpressPay (Proximity ICC Payments Application Level Protocol Ver 1.7) • **Discover** Contactless Payments (Discover Network RF Contactless Payment Ver 1.01)	• NXP MIFARE (Ultralight, Classic 1k, Classic 4k) • NXP DESFire • Infineon MIFARE Classic 1K SLE66R35 • ST SRI512 • ST SRIX4K
Read Range[5]	14 cm with 85 x 85 mm external antenna Internal antenna: 4.5 cm	8cm with 85x85mm external antenna	8cm with 85x85mm external antenna
Security	SkyeTek secure memory: • AES-128, 192, and 256 • SHA-2 • KDF • PRNG	Supports security as part of proprietary payment protocols	DESFire MIFARE

DKM4 - SkyeModule M4 Developer Kit

The developer kit for the SkyeModule M4 includes all hardware and software components required for the development of applications based on the modular firmware personalities.

Hardware
• M4 SkyeModule
• Host interface board
• PCB external antenna
• Flex Antenna for payment
• Antenna cable
• 9V power supply

• RS-232 cable
• SkyeTek sample tag kit
 - Variety of ISO 14443A, 14443B, and 15693
 - Variety of labels and form factors

Software
• Support for all three firmware

personalities
• SkyeWare 4 development and demonstration software
• C API libraries
• Command-line interface

Service
• Technical Support

Notes: [1]Pre-scan compliant. Fit-for-use products require additional certification, [2]Optional, [3]SkyeTek supports all major payment protocols - Customer is responsible for obtaining final certification of finished product, [4]See transponder datasheet for complete details, [5]Read range subject to specific environmental conditions

Other Offerings from SkyeTek SkyeTek provides a variety of reader technology at both 13.56 MHz (HF) and 860- 960 MHz (UHF). ReaderDNA, a comprehensive reference design, is available for component level integration of the technology including complete design files, BOM, and test fixture. ReaderWare, the embedded software intelligence of the RFID reader, is available to ReaderDNA customers. 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 features desired.

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