physical made digital

skyetek

SkyeModule M2

Secure 13.56MHz OEM Reader/Writer

BENEFITS:

» Industry-leading security

» Superior embeddability

» Fast integration and time-to-market

» Unparalleled investment protection

» Cost-effective and highly scalable

» Common Blade technology: common size, connection method, and software interface with the SkyeModule M9 UHF reader for maximum design and solution flexibility

FEATURES:

» Miniscule footprint - 49% smaller than a business card

» Greatest tag compatibility with Tagnostic® and TagIQ™

» Minimal power consumption and maximum read range

» Software Adjustable Host Interfaces: UART (TTL), SPI, USB, I^2C

» 7 General Purpose I/O

» Peripheral devices for encryption algorithms and key storage

» Simple and intuitive API

Product Overview

The SkyeModule™ M2 combines the rich HF tag/protocol support and performance typical of SkyeTek reader modules with standards-based security that is currently used by the Department of Defense and financial services to deliver the following benefits:

Investment protection through SkyeTek's Advanced Universal Reader Architecture (AURA) which abstracts frequency, protocol, and tag selection from the application.

Ease of integration by using the SkyeAPI™, a single library that abstracts, simplifies, and automates 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.

Industry-leading privacy protection and anti-counterfeiting/anti-tampering that can be used with any generic tag saving 60–70% versus tags that use proprietary security.

Support for standard and proprietary encryption such as MIFARE and 3DES.

Unprecedented price-performance and TCO, best exemplified by licensing options that allow customers to manufacture modules at cost.

Applications

The SkyeModule M2 has been created specifically for several applications that share common requirements for tag support, protocol, performance, and security. The M2 is an optimal solution for the following:

- Product Authentication and Anti-counterfeiting
- Handheld Reading/Encoding
- Inventory Management
- Patron Management
- Asset Tracking
- Printing/Encoding

SkyeModule M2

Software and Security

Software
SkyeAPI C/.NET API
SkyeTek Protocol v3
SkyeWare 4 developer interface
Demonstration applications

SkyeOS™ Embedded
TagIQ™
Field upgradeable firmware bootloader

SkyeOS Product Authentication
Clone and tamper protection
Counter & time-based policy support

SkyeSecurity Encryption
DES, 3DES & AES
MIFARE and CryptoRF[1] support

SkyeSecurity Clone/Tamper Protection
SHA & MD5 secure hashing
Digital signature support
Key Derivation Function (KDF)
Pseudo-Random Number Generator (PRNG)
Secure key store

Transponder Support

Air-Interface[2]	Manufacturer	Product Name	Memory (bits)
ISO14443A	NXP (Philips)	MIFARE Ultralight	512
ISO14443A	NXP (Philips), Infineon	MIFARE	8k, 32k
ISO14443A	NXP (Philips)	DESFire	32k
ISO14443B	Atmel	AT88RF020, AT885C CryptoRF[1]	2k, 1k - 64k
ISO14443B	ST Microelectronics	SR176, SRI512, SRIX4K	176, 512, 4k
ISO15693	Fujitsu	MB89R118	16k
ISO15693	Infineon	my-d (limited)	2k
ISO15693	NXP (Phillips)	I-CODE SL1, SL2 ICS10, SL2 ICS20	512, 136, 1k
ISO15693	ST Microelectronics	LRI-64,-512,-2K, -2KS	64, 512, 2k
ISO15693	TagSys	C370	1k
ISO15693	Texas Instruments	Tag-it HFI Std, Pro, Plus	256, 2k
Proprietary	NXP (Philips)	I-CODE SL1 ICS30, EPC SL2 ICS10	136, 512

Specifications[3]

Frequency
13.56 MHz ± 7 kHz

Physical

	CF[4]	MH
Length:	66 mm	70 mm
Width:	36 mm	53 mm
Height:	5 mm	9 mm
Weight:	8.7 g	10.5 g

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

Host Interfaces/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
I²C: 100/400 kHz

Supply Voltage
5.0 V ± 10%

Peripheral I/O Connection
7 programmable GPIO pins
ISO 7816 smart card slot (optional)

Compliance[5]
FCC 15.225
EN 300-330
EN 301-489
EN 61000-4-3
AS/NZS 4268:2003
DGT LP002
HKTA 1035
IDA TS SRD
RoHS

Transponder Communication Rate
ISO 14443A: 106 kbps
ISO 14443B: 106 kbps
ISO 15693: 26 kbps

Air-interface Protocols
ISO 14443 A/B (parts 2-4)
ISO 15693

Current Consumption
Sleep Mode: 4 mA
Idle Mode: 75 mA
Scan Mode: 175 mA

Antenna Options
Internal or 50 Ω MMCX (female) output for external connection

Effective Range
Vicinity, External Antenna: 16 cm
Proximity, External Antenna: 8 cm

Output Power
Adjustable between 17-23 dBm sustained

(read range and rate are subject to specific environmental conditions)

DKM2 - SkyeModule M2 Developer Kit

The developer kit for the SkyeModule M2 includes all hardware and software components required for the development of applications based on 13.56 MHz reader technology.

Hardware
- 2 SkyeModules
- 1 Host Interface Board
- 1 External Antenna with SMA connector
- 1 MMCX to SMA connector
- 1 9V Power Supply
- 1 RS-232 Cable
- 1 USB 2.0 Cable
- SkyeTek sample tag kit
  - Variety of ISO 14443A, 14443B, and 15693 tags
  - Variety of labels and form factors

Software
- SkyeWare 4 Development & Demonstration Software
- Software Libraries (API): C, .NET
- Protocol Command Builder
- Command Line Interface
- Windows DLL

Service
- Technical Support

Notes: [1]Optional, [2]See transponder datasheets for complete details, [3] Specifications apply to SM-M2-CF-HF (CF-style) and SM-M2-MH-HF (Mounting Hole), [4]CF-style connector, [5]Pre-scan compliant. Fit-for-use products require additional certification.

SkyeTek Reader Technology 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. All SkyeTek readers leverage powerful firmware that drastically reduce hardware costs and are delivered in conjunction with ReaderDNA. 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.

About SkyeTek:

SkyeTek transforms traditional RFID into a networking technology enabling goods and assets to participate in a connected world. SkyeTek develops readers that serve as intelligent edge devices and software that binds policies to tagged items. By extending networks to the physical world, our customers increase revenue through their ability to predict demand, prevent counterfeiting, and personalize user interactions.

SkyeTek combines intelligent software with an inexpensive hardware platform to provide a modern RFID security model, distributed policy management engine, and network-ready readers. Enterprises deploy SkyeTek's solutions to deliver a seamless RFID edge network capable of centralized management and real-time response for applications in item tracking, product authentication, access control, and patron management.

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