SkyeModule M2

skyetek®

Secure 13.56MHz OEM Reader/Writer
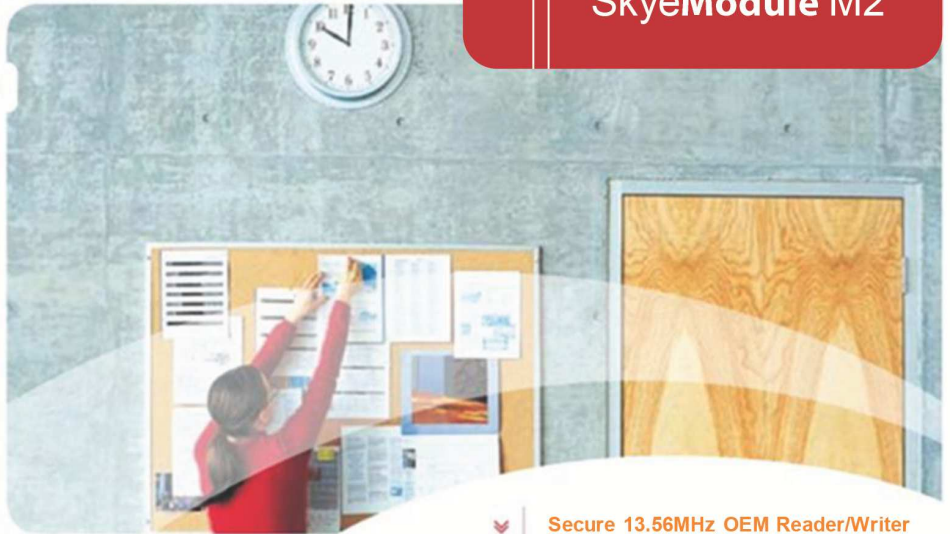
BENEFITS:

» 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, I²C

» 7 General Purpose I/O Pins

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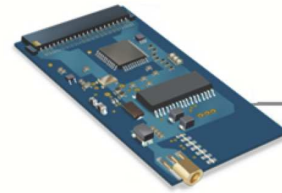
Support for standard and proprietary encryption such as MIFARE and 3DES.

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 support

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

Minimum Select/Read/Write Transponder Support

Air-Interface	Manufacturer	Product Family	Tags
ISO15693	NXP	ICODE	SLIX-/S/L, SLI-/S/L
ISO15693	TagSys	370 Series	370L-/HL/DL, 370S-DM
ISO15693	ST Micro	Long Range	LRI/1k/2k, LRIS/2k/64k
ISO15693	Infineon	Vicinity	SRF 55V/01P/02P/10P/02S/10S
ISO15693	Fujitsu	FerVID	MB89R11/9B/8C
ISO15693	Texas Instr	Tag-It	Standard, Pro, Plus
ISO15693	EM Micro	EM Series	EM4/033/133/233
ISO14443A	NXP	MIFARE	Classic/1k/4k, Ultralight/C, DESFire EV1
ISO14443A	Verayo	Vera	M1, M4
ISO14443B	ST Micro	Short Range	SRI/2k/4k/512, SRIX4k, SRT512

See the M2 Tag Support List located www.skyetek.com/docs/M2/TagSupportMatrix.pdf for full list of supported features.

Specifications

Frequency
13.56 MHz ± 7 kHz

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

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
I^{2}C: 100/400 kHz

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

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

Compliance
FCC 15.225	EN 300330
EN 301-489	EN 61000-4-3
AS/NZS 4268:2003	DGT LP002
HKTA 1035	IDA TS SRD
ETSI EN 300-330 (RED 2014/53/EU)	

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

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

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.