

Embedded Module HF **M890**



PRODUCT DESCRIPTION

The iDTRONIC HF | NFC Embedded Module M890 is a high performance reader series. Thanks to its tiny size and single-face laying components layout, it allows for embedding in various applications and devices.

With its cutting edge microcontroller and latest HF transceiver technology, the reader series allows users to read and write almost any 13.56 MHz transponders. 5 different configurations are available which support the common RFID standards such as ISO 14443A/B (T=CL), ISO 14443-4, ISO 15693 and ISO 18092 / ECMA-340 (NFC).

The HF | NFC Embedded Module M890 features one external antenna port. iDTRONIC Professional RFID offers a wide choice of antennas suitable for any purpose. It achieves reading ranges of up to 10 cm (depending on type of transponder).

The HF | NFC Embedded Module M890 is available with TTL, USB VCP, USB HID, RS232/485 and PC/SC interface. In low power mode, the M890 consumes less than 1 mA.

iDTRONIC's hardware comes with a useful SDK for the development of controller, Linux or Windows based applications. Beside the documentation, command protocols and source codes, the SDK includes a Windows based demo application with full functionality over all supported HF RFID standards.

APPLICATIONS

- Handhelds | Terminals
- Vending Machines
- Ticketing Systems
- Payment Systems
- Access Control
- E-Charging

FEATURES

- Adopts ARM MCU Solution
- TTL | USB VCP | USB HID | RS232 | RS485 | PC/SC
- SMD Assembly Possible
- 3.3 ~ 5 V Power Supply

RFID OPTIONS

- ISO 14443 A/B
- ISO 14443-4
- ISO 15693
- ISO 18000-3
- ISO 18092 / ECMA-340 (NFC)
- NXP MIFARE



TECHNICAL DATA

ELECTRICAL SPECIFICATIONS

Power Supply	3.3 ~ 5 Vdc
Power Consumption	< 100 mA, standby current < 1 mA (low power mode)
Operating Frequency	13.56 MHz
Reading Distance	up to 8 cm*
Antenna	external*
Baudrate	9600 ... 115200 bit/s
Antenna Connector	U.FL
Interface	TTL, USB VCP, USB HID**, RS232/485, PC/SC
PCB Connections	Soldering Pads (Suitable for SMD Production)

ENVIRONMENTAL CONDITIONS

Operating Temperature	-20 °C ... +80 °C
Storage Temperature	-40 °C ... +85 °C
Humidity	up to 95 %, non condensing
MTBF	200'000 h

SDK INFORMATION

Supported OS by Silabs USB VCP Driver	Windows 7/8/8.1/10
	Windows Server 2003/7/8/8.1
	Windows 2K
	WinCE (5.0, 6.0)
	Macintosh OSX
	Linux (4.x.x., 2.6.x)
	Android 4.2
Supported Languages	C++, Binary command protocol
Demo Software	Windows

APPLICABLE STANDARDS

EMC	EN 301489-1:2012-04 (v1.9.21)
	EN 301489-3:2013-12 (V1.6.1)
Radio Regulation	EN 300330-1:2015-08 (V1.8.1)
	EN 300330-2:2015-08 (V1.6.1)
Safety	EN 60950-1:2014-08
	EN 62369-1:2010-03
	EN 50364:2010-11
RED	2014/53/EU
RoHS 2	2011/65/EU
REACH	1907/2006
Certificates	FCC, CE, IC

***READING DISTANCE DEPENDS ON TAG, ANTENNA AND ENVIRONMENTAL CONDITIONS.**

**** HUMAN INTERFACE DEVICE**

AVAILABLE VERSIONS

	DESFIRE	ISO 18000-3	PSAM	HF	MIFARE
GENERAL SPECIFICATIONS					
Dimensions	22 x 42 x 3 mm (TTL) 22 x 53 x 5 mm (USB, RS232)	22 x 42 x 3 mm (TTL) 22 x 53 x 5 mm (USB, RS232)	22 x 42 x 3 mm	22 x 42 x 3 mm (TTL) 22 x 53 x 5 mm (USB, RS232)	22 x 42 x 3 mm (TTL) 22 x 53 x 5 mm (USB, RS232)
Weight	6 g (TTL) 7 g (USB, RS232)	6 g (TTL) 7 g (USB, RS232)	6 g	6 g (TTL) 7 g (USB, RS232)	6 g (TTL) 7 g (USB, RS232)
Material	FR-4, Blue				
Mounting Option	Soldering				
Power Supply	3.3 V ~ 5 Vdc				
Power Consumption	< 100 mA, standby current < 1 mA (low power mode)				
Operating Frequency	13.56 MHz				
Reading Distance	depending on external antenna*				
RT FX Speed	up to 848 kBd				
Reader IC	NXP CLR663				
Interface	TTL, USB VCP, USB HID**, RS232, PC / SC	TTL, USB VCP, USB HID**, RS232	TTL	TTL, USB VCP, RS232 / 485	TTL, USB VCP, RS232
Antenna	external*				
Baudrate	9600 ... 115200 bits/s				



AVAILABLE VERSIONS

*READING DISTANCE DEPENDS ON TAG, ANTENNA AND ENVIRONMENTAL CONDITIONS.

	DESFIRE	ISO 18000-3	PSAM	HF	MIFARE
SUPPORTED STANDARDS TAGS					
ISO 14443A and compatible	Read/Write: MIFARE® Classic Mini /1K /4K, MIFARE Ultralight®, MIFARE Ultralight® C, MIFARE Ultralight® Nano, MIFARE® DESFire® EV1, MIFARE® DESFire® Light, MIFARE® Smart MX, MIFARE® Plus S / X, MIFARE® Pro X, NTAG 21x, NTAG 424 Read UID only: Read UID only of all other ISO14443A RFID tags	Read/Write: MIFARE® Classic Mini / 1K /4K, MIFARE Ultralight®, MIFARE Ultralight® C, MIFARE® DESFire® EV1, MIFARE® Smart MX, MIFARE® Plus S / X, MIFARE® Pro X, NTAG 21x Read UID only: Read UID only of all other ISO14443A RFID tag	Read/Write: MIFARE® Classic 1K / 4K, MIFARE Ultralight®, MIFARE Ultralight® C, MIFARE® DESFire® EV1, MIFARE® Smart MX, MIFARE® Plus S / X, MIFARE® Pro X, NTAG 21x Read UID only: Read UID only of all other ISO14443A RFID tags	Read/Write: MIFARE® Classic 1K / 4K, MIFARE Ultralight®, MIFARE Ultralight® C, NTAG 21x Read UID only: Read UID only of all other ISO14443A RFID tags	Read/Write: MIFARE® Classic 1K / 4K, MIFARE Ultralight®, MIFARE Ultralight® C, NTAG 21x Read UID only: Read UID only of all other ISO14443A RFID tags
ISO 14443B and compatible	SRI4K, SRIX4K, AT88RF020, 66CL160S, SR176				-
ISO 15693 and compatible	EM4135, EM4043, EM4x33, EM4x35, I-Code SLI/SLIX/DNA, M24LR16/64, TI Tag-it HF-I, SRF55Vxx (my-d vicinity)		EM4135, EM4043, EM4x33, EM4x35, I-Code SLI / SLIX, M24LR16/64, TI Tag-it HF-I, SRF55Vxx (my-d vicinity)		-
ISO 7816	PSAM T = 1 (optional)	-	PSAM T = 1 (optional)	-	-
ISO 18000-3M3 and compatible	-	I-Code ILT-M	-	-	-

	DESFIRE	ISO 18000-3	PSAM	HF	MIFARE
ORDER CODES					
TTL	OEM-DES-M890-TTL	OEM-DES-M890-TTL-18/3	OEM-PSAM-M890-TTL	OEM-HF-M890-TTL	-
USB VCP	OEM-DES-M890-USB	OEM-DES-M890-USB-18/3	-	-	-
USB HID	OEM-DES-M890-HID	OEM-DES-M890-USB-HID-18/3	-	-	-
RS232	OEM-DES-M890-RS232	OEM-DES-M890-RS232-18/3	-	-	-
PC / SC	OEM-DES-M890-PCSC	-	-	-	-