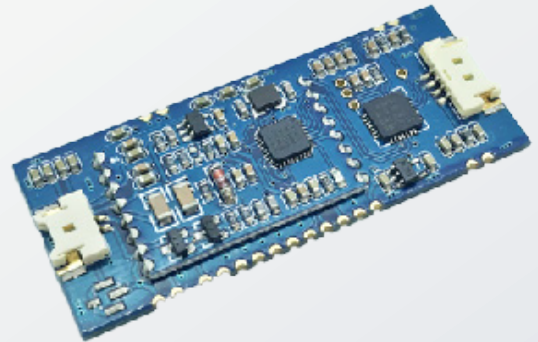


## Embedded Module LF **M890**



### PRODUCT DESCRIPTION

The iDTRONIC LF Embedded Module M890 is a module series for short range applications. Thanks to its tiny size and single-face laying components layout, it allows for embedding in various applications and devices. Especially for access control or asset tracking solutions, is this LF module applicable.

The LF Embedded Module M890 is available in 125 kHz or 134.2 kHz RFID LF Frequency range. They also support read-only EM4100, EM4200 and TK4100. The module supports all functions of the Hitag family. It achieves reading ranges of up to 10 cm (depending on type of transponder).

The embedded RFID LF Embedded Module M890 features one external antenna port. iDTRONIC Professional RFID offers a wide choice of antennas suitable for any purpose. The LF Embedded Module M890 is available with TTL, USB VCP or RS232 interface. In low power mode, the M890 modules 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 LF RFID standards.

### APPLICATIONS

- **Asset Tracking**
- **Access Control**
- **Electronic Locks**
- **Personalization**
- **PC Log On**

### FEATURES

- **Short Range Applications**
- **3.3 ~ 5 V Power Supply**
- **RFID LF: 125 + 134.2 kHz**
- **10 cm Reading Range**
- **TTL | RS232 | USB VCP**

### RFID OPTIONS

- **Read & Write: Hitag-S 256, Hitag-S 2048, Hitag1**
- **Read Only: EM4100, EM4200, TK4100**

## TECHNICAL DATA

### ELECTRICAL SPECIFICATIONS

	TTL	USB	RS232
Power Supply	3.3 ~ 5 Vdc		
Power Consumption	< 45 mA	< 70 mA	< 60 mA
Operating Frequency	125 kHz + 134.2 kHz		
Reading Distance	up to 10 cm*		
Reader IC	Atmel Mega8A-MU		
RF TX Speed	5.2 kbs		
RF RX Speed	2 kbs   4 kbs   8 kbs		
Antenna	External*		
Baudrate	9600...115200 bit/s, default: 9600 bit/s		
Antenna Connector	Molex connector or stamp hole		
Antenna Inductivity	375 µH nominal value		
Interface	UART TTL	USB VCP	RS232
Connector	Molex Pico-Blade 53261 (PCB) 51146 (cable)	Molex Panel Mate 53780 (PCB) 51146 (cable)	Molex Panel 53780 (PCB) 51146 (cable)

### ENVIRONMENTAL CONDITIONS

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

### MECHANICAL SPECIFICATIONS

	TTL	USB	RS232
Material	FR-4. Blue		
Dimensions	39.3 x 19.3 x 4.6 mm	53.5 x 22.2 x 5 mm	53.5 x 22.2 x 5 mm
Weight	4 g	5 g	5 g
Mounting Options	Soldering Pads (Suitable for SMD productions)		

### SUPPORTED STANDARDS / TAGS

Read-Only	EM4100, EM4200, TK4100
Read / Write	Hitag-S 256, Hitag-S 2048, Hitag1

### SDK INFORMATION

Supported OS by Silabs USB VCP Driver	Windows 7/8/8.1/10 (v10.1.8)
	Windows 7/8/8.1/10 (v6.7.6)
	Windows XP/Server 2003
	Vista/7/8/8.1 (v6.7)
	Windows 2K (v6.3a)
	WinCE (5.0, 6.0)
	Macintosh OSX (v5.2.4)
	Linux (3.x.x., 2.6.x)
	Android 4.2
Supported Languages	C++, Binary command protocol
Demo Software	Windows

### FIRMWARE COMMANDS

System	Get_VersionNum Buzzer Control LED Control Set Antenna
Read-Only Data Tags	Get UID
Hitag 1, Hitag S	Request Select Quiet ReadPage WritePage LockPage

### 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
RoHS	EC Guideline 2011/65/EU, 2015/863/EU
REACH	EC Guideline 2018/2005/EU
Certificates	FCC, CE

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



## ORDER CODES

VERSIONS	ORDER CODES
<b>TTL</b>	
LF Embedded Module M890 - TTL: 125 kHz	OEM-LF-M890-TTL-125
LF Embedded Module M890 - TTL: 134.2 kHz	OEM-LF-M890-TTL
<b>USB</b>	
LF Embedded Module M890 - USB: 125 kHz	OEM-LF-M890-USB-125
LF Embedded Module M890 - USB: 134.2 kHz	OEM-LF-M890-USB
<b>RS232</b>	
LF Embedded Module M890 - RS232: 125 kHz	OEM-LF-M890-RS232-125
LF Embedded Module M890 - RS232: 134.2 kHz	OEM-LF-M890-232