iDTRONIC
PROFESSIONAL RFID

HF | NFC EMBEDDED MODULE

M900



PRODUCT DESCRIPTION

The iDTRONIC HF | NFC Embedded Module M900 series is a high performance reader series. Thanks to its tiny size the single-face layout makes it the perfect RFID Reader for SMD Production.

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. 4 different configurations are available which support the common RFID standards such as ISO 14443A/B (T=CL), ISO 15693, ISO 18000-3 and ISO 18092 / ECMA-340 (NFC).

The HF | NFC Embedded Module M900 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 M900 has a TTL interface. In low power mode, the M900 consumes less than 1 mA.

The HF | NFC Embedded Module M900 can be delivered on a Tape & Reel roll for SMD mass production.

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

- Embedded Engineering
- Handhelds | Terminals
- Ticketing Systems
- Payment Systems
- Access Control
- Healthcare

▶ FEATURES

- Adopts ARM MCU Solution
- SMD Assembly Possible
- 3.3 V Power Supply
- TTL Interface
- Tiny Size

▶ RFID OPTIONS

- ISO 14443 A/B
- ISO 15693
- ISO 18000-3
- ISO 18092 | ECMA-340 (NFC)

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APPLICATION EXAMPLES

HEALTHCARE

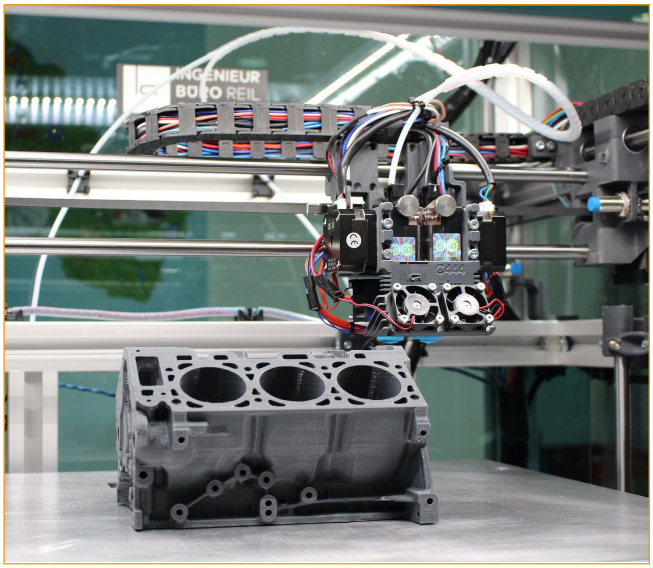




Inside the hospital room there are medical devices which are vital for the patient. These include ventilators, infusions or ECG devices. By integrating RFID readers, a wide variety of functionality may be implemented which help to increase patient safety and bring about a faster recovery.

These include, for example, automatic identification and authentication of consumables. On the other hand, it is possible to monitor which employee is operating the medical devices. Hierarchies may also be introduced for individual employees in order to avoid incorrect operation of the devices by medical personnel. The small embedded module may be easily and quickly integrated into a range of medical devices.

EMBEDDING ENGINEERING



The Tape & Reel is suitable for automation processes within SMD productions. SMD component assembly systems are robotic machines that are used to place surface-mounted components (SMDs) on a printed circuit board (PCB).

They are used to quickly and accurately place a wide range of electronic components such as capacitors, resistors, integrated circuits on printed circuit boards used in computers, consumer electronics, industrial, medical, automotive, military and telecommunications equipment.

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TECHNICAL DATA

ELECTRICAL SPECIFICATIONS	
Power Supply	µC: 3.3 V, RFID IC: 3.3 ~ 5 Vdc
Power Consumption	< 100 mA, standby current < 1 mA (low power mode)
Operating Frequency	13.56 MHz
Reading Distance	up to 10 cm*
Antenna	external*
Baudrate	9600 ... 115200 bit/s
Antenna Connector	Soldering Pads
Interface	TTL, 3.3 V output levels, the input is not 5 V tolerant
PCB Connections	Soldering Pads (Suitable for SMD Production)
Outputs	1 Buzzer, 2 LEDs, 3 Special, max 25 mA on each single output, max 80 mA in total.

MECHANICAL SPECIFICATIONS	
Material	FR-4, Blue
Mounting Option	Soldering

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	Windows 7, 8, 8.1, 10
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 DISCTANCE DEPENDS ON TAG, ANTENNA AND ENVIRONMENTAL CONDITIONS.*

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AVAILABLE VERSIONS

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

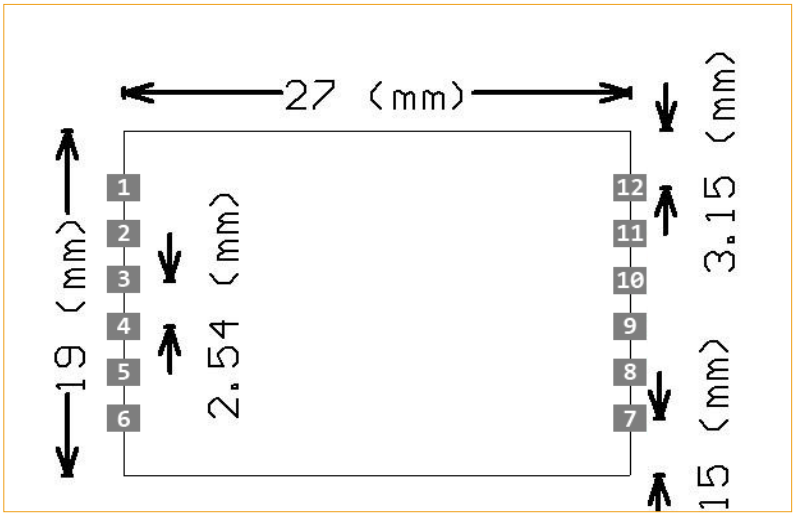
	DESFIRE	ISO 18000-3	HF	MIFARE
GENERAL SPECIFICATIONS				
Dimensions	25 × 16.5 × 2.8 mm	25 × 16.5 × 2.8 mm	25 × 16.5 × 2.8 mm	25 × 16.5 × 2.8 mm
Weight	3 g	3 g	3 g	3 g
Power Supply	3.3 Vdc	3.3 Vdc	3.3 Vdc	3.3 Vdc
Power Consumption	< 100 mA, standby current < 1 mA (low power mode)	< 100 mA, standby current < 1 mA (low power mode)	< 100 mA, standby current < 1 mA (low power mode)	< 100 mA, standby current < 1 mA (low power mode)
Operating Frequency	13.56 MHz	13.56 MHz	13.56 MHz	13.56 MHz
Reading Distance	depending on external antenna*	depending on external antenna*	depending on external antenna*	depending on external antenna*
RT FX Speed	up to 848 kBd	up to 848 kBd	up to 848 kBd	up to 848 kBd
Reader IC	NXP CLRC663	NXP CLRC663	NXP CLRC663	NXP CV520
Interface	TTL	TTL	TTL	TTL
Antenna	external*	external*	external*	external*
Baudrate	9600 ... 115200 bit/s	9600 ... 115200 bit/s	9600 ... 115200 bit/s	9600 ... 115200 bit/s
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 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 14443 B and compatible	SRI4K, SRIX4K, AT88RF020, 66CL160S, SR176	SRI4K, SRIX4K, AT88RF020, 66CL160S, SR176	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)	EM4135, EM4043, EM4x33, EM4x35, I-Code SLI / SLIX, M24LR16/64, TI Tag-it HF-I, SRF55Vxx (my-d vicinity)	–
ISO 18000-3M3 and compatible	–	I-Code ILT-M	–	–

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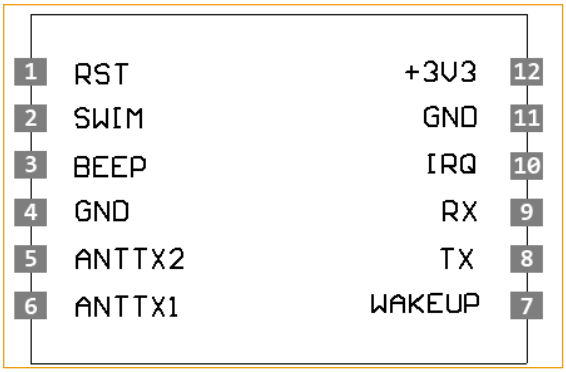
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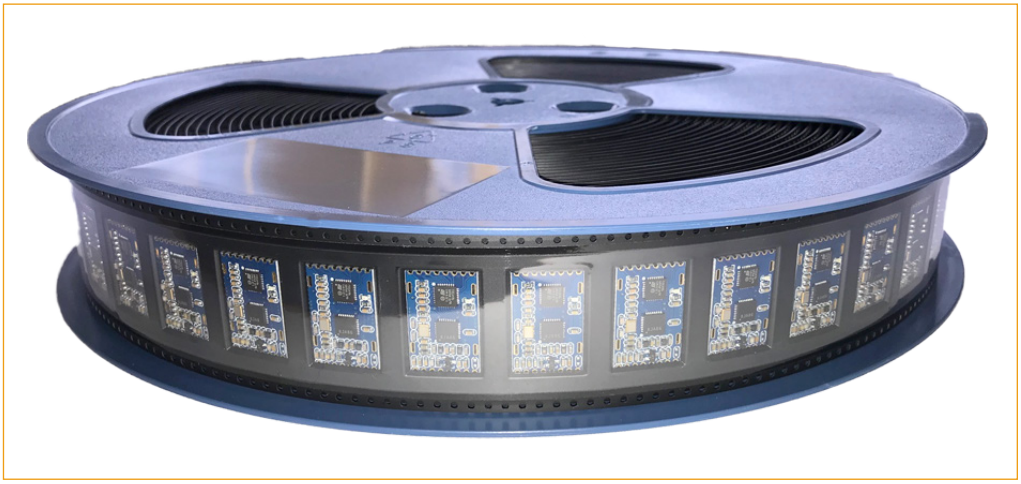
MECHANICAL VIEW



PIN LAYOUT



TAPE & REEL



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CONNECTIONS

PIN	SIGNAL	IO TYPE	DESCRIPTION
1	GND	PWR	GND
2	RST	Input	Low power reset
3	VCC	PWR	DC 3.3 V
4	TVDD	PWR	Power for RF, DC 3.3 ~ 5 V
5	ANT-	PWR	GND
6	RFU	Input	RFU
7	ANT +	Output	Antenna output
8	RFU	Output	RFU
9	IO6	Output	External LED
10	IO5	Output	External LED
11	IO4	Output	A group of IO used for control full color RGB Light
12	IO3	Output	
13	IO2	Output	
14	IO1	Output	External Buzzer
15	TXD	Output	UART TX (TTL Level)
16	RXD	Input	UART RX (TTL Level)

ORDER CODES

VERSIONS	ORDER CODES
DESFire	
HF | NFC Embedded Module M900 - TTL	OEM-DES-M900-TTL
ISO 18000-3	
HF | NFC Embedded Module M900 - TTL	OEM-DES-M900-TTL-18/3
HF	
HF | NFC Embedded Module M900 - TTL	OEM-HF-M900-TTL
MIFARE	
HF | NFC Embedded Module M900 - TTL	OEM-MF-M900-TTL
TAPE & REEL	
HF | NFC Embedded Module M900 - Tape & Reel	On Request - MOQ 500 Units

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