

# DESFire Module M900

## Applications

- Ticketing
- Payment
- Access Control
- Handhelds / Terminals

## Features

- Adopts ARM MCU solution
- Tiny size
- Single-face laying components
- 3.3 V power supply
- TTL interface

## RFID Options

- HF (ISO14443A/B, 15693, 18092)

## Description

Embedded RFID Module DESFire M900 is compliant with ISO14443A/B, ISO15693 and ISO18092 Standard.

Thanks to its tiny size and single-face laying components layout, it allows for embedding in various applications and devices.

HF Module M900 DESFire features one external antenna port. iDTRONIC Professional RFID offers a wide choice of antennas suitable for any purpose.

DESFire Module M900 is available with TTL interface. In low power mode, the M900 consumes less than 1 mA.

A useful software development kit for developing your own applications and operations is available for download.

## Technical Data

| Electrical Specifications |   |
|---------------------------|---|
| Power Supply              | 3.3 Vdc   |
| Power Consumption         | < 100 mA, standby current < 1 mA (low power mode) |
| Operating Frequency       | 13.56 MHz   |
| Baudrate                  | 9600...115200 bit/s                               |
| Antenna                   | external*   |
| Reader IC                 | CL 663  |
| RF TX Speed               | up to 848 kBd                                     |
| Interfaces                | TTL   |

| Mechanical Specifications |                    |
|---------------------------|--------------------|
| Dimensions                | 25 × 16,5 × 2.8 mm |
| Weight                    | 3 g                |
| Material                  | FR4, blue          |

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

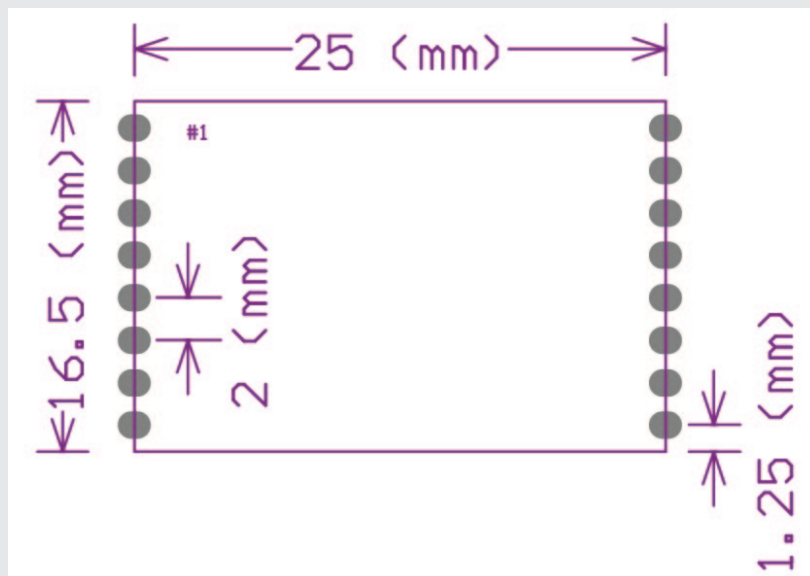
| Supported Standards / Tags |  |
|----------------------------|--|
| ISO14443 A and compatible  | Read/write:<br>MIFARE® Classic Mini / 1K /4K, MIFARE Ultralight®, MIFARE Ultralight® C, MIFARE® DESFire®EV1, MIFARE® Smart MX, MIFARE® Plus S / X, MIFARE® Pro X, NTAG 21x<br><br>Read UID only:<br>Read UID only of all other ISO14443A RFID tags |
| ISO14443 B and compatible  | SRI4K, SR1X4K, AT88RF020, 66CL160S, SR176  |
| ISO15693 and compatible    | EM4135, EM4043, EM4x33, EM4x35, I-Code SLI / SLIX, M24LR16/64, TI Tag-it HF-I, SRF55Vxx (my-d vicinity)  |

| Applicable Standards |   |
|----------------------|---|
| EMC                  | EN 301489-1:2012-04 (v1.9.21)<br>EN 301489-3:2013-12 (V1.6.1) |
| Radio Regulation     | EN 300330-1:2015-08 (V1.8.1)<br>EN 300330-2:2015-08 (V1.6.1)  |
| Safety               | EN 60950-1:2014-08<br>EN 62369-1:2010-03<br>EN 50364:2010-11  |
| RoHS                 | EC Guideline 2011/65/EU                                       |
| Certificates         | FCC, CE   |

| SDK Information     |                                    |
|---------------------|------------------------------------|
| Supported OS        | Windows XP, Vista, 7, 8, 8.1, 10   |
| Supported Languages | ASCII command protocol, VS2005 C++ |
| Demo Software       | Windows                            |

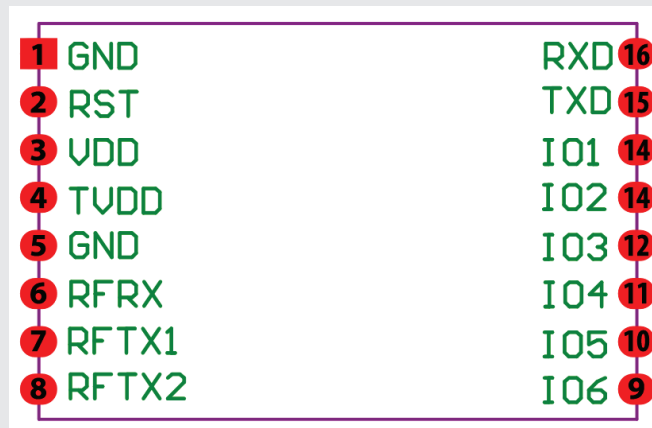
\* Reading distance depends on tag, antenna and environmental conditions.

## Mechanical View



All Dimensions in millimeters (mm)

## Pin Layout



## Connections

| Pin | Signal | IO Type | Description  |
|-----|--------|---------|--|
| 1   | GND    | GND     | GND  |
| 2   | RST    | Input   | Low level reset  |
| 3   | VDD    | PWR     | Power supply +3.3 Vdc                                  |
| 4   | TVDD   | PWR     | Power supply +3.3 Vdc for RF                           |
| 5   | GND    | GND     | GND  |
| 6   | RFRX   | Input   | RFU  |
| 7   | RFTX1  | Output  | RX out, antenna, use this + GND for antenna connection |
| 8   | RFTX2  | Output  | RX out, antenna — unused                               |
| 9   | IO6    | Output  | External LED   |
| 10  | IO5    | Output  | External LED   |
| 11  | IO4    | Output  | A group of IOs used for control full colour RGB LED    |
| 12  | IO3    | Output  | A group of IOs used for control full colour RGB LED    |
| 13  | IO2    | Output  | A group of IOs used for control full colour RGB LED    |
| 14  | IO1    | Output  | External Buzzer  |
| 15  | TxD    | Output  | UART TxD   |
| 16  | RxD    | Input   | UART RxD   |

## Order Codes

| Version | Order Code       |
|---------|------------------|
| TTL     | OEM-DES-M900-TTL |

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