

EMBEDDED HF RFID READER R835 SERIES

APPLICATIONS

- Identification Products
- Vending Machines
- Health Care
- Payment

FEATURES

- Reading Range up to 8 cm
- SDK and Windows based application are supplied
- Integrated Antenna
- TTL Connection

RFID OPTIONS

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

PRODUCT DESCRIPTION

The iDTRONIC embedded RFID reader R835 series is a high performance and low-cost reader series for the integration into vending machines, healthcare, medicine or identification products. 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 ISO14443A/B (T=CL), ISO15693, ISO18092 / ECMA-340 (NFC) and ISO 18000-3.

Thanks to its integrated antenna, the embedded RFID reader R835 series achieves reading ranges of up to 8 cm (depending on type of transponder).

Its TTL based interface allows an easy and fast integration into existing electronics or a fast paced new development of high end identification applications.

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.

HEALTH CARE



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.

VENDING MACHINES



Vending machines of all types are more and more common these days. The easy sales processing and handling attracts the customers.

The R835 reader can easily be integrated into the vending machine. The PSAM version is especially designed for payment processes. The customer can pay by mobile phone or by debit card.

In the most parking areas are vending machines for park tickets. This increases the customer satisfaction and the effectivity of fast payment processing.

TECHNICAL DATA

ELECTRICAL SPECIFICATIONS

| | |
|---------------------|--|
| Power Supply | 3.3 ~ 5 Vdc |
| Power Consumption | < 150 mA, standby current < 1 mA (low power mode) |
| Operating Frequency | 13.56 MHz |
| Reading Distance | up to 8 cm* |
| Antenna | integrated, 55 × 30 mm |
| Baudrate | 9600 ... 115200 bit/s |
| Antenna Connector | U.FL |
| Interface | TTL, 3.3 V output levels, the input is not 5 V tolerant |
| Connector | Molex PicoBlade 53261 (PCB) 51021 (cable) |

MECHANICAL SPECIFICATIONS

| | |
|-----------------|------------|
| Material | FR-4, Blue |
| Mounting Option | Screwing |

ENVIRONMENTAL CONDITIONS

| | |
|-----------------------|----------------------------|
| Operating Temperature | -20 °C ... +80 °C |
| Storage Temperature | -40 °C ... +85 °C |
| Humidity | up to 95 %, non condensing |

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** |

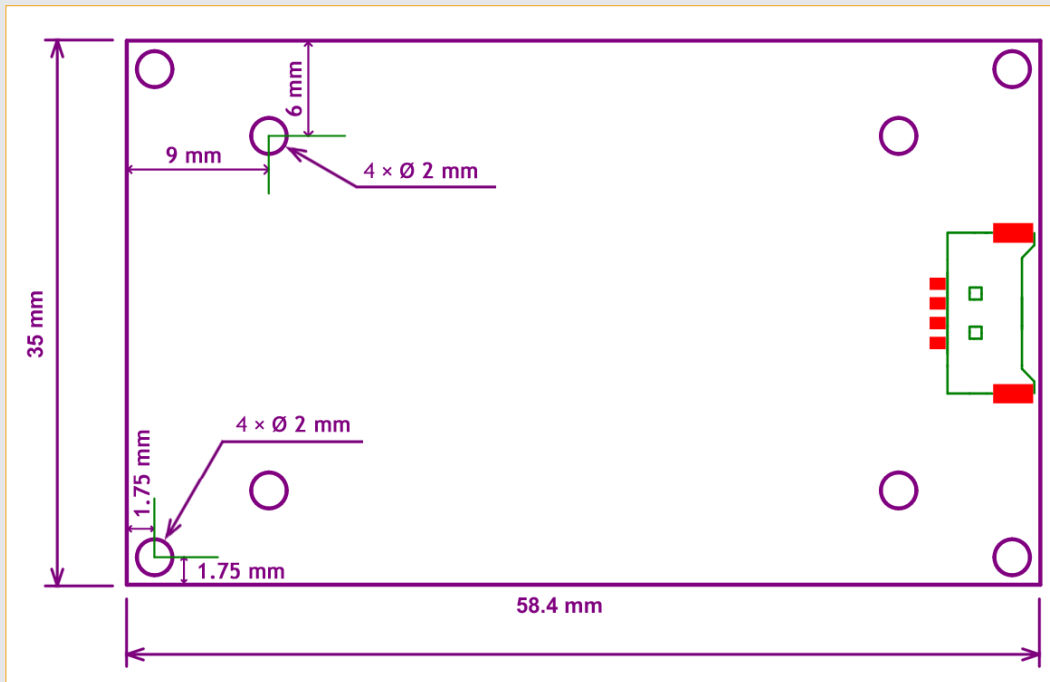
*READING DISTANCE DEPENDS ON TAG, ANTENNA AND ENVIRONMENTAL CONDITIONS.

AVAILABLE VERSIONS

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

| | DESFIRE | ISO 18000-3 | PSAM | HF | MIFARE |
|-----------------------------------|---|--|--|---|---|
| GENERAL SPECIFICATIONS | | | | | |
| Dimensions | 58.4 × 35 × 4.7 mm | 58.4 × 35 × 4.7 mm | 58.4 × 35 × 4.7 mm | 58.4 × 35 × 4.7 mm | 58.4 × 35 × 4.7 mm |
| Weight | 8 g | 8 g | 8 g | 8 g | 8 g |
| Power Supply | 3.3 ~ 5 Vdc | 3.3 Vdc | 3.3 V ~ 5 Vdc | 3.3 V ~ 5 Vdc | 3.3 ~ 5 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) | < 100 mA, standby current < 1 mA (low power mode) |
| Operating Frequency | 13.56 MHz | 13.56 MHz | 13.56 MHz | 13.56 MHz | 13.56 MHz |
| Reading Distance | up to 8 cm* | up to 8 cm* | up to 8 cm* | up to 8 cm* | up to 8 cm* |
| RT FX Speed | up to 848 kBd | 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 CLRC663 | NXP CV520 |
| Interface | TTL | TTL | TTL | TTL | TTL |
| Antenna | integrated, nominal size: 55 × 30 mm | integrated, nominal size: 55 × 30 mm | integrated, nominal size: 55 × 30 mm | integrated, nominal size: 55 × 30 mm | integrated, nominal size: 55 × 30 mm |
| Baudrate | 9600 ... 115200 bit/s | 9600 ... 115200 bit/s | 9600 ... 115200 bit/s | 9600 ... 115200 bit/s | 9600 ... 115200 bit/s |
| Connector | Molex PicoBlade 53261 (PCB) 51021 (cable) | Molex PicoBlade 53261 (PCB) 51021 (cable) | Molex PicoBlade 53261 (PCB) 51021 (cable) | Molex PicoBlade 53261 (PCB) 51021 (cable) | Molex PicoBlade 53261 (PCB) 51021 (cable) |
| 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, 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, SR1X4K, AT-88RF020, 66CL160S, SR176 | SRI4K, SR1X4K, AT-88RF020, 66CL160S, SR176 | SRI4K, SR1X4K, AT-88RF020, 66CL160S, SR176 | SRI4K, SR1X4K, AT-88RF020, 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) | EM4135, EM4043, EM4x33, EM4x35, I-Code SLI / SLIX, M24LR16/64, TI Tag-it HF-I, SRF55Vxx (my-d vicinity) | – |
| ISO 7816 | – | – | PSAM T=1 | – | – |

MECHANICAL VIEW



PIN LAYOUT



CONNECTIONS

| PIN | SIGNAL | IO TYPE | DESCRIPTION |
|-----|-------------------|---------|----------------------------------|
| 1 | TxD – up to 3.3 V | Output | UART TxD (yellow) |
| 2 | RxD – up to 3.3 V | Input | UART RxD (green) |
| 3 | GND | PWR | Power supply GND (black) |
| 4 | +5 V/+3.3 V | PWR | Power supply +5 or 3.3 VDC (red) |

ORDER CODES

| VERSION | ORDER CODE |
|--------------------------------|-----------------------|
| DESFIRE | |
| OEM DESFire Reader TTL | OEM-DES-R835-TTL |
| ISO 18000-3 | |
| OEM ISO 18000-3 Reader TTL | OEM-DES-R835-TTL-18/3 |
| PSAM | |
| OEM PSAM Reader TTL | OEM-PSAM-R835-TTL |
| HF | |
| OEM HF Reader TTL | OEM-HF-R835-TTL |
| MIFARE | |
| OEM MIFARE Reader TTL | OEM-MF-R835-TTL |
| ACCESSORIES | |
| OEM HF Connecting Cable M8 | OEM-HF-M8-CC |
| OEM HF Converter TTL USB 5 V | OEM-HF-M8-CONV-5V |

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