

PREMIUM-MFS 13.56 MHz secure MIFARE sector card reader



The PREMIUM-MFS is a Mifare reader that is user configurable to read data from a designated sector using a designated key. As this data cannot be copied from the Mifare card, it provides a secure card reader. Card readers are supplied in a factory reset state and are programmed using a configuration card. On first time power-up the reader LED's indicate that the reader needs to be configured.

The configuration card is prepared using the Secure Card Software and the MFPROG Mifare Card programmer.

The configuration card specifies the key and sector that contain the card data. It also specifies the reader output format.

A reader can be reconfigured at a future date to have a different sector / key but only if the initial configuration permits this feature. In this way malevolent reconfiguration of the reader can be prevented.

To ensure security, there is no back-door to reset the reader and if the sector / key are lost the reader can only be reset to the factory default setting by reloading the reader firmware.

User cards may be created using the Secure Card programming software.

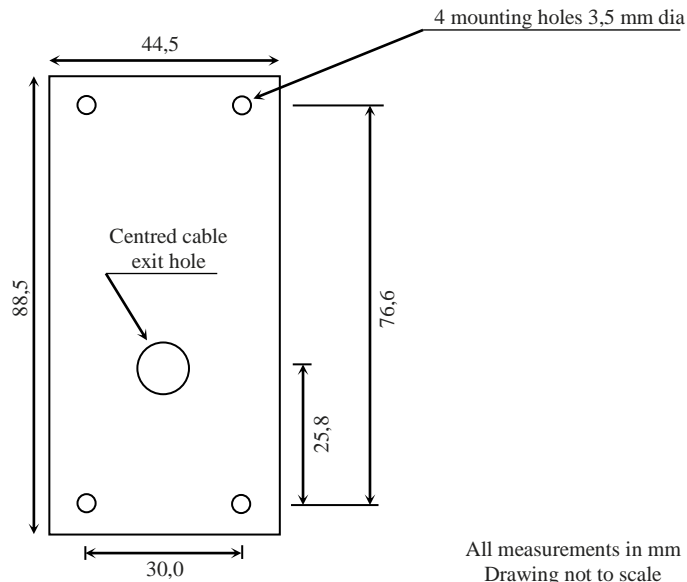
The reader has Wiegand, Magstripe and RS232 outputs and supports a number of formats.

The reader can be set to control the LED's and sounder. They can always be externally controlled.

Specifications :

- Power supply : DC +5,0V to 13,8V
- Power consumption : Typ. 120mA
- Transmitting Radio Frequency : 13,56 MHz
- Card types supported : Mifare® Classic 1K/4K, Ultralight, Plus S, Plus X
- Mifare Application directory : Mifare application directory (MAD1 and MAD2) supported
- Contactless Interface : Contactless interface as per specification ISO/IEC 14443 Type A
- Typ. read range : 20mm to 50mm, dependant upon transponder type
- Indications : 3 LEDs (Green/Red/Yellow) + Buzzer (4kHz tone)
- Data Output format : Wiegand, Magstripe, RS232 (2400- 57600 baud)
The card's UID can be output when in RS232 mode
- Connections : 10-wire cable (1 m length)
- Weight : 90g
- Operating Temperature : -20°C ~ +60°C
- Mounting : Mullion or wall mount (Extra mounting plate is supplied with each reader)
- Dimensions : 89 x 45 x 16 mm (dimensions mounting plate : 89 x 45 x 7 mm)

Physical dimensions and mounting details :



If the mounting plate is used the reader cable may be brought out of one of four exit points on the mounting plate: top, bottom, left or right. This enables the cable to be run on the surface of the wall.

If no mounting plate is used, a minimum hole size of 6,5 mm must be drilled in the wall at the cable exit position as shown above to allow the cable to exit perpendicular to the reader.

The optional mounting plate may also be used when mounting the reader on a metal surface to reduce the negative effects of metal on the read range.

Connections :

Colour	Name	Function
BLACK	0V	Connect 0V from power supply.
RED	+VDC	Connect +5V - +13.8V from power supply
PURPLE	RS-232 TX	Output RS-232 TX ¹
BLUE	BUZZER	Controls Buzzer ²
GREEN	GRN-LED	Controls Green LED ²
ORANGE	RED-LED	Controls Red LED ²
YELLOW	YEL-LED	Controls Yellow LED ²
BROWN	DATA / DATA1	Open collector data output ³
WHITE	CLOCK / DATA0	Open collector data output ³
GREY	RS232 RX	Output RS232 RX ¹

Notes :

- ¹ Baud rate is configurable
- ² LED and BUZZER inputs are active low. The input is internally pulled high and may be pulled low by an open collector transistor or driven low by the output of a 5V CMOS or TTL gate.
- ³ Open collector has a 10k internal pullup to 5V

Operation :

Once configured, the reader will read specific data stored on a MIFARE card and output this data in a chosen format. The choice of transponder type, which sector and block to read, which authentication KEY to use, and which output format to use, is decided by the user. Using the MFPROG Mifare card programmer, a configuration card may be made using the parameters the user has chosen. This card must be presented to the PREMIUM-MFS reader when it is in the factory reset state. Presenting this card to the reader will load these settings into the reader and the reader is now configured.

The Configuration Card may be used on as many readers as required.

Following is a full list of configurable reader options :

- Type of Mifare transponder (Classic 1k/4k, Ultralight, Plus S/X)
- Sector Number or Mifare Application ID (when card is configured for MAD)
- Number of blocks/pages to read
- Block/Page Number within the sector
- Sector Key (must match Key A in the sector trailer for successful authentication)
- Output format (wiegand, magstripe, RS232)
- Number of bits to read from the card
- First bit position
- Red LED flash - none, on good read, on failed read, on both
- Green LED flash - none, on good read, on failed read, on both
- Beeper sound - none, on good read, on failed read, on both
- UID output - none, on good read, on failed read, on both. (Only available In RS232 mode)
- Allow reconfiguration
- Re-configuration key.

Factory Reset State

A new reader will start in the factory reset state and has the following functionality:

LEDS :

The red and green LEDS will flash alternatively ON and OFF with a period of 1 second. The LEDS will not respond to any card reading.

Card in Field :

The reader will poll a MIFARE card in the field for its UID and if received will attempt to read 'Configuration' data. If the card contains valid configuration data, the card's configuration settings will be loaded into the reader which will reset and resume operation in a configured state.

Note that all LEDS will be off in the configured state.

Beeper

The beeper will respond with a single 500ms beep if a valid configuration card was read and the settings were accepted.

Configuration Card

Configuration cards can be programmed using the MFPROG Mifare card programmer. A MIFARE Std 1k card is used as a configuration card. The reader uses a factory defined KEY to read the configuration card. To prevent unauthorised re-configuring of readers in the future, the user can do one of two things :

1. Disallow future re-configuration of the reader.
2. Choose a new key to be used for re-configuring the reader.

If you disallow future re-configuration, the reader configuration can only be set back to the factory reset state by reloading the reader firmware.

Declaration of Conformity :

ProxTech International bvba hereby confirms that the product PREMIUM-MF is in accordance with the essential demands and other relevant stipulations of the directive 1999/5/EG.

A copy of the Declaration of Conformity can be obtained upon simple request by e-mail on info@proxtech.com.