

MREM 82 MTMBOX-MF

MREM 82 MTMVRBOX-MF

MIFARE® & NFC reader module for post boxes, cabinets or other relay controlled devices

User's guide



techfass®

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2 MREM 82 MTMBOX reader module description

The **MREM 82 MTMBOX-MF** reader module (13,56 MHz reader with an embedded controller) is designed to control access to post boxes, cabinets or similar products using RFID technology. The module can be connected to the RS 485 bus of the **APS mini Plus** access control system. The module is capable to control up to 32 e.g. post boxes via TECH FASS relay modules RM-8 / RM-4, which communicate with MREM 82 MTMBOX-MF via auxiliary RS-485 bus. If there is requirement to control more than 32 devices, another MREM 82 MTMBOX-MF module has to be used. The module can be used in both wall-mounted or recessed solution. Next to classic RFID cards or tags based on **MIFARE®**, **MIFARE® DESFire®** and **NFC¹⁾** tag technology, the reader is compatible with mobile phones equipped with NFC technology and minimum OS Android® 4.4 Kit Kat (or higher). **TF Mobile ID** application needs to be installed. The mobile phone can be used for identification instead of classic cards (card emulation mode).



Pic. 1: MREM 82 MTMBOX-MF



Pic. 2: MREM 82 MTMVRBOX-MF

2.1 MREM 82 MTMBOX-MF module

Brushed aluminium design.

2.2 MREM 82 MTMVRBOX-MF module

Antivandal, black zamak design.

2.3 Product versions

Product version	Product designation	System	Design	Surface	Catalogue number	Module features	
						NFC	MIFARE®
	MREM 82 MTMBOX-MF	APS mini plus	MTM	Brushed aluminum	53482034	✓	✓
	MREM 82 MTMVRBOX-MF	APS mini plus	MTM VR	Black zamak	53482034	✓	✓

Table 1: Product version overview

Notes:

¹⁾NFC – card emulation mode by cell phone or tag; MIFARE® – MIFARE® family UID media reading.
MIFARE®, MIFARE® Classic® and MIFARE® DESFire® are trademarks of NXP B.V.
Android® is a trademark of Google LLC.
BPT is family member of CAME.

3 Technical parameters

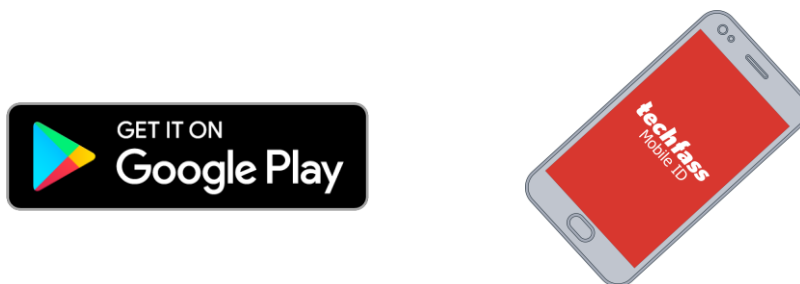
3.1 Technical features

Technical features	Supply voltage		8 ÷ 28 VDC
	Input current	Nominal	42 mA @ 12V, 23mA @ 24 V
		Peak	124 mA @ 12V, 62mA @ 24 V
	Typical power		0,5 W
	Peak power		1,5 W
	ID technology	MIFARE®, NFC (13,56 MHz)	3 cm (card ISO MIFARE® Classic®)
	Real-time clock		Yes, with 24 hrs. back-up
	Memory	Cards	2,000 ID, 2 programming cards
		Events	3,400
		Time schedules	64
	Signalization		1x LED 1x PIEZO
	System communication interface		RS-485
	Relay module communication (RM-8, RM-4)		AUX RS-485

Table 2: Technical features

3.2 Identification by the cell phone with OS Android® 4.4+

It is possible to use a cell phone equipped with NFC technology, operating system Android 4.4 Kit Kat (or higher) and installed **TF mobile ID** application for identification instead of the cards or chips. You can download the application on Google Play for free.



Pic. 3: Google Play and TF mobile ID

3.3 Mechanical design



Pic. 4: MREM 82 MTMBOX-MF

Mechanical design	Weight		122 g
	Operating temperature		-25 ÷ 70 °C
	Humidity		5 ÷ 95%, non-condensing
	IP code		IP 54
	IK code		IK 07, IK 09 (VR version)
	Cable length		2 x 0,4 m
	Color	MREM 82 MTM	Silver, brushed aluminum
		MREM 82 MTM-VR	Black, zinc alloy “zamak”
	Dimensions (Height x Width x Depth)		137,5 x 136 x 64 (34) mm

Table 3: Mechanical design

3.4 Cabling

The cable consists of twelve AWG 26 wires; some of the cables are not required to be used. The “Not applicable” purpose in the table below means, that this wire has no function and should stay unconnected.

3.5 Cable wiring

N/A	N/A	GND	GND	12V

Table 4: Power supply cable wiring

B aux	A aux	N/A	N/A	GND	B	A

Table 5: Data cable wiring

OUT 2 (Alarm)	OUT 1	GND	GND	8-28V	W1/B	W0/A	IN 2	IN 1	GND	RS-485 B	RS-485 A

Pic. 5: Original cabling of the mother product MREM 82 MTMBOX-MF

3.6 Wiring description

Wiring description	#	Color	Purpose
	1	Pink	Not applicable
	2	Violet	Not applicable
	3	Blue	GND power supply
	4	Blue	GND power supply
	5	Red	+ 8 ÷ + 28 VDC
	6	Brown-green	AUX RS-485 B
	7	White-green	AUX RS-485 A
	8	Grey	Not applicable
	9	Yellow	Not applicable
	10	Brown	GND
	11	White	SYSTEM RS-485 B
	12	Black	SYSTEM RS-485 A

Table 6: Wiring description

3.7 LED Indication

LED indicators	Red	Continuously lit	Online operating mode via RS 485
		Flashing with 4 s period	Offline operating mode
	Green		ID media reading
	Red/Green switching		Address setting mode, RS 485 bus testing
	Yellow	Continuously lit / flashing	Programming mode
		Short flashing with 1s per.	Indicating controlled device output release

Table 7: LED indication

3.8 Installation instructions

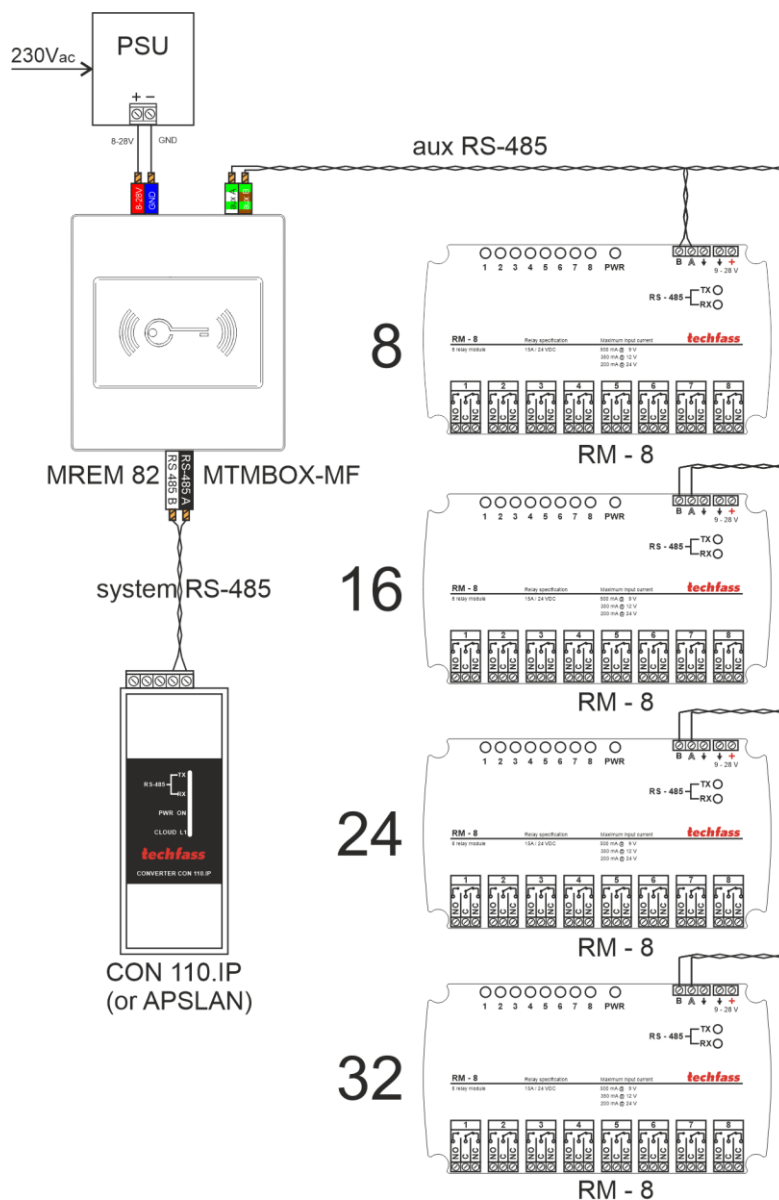
Generally, the noise can influence the reading functionality of the reader, so it is recommended to check the place of installation if there could be some source of noise.

The reader uses passive RFID technology on 13,56 MHz frequencies, which could be sensitive to RF noise sources, either radiated noise or conducted noise to the cable. This noise could be generated by other equipment, which can generate strong electromagnetic field or by noisy power supply, which inject noise to the cable. If there are any doubts, it is recommended to perform a practical test before final mounting.

4 Wiring diagram

4.1 Connection of MREM 82 MTMBOX-MF to control up to 32 post boxes

Generally it is necessary to connect the power supply, the system RS-485 (black & white wires), and to connect the auxiliary RS-485 bus, which is dedicated for the eight channel relay modules RM-8 or for four channel modules RM-4.



Pic. 6: The system connection of up to 4 modules RM – 8 to the aux RS-485 of MREM 82 MTMBOX-MF.

5 Software

To configure and manage MREM 82 MTMBOX-MF please use any standard TECH FASS software, e.g. APS HIT or APS Administrator.

6 Setting parameters of the reader module

6.1 Configurable parameters

Configurable parameters	Parameter		Possible range	Default setting
	Door lock release time		0 ÷ 255 s	7 s
	Door lock control setting		Direct / reverse	Direct
	Door lock relay function setting		Standard / toggle / pulse	Standard
	Permanent door lock release according to a time schedule		Never / Schedule index	Never
	Door lock status indication		YES / NO	NO
	Acoustic signal of door lock release		YES / NO	YES
	Automatic summer time adjustment		YES / NO	YES
	Release lock with REX button when tamper alarm active		YES / NO	YES
	Online authorization timeout		0 ÷ 25500 ms	800 ms
	Standalone authorization after timeout		YES / NO	YES
	Saving events in the module's archive	Door opened	Enabled / Disabled	Enabled
		Door closed	Enabled / Disabled	Enabled
		Strike released	Enabled / Disabled	Enabled
		Strike closed	Enabled / Disabled	Enabled

Table 8: Configurable parameters

6.2 Reader module parameters setting

Detailed instructions for setting reader module parameters are described in the *APS Reader* configuration program user's guide available at the address http://www.techfass.cz/files/m_aps_miniplus_reader_en.pdf.

7 Reader module functioning

The reader module supports the following functions:

- Standard "Door Open" function.

The "Door Open" function can be activated in 2 different ways:

- Reading a valid ID (card, key fob, cell phone...).
- Via communication line (program request).

7.1 "Door Open" function description

In case the *standard function of the door lock relay* is set, the door lock is *released* and the *beeper activated* (when not disabled) when the "Door Open" function is activated. Both outputs stay active until the door is opened or the preset door lock release time has elapsed - see *configuration table*.

In case the *toggle function of the door lock relay* is set, the door lock relay status is *switched* and the *beeper* is *activated* (when not disabled) when the "Door Open" function is activated. The beeper stays active until the door is opened or the preset door lock release time has elapsed - see *configuration table*. The door lock relay status remains unchanged until another "Door Open" function is activated.

In case the *pulse function of the door lock relay* is set, the door lock relay status is switched for the time defined by the *Pulse width* parameter (ms) after the Door Open function is activated.

In case the standard function of the door lock relay is set, reading a valid card during door lock release resets the door lock release time.

7.2 Standard operating modes

The reader module can be in either *online* or *offline* operating mode. The module's functionality is identical in both operating modes; the events archive is read from the reader module's memory when the module goes online.

7.3 ID expiration function

This function is implemented since the FW version 5.0.

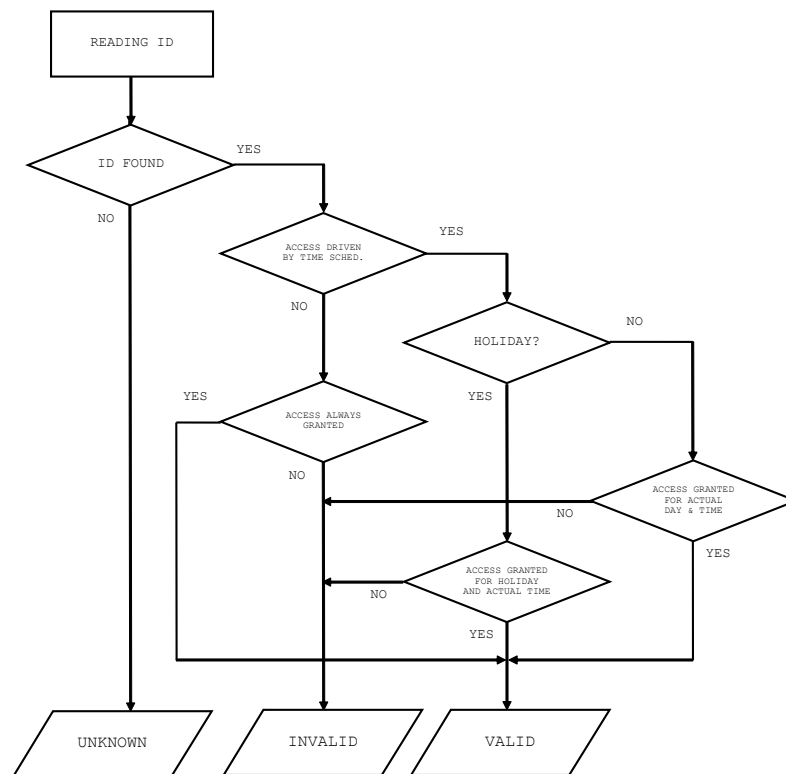
It is possible to set an *Expiration date* for every *ID* stored in the module. When the date occurs, the ID becomes invalid (expired). The expiration evaluation is performed on every date change in the module's RTC and when the access rights are downloaded.

7.4 Online authorization

Since the *FW version 5.11* the *Online authorization of ID* can be used in APS mini Plus system. When the feature is used, the ID validity is resolved in connected PC. To be able to use this authorization mode, the reader module has to be equipped with a *MLO* license.

8 Simplified access rights evaluation

The model of access rights contains time schedules and a table of holidays. A block diagram for access right evaluation can be seen in *Pic.6*.



Pic. 7: Simplified access rights evaluation

9 Declaration of conformity



The manufacturer TECH FASS s.r.o. declares, that the product follows legal requirements and fulfils necessary European directives. The declaration of conformity document can be downloaded from our web site:

<https://www.techfass.com/en/download/11/conformity-declaration>

10 Electrical waste



According to WEEE directive (2012/19/EU), this product cannot be disposed of as unsorted municipal domestic waste and has to be returned to recycling center after its lifetime is over.

11 Legislation

The product complies following harmonization legislation of EU

Legislation	Product	European harmonization legislation
	MREM 82 MTMBOX-MF MREM 82 MTMVRBOX-MF	2014/53/EU; "RED"
		2014/30/EU; "EMCD"
		2014/35/EU; "LVD"; EN 62368 – 1
		2011/65/EU "RoHS"
		Regulation (ES) č. 1907/2006 "REACH"

Table 9: Legislation