

techfass

MREP 82 MTM

RFID reader module with keypad

Introduction

The reader module MREP 82 MTM (dual reader 13.56 MHz & 125 kHz with capacitive keypad) has an integrated lock controller for full one door access control. It is intended either for connection on the APS mini Plus communication bus or for autonomous operation. Up to 32 reader modules from the APS mini Plus system can be connected to one RS 485 communication bus. The module is equipped with the Wiegand interface as well. The module is intended for an installation in the MTM modular entry panel from the CAME company or as a standalone module.



a. Application

- Integrated solution with entry audio / video panel MTM
- Access control system, Both-sided access control
- Booking system
- Lift access control

b. Parameters

- Input voltage $8 \div 28$ Vdc
- Typical current consumption 76 mA @ 12 V
- Maximum input power 1,5 W
- Reading ID media MIFARE®, NFC, EM Marin, Jablotron
- Capacitive keypad
- Proximity & ambient light sensor
- 1x LOCK control - Open drain transistor output 60 V / 2 A
- 1x RS 485 (system bus APS mini Plus)
- 1x Wiegand (output: door controller, input: external RFID reader, GSM module, license plate camera)
- 2x INPUT (door contact, exit button, tamper)
- 1x Alert output (Alert notification)
- Integrated in the MTMRFID entry panel module
- Power save mode

c. Variants

brushed aluminium, silver colour

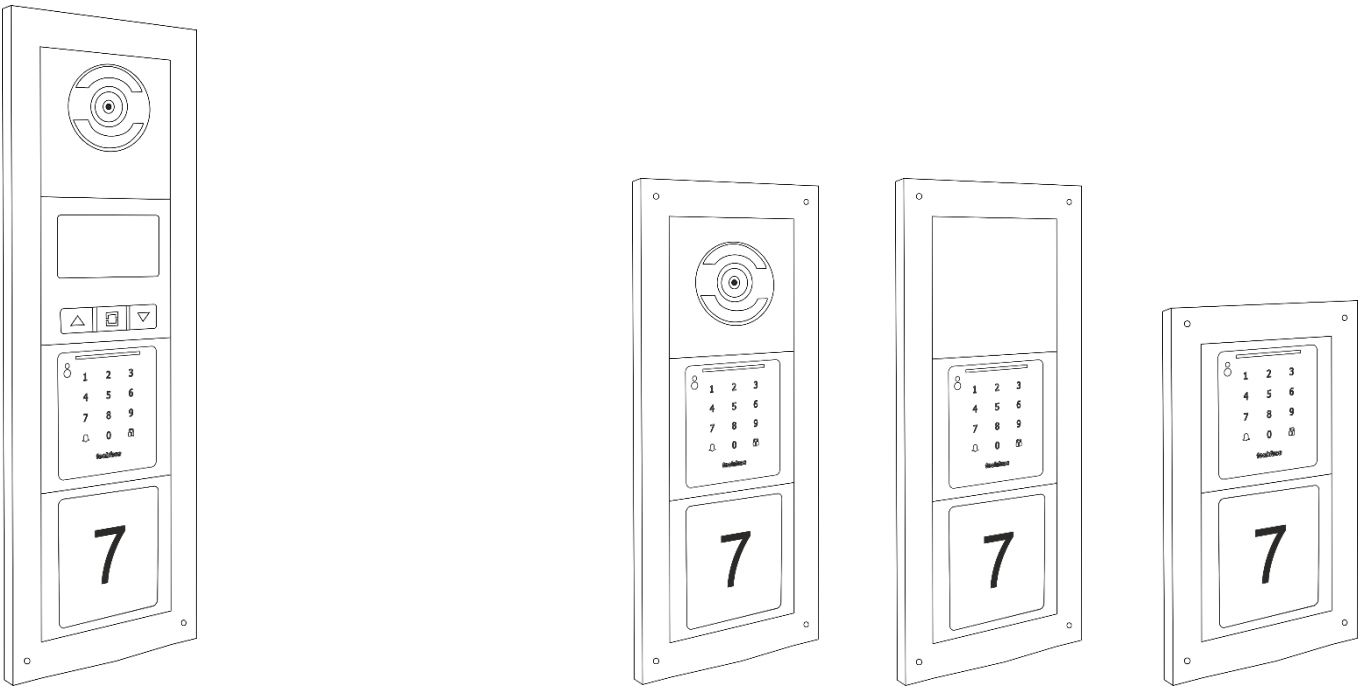
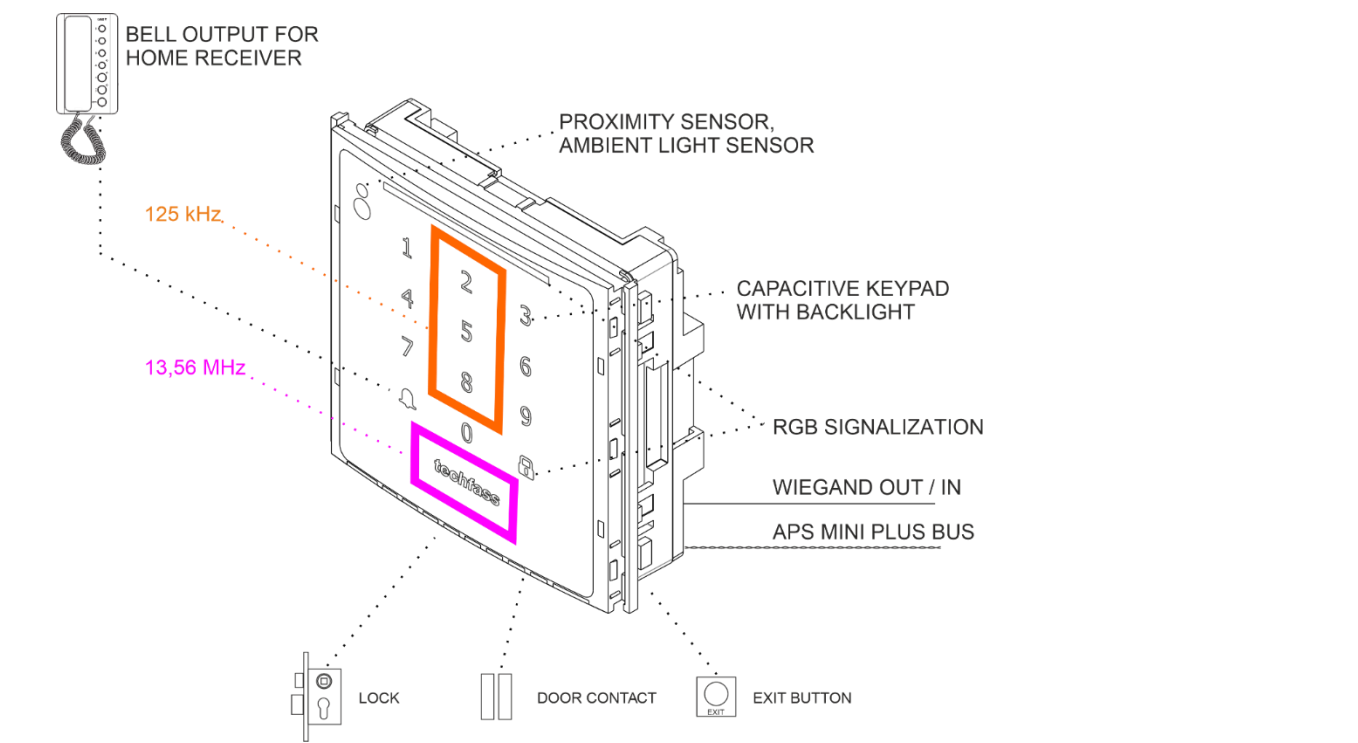
CATALOG NUMBER	PART NUMBER	SYSTEM	VARIANT	RFID frequency
534822E2	MREP 82 MTM - MF	APS mini Plus	Modul MTMMI	13,56 MHz
534822F1	MREP 82 MTM - EM	APS mini Plus	Modul MTMMI	125 kHz
534820E3	MREP 82 MTM	APS mini Plus	Modul MTMMI	125 kHz, 13,56 MHz

d. Marking

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
M	R	E	P			8	2			M	T	M	-	M	F								
System				Product type				HW type				housing type				RFID technology							
M: APS mini Plus				REP: Reader module w/ keypad												MF: 13,56 MHz							
																EM: 125 kHz							
																Nothing: 13,56 MHz & 125 kHz							

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Function overview

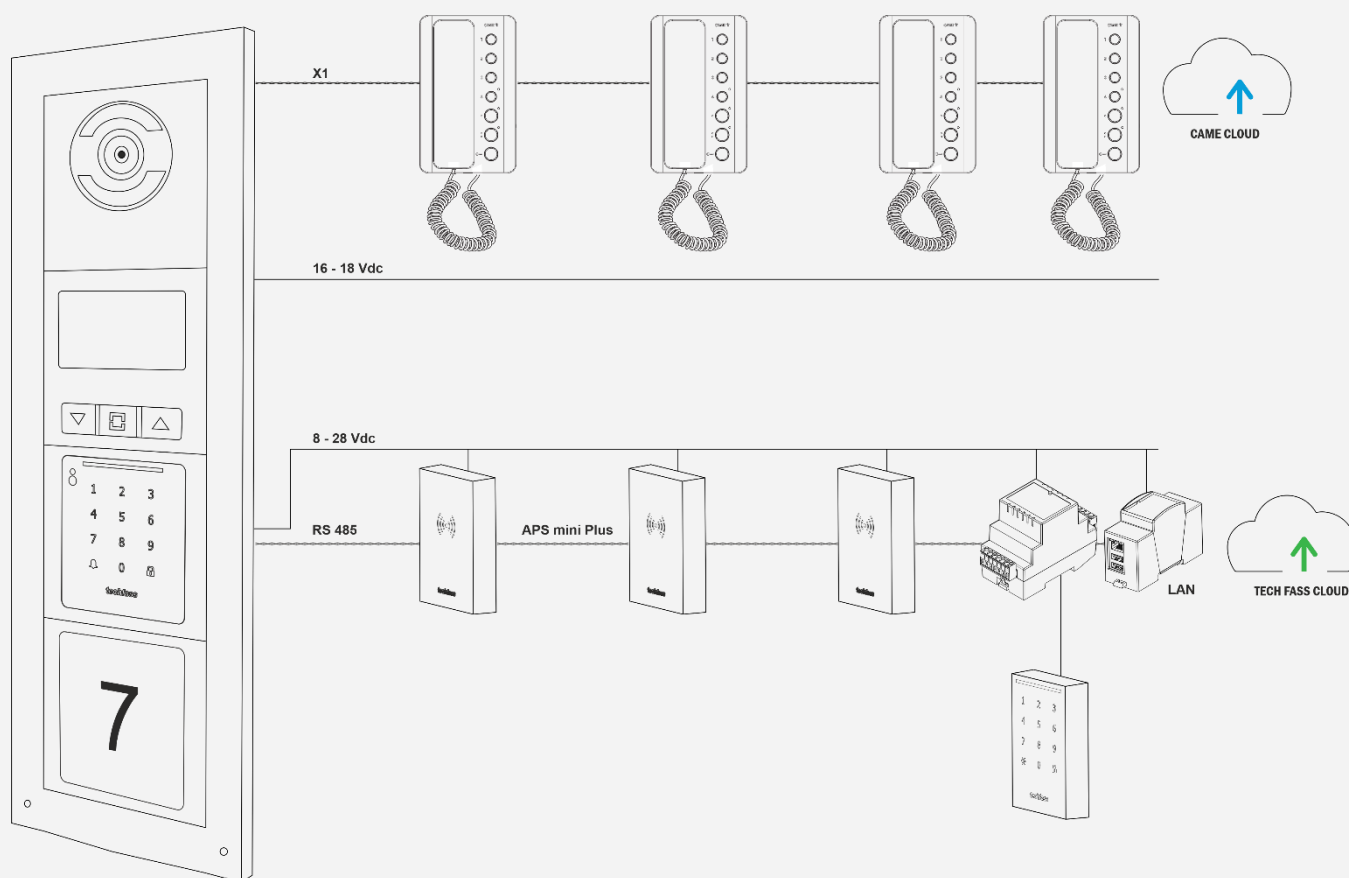


Main entrance

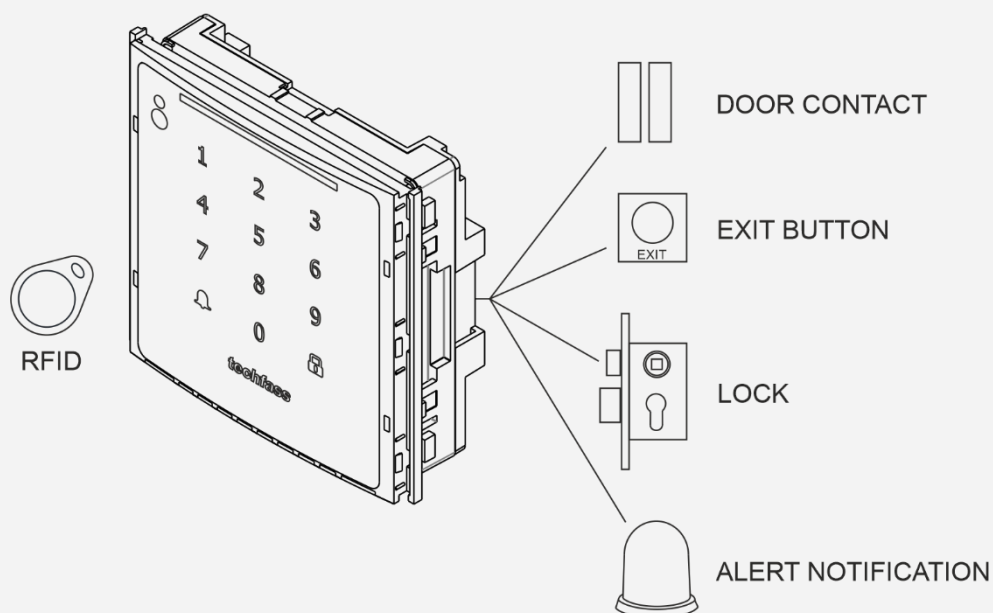
Customizable solution for any customer's flat

Wiring

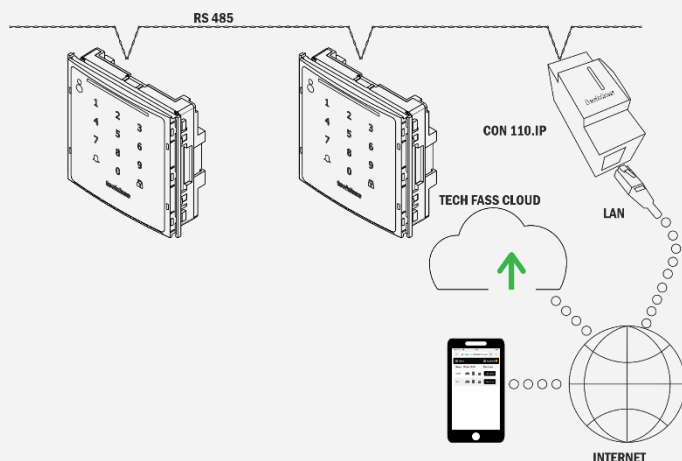
The MREP 82 MTM reader module can be used as a standalone or as a part of modular MTM entry panel. One chassis, two independent systems – MREP 82 MTM as a part of access control bus APS mini Plus & audio / video bus for camera unit, each has its own cabling.



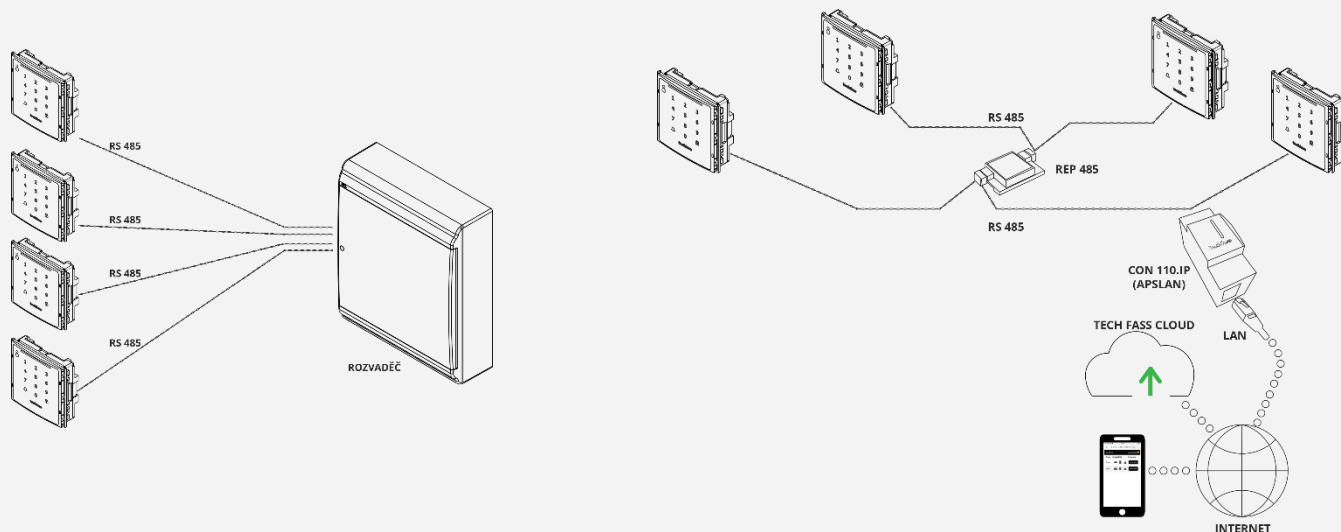
- Full control of the door, the module switches the lock, checks the state of the door contact or exit button.



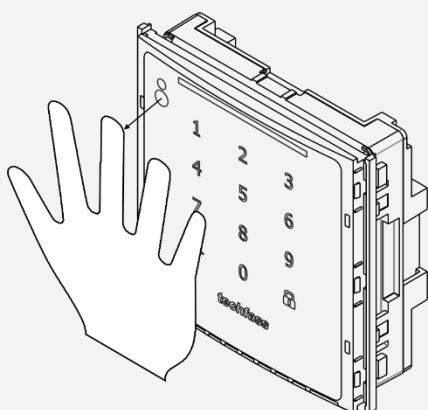
- MREP 82 MTM modules connected to the APS mini Plus bus and TECH FASS cloud, control & administration from a web interface (online service WebHit) on a mobile phone.



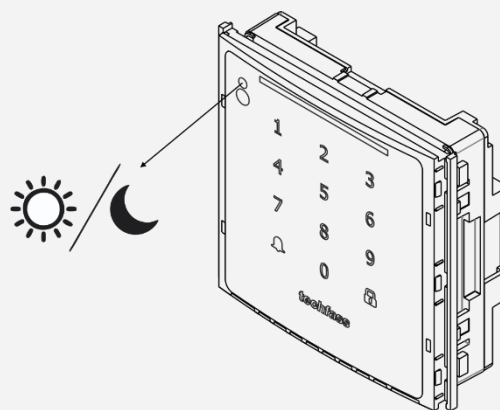
- “Star connection”? Use the bus repeaters REP 485.



- The proximity sensor wakes up the module from the power save mode when a hand approaches. The ambient light sensor adjusts the brightness of the backlight.



Proximity sensor wakes up the module.



Ambient light sensor adjusts the brightness of the backlight & the LED bar.

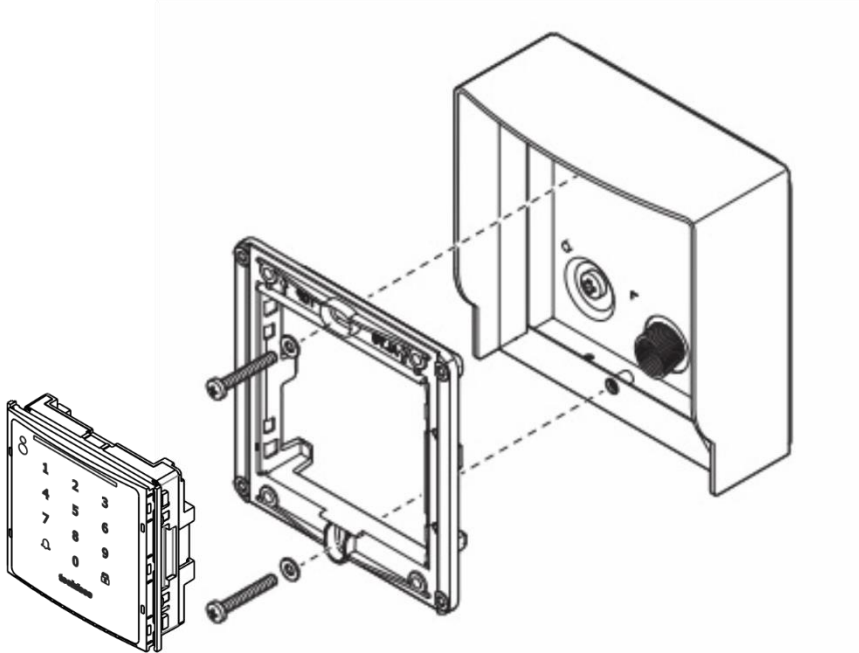
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1 Mechanical design

1.1 Wall mounted

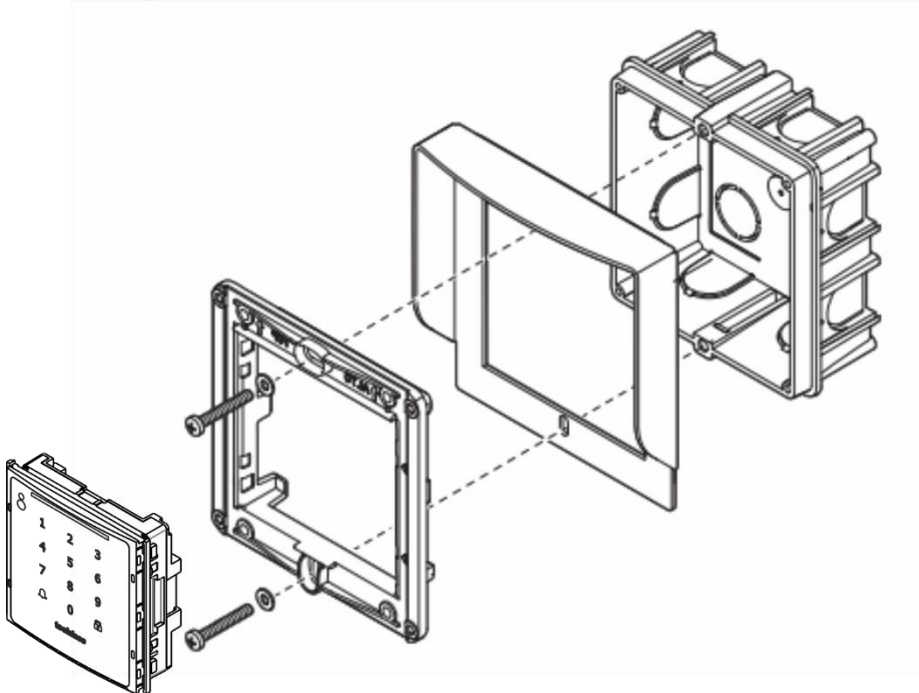
MREP 82 MTM can be mounted on the wall either as a standalone one-module design or as a part of a multi-module design. The outline dimensions of MTMSP1M: 140 x 135 x 64 mm.



Picture 1: Parts from the left: MREP 82 MTM, frame MTMTP1M, raincover MTMSP1M.

1.2 Flush mounted

MREP 82 MTM can be mounted under the plaster either as a standalone one-module design or as a part of a multi-module design. The outline dimensions of MTMTI1M: 137,5 x 136 x 34 mm.



Picture 2: Parts from left: MREP 82 MTM, frame MTMTP1M, embedded raincover MTMTI1M, recessed box MTMSI1M.

2 Technical parameters

2.1 Electrical parameters

PARAMETER	CONDITION	MIN	MAX	UNIT
Input voltage Vin		8	28	V
Typical current consumption lin	Vin = 8 V Vin = 12 V Vin = 24 V		108 76 43	mA mA mA
Peak current consumption lin	Vin = 8 V Vin = 12 V Vin = 24 V		172 115 63	mA mA mA
Typical input power			1	W
Maximum input power			1,5	W
Low power mode			0,5	W
Typical reading distance (ISO card)	125 kHz (EM Marin)	3	5	cm
	13,56 MHz (MIFARE® Classic®)	3	5	cm
Radiated H-field intensity @ 10 m	125 kHz		-11	dBuA/m
	13,56 MHz		-8	dBuA/m
RTC	Backup	24		h
Memory	ID media		2000	pc
	Events		3400	
	Time plans		64	
Signalization	RGB led bar		1	pc
	RGB lock symbol		1	
	Piezo		1	

2.2 Communication interface

INTERFACE DESCRIPTION	TECHNOLOGY	PROPERTIES
System data bus	RS 485	19 200 bit / s, 8 data bits, even parity, 1 stop bit
Wiegand	Wiegand / RS 485	Formats 26, 32, 34, 37, 44, 46, 56 bits, custom

2.3 Mechanical parameters

PARAMETER	VALUE	UNIT
Weight	170	g
Dimensions l x w x h	140 x 135 x 64, 137,5 x 136 x 34	mm
Mounting	On the wall Flush	
Color	Silver, brushed aluminium	
Material	Plastic, aluminium	
Environment class	General outdoor equipment	
Temperature range	IV – outdoor general device, -25 ÷ +70	°C
IP code	IP 54	
IK code	IK 07	
cable	2 x 0,4	m

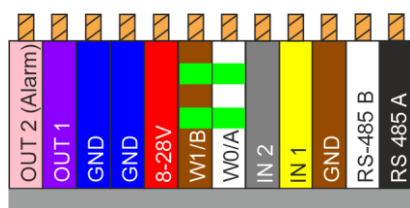
3 Assembly

3.1 Cable connection of MREP 82 MTM

The cable of MREP 82 MTM contains 12 wires with following functions:

MREP 82 MTM

NUMBER	COLOR	WIRE DESCRIPTION	WHERE IT LEADS (EXAMPLE)
1	Pink	OUT 2; 60 V, 2 A, open drain	Input of alert receiver
2	Purple	OUT 1; 60 V, 2 A, open drain	Lock (switching to GND)
3	Blue	GND	GND
4	Blue	GND	GND
5	Red	Power supply Vin 8 ÷ 28 Vdc	Power supply
6	Brown-Green	Wiegand data 1	Wiegand reader (both sided control)
7	White-Green	Wiegand data 0	Wiegand reader (both sided control)
8	Gray	IN 2 (input 2), configurable function	Exit button
9	Yellow	IN 1 (input 1), configurable function	Door contact
	Brown	Signal ground 0 V	Ground for input signals (door contact,..)
9	White	Signal B system data bus	APS mini Plus system bus
10	Black	Signal A system data bus	APS mini Plus system bus



3.1.1 Inputs & Outputs

INPUT / OUTPUT	DESCRIPTION
Input 1 (IN 1)	Door contact, active when door closed; REX button
Input 2 (IN 2)	Request to exit button or handle contact, active when button or handle pressed; Tamper; Disabling function
Output 1 (OUT 1)	Door lock control (open drain)
Output 2 (OUT 2)	Alert output (open drain)

3.2 Cables

Picking the right cables is necessary for proper functionality. Basic knowledge is assumed (differential pair, ohms law).

3.2.1 Power supply

Please check / calculate the maximum load of your system before picking the appropriate cable. CAT5E UTP AWG 24 can be used respecting its limits and it is not recommended for higher current loads. It is recommended to use cable with larger cross-section if needed. If the same cable is used for the lock power as well, keep in mind that the peak current of a lock can be easily over 1 A and around 0,5 A in steady state. If too thin power wires are used, the cable can burn and/or the voltage drop over the cable can cause low voltage on the MREP 82 MTM power input.

3.2.2 System bus

System bus APS mini Plus is based on RS 485 interface and twisted pair is a must requirement. CAT5E UTP or correctly grounded FTP is fine.

3.2.3 Inputs

CAT5E UTP is fine for inputs as well. You can use one wire of a pair for the dry input and second as its ground.

3.2.4 Wiegand

Wiegand is not based on differential pair. If you plan to use CAT5E UTP for Wiegand interface, you need to use one whole pair for D0 and one whole pair for D1. Never use just one pair for Wiegand interface.

3.3 System bus

3.3.1 RS 485 bus termination

If the reader module is the last one on the bus, it is advisable to terminate the RS 485 system bus so that there is no reflection on the line. Use the termination resistor 150Ω which is a part of the packaging.

3.3.2 RS 485 idle states

This reader module does not allow to set the idle states of the system bus. Set the idle states on converters APSLAN, CON 110.IP or REP 485 if needed.

3.4 RFID radio signal

3.4.1 RFID Radio signal interferences

If an 125 kHz reader is used, it is necessary to take into account another 125 kHz reader in direct range - for example when checking the door on both sides. In this case, the readers may interfere with each other. In the techfass system, it is possible to use the so-called synchronization of reading between the reader and the reading module, which then do not interfere with each other.

In general, if possible, we avoid mounting on metal substrates, it is recommended to perform a practical reading test or contact support@techfass.cz.

Interference induced into the bus, e.g. from an interfering power supply, can affect the reading distance, capacitive keypad function (e.g. false touches) or the module's system communication.

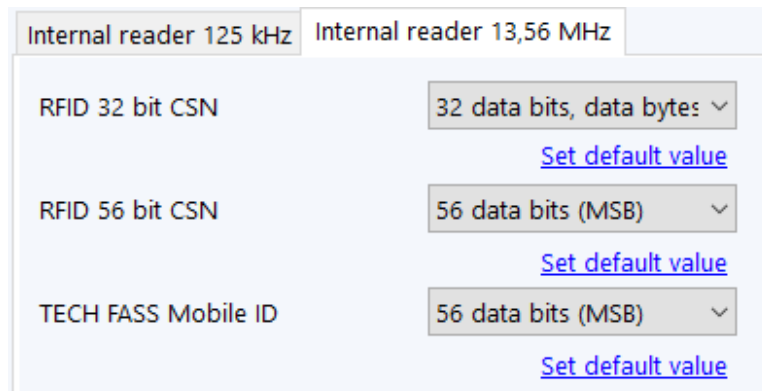
3.5 Meaning of LED bar indicator

COLOR	ACTION	DESCRIPTION
Red	Continuously lit	Online communication of the RS 485 system bus
	Flashing with a period of 4 s	Offline operation
Green	Flash	ID media reading
alternation Red / green	Red / green flashing	Address setting mode / RS 485 system bus test
Yellow	Continuously lit, flashing	Programming mode
	Short flashing, period 1 s	Door lock release indication

4RFID reading

4.1 Reading at 13,56 MHz

The device can read media (cards, key fobs, stickers) according to ISO / IEC 14443A at the level of reading the so-called UID. Examples of media technologies used are NFC and the MIFARE® product family. The device is also ready for so-called sector reading, but it is not active yet.



Internal reader 125 kHz Internal reader 13,56 MHz

RFID 32 bit CSN 32 data bits, data bytes [Set default value](#)

RFID 56 bit CSN 56 data bits (MSB) [Set default value](#)

TECH FASS Mobile ID 56 data bits (MSB) [Set default value](#)

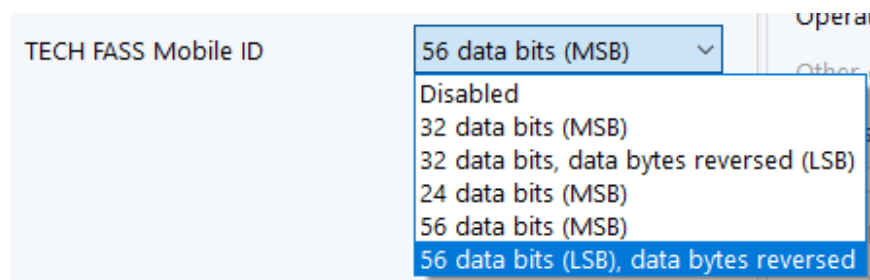
Print screen from APS Reader application.

32 bit CSN	56 bit CSN	TF Mobile ID
Disabled	Disabled	Disabled
32 data bits (MSB)	32 data bits (MSB)	32 data bits (MSB)
32 data bits, reversed (LSB)	32 data bits, reversed (LSB)	32 data bits, reversed (LSB)
24 data bits (MSB)	24 data bits (MSB)	24 data bits (MSB)
Facility code 0x01 + 16 data bits (MSB)	Facility code 0x01 + 16 data bits (MSB)	Facility code 0x01 + 16 data bits (MSB)
	56 data bits (MSB)	56 data bits (MSB)
	56 data bits, reversed (LSB)	56 data bits, reversed (LSB)

For the frequency 13,56 MHz, the format and length options of the so-called "card serial number" can be set according to the table above. Similarly for the TF Mobile ID mobile application.

4.1.1 Identification by mobile phone with OS Android 4.4+

Mobile phones equipped with NFC technology, OS Android 4.4 Kit Kat (or higher) can be used for identification (replaces the usual RFID card). You have to download TF Mobile ID application and follow its manual. The TF Mobile ID application is available for free download on Google Play.

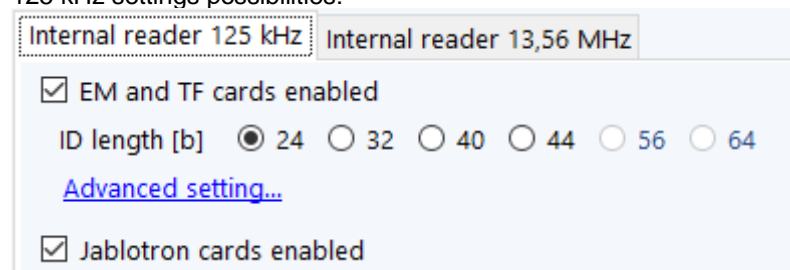


The TF Mobile ID read format and length setting options are shown in the image above (print screen from APS Reader).

4.2 Reading at 125 kHz

The EM or dual variant of the device can also read media with a frequency of 125 kHz like EM Marin (e.g. EM4200, EM4305). Next example of supported media technology is Jaboltron ID.

125 kHz settings possibilities:



Default settings for 125 kHz.

4.3 Dual reading at 13,56 MHz & 125 kHz

The dual variant of the device allows reading media according to 3.1 and 3.2 at the same time.

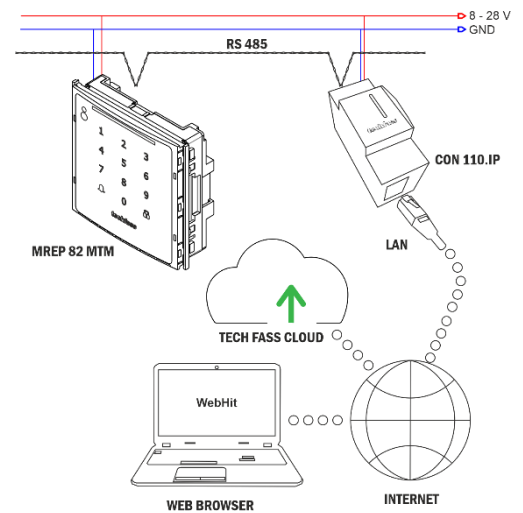
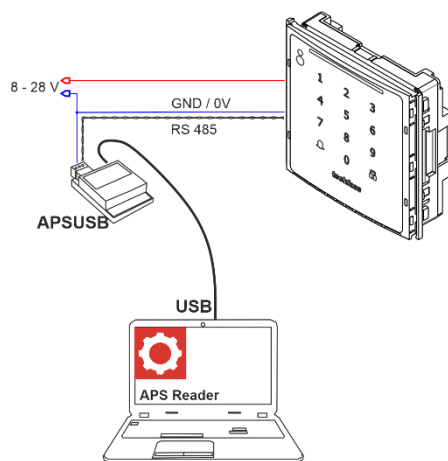
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5 Wiring diagram

5.1 Reader module settings & configuration

If we need to set up the reader module and its parameter values, e.g. what frequency it should read, what HW address it should have, whether the lock is reverse or standard, etc., we need to:

- connect to the PC by converter, e.g. APSUSB or APSLAN and use the desktop application APS Reader
- connect to the cloud by cloud connector CON 110.IP and use the WebHit application website.



Desktop case:

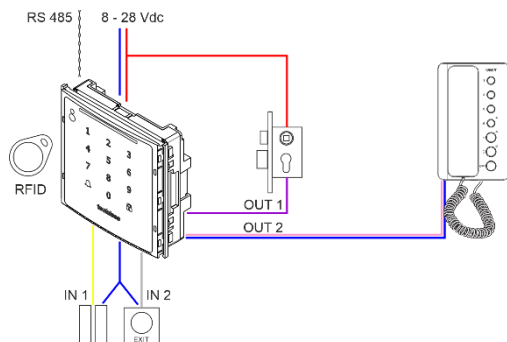
- Connect RS 485 wires (twisted pair) to the reader module and to the converter.
- Connect GND of the reader module and the converter.
- Plug the USB cable into the converter and to the PC.
- Bring the power supply to the reader module.
- Run APS Reader application.

Cloud case:

- Connect RS 485 wires (twisted pair) to the reader module and to the cloud connector.
- Connect GND of the reader module and the cloud connector.
- Plug the ethernet cable into the cloud connector and to the LAN network with internet access.
- Bring the power supply to the reader module and the cloud connector.
- Open cloud.techfass.com in your browser from any device connected to the internet.

5.2 Standalone unit

In this case, the reader module is independent on the entry panel, it is placed just in one module chassis as shown in chapter 1. It can operate autonomously or as part of the APS mini Plus system.



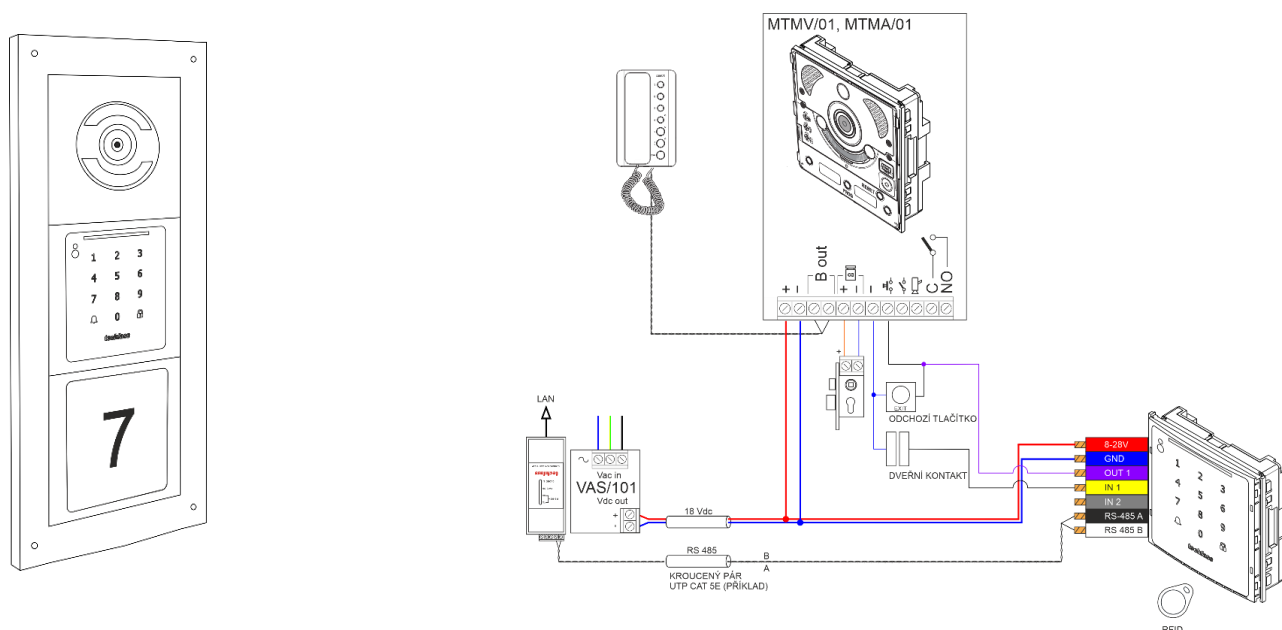
Basic operation of the reader module MREP 82 MTM.

5.2.1 Bell output connection (OUT 2)

If the reader module is connected without the audio / video module MTMV/01, MTMA/01 or without their IP equivalents and we would like to be able to ring from the reader module to home receiver, we need to connect OUT 2 directly to the dedicated input of the receiver.

5.3 Part of MTM audio / video entry panel

5.3.1 Lock control from the MTM audio / video unit - Easy & fast.



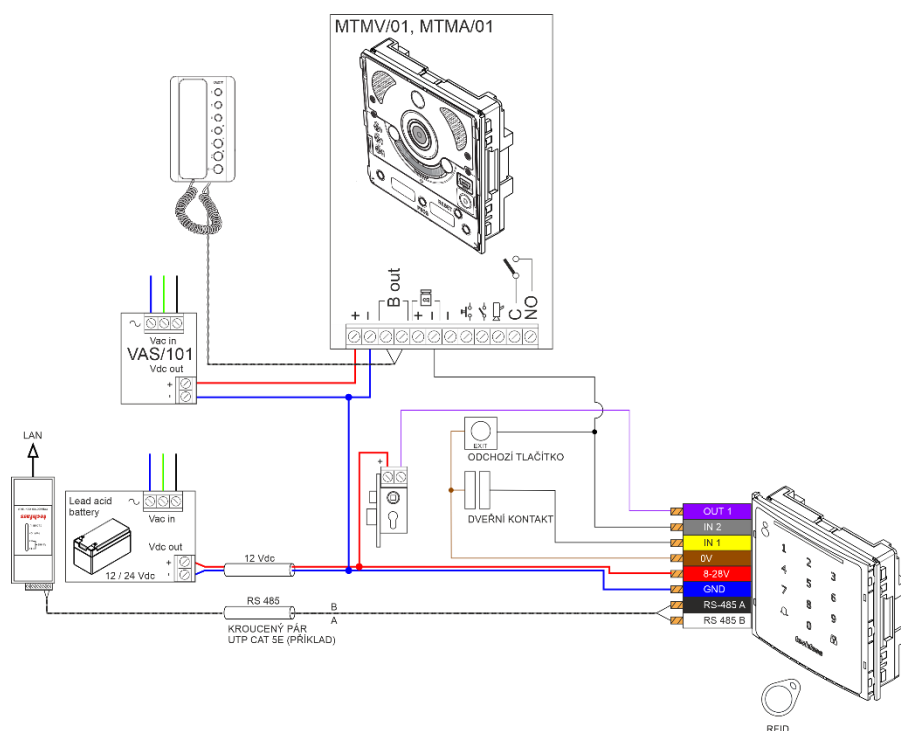
In this case the lock is controlled with the output of MTM audio / video unit. The reader module lock output OUT 1 is connected to the REX button input of the MTM unit.

All wiring is done inside the MTM chassis, we need to bring only the twisted pair for the communication bus of APS mini Plus if needed and the power supply line. Even the power supply unit for MTM (VAS/101) can be shared.

Pros and cons

- + easy faster wiring, shared power supply unit, good for small installations
- not a good topology for a good access control system, no battery back up

5.3.2 Lock control by MREP 82 MTM



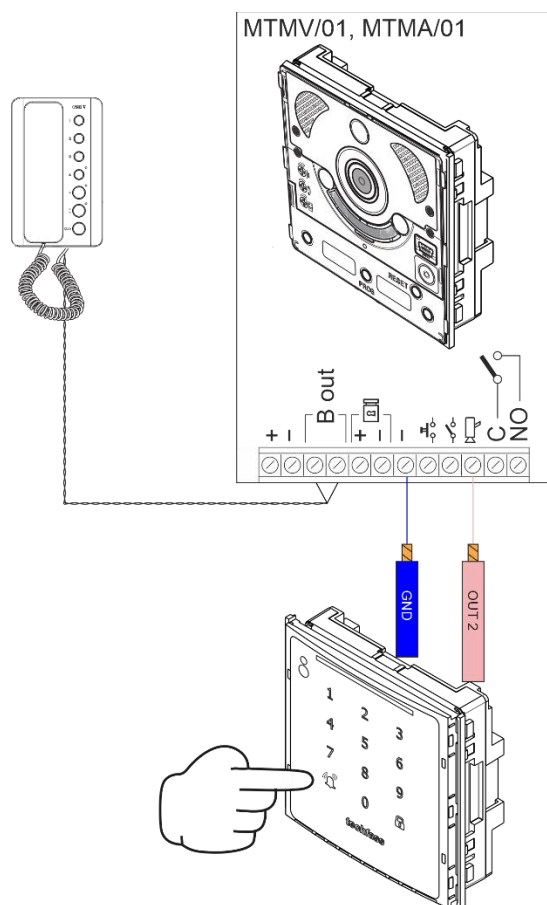
In this case, the reader module is a part of the entry panel and the lock is controlled via the OUT 1 output of the reader module. The lock output of the MTM audio / video unit is connected to the IN 2 input of the reader module in parallel with the exit button (for door opening from the home receivers). The door is fully under control of the reader module (access control system = eACS) and this we can leverage for the battery backup (backup eACS only). It is necessary to connect the output GND of DC sources VAS / 101 and 12 / 24 Vdc for eACS.

Pros and cons

- + Full door control by eACS, battery backup for eACS, good for more pro installations
- Two power supplies needed, exit button & home receiver events cannot be distinguished in event archive

5.3.3 Bell button together with MTM audio / video unit

It is normally assumed, that there is a bell buttons module together with MTM audio / video in the entry panel chassis, plus there can be bell button directly on the MTM audio / video unit (depends on the chosen topology of modular MTM entry panel). This means that the bell button, which is a part of MREP 82 MTM module is not necessary. Anyway, you can connect OUT 2 of the reader module and program the MTM audio / video unit inputs the way, that it will ring as well on the dedicated home receiver assigned to call button 1 or call button 2.



6 Settings

6.1 Device settings options

If we want to set the MREP 82 MTM reader module features, its HW address or configure its parameters, we have to connect it to a computer and to the control software.

If we plan to install just one standalone MREP 82 MTM, then APS Reader application and USB converter is fair enough. If we are going to install some system, where MREP 82 MTM will be placed on the RS 485 bus with several other modules (several HW addresses), we recommend to set the system on the table at home and use web interface to set all necessary parameters.

Web interface & cloud

Use the cloud connector

CON 110.IP <https://www.techfass.com/cs/produkty/102/produkt/1628/con-110-ip>

and set the device from the web browser in the online service WebHit <https://cloud.techfass.com/>.

Desktop application & Windows 10

Use the USB converter

APSUSB <https://www.techfass.com/cs/produkty/102/produkt/1216/apsusb>

or LAN converter

APSLAN <https://www.techfass.com/cs/produkty/102/produkt/94/apslan>

to connect to a computer.

There are two desktop applications for the settings

APS Reader <https://www.techfass.com/cs/produkty/101/produkt/389/aps-reader>

APS Hit <https://www.techfass.com/cs/produkty/101/produkt/1355/aps-hit>

For more detailed settings options use APS Reader application.

6.2 HW address setting

To be able to connect to the MREP 82 MTM reader module, the software needs to know its HW address. Since there can be up to 32 devices on the bus, we have to say to the software, which device (which HW address) we would like to configure.

Default HW address of each MREP 82 MTM reader module is: 1.

If you need five devices in the system, connect them on the RS 485 bus & the power bus. Now you need to change the HW addresses of four devices to have each HW address unique.

There MUST NOT be two devices with the same HW address on the bus, otherwise the communication will not work.

6.3 Change of HW address

The HW address can be changed in the software.

6.3.1 WebHit

You need to be a “WebHit Installer” to be able to see the “Line configuration” option in the left menu. To become the installer, please ask your local distributor.

1) Setting the HW address with known serial number (SN)

Click “Line configuration” -> “set address with SN”

Setting HW address with SN

SN

device serial number

HW address

1

N/A

Commit

Close

Simply write down the SN of the reader module and then you can use it for assignment of the HW address.

2) Setting the HW address with known ID of ID media (rfid card, tag)

Click “Line configuration” -> “set address with reading ID”

Setting HW address with ID

ID code

ID code

HW address

1

N/A

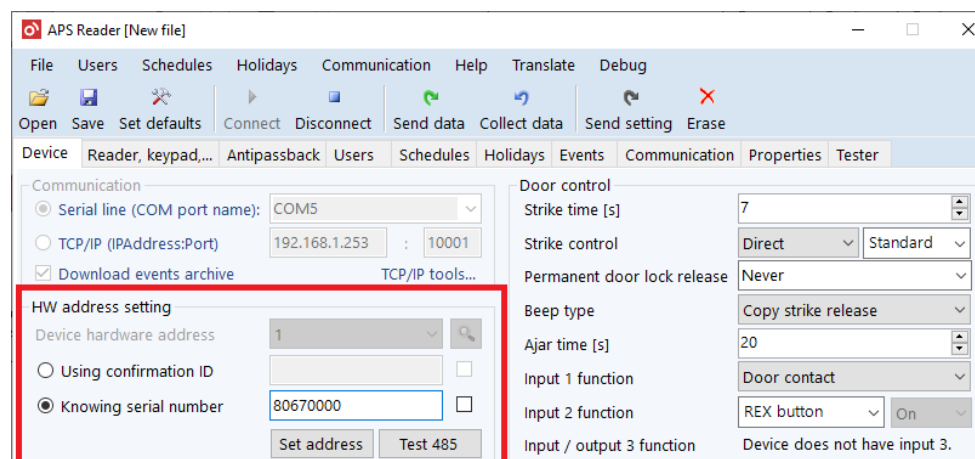
Start

Cancel

Take the ID code of some ID media (read the card by some reader and write down the ID from the computer). Put this ID code into the “ID code”, select the HW address you would like to have and press Start. Now take the ID media and show it to the appropriate MREP 82 MTM reader module. After that this reader module will have set HW address.

6.3.2 HW address settings in APS Reader application

If you do not have the CON 110.IP device, you can set the HW address in the desktop application APS Reader.



Step by step - If you know the serial number:

- Connect wires A, B, GND to APSUSB, connect APSUSB to PC, start APS Reader
- Select the required HW address
- Select the option "Known serial number", enter the SN of your product
- Press 'Connect' at the top of the blue menu
- Press "Set" (the selected HW address is set)

6.4 Configurable parameters

When the HW address is set, we can configure the parameters of MREP 82 MTM written below.

6.4.1 Door control

Lock setting	1	Lock control	Standard	Toggle	Pulse	Magnet
	2	Polarity	Direct		Reverse	
	3	Permanent lock release when schedule valid	Time schedule 1 - time schedule N			
	4	Lock release time [s]	0 ÷255 s		5 s	
Lock release signalization	1	Acoustic - beeper	On		Off	
	2	Optical - LED	On		Off	
Output 2	1	Output 2 Function	Alarm	Pulse	Toggle	
Input 1	1	Input 1 Function	Door contact		REX button	
Input 2	1	Input 2 Function	REX button	Handle contact	Tamper	Disable
	2	Input 2 logic	Standard		Reversed	

default settings

6.4.2 Alerts

Forced door	1	Alert signalization time [s]	0 ÷ 255 s	0 s
Door ajar	1	Maximal door open time [s]	0 ÷ 255 s	0 s
	2	Alert signalization time [s]	0 ÷ 255 s	0 s
Tamper	1	Alert signalization time [s]	0 ÷ 255 s	0 s
	2	Enable REX button in tamper state	Enabled	Disabled
ID with Alarm flag	1	Alert signalization time [s]	0 ÷ 255 s	0 s
Output Overload	2	Alert signalization time [s]	0 ÷ 255 s	30 s

default settings

6.4.3 Keypad

Internal keypad	1	Keypad function	Reason key	PIN	ID
	2	Keypad lock time after entering 5 unknown codes in row [s]	0 ÷ 2550 s	300 s	

default settings

6.4.4 Advanced

Operating mode	1	Operating mode	Standard	Standard with entry reader			
Output Blanking filter	1	Output 1 blanking filter	Off	Short	Medium	Long	Extra long
	2	Output 2 blanking filter	Off	Short	Medium	Long	Extra long
Brightness	1	Adjusting the brightness to the ambient lighting	Off	On			
	2	Ambient light sensor sensitivity	Low	Medium	High		

default settings

6.4.5 Events

Events archive saving options	1	Input 1 Off event saving	Off	On
	2	Input 1 On event saving	Off	On
	3	Input 2 Off event saving	Off	On
	4	Input 2 On event saving	Off	On
	5	Output 1 Off event saving	Off	On
	6	Output 1 On event saving	Off	On

default settings

6.4.6 ID reading

125 kHz internal reader	1	Jablotron technology ID reading	Off	On
	2	EM Marin technology ID reading	Off	On
	3	ID interpretation: ID length	24	32 40
	4	ID interpretation: Swap bits in individual nibbles	Off	On
	5	ID interpretation: Bytes mirroring in 5-byte code	Off	On
	6	ID interpretation: Swap nibbles in individual bytes	Off	On
	7	ID interpretation: Crosspoint scramble mechanism	Off	On

default settings

13,56 MHz internal reader	1	32bit media ID length	Reading disabled	32 bits MSB	32 bits LSB	24 bits CSN (MSB)	24 bits CSN s F/C 01 (MSB)		
	2	56bit media ID length	Reading disabled	32 bits MSB	32 bits LSB	24 bits CSN (MSB)	24 bits CSN s F/C 01 (MSB)	56 bits MSB	56 bits LSB
	3	TF Mobile ID length	Reading disabled	32 bits MSB	32 bits LSB	24 bits CSN (MSB)	56 bits MSB	56 bits LSB	

default settings

6.4.7 Power save mode

Power save mode	1	Power save mode	Off	On
-----------------	---	-----------------	-----	----

default settings

Power save mode options	1	Activating power save mode after a period of inactivity	5 s	10 s	30 s	1 min	5 min	15 min	1 h
	2	Reader 125 kHz function	Off	On					
	3	Reader 13,56 MHz function	Off	On					
	4	Keypad function	Off	On					
	5	Keypad backlight	Off	On					
	6	Lock key backlight	Off	On					
	7	Logo backlight	Off	On					
	8	LED bar	Off	On					
Wake up options	1	Attaching the ID media	Off	On					
	2	Key press	Off	On					
	3	Attaching the ID media to the Entry reader	Off	On					
	4	Key press on the Entry keypad	Off	On					

default settings

7 Operating mode

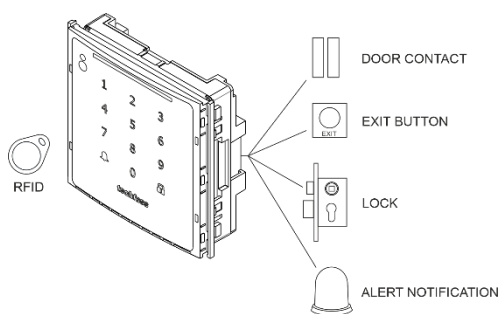
As shown in the table Advanced, chapter 6.4.4, there are three operating modes for MREP 82 MTM.

- Standard
- Standard with entry reader

Note The reader module can also be switched to wiegand output mode, i.e. make it a regular reader with wiegand output. This is only possible with desktop applications, eg APS reader.

7.1 Standard operating mode

Main operating mode. In this mode, the module acts as a reader with keypad plus door lock controller. Its Wiegand interface is ready to be connected to the WIO 22 module if needed.



The module can be in online or offline standard operating mode. The function is identical in both modes, with the difference that in the online mode, the events are reported via the communication line (after changing the mode from offline to online, the event archive is read from the module's memory).

7.1.1 Offline mode

Offline, or autonomous / standalone mode. One module alone or more modules on the RS 485 bus, but without connection to a PC or to the cloud. In this mode, events are stored in the module's internal memory, module authorizes users according to the stored set access rights.

7.1.2 Online mode

In Online mode, the module or more modules on the line are connected to the PC or to the cloud and each system event is immediately written to the PC or cloud. The system administrator works in the WebHit service (cloud) or uses the application such as APS Hit or APS Administrator for the desktop case.

7.1.3 Online authorization

The APS mini Plus system implements the option of Online authorization of access authorization. In such a use, the cloud or connected PC decides on the validity of the read ID authorization. The reader must be MLO licensed to use it in this authorization mode.

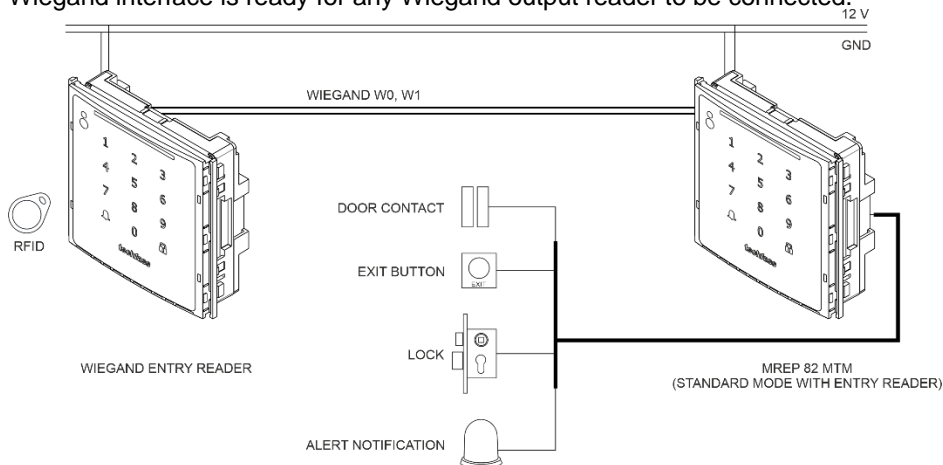
7.1.4 Secure lock control with WIO 22 module

The MREP 82 MTM module itself uses for the lock control the open drain transistor which is placed directly in the module. In this case, it is advisable to install the module in a safe zone or where the greater safety is not needed. For unsecured zones, we recommend to connect MREP 82 MTM to the WIO 22 module to its Wiegand output. WIO 22 is a DIN rail relay module, which is placed on the secured place, e.g. in a rack / cabinet or from the inside above the door. The WIO module must first be paired with the MREM 82 reader module.

<https://www.techfass.com/cs/produkty/102/produkt/402/wio-22>

7.2 Standard with entry reader

This mode is for both-sided door control. In this operating mode the reader module is in standard operation mode plus its Wiegand interface is ready for any Wiegand output reader to be connected.



7.3 External reader with Wiegand output

There is always possible to degrade the reader module to Wiegand output reader. This is the operating mode “external reader with Wiegand output”. In this case, next to Wiegand output, you can still use RS485 to connect to the system bus and be able to configure the reader / switch it back to standard mode.

!This mode can be done in APS Reader only.

External reader mode with Wiegand output has following formats:

7.3.1 125 kHz

Enable / Disable options

- Standard EM Marin & proprietary TF ID
- Jablotron ID

*Default settings: All enabled.

ID length

125 kHz	bits				
ID length	24	32	40	44	56

default settings

Wiegand output setting

125 kHz	bits				
Data length	26	32	42	44	56

default settings

7.3.2 13,56 MHz

32 bit CSN	56 bit CSN	TF Mobile ID
Disable	Disable	Disable
32 data bits (MSB)	32 data bits (MSB)	32 data bits (MSB)
32 data bits, reversed (LSB)	32 data bits, reversed (LSB)	32 data bits, reversed (LSB)
24 data bits (MSB)	24 data bits (MSB)	24 data bits (MSB)
Facility code 0x01 + 16 data bits (MSB)	Facility code 0x01 + 16 data bits (MSB)	Facility code 0x01 + 16 data bits (MSB)
	56 data bits (MSB)	56 data bits (MSB)
	56 data bits, reversed (LSB)	56 data bits, reversed (LSB)

8 Functions

8.1 Functions of the reader module

- Standard "Door open" function
- Lock control
- Door status monitoring
- Exit button status monitoring
- Activation of the alarm output / buzzer signaling when an alarm condition is indicated
- Activation of the bell output

The "Door open" function can be activated in three different ways

- By reading a valid ID (card, key fob,...)
- By pressing the exit button (depending on the configuration) - cannot be used during the alarm
- Software, via communication line
- From WebHit (mobile phone); mobile phone and system have to have an access to the internet

8.2 Function Lock control

8.2.1 Standard

In the case of the standard lock control mode, after activating the "Door open" function, the release of the lock and the buzzer are activated (unless disabled by configuration). This state lasts until the door contact is opened, but no longer than the time set by the "Lock release time" parameter. Then the lock output is deactivated and the standard function is terminated.

In the case of the standard lock control mode, reading a valid card during lock activation will cause a new lock timing.

8.2.2 Toggle

In the case of the toggle lock control mode, after activating the "Door open" function, the lock output toggles and the buzzer is activated (if it is not disabled by the configuration). The acoustic signaling lasts as set. The output remains unchanged until the next activation of the "Door open" function.

8.2.3 Pulse

In the case of the pulse lock control mode, after activating the "Door open" function, the relay output is activated for the time given by the parameter Pulse width (ms). The pulse step is 10 ms and maximum pulse width is 1270 ms.

8.2.4 Magnet

In the magnetic lock control mode, the reader module expects the electromagnetic lock as a load, which needs reverse polarity (reverse) mode. In order to avoid injury to fingers during closing, the magnetic lock is reactivated only after the door contact is closed again, and also after the "Lock release time" parameter has expired. The difference from the "Standard mode" is that the "lock release time" does not end after the door is opened, but only after it is closed (closing the door contact). It is necessary to set the "Lock release time" to a sufficiently long time so that it does not "precede" the act of closing and does not activate the current to the electromagnet again.

! Use the door contact function every time.

8.3 Online authorization

If the reader module reads the ID card during the "Door open" function via the communication line (in online mode) and if the read ID is not valid, it is signaled by an acoustic signal "invalid ID" regardless of the configuration of the acoustic lock release message.

8.4 Permanent lock release based on valid time schedule

When this function is set, the lock is permanently released during the validity of the respective schedule, the reading of a valid ID is reported via the communication line (in online mode). When the lock is permanently released, the alarm state of the forced door does not occur.

The setting of the permanent release of the lock according to the time schedule and the toggle lock control mode are mutually exclusive.

8.5 Function of ID with flag

It is possible to set a flag for each ID, which will cause an alarm “ Alarm - ID with the flag “ when reading the appropriate ID (and will activate the alarm output for a defined time).

8.6 ID expiration

It is possible to set a date for each ID at which the ID expires and will no longer be valid. The expiration is evaluated every time the data in the RTC module changes and when new access rights are loaded.

! Note: This feature is currently only available on desktop applications.

8.7 Antipassback function (APB)

Antipassback can be implemented in two ways:

- Time - the user must not use the ID medium repeatedly for a defined time
- Zone - the user must not repeatedly enter the area in which he is present

The antipassback function is used only for users who have defined access according to a schedule. The function does not apply to users with permanently valid access.

Zone and time antipassback IDs can be reset by re-inserting the IDs using the programming cards. After reloading the access rights by the program, the antipassback flags are reset for all IDs.

The zone and time antipassback flag is written according to the configuration either immediately after reading the ID, or only after opening the relevant door (opening the relevant door contact).

8.7.1 Time antipassback

The time antipassback is defined by setting the duration (in minutes), which is set for the given ID when passing at the given address. The next time the ID is identified at the relevant module address during the timer run for the given ID, a time APB alarm is triggered. The following parameters affect the time antipassback function:

- Default value of the APB timer - the time for which the APB timer alarm is triggered at the next ID identification, the timer is set for the given ID when passing at the given address.
- Enable door opening after time APB alarm - if the function is enabled, the Door opening function is started in case of time APB alarm.

8.7.2 Zone antipassback

Zone antipassback is defined by enabling / disabling this feature. The zone antipassback flag is set for the user after passing. Upon further identification, a Zone antipassback alarm is triggered in the case of a flag set for the given ID. The following parameters affect the zone antipassback function:

- Enabled - global enable / disable of the zone APB flag setting function.
- Enable offline mode - if not set, the module works in offline mode as if the zone antipassback function was not implemented at all.
- Enable door opening after APB alarm - if the function is enabled, the Door opening function is started in case of a zone APB alarm.

8.8 Disabling the reader module

Disabling of the reader module function can be configured on the second input or on the third I / O port of the module.

The function activation logic on each port is configurable. The function is activated if at least one of the ports is active and set as disable.

The module in the disabled state exhibits the following behavior:

- Users with set time schedule cannot trigger the door open function if it is disabled

- Disable does not apply to the users with permanently valid access (no time schedule)
- The remote door opening function cannot be performed
- Remote door opening with ID is blocked for users with time schedule.

Changes in the status of the disable function and the blocked action are recorded in the event archive. This function is useful for example in combination with intruder alarm system.

8.9 Alerts and their signaling

The following alert conditions may occur during the reader module operation:

- 1) Tamper. (there is no own tamper in the reader module MREM 82 NO/IGBKP)
- 2) Forced door.
- 3) Door ajar.
- 4) Antipassback alert (time, zone).
- 5) Alarm ID with flag.

To deactivate any alert, please set its value to "0".

Alerts are reported as follows:

- In software, by system bus (alerts 1, 2, 3, 4, 5)
- Acoustic (alerts 1, 2, 3, 4)
- Activating the alert output (alerts 1, 2, 3, 5)

The alarm message via the communication line assumes an online connected PC with the appropriate software suitable for online operation (APS Administrator).

The audible alert message is twofold:

- Continuous tone (distortion)
- Intermittent tone (knocked out and long open door, APB alarm)

The acoustic message ends either after the set time (see configuration table) or after reading a valid ID on the relevant module.

When one of the relevant used alarm conditions occurs (signaling time alarm must be greater than 0) the alarm output will be activated. On this output it is possible to connect an alarm device directly or to further process its signal.

The triggering of the alarm is controlled by a logical connection or between individual types alarms.

The alarm condition is terminated by restoring all idle conditions (closing the door, fitting the cover, etc.).

8.9.1 Tamper

The MREM 82 NO/IGBKP reader module is not equipped with a Tamper sensor to detect that the lid is open.

8.9.2 Forced door

The "Forced door" status occurs when the IN1 input of the module is opened without first activating the "Door open" function. The only exception is the exit button / handle contact signal activation from the inner side of the door.

8.9.3 Door ajar

The "Door ajar" status is activated by opening the door for a longer time than allowed (set), see the configuration table.

8.9.4 Antipassback alarm

Antipassback alarm is generated when a valid card is read at the time of blocking the user by Time APB, or when the user is blocked by a Zone APB.

8.9.5 Alarm ID with flag

Alarm ID with a flag occurs when a card (ID) with flag is read.

8.9.6 Reading ID in time of alert

Reading a valid ID has no effect on the alarm conditions themselves. It is terminated with a valid ID

only an audible alarm, followed by the "door open" function. Reading an invalid ID only interrupts the audible alarm for the duration of the "invalid ID" signaling.

8.10 Offline setting (programming) mode

For small simple autonomous installations, users can be set up using programming cards. The module enters the programming mode by reading one of the pair of programming cards ("+" and "-" cards). It does not enter the programming mode while waiting for the card confirming the address setting (for modules with address setting via the communication line). Please visit the following link to view more information:

When inserting cards using programming cards, it is not possible to work with time schedules, so the cards are still valid.

9 Other

9.1 Legislation

The product is compliant with following harmonized directives of European Union.

EU HARMONIZATION RULES, STANDARDS, REGULATIONS
2014/53/EU; "RED"
2011/65/EU "RoHS"
(ES) č. 1907/2006 "REACH"

9.2 Declaration of conformity



The manufacturer TECH FASS Ltd. 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>

9.3 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.

techfass

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