

techfass

# MREM 81 MTM(VR)

RFID module 125 kHz

# Introduction

RFID reader module MREM 81 MTM (125 kHz) with integrated controller for one door control is designed either for connection to the RS 485 bus of the APS mini Plus access system or for autonomous operation. The module is also equipped with a Wiegand interface for connecting an input RFID reader with a Wiegand output for possible both-sided controlled door. Up to 32 MREM 81 reader modules can be connected to one RS 485 communication line of the APS mini Plus system. The module is dedicated either as a standalone or as a part of modular entry panel MTM from CAME.



## a. Application

- Access control system, booking system
- Door access control, both-sided access control
- Lift access control

## b. Parameters

- Input voltage 8 ÷ 28 Vdc
- Typical current consumption 60 mA @ 12 V
- Maximum input power 1,5 W
- Reading id media EM Marin, Jablotron
- 1x RS 485 (system bus APS mini Plus)
- 1x Wiegand (external RFID reader, GSM module, license plate camera)
- 1x Open drain transistor output 30 V / 1 A
- 2x INPUT (door contact, exit button, tamper)
- Integrated in module MTMRFID

## c. Variants

Product variants in aluminium, silver color

CATALOG NUMBER	PART NUMBER	SYSTEM	VARIANT	RFID frequency
53481001	MREM 81 MTM - EM	APS mini Plus	Modul MTMRFID	125 kHz

\* For 13,56 MHz (MIFARE®, NFC) please check MREM 82 MTM product raw.

Product variants in zamak, black color

CATALOG NUMBER	PART NUMBER	SYSTEM	VARIANT	RFID frequency
53481011	MREM 81 MTMVR - EM	APS mini Plus	Modul MTMRFID	125 kHz

\* For 13,56 MHz (MIFARE®, NFC) please check MREM 82 MTMVR product raw.

## d. Marking

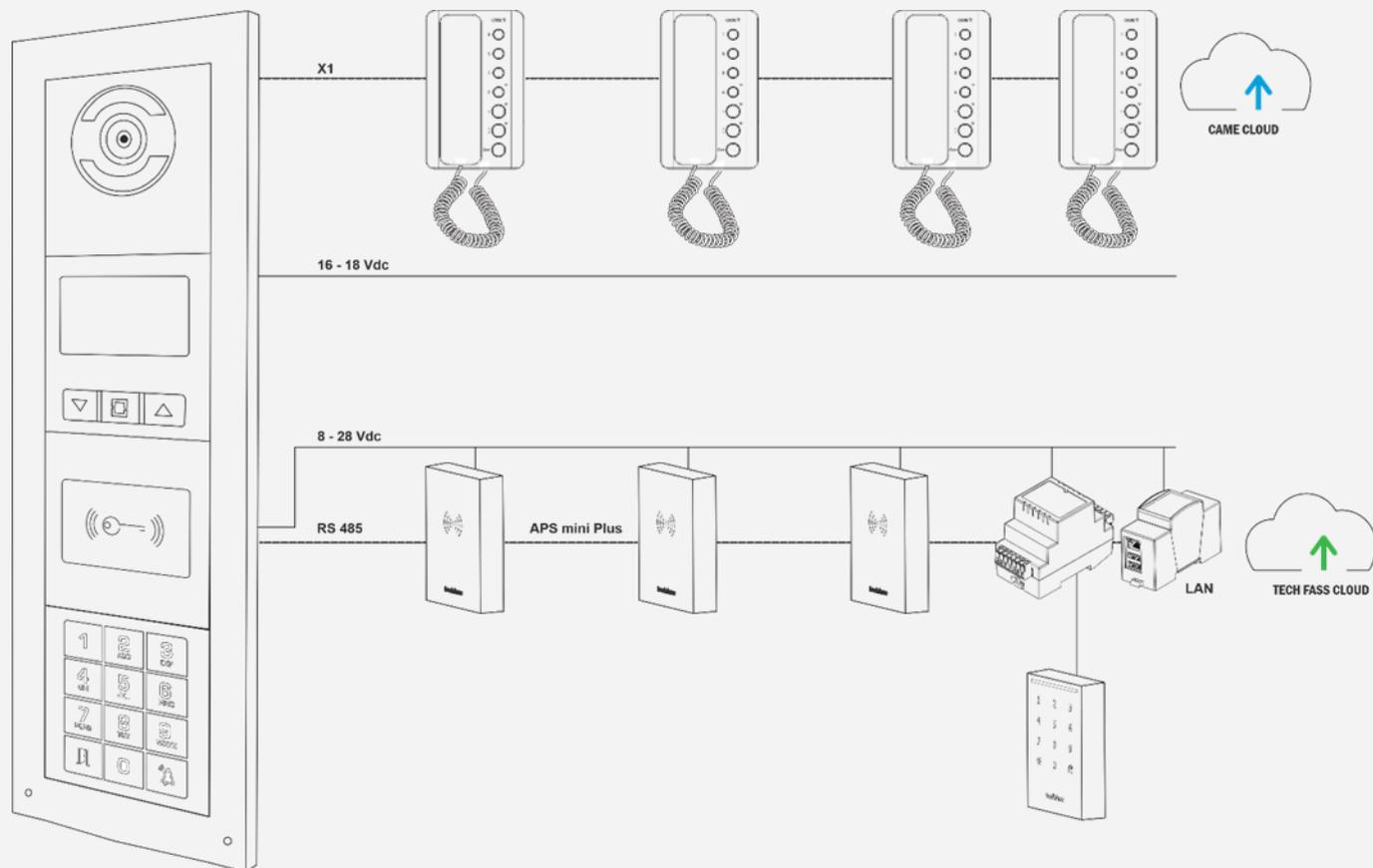
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	
M	R	E	M		8	1		M	T	M	-	E	M											



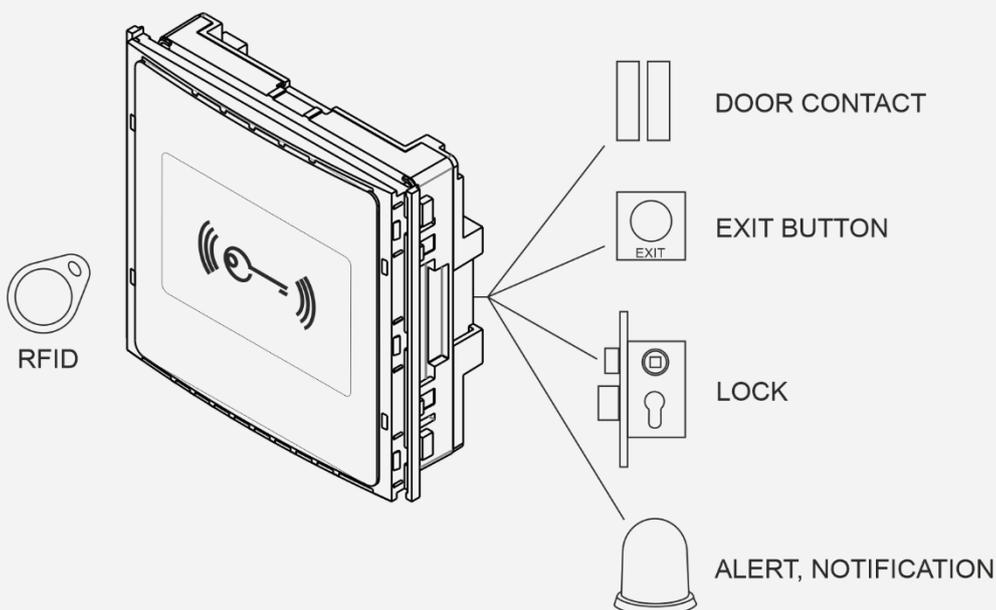
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## e. Block diagram

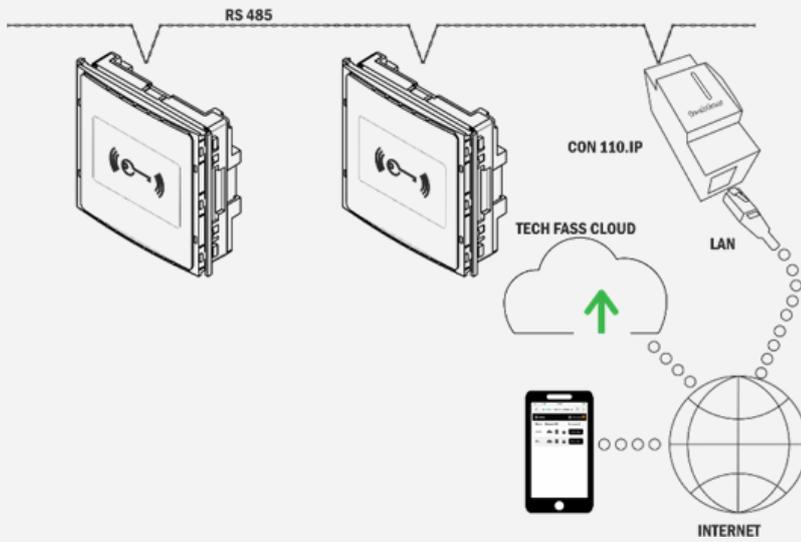
The MREM 81 MTM(VR) reader module is a module for the MTM modular entry panel. MTM entry panel itself is part of the home phone system, it has its own power supply and bus for phones. MREM 81 MTM has its own cabling, data bus of the APS mini Plus access system and the power supply can either be used from the MTM panel or have a 12V / 24V power bus for the APS mini Plus access system.



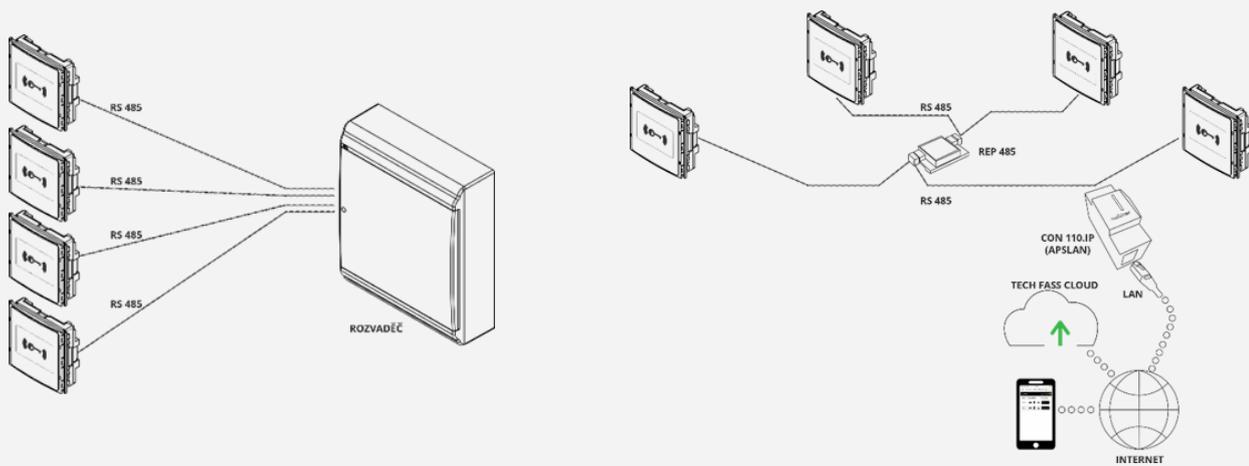
- Complete door control; lock control (open drain), door contact input, exit button, alert notification to PC or Cloud, wiegand input, system bus, power supply. The reader module can operate autonomously or as a part of the system.



- Connection on the RS 485 bus with control from a mobile phone from the WebHit cloud application. Up to 32 reader modules can be connected to one APS mini Plus line.



- How to connect in “star”? Using the REP 485 line repeater.



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# 1 Technical parameters

## 1.1 Electrical parameters

PARAMETER	CONDITION	MIN	MAX	UNIT
Input voltage $V_{in}$		8	28	V
Typical current consumption $I_{in}$	$V_{in} = 8\text{ V}$ $V_{in} = 12\text{ V}$ $V_{in} = 24\text{ V}$		75 53 30	mA mA mA
Peak current consumption $I_{in}$	$V_{in} = 8\text{ V}$ $V_{in} = 12\text{ V}$ $V_{in} = 24\text{ V}$		106 73 42	mA mA mA
Typical input power			0,7	W
Maximum input power			1,1	W
Typical reading distance (ISO card)	125 kHz (EM Marin)	3	5	cm
Radiated H-field intensity @ 10 m	125 kHz		-15,8	dBuA/m
RTC	Backup	24		h
Memory	ID media Events Time plans		2000 3400 64	pc
Signalization	RGB led Piezo		1 1	pc

## 1.2 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

## 1.3 Mechanical parameters

PARAMETER	MREM 81 MTM	MREM 81 MTMVR	JEDNOTKA
Weight	122		g
Dimensions l x w x h	137,5 x 136 x 64 (34)		mm
Mounting	Wall-mounted or recessed		
Color & design	Silver, aluminium	Black, zamak	
Environment class	IV – outdoor general device, -25 ÷ +70		°C
IP code	IP 54		
IK code	IK 07	IK 09	
cable	10 wires, 3 x 0,4		m

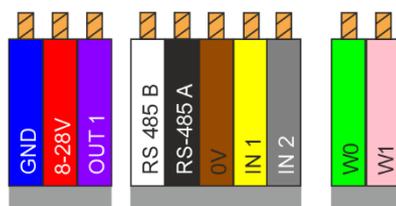
# 2 Assembly

## 2.1 Cable connection of MREM 81 MTM(VR)

Cable of MREM 81 MTM(VR) contents 10 wires with following functions:

### MREM 81 MTM(VR)

NUMBER	COLOR	WIRE DESCRIPTION	WHERE IT LEADS (EXAMPLE)
1	Purple	OUT 1; 30 V, 1 A, open drain	Lock (connecting to GND)
2	Blue	GND	Power supply GND
3	Red	Power supply Vin 8 ÷ 28 Vdc	Power supply
4	Pink	Wiegand data 1	Wiegand reader (both sided control)
5	Green	Wiegand data 0	Wiegand reader (both sided control)
6	Gray	IN 2 (input 2), configurable function	Exit button
7	Yellow	IN 1 (input 1), configurable function	Door contact
8	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



### 2.1.1 Inputs and 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)

## **2.2 System bus**

### **2.2.1 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.

### **2.2.2 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.

## **2.3 Assembly**

### **2.3.1 Radio signal interferences**

If a 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](mailto:support@techfass.cz).

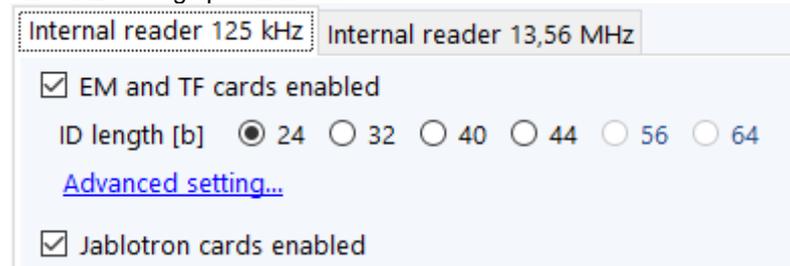
Interference along the line, e.g. from an interfering power supply, can affect the reading distance or the reader's own communication.

# 3 RFID reading

## 3.1 Reading at 125 kHz

The device can read media on a frequency of 125 kHz like EM Marin (e.g. EM4200, EM4305). Next example of supported media technology is Jablotron ID.

125 kHz settings possibilities:



Internal reader 125 kHz Internal reader 13,56 MHz

EM and TF cards enabled

ID length [b]  24  32  40  44  56  64

[Advanced setting...](#)

Jablotron cards enabled

Default settings for 125 kHz.

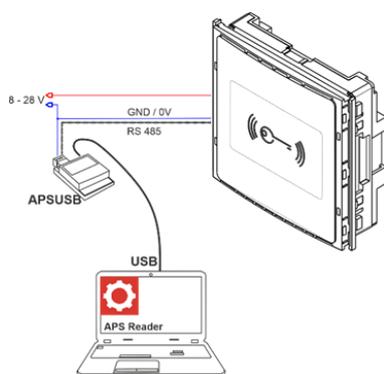
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# 4 Wiring diagram

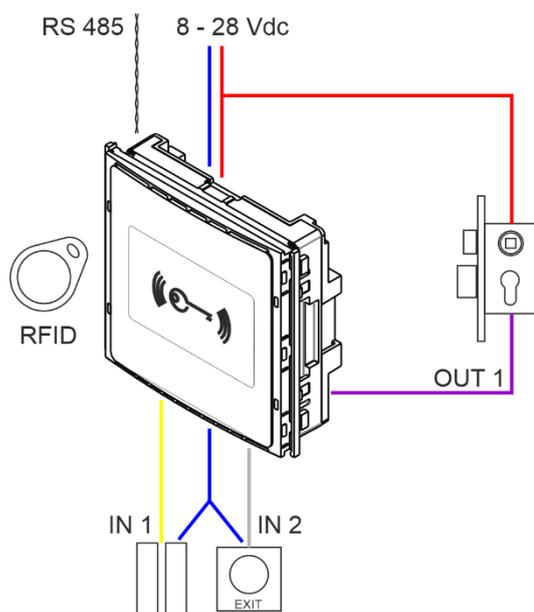
## 4.1 Connection possibilities MREM 81 MTM(VR)

Reader module can be connected as follows:

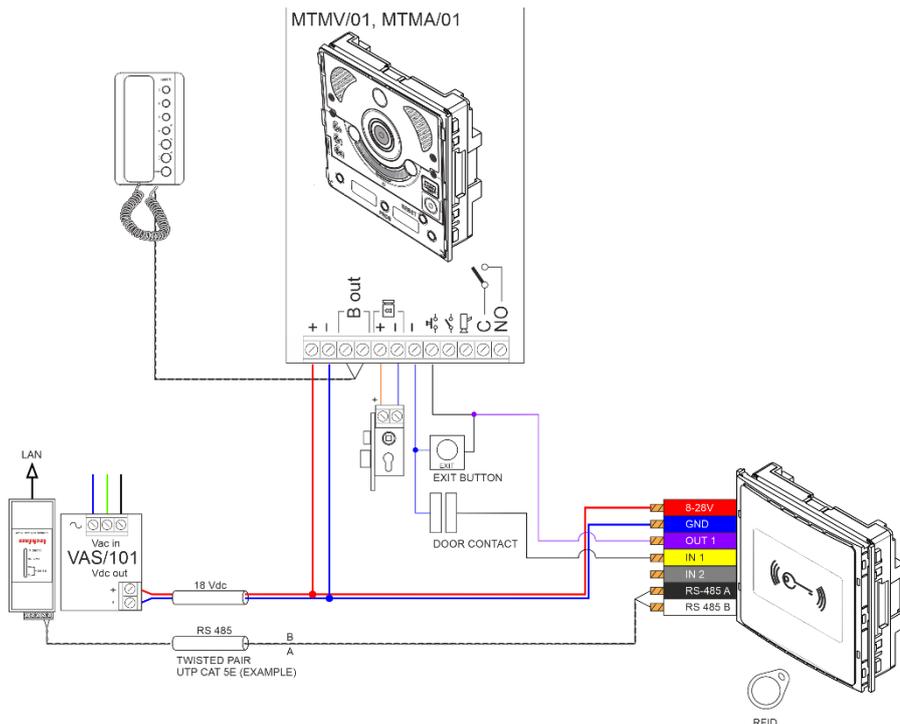
- **USECASE A:** Reader module configuration and settings.  
If we want to set the reader module and its parameter values, eg what frequency it should read, what HW address it should have, whether the lock is reverse or standard, etc., it must be connected to the converter, eg APSUSB or APSLAN and use the desktop application APS Reader, or to CON 110.IP and use the WebHit application website.



- **USECASE B:** System-wise, where the individual reader modules are connected to the RS485 bus, where up to  
In this case, the reader module is independent on the entry panel, it can operate autonomously or as part of the APS mini Plus system. The actual configuration of the module and its settings can be performed using the APSUSB converter and the APS Reader program.

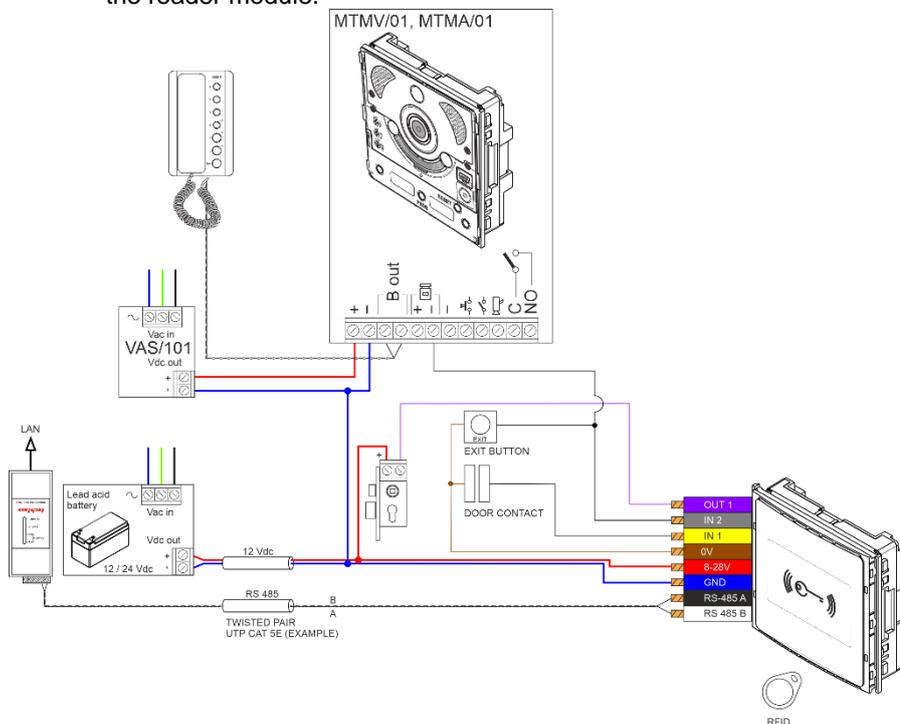


- **USECASE C:** As a part of a modular MTM entry panel. “Easy family house” installation type.



The control output for the lock of the reader module OUT1 is connected to the input for the exit button of the entry panel MTM. The lock itself therefore is switched by MTMV / 01 or MTMA / 01. The function and connection of the intercom itself is independent of the reader module connection, only the inputs and outputs are shared. The door contact is connected to the reader module at input IN1. This topology has higher demands on the system backup, as the backup batteries must keep not only the reader module but also the intercom entry panel running. If we want to regularly administer or configure the system centrally (more reader modules or door controllers are connected in the system), we will connect the RS485 system bus. Its end is fed into the switchboard and connected to the LAN or the Internet using the APSLAN converter or the CON 110.IP cloud connector.

- **USECASE D:** As part of a modular MTM entry panel, easy installation example, simply connect the 4 wires of the reader module.



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 control from the entry panel (opening by the receiver) takes place in such a way that the lock output of the panel is connected to the IN2 input of the reader module in parallel with the exit button. In this connection, the door is fully under the control of the reader module, and it is therefore possible to back up only the reader module and not the intercom.

For reverse lock mode, just switch the settings in the control software. It is necessary to connect the output GND of DC sources VAS / 101 and 12 / 24 Vdc.

# 5 Settings

## 5.1 Setup procedure

If we want to set the reader module MREM 81 MTM, e.g. its HW address or configure its parameters, we must connect it to the computer and control software. Physical connection is possible using the device

via USB

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

via LAN

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

Alternatively, from anywhere with a web browser using

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

### 5.1.1 Software application

The desktop application for configuration

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>

The desktop application for administration

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

Medium – large: APS Administrator <https://www.techfass.com/en/products/101/product/391/aps-administrator>

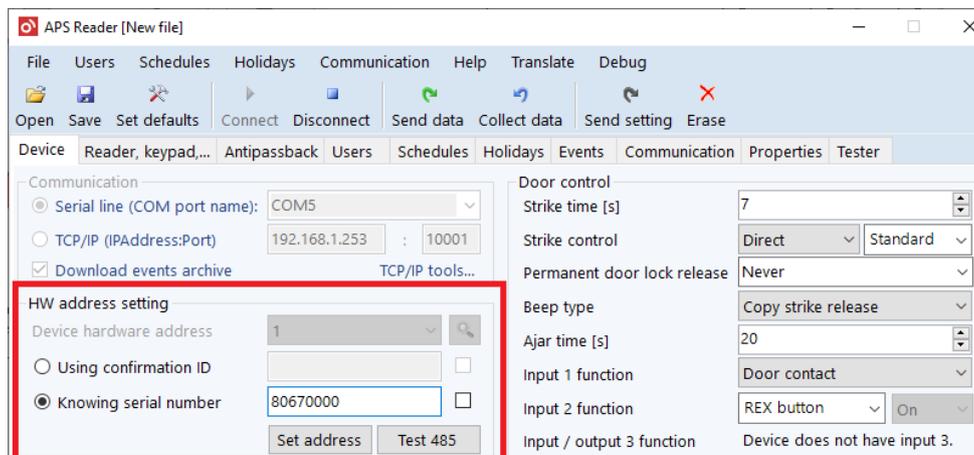
Web application for configuration & administration

WebHit <https://webhit.techfass.com/login>

## 5.2 HW address setting

By MREM 81 MTM(VR) is possible to set HW address by software. The HW address can be set either in the desktop program APS Reader or APS Hit or directly in WebHit (online service Cloud TECH FASS available via web browser).

### 5.2.1 HW address settings in APS Reader application



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)

- Disconnect

## 5.2.2 HW address settings in WebHit

### Setting HW address with SN

SN

device serial number

HW address

1 ▼ N/A

**Commit** Close

- Click on line configuration in the left menu
- Click on set address with SN
- Fill in the device SN and needed hw address

## 5.3 Meaning of LED indicators

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

## 5.4 Configurable parameters

PARAMETER	SETTINGS OPTION	FACTORY SETTINGS
Max. output switching time*	0 ÷ 255 s	5 s
Acoustic signalization of lock release	YES / NO	YES
Type of lock output control (Polarity)	Direct / Reverse	Direct
Output mode (Lock control)	Standard / Change of state / impulse	Standard
Permanent turn on of the output according to the schedule	Never / Time schedule	Never
Yellow LED signalization of lock release	YES / NO	NO
Input 1	Door contact / exit button	Door contact
Input 2	Exit button Handle contact Tamper Disable	Exit button
<b>ALERTS</b>		
Tamper (alert signalization time)	0 ÷ 255 s	0 s
Forced door (alert signalization time)	0 ÷ 255 s	0 s
Door ajar (alert signalization time)	0 ÷ 255 s	0 s
Door ajar (allowed opened door time)	0 ÷ 255 s	20 s
ID with Alarm flag (alert signalization time)	0 ÷ 255 s	0 s
Enable exit button in tamper state	YES / NO	YES
<b>EVENTS</b>		
Events archive saving options		
Door opened (input 1 off)	ON / OFF	ON
Door closed (input 1 on)	ON / OFF	ON
Input 2 off, input 2 on	ON / OFF	ON
Output 1 off, output 1 on	ON / OFF	ON
<b>OTHER</b>		
Automatic conversion to CEST & back**	YES / NO	YES
Max. online response time by online authorization***	0 ÷ 25500 ms	800 ms
Authorize autonomously after response time exceeded	YES / NO	YES

\* Valid for standard output mode (lock control). Not valid for change of state option.

\*\* In WebHit, the time shift is done automatically according to the selected time zone.

\*\*\* Online authorization function is not available yet in WebHit.

# 6 Operating modes

There are two basic operating modes for the MREM 81 reader module.

- Standard operating mode
- External reader with wiegand output

## 6.1 Standard operating mode

Main operating mode. In this mode, the module acts as a controller for one door, reads RFID media and determines in its memory whether or not the user should be authorized to enter and controls the lock output.

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 module statuses are reported via the communication line (after changing the mode from offline to online, the event archive is read from the module's memory). In both operating modes, the module can switch to programming mode (after reading the programming card).

### 6.1.1 Offline mode

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

### 6.1.2 Online mode

In Online mode, the module or more modules on the line are connected to a PC running the relevant application such as APS Hit or APS Administrator or the line is connected to the cloud using CON 110.IP and the administrator works in the WebHit web application. In this case, each event is immediately written to the application.

### 6.1.3 Online authorization

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

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

### 6.1.4 Secure lock control with WIO 22 module

The MREM 81 module itself contains a switching open drain transistor and there are connected wires to control the lock. In this simple configuration, it is advisable to install the module in a safe zone, where we do not expect an attempt to overcome so that someone will want to get to the cabling to control the lock. If we need the module to switch " safely ", we connect the WIO 22 module to its Wiegand output, we place WIO in a safe place, eg in a rack / cabinet or from the inside above the door, from where it already controls the lock. The WIO module must first be paired with the MREM 81 reader module.

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

## 6.2 External reader with Wiegand output

MREM 81 reader module can be configured in external reader mode with Wiegand output in the following formats:

### 6.2.1 125 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: 40 bits format.

#### Wiegand output setting

125 kHz	bits				
Data length	26	32	42	44	56

\*Default settings: 42 bits format.

# 7 Function

## 7.1 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

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

## 7.2 Function "Door open"

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

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

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).

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

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.

## 7.3 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.

## 7.4 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).

## 7.5 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.

## 7.6 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).

### 7.6.1 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.

### 7.6.2 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.

## 7.7 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.

## 7.8 Alerts and their signaling

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

- 1) Tamper. (these in no tamper in the reader module MREM 81 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 is it is possible to connect the 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.).

### **7.8.1 Tamper**

The MREM 81 NO/IGBKP reader module is not equipped with a Tamper sensor to detect that the lid is open.

### **7.8.2 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.

### **7.8.3 Door ajar**

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

### **7.8.4 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.

### **7.8.5 Alarm ID with flag**

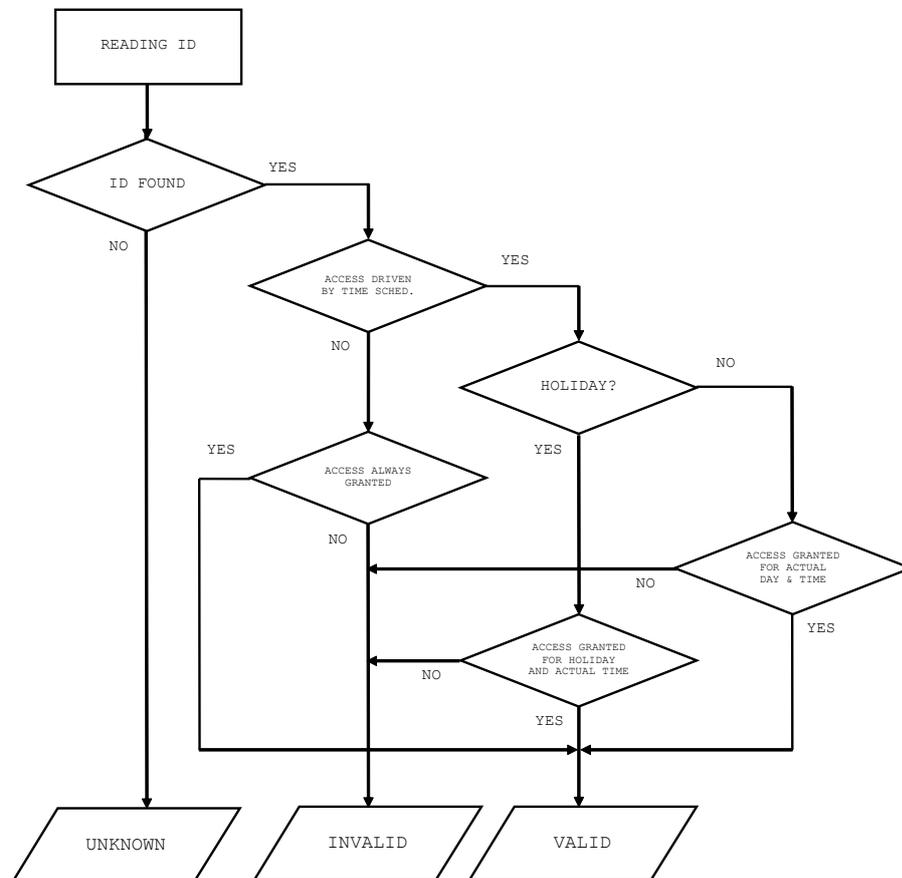
Alarm ID with a flag occurs when a card (ID) with flag is read.

### **7.8.6 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.

## 7.9 Simplified access rights model

The access rights model includes schedules and a holiday table. The block diagram for access evaluation is shown in the following figure.



## 7.10 Offline setting (programming) mode

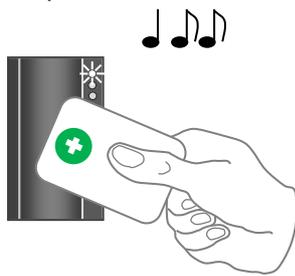
For small simple autonomous installations, users can be set up using programming cards. The module enters the programming mode by reading one of the pair of programming cards ("+" and "-" cards). It does not enter the programming mode while waiting for the card confirming the address setting (for modules with address setting via the communication line). The behavior of the modules in the programming mode is evident from figures below.

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

### 7.10.1 Inserting cards (ID codes) into the memory

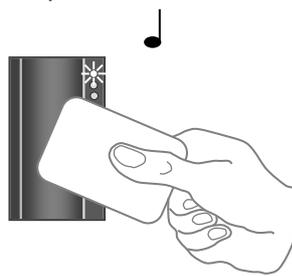
Follow these steps for inserting cards into the reader module's memory:

Step 1



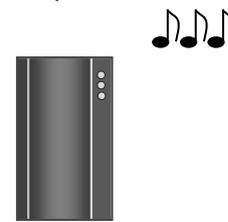
Read the programming card for *inserting*: the reader goes into *programming mode*.

Step 2



One by one, read the cards which are to be granted access.

Step 3



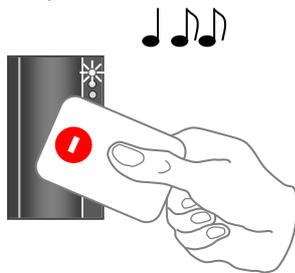
About 15 seconds after inserting the last card the reader module goes back into *standard operating mode*.

*Inserting cards*

### 7.10.2 Deleting cards from the reader's memory

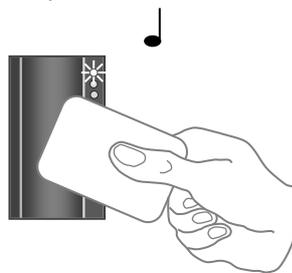
For deleting the cards from the reader module's memory use following steps:

Step 1



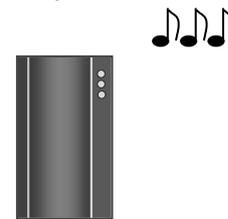
Read the programming card for *deleting*: the reader goes into *programming mode*.

Step 2



One by one, read the cards which are to have their access revoked.

Step 3



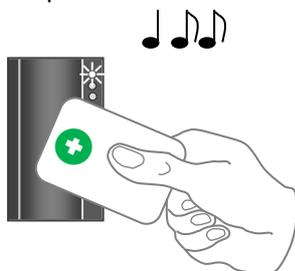
About 15 seconds after deleting the last card the reader module goes back into *standard operating mode*.

*Deleting cards*

### 7.10.3 Deleting cards „above or below“

If a user loses his ID medium, it is usually impossible to delete the ID from the memory with the procedure described in the previous chapter, since the medium is no longer available (with an exception of entering the code at the keypad). Following procedure can be used for deleting such ID. The procedure *requires using an ID medium*, which was inserted *right before or right after the ID medium*, which should be deleted.

Step 1



Read the programming card for *inserting*: the reader goes into *programming mode*, which is indicated by slow flashing of yellow LED.

Step 4 - A

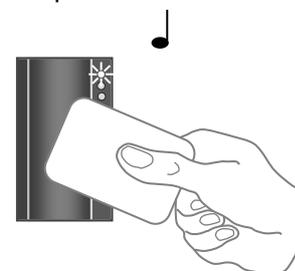
Step 2



Read the programming card for inserting 5 times in a row; the reader will go into *Deleting cards "above or below"* mode indicated by fast flashing of yellow LED.

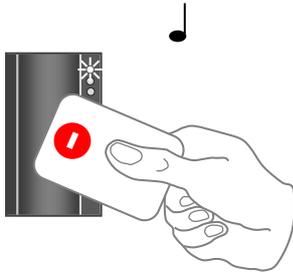
Step 4 - B

Step 3

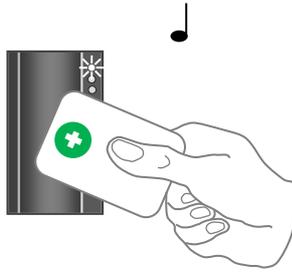


Read a card, which is located in the module's memory *right before or right after* the card you wish to delete. After this step the module quickly flashes with yellow LED

Step 5



For deleting an ID located *right before* the ID used in previous step, read the programming card for *deleting*.



For deleting an ID located *right after* the ID used in previous step, read the programming card for *inserting*.



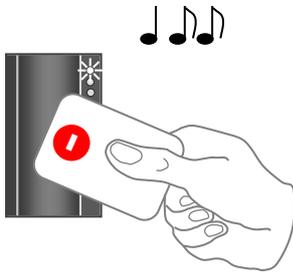
The reader module goes back into *standard operating mode*.

*Deleting cards "above or below"*

### 7.10.4 Deleting all cards from the reader's memory

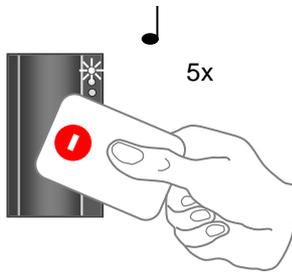
Follow these steps for deleting all cards from the reader module's memory:

Step 1



Read the programming card for *deleting*: the reader goes into *programming mode*.

Step 2



Read the programming card for deleting 5 times in a row; the reader will erase all cards from its memory.

Step 3



The reader module goes back into *standard operating mode*.

*Deleting all cards*

### 7.10.5 Recommended method for access rights management (using prog. cards)

In case of managing access rights of plenty of users (using programming cards only), it is appropriate to establish a table, which summarizes operation with the reader module memory. All operations (adding and deleting cards) should be stored in the table. Following example shows correct usage of the programming cards and proper filing of the actions:

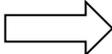
- Inserting *5 new cards* using the procedure from *chapter 7.10.1 – Read + (inserting) programming card*, read *cards 1-5*, after 15 s the programming mode is exited, *create a table*.

position	card
1	card 1
2	card 2
3	card 3
4	card 4
5	card 5

*Table after inserting 5 cards*

- Card 3 gets lost* – Delete it *using the card 4*, which is available, and using the procedure from *chapter 7.10.2 – Read + (inserting) programming card*, then *5x + (inserting) programming card* again, then *card 4*, and finally *– (deleting) programming card*. *Register the change in your table*.

position	card
1	card 1
2	card 2
3	card 3 (lost)
4	card 4 (available)
5	card 5

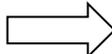


position	card
1	card 1
2	card 2
3	card 3
4	card 4
5	card 5

Deleting card 3 using the card 4, table after deleting card 3

- *Card 4 gets lost* – Delete it *using the card 2*, which is available, and using the procedure from *chapter 7.10.3* – Read + *(inserting) programming card*, then *5x + (inserting) programming card* again, then *card 2*, and finally + *(inserting) programming card* again. *Register the change in your table.*

position	card
1	card 1
2	card 2 (available)
3	card 3
4	card 4 (lost)
5	card 5



position	card
1	card 1
2	card 2
3	card 3
4	card 4
5	card 5

Deleting card 4 using the card 2, table after deleting card 4

- *It is necessary to add another card (card 6).* We proceed with the procedure from *chapter 6.7.1* again. 1 – Read + *(inserting) programming card*, read cards 1-5, after 15 s the programming mode is exited. *Register the change in your table.*

position	card
1	card 1
2	card 2
3	card 3
4	card 4
5	card 5
6	card 6

Table after inserting card 6

A new card is always inserted at the position after the last inserted card. In case of deleting all cards using the procedure described in *chapter 7.10.4*, it is necessary to create a new filing table.

# 8 Other

## 8.1 Legislation

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

EU HARMONIZATION RULES, STANDARDS, REGULATIONS
2014/53/EU; "RED"
2014/30/EU; "EMCD"
2014/35/EU; "LVD"; EN 62368 – 1
2011/65/EU "RoHS"
(ES) č. 1907/2006 "REACH"

## 8.2 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>

## 8.3 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***

**TECH FASS s.r.o.**

Věščínská 1611/19, Praha