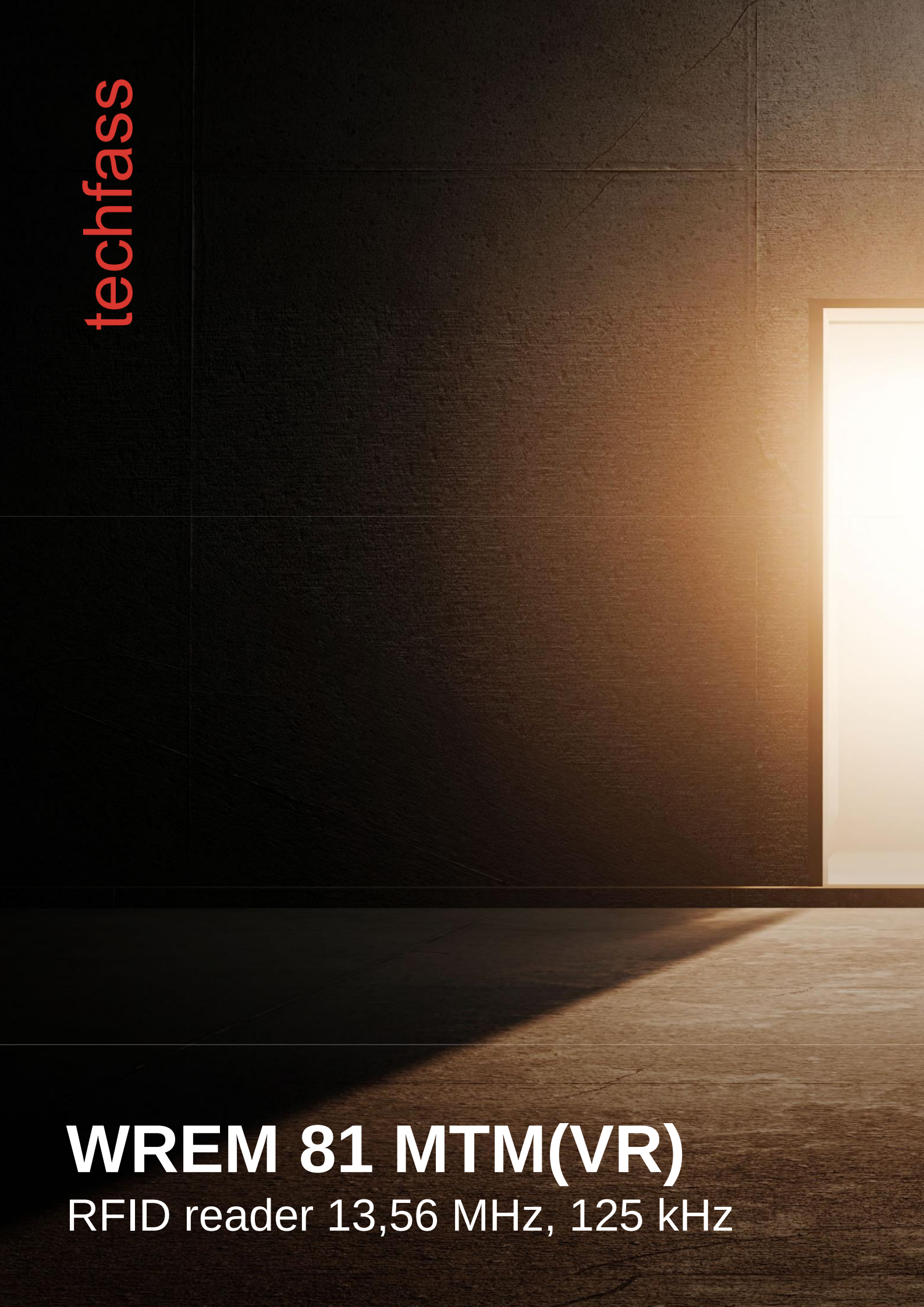
techfass



WREM 81 MTM(VR)

RFID reader 13,56 MHz, 125 kHz

Introduction

RFID reader WREM 81 MTM(VR) with wiegand output, reads media at 125 kHz (EM Marin) and is designed for connection to control modules and door controllers of the APS mini Plus or APS 400 system, or to third party controllers. The reader is equipped with a configurable WIEGAND data output usable with most third party systems. The reader is delivered in MTMRFID module dedicated for entry panel MTM. It contains two inputs (LED and buzzer control), as well as an
RS 485 interface for configuring the wiegand output or fw update.

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 53 mA @ 12 V
- Maximum input power 1,1 W
- Reading ID media EM Marin, Jablotron
- 1x RS 485 (update firmware, wiegand output format settings)
- 1x Wiegand output (length 24 – 56 bits, MSB / LSB, reverse option)
- 2x Input (LED, buzzer control)
- Integrated in module MTMRFID (entry panel MTM)
- VR – antivandal option, black zamak alloy

c. Variants

Product variants in aluminium, silver color

CATALOG NUMBER	PART NUMBER	SYSTEM	VARIANT	RFID frequency
51481C01	WREM 81 MTM - EM	APS mini Plus	Modul MTMRFID	125 kHz

Product variants in zamak, black color

CATALOG NUMBER	PART NUMBER	SYSTEM	VARIANT	RFID frequency
51481011	WREM 81 MTMVR - EM	APS mini Plus	Modul MTMRFID	125 kHz

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
W	R	E	M		8	1		M	T	M	-	E	M										

System
M: APS mini Plus
N: APS 400
W: wiegand reader

Product type
REM: Reader module / reader

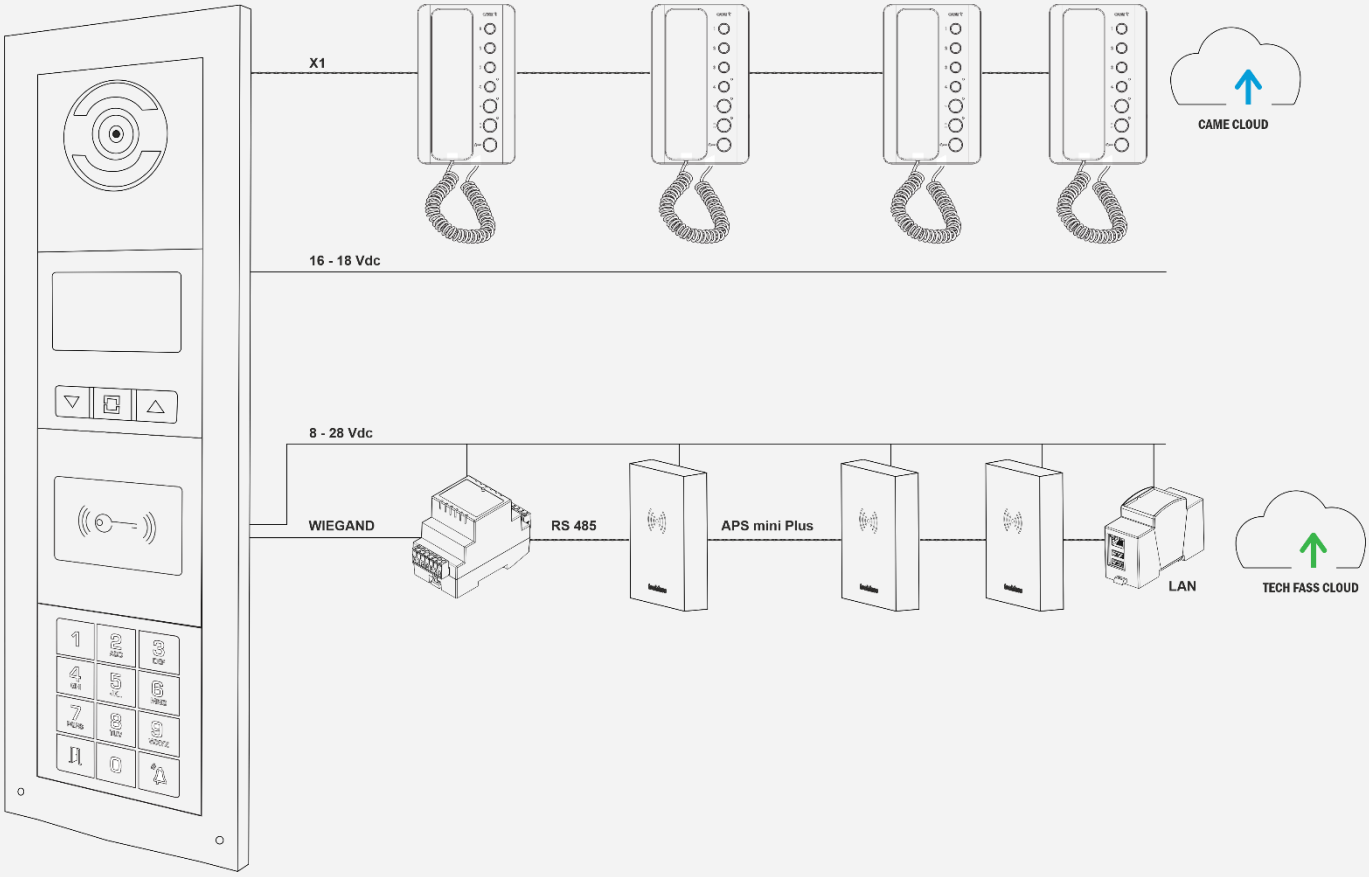
HW type

housing type
MTM: Aluminium
MTMVR: Zamak

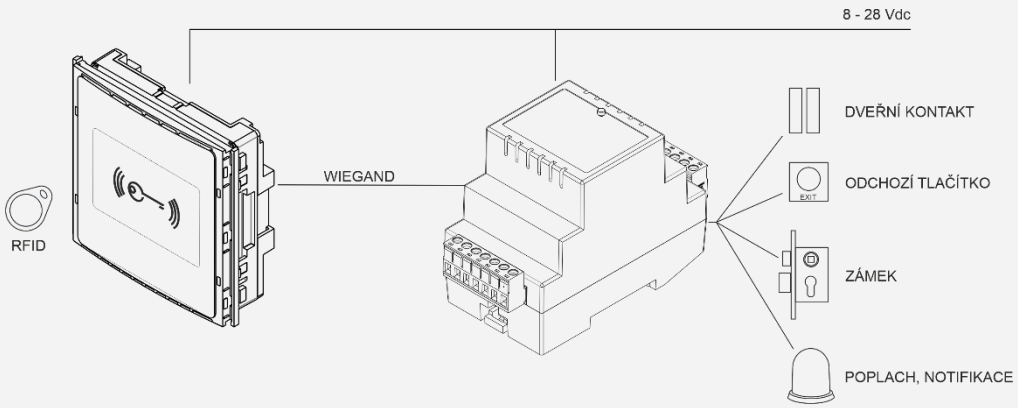
RFID technology
MF: 13,56 Mhz
EM: 125 kHz
Nothing: 13,56 MHz & 125 kHz

e. **Block diagram**

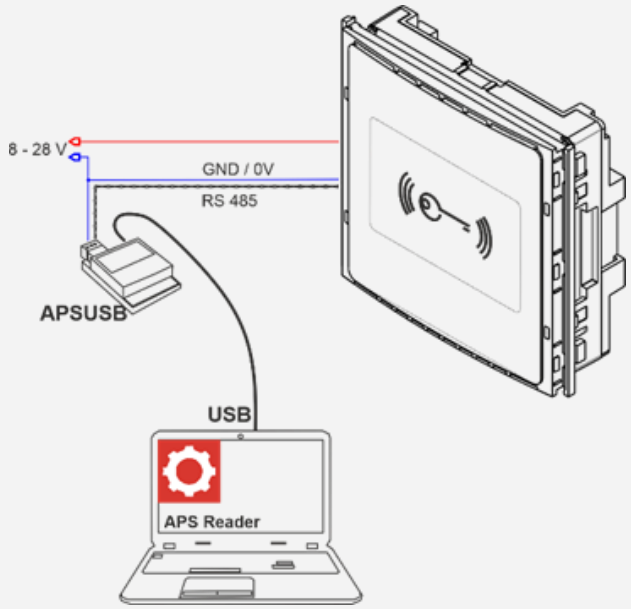
The WREM 81 MTM(VR) reader is a module for a modular MTM entry panel. MTM entry panel itself is part of the home intercom system, it has its own power supply and bus for receivers. WREM 81 MTM(VR) has its own cabling, configuration bus and wiegand interface for door controller or APS mini Plus or APS 400 reader module or third party wiegand controller. Plus.



- The reader sends a code representing the ID medium via the wiegand interface to the MWGD 82 door controller.



- The reader can be configured via the RS 485 bus using the APSUSB converter and the program APS Reader.



Content

1Technical parameters

1.1 Electrical parameters

PARAMETER	CONDITION	MIN	MAX	UNIT
Input voltage Vin		8	28	V
Typical current consumption Iin	Vin = 8 V Vin = 12 V Vin = 24 V		75 53 30	mA mA mA
Peak current consumption Iin	Vin = 8 V Vin = 12 V Vin = 24 V		106 73 42	mA mA mA
Typical input power			0,7	W
Maximum input power			1,5	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
Signalization	RGB led Piezo		1 1	pc

1.2 Communication interface

INTERFACE DESCRIPTION	TECHNOLOGY	PROPERTIES
Service data bus	RS 485	19 200 bit / s, 8 datových bitů, sudá parita, 1 stop bit
Wiegand output	Wiegand	Formats 26, 32, 42, 44, 56 bits

1.3 Mechanical parameters

PARAMETER	WREM 81 MTM	WREM 81 MTMVR	JEDNOTKA
Weight	108		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

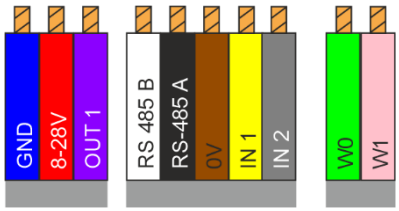
2.1 Cable connection of WREM 81 MTM(VR)

Cable of WREM 81 MTM(VR) contents 12 wires with following functions:

WREM 81 MTM(VR)

NUMBER	COLOR	DESCRIPTION	WHERE TO CONNECT (example)
1	Purple	Do not connect	
2	Blue	Power GND	Power supply GND
3	Red	Power Vin 8 ÷ 28 Vdc	Power supply +Vout dc
4	Pink	Wiegand data 1	Wiegand input MWGD 82
5	Green	Wiegand data 0	Wiegand input MWGD 82
6	Gray	Input 2 (IN 2), LED control	MWGD 82
7	Yellow	Input 1 (IN 1), buzzer control	MWGD 82
8	Brown	Signal ground 0 V	GND for inputs or RS 485
9	White	Signal B, configuraton, fw update	APSUSB*
10	Black	Signál A configuration, fw update	APSUSB*

*Configuration, firmware update.
** LED a Buzzer is possible to control by one wire together.



2.1.1 Inputs

INPUTS	DESCRIPTION
Vstup 1 (IN 1)	Ovládání bzučáku
Vstup 2 (IN 2)	Ovládání LED

2.2 Installation instructions

2.2.1 Reader installation

The WREM 81 MTM(VR) reader is already delivered in the MTMRFID module. It contains short 0,4 m long wires. Check for any voltage drop on the supply wires so that it is not below Vin min. Use a separate pair of UTP cable (if used) for each Wiegand signal, do not connect the W0 and W1 signals together in one twisted pair. Follow the MTM entry panel manual regarding the assembly.

2.2.2 RS 485 bus

It is recommended to bring a twisted pair for the RS 485 interface into the switchboard, to be able to update firmware or to configure WREM 81 MTM(VR). On the contrary to wiegand interface, this bus must be connected in one twisted pair. The actual configuration is performed using eg the APSUSB converter and the APS Reader program.

2.2.3 Radio signal interferences

If a product variant should read 125 kHz, it is necessary to take into account another 125 kHz reader in direct range - for example by both-sided door control. 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, avoid mounting on metal substrates, it is recommended to perform a practical reading test or contact support@techfass.cz.

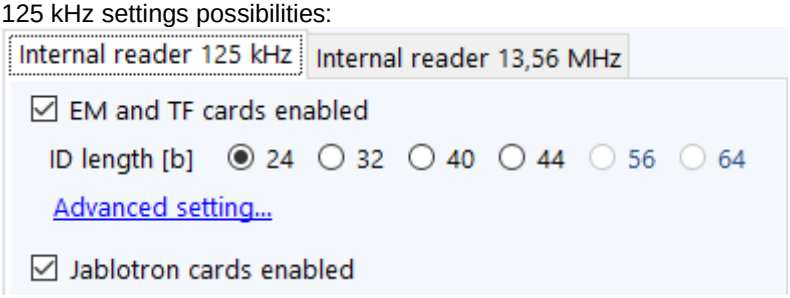
Interference along the line, eg from an interfering power supply, can affect the reading distance or the reader's own communication.

3RFID reading

3.1 Reading at 125 kHz

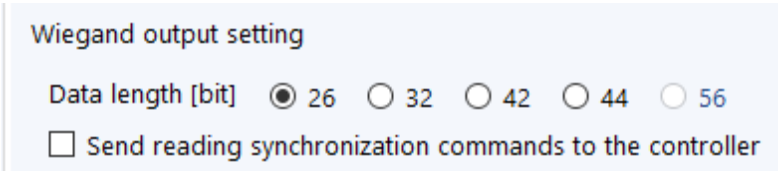
The device read media on a frequency of 125 kHz like EM Marin (e.g. EM4200, EM4305). Next example of supported media technology is Jablotron ID.

125 kHz settings possibilities:



Default settings for 125 kHz.

3.2 Wiegand output configuration



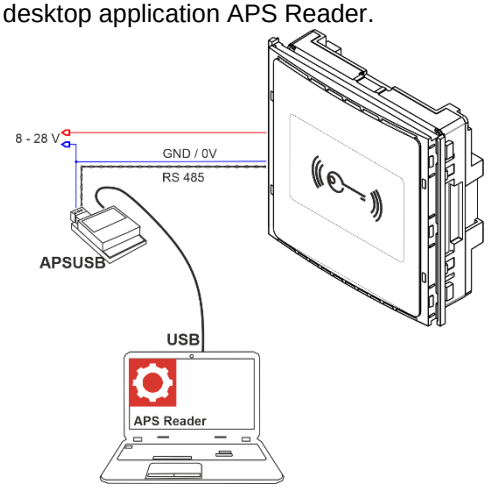
4Wiring diagram

4.1 Connection possibilities WREM 81 MTM(VR)

Reader module can be connected as follows:

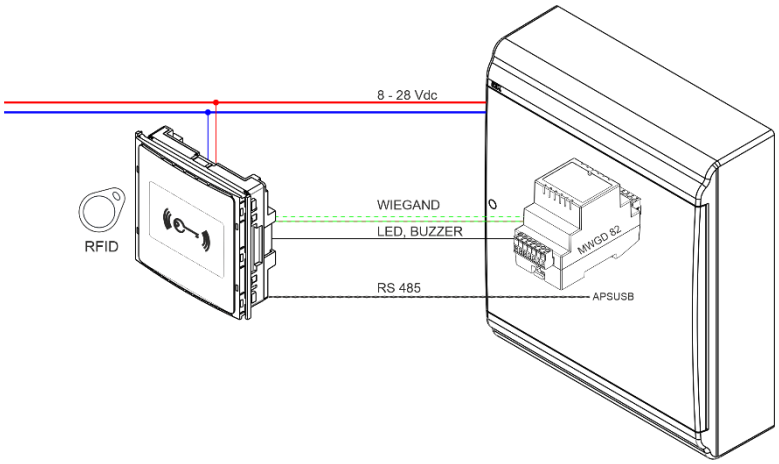
- **FIGURE A**: Configuration and firmware update.

To configure the reader or update the firmware, it must connect to the converter, eg APSUSB or APSLAN and use the desktop application APS Reader.

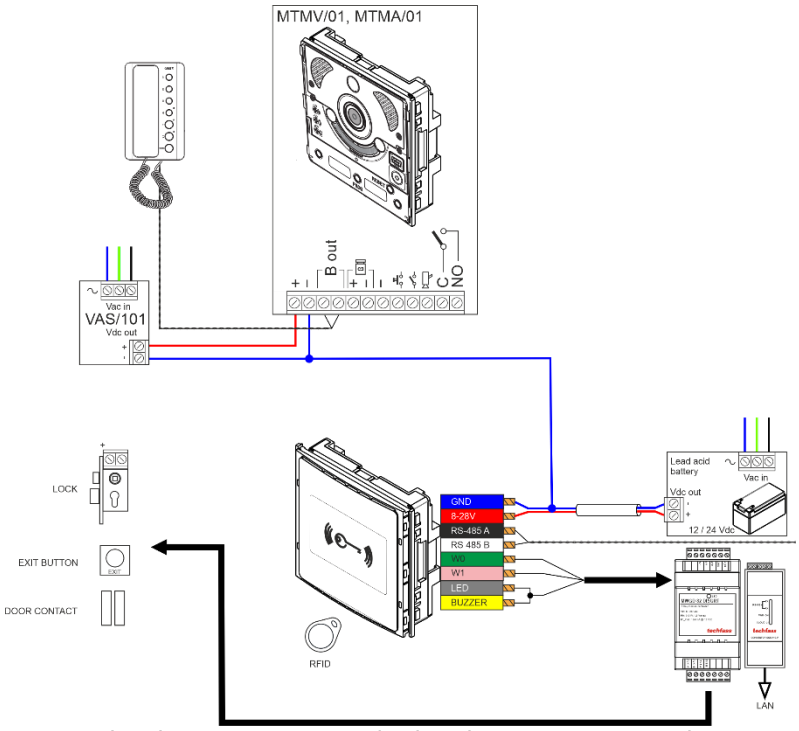


- **FIGURE B**: Connection WREM 81 MTM(VR) to the wiegand door controller

The Wiegand output of the reader is connected to the Wiegand input of the door controller, eg MWGD 82 or MWGD 46. Do not pull the wiegand interface W0, W1 in one twisted pair of UTP cable, use two, one pair for each signal. The power supply is in range of 8 -28 Vdc, please use the signal wires for LED and buzzer control if needed. These can be connected and controlled by only one wire from MWGD 82.

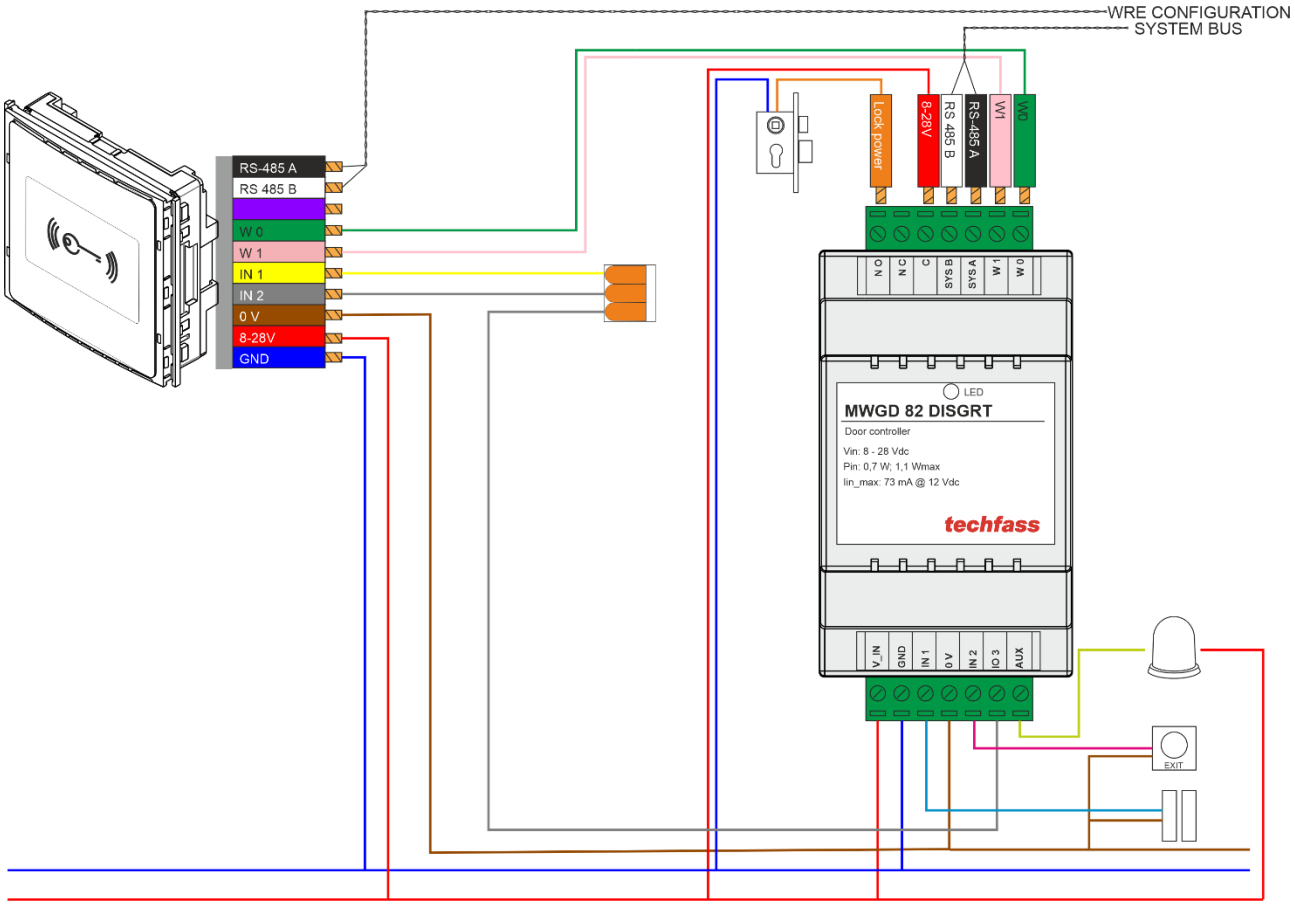


- **FIGURE C:** As part of a multi-module MTM entry panel, simply connect the 4 wires of the reader module.



When connecting the WREM 81 MTM(VR) to the MTM entry panel, you can use your own access control system power supply. Connect the wiegand interface & power supply (minimum), and if possible, the signal for LED and buzzer control and bring the RS 485 wires to an accessible place for possible update fw or configuration.

- **FIGURE D**: Detailed wiring of WREM 81 MTM(VR) and MWGD 82 DISGRT door controller.



5 Settings

5.1 Setup procedure

If we would like to set the reader parameters, e.g. its RFID parameters or Wiegand output, 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

5.1.1 Software application

The desktop application for configuration and firmware update:
APS Reader https://www.techfass.com/cs/produkty/101/produkt/389/aps-reader

5.2 Indicative parts RGB LED and buzzer

PART	ACTION	DESCRIPTION
Red LED	Continuously lit	Power supply
Green LED	Flash	ID media reading, lock release (driven by signal IN2)
Yellow LED	Flash	According to the configuration
Buzzer	Buzzing	ID media reading, lock release (driven by signal IN1)

5.3 Configurable parameters

The WREM 81 reader allows RFID read configuration, ID bit length and wiegand output format settings.

5.3.1 125 kHz

Enable / Disable

- Standard em marin & TF ID
- Jablotron ID

*Default settings: all enabled.

ID Length

125 kHz	bits				
ID	24	32	40	44	56

* Default settings: 40 bits format.

Wiegand output format settings

125 kHz	bits				
Data	26	32	42	44	56

*Default settings: 42 bits format.

5.3.2 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)

6 Other

6.1 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‘‘; ČSN EN 62368 – 1
2011/65/EU ‘‘RoHS‘‘
(ES) č. 1907/2006 ‘‘REACH‘‘

6.2 Declaration of conformity

CE 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

6.3 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.

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