

MRIF 232-GP

APS mini Plus controller for connecting a GP8, GP20, GP30, GP60 or GP90 reader

User's guide



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2 Product description

The *MRIF 232-GP* controller is used for connecting a *GP8*, *GP20*, *GP30*, *GP60* or *GP90* reader using its *RS 232* interface to the *APS mini Plus* system.

A module is designed for connection to the *RS 485 BUS* of the *APS mini Plus* identification system, where it occupies a single address. Up to 32 *MRIF 232-GP* modules can be connected to a single communication line. The modules can be combined with other modules at a single communication line.

The module is designed for a surface mounting in the outdoor non-protected environment.



Pic. 1: MRIF 232-GP

¹⁾ Commercial designation of available versions is described in *table 1*.

2.1 Product version

Product version	Product designation	Catalogue number	Module features
	MRIF 232-GP	53412600	GP8, GP20, GP30, GP60 or GP90 reader

Table 1: Product version

3 Technical parameters

3.1 Technical features

Technical features	Supply voltage	8 ÷ 15 VDC	
	Current demand	Typical	70 mA
		Maximal	130 mA
	Max. length of reader's wire	10 m	
	Real-time clock	Yes, with self-backup for 12 hrs..	
	Memory	Cards	748 ID, (2 master chips) ³⁾
		Events	1,750
		Time schedules	64
	Inputs	Door status	Logical potential-free contact
		2 nd input	Logical potential-free contact
	Outputs	Door lock	Relay NC/NO, 2A/24V
		Alarm	Relay NC/NO, 2A/24V
	Indicators	3x LED 1x terminals for external beeper	
	Tamper protection	Integrated NC contact	
Communication interface	1x RS 485 – APS system BUS 1x RS 232 – connected reader interface		
Alternative data output	WIEGAND (configurable)		

Table 2: Technical features

³⁾ The master chips are not a part of standard package and must be ordered separately.

3.2 Mechanical design

Design	Weight	0,202 kg
	Operating temperature	-25°C ÷ +60°C
	Humidity	Max. 95%, non-condensing
	Housing	IP 65
	Dimensions	65x164x55 mm

Table 3: Mechanical design

3.3 Special accessories

Accessories	WIO 22	51901200	Remote control module, 2x relay
			

Table 4: Special accessories

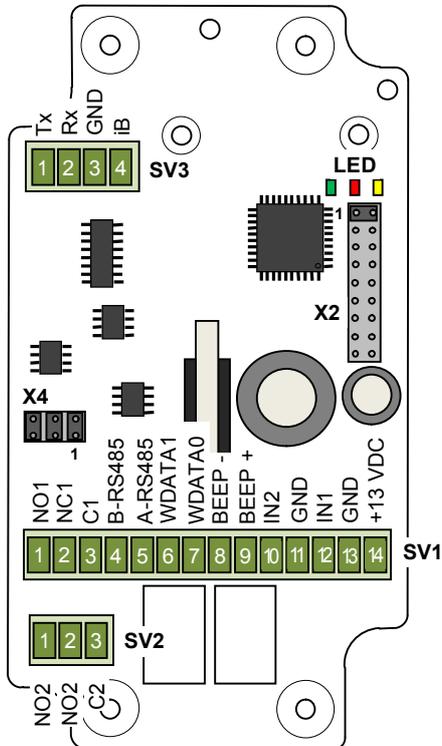
3.4 Using WIO 22 module for remote output control

The **WIO 22** remote control **WIEGAND** relay module is designated for secure output control of APS system reader modules. The door open or other functions can be controlled from the module located inside the secure area, while the reader module can be located in the non-secure area.

The module is controlled by **WIEGAND** signal directly from the reader module working in standard operating mode. The module must be paired with appropriate reader module before use.

4 Installation

4.1 Terminals and jumpers



Pic. 2 Terminals and jumpers

X2	X2.1 ÷ 5	HW address (A0 ÷ A5)
	X2.6 ÷ 9	Reserved

Table 5: Address jumpers X2

Terminal SV3	1	Tx – line RS 232
	2	Rx – line RS 232
	3	GND – 0 V
	4	iB – iButton connection

Table 6: Terminal block SV3

RS 485 X4	X4.1	Idle state definition (B)
	X4.2	Idle state definition (A)
	X4.3	Line terminator

Table 7: Setting the RS 485 line X4

Terminal block SV1	1	Relay1 NO
	2	Relay1 NC
	3	Relay1 C
	4	B - RS 485
	5	A - RS 485
	6	Reserved
	7	Reserved
	8	Beeper -
	9	Beeper +5 V
	10	Input 2
	11	0 V
	12	Input 1
	13	Supply voltage 0V
	14	Supply voltage +13,8 V

Table 8: Terminal block SV1

Relay2 SV2	1	Relay2 NO
	2	Relay2 NC
	3	Relay2 C

Table 9: Terminal block SV2

4.2 Standard connection

Std. connection	Input 1	Door contact, active when door closed
	Input 2	Request to exit button or handle contact; 0 VDC active
	Output 1	Door lock control (relay1)
	Alarm output	Alarm status signaling (relay2)

Table 10: Standard connection

The door monitoring contact (IN1) is operational after its first change of status since switching on the module. Full door lock timing acc. to *tab. 12* is used when the door status contact is not installed and no Forced Door and Door Ajar alarms are triggered.

4.3 LED Indicators

LED indicators	Red	Continuously lit	Online operating mode via RS 485
		Flashing with 4 s period	Offline operating mode
	Green		ID media reading
	Yellow	Continuously lit	Programming mode
		Short flashing with 1s per.	Door lock release indication (configurable)

Table 11: LED indicators

The indicating LEDs are situated directly on the PCB, so they can be seen when the cover is open only.

4.4 Installation instructions

Fasten the module directly on the wall in outdoor or indoor environment.

5 Setting parameters of the reader module

Configurable parameters	Parameter	Possible range	Default setting	
	Door lock release time	0 ÷ 255 s	7 s	
	Door lock control setting	Direct / reverse	Direct	
	Door lock relay function setting	Standard / toggle	Standard	
	Door lock status indication	YES / NO	NO	
	Acoustic signal of door lock release	YES / NO	YES	
	Door ajar time	0 ÷ 255 s	20 s	
	Second input configuration	REX button / handle contact	REX button	
	Acoustic signalization time - tamper	0 ÷ 255 s	30 s	
	Acoustic signalization time - forced door	0 ÷ 255 s	30 s	
	Acoustic signalization time – door ajar	0 ÷ 255 s	0 s	
	Automatic summer time adjustment	YES / NO	YES	
	Saving events in the module's archive	Door opened	Enabled / Disabled	Enabled
		Door closed	Enabled / Disabled	Enabled
Input 2 On		Enabled / Disabled	Enabled	
Input 2 Off		Enabled / Disabled	Enabled	
Strike released		Enabled / Disabled	Enabled	
Strike closed		Enabled / Disabled	Enabled	

Table 12: Configurable parameters

5.1 Reader module parameters setting

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

5.2 HW address setting

HW address setting is defined by the configuration of address jumpers X2.1 ÷ 5, see *Tab.5* and *Tab.13*.

Keep in mind that every module on the line must be set to a unique address. When any address is duplicated, the address conflict appears on system bus and the system cannot work properly.

Address jumpers X2	Address	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
	X2.1	●	○	●	○	●	○	●	○	●	○	●	○	●	○	●	○
	X2.2	○	●	●	○	○	●	●	○	○	●	●	○	○	●	●	○
	X2.3	○	○	○	●	●	●	●	○	○	○	○	●	●	●	●	○
	X2.4	○	○	○	○	○	○	○	○	●	●	●	●	●	●	●	○
	X2.5	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	●
	Address	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32
	X2.1	●	○	●	○	●	○	●	○	●	○	●	○	●	○	●	○
	X2.2	○	●	●	○	○	●	●	○	○	●	●	○	○	●	●	○
	X2.3	○	○	○	●	●	●	●	○	○	○	○	●	●	●	●	○
	X2.4	○	○	○	○	○	○	○	○	●	●	●	●	●	●	●	○
	X2.5	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	○

Table 13: Address jumpers X2

Legend: ● ... set (ON) ○ ... removed (OFF)

After changing the configuration it is necessary to turn the device off and on again. The HW address change takes effect after the module is restarted.

6 Reader modules functioning

The reader module supports the following functions:

- Standard “Door Open” function.
- Door status monitoring.
- Exit-devices contact monitoring.
- Alarm output activated when any alarm condition occurs.

The “Door Open” function can be activated in 3 different ways:

- Reading a valid ID (Tx Key, Tx Cross, Tx Auto transmitter).
- Pressing the exit button (according to configuration).
- Via communication line (program request).

6.1 “Door Open” function description

In case the *standard function of the door lock relay* is set, the door lock is *released* and the *beeper activated* (when not disabled) when the “Door Open” function is activated. Both outputs stay active until the door is opened or the preset door lock release time has elapsed - see *Tab. 8*.

In case the *toggle function of the door lock relay* is set, the door lock relay status is *switched* and the *beeper* is *activated* (when not disabled) when the “Door Open” function is activated. The beeper stays active until the door is opened or the preset door lock release time has elapsed - see *Tab. 8*. The door lock relay status remains unchanged until another “Door Open” function is activated.

Reading a programming transmitter during door lock release will not cause the reader to enter the programming mode.
Reading a valid transmitter during door lock release resets the door lock release time.

6.2 Function permanent door lock release according to a time schedule

When the function is set, the door lock is permanently released when relevant time schedule is valid. Reading a valid ID is standardly announced via the communication line (in online operating mode). The forced door alarm cannot be raised when the door lock is permanently released.

6.3 Alarm statuses

The permanent door lock release function and the toggle function of the door lock relay are mutually exclusive.

The reader module can get in following alarm states:

- 1) Tamper alarm
- 2) Forced door alarm
- 3) Door ajar alarm
- 4) ID with Alarm flag alarm

Alarm state reporting is performed as follows:

- Via communication line (statuses 1, 2, 3, 4)
- By acoustic signal (beeper) (statuses 1, 2, 3).
- Activating the alarm output (relay) (statuses 1, 2, 3, 4).

Alarm signaling via communication line requires online running PC with relevant software suitable for online operation (APS 400 nAdministrator).

Two ways of acoustic signaling is carried out:

- Steady signal (tamper).
- Intermittent signal (forced door and/or door ajar).

Acoustic alarm signaling is stopped after a valid ID is presented or pre-set time interval is elapsed, see the configuration table.

If any of the relevant alarm states (*with setting of the signaling timer > 0*) occurs, the alarm output is activated. It can control any alarm device directly or it can be processed further.

After terminating all alarm conditions the alarm output is deactivated.

The alarm signaling is triggered by any alarm condition.

6.3.1 Tamper alarm

In case of tampering the module (by removing the cover or changing the status of input 2 in proper configuration) the “Tamper” state is activated ⁴⁾.

⁴⁾ The Tamper switch is operational after its first change of status since switching on the module.

6.3.2 Forced Door alarm

The “Forced Door” alarm state is activated when the door is opened without activating the “Door Open” function. The only exception is opening the door with the second module input IN2 active and configured as a handle contact.

6.3.3 Door Ajar alarm

If the door stays open until the pre-defined Door ajar timeout expires – see *Tab. 12*, the “Door Ajar” alarm is activated.

6.3.4 Reading ID during alarm state

Reading an ID doesn’t affect the alarm state, reading a valid ID only terminates the acoustic alarm announcement followed by “Door Open” function. Reading an invalid ID only interrupts the acoustic announcement of the alarm state while signalinging “Invalid ID”.

6.4 Standard operating modes

The reader module can be in either *online* or *offline* operating mode. The module’s functionality is identical in both operating modes; the events archive is read from the reader module’s memory when the module goes online. When a programming card is read (while in either online or offline mode), the module goes into programming mode.

6.5 Wiegand operating mode

The reader module can be configured into a standard reader with a standard 26, 32, 42 or 44 bits *WIEGAND output*.

Two long beeps and the red LED lit feature powering up the module. The green LED blink indicates an ID reading.

Individual signals function in *WIEGAND* operating mode is described in *table 15*.

Wiegand	Input 1	Beeper control (0 V active)
	Input 2	Yellow LED control (0 V active)
	Output 1 (relay)	Tamper signaling; it follows the alarm state of tamper sensors (tamper signal = relay switched on) ⁴⁾

Table 15: Signal function in WIEGAND operating mode

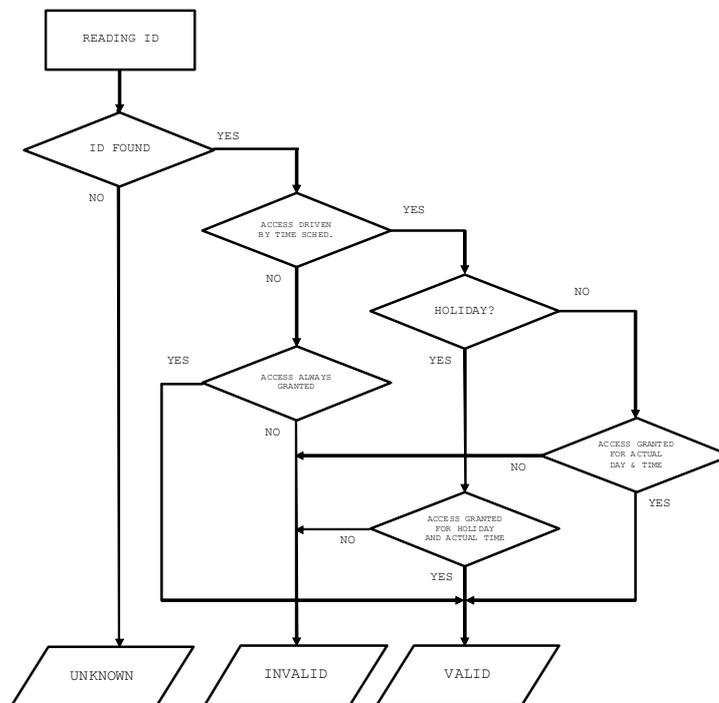
6.6 Programming mode

The module enters programming mode by reading one of the two *programming cards* (cards “+” and “-“) when the cards are enclosed (it concerns the kits supplied together with readers). The modules standardly come without programming cards, programming of the modules is performed with appropriate software, see

http://www.techfass.cz/aps_miniplus_sw_en.html.

7 Simplified access rights evaluation

The model of access rights contains time schedules and a table of holidays. A block diagram for access right evaluation can be seen in *Pic. 4*.



Pic. 4: Simplified access rights evaluation

8 Useful links

- Wiring diagrams: <http://techfass.cz/diagrams-aps-mini-plus-en.html>
- Program equipment: <http://techfass.cz/software-and-documentation-en.html>