

FAAC

Independent readers

“RESIST-SA” and “TAG10-SA”

PRODUCT

RESIST-SA (or TAG10-SA) is an access control device able to archive Codes or Cards.

The unit operates in a completely independent manner (in fact, the letters “-SA-” of the product codes mean “**Stand-Alone**”) as regards both memory storing of Codes and the validation decisions. **No on-line PC or other unit is therefore necessary.**

The electronics consist of two inter-connected boards:

- the **CPU board** (the smaller one, with terminals, buzzer, relay and Passive reader piloting)
- the **Keyboard board** (the larger one, with keys, LEDs, and antenna for passive reader if supplied)

The CPU board can also be used on its own, without the Keyboard. In this case, only a passive type reader is used (e.g.: TAG10-SA). The product is available in the following versions:



RESIST-TPS-SA
Keyboard + passive reader



RESIST-T-SA
Keyboard only



RESIST-PS-SA
Passive reader only



TAG-10-SA
Passive reader only

The following is an example of an application with an external reader:

Reader B has no archives, no CPU for decisions, no Relay and no power unit; it sends codes in Magnetic-Stripe format to reader A for validations. Connection is on terminal M2.

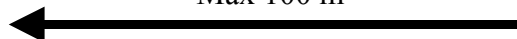


RESIST-SA-TPS
Keyboard + passive reader
"decision making" Unit

Reader A

Reader B

Max 100 m



5 poles + screen +
possible Aux
cable (for Relay and
Inputs)



RESIST-TPS
Only "Keyboard + passive reader"
It depends on A for decisions

IMPORTANT: only units identified by SA, have an internal decision-making board. This unit enables system configuration, activation of codes/cards, and has inputs and outputs used for e.g.: for opening the gateway, door status, etc.

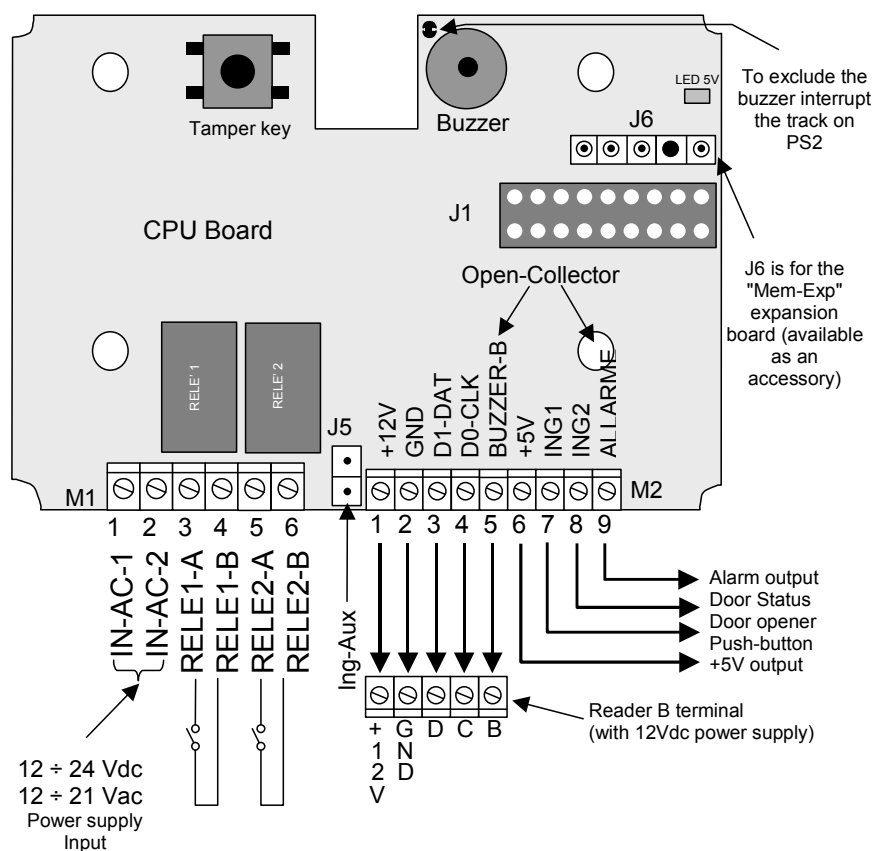
For this reason, we advise you to always install the decision-making unit inside the gateway to be controlled, and the reader (without the decision-making unit) outside the gateway to be controlled.

Remember this, if you wish to position externally the unit supplied with the decision-making board. In this case, an access control system with a low level of security will be created, because the parts enabling the gateway opening will be physically taken to that area.

The management of a double gateway by two units, refers to a possible cable which could take the inputs and outputs to the installation point of reader B. With regard to what we have said so far, it is obvious that the example could refer to the control of two gateways, at a low security level, where the opening enabling commands are available only in the point where the reader is installed.

This manual describes the system in its maximum expansion: Keyboard + Passive reader + external Reader B.

CONNECTIONS



N.B.: with **direct** power supply (e.g.: 12 Vdc) note that:

- it **does not matter** if you use pin 1 or pin 2 of M1 to connect the "+" (both pins have no polarity)
- power supply input "-" does not have the same potential as the terminals named "GND", therefore, **electrical connections uniting GND with "-" of the incoming power supply must NOT be made.**

OPERATIONAL CAPABILITY

These are the operational functions:

- memory storage and recognition of **1 "Master-Code"**: can be a Code or a "Passive Card".
- memory storage and recognition of **500 "User Codes"** indiscriminately typed on the "Keyboard", by the reading of the "Passive Card" on the front panel or by readings on "Reader B".

The locations intended for memory storing the "User Codes" are numbered from 1 to 500.

- A "User Code" must have **at least 4 characters (a minimum of 6 if a Master-Code)**; this also applies to the reader B.
- If there is no Keyboard, the "Passive Cards Kit" is available. It replaces the keys.

- You obtain validation by typing in the "User Code" or having the passive Card read by the front reader.
- a "User Code" is a sequence of a minimum of 4 numbers and a maximum of 14 numbers to be typed on the keyboard (+ key "E").
- the reading of a "passive Card" produces a unique code of 14 numbers.
- a "valid Code" energises the associated combination of Relays (usually Relay 1 + Relay 2); the "Master-Code" can behave like a normal user (i.e. it activates the Relays): but make sure that you do not type in the command before the code.
- the times of Relay 1 and Relay 2 and the Alarm output can be programmed individually.
- the **Keyboard** is used for:
 - - **typing in** the user codes
 - - **entering** one of the **programming** modes (by typing in the "Master-Code")
 - - **working in programming** by inputting/cancelling/modifying users; modify the different settings
 - key "E" finishes each sequence of typing in. Although it will not be specified in this manual, **it will always be assumed that key "E" must be pressed at the end of the sequences to be typed in** and shown as an example.
 - key "X" essentially has three associated functions:
 - - **separator** (it inserts a separation during code typing, and the code will therefore consist of two parts)
 - - **total cancellation** of current typing-in (with 2 successive pressing strokes)
 - - **exit programming mode** (hold it down constantly for at least 4 seconds).
 - in the following examples, key "X" will be printed in **lower case** for better understanding (e.g.: "1x123456")
 - use of the "SA card Kit" passive cards (optional items) enables you to simulate use of the keyboard if the reader does not have one.
- the **Imports/Exports** of the archives/settings are managed: the "**Mem-Exp**" board (optional) is used in connector J6
- the internal reader of "**passive Cards**" is normally active, but can be disabled by programming, but only if the "Master Code" is memory stored, not the "Master Card".
- the input for "**Reader B**" of card decodes Mag-stripe codes (ABA ISO2 type) or Wiegand codes.
- Codes typed on the "**front keyboard**" or readings performed on the "**front passive reader**" are indiscriminately considered as received from "**Reader A**"

MASTER CODE

The "Master -Code" is **unique** and enables programming of the unit. The device is **supplied without** a Master-Code in existence.

The first code typed in this state becomes the "**Master-Code**" (MC). Acceptable length: from 6 to 14 characters.

Otherwise, a **passive card** can be read (one therefore refers to the "**Master-Card**"), but the use is virtually the same.

The "Master Code" can be typed in or read from a card on its own, or it can be preceded by a valid number separated by "x".

You have:

- "**NxMC**": this is used to enter programming (input new users, cancel them, settings).
- "**MC**" (typed in on its own): to obtain access enablement (without being subject to Antipassback). If the master code is saved on a passive card, we advise you not to use such card to access the area controlled by the system, but to locate it in a secure place and **use it for programming only**.

Anyone in possession of the "Master Code" can execute the "**Special Commands**" described in the drawing below.

N.B.: if the "Master-Code" is **lost**, there is a procedure (described further below) enabling you to **clean the "Master-Code"** in use, making it possible to insert a new one. This procedure makes use of the Tamper key.

MODE

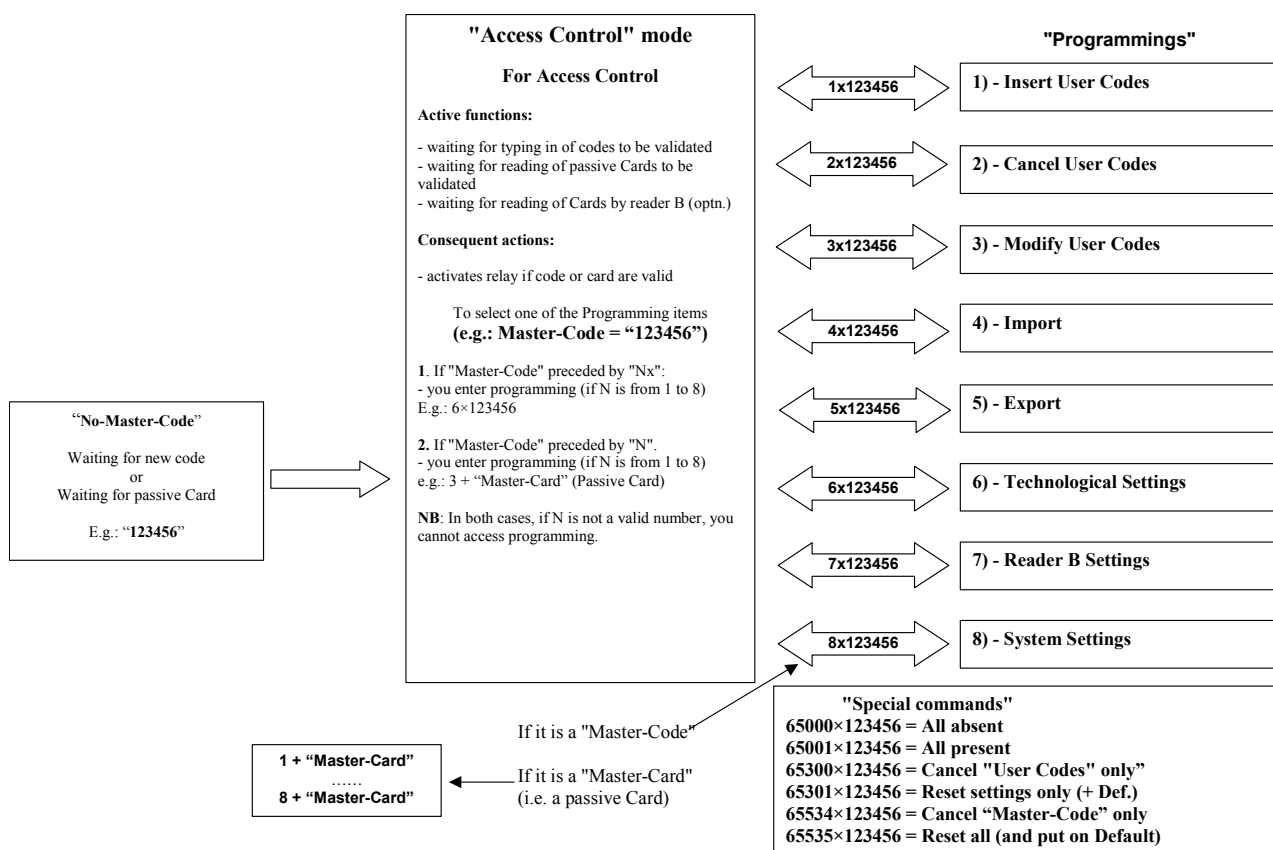
The following options are available:

- "**Access Control**" mode. You are in this mode when you activate (or reset) the device with the "Master-Code" already on. Openings by validating the typed codes or the read cards are permitted, and one can also enter in one of the programming functions. The control unit normally operates in this way.
- "**No-Master-Code**" mode. You are in this mode when you activate (or reset) the device with the "Master-Code" not yet on. This is the status when the machine is new or after cleaning (Total or MC only).
- "**Programming**" mode; there are various programming modes. You cannot change over from one to the other, but you must **always return to the "Access Control" mode** and then select the new programming. To enable this function, type in a code consisting of **two parts** separated by the "X" key. "**Programming No.**" + "X" + "**Master-Code**" (or "**Programming No.**" + "**Master-Card**")

TYPES OF PROGRAMMING

The following schemes illustrate the programming items. If you are not using a "Master-Code" (i.e. a typed in code) but a "Master-card" (i.e. **passive card**), it is sufficient to type in the **identifier key** + reading "Master-card" without typing the "X" separator key.

N.B.: in the following examples, it is assumed that the Master-Code is "123456"



Programming			
Main Programming items		Programming sub-menu	
1	Input User Codes		(see instructions on "Inputting Users")
2	Cancel User Codes		(see instructions on "Cancelling Users")
3	Modify User Code		(see instructions on "Modifying Users")
4	Import	1	Total Import (e.g.: 1E)
		2	Import Codes + Settings (e.g.: 2E)
		3	Import Codes Only (cards) (e.g.: 3E)
		4	Import Settings Only (e.g.: 4E)
5	Export	1	Total Export (e.g.: 1E)
		2	Export Codes + Settings (e.g.: 2E)
		3	Export Users Codes Only (e.g.: 3E)
		4	Export Settings Only (e.g.: 4E)
6	Technological Settings	1	Relay 1 time in tenths (0 - 65535)
		2	Relay 2 time in tenths (0 - 65535)
		3	Alarm exit time in tenths (0 - 65535)
		4	Door Status disabling time (0 - 255 sec.)
		5	Electric Strike Management
		6	Logic INP1
		7	Logic INP2
		8	Tamper Input Logic
		9	Logic INP-AUX
7	Reader B settings	1	Card ignore time (0 - 255 sec.)
		2	Double gateway
		3	Management of Door associated with reader B
		4	Antipassback
		5	No Antipassback at Exit
		6	Reader B = Entry
		7	1 Reset card location No.
		8	2 Reset card location No.
		9	LRC on reader B
		10	Wiegand / Mag-Stripe reader B
8	System setting	1	Activates internal Passive cards reader
		2	Activates external reader B

"User Codes" archive

The following table summarises what each record of the "User Code" contains.

Location number (fixed)	Valid	User Code Sequence of numbers (max 14) loaded during "Insertion"	Code valid on A (not valid if □□)		Code valid on B (not valid if □□)		No subjected to Antipassback	Antipassback Present/Absent
			Activates Relay-1	Activates Relay-2	Activates Relay-1	Activates Relay-2		
	(7)		(1)	(2)	(3)	(4)	(5)	(6)
1	<input checked="" type="checkbox"/>	13579003	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2	<input checked="" type="checkbox"/>	975310	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
3	<input checked="" type="checkbox"/>	00476220031223 (example of passive card)	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
4	<input type="checkbox"/>							
...
499	<input checked="" type="checkbox"/>	38762905266	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
500	<input checked="" type="checkbox"/>	1322240987	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

With reference to the examples on the previous table:

- it is assumed that, on insertion in the archive, all users activate Relays 1 and 2 for readings valid on A () , id. on B () ; are subjected to Antipassback (i.e. "Not subjected APB" =) ; are absent, i.e.
- the settings of user No.1 are **default** settings with function "Input user codes"
- If both the Relay activations are () the Code is **not valid** on that reader

- If the code which was read has the following activations: on A or on B, **it will not be valid** on the corresponding reader if the management control unit is set to: "Double Gateway" and "Reader B" is active. In this state, if the Relay is not activated, the code cannot be validated
- an "**Insert users codes**" forces the Code to "Valid" () (see column 7)
- a "**Cancel users codes**" forces the Code to "Non Valid" () (see column 7)
- the settings of columns (1), (2), (3), (4) and (5) can be changed **only** with the function "**Modify users codes**"
- the Absent/Present setting (column (6)) is changed dynamically by the device after every Exit / Entry of the user (but only if Antipassback is active); mechanisms are available for forcing the Absent / Present status of a **single** user (using "modify users codes") or of **all** users together by a single command.
- to validate, user No.1 must type in "13579003"; both the Relays (A and B) will be energised.
- to validate, user No.2 must type in "975310"; only Relay -1 will energise on A; both Relays on B.
- to validate, user No.3 must read his passive card; both the Relays (A and B) will be energised; when the card was stored in the memory, the card was read with the 14 character code "00476220031223"
- users No.1, 2, 3 and 499 can be valid on both Reader A and B (through the activation of different Relays)
- user No. 499 activates Relay 1 if read on A; Relay 2 if read on B.
- user No. 499 is not subjected to Antipassback (if it were activated) That is, he does not have to respect the alternation of readings (first an Entry, then an Exit, then another Entry, etc.). This parameter is useful for determining categories of users who have extra rights, e.g.: administrators, managers, etc.
- user No. 500 on reader B is not valid (the Relays are $\textcircled{7}$ $\textcircled{7}$); it will be valid on A (energising Relay 1 only)
- for users No. 1 and No. 3, if the Antipassback is active, the next reading must be an Entry (in fact, the users are Absent)
- for users No. 2 and No. 500, if the Antipassback is active, the next reading must be an Exit (in fact, the users are Present)
- user No. 4 is not Valid, and therefore, a Code was never inserted in location No. 4 or it was **Cancelled**
- a **user is valid** when he activates at least one Relay. After the reading, the Green confirming LED lights up.
- a **user is not valid** when a reading does not activate any Relay. After the reading, the Red LED lights up.

PROCEDURES

In the procedures, one is almost always expected to enter Programming. Remember that in **Programming**:

- the following are lighted: the **Back-lighting LED** and the signalling **Yellow LED**
- the result of the operations is signalled by LEDs: **Green LED flashing = OK, Amber LED flashing = not OK**;
- the **buzzer** has two different sounds for the two cases
- to **exit Programming hold down the "X" key for at least 4 seconds**
- **Programming is exited** by reading the "**Master-card**" (if it is a **passive card**)
- after exit, the control unit restarts in the "Access Control" mode

Ex novo procedure (if "No-Master-Code')

- type of view: the Back-lighting LEDs and the three signalling LEDs flash alternatively
- type in the code which must become "**Master-Code**". E.g.: "123456" (Min 6 and Max 14 characters)

Alternatively, one can present a **passive Card**: in this case it will be a "**Master-card**"

- after memory storage, the device resets itself and restarts in "Access Control" mode

N.B.: you can enter the "No-Master-Code" mode even after "**Total cleaning**" or after "**Master-Code only Cleaning**".

In "No-Master-Code" you can only memory store the new "Master-Code".

Introduction:

To enter the programming operations listed below, you must respect one of the two following procedures:

- "No. programming menu" + "X" + "Master Code"
- "No. programming menu" + read "Master Card"

Procedure for inputting new users

- from the "Access Control" mode, select "**1-Insert users codes**" (e.g.: type in "1x123456")
- type in "Location No": x "User code". (e.g.: type in "27x5578342" to memory store sequence "5578342" in location 27). **Min 4 and Max 14** characters for the "user Code" sequence (applies even if from reader B). Inputs in pre-written locations or sequences (user Codes) already in use are refused.
- In the case of passive cards on reader A: type in "location No." + "read card". (e.g.: type in "27" + card)

Input from **reader B**; type the "location No." + "read card on B" on the reader A keyboard.

NB: if the input was successfully performed, the control unit signals this activity with a rapid series of green LED light ups and buzzer soundings. If the input failed, the unit turns the yellow LED rapidly ON and OFF and the buzzer emits a particular sound.

Users cancellation procedure

- from the "Access Control" mode, select "**2- Cancel users codes**" (e.g.: type in "**2x123456**")
- type in the location number of the code to be cancelled. (e.g.: type "27" + E to cancel 27).
If you have the **passive card** to be deleted from the memory, just **read it on A** (not on **B**) without typing in anything.

NB.: if the cancellation was successfully performed, the control unit signals this activity with a rapid series of green LED light ups and buzzer soundings.

Users modification procedure

- from the "Access Control" mode, select "**3-Modify users codes**" (e.g.: type in "**3x123456**")
- no modification can be made unless you have inserted at least one "user Code".
- the sequence of a Code cannot be modified (first cancel the location No., and then insert in the same No.)
- type as described in the following tables, according to what you wish to obtain:

Kind of typing	Description
NNN	Displays data of code NNN
NNNx C	Set data for code NNN
NNNx FFFx C	Set data for codes from NNN to FFF
1111x C	Set data for ALL (i.e. from 1 to 500)

Where "C" is the Command to be typed. The following table shows which values "C" can have.

Nr. of keys to be typed	Command "C"	Description	Example
1	5 6 7 8	Force "Absent" Force "Present" Force "Subjected to APB" Force "Not subjected to APB"	"37x5" = code 37 Absent "115x6" = code 115 Present "21x7" = code 21 "Subjected to APB" "3x8" = code 3 "Not subjected to APB"
2	11 .. 00	Set Relay 1 and 2 for reader A 1 = Yes 0 = No 9 = ignore (do not alter settings for reader B)	"37x10" only Relay 1 on A "3x01" only Relay 2 on A "115x19" Relay 1 (on A) with Relay 2 unaltered
4	1111 ... 0000	Set Relay 1 and 2 for reader A + Set Relay 1 and 2 for reader B 1 = Yes 0 = No 9 = ignore	"37x1100" Relay 1 and 2 on A; disable on B for 37 "3x0011" disable on A; Relay 1 and 2 on B for 3 "1111x1111" Relay 1 and 2 on A and on B for all "401x450x1001" only Relay 1 on A and only Relay 2 on B for codes from 401 to 450 "1111x9911" Relay 1 and 2 on B for all (A unaltered)

The **display** of the status of a code uses the front LEDs and occurs in **three stages**. See the following table:

Red LED	Amber LED	Green LED	Description
Relay 1 - A	Light Off	Relay 2 - A	Stage 1): status of Relay 1 and 2 for valid reading on A (Lighted = Yes; OFF = No)
Relay 1 - B	Lighted	Relay 2 - B	Stage 2): status of Relay 1 and 2 for valid reading on B (Lighted = Yes; OFF = No)
Abs/Pres	Light Off	No APB	Stage 3): "Subj.APB"/"Not subj.APB" and "Absent/Present" (Lighted = Not subj.APB; OFF = subj.APB) (Lighted = Pres. OFF = Abs.)

N.B.: there is **no display** if you select a "non valid" Code (Cancelled or never Inserted).

Data Import operation Procedure

- from the "Access Control" mode, select "**4-Import**" (e.g.: type in "**4x123456**")
- just type the number for the type of import to execute. These are the options:

1 = Total import	2 = import Codes + Settings	3 = import Codes only	4 = import Settings only
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Important Notes:

A Total import is possible only if the "MEM-EXP" board used was involved in a "Total Export".

In particular, pay attention to the "Master-Code", because, after Total import, that of "MEM-EXP" will apply.
If you are not sure whether you know it, we advise you to execute function 2) import Codes + Settings - which copies the Code table, and the table with the Technological and System settings.

Data export operation procedure

- from the "Access Control" mode, select "**5-Export**" (e.g.: type in "**5x123456**")
- just type the number for the type of Export to execute. These are the options:

1 = Total export	2 = export Codes + Settings	3 = export Codes only	4 = export Settings only
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Important Notes:

A Total export copies all on the "MEM-EXP" board: "Master-Code", user Codes, and Technological and System settings. It is used as a Backup copy of the device involved in the export in order to reproduce other management units as 'clones' of the one involved.

You can use partial Exports followed by partial Imports (user Codes only, Settings only or both) when you wish to transfer only the part in question to other devices.

Technological Settings modification Procedure

- from the "Access Control" mode, select "**6-Technological Settings**" (e.g.: type in "**6x123456**")
- type in the number pair according to the parameter you wish to modify. The following table summarises the options. Times in tenths can be a maximum of 65535 tenths and a maximum of 5 characters.

Description	1.1.1.1.1 Command	Default	Example of typing in
Relay 1 time (in tenths)	1xT (T = time 0 - 65535)	30	"1x387" for time of 38 sec. and 7 tenths. "1x5" for a time of 5 tenths
Relay 2 time (in tenths)	2xT (T = time 0 - 65535)	30	"2x60" for a time of 60 tenths
Alarm exit Time (in tenths)	3xT (T = time 0 - 65535)	300	"3x150" for a time of 150 tenths
"Door status" disabling time (sec)	4xT (T = time 0 - 65535)	16	"4x25" for a time of 25 seconds
Electric strike management	5x1 = Yes (5x0 = No)		"5x1" activates electric encounter management
Logic INP1	6x1 = NC (6x0 = NO)	NO	"6x1" logic NC. "6x0" logic NO
Logic IngP2	7x1 = NC (7x0 = NO)	NO	"7x1" logic NC. "7x0" logic NO
Tamper Input Logic	8x1 = NC (8x0 = NO)	NC	"8x1" logic NC. "8x0" logic NO
Logic INP-AUX	9x1 = NC (9x0 = NO)	NO	"9x1" logic NC. "9x0" logic NO

Reader B Settings modification procedure

- from the "Access Control" mode, select "**7-Reader B Settings**" (e.g.: type in "**7x123456**")
- type in the number pair according to the parameter you wish to modify.

Description	Command	Default	Example of typing in
Reader B ignore time in seconds	1xT (T = time 0 ÷ 255)	0	"1x10" for a time of 10 sec.
Double gateway	2x1 = Yes (2x0 = No)	No	"2x1" to enable "Double gateway"
Management of door associated with B	3x1 = Yes (3x0 = No)	No	"3x1" for "Door management" associated with B
Antipassback	4x1 = Yes (4x0 = No)	No	"4x1" to activate Antipassback (APB)
No Antipassback at Exit	5x1 = Yes (5x0 = No)	Yes	"5x0" on Exit reader, use APB
Reader B Entry	6x1 = Yes (6x0 = No)	Yes	"6x1" reader B for Entry and A for Exit
Reset Card 1	7xN (N = Card No.)	0	"7x499" Reset Card 1 is 499
Reset Card 2	8xN (N = Card No.)	0	"8x500" Reset Card 2 is 500
LRC reader B	9x1 = Yes (9x0 = No)	Yes	"9x0" disables LRC on reader B
Wiegand/Mag-stripe	10x1 = Wie (10x0 = M-S)	M-S	"10x1" reader B is Wiegand

System Settings modification Procedure

- from the "Access Control" mode, select "**8-System Settings**" (e.g.: type in "**8x123456**")
- type in the number pair according to the parameter you wish to modify.

Command	Default	Description	Example of typing in
1x1 = Yes (1x0 = No)	Yes	Activates RF Module for Passive cards	"1x1" to activate. "1x0" to disable.
2x1 = Yes (2x0 = No)	No	Activates card reader B	"2x1" to activate "2x0" to disable

"Total cleaning" Procedure

From the keyboard:

- "65535" + "X" + "Master-Code" from then "Access Control" mode (e.g.: type in "65535x123456")
With visible board (with open device and **without knowing** the "Master-Code"):
- from powered-down state, supply power and, within the first 15 seconds, press the **Tamper 10** times (you should count 10 beeps).

Effects:

- cancels "Master-Code"; cancels all "user Codes"; puts Settings into default
- after "Cleaning", the device resets itself and restarts in "No-Master-Code" Mode

"Master-Code only Cleaning" Procedure

From the keyboard:

- "65534" + "X" + "Master-Code" from "Access Control" (e.g.: type in "65534x123456")

With visible board (with open device and **without knowing** the "Master-Code"):

- from powered-down state, supply power and, within the first 15 seconds, press the **Tamper 5** times (you should count 5 beeps).

Effects:

- cancels the "Master-Code" only; restarts in "No-Master-Code" mode.
- maintains the rest of the information ("user Code" archive, Technological and System settings)

PASSIVE CARDS

The reading of a passive card is seen as a means of quickly typing a 14-character code on the keyboard. Furthermore, the pressure of the final key "E" is simulated, and, therefore, the card reading automatically trips the effects. Specifically, this is what happens:

- **card reading only** (no typing in progress) is equivalent to having typed a 14-character code (e.g.: if the code on the card is "00067432520231") terminated with the Enter key (e.g.: "00067432520231E").
Therefore, it will be interpreted as a card to be validated, if it is in the memory.
- **typing in progress** while reading the card (e.g.: "4" not terminated with "E"): is equivalent to queuing the 14-character code (the card code) after the one typed in. There **is no need to use the "X" separator** because it is input automatically if not already pressed. Then everything is terminated with the Enter key (e.g.: "4x00067432520231E").
Therefore, the entire string will be interpreted as a request to enter the No. 4 Programming mode, which will happen only if the request is permissible and the read card is a "Master-Card".
- a passive card can become a "**Master-Card**". The operation is very similar the 14-character "**Master-Code**". The card must be read instead of typing on the keys. In practice, 14 characters are memory stored: either the relevant passive card is presented, or the 14 characters (if known) written on the card are typed in.
Programming occurs when you are in the "**No-Master-Code**" mode: The first passive card to be read becomes a "**Master-Card**". If you know the 14 associated characters, you could type them on the keyboard.
- To enter one of the programming modes, just type the corresponding number (e.g.: "1") and then read the "**Master-Card**".
- To memory store a passive card in a certain location, you first select the mode named "**1-Programming-Input User Codes**", then type in the location number (e.g.: "231"), lastly read the "**passive card**" which becomes No. 231.
- the "**Master-Card**" is also used for ending the Programming mode and returning to Access Control.

How to use the "SA card Kit"

The "SA card Kit" consists of special passive cards, the reading of which simulates the typing of a key on the keyboard. In fact, the "SA card Kit" consists of 12 pieces which are equivalent to the keys each of which has on its rear and is thus the symbol of the key it replaces.

- They may be used whenever it is permitted to type a key on the front section
- They may be used in the "**No-Master-Code**" mode to type in a "**Master-Code**" to enter a programming session. For example, to enter the code input mode, the following "Key-Cards" of the "SA card Kits" must be presented in succession: "1x123456".

Reading distance:

The detection distance of passive cards can vary due to various causes: noise by units or devices which can influence the reader's electromagnetic field, metal objects which can screen the transponder detection area, variations to power supply voltage.

READER B

Reader B is an auxiliary external reader to be connected to terminal board M2.

This reader **cannot** have the "**Keyboard/display**" because there are no connections for managing that facility. The only exception is the "Resist" series keyboard, which is managed locally and produces Mag-stripe codes compatible with reader B.

By enabling and disabling functions "Double gateway" and "Management of door associated with B", different effects are created on the enablement of the relays according to valid code.

The following table summarises the behaviour of the control unit:

Managmt.of door associated with B	Double gateway	Code valid on A		Code valid on B	
<input type="checkbox"/>	<input type="checkbox"/>	Relay 1 (also for door opener push-button)	Relay 2 (also for door opener push-button)	Relay 1 (also for door opener push-button)	Relay 2 (also for door opener push-button)
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Relay 1 (also for door opener push-button)			Relay 2
<input checked="" type="checkbox"/>		Relay 1 (also for door opener push-button)	Relay 2 (also for door opener push-button)	Relay 1 (also for door opener push-button)	Relay 2 (also for door opener push-button)
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Relay 1			Relay 2 (also for door opener push-button)

You will note that, by using the input for the door opener push-button, the activations valid for the following are executed:

- Reading of code valid on A if "Managmt of door associated with B = ",
- Reading of code valid on B if "Managmt of door associated with B = ",

The "Double Gateway = " option is equivalent to saying "Single gateway". In this case, the management unit enables both relay 1 and relay 2 indiscriminately for the reading of a valid code on one of the two readers, or for using the door opener push-button. In the above table, it is assumed that the Code read by the control unit has associated Relay 1 = and "Relay 2 = ".

IMPORTANT: In terms of a single "User code", one can then define whether or not to activate Relay 1 and/or Relay 2. If the management unit is configured as a single gateway, with this further filter, you can make diversified activations according to those defined in the settings of each code/card. Instead, if two separate gateways have to be managed, with the relevant activations, the codes/cards settings must be consistent with those defined in the above table.

There are two types of decoding:

- Magnetic-Stripe.
- Wiegand.

Mag-stripe decodes up to a maximum of 37 numeric characters. The management unit considers only the first 14 characters, rejecting any in excess. All the characters on a card will be read only if they are equal to or lower than 14. Furthermore, the management unit will consider only badges with 4 or more characters for cards used for access; with 6 or more characters for the Master-Card.

For insertion readers which read 60% of the code, there are two possibilities depending on how the cards are programmed on the magnetic band:

- the card contains a maximum of 17 - 18 characters: in this case, there is no need to set anything as default
- the card contains more than 18 characters (17 with certain readers): in this case, the "Reader B LRC" must be disabled This also means verifying that the read code has a **minimum length of 14** characters. The subsequent characters are, in any case, truncated (Note: by disabling the LRC, codes can be produce by swiping the card in the wrong way).

In the case of **insertion magnetic** readers, "Card B ignore time" of at least 5 seconds should be enabled, in order to prevent double readings (one at card insertion and the other at card extraction)

Wiegand decodes the following formats (described in more detail further below):

26 bit	30 bit	32 bit	40 bit
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For the 26 bit WIEGAND, the format must be:

E	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	O
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26		

E is the Even bit in the first half of the message

I are the 12 bits of the Facility Code (Installation Code); the most significant bits are transmitted first

T are the 12 bits of the Card Number (Card Code); the most significant bits are transmitted first

O is the Odd bit in the second half of the message

Installation Code + Card Code are transformed into a string with a length of 10 numeric characters.

For the 30 bit "WIEGAND", the format must be:

E	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	O	
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30								

E is the Even bit in the first half of the message.
T are the 28 bits of the Card Number (Card Code); the most significant bits are transmitted first; they are transformed into a string with a length of 10 numeric characters.
O is the Odd bit in the second half of the message.

For the 32 bit "WIEGAND", the format must be:

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

I are the 16 bits of the Facility Code (Installation Code); the most significant bits are transmitted first
T are the 16 bits of the Card Number (Card Code); the most significant bits are transmitted first
Installation Code + Card Code are transformed into a string with a length of 10 numeric characters.

For the 40 bit "WIEGAND", the format must be:

I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30								
T	T	X	X	X	X	X	X	X	X	X	X	X	X	X																							
31	32	33	34	35	36	37	38	39	40																												

I are the 16 bits of the Facility Code (Installation Code); the most significant bits are transmitted first
T are the 16 bits of the Card Number (Card Code); the most significant bits are transmitted first
X are 8 bits which are ignored.
It behaves like the 32 bit Wiegand standard
Installation Code + Card Code are transformed into a string with a length of 10 numeric characters.
N.B.: having a reader B with different technology from A (which is the Keyboard or the passive reader) is tolerated, or, if the technology is the same, reader B producing a different code is also tolerated. However:

- during programming mode, reader B is active only in "Code inputting" and only if one key has been typed
- readings during "Code inputting" are **executed on B** (operating in programming mode on A's Keyboard).
- these cards are **recognised on B only**

DOOR MANAGEMENT

"Door management" means monitoring the status of a door (open/closed) with the possibility of generating an alarm if a forbidden situation is identified.

The management is usually of the "Single gateway" type, i.e. the management is associated with both Reader A and Reader B (meaning one inside and the other outside the same door/gate).

If "Double gateway" is activated, the management is associated with Reader A only. However, it can be associated with Reader B only by setting "Door management on B" = Active.

The two inputs INP1 and INP2 on the M2 terminal board are associated with the door Management function.

- INP1 is for the "Door opener Push-button"
- INP2 is for the "Door status" sensor

If a forbidden opening of the door is detected, an alarm is generated (ALARM output on terminal M2).
Opening is permitted if it is preceded by a valid code (but only if from the reader involved) or by pressure on the Door opener key.

Failure to close the door within the timeout, will also be considered an alarm condition.

Therefore the detected alarms are:

- "Forced door" alarm
- "Door left open" alarm

The "Door opener key" produces the same activations as a valid card, detected by the reader to which the "Door Management" refers, i.e.:

- both relays, if "Single gateway"
- Relay 1 only if "Double gateway" + "Door management on A"
- Relay 2 only if "Double gateway" + "Door management on B"

A valid code or the door opener push-button trip the "Door status disabling time", i.e. the time by which the door can be opened and closed. Closing the door again causes reset of the "Disabling time". This means that a further opening (apparently performed within the available time) causes an alarm.

Door opening could be assigned to an "Electric strike". This device allows opening for as long as it is activated. The danger is that, if long Relay times are set, several people can pass through.

By activating the "Electric strike management" function, one can bring forward relay disabling to when the door is being closed. This will prevent the next user from finding the door openable.

The function acts on one relay only: Relay 2 if it is in "Door B management" mode; Relay 1 in all other cases.



The logic of both inputs can be reversed. In particular, it is useful to reverse the "Door status sensor" logic, because, these devices are often of the NC (Normally Closed) type and work when released.

ANTIPASSBACK

The Antipassback function (abbreviated to APB), obliges users to respect alternating readings: Entry, Exit, Entry, etc... This makes it necessary to use two readers: Reader A and Reader B.

Reader A is indiscriminately a code typed on the keyboard or a passive card read by the antenna located on the front panel. Reader A is normally set as an Exit, whereas Reader B is set as an Entry.

However, the setting can be reversed if necessary. For safety reasons indoors, the "Exit always valid" function is active, and, therefore, the Antipassback is verified at **Entry only**. Where necessary, the function **can be disabled** so that the Antipassback is respected **at both Entry and Exit**. The default setting (at input time) specifies that all Codes are: "Subjected to APB". However, this parameter can be disabled afterwards, by operating in "Modifying users codes" mode and setting "Not subjected to APB".

Various 'tools' are available for **forcing** the **Present/Absent** status of all codes (as well as from Programming):

- from **INP-AUX (J5)**: if Antipassback is active, it forces all codes to Absent
- **"Reset card 1"**: if read/typed on any reader (A/B), it forces all codes to Absent
- **"Reset card 2"**: forces all codes to Absent if read/typed on an Exit reader; forces all codes to Present if read/typed on an Entry reader

The "Reset cards" should be selected from one of the locations numbered from 1 to 500: you have to set the No. of "Reset card 1" (e.g.: No. 499) and the No. of "Reset card 2" (e.g.: No. 500).

Set 0 to avoid setting the relevant card (see "Reader B settings").

A "Reset card" only executes the associated function (no relay activation; not subjected to APB).

CODE TYPING AND CARD READING

Each user is stored in the memory, associated with a code having a minimum and maximum length of 4 and 14 numeric characters respectively.

It can be indiscriminately typed on the keyboard or be produced by the passive card reader.

A passive card reader produces a code of 14 numeric characters. In theory, if the 14 characters were known, validation could be obtained by typing those 14 characters on the keyboard.

The external reader B can produce codes of variable length, especially if it is a reader of magnetic cards, where code length depends on how the card was programmed. If it is a FAAC passive cards reader, a code of 14 numeric characters is produced, the same code produced by the internal reader.

An interesting opportunity is offered by the Resist series keyboards/readers. In fact, these keyboards produce a Magnetic-stripe code containing the sequence of typed keys. Therefore, the codes can be typed as on the internal keyboard - the codes were received from Reader B. If the external Resist includes a passive reader, the passive cards can be read on both the front reader (reader A) and on the remote one (reader B). The input reading can occur on A.

ALARMS

The alarm output on terminal M2 can be activated by one of the following alarm states:

- **"Tamper"** input in alarm state
- **"Door status sensor"** input (both with "Forced door" alarms and with "Door left open" alarms)

The output is an Open-collector type. If a Relay or an inductive load is activated, we advise you to place a push-pull diode in parallel close to the load. It is used for dampening over-voltages induced by the load during activations.

Activation time is the same in the two cases and can be programmed in tenths of a second. The default setting is 300 tenths (30 seconds). Times from 0 to 65,535 tenths are permissible.

ELECTRICAL SPECIFICATIONS

- power supply: 12 ÷ 24 Vdc - 12 ÷ 21 Vac
- consumption at 12 Vdc: 180 mA (without outside Reader or other loads connected)
- consumption at 24 Vdc: 120 mA (without outside Reader or other loads connected)
- consumption at 12 Vac: 180 mA (without outside Reader or other loads connected)
- consumption at 21 Vac: 120 mA (without outside Reader or other loads connected)
- 5 Vdc output for external reader: max 300 mA (rated voltage 11.5 Vdc)
- 5 Vdc output for external reader: max 60 mA
- Relay-1 and Relay-2 contacts: max 1 A at 24 Vdc
- Buzzer-B output: "open-collector" type without push-pull diode (max 70 mA at 12 Vdc)
- Alarm exit: "open-collector" type without push-pull diode (max 70 mA at 12 Vdc)
- inputs Inp-1 and Inp-2: to be activated by connecting to GND and using a 'clean contact' (e.g.: a Relay)

NB.: the power supply unit for the management unit is not supplied.