

TAG-IN-A-BAG™

Single door RF/ID Proximity Access Control Unit



Visonic Ltd

Installation and Programming

1. INTRODUCTION

The TIAB (Tag-in-a-Bag™) is a versatile weather-resistant proximity access control unit (fig. 1), designed to limit access to restricted areas, while permitting authorized people to enter. This product is the best in its class - using state-of-the-art proximity (non-contact) RF/ID technology. It was designed to serve your customers' needs, while making installation and use simple and easy.

The TIAB control unit includes a keypad with an internal proximity reader and a display, that provide full access control operation.

The TIAB control unit can be programmed to offer one of two security levels for opening the door:

- Level 1 (default): Valid tag only.
- Level 2: Valid tag and PIN (Personal Identification Number) code.

The TIAB control unit transmits 125 kHz RF signal. A valid proximity tag (fig. 3), presented to the control unit or to the optional external reader (fig. 2), transmits a coded RF signal back to the TIAB control unit, causing it to energize an output relay. The optional external reader is designed for installations in which an additional reader is required. It is connected to the TIAB control unit via 4 wires.

The TIAB control unit is installed adjacent to the secured door's frame. It is connected to the door's EMS (Electro-Magnetic Strike) or magnetic lock and operates by either a 12V DC or AC power supply. The TIAB control unit includes internal non-volatile memory, unaffected by power failure. The internal memory stores data of up to 250 tags and PIN codes (used for security level 2 only). Each PIN is composed of 4 digits.

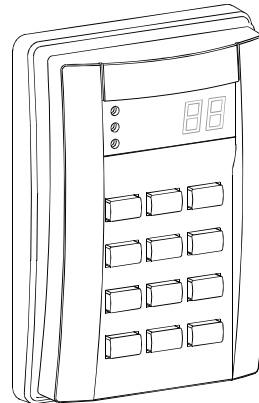


Figure 1. TIAB Keypad

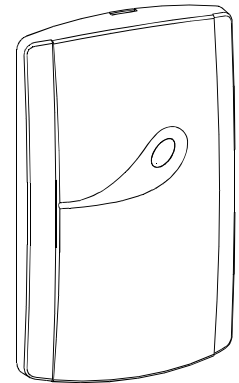


Figure 2. RDR-1 External Reader

The proximity tags (fig. 3) are totally sealed and do not require any maintenance.

The tags are powered from the RF signal transmitted from the TIAB control unit.

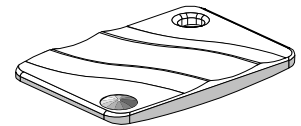


Figure 3. TAG-1 Key

In a case of loss or theft of a tag, the tag data can be easily deleted from the TIAB control unit memory list.

The standard TIAB package includes 10 user tags. Additional tags are available.

2. SPECIFICATIONS

Power input: 12-16V DC or 9-12V AC

Max. Current Consumption: 200 mA (excluding EMS current).

Operating temperature: -20°C to 50°C (-4°F to 122°F).

TIAB CONTROL UNIT

Display: 2 x 7 segments and 3 LEDs.

Buttons: 12 (numeric keypad).

Memory capacity: 250 tag codes.

Tag reading range: 50 - 100 mm (2 - 4 in.)

Internal tag reader frequency: 125 KHz.

Tag codes possibilities: 10¹² possible combinations.

Inputs:

- Request-to-exit (N.O.), dry contact
- Door position (N.C.), dry contact

Outputs:

- Lock relay N.O. / N.C. dry contact, 10A / 28V AC or DC
- Door ajar / door held open (open collector output), 100mA max.
- Panic (open collector output), 100mA max.
- Auxiliary (open collector output), 100mA max.
- Forced Entry (open collector output), 100mA max.
- Tamper (N.C. dry contact). Tamper switch is designed to detects attempts to open the unit, or remove it from the wall.

NOTE: The total currents of all active open collector outputs should not exceed 200mA.

Dimensions (H x W x D): 122 x 82 x 31 mm (4-13/16 x 3-1/2 x 1-1/4 in.)

Weight: 170 g (6 oz) without the rubber gasket

Color: Dark gray

TAG-1 PROXIMITY TAG

Dimensions (L x W x D): 53 x 35 x 7 mm (2 1/8 x 1 3/8 x 9/32 in.)

Weight: 5.5 g (0.2 oz).

Color: Dark gray

TAG-10: Package of ten TAG-1 proximity tags

RDR-1 EXTERNAL READER (optional)

Indicators: Tri-color LED (green, red, amber).

Tag reading range, tag reader frequency and tag codes possibilities: identical to Control Unit specification.

Dimensions (L x W x D): 116 x 70 x 16.8 mm (2 3/4 x 4 1/2 x 5/8 in.)

Weight: 121.5 g (4.3 oz)

Cable (to TIAB control unit) maximum length: 10 meters (32ft.)

Minimum distance between TIAB control unit to external reader: 61 cm (2 ft.).

Color: Dark gray

Compliance with standards: Complies with Part 15 of the FCC Rules and RSS-210 of Industry and Science Canada. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

3. MOUNTING

- Remove the case closure screw.
- Insert a screwdriver in the bottom recess of the base, to separate the base from the keypad assembly.
- Place the base on the installation surface, mark points, drill the holes and insert plastic anchors, if necessary.
- Fit the base into the rubber gasket and use the 3 mounting screws to attach the base and gasket to the selected surface.

Important: The Tamper switch is activated when the TIAB control unit's front cover is removed or when the base is forcibly pulled from the mounting surface, which causes tamper switch tab to break (see figure 4). It is therefore especially important to firmly attach this tab to the wall with a long screw.

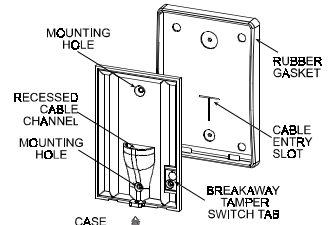


Figure 4 - Base and Rear Sealing Gasket

4. WIRING INSTRUCTIONS FOR ACCESS CONTROL

4.1 Wiring Gauges and Routing

Use # 20 AWG or larger for connections between relay and door strike or other switching devices. All other connections can be made with # 22 AWG or larger. Route the wires through the slot in the rubber sealing gasket (see figure 4) and the recessed entry channel in the TIAB control unit base. Verify that there is no contact between uninsulated wires and the printed circuit board.

4.2 Wiring Instructions

The connections to the TIAB terminal block are shown in fig. 5.

- Connect one lead of the door strike to one of the hardware (door strike) power supply terminals. Connect the other lead of the door strike to terminal No. 10 (N.O.) of the TIAB.

Note: If you are using a magnetic door lock, connect one of the leads to one of the hardware power supply terminals. Connect the other lead to terminal No. 11 (N.C.) of the TIAB.
- Connect the other terminal of the power supply to terminal 12 (COM).
- Connect the TIAB power supply leads between terminals 8 (+) and 9 (-). When using DC power supply, verify proper polarity. When using AC power supply, disregard polarity.
- Connect the optional remote **Request-To-Exit** push-button (N.O.) or PIR motion detector contacts (N.O.) between terminals 3 and 2.

Note: For the external reader wiring and mounting instructions, refer to the external reader installation instructions.

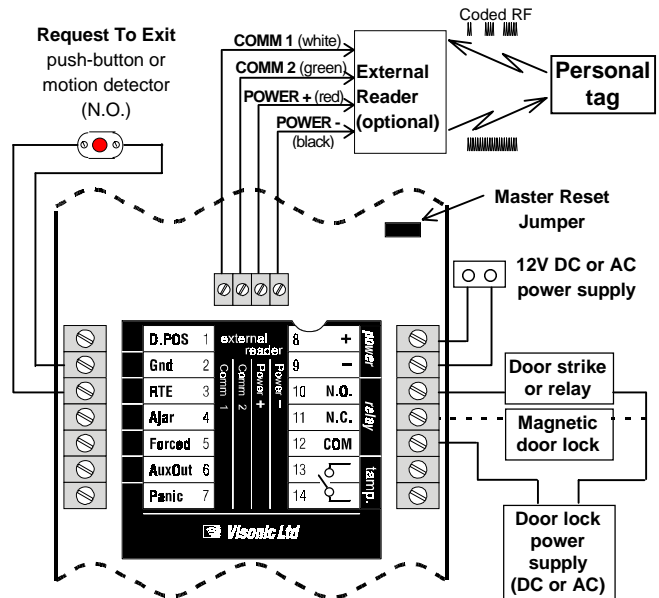


Figure 5 - Wiring Diagram for Access Control

5. WIRING FOR INTEGRATION WITH AN ALARM SYSTEM

The integration with an alarm system is shown in figure 6.

- Perform steps A to D in section 4.2.
- Connect the **Panic** output (terminal 7), **AuxOut** output (terminal 6), **Door Ajar** output (terminal 4) and **Forced Entry** output (terminal 5) to the appropriate zone of the alarm system, or to any other indication (relay, LED, buzzer, etc.). These outputs are of the open collector type (see figure 7).
- Connect the Ground (terminal 2) to the alarm system ground terminal.
- Connect the Tamper terminals (13 & 14) to a 24-hour zone of the alarm system.
- Connect the optional Door Position detector (N.C. magnetic switch), between terminals 1 and 2.

Caution!

When operating the TIAB control unit by AC power, disregard polarity, but note that external buzzers (which are connected to the **AuxOut** or **Panic** outputs) require a separate DC power supply, as shown in figure 8.

Table 2. TIAB control unit terminals Assignments

Terminal	Description	Terminal	Description
1	Door Position input	8	+ V power supply
2	Ground output	9	- V power supply
3	Request-To-Exit input	10	Output relay N.O.
4	Door Ajar output	11	Output relay N.C.
5	Forced Entry output	12	Output relay COM
6	Auxiliary output	13	Tamper Switch
7	Panic output	14	Tamper Switch

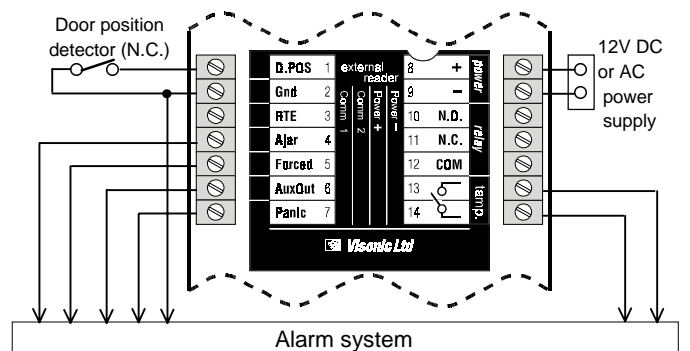


Figure 6 - Wiring Diagram for Integration with an Alarm System

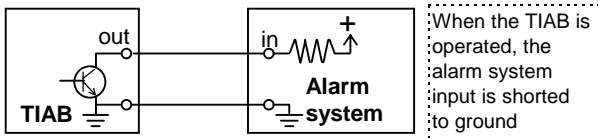


Figure 7 - "Open collector" Output Connection to an Alarm System

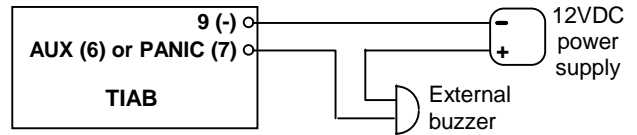


Figure 8 - External Buzzer Connections to AuxOut or Panic Output When TIAB is Powered by AC Power Supply

6. PROGRAMMING

6.1 General Description

The TIAB control unit recognizes a single 4-digit **master code** which is used for all programming modes. This code accompanies a tag which is defined as the master tag.

Programming changes can be made as many times as necessary, but for security reasons this operation is restricted to the master tag holder.

Important:

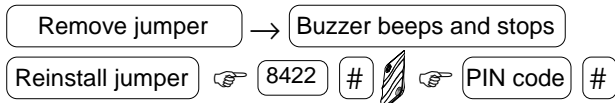
1. The person in charge must have an updated list which includes up to 250 tags holders names and the PIN code assigned to each of the tags. The table attached to the TIAB User Guide may be used.
2. The master tag must be kept in a secure place!

Changing an existing code requires that the existing code be deleted first and a new code may than keyed in at the same memory address.

Note: The TIAB control unit reverts to normal mode after a 30 second non-activity timeout, or if "*" is pressed.

While waiting for the programmer's selection, the internal buzzer continuously sounds short beeps.

6.2 Master Tag Programming



Important! The TIAB control unit does NOT operate unless a valid master tag and master code have been programmed.

- A. Remove the Master Reset Jumper (fig. 5). The TIAB buzzer will start beeping.
- B. After the buzzer stops beeping, the jumper must be re-installed and the master code "8422" should be keyed in, followed by pressing "#", within 10 seconds. As a result, the TIAB control unit goes into ADD mode automatically (blinking green LED) and displays the master code memory address - flashing "00".
- C. Place the tag, assigned as the master tag, within range of the keypad. The buzzer will beep twice and the display will show "Cd" (Code).
- D. Key in the desired master PIN code (4 digits) and then press "#". The programming of the master tag code is completed and the unit returns to normal position.

6.3 Entering / Exiting Programming Mode

Note: For any programming, the master tag and PIN code are always required, regardless of security level setting.

Entering the Programming Mode

Hold the master tag near the keyboard for at least 10 seconds. After receiving an acknowledge signal from the buzzer, key in your master tag PIN code (4 digits). "Pr" (Programming) will blink in the display.



Exiting the Programming Mode

Press "*" to exit any of the programming mode options into the main programming mode. Press "*" again to quit the main programming mode and revert to normal operation.

TIAB's Programming Modes Description

Mode	Mode Name	Functions	Indicator
1	ADD (tags)	Adding user tag	Green
2	SHOW (codes)	Viewing users codes	Red
3	DELETE (tags)	Deleting user tags	Yellow
4	SETUP	Modifying system parameters	All LEDs

6.4 Adding User Tags

Security level 1: "Pr" mode → 1 → #

Security level 2: "Pr" mode → 1 → # → PIN code → #

For detailed description, refer to the user's guide, section 3.1.

6.5 Reviewing User Tags

"Pr" mode → 2

For detailed description, refer to the user's guide section 3.2.

6.6 Deleting an Existing User Tag

"Pr" mode → 3 → # → #

or

"Pr" mode → 3 → TAG Address → # → # → #

For detailed description, refer to the user's guide section 3.3.

Note: Deleting information in address 000 invalidates the master tag. For re-programming the master tag, refer to section 6.2.

6.7 Setup Mode

Setup mode enables to determine how the TIAB reacts in various situations. In programming mode ("Pr" is displayed) press "4" to select the functions setup mode. All the 3 LED's continuously blink and the display is blank. In this state, the installer can select one of seven functions to modify the setup, as detailed in the function setup table.

Programming steps in the SETUP mode:

"Pr" mode → 4 → Function 1-7 → # → New value → #

1. Press the number that corresponds to the desired function (1-7).
2. The TIAB control unit displays the two letters corresponding to the function (see functions setup table).
3. Press "#" to enter the functions selection mode.
The TIAB control unit displays the current value for the selected function.
4. To accept the existing value, press "#". To return to the function setup selection, press "*". To change the existing value, enter the new value followed by pressing "#".

Table 3 - Function Setup Table

Function	Description	Enter	Default	Display
1	Door unlock duration or toggle mode. (See note 3)	01-98 (Seconds) 99 = toggle mode	05 seconds	UL
2	Door Position input. Set Door Ajar alarm timeout of opened door to 01-99 seconds or disable (00). (see note 6)	01-99 (seconds) 00= disable door input	00	dP
3	Auxiliary Output. (notes 1,6). (See table 4)	0 - 7	0	AO
4	Ambush Digit - Fifth digit entered after PIN code for signaling duress situation. (Notes 2,6)	0-9 00= disable	00	Ad
5	Security Level (notes 4, 5) 1 = No PIN code required. 2 = PIN code is required.	1 or 2	1	SL
6	Buzzer feedback control. 0=No buzzer feedback. 1= Buzzer beeps when button is pressed.	0 or 1	1	bU
7	Buzzer's Indication that the door is opened. 0 = No buzzer operation. 1 = Buzzer beeps when door is opened.	0 or 1	0	Ob

Notes:

1. If the Auxiliary output is enabled, it operates for all tags.
2. Ambush Digit is applicable for security level 2: Ambush Digit is the fifth digit added to the user PIN code. If the user is forced

to enter under threat, pressing the Ambush digit after the last digit of the PIN code activates the Panic output.

3. In the Toggle mode, presenting a valid tag/code turns the output on and presenting it again turns the output off.
4. When selecting security level 1 (no PIN code required) it is still possible to enter a PIN code for each tag, during programming. However, in normal operation the TIAB will not prompt the user for the PIN code.
5. Selecting security level 1 does not affect the master tag. The master tag always requires a PIN code.
6. Disabling a function, by pressing 00, will show -- on the display.

Table 4 - Auxiliary Output Modes:

Setting	Auxiliary Output Description
0	Disabled.
1	Triggered for 1 second.
2	Toggled (latch/unlatch).
3	Operated together with relay timer (function 1), but stays on for 5 seconds more. If toggle mode has been selected (setup function 1 - see table 3), the Auxiliary output does not change state each time the relay is toggled.
4	Latches when a valid tag is presented and resets by pressing "*".
5	Turns on for 10 seconds, by pressing any button.
6	Triggered after 3 consecutive invalid keys are presented or 3 consecutive invalid PINs are entered. The output is triggered once a second for 10 minutes and may be reset only by entering a user code no sooner than 30 seconds after being tripped.
7	Turned on by pressing "1" and "3" simultaneously.

7. SYSTEM NORMAL OPERATION AND FUNCTIONAL TEST

7.1 Normal Operation

Normal operation is the mode in which when a valid tag is presented to the reader (in security level 2, followed by valid user PIN), the doors lock is opened.

The TIAB control unit can use the internal reader or an optional external reader to read proximity tags.

Pressing "*" and "#" simultaneously causes the Panic output to be activated for 5 seconds. In this case, the buzzer does not beep.

The LEDs functions in normal operation are summarized in the next table.

LEDs functions in normal operation

LED	Function
GREEN	Indicates that the door is opened.
RED	Indicates that an invalid tag was presented or an invalid PIN was entered.
YELLOW	Remains lit to indicate that the power is on. In security level 2, blinks after a tag is accepted, to prompt the user for PIN.

Time Out

A delay of more than 5 seconds, between presenting a tag and starting to key user PIN code, or between any two digits, cancels the operation.

If you enter three consecutive wrong codes, the TIAB control unit will be disabled for 30 seconds and the buzzer will beep quickly.

7.2 System Functional Test

1. Supply power to the TIAB control unit and verify that the yellow LED lights continuously, to indicate that the power is ON.
2. Enter the TEST mode (as described in section 4 of user's guide) and verify proper functions of the TIAB keypad, display and buzzer.

For security level 1 only

3. Present a valid tag at a distance of 50 - 100 mm (2 - 4 in.) from the keypad (or external reader) and verify that all the functions are performed as programmed. Verify also that when the door is opened the green LED is illuminated.
4. Verify that when an invalid tag is presented to the reader the door is not opened and the red LED is illuminates.

For security level 2 only

5. Present valid tag at distance of 50 - 100 mm (2 - 4 in.) from the keypad (or external reader), key in the PIN code and verify the proper response, as described in step 3.
6. Verify that the yellow LED light starts blinking after tag presentation, to prompt the user to enter PIN code.
7. Enter the user code followed by the ambush digit. The PANIC output should be activated.
8. Verify that an invalid tag, an invalid code, or both, do not open the door and that the red LED illuminates.

For both security levels

9. Verify that all the user tags enable the opening of the door.
10. Verify that pressing "*" and "#" simultaneously activates the panic output for 5 seconds.



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