

1 Introduction

AN02RCP - "TRIGGER ANTENNA W/BUILT-IN RECEIVER"

CDVI Pass System

The CDVI Pass is a hands-free radio system for the access control of persons and vehicles, based on radio active tags. The system can be composed by 2 or 3 devices : one or more active tags and one trigger antenna with built-in receiver or trigger antenna and stand-alone receiver. It finds application in domestic, public, residential and industrial environment, both for personal and vehicular use. The users or the vehicles carrying the active card and standing in the detection zone of the trigger antenna, are identified and the serial number of the tag is then transmitted via radio to the receiver (built-in or stand alone), which, at its turn, sends the information to any access control system, through a wiegand line.



Fig. 1

AN02RCP

The trigger antenna AN02RCP transmits periodically a trigger signal (with a period of 0,5 - 2,4 Sec) at 125 KHz, with a predefined pattern, that awakes the active cards standing in the detection zone [0,3 - 6 m].

Once awakened, the card, at its turn, sends a signal at 433,92 MHz to the built-in receiver of the antenna.

The receiver can activate directly a relay or send out on the bus wiegand the s/n of the tag, that can be managed by a further access control system.

The memory of the built-in receiver can hold up to 500 cards.

A 10-position rotary switch allows to identify each antenna with a unique number, included in the wiegand protocol (26,30 or 44 bits) Each antenna can even be enabled by an external PIR (not provided).

CDVI PASS RANGE

Type	P/N	Description
AN01RCP	F0103000139	TRIGGER ANTENNA W/BUILT-IN RECEIVER
AN02RCP	F0103000138	TRIGGER ANTENNA LOW RANGE W/BUILT-IN RECEIVER
AN02CP	F0103000123	TRIGGER ANTENNA LOW RANGE
ATCP	F0103000120	ACTIVE TAG CDVI PASS
RXCP	F0103000121	RECEIVER CDVI PASS
MBCP	F0103000122	BACKUP MEMORY CDVI PASS

2 Mounting

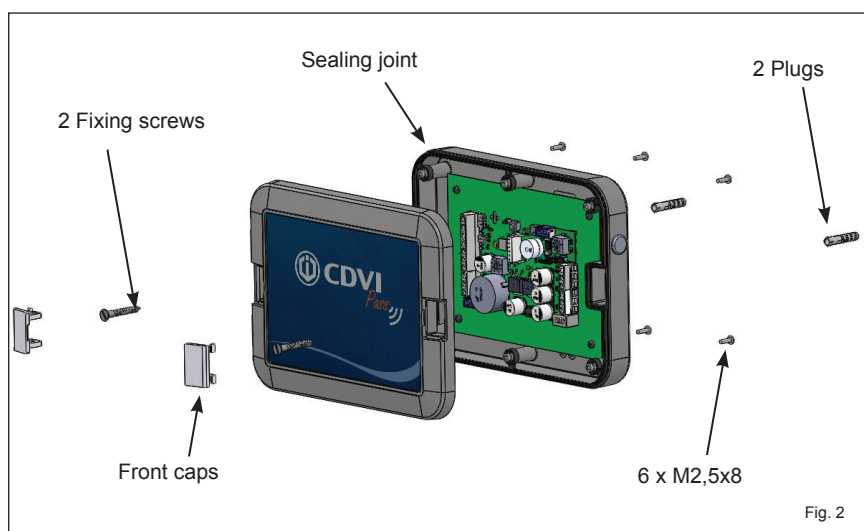


Fig. 2

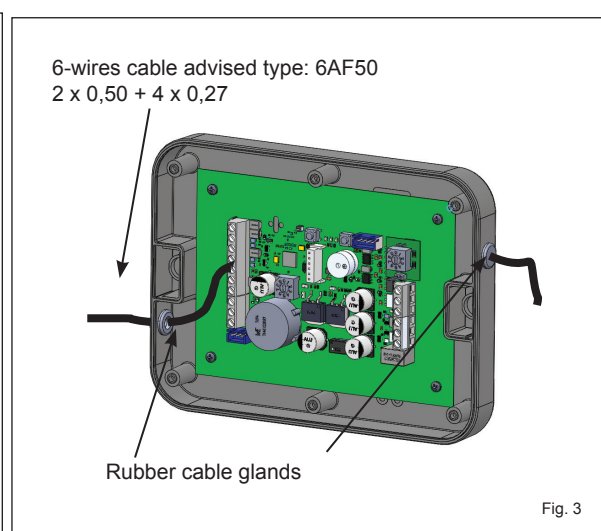


Fig. 3

3 Technical specifications

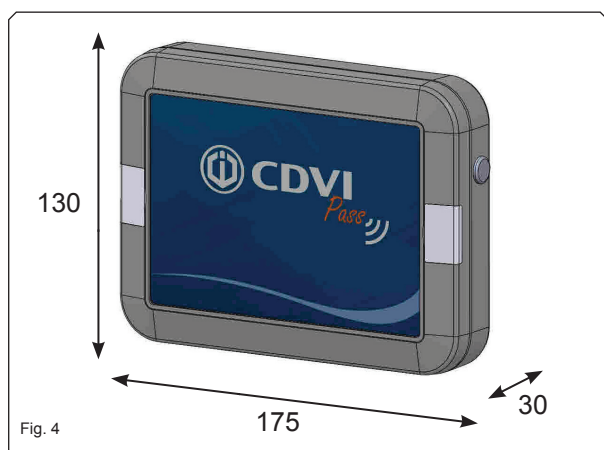


Fig. 4

Transmitting trigger frequency.....	125 KHz
Receiver operating frequency.....	433,92 MHz
Demodulation	AM/ASK
Range in open space.....	0,5 - 6 m
Power supply	24 Vdc
Current consumption (average).....	60 mA (PIR excluded)
Peak current consumption.....	1 A
Operating temperature	-30 ÷ +70°C
Enclosure IP protection	IP67
Dimensions.....	175 x 130 x 30 mm
Weight	200 gr.
N° of code combinations	10
Synchronization period.....	0,5 - 2 Sec
N° of synchronized aeriels.....	4 (max)
Max output current for ext. PIR.....	100 mA
Memory dimension	500 S/N

Detection range

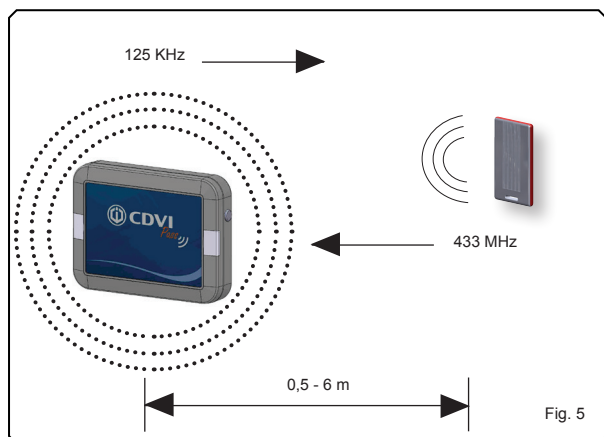


Fig. 5

Further operating details

Each single transmission lasts 34 ms.

External inputs allow synchronization with other antennas (up to 4). When sync-in and sync-out are left open, the gap between two transmissions is 2.4 Sec. When shorted, it is reduced to 500ms. The enable input handles the transmission. Before each transmission, the system controls this input and if it is left open, the transmission is inhibited.

Additionally, inputs for two PIR sensors are provided (internal and external) to enable the antenna only in presence of movement.

4 Detection adjustment

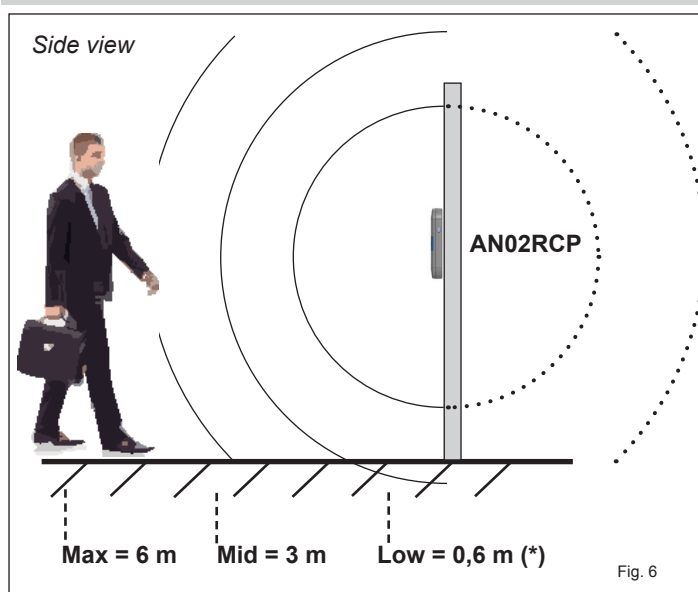


Fig. 6

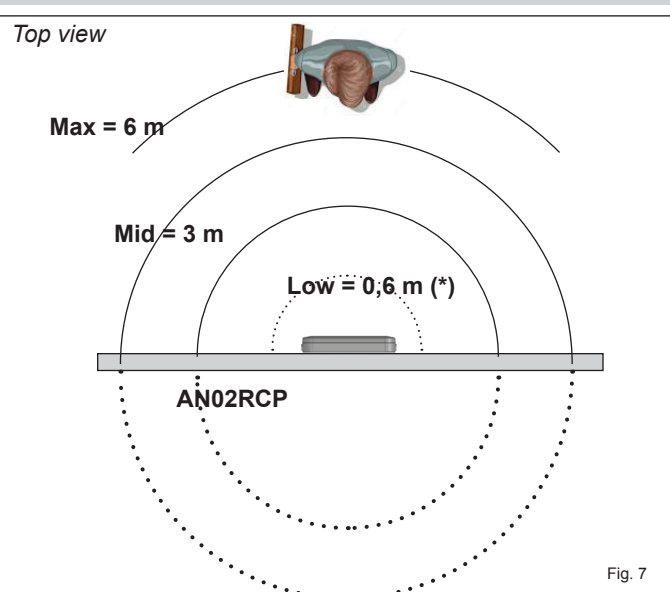


Fig. 7

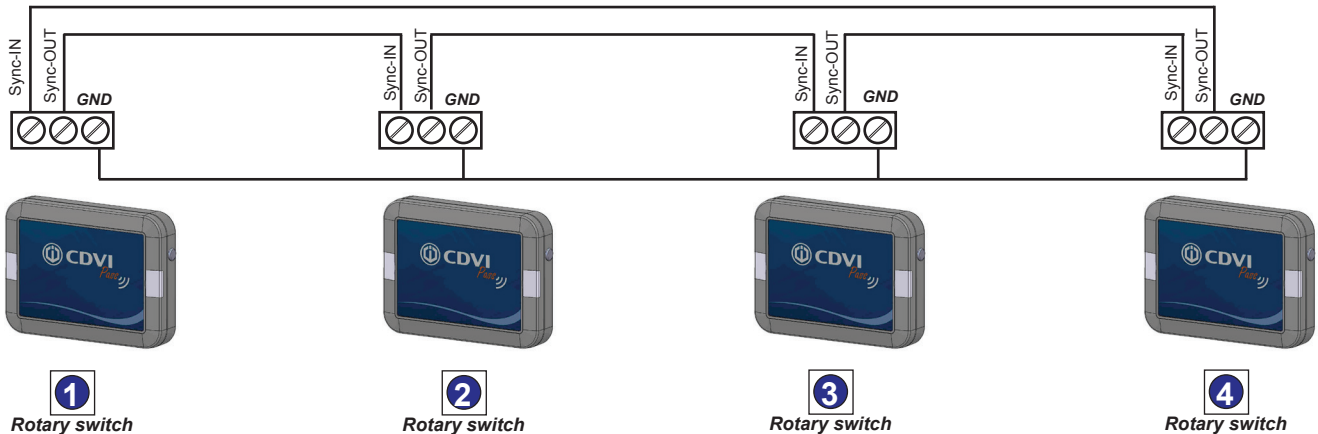
The electromagnetic field created by the antenna has roughly spherical as shown above, both on the horizontal plane and in the vertical plane like indicated above. The emissions are present even behind the antenna, slightly attenuated if the fixing wall is thick

7 Synchronization

If there are 4 entrances at short distance (less than 6 m), to avoid mutual interferences, it is recommended to use the synchronism signal, that enables each aerial sequentially. Up to 4 aerals are allowed. The synchronism signal enables the transmission of each aerial every 500 mS.

If this function is not used the SYNC-IN terminal must be shorted to GND otherwise the repetition period becomes 2 Sec.

Set the rotary switch of each aerial to a different number (see example below)



NOTE 1: It is important to set different ID numbers on aerals located on the same site (synchronized or not).

Encoding numbers allowed : from 0 to 9

Factory setting : 0.

The Id Number of the antenna makes part of the train of bits sent by the active tag and received by the corresponding receiver.

In case of wiegand output, the Id of the antenna is the 8 bits MSB of the output.

8 External Sensor & Enable Input

The RF transmission of the antenna can be triggered by an external device (as a radar, a PIR sensor, a IR sensor, etc.) with Open-collector output.

The external PIR triggers the transmission only if the signal ENABLE (C-NC) is open.

If not used, the Enable signal must short to GND !

The ENABLE signal can connected to any external device (as a timer, with C-NC dry contacts) that stops the transmission when the contacts open.

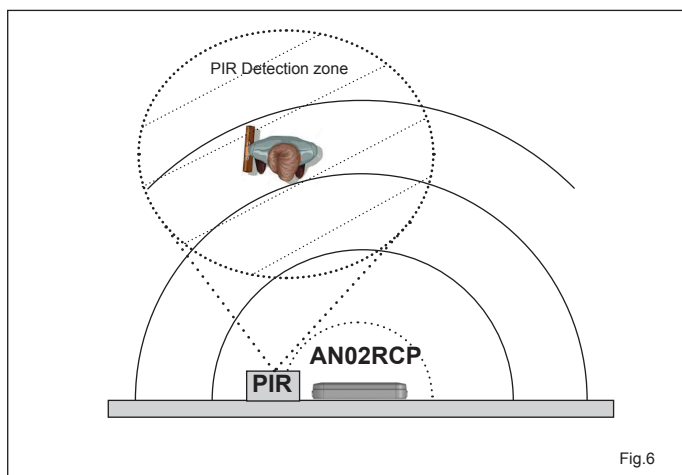
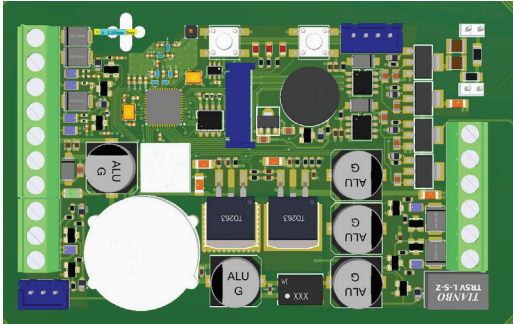


Fig.6

In this configuration the signal at 125 KHz, emitted by the antenna is enabled only when the user stands in the detection field of the sensor (PIR or any type IR or whatever).

9 Getting started

Once completed the mechanical fixing and the wiring of the power supply and the I/O, the antenna must be configured to operate in the proper mode.



Legenda :

P1: Exit menu / Reset all

P2: Enter menu / Confirm / Change mode

SW1: Select parameters (*)

LD1: On = Signal received / Show state

LD2: Blinking = ACK DISABLED / Show state

LD3: Blinking = ACK ENABLED / Show state

J1/J2: Range adjustment

Enter the programming mode menu pushing **P2** for **2 sec (beep)**.

Select the function using **SW1** (See table below).

Push **P2** for **1 sec** to confirm any choice (beep).

After 30 sec. of inactivity, the system returns to normal mode.

SW1	LD1	LD2	LD3	Function
0	OFF	OFF	OFF	Not used
1	OFF	OFF	ON	Add card Single/Block
2	OFF	ON	OFF	Delete Single card
3	OFF	ON	ON	ACK / NO ACK
4	ON	OFF	OFF	Bus Wiegand: 26, 30, 44
5	ON	OFF	ON	Bus Wiegand Delay
6	ON	ON	OFF	Relay operating mode
7	ON	ON	ON	Time between card transmissions
8	OFF	OFF	BLINK	Backup (to external memory)
9	OFF	BLINK	OFF	Restore (from external memory)

○ Led OFF

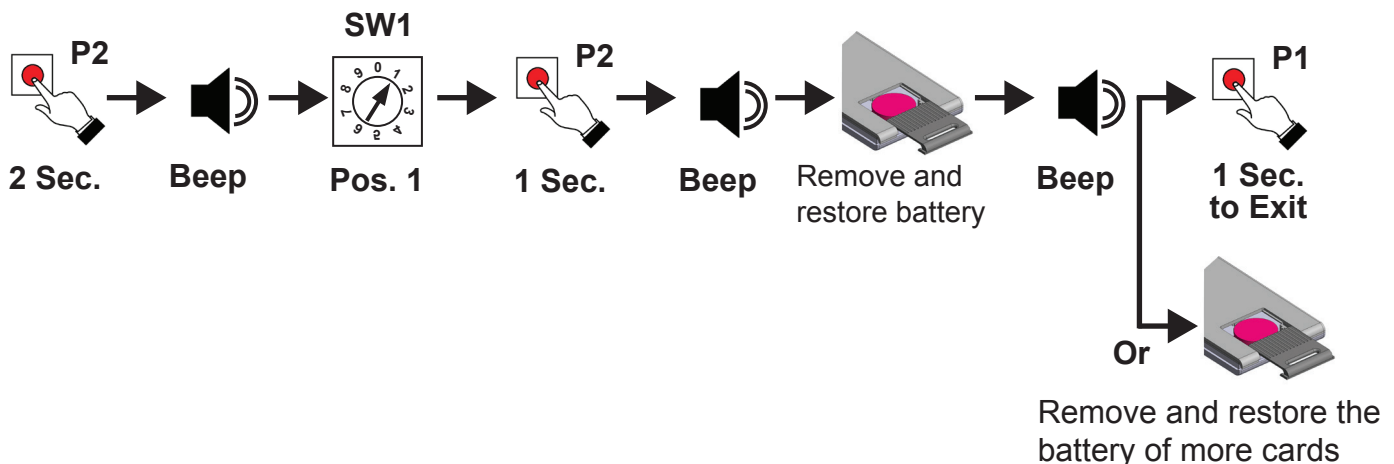
● Led ON

⦿ Led Blinking

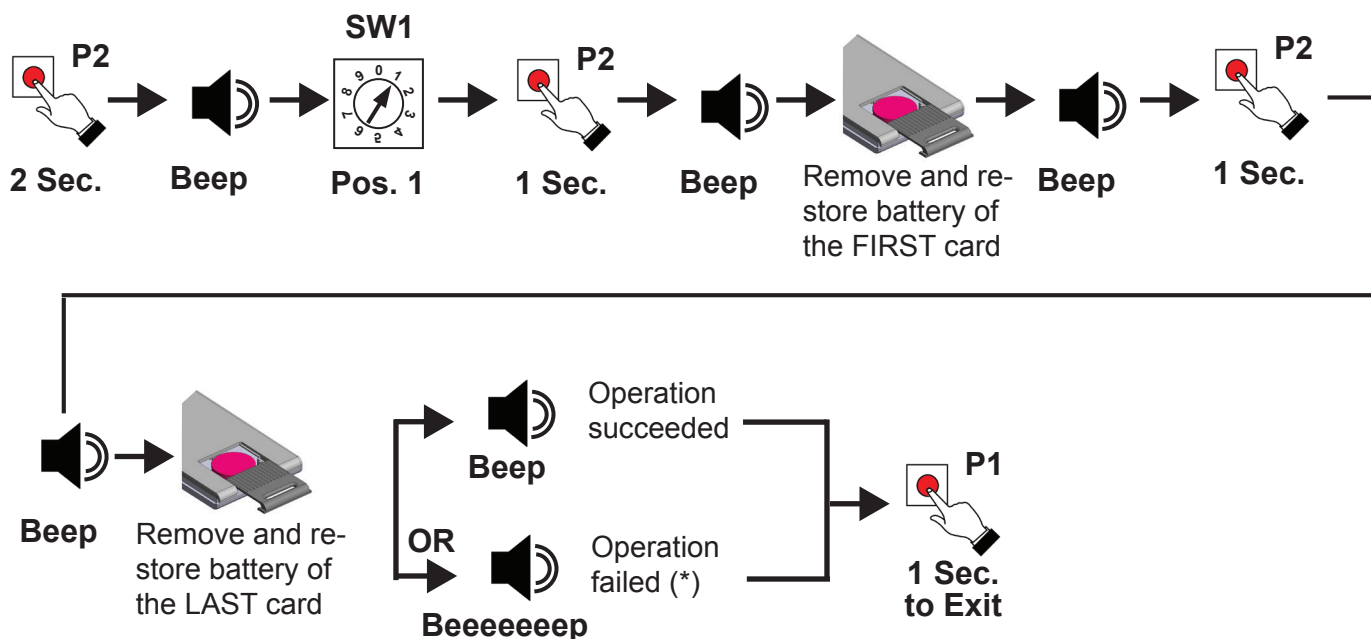
10 Add Cards [Single]

The system can memorize up to 500 active cards.

NOTE : If no cards are memorized the receiver does not make any filtering and sends out on wiegand the S/N of all the cards detected. After the memorization of one card, the wiegand output will send out only the s/n of the cards memorized.

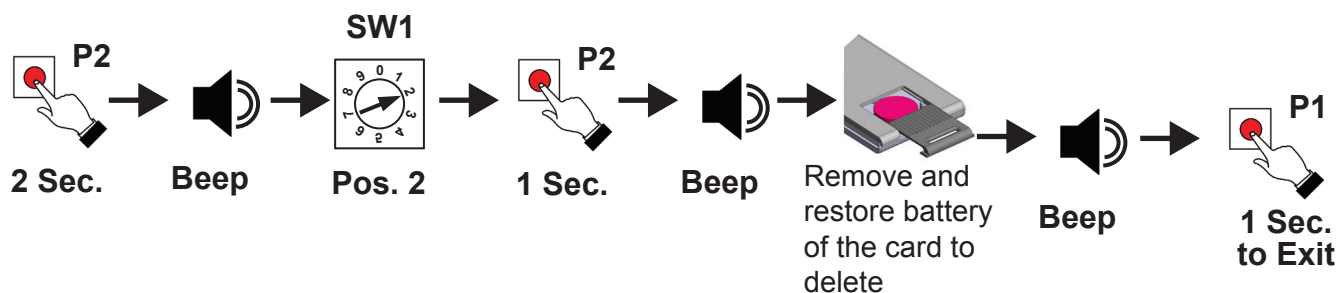


11 Add Cards [Block]



(*) : The S/N of the last card is less than the S/N of the first one.

12 Delete Card [Single]



NOTE: It is possible to delete only one card at a time.

13 ACK / NO ACK

No ACK = UNIDIRECTIONAL communication between Active-TAG and RX

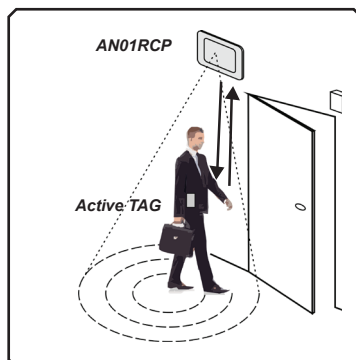
ACK = BIDIRECTIONAL communication between Active-TAG and RX = after any transmission of the tag at 433 Mhz, the receiver replies with a confirm signal that stops the further transmissions of the tag, even if standing inside the detection zone and woken by the trigger aerial.

In case of **UNIDIRECTIONAL** communication, the active tag continues to transmit its message as long as it remains in the detection zone. This happens every 500 mS if there is a single aerial or every 1 Sec., 1,5 Sec or 2 Sec. if the aerial is synchronized with others.

After any transmission of the active tag, the receiver sends on the Wiegand bus a train of bits or activates the relays.

NOTE: the communication Unidirectional or Bidirectional concerns all the tags and not each tag individually
It is possible to set the repetition period of the wiegand signal or the repetition period of the relay activation. Select this period on the submenu PERIOD of the option "NO ACK".

ACK

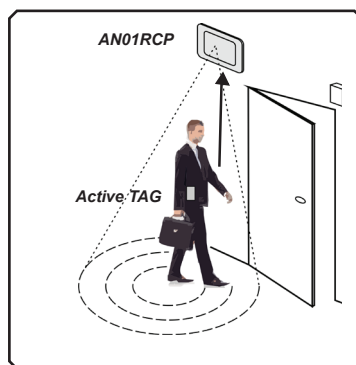


As soon as the user, carrying the active tag, enters the detection zone of 125 KHz, its tag sends a 433 MHz RF signal to the receiver which replies with a confirmation message that hushes the tag, even if it remains in the field.

To restart the transmission the tag must be carried outside the field unless for 6 sec.

System ACK	
PRO	CONS
Less battery consumption of the tag	Need to exit from the field to restart the transmission
Extended stationing of the tag inside the field	

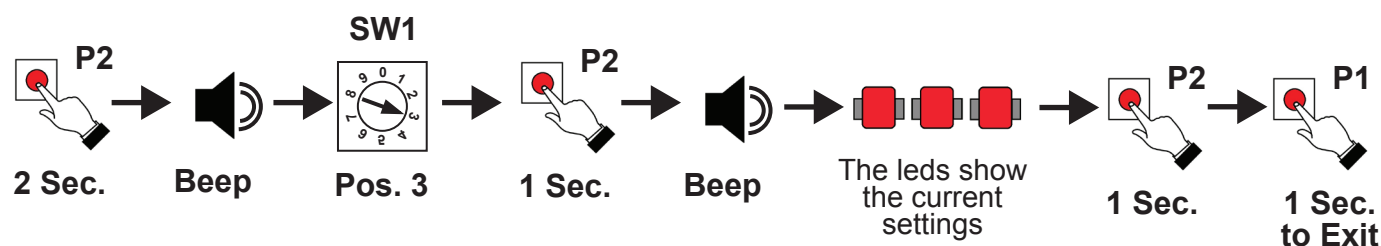
NO ACK



The active tag owned by the user, standing inside the field, continues the transmission each time it is woken by the antenna.

The re-transmission period is set by the parameter "PERIOD".

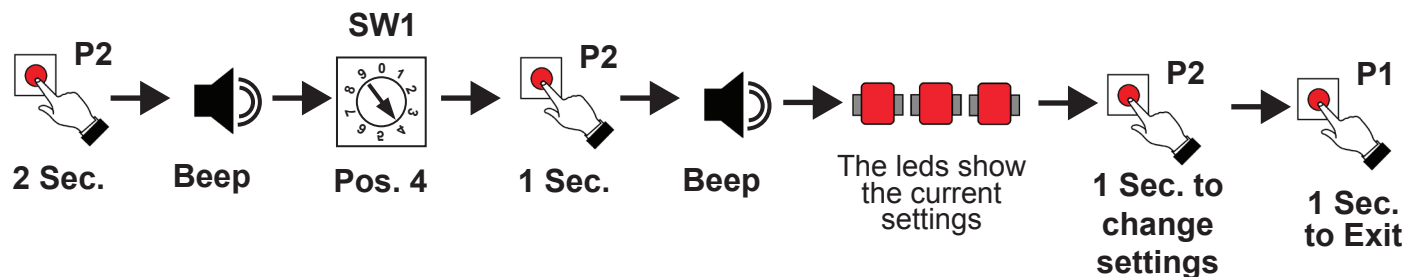
System No-ACK	
PRO	CONS
System more reactive	More battery consumption of the tag
No need to exit from the field	



LD1	LD2	LD3	State
<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	ACK (Default)
<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	NO ACK

14 Wiegand Format

Set the Wiegand output on 26, 30 or 44 bit format.



LD1	LD2	LD3	State
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	26 bit (Default)
<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	30 bit
<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	44 bit

Wiegand 26

Bit 1	Bit 2 - 25	Bit 26
Even Parity (1 bit)	[8 bit ID(**)] + [16 bit S/N]	Odd Parity (1 bit)

Wiegand 30

Bit 1	Bit 2 - 29	Bit 30
Even Parity (1 bit)	[8 bit ID(**)] + [20 bit S/N]	Odd Parity (1 bit)

Wiegand 44

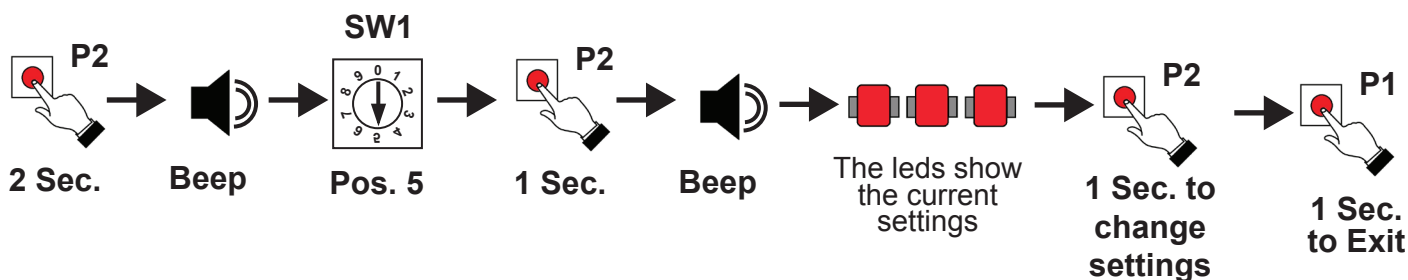
Bit 1 - 40	Bit 41 - 44
Data MSBbit First (40 bit)	LRC (*)
[8 bit ID(**)] + [32 bit S/N]	

(*) Longitudinal Redundancy Check

(**) The ID is set by SW1

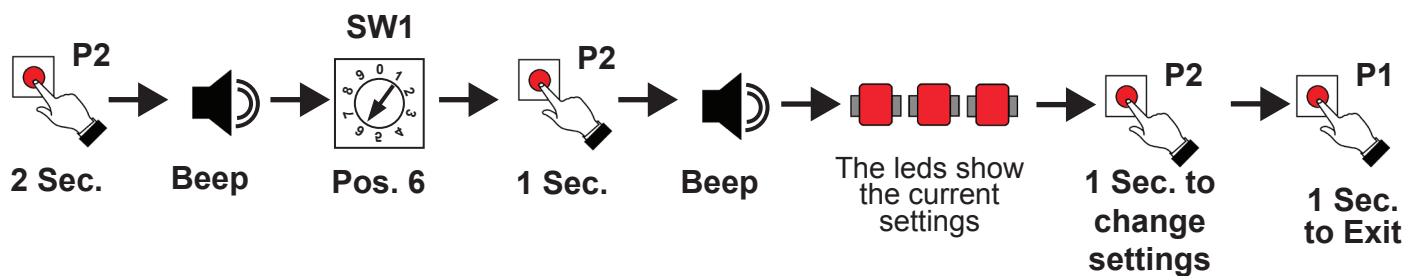
15 Bus Wiegand Delay

Sets the time between each frame on the Wiegand BUS even with different S/N. This allows to suit the best output signal of the receiver to the Access Control System connected.



LD1	LD2	LD3	Value
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	100 mS
<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	200 mS (Default)
<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	500 mS
<input type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	1 Sec.
<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	2 Sec.

16 Relay operating mode



LD1	LD2	LD3	State
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Pulse (Default)
<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	Step
<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	Timed (5s)

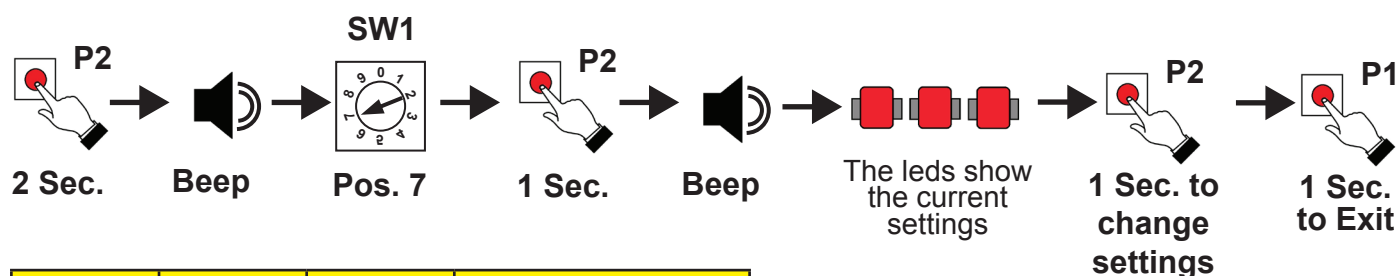
PULSE : Pulse operating (pulse time 500 mS)

STEP : Step operating

TIMED : Timed operating fixed at 5 Sec.

17 Time Between Card Transmissions

Sets the repetition period of the wiegand signal in NO-ACK configuration, if the user, holding the card, remains in the detection field.



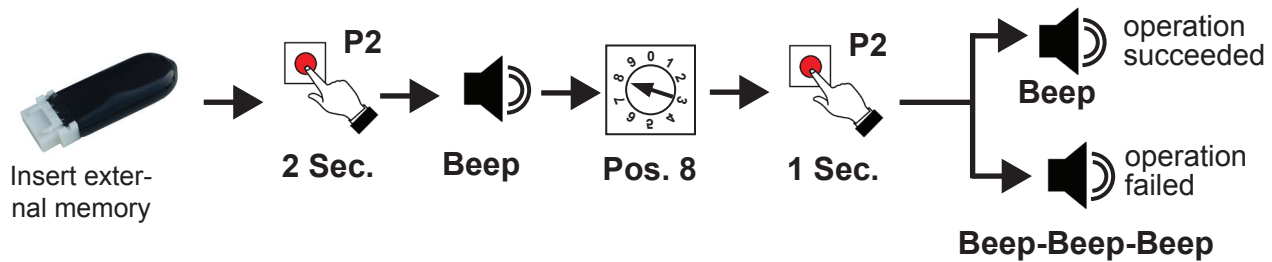
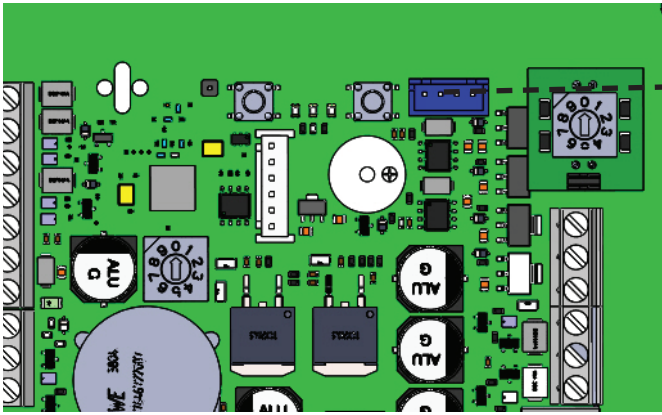
LD1	LD2	LD3	Interval
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	0 Sec.
<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	1 Sec. (Default)
<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	2 Sec.
<input type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	4 Sec.
<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	9 Sec.
<input checked="" type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	19 Sec.
<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	29 Sec.
<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	30 Sec.
<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	40 Sec.
<input type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	80 Sec.

If the output set is on relay, as long as the user stands in the detection field, the relay will switch each time the card is triggered by the antenna.

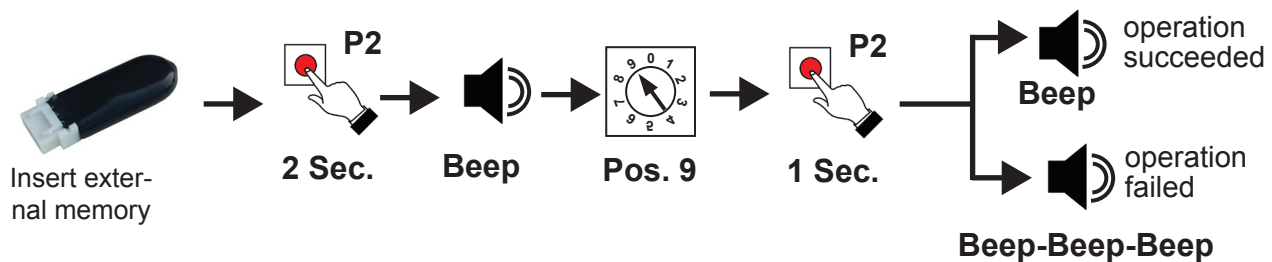
The interval time will be 500 mS if the antenna works alone and the signals Sync-in and Sync-out are shorted, or 1 Sec, 1,5 Sec. or 2 Sec. according to the number of antennas kept synchronized.

18 Backup (to external memory)

It is possible to make a copy of the receiver internal memory to an external backup memory or restore the backup data from an external memory.

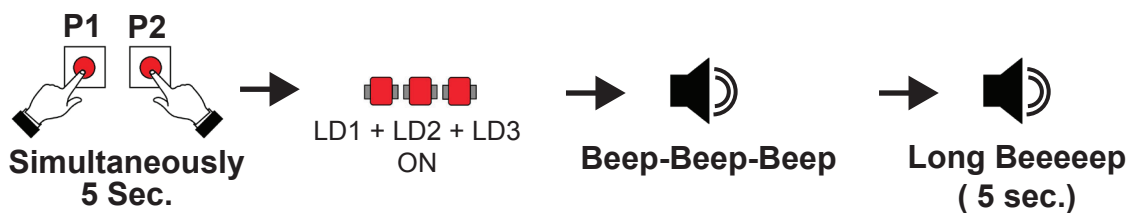


19 Restore (from external memory)

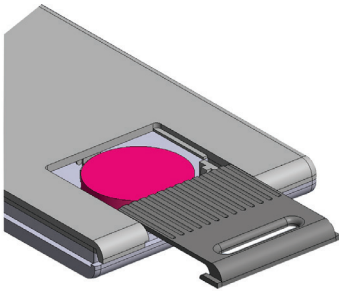


20 Restore to factory settings

Delete all the cards memorized and restore the factory settings



21 Change of the Active Tag Battery



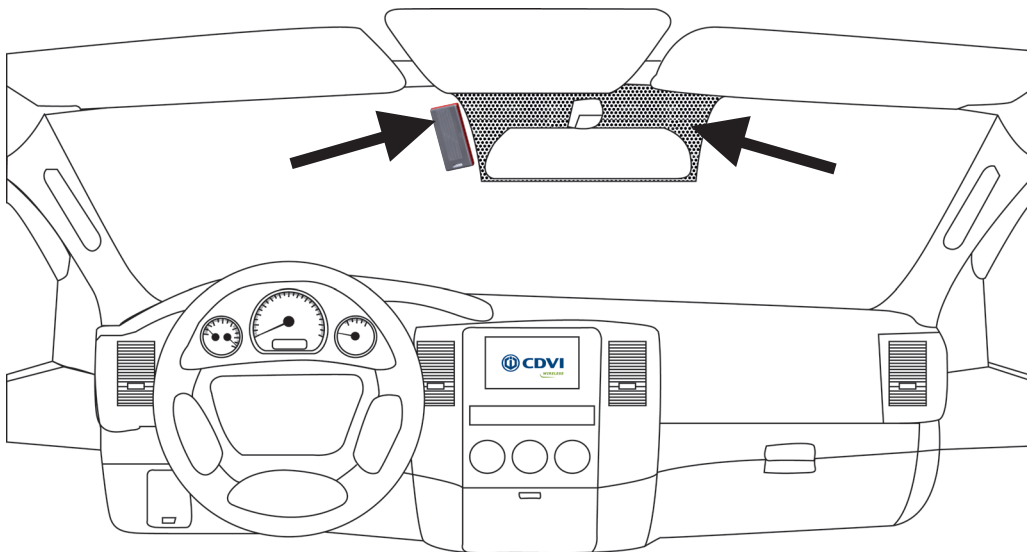
To replace the battery of the active tags, open the door by sliding it outward. Replace the coin-cell battery with an identical or equivalent: LITHIUM CR2032.

As soon as the battery is replaced the tag LED, that during normal operation is always off, makes 2 flashes and then turns off completely. During those 2 flashes, the RF signal includes a special code used to store the tag in the receiver (see. the procedure on paragraph 5.2)

Low Battery: the tag does not give any information about low battery or battery fully discharged.

As the battery charge decreases, also the range of the radio transmission decreases accordingly.

22 Fixing the Tag on the Windscreen of the car

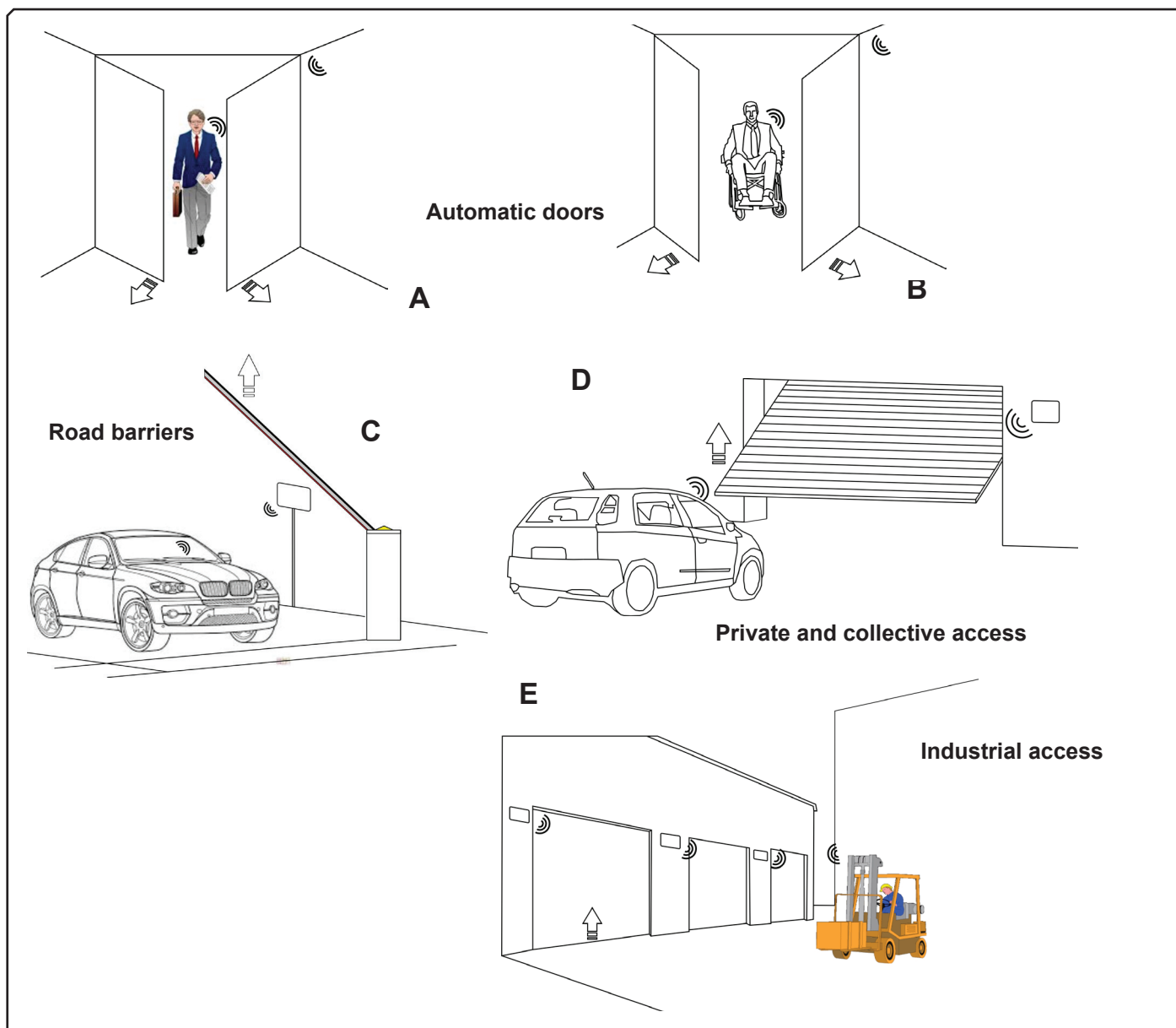


ATTENTION:

It is recommended to fix the tag on the dark zone of the windscreen, making use of the biadesive stripe provided. That zone identifies the part of the windscreen without shielding.

23

Applications



24

Declaration of Conformity

Hereby, CDVI Wireless Spa, declares that the radio equipment type AN01RCP complies with European Directive 2014/53/EU. The full text of the EU declaration of conformity is available at the following internet address: www.erone.com.

GUARANTEE

The warranty period for this product is 24 months, beginning from the manufacturer date. During this period, if the product does not work correctly, due to a defective component, the product will be repaired or substituted at our discretion. The guarantee does not cover the plastic container integrity. After-sale service is supplied at the factory.



IS-AN02RCP, Rev.2 on 13/6/2019