1 Introduction

Fig. 1

RECEIVER CDVI PASS RXCP F1001000121

The receiver RXCP makes part of the system CDVI Pass : a radio system for the access control of persons and vehicles based on radio active tags. The system is mainly composed by 3 devices : one or more active tag, one trigger antenna and one receiver. It finds application in domestic, pubblic, 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 aerial, are identified waking-up the tag, which is normally in stand-by and decoding the tag information. The serial number of the tag, that identifies uniquely the user, is then transmitted via radio to the receiver, which, at its turn, sends the information to any access control system, through a bus RS-485 or wiegand line.

2 CDVI PASS RANGE

Type	P/N	Description
KCPASS	F0103000118	KIT CDVI PASS (ANTENNA + RECEIVER + 2 ACTIVE TAGS)
AN01CP	F0103000119	TRIGGER ANTENNA CDVI PASS WITH FIXING BRACKET
AN02CP	F0103000123	TRIGGER ANTENNA LOW RANGE CDVI PASS
ATCP	F0103000120	ACTIVE TAG CDVI PASS
RXCP	F0103000121	RECEIVER CDVI PASS
MBCP	F0103000122	BACKUP MEMORY CDVI PASS
SEA433	F0103000029	TUNED ANTENNA 433 MHz

3 OPERATING DETAILS

CDVI Pass is based on an active tag equipped with a radio double technology, passive (at 125 KHz) and active (at 433,92 MHz). The active tag stays always in stand-by: when it arrives inside the aerial detection zone, it wakes-up and starts transmitting at 433,93 MHz. In this way its battery consumption is highly limited. If, whilst remaining in the detection zone, it does not move, the internal motion sensor sets it in stand-by. The wake-up signal at 125 KHz carries even a byte with the serial number of the antenna (1 - 99).Once awake, and as long as it stands in the field at 125 Khz, the tag transmits an encrypted signal with its serial number and the serial number of the antenna. The receiver decrypts the signal and extracts this information. If the output set is wiegand or RS-485, the information is sent on the wiegand bus or RS-485 line otherwise if the output is "relay" the receiver activates the relay (1 or 2) if the S/N of the tag has been authorized. In this case the receiver can drive directly a automatic closure system (gate, road barrier, door, etc..).
NOTE : The communication between the active tag and the receiver can be set as UNIDIRECTIONAL or BIDIRECTIONAL.

- In **UNIDIRECTIONAL** mode as long as the tag stands within the detection zone at 125 KHz it is woken periodically by the trigger aerial and transmits its RF signal at 433 MHz.
- In **BIDIRECTIONAL** mode after one transmission at 433 MHz, the active tag receives an acknoledgement signal from the receiver and doesn't transmit anymore, even if standing within the field, saving the battery .

If it is moved outside the active zone and remains there more then 6 sec. as soon as it comes back in the field, it transmits its RF signal at 433 Mhz again. If it is moved onto another field where is operating a trigger antenna with a different ID, it will restart immediately the signal at 433 MHz.

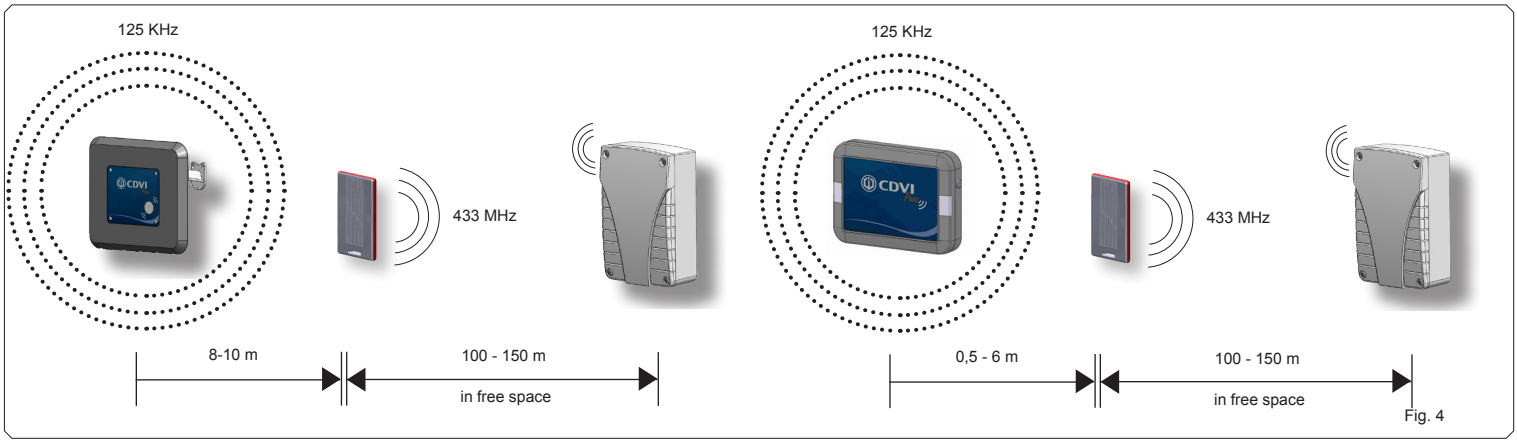


Fig. 4

Ranges using the antenna AN01CP

Ranges using the antenna AN02CP (Low range)

4 Technical specifications

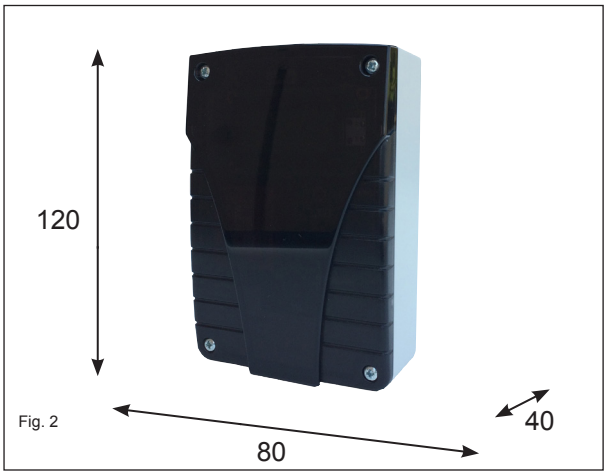
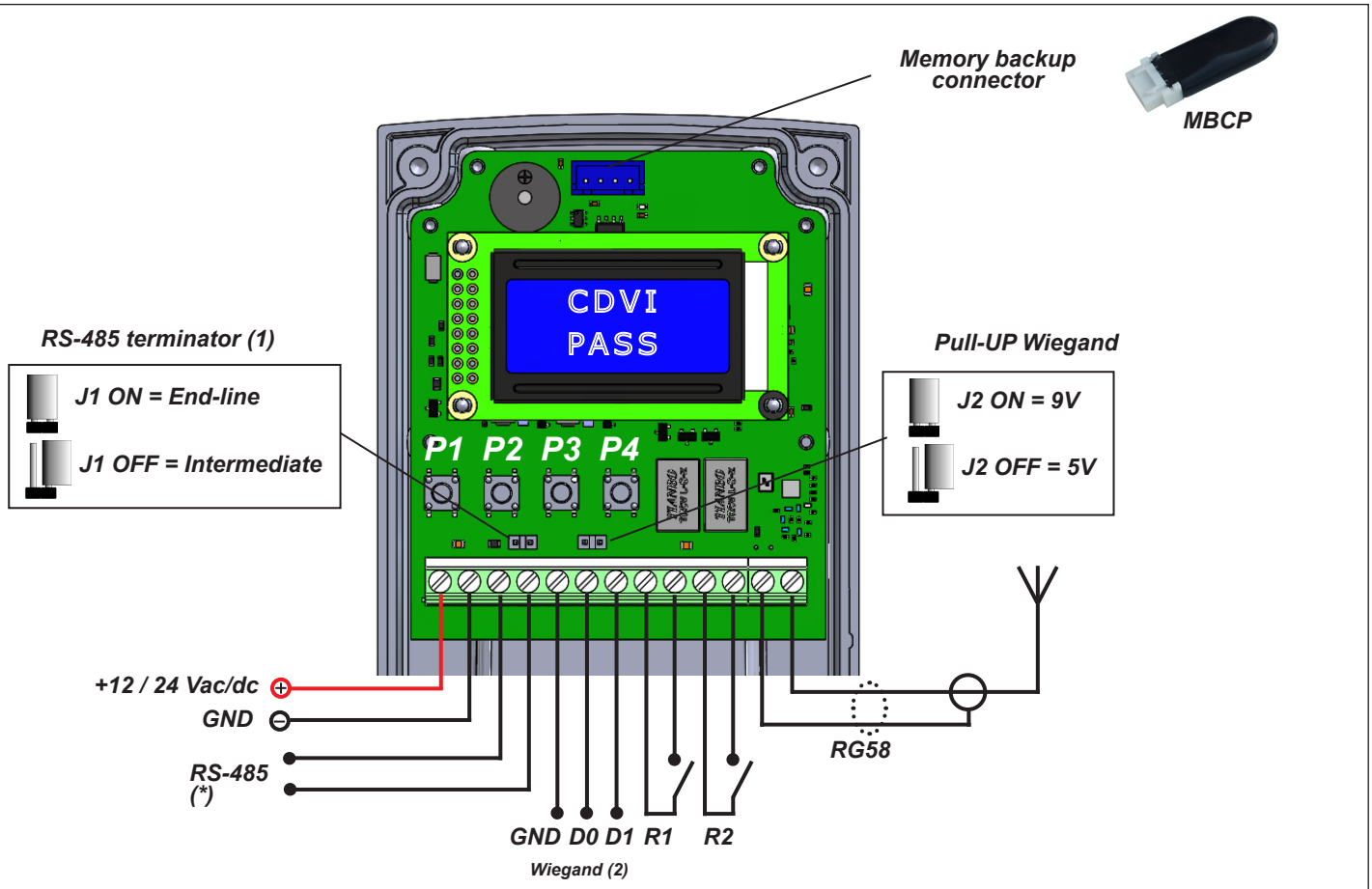


Fig. 2

Operating frequency	433,92 MHz
Demodutaion	GFSK
Sensitivity (for good signal)	-115 dBm
Power supply:	12/24 Vac/dc
Current consumption (@12 Vdc)	from 25 to 50 mA (max)
Operating temperature:	-10 ÷ +70°C
Enclosure IP protection:	IP55
Dimensions:	120 x 80 x 40 mm
Weight	65 gr.
Wiegand protocols supported	26 - 30 - 44 bit
Memory capacity	500 s/n
Relays	2 x 24 VA - 60V
Relay operating mode	pulse , step, delayed
Delay	from 1 sec. to 23h:59 min
Retransmission period over wiegand bus	from 100 mS to 2 Sec.
Relay pulse	300 mS

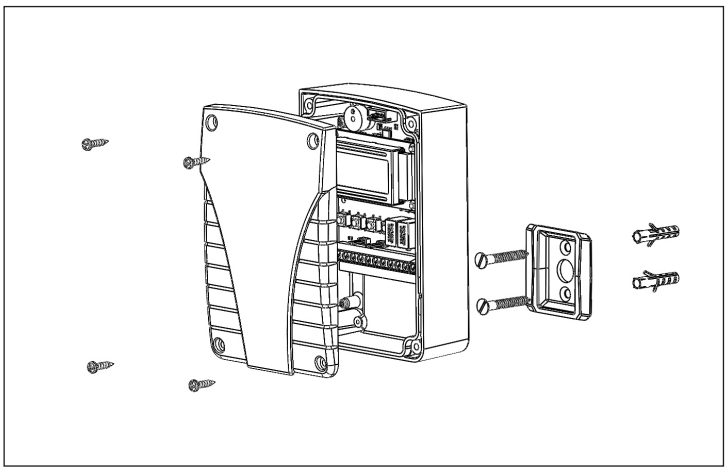
5 Layout & Wirings



(1) : J1 = ON when the receiver is located at end-line RS-485
(2) : Max distance = 50 m

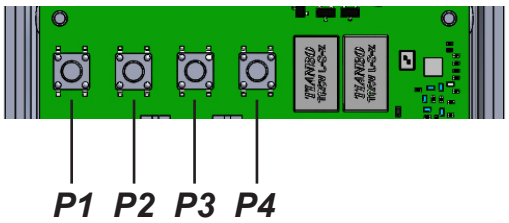
(*) : RS-485 not active yet

6 Mounting



7 PROGRAMMING THE RECEIVER

The receiver sends out the serial number of the tag (on Wiegand bus or over the RS-485) or activates the relays. the operating mode of the receiver can be set using the buttons P1, P2, P3 or P4. The push buttons have the following function:



P1 = UP
P2 = DOWN
P3 = Enter in the menu / CONFIRM
P4 = ESC (back to upper level)

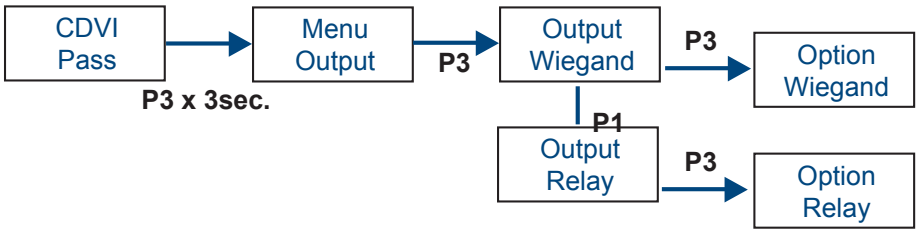
7.2 Main menu

CDVI Pass —*P3 x 4 sec.*→ Menu Output

- **Menu Output** — Select the operating output mode WIEGAND or RELAY
- **Menu Packet** — Set the communication type : UNIDIRECTIONAL or BIDIRECTIONAL and its parameters.
- **Menu Config** — Configures the architecture of the signal Wiegand (26, 30 or 44 bit), the operating mode of the relays and the output mode of the ID of the trigger aerial .
- **Menu Info** — Displays the values of the parameters.
- **Menu Add** — Add the S/N of the tags into the internal memory for the relays activation
- **Menu Delete** — Delete the S/N of the tags authorized , indivisually, or by blocks and allows to cancel the values of the parameters changed setting the receiver to factory default.
- **Menu Backup** — Saves the internal data onto an external memory or restore them from an external memory.
- **Menu Exit** — Exit from the menu.

7.3 Output

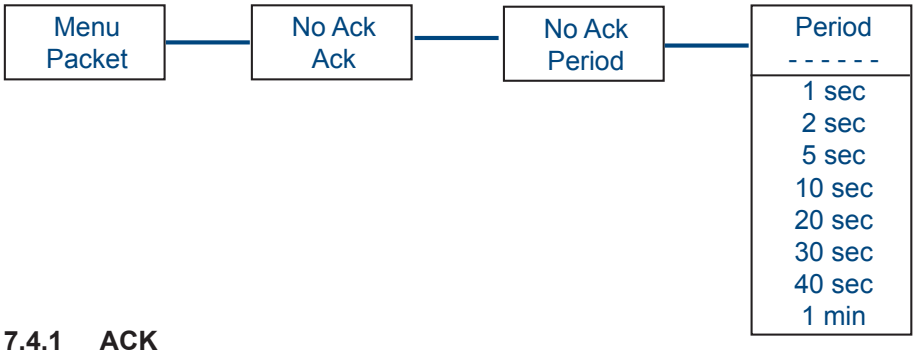
Sets the receiver output : WIEGAND or RELAY.
If you choose the WIEGAND mode, the receiver, once received a valid signal from the tag, sends out its serial number and the ID of the antenna trigger on the wiegand bus. See menu CONFIG for the settings of the wiegand protocol.
If you select RELAY mode, the receiver activates the relay1 or relay 2 according the corresponding settings. See menu CONFIG for the options of the relays.



7.4 Packet

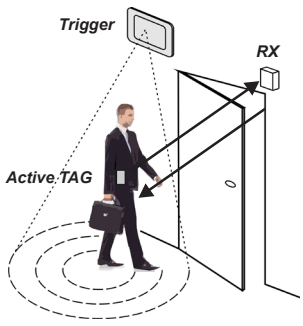
No ACK = **UNIDIRECTIONAL** communication between Active-TAG and RX
ACK = **BIDIRECTIONAL** communication between Active-TAG and RX = after any transmission of the tag at 433 Mhz, the receiver replies with a confirm signal that stop the further transmissions of the tag, even if standing inside the detection 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 PERION of the option "NO Ack".



Setting (for example) 10 Sec. as long as the tag remains in the activation zone the wiegand signal leaves every 10 Sec or the relay activates every 10 Sec.

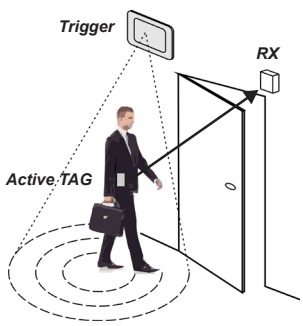
7.4.1 ACK



As soon as the user, carrying the active tag, enters the detection zone of 125 KHz, its tag emits 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	

7.4.1 NO ACK



The active tag owned by the user, standing inside the field, continues the transmission each time 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	

7.5 Config

7.5.1 Format wiegand

Set the architecture of the signal wiegand at 26, 30 or 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)

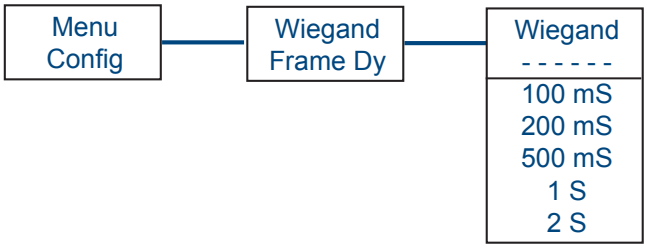
Wiegand 30

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]	

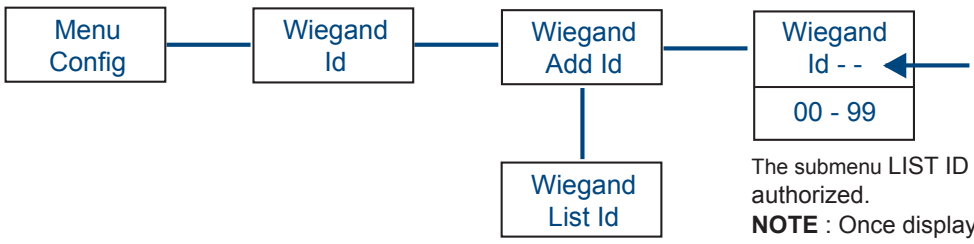
5.5.2 Frame delay



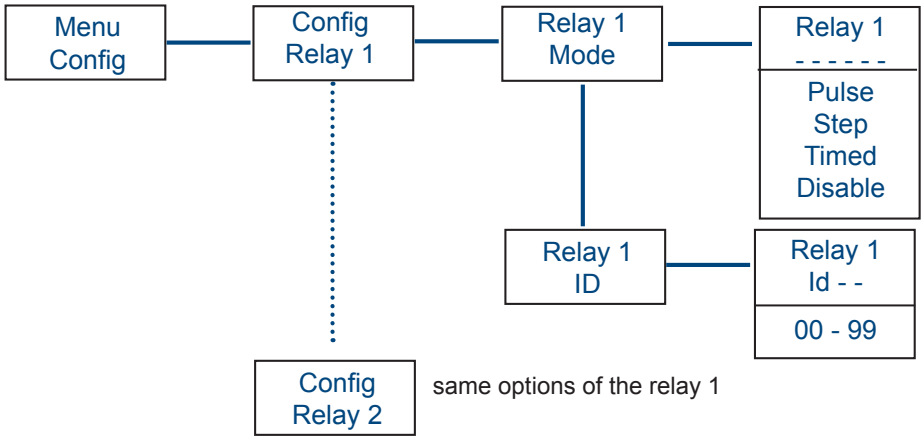
In case of more active tags presents in the detection field of the signal 125 KHz, it is possible to set the time between each frame on the Wiegand BUS. This allows to suit the best output signal of the receiver to the Access Control System connected.

7.5.3 ID aerial authorization

The signal transmitted by the active tag includes its serial number and the identification of the antenna which woke up it (ID). The wiegand protocol contains this information and is preset to transmit on the wiegand bus the value ID=00, which corresponds to the factory setting. ITo change or add other ID related to other antennas that can wake-up the active tag you can act on menu ADD
Max number of ID allowed : 30.



The submenu LIST ID allows to display the list of the ID numbers authorized.
NOTE : Once displayed the list of the authorized IDs of the system, by pressing P3 in correspondence with a given ID it is also possible to DELETE it



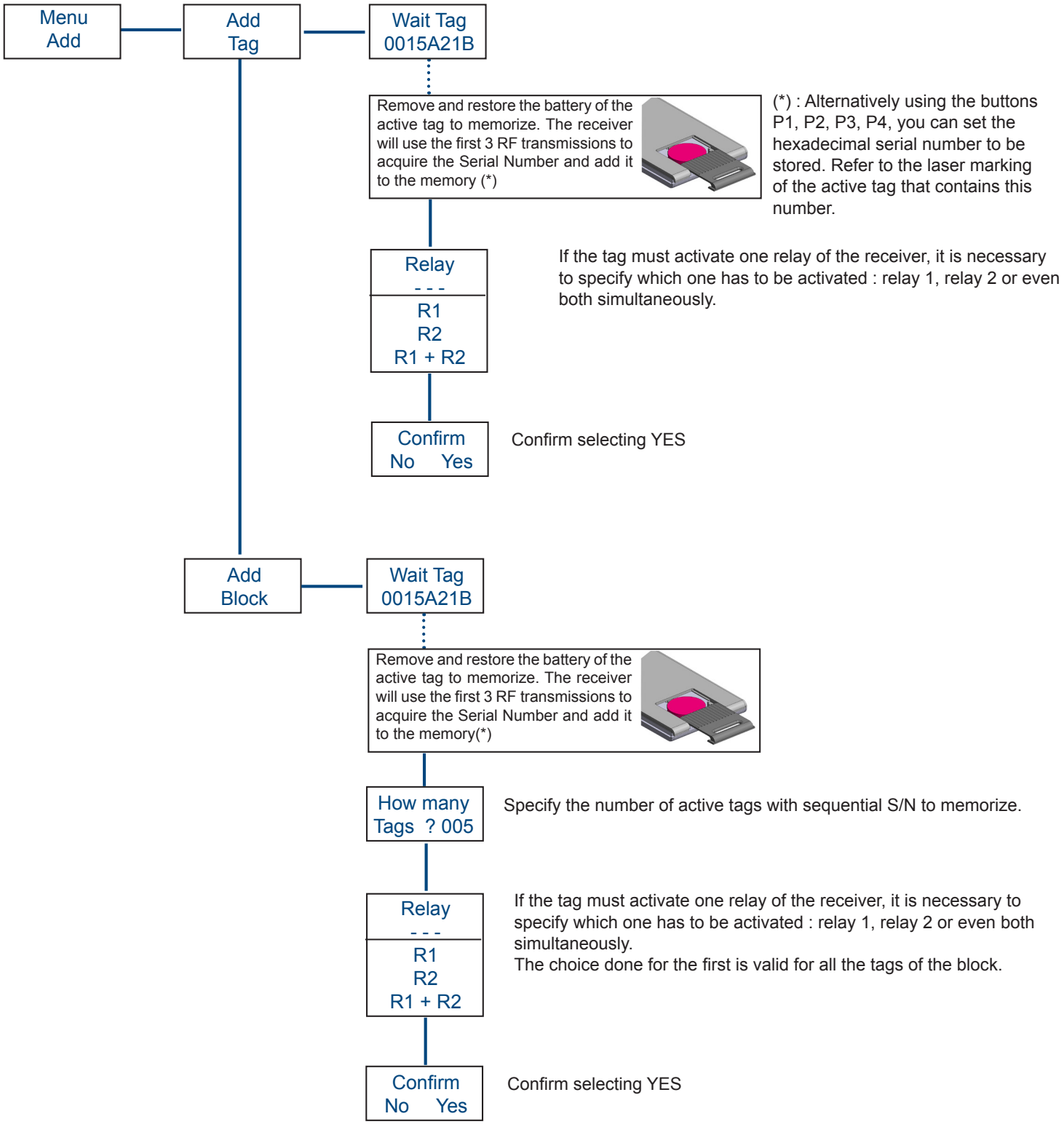
PULSE : pulse operating (pulse time 300 mS)
STEP : step operating
TIMED : Timed operating. In this case the system asks to set the delay time from 1 sec to 23h:59 min.
DISABLED: Option to disable the relay

Sets the aerial ID that excites the relay 1

same options of the relay 1

7.6 Menu Add

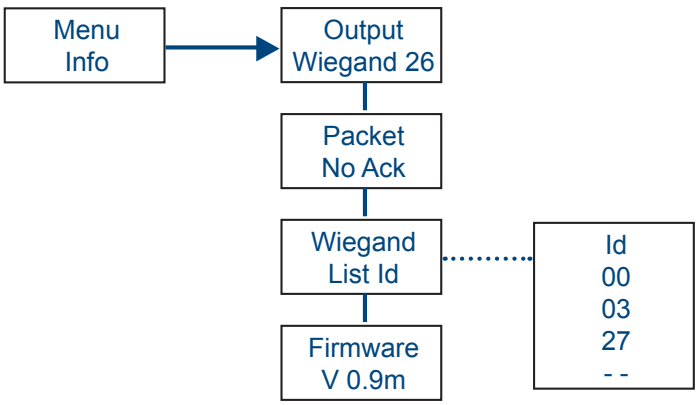
In case of wiegand output, the receiver forwards on the wiegand bus the Id number of the antenna and the serial number of the active tag.
In case of relay output the receiver activates the relays (relay 1 or relay 2 or both) if it receives data from active tags memorized (up to 500). For this reason it is necessary to memorize the tags authorized.
The memorization can be done via RF individually or by blocks, either in automatic mode or dialing the single digits of the tag.



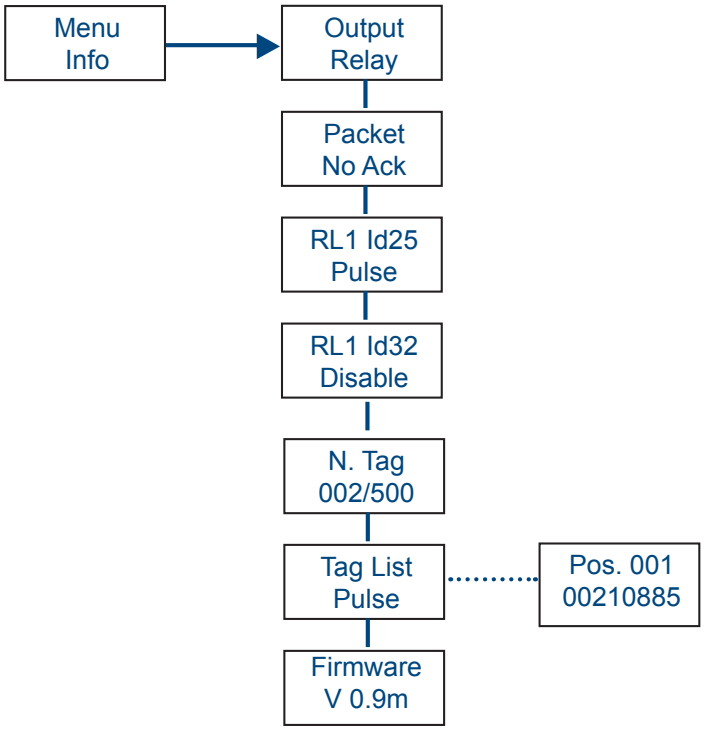
7.7 Menu Info

The menu info changes dynamically according to the configuration (Wiegand or Relay)

Output = WIEGAND

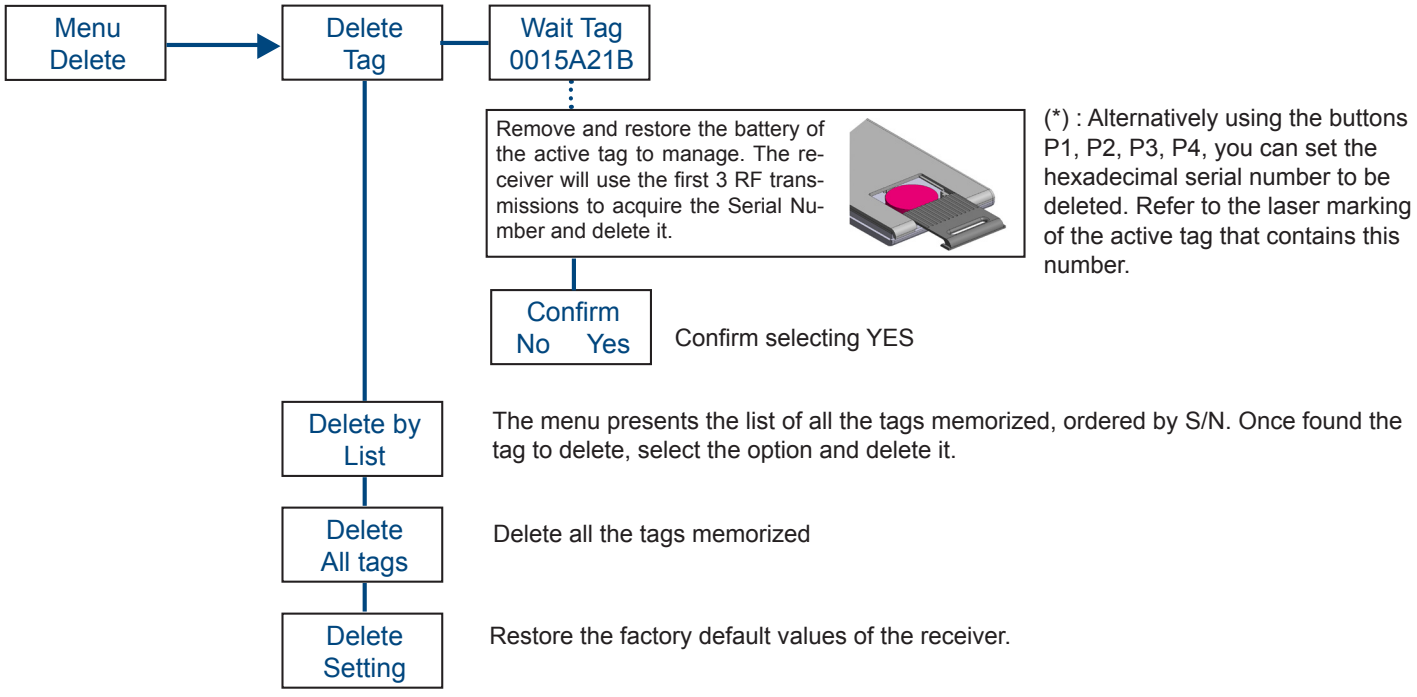


Output = RELAY



7.8 Menu delete

The menu allows to delete the S/N of the tags memorized, both individually and from a list. It is even possible to delete all the tags memorized and make a factory default reset.



(*) : Alternatively using the buttons P1, P2, P3, P4, you can set the hexadecimal serial number to be deleted. Refer to the laser marking of the active tag that contains this number.

Confirm selecting YES

The menu presents the list of all the tags memorized, ordered by S/N. Once found the tag to delete, select the option and delete it.

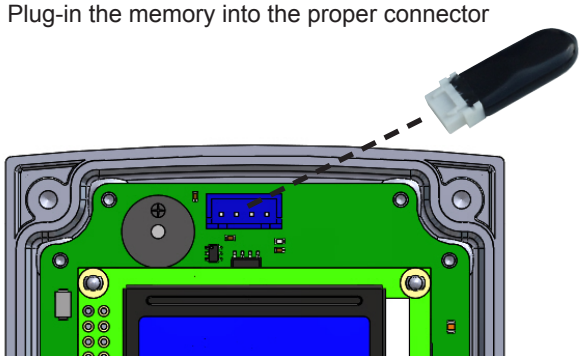
Delete all the tags memorized

Restore the factory default values of the receiver.

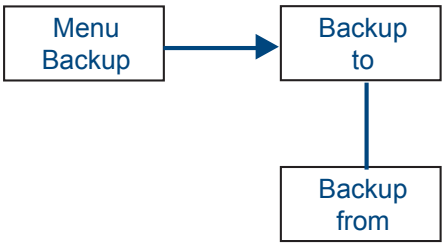
7.9 Menu Backup

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

1) Plug-in the memory into the proper connector



2) Enter the backup menu and select the option desired.



ATTENTION: the restore from an external memory will cause the overwriting of the all the data of the internal memory.

8 Declaration of Conformity

Hereby, CDVI Wireless Spa, declares that the radio equipment type RXCP is in compliance with 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.

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