CDVI

Security to Access

A6U49 / A10U49

Mid & Long-Range UHF Reader

U4GO

Wireless Signal with
AES128
ENCRYPTION

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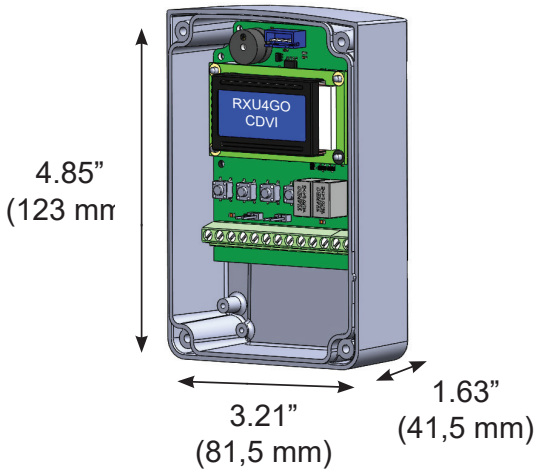
Thank you for purchasing our products and for the confidence you placed in CDVI.

1] PRODUCT PRESENTATION

U4GO is a high-performance UHF (902-928 MHz) integrated system perfect for vehicle and people identification. There are two operating modes, standalone or Wiegand output. The U4GO system provides secure access for many applications such parking facility, gated community, campus and rolling stock. The U4GO readers are easy to install, versatile, and perfectly suited for access control systems (Wiegand output). The high security protocol (AES128) RF module can also manage up to 100 remote controls.

RF Module

- Works in two operating modes, stand-alone (relay activation) or Wiegand output (online access control)
- **Stand-alone mode:** Manage up to 7560 UHF credentials and 100 remote keys
- **Wiegand mode (26-, 30- or 44-bit supported):**
  Maximum UHF credentials and remotes management depends on the capacity of the access control system
- Relay operating modes (2 x 24 VA - 48 VDC rated relays):
  Pulse, step, delayed (delay from 1 sec. to 23h:59min)
- Operating frequency range 433 MHz
  (Rolling code whit AES128 encryption)
- RS485 wiring between the UHF reader and RF module
  (Two UHF readers supported per RS485 port)
- Power requirements: 12 VDC
  (Universal 120V/240V plug-in power supply included)
- Current consumption: 25 to 50 mA (max) @ 12 VDC
- Operating temperature: 14°F to 140°F (-10°C to 60°C)
- Weight: 0.15 lbs (65 g)
- IP55 enclosure protection
- Demodulation GFSK
- Sensitivity (for good signal): -115 dBm



UHF Readers

- Operating frequency range of 902 - 928 MHz
- Detection range in open space:
  A6U49: 20 ft (6 m) and A10U49: 33 ft (10 m)
- Vehicle moving speed: 50 mph (80 Km/h)
- Current consumption: 350 mA (max. 650 mA)
- Operating temperature: -13°F to 176°F (-25°C to 80°C)
- Weight: A6U49: 2 lbs (0.9 Kg) and A10U49: 5.3 lbs (2,4 Kg)
- Protocol tag supported: ISO18000-6B, ISO18000-6C, EPC C1G2
- Transmission type: FHSS
- Dimensions: A6U49: 9.25 x 9.25 x 2.25 in (235 x 235 x 57 mm)
  A10U49:17.5 x 17.5 x 2.15 in (445 x 445x 55 mm)

3] PACKAGE CONTENTS

This chapter details how to install and setup the U4GO A6U49 or A10U49.

The box contains:

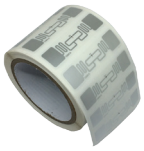
- One A6U49 or A10U49 antenna
- Universal power supply with AC power cord plug
- Wireless Receiver
- Fixing Bracket

Reader with power supply

Fixing bracket

I/F with built-in receiver

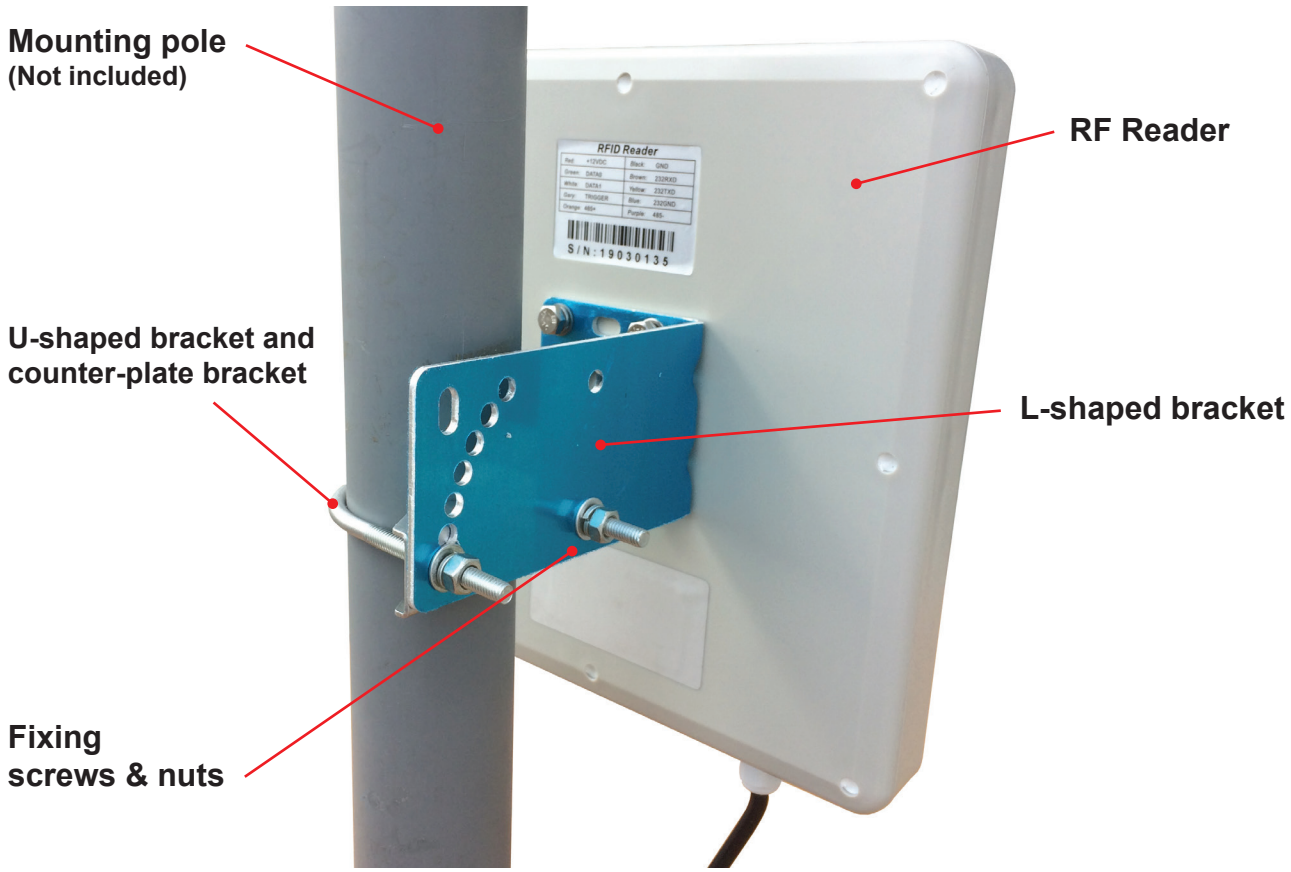
Compatible UHF credential

P/N	Description	Image	Suitable way
ATU48	ADHESIVE TAG U4GO		Stick on the surface of windshield
CTU48	CARD TAG U4GO		1) Fixed with card holder 2) Handheld by user
PTU48	LICENSE PLATE TAG U4GO		Fix on the surface of license plate

4] MOUNTING INSTRUCTIONS

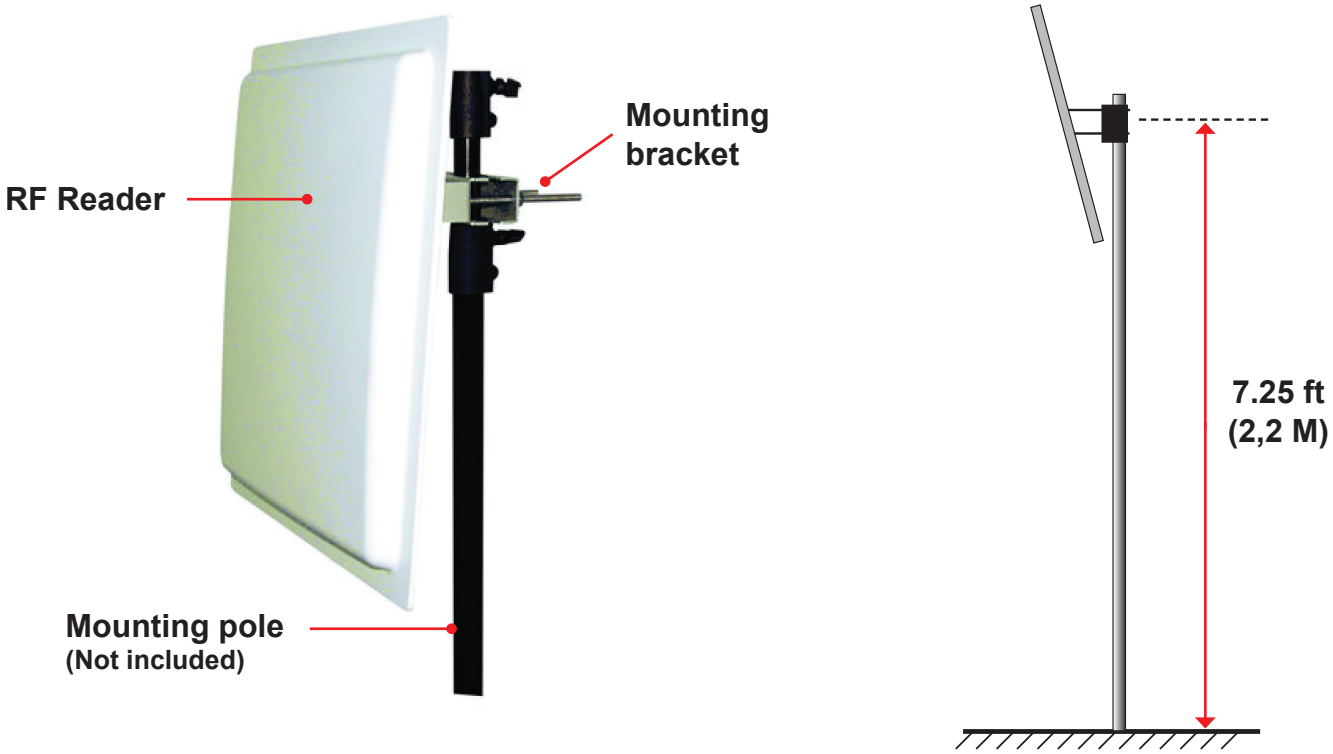
A6U49

MOUNTING DIAGRAM



A10U49

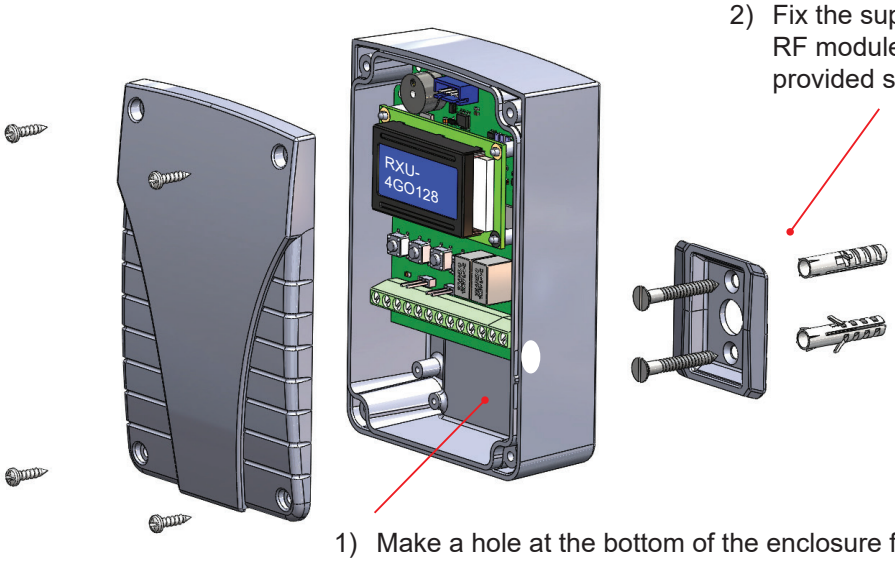
MOUNTING DIAGRAM



RF MODULE

MOUNTING DIAGRAM

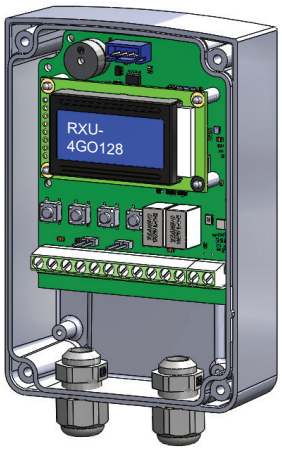
Option A)



2) Fix the support to the place where the RF module will be installed using the provided screws and anchors.

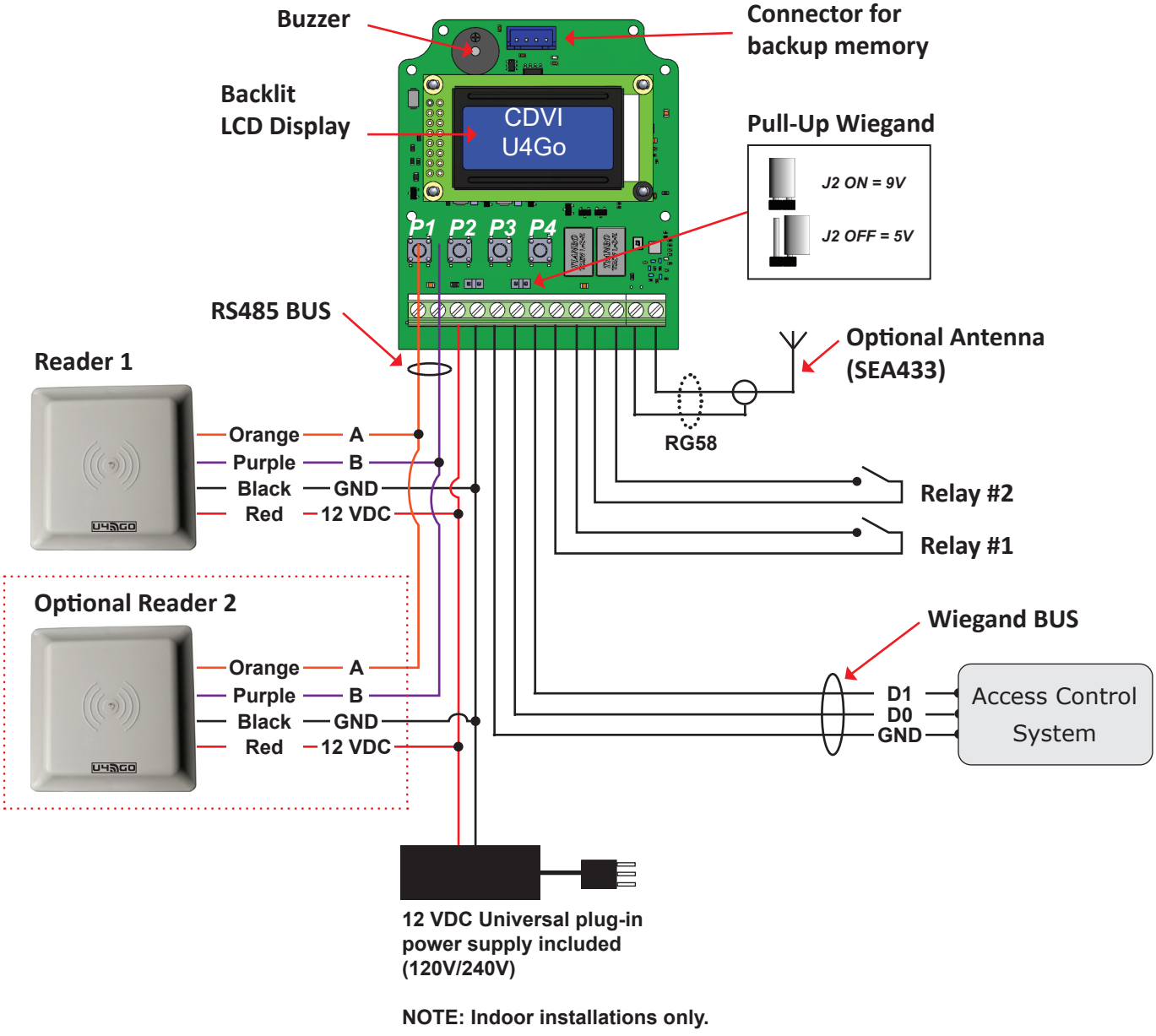
1) Make a hole at the bottom of the enclosure for the passage of the wires

Option B)



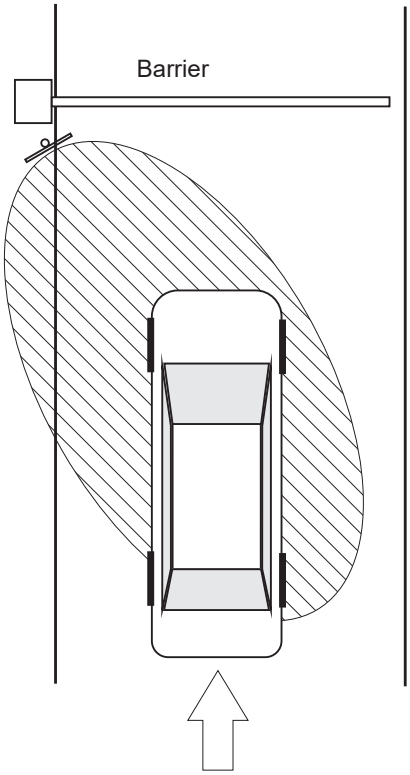
Use of PG7 cable glands (not provided)

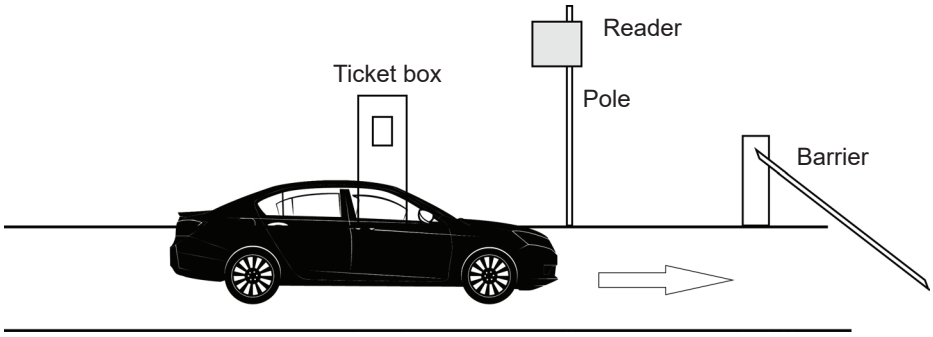
5] WIRING DIAGRAM



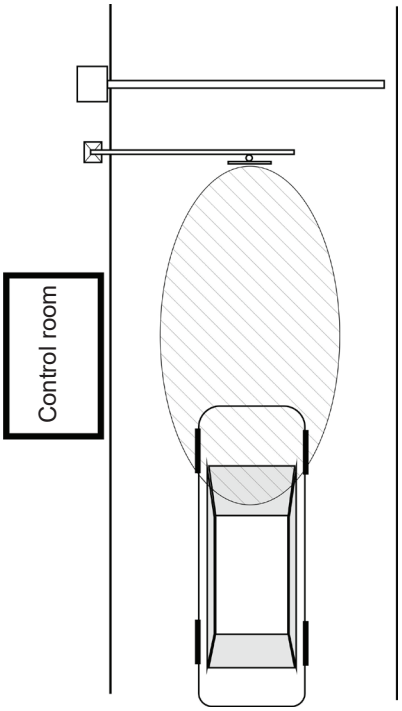
Description	Wire type	Optional extension size	Maximum length
RS485 BUS	2 conductors (RS485 bus)	24AWG (0.51 mm²)	1220 m
	2 conductors (Power supply)	18AWG (1.02 mm²)	L1= 32 m MAX
Wiegand BUS	3 conductors Belden 9553	22AWG (0.64 mm²) to 18AWG (1.02 mm²)	150 m
Power supply	2 conductors	18AWG (1.02 mm²)	L1= 32 m MAX

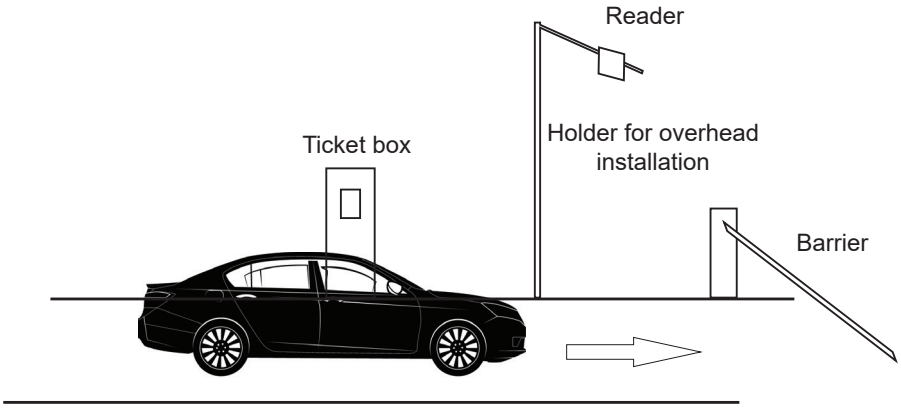
Side Installation





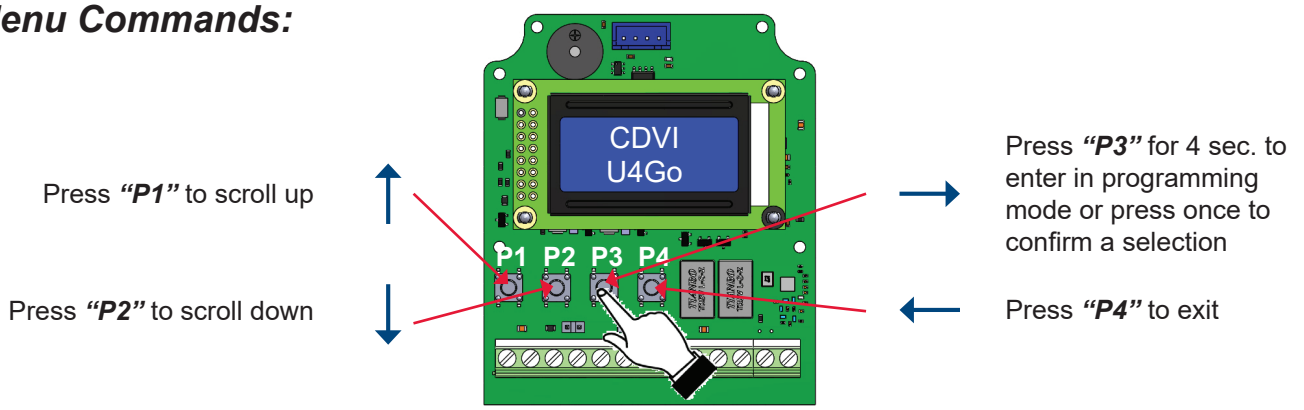
Over-Head Installation



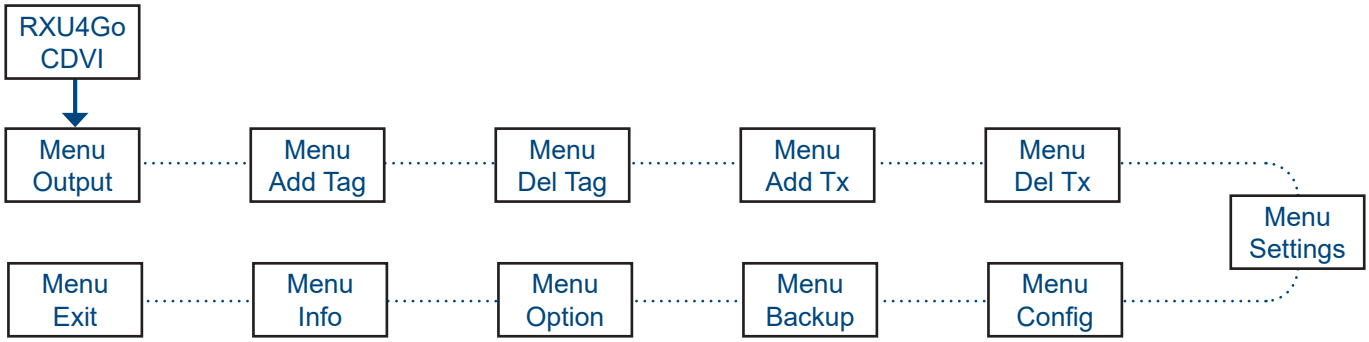


6] PROGRAMMING

Menu Commands:



U4GO Menus



The next steps explain in detail the different menus and their configurations.

1. Set the operating mode (output)

Scroll to the "menu Output" then press ***"P3"***

m	e	n	u				
O	u	t	p	u	t		

The U4GO system work in two different operating mode "Output":

"RELAY" mode (stand-alone):

Manage up to 7560 UHF credentials and
100 remote keys in stand-alone (relay activation ONLY).

"WIEGAND" mode
(Connect to online access control system):

Maximum UHF credentials and remotes management depends on the capacity of the access control system.

Select one then press ***"P3"*** to confirm

IMPORTANT: The relays will not work in "Wiegand" mode

2. Adding UHF credential

There are two ways to register a UHF credential:

- One at a time
- In one block (batch).

2.1 Adding UHF credential one at a time

Scroll to the "Add Tag" menu then press ***"P3"***

menu
Add Tag

Press ***"P3"*** again

Add Tag

Wait Tag
00000000

Present the UHF credential to the reader
or
type manually its serial number
(Note: use ***"P4"*** to shift left).

2.2 Add UHF credential in one block

You can also register multiple UHF credentials in one block. The serial numbers of each UHF credentials must follow each other in series. Simply confirm the number of UHF credentials to register and then present the first one in the series.

Scroll to the "Add Tag" menu then press ***"P3"***

menu
Add Tag

Scroll to "Add Tag Block", then press ***"P3"***

Add Tag
Block

How many
Tag? 000

Type the number of UHF credential to register

100 Tag?
No Yes

Press ***"P1"*** to select then ***"P3"*** to confirm

Wait Tag
00000000

Present the first UHF credential of the series to the reader
or
type manually its serial number
(Note: use ***"P4"*** to shift left).

If you have 2 antennas on the same RF module, the same UHF tag will have to be added twice. Once added while being read by antenna # 1 and another time added while being read by antenna # 2.

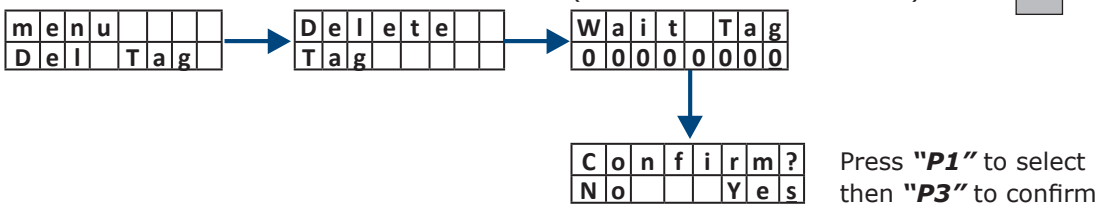
3. Deleting UHF credential

3.1 Delete UHF credential one at a time

Scroll until "menu Del Tag" then press ***"P3"***

Scroll until "Delete Tag" then press ***"P3"***

Present the UHF credential to the reader or type manually its serial number (Note: use ***"P4"*** to shift left).



Press ***"P1"*** to select then ***"P3"*** to confirm

3.2 Delete UHF credential in one block

You can also delete multiple UHF credentials in one block (batch). The serial numbers of each UHF credentials must follow each other in series. Simply confirm the number of UHF credentials to register and then present the first one in the series.

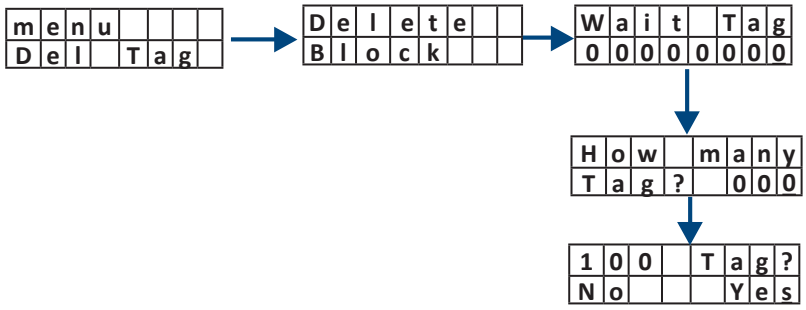
Scroll until "menu Del Tag" then press ***"P3"***

Scroll until "Delete Block" then press ***"P3"***

Present the first UHF credential of the series to the reader or type manually its serial number (Note: use ***"P4"*** to shift left).

Type the number of UHF credential to delete

Press ***"P1"*** to select then ***"P3"*** to confirm



3.3 Delete remote from the list

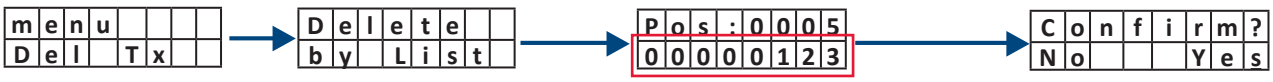
This is useful when you do not have the remote control in your hand but only its serial number from a list.

Scroll until "menu Del Tx" then press ***"P3"***

Scroll until "Delete Tx" then press ***"P3"***

Scroll until you find the serial number (red rectangle). Then press ***"P3"*** to select.

Press ***"P1"*** to select, then press ***"P3"*** to confirm.

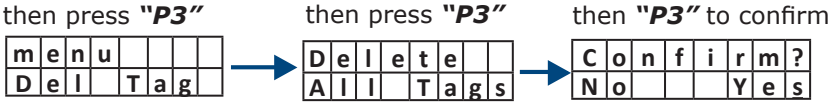


3.4 Delete ALL UHF credential at once

Scroll until "menu Del Tag" then press ***"P3"***

Scroll until "Delete All Tags" then press ***"P3"***

Press ***"P1"*** to select then ***"P3"*** to confirm



4. Adding Remote (Tx)

The "Add Tx" menu is required in "Relay" mode ONLY. See ***"1. Set the operating mode (output)".*** You can add up to 100 remote controls. A remote control can activate either relay 1 or relay 2.

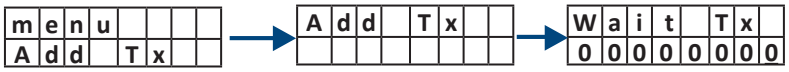
There are three ways to register a remote (Tx): one at a time, by associating a button to a specific relay or in one block (batch).

4.1 Add remote one at the time

Scroll until "menu Add Tx" then press ***"P3"***

Scroll until "Add Tx" then press ***"P3"***

Press any button of the remote
or
type manually its serial number.
The serial number is printed in the back of the remote.
(Note: use ***"P4"*** to shift left).



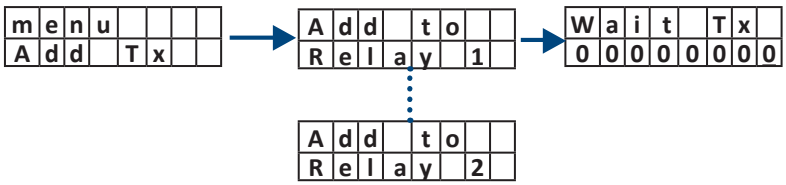
Once added, the button A will be associated to relay #1 and button B to relay #2

4.2 Add remote and associate a button to a specific relay ("Relay" output mode ONLY)

Scroll until "menu Add Tx" then press ***"P3"***

Scroll until "Add to Relay 1" or "Add to Relay 2" then press ***"P3"***

Press the button you want to associate with the previously selected relay.
or
type manually its serial number.
The serial number is printed on the back of the remote.
(Note: use ***"P4"*** to shift left).



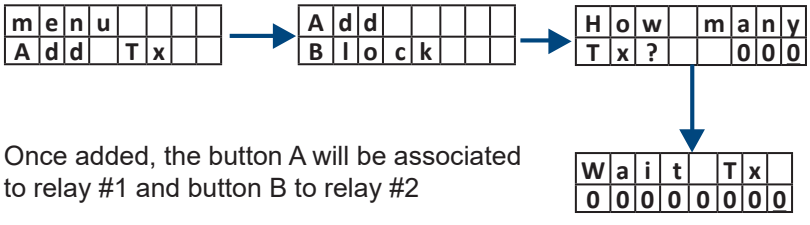
4.3 Add remote in one block

You can also add many remote controls in one block (batch). The serial numbers of each remote control must follow each other in series. Simply confirm the number of remote controls to register and then present the first one in the series.

Scroll until "menu Add Tx" then press ***"P3"***

Scroll until "Add Block" then press ***"P3"***

Type the number of remotes to add



Once added, the button A will be associated to relay #1 and button B to relay #2

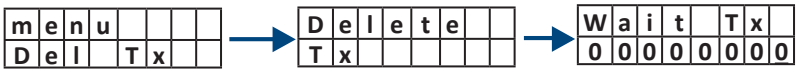
Press any button of the first remote of the series.
or
The serial number is printed on the back of the remote.
(Note: use ***"P4"*** to shift left).

5. Deleting Remote (Tx)

5.1 Delete remote one at a time (will completely remove the remote)

Scroll until "menu Del Tx" then press ***"P3"***

Scroll until "Delete Tx" then press ***"P3"***



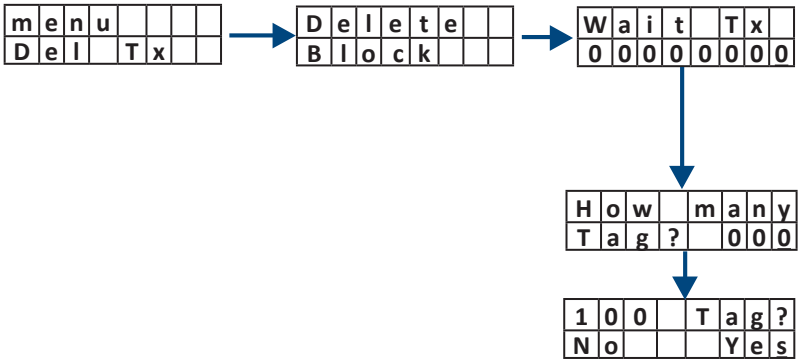
Press any button of the remote
or
type manually its serial number.
The serial number is printed in the back of the remote.
(Note: use ***"P4"*** to shift left).

5.2 Delete remotes in one block

You can also delete multiple remotes in one block (batch).
The serial numbers of each remote must follow each other in series.
Simply confirm the number of remotes to delete and then present the first one in the series.

Scroll until "menu Del Tx" then press ***"P3"***

Scroll until "Delete Block" then press ***"P3"***



Press any button of the first remote of the series.
or
type manually its serial number.
The serial number is printed on the back of the remote.
(Note: use ***"P4"*** to shift left).

Type the number of remotes to delete

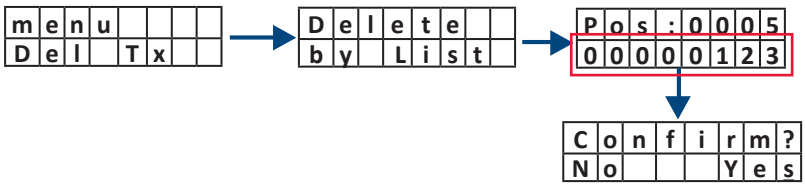
Press ***"P1"*** to select then ***"P3"*** to confirm

5.3 Delete remote from a list

This way is useful when you do not have the remote control in your hand but only its serial number from a list.

Scroll until "menu Del Tx" then press ***"P3"***

Scroll until "Delete Tx" then press ***"P3"***



Scroll using ***"P1"*** or ***"P2"*** until you find the right serial number (red rectangle). Then press ***"P3"*** to select.

Press ***"P1"*** to select,
then press ***"P3"*** to confirm.

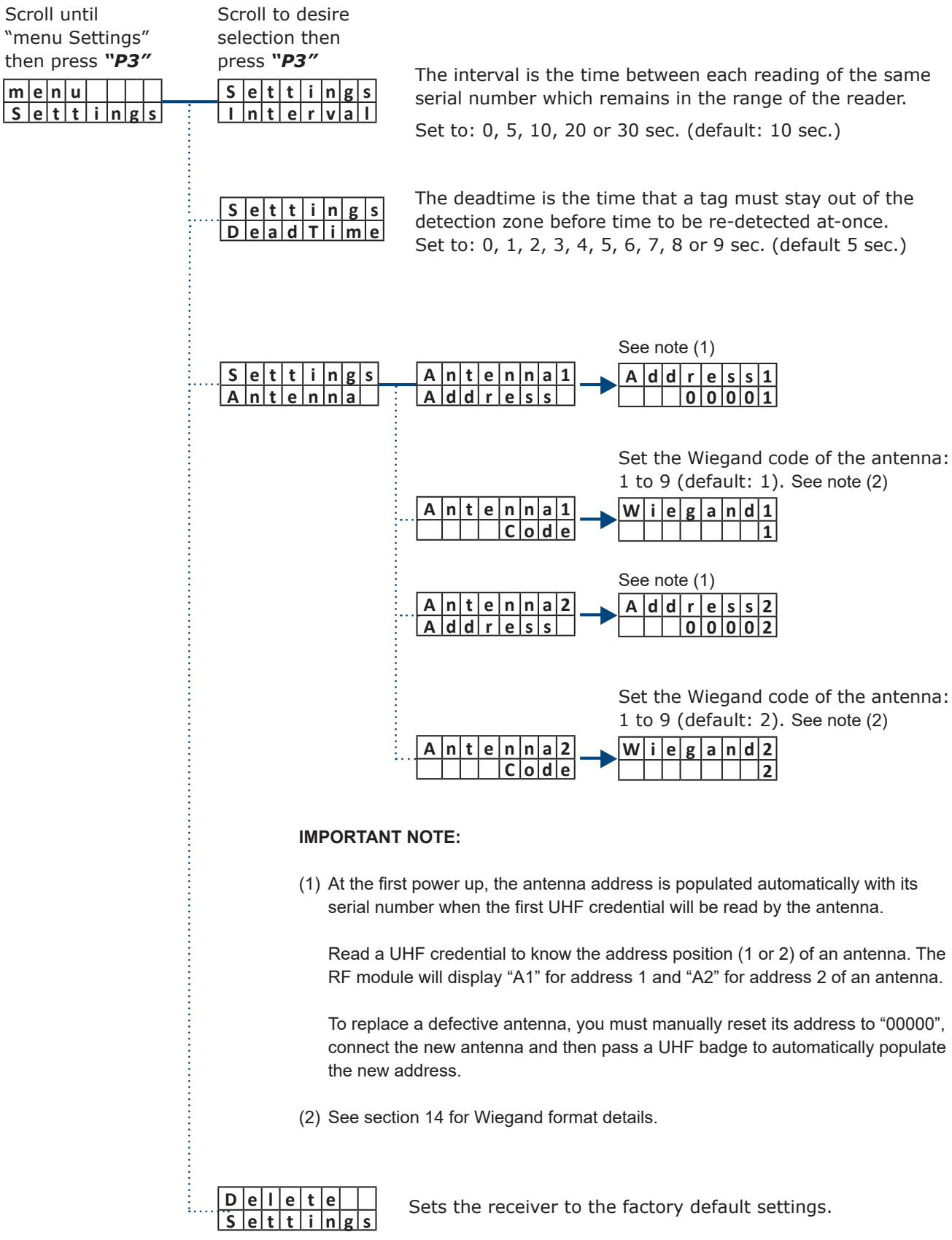
5.4 Delete all remotes

Scroll until "menu Del Tx" then press ***"P3"***

Scroll until "Delete All Tx" then press ***"P3"***

Press ***"P1"*** to select then ***"P3"*** to confirm

6. Settings



IMPORTANT NOTE:

(1) At the first power up, the antenna address is populated automatically with its serial number when the first UHF credential will be read by the antenna.

Read a UHF credential to know the address position (1 or 2) of an antenna. The RF module will display "A1" for address 1 and "A2" for address 2 of an antenna.

To replace a defective antenna, you must manually reset its address to "00000", connect the new antenna and then pass a UHF badge to automatically populate the new address.

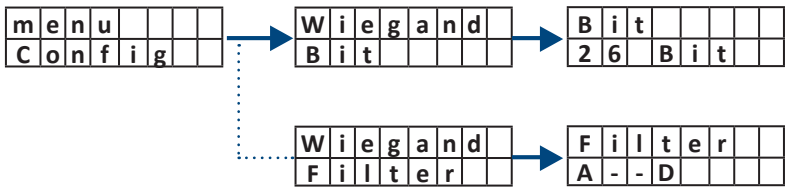
(2) See section 14 for Wiegand format details.

7. Configuration

7.1 Wiegand Output Settings

Scroll until "menu Config" then press ***"P3"***

Scroll to desire Wiegand setting then press ***"P3"***



Set the Wiegand protocol to: 26, 30 or 44 bit (default 26-bit).

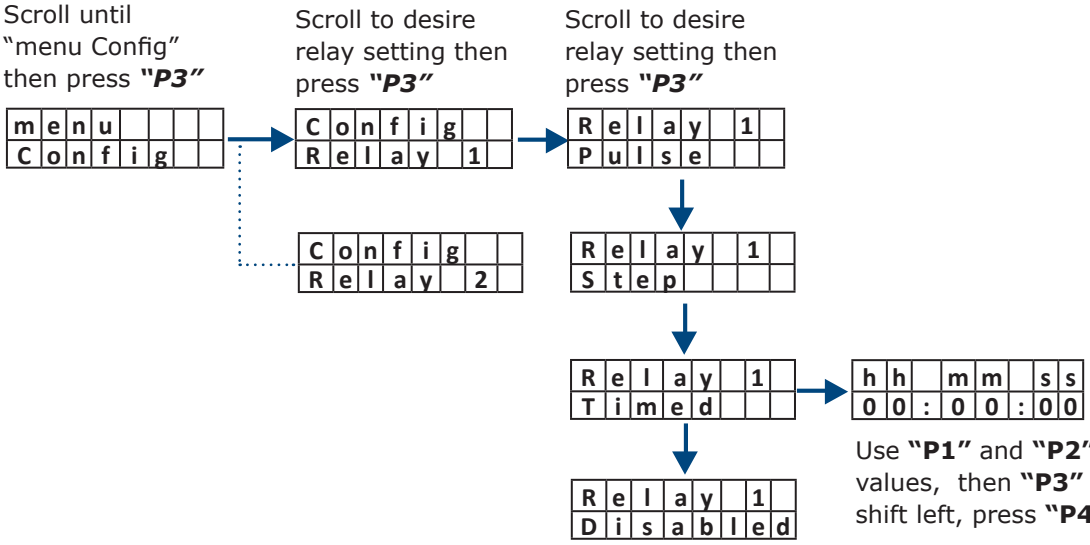
Select the buttons that will be used to transmit the Wiegand data.

7.2 Relay Output Settings

Scroll until "menu Config" then press ***"P3"***

Scroll to desire relay setting then press ***"P3"***

Scroll to desire relay setting then press ***"P3"***

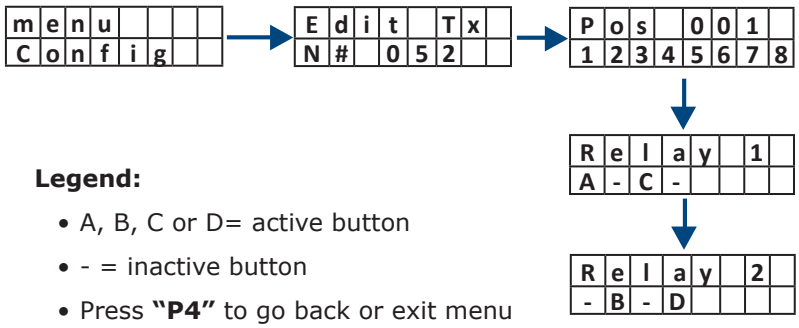


Use **"P1"** and **"P2"** to set the values, then **"P3"** to confirm and shift left, press **"P4"** to go back.

7.3 Relay activation per remote buttons

Scroll until "menu Config" then press ***"P3"***

Scroll until "Edit Tx" (it display the total amount of memorized remotes, ex: 052). then press ***"P3"***



Legend:

- A, B, C or D= active button
- - = inactive button
- Press **"P4"** to go back or exit menu

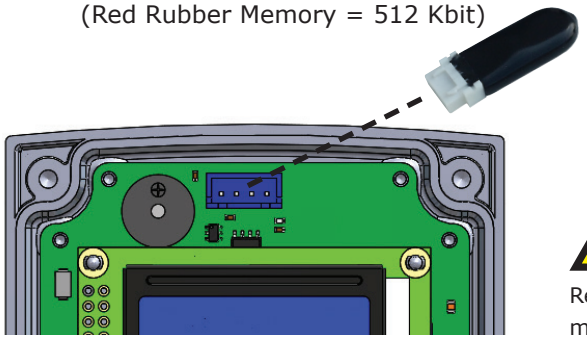
Use **"P1"** and **"P2"** to set which buttons will activate **"Relay 1"**, then **"P3"** to confirm and shift right.

At the end of the sequence of 4 buttons, press **"P3"** to configure **"Relay 2"**. Repeat the same steps as for **"Relay 1"**. Press **"P3"** to confirm.

8. Backup

Upload or download the full database using an external memory card

1) Plug-in the memory into the connector
(Red Rubber Memory = 512 Kbit)



Scroll until
"menu Backup"
then press ***"P3"***

menu
Backup

Scroll to desire
backup option
then press ***"P3"***

Backup
to

Module to
memory card

Backup
from

Memory card to
module

Restoring from the external memory will overwrite ALL module database.

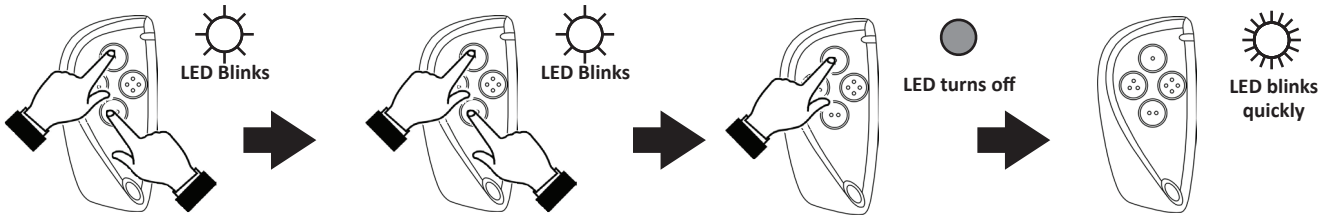
9 . Option

The menu "Option" allows you to enable ("ON" or "OFF") the "Auto-Install" feature.
The "Auto-Install" feature allows you to register other remote controls from any remote control already memorized in the module.

IMPORTANT NOTE: One remote must be memorized in the receiver.

9.1 Memorization of a new remote (Tx)

Place the two remotes (**"Memorized Tx"** and the **"New Tx")** next to each other then do the following:



"Memorized Tx"

Press & hold A+B buttons simultaneously for 3 sec :

The LED blinks slowly

See note #1

"New Tx"

Within 15 sec., press & hold A+B buttons simultaneously of the ***"NEW Tx"*** for 3 sec :

The LED blinks slowly

"Memorized Tx"

Within 15 sec. press & hold the "A" button of the **"Memorized TX"** for 1 sec :

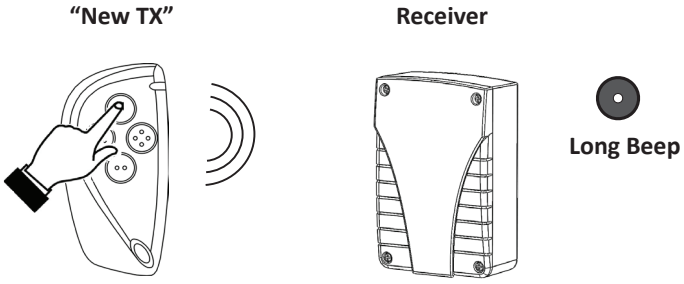
The LED turns off

"New Tx"

The LED of the **"New Tx"** blinks quickly :

Auto-Install is authorized.

See note #2



Once the new remote has been **"Authorized"**, stand next to the receiver and press button A for 1 sec.

The receiver makes a long beep: The remote has been memorized and is ready for use.
It may take up to 6 seconds for the receiver before hearing the confirmation beep of a **"New Tx"**.

IMPORTANT NOTES :

1. Must be a remote already memorized in the receiver.
2. If you press any button of the authorized **"New Tx"** out of reception range of the receiver more than 15 times, the Auto-Install property stops and the procedure must be restarted.

10 . Info

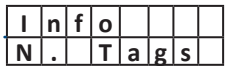
Scroll until "menu Info" then press ***"P3"***

Scroll to desire info then press ***"P3"***

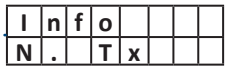
Displays the current output settings:

If output set in "Relay" mode, it will display relays operating settings; pulse, latched or timed

If output set in "Wiegand" mode, it will display system protocol; 26, 30 or 44 bits



Displays the number of UHF credential that are registered. (7680 max. in stand-alone, "Relay" mode)



Displays the number of remotes (Tx) that are registered. (100 max. in stand-alone, "Relay" mode)

Displays the UHF credential memory position (Useful to delete a specific UHF credential from the list)

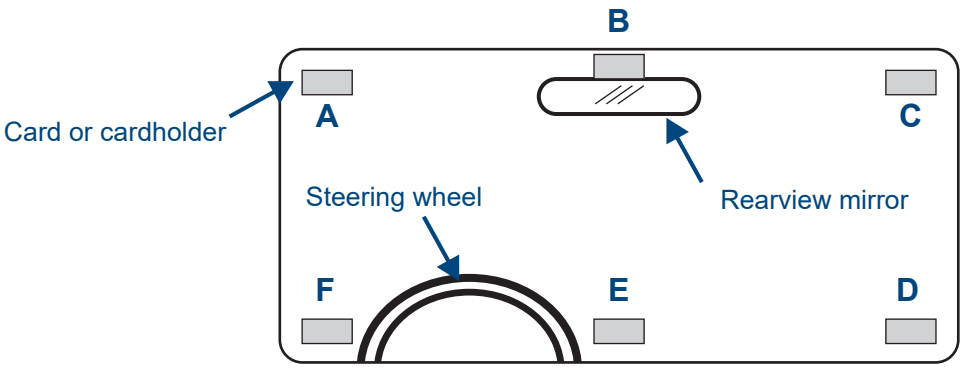
Displays the remote control (Tx) memory position (Useful to delete a specific remote "Tx" from the list)

Displays firmware version of the module

11. UHF Credential Installation

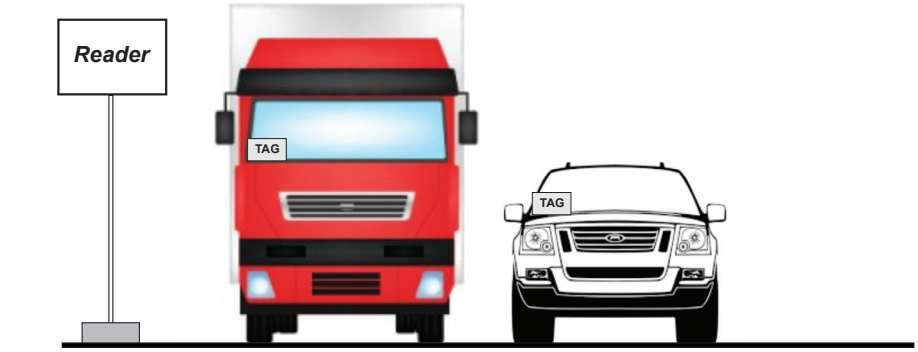
Choose one of the six places (A-F) on the windshield as showed in the figure below to install.

According to the European Standard, some vehicles with metalized windshield have a reserved area (not metalized) for RFID tags so choose position B.

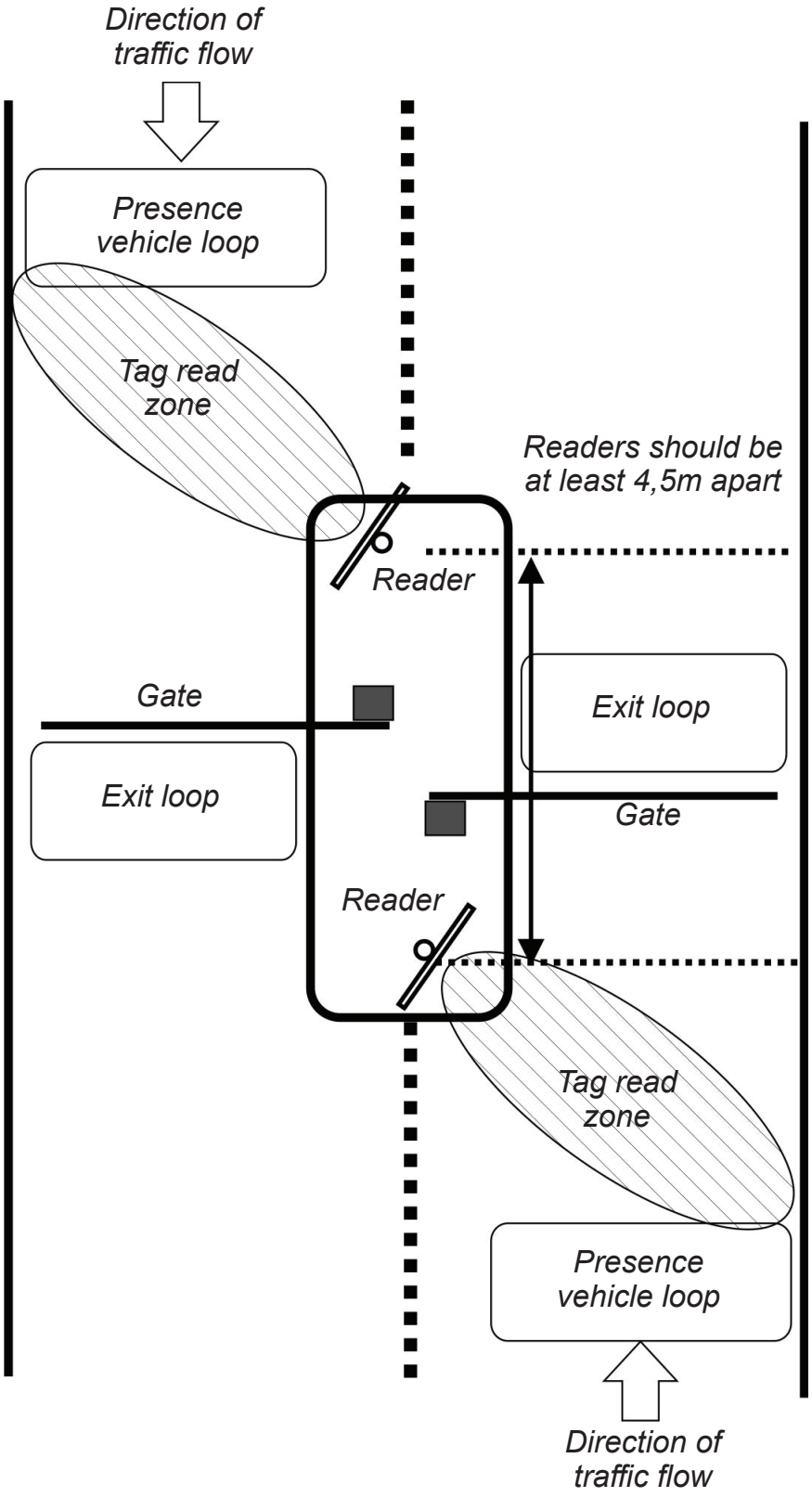


For optimum performance, install the UHF credential on the same side of the reader. (left side A or F, Right side C or D and overhead B or E).

NOTE: When there is a metalized windshield, the read range of the reader will be affected. Please test the performance before using it.



12. Parking or Garage Application Diagram



13. Using and Installing UHF Credential

13.1 Regular ISO or Clamshell UHF Credential

Use a card to test reader position for optimal performance.
Attention: the card is very sensitive to the human hand.

The performance of detection can drastically change according to the way of holding the card.

Look at the following images to understand the best way to hold the card:

Hold the card with an outstretched arm, away from the body.

If the card is held near the body the performances can decrease a lot.

A card held in a wallet cannot be detected.

A card in touch with the clothes cannot be read.

13.2 UHF Windshield Sticker Credential (ATU48)

The UHF windshield sticker position is similar to the card, as described above.

Best use on the surface of a window or headlights.

IMPORTANT: Once fixed, the UHF windshield sticker cannot be ripped off and reused.

Please test the performance before installation.

13.3 UHF License Plate UHF Credential (PTU48)

Use only for license plates. Use the screws to fix the tag on the bottom of the license plate.

Please test the performance before installation.

14. Wiegand Output Formats

The wireless receiver converts the serial number of the UHF credentials and the remotes (Tx) in Wiegand format. The architecture of the Wiegand signal is different according to the number of bits set (26, 30 or 44 bit).

14.1 Wiegand UHF Credential Format

Wiegand 26

Bit 1	Bit 2 - 5	Bit 6 - 25	Bit 26
Even Parity (1 bit)	[4 bit Address] (*)	[20 bit S/N]	Odd Parity (1 bit)

Wiegand 30

Bit 1	Bit 2 - 5	Bit 6 - 29	Bit 30
Even Parity (1 bit)	[4 bit Address]	[24 bit S/N]	Odd Parity (1 bit)

Wiegand 44

Bit 1-4	Bit 5 - 8	Bit 9 - 40	Bit 41 - 44
0000 (fixed)	[4 bit Address]	[32 bit S/N]	LRC (**)

(*) Is the address of the receiver set in the settings sub-menu. (**) Longitudinal Redundancy Check

14.2 Wiegand Remotes (Tx) Format

Wiegand 26

Bit 1	Bit 2 - 5	Bit 10 - 25	Bit 26
Even Parity (1 bit)	[4 bit Button] (*)	[20 bit S/N]	Odd Parity (1 bit)

Wiegand 30

Bit 1	Bit 2 - 5	Bit 6 - 29	Bit 30
Even Parity (1 bit)	[4 bit Button] (*)	[24 bit S/N]	Odd Parity (1 bit)

Wiegand 44

Bit 1-4	Bit 5 - 8	Bit 9 - 40	Bit 41 - 44
0000 (fixed)	[4 bit Button] (*)	[32 bit S/N]	LRC (**)

Button	Code
A	1010
B	1011
C	1100
D	1101

(*) The 4 buttons remote are in hexadecimal format. See the table beside.

(**) Longitudinal Redundancy Check

WARRANTY AND DECLARATION OF CONFORMITY

Hereby, CDVI Wireless Spa, declares that the radio equipment types A6U49 and A10U49 complies with the Standard 47 CFR FCC Part 15, subpart B. The full text of the Declaration of conformity is available at the following internet address: www.erone.com.

CE

WARRANTY

The warranty period for this product is 10 years, 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-A10U49EN, Rev.5 on 19/4/2020

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Reference manual: CDVI_U4GO_IM_01_EN_A4_CMYK.pdf - Printed in Canada - April 2020