EKSELANS BY ITS

USER MANUAL

CCA+
370005

ACCESS CONTROLLER

V04

INDEX

Overview.

The access controller, CCA+, allows the opening of all types of door openers once an authorized RFID card has been read. The reading is performed by an external reader connected to the controller (Ref. LCA). The controller is compatible with various input supply voltages and allows you to control the passage of the voltage that feeds the current lock or use the controller's own power to power the lock. Thanks to all these compatibilities, the controller can be coupled to existing systems or installed in new scenarios.

The programming of user cards can be done by using other cards (called the acquisition master and the retirement master). Master cards make it easy to register users.

There is no distinction between cards except their programming; For example, a master card could be programmed as a user card. As explained below, it is important to properly identify each user card with an identifier number.

Key features:

- It allows several types of locks (AC/DC) to be powered by the voltage that feeds the controller.

- It allows you to control the voltage that feeds the lock from an external source, either AC or DC (dry contact).

- It allows the connection of a button (pushbutton) for instant door opening.

- Users registered on one controller can be cloned, via µSD, on other controllers.

- It supports up to 5000 users.

- Compatible with Wiegand readers.

- You can export and import configurations from a µSD card.

Accessories.

- 1x Master card to add users (green dot). **If it is not configured, you have to follow the step** : Add MCA (master card to add) and MCD (master card to delete).

- 1x Master card to delete users (red dot). **If it is not configured, you have to follow the step** : Add MCA (master card to add) and MCD (master card to delete).

- 1x Jumper Setup.

- 1x Protection diode.

- 1x Double-sided sticker.

- 1x 128Mb µSD card.

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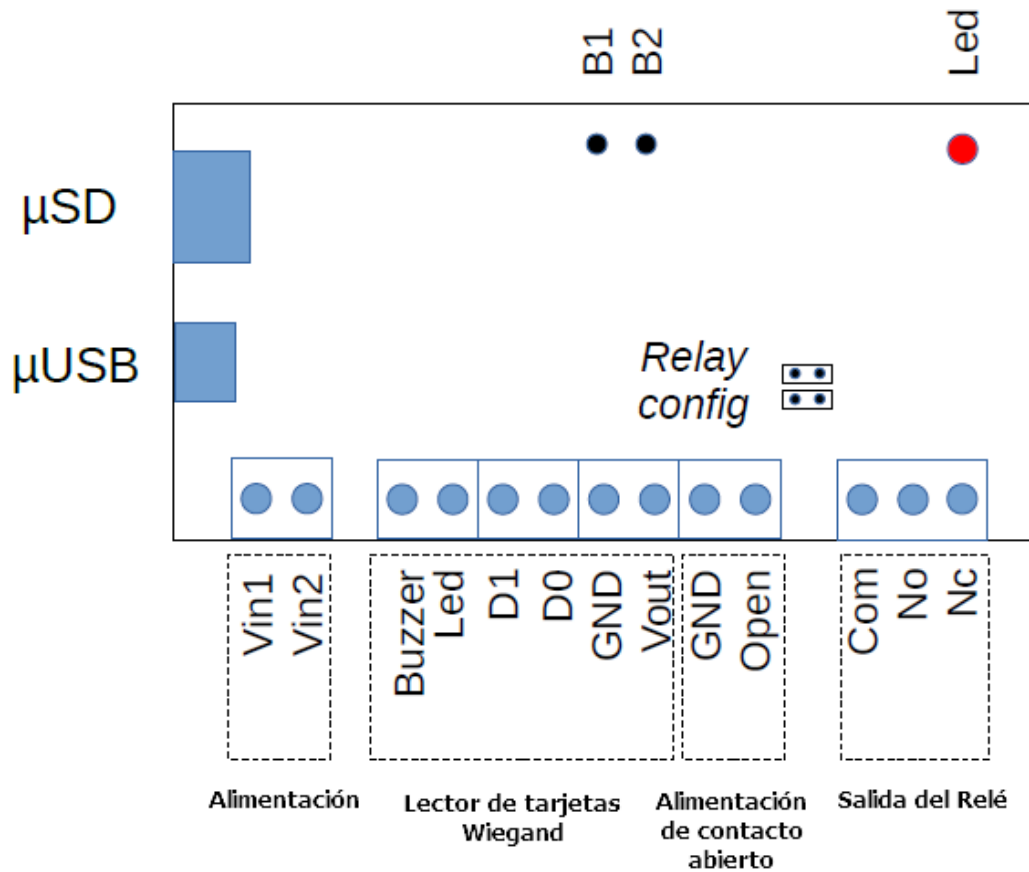Telephone: +34935839543 · info@ek.plus ·

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Steps to install the CCA+:

1. Connecting and configuring the relay. Explained in detail in Connection.
2. Registering MCA and MCD cards: Explained in detail in Add MCA (master card to add) and MCD (master card to delete).
3. Add User Cards: Explained in detail in Adding Users with the MCA.

Connection.

Connections.

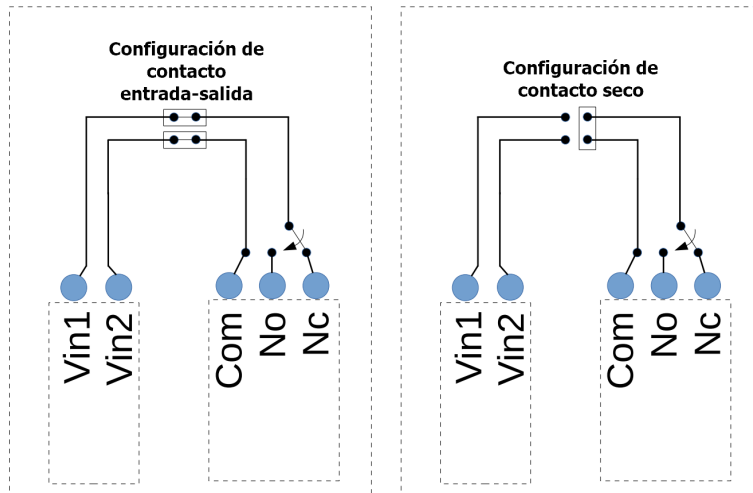The figure below shows the CCA+ connections, including LEDs, buttons, µ SD card, USB µ, and terminals.

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| Signal	LCA Colors	Terminal strip	Guy	Description
Vin 1		Entrance	Entrance	Input Vac o V+(Vdc)
Vin 2			Entrance	Input Vac o V-(Vdc)
Buzzer	Yellow	Wiegand card reader.	Exit	(Buzzer) "beep" indicating reading
LED	Brown		Exit	LED reading indicator.
D1	White		Entrance	Data entry (0) from reader.
D0	Green		Entrance	Data entry (0) from reader.
GND	Black		GND	Grounding
Vout	Red		Exit	DC power supply to the card reader
GND		Open Button Input	GND	Grounding
Open			Entrance	Open button
COM		Relay Output	Exit	Common Point
No			Exit	Normally open contact
Nc			Exit	Normally Closed Contact

Configuring the door lock relay.

The CCA+ allows the door lock relay to be operated in two different configurations, which can be configured by connecting a set of jumpers on J7 and J8 connectors.

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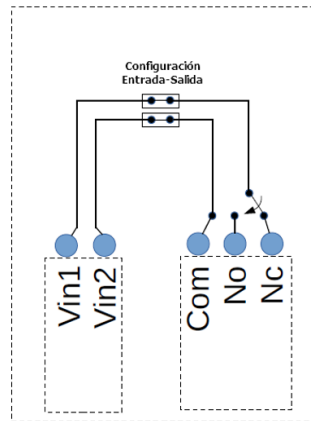Telephone: +34935839543 · info@ek.plus ·

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I/O configuration (default).

With this configuration, the contact output is fed with the same input as the CCA+.
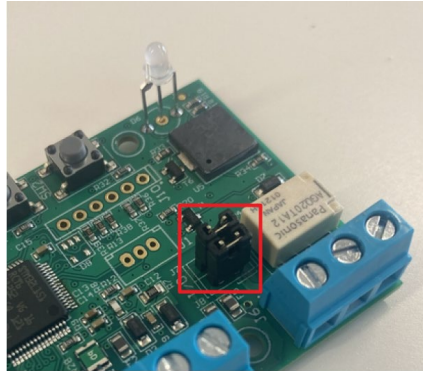
The Jumpers must be connected horizontally, as shown in the following diagram:

Configuración
Entrada-Salida

Vin1 Vin2 Com No Nc

Attention: Please note that the CCA+ can be powered regardless of the input polarity, but the output Com terminal is connected to the Vin2 input and the No/Nc to the Vin1.

Contact in dry mode.

This setting allows the relay to be in dry contact mode. **The lock will have to be powered independently**.
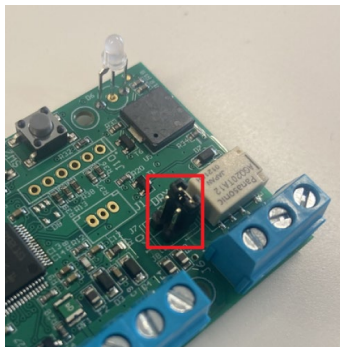
For this configuration, you only have to connect the Jumper in a vertical position as indicated in the

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diagram:

Configuración contacto en modo seco

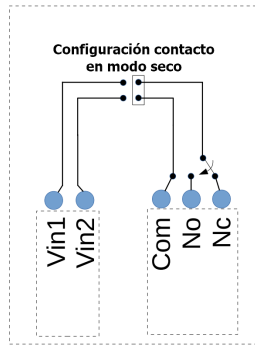Vin1 Vin2   Com No Nc

Connection Schemes:

ALTERNA / ALTERNA

YELLOW **AMARILLO**
BROWN **MARRÓN**
WHITE **BLANCO**
GREEN **VERDE**
BLACK **NEGRO**

RED **ROJO**

Vac

A C

Cerradura eléctrica

ALTERNA / CONTINUA

YELLOW **AMARILLO**
BROWN **MARRÓN**
WHITE **BLANCO**
GREEN **VERDE**
BLACK **NEGRO**

RED **ROJO**

Vac

Vdc
+
-

D C

Diodo

Cerradura eléctrica

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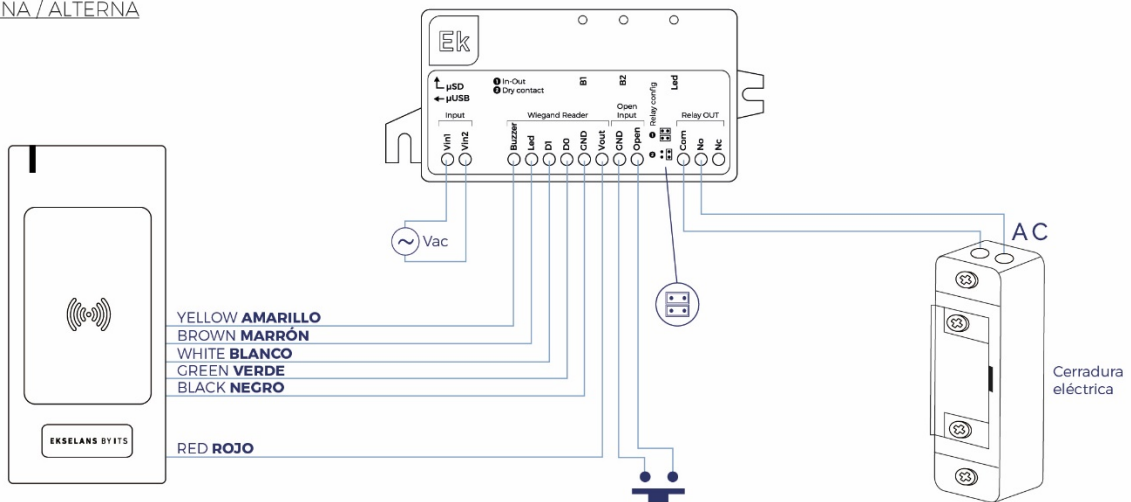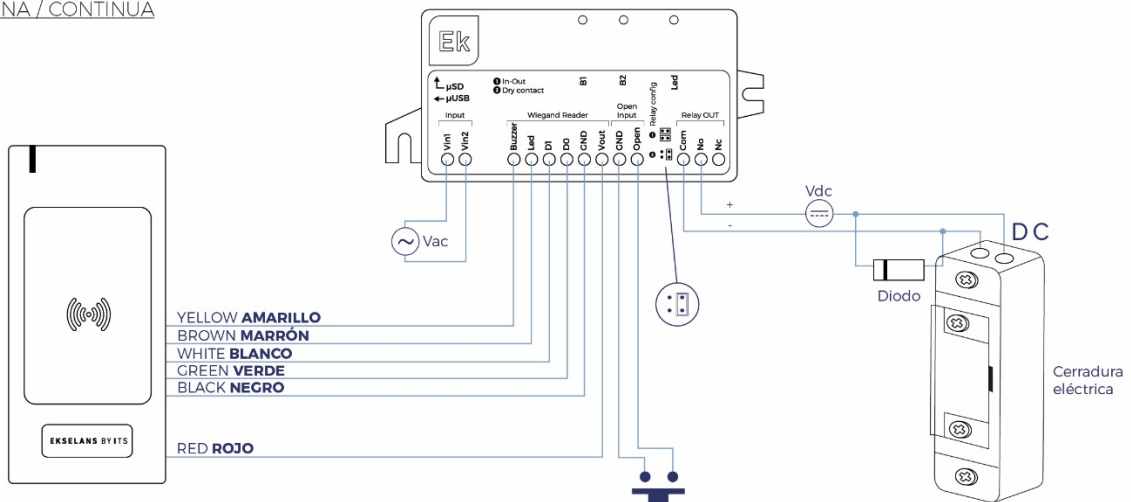
CONTINUA / CONTINUA
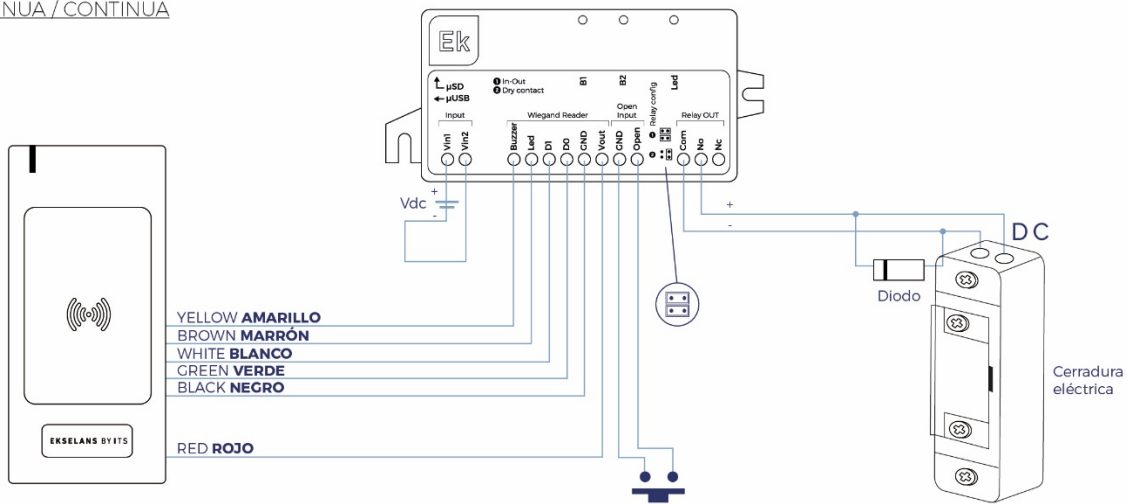
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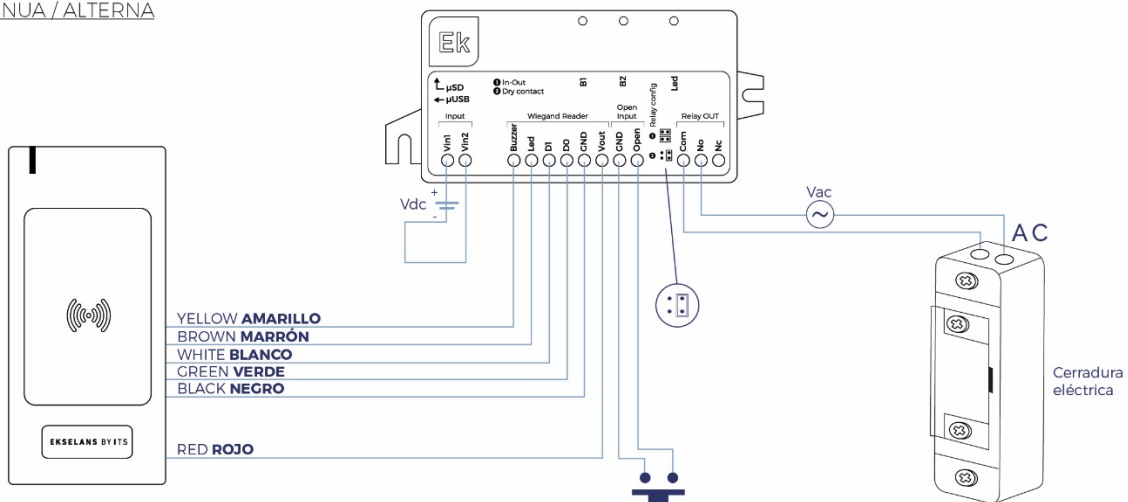
Indicators.

Buzzer.

Depending on the user's actions, the buzzer will produce different beeps:

- 3 long beeps when starting the computer.
- 1 short beep is generated when a button is pressed.
- 3 beeps that are generated whenever an error occurs in the system, for example, when reading an RFID card not saved in the system.
- 1 long beep that is generated when an operation is performed successfully, for example, when SD μ files are imported successfully.

LEDS.

There is a two-color LED (RED and GREEN) that lights up according to the user's actions.

Usually, the RED LED lights up in the normal state waiting for an action and the GREEN LED lights up when the action was successful.

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During start-up, both LEDs are ON, providing an orange color.

USB.

The required USB cable is USB type μ. The USB acts as a VCP (Virtual Com Port) and can receive commands from a PC. **It is not usable at the moment.**

Memory card.

The memory card uses the physical format of the μ SD card.

Accepted file system formats are FAT16 and FAT32.

Bellboy.

There are two buttons, button 1 (B1) and button 2 (B2), which allow for different configuration actions. Most actions require the buttons to be pressed before starting and to hold them down during start-up, until the action is performed. The buttons can then be released.

Button behavior during the boot sequence:

Button	Action	Phase
B1	Import settings from SD	Outburst
B2	Export the settings to the SD μ.	Outburst
B1+B2	Factory Reset	Outburst

Behavior of the buttons during normal operation.

Button	Action	Phase
B1	Register MCA and MCD cards.	Operation
B2		
B1+B2		

Configuration.

Add MCA (Master Card to Add) and MCD (Master Card to Delete).

1. To enter this mode, the user must press the B1 button while the CCA+ is in normal mode. In that case, the buzzer (CCA+ and LCA) will beep long and the RED LED (CCA+) will flash, while the LCA LED will flash green/red.
The first RFID card will be saved as an MCA. When the first RFID card is read, the system can react in 2 different ways:
   - Successfully save it as MCA: The buzzer (CCA+ and LCA) will beep long and the GREEN LED (CCA+ and LCA) will light up for 2 seconds.
   - Rejected: The buzzer (CCA+ and LCA) will beep 3 short times and the RED LED (CCA+ and LCA) will light up for 2 seconds. This can happen because the card is already saved in the system as an MCA, MCD, or as a regular RFID card.
2. After reading the MCA card, the RED LED (CCA+) will flash again waiting for the MCD card.
3. The second reading of the RFID card will be saved as MCD. When the second RFID card is read, the system can react in 2 different ways:
   - Successfully save it as (MCD): The buzzer (CCA+ and LCA) will beep long and the GREEN LED (CCA+ and LCA) will light up for 2 seconds.

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- Rejected: The buzzer (CCA+ and LCA) will beep 3 short times and the RED LED (CCA+ and LCA) will light up for 2 seconds. This can happen because the card is already saved in the system as an MCA, MCD, or as a regular RFID card (Table 7: UID Table Parameters).
4. After reading the second RFID card, the system will return to normal operation and the buzzer (CCA+ and LCA) will beep long.

If no MCD card is scanned before the setup timeout, only the MCA is saved and the system returns to normal operating mode.

Add users with the MCA.

1. To access this option, the user must scan the MCA master card.
   In this case, the doorbell (CCA+ and LCA) will beep long and the RED LED (CCA+) will flash.
2. Pass the card to be added by the reader. When an RFID card is read, the system can react in 2 different ways:
   - It successfully saves it as a valid RFID card in the UID table: the buzzer (CCA+ and LCA) will beep long, and the GREEN LED (CCA+ and LCA) will light up for 2 seconds.
   - Rejected: The buzzer (CCA+ and LCA) will beep 3 short times and the RED LED (CCA+ and LCA) will light up for 2 seconds. This can happen because the card is already saved as an MCA, MCD, or as a regular card.
3. After reading an RFID card, the system will wait for another RFID card and the RED LED (CCA+) will flash.
4. If the MCA card is read again, or the configuration timeout expires, the system will return to normal operating mode and the buzzer (CCA+ and LCA) will beep long.

User cards are stored in the first available position in the table (flash memory).

Delete users using the MCD.

1. To access this option, the user must scan the MCD master card. In this case, the doorbell (CCA+ and LCA) will beep long and the RED LED (CCA+) will flash.
2. We pass the card to be erased by the reader. When an RFID card is read, the system can react in 2 different ways:
   - You successfully remove it from the UID table: the buzzer (CCA+ and LCA) will beep long, and the GREEN LED (CCA+ and LCA) will light up for 2 seconds.
   - Cannot be removed from the system: The buzzer (CCA+ and LCA) will beep 3 short times and the RED LED (CCA+ and LCA) will light up for 2 seconds. This can happen because the card is already saved as an MCA, MCD, or does not exist in the system.

3. After reading an RFID card, the system will wait for another RFID card and the RED LED (CCA+) will flash.

4. If the MCD card is read again, or the setup timeout expires, the system will return to normal operating mode and the buzzer (CCA+ and LCA) will beep long.

The position of the deleted user card can be used to save another card when adding a new user card (this means that deleting cards will create bubbles in the flash memory).

Export configuration files to μ SD card.

1. To export the settings, the CCA+ must be turned off at first. The user then needs to insert a valid μSD card into the CCA+, press the B2 button, and then turn on the CCA+. The configuration files are exported to the μ SD card during the boot process. The system can react in 2 different ways:
   - If the export is successful: The buzzer on the (CCA+) will beep long and the GREEN LED (CCA+) will light up for 2 seconds.

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- If export fails: The buzzer on the (CCA+) will beep 3 short times and the RED LED (CCA+) will light up for 2 seconds.
3. After exporting files and releasing buttons, the system will go into normal operation mode.

The UID table is exported to the last memory location occupied by a user card. If there are empty positions (bubbles) in the center of the table, the deleted UIDs will appear as "00000000" values. If the µ SD card already contains configuration files, they will be overwritten.

Import configuration files from µ SD card.

1. To import the settings into the CCA+, the system must be turned off at first. The user then needs to insert a valid µSD card into the CCA+, press the B1 button, and then turn on the CCA+. Configuration files are imported during the startup process.
2. The system can react in 2 different ways:
    1. If the import is successful: The buzzer on the (CCA+) will beep long and the GREEN LED on the (CCA+) will light up for 2 seconds.
    2. If the import fails (one or both files): The buzzer on the (CCA+) will beep 3 short times and the RED LED on the (CCA+) will light up for 2 seconds.
3. After importing files and releasing buttons, the system will go into normal operation mode.

If the import is successful, the current CCA+ settings are removed and replaced with the settings contained in the imported files.

Restore factory values.

To perform a factory reset of the CCA+, the system must be turned off. The user must then press the B1 and B2 buttons and then turn on the CCA+. When the factory reset is performed, the buzzer (CCA+) will beep long and the GREEN LED (CCA+) will light up for 2 seconds.

Factory reset will force the CCA+ to load the default settings into non-volatile memory and the UID table will be completely cleared **(so the user cards will be erased).**

Configuring CCA+ parameters.

The configuration must be exported to a µSD card and **the values can be modified in the file** itself ("Config_Table.csv").

By default, the table will be:

Parameters	Value	Note
Type of Wiegand	0= Automatic	Supports 26-bit and 34-bit Wiegand
Buzzer	ON	Value 0=OFF value 1=ON
Opening Time	5	Relay Open Time (1-99 seconds)
Time Anti-Bounce Push Button	50	Anti-bounce time to open the button (from 1 to 5000 milliseconds)
Configuration Timeout	10	Timeout to set up (from 1 to 99 seconds)
MCA	0000000	MCA Hexadecimal Value
GCD	0000000	Hexadecimal value of the MCD

The **"UID_Table.csv"** file saves the list of authorized cards in the system. An example would be the following table:

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UID
71DC9108
8D42C61B
8D337F4D
8D3684F3
71DD8823

Normal working mode.

Normal operation is the standard mode of the CCA+ access controller where when scanning user cards, if the card's UID is stored in the UID table in flash memory, the CCA+ will grant you access. Otherwise, access will be rejected. When the system is turned on, it will enter normal operation. In this mode, the CCA+ and LCA will light up the RED LED while waiting for a card to be read.

Activation of the relay.

There are 2 ways to activate the relay output on the CCA+ access controller: By scanning an RFID card whose UID is stored in the UID table, or by pressing the OPEN button (shorting the open terminal and the ground).

Reading an RFID card or pressing the OPEN button, when the relay is already active (i.e. the door lock is open), this will keep the relay active and reset the unlock door timer. For example, let's say the door unlock time is set to 5 seconds. If the door is opened with a card, and after 3 seconds another card is successfully read, the door will remain open for a total of 8 seconds.

1.   Using an RFID card: The CCA+ has been designed to work with the LCA reader, accepting Wiegand formats using 26-bit and 34-bit. When the system reads an RFID card, it can react in two different ways:
     - Activate the relay because the card's UID is stored in the UID table: The buzzer (CCA+ and LCA) will beep long and the GREEN LED (CCA+ and LCA) will light up while the relay is open.
     - It is rejected because the card's UID is not stored in the UID table: the buzzer (CCA+ and LCA) will beep 3 times.
2.   Pressing the OPEN button: If the user uses the OPEN button (shortening the OPEN terminal to ground), the CCA+ will activate the relay. In addition, the buzzer (CCA+ and LCA) will beep long and the GREEN LED (CCA+ and LCA) will light up while the relay is activated.

Recommendations.

1.   Ideally, it is recommended not to exceed 20m of cable between LCA and CCA+ with 6x0.25mm2 cable. A greater distance can lead to a deterioration in the quality of the service.
2.   Up to three LCAs could be fitted without a problem. By externally feeding the LCAs, more could be included without any problem, always being aware that the risk of data collision is increasing.

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