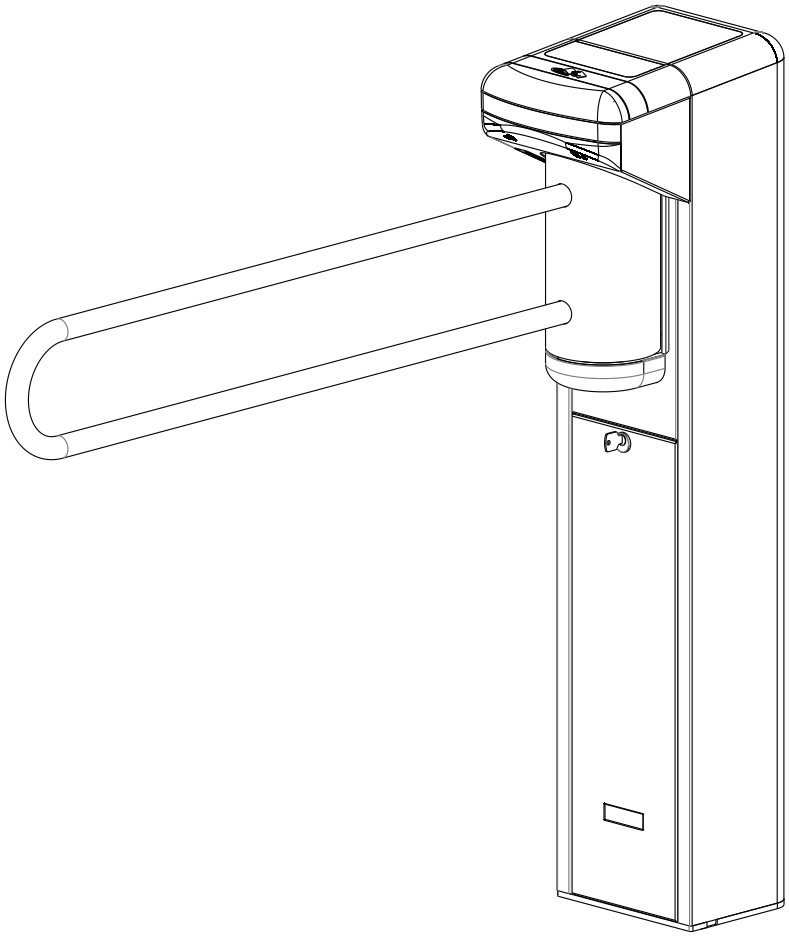
Product Manual

catrax clip



digicon

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Documentation sector - EDS

"At the end of a product's life cycle dispose according with local policy" **.**

Contents

1. Important Instructions

You can see, below, the symbols that will appear in this manual, signaling important moments. It is essential to pay attention to them.

TIP: *Indicates something Digicon considers important.*

CAUTION*: Indicates a moment of extreme caution when handling the equipment/product*

ATTENTION: *Indicates a moment when your observation skills should be extremely productive.*

INFORMATION: *Presents interesting facts about the purchased product.*

QR CODE: *Presents additional information or links with more details about the presented text*.

2. Orientations

- Read the information and instructions of this manual carefully, before using the product. This ensures the correct use of the equipment and maximum use of its technical features as well as a prolonged service life.
- This product does not present sealing against the rain, that is, it is designed to be used indoors.
- Keep this manual for future consultations.
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3. Introduction

Following a new technological concept focused on solidity and reliability and counting with innovative design elements, with color variety and widely curved lines, Digicon has launched the line **CATRAX Clip**.

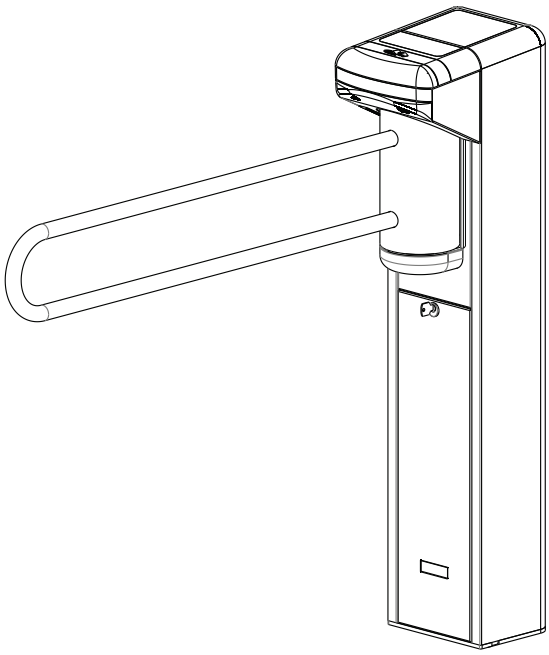
CATRAX Clip serves most technologies of access control currently available, becoming the best option in the market for access control. This manual presents a detailed description of the components and working of **CATRAX Clip**.

To see our complete catalogue, visit www.digicon.com.br.

4. Features of Catrax Clip

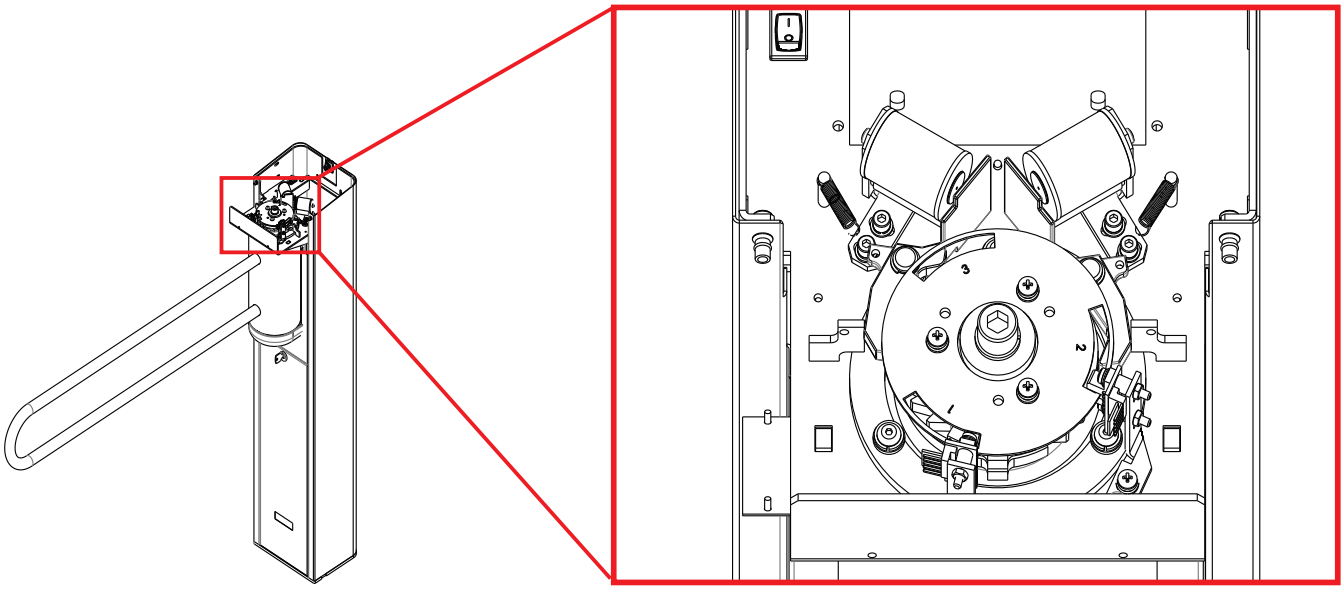
CATRAX Clip, an access controller in the model mini turnstile (column type), destined to individuals with special needs, presents one arm with brushed stainless steel (AISI 304) finishing and two-directional mechanism, with horizontal movement. The column can present external finishing in brushed stainless steel (AISI 304) or 1020 carbon steel with electrostatic painting in black epoxy powder. It has reinforced structure, fully rounded corners, and non-exposed screws, offering space and comfort for any access control solution. It also has room for a collecting box (optional item). Aiming at facilitating assembly and maintenance, the column **CATRAX Clip** presents a U-shaped internal support (mounting rack) with standard holes for the fixation of additional electronic boards. Moreover, the clients, according to their needs, can add additional holes. Access to the mounting rack is done through a key with secret, and the removal and insertion are extremely easy.

A plastic cover and a stainless steel sheet compose the upper panel. The cover, made of injected plastic, can be purchased in stainless steel or black (other colors available on demand). Optionally, the cover can present a slot for the reading of magnetic cards/badges and barcodes. The upper cover in stainless steel allows easy configuration and low-cost customization of the product. The sheet can also present slots for optional items, such as pictogram, collecting box input, display kit, or a combination of these items.



4.1 Catrax Clip operation

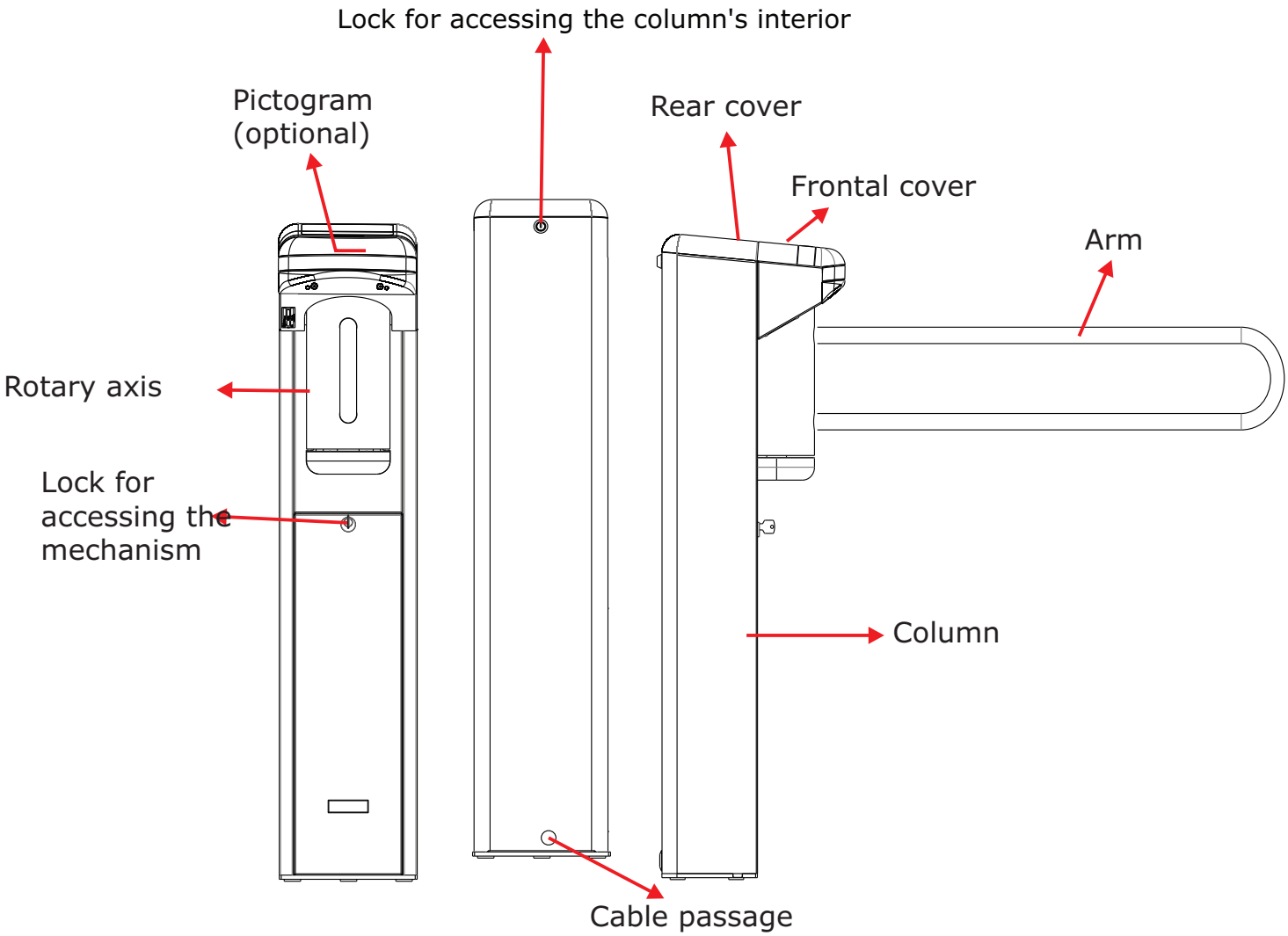
CATRAX Clip has a two-dimensional rotation system with two 24 V electromagnets for activating the locks. It includes a microprocessor control board where a signal enabling passage is sent through one of the inputs, depending on the passage direction. If this signal is recognized, the equipment will allow the movement of the arm of **CATRAX Clip**. After half of the turning is complete (45 degrees), a 400 milliseconds returning signal will be sent, informing the passage direction. After the signal, the arm cannot be returned to the previous position.
Depending on the **CATRAX Clip** model and configuration, if the passage is forced without the enabling signal, an electromagnet will be activated to prevent passage. In addition, the equipment can emit a signal for a sound alarm and/or the exhibition of a red sign on the upper panel display (models with pictogram). In this case, a return signal will be sent, indicating that the turnstile was forced, informing the direction of turn.
The image below shows how **CATRAX Clip's** mechanism works:



5. Installing/Assembling

5.1 Unboxing

As the items inside the package can vary (depending on the client's requests), it is important to perform a cautious visual inspection before installing and assembling the turnstile. A checklist that works as a guide during inspection accompanies all Digicon packages. See below the parts that can compose **CATRAX Clip**:



ATENTION: *To avoid losses, the screws and the wrenches used for assembling the* ***CATRAX Clip*** *are attached to the box containing the arms. Before discarding the packing materials (cardboard and plastics), make sure all the items in the checklist are accounted for.*

5.2 Floor drilling and column fixation

Before installing **CATRAX Clip**, check:

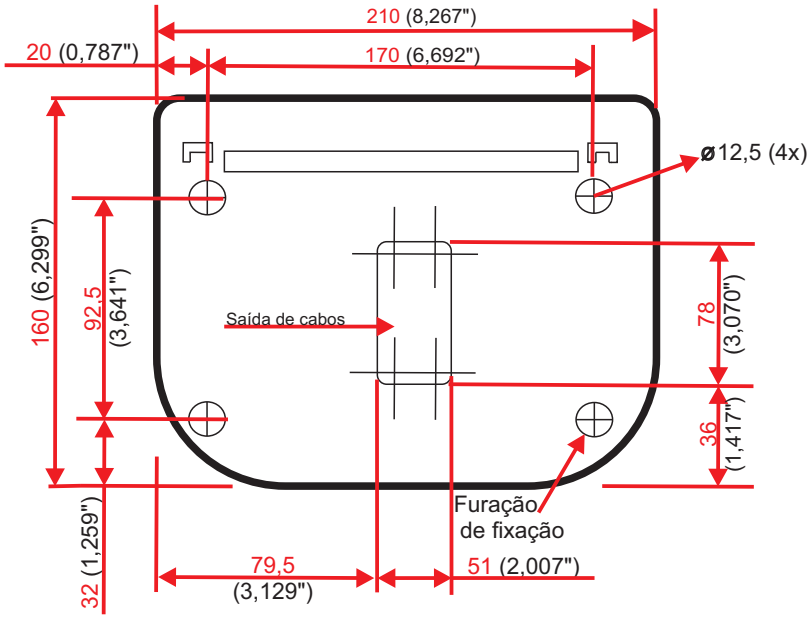
1. The place chosen for the installation.
2. If there is a power source or electric socket nearby (ducts for connection).
3. If the place chosen is adequate for the installation of the access controller (indoors).
4. If there will be enough space (minimum 5 cm) between the rear of the **CATRAX Clip** column and the wall. This space is important in order to provide access to the upper panel and plug's locks for the cables passage.
5. If there will be enough space for the arms after **CATRAX Clip** is assembled.
6. If the floor is in conditions to receive anchor bolts (minimum of 4 cm of FCK15 M.P.A. concrete or equivalent).

ATENTION: *To see details on the dimensions of* ***CATRAX Clip****, see item 8 (technical characteristics).*

To fixate the column to the floor, observe the following steps and the indicated images:

1. drill the floor with 3/8" drills (then use a 12mm or the ½" drill). Make four external holes, according to the measures indicated in the image below:
2. Clean the holes, removing any debris from drilling.
3. Place the external part of the bolts in the holes. Leave about 25mm of the bolt out of the hole.
4. Position the column and fasten it to the floor with the four screws that accompany the bolts. Use a flex-head socket wrench with ¾'' or an articulated socket wrench.

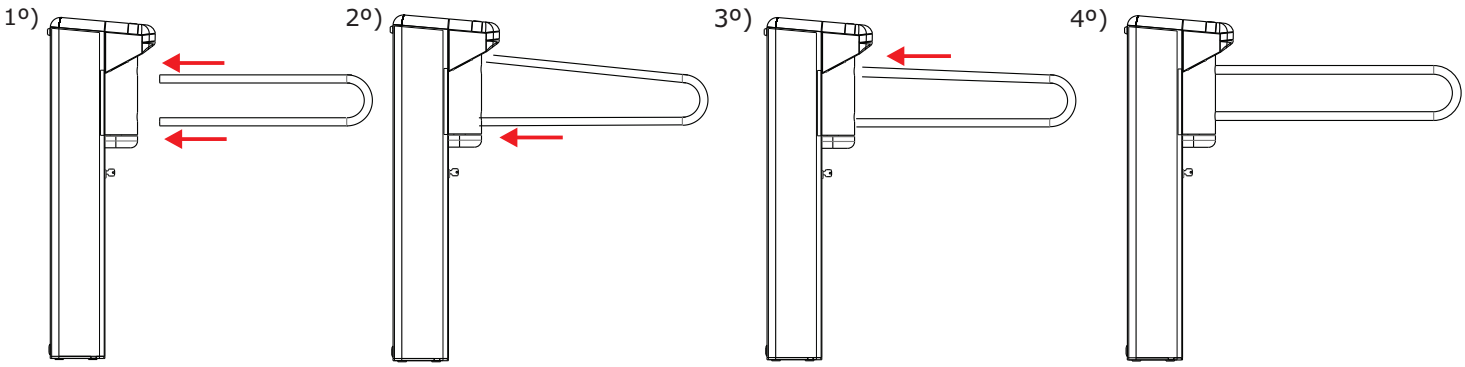
TIP: *We recommend the bolts by the brand Tecnart, model AF38110, 3/8x4''.*



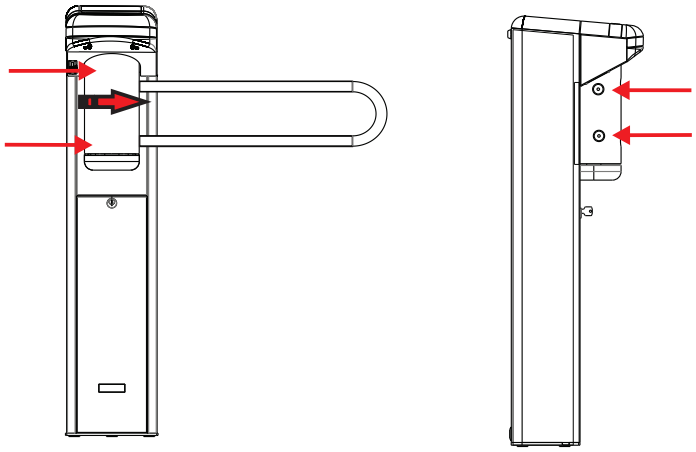
5.3 Assembling the arms

After drilling the floor and assembling the column, it is possible to assemble the arms and plastic covers.
The sequence below shows the instructions to help assembling **CATRAX Clip's** arms. Digicon suggests that two people assemble the arms.

1. With **CATRAX Clip** already unboxed and installed, set the arms close to the tube's frontal holes (central axis). First, fit the arm's lower rod and press the upper rod so it reaches the respective hole.



2. Once the arm has both rods duly fitted, turn the arm to one side up to about 180 degrees or until it reaches the end of its track. You will notice there are two holes on the back of the tube.
3. Use an Allen n.5 wrench to fasten the arms to the holes using the bolts and washers provided with the product.



INFORMATION:
- The cover to access the screws is open/closed by pressure (fitting).
*- To assemble the **CATRAX Clip's** arms, use an Allen n.5 wrench.*

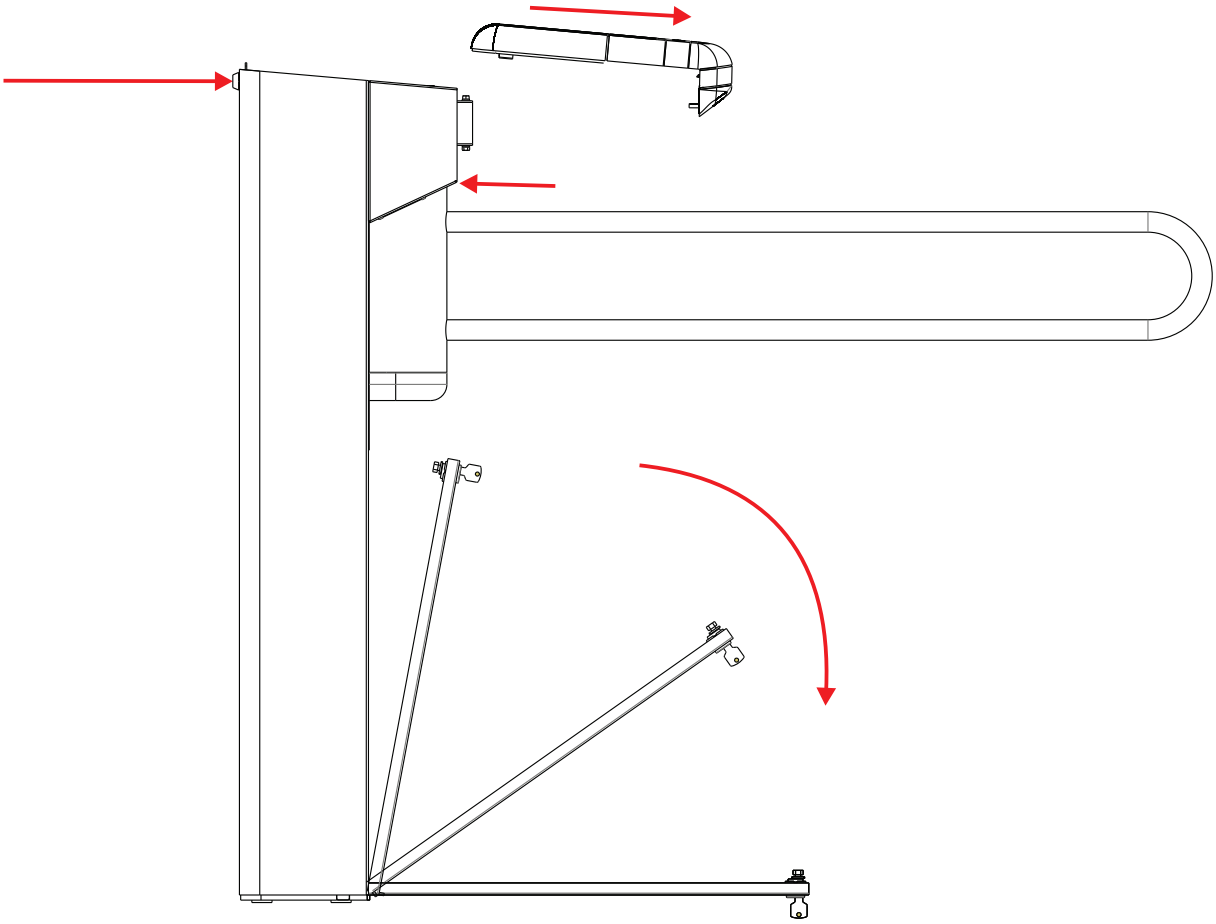
5.4 Accessing Catrax Clip after assembly

After **CATRAX Clip** is installed and assembled, access to the interior of the equipment can be done with the key that accompanies the equipment, in two ways:

- Rear cover and frontal cover: open the lock with the key at the rear of **CATRAX Clip;** unscrew the screws at the front of **CATRAX Clip**.

- Column door: Open the lock with the key and pull the door.

As shown below:

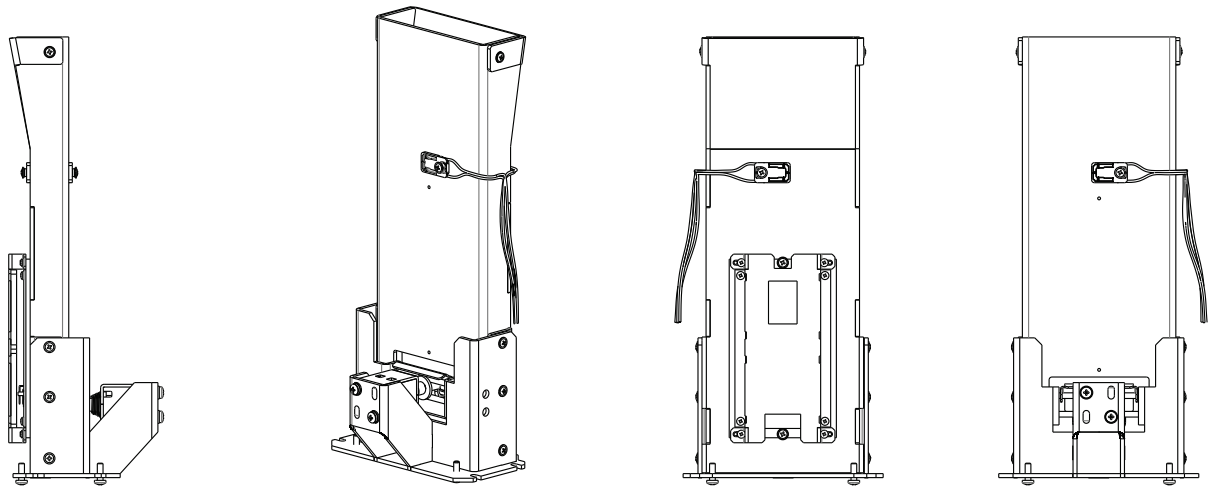


6. Installing/Assembling optional items

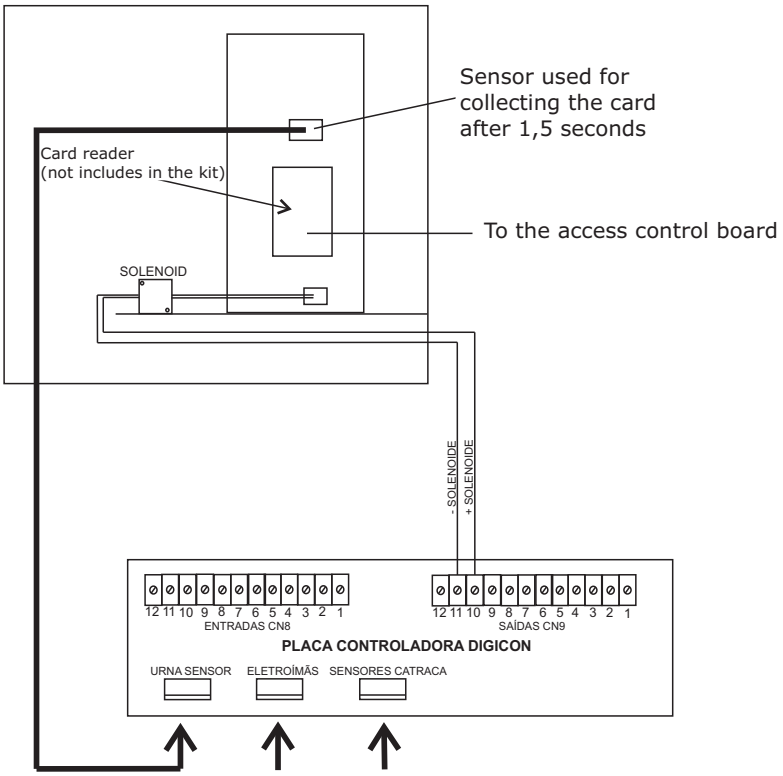
CATRAX Clip is compatible with most access control technologies in the market today; however, Digicon offers a range of optional items that allow enhancing and matching the equipment's performance to the client's needs. See the description of each of these items:

6.1 Collecting box kit

The collecting box kit has a device for collecting, retaining, and gathering cards or badges. It is ideal for places with eventual visitors or users. The kit is composed of a socket, a retention device activated by a solenoid, and a storage box. The image below shows the items that accompany the collecting box kit and may work as a guide for its assembling:



6.1.1 Connection of collecting kit to control board



INFORMATION:

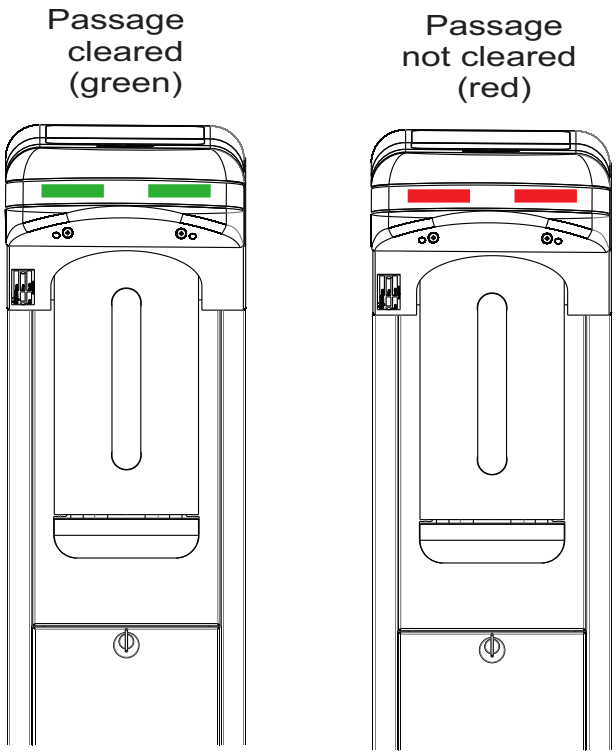
- The box for cards is part of the kit and is positioned under the collecting kit.

- The badge reader is not part of the kit.

TIP: *To obtain information about the collecting box kit's configuration, consult item 6.5 Control board.*

6.2 Operation pictogram kit

The operational pictogram kit visually signals if the passage is cleared or not (through green and red pictograms) on **CATRAX Clip's** front.

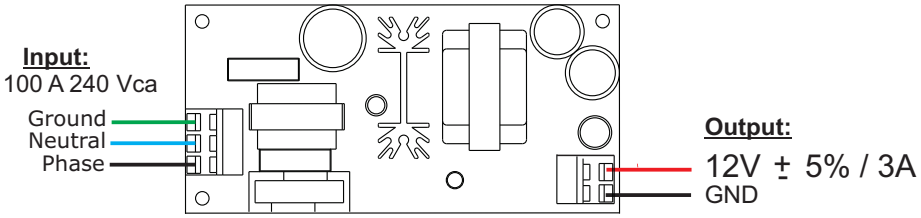


TIP: *To obtain information about the collecting box kit's configuration, consult item 6.5 Control board*.

6.3 Power supply

This power supply was especially designed for the CATRAX line. Among the main advantages of this optional item, is its adaptation capability to the voltage variations often found in installation sites – the input voltage can vary between 100 and 240 Vca.

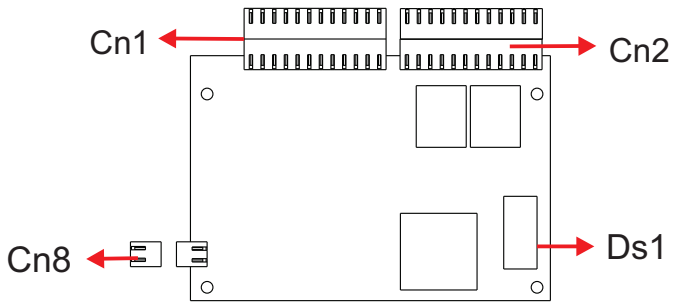
The supply's specific technical features, protections and dimensions were carefully tested and approved in hostile temperature and environmental conditions, which ensures the adequate power supply to the equipment's performance. Besides the input and output voltages indicated in the image below, the supply has a short-circuit and overheating protection.



TIP: *The power supply can be mounted to the board's support that accompanies* ***CATRAX Clip.***

6.4 Control board

CATRAX Clip's control board was designed to meet most technologies of access control terminals in the market. The controller have mechanical features and layout perfectly suited for the **CATRAX Clip's** needs and it is one of the best options for the equipment's operation.
The following images show the control board with its straps, connectors, and dipswitch, as well as the location of the power supply and the control board.



The table below describes the functions of the control board's connectors:

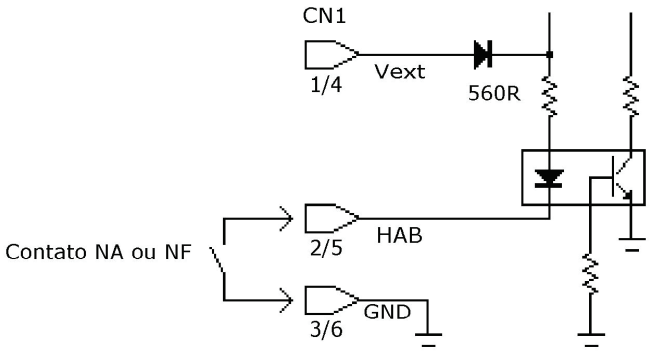
Signal	Name/Description
CN1	INPUTS
1	(+) vext1 (enables turn through voltage)
2	HAB1 (from right to left)
3	GND
4	Vext2 (enables turn through voltage)
5	HAB2 (enables turn through dry contact – from left to right)
6	GND
7	(+) 12Vcc (available to auxiliary – maximum 500 mA)
8	CLOCK1 (input for reader from left to right)
9	DATA1 (input for reader from left to right)
10	CLOCK2 (input for reader from right to left)
11	DATA2 (input for reader from right to left)
12	GND
CN2	OUTPUTS
1	NO or NC Contact (HAB1 return)
2	Contact C (HAB1 return)
3	NO or NC Contact (HAB2 return)
4	Contact C (HAB2 return)
5	Output for indicative X (open collector NPN – maximum 500 mA) orange wire
6	Output for arrow > (open collector NPN – maximum 500 mA) blue wire
7	Output for arrow < (open collector NPN – maximum 500 mA) green wire
8	(+) 24Vcc (indicative arrows' power) red wire
9	GND (indicative arrows' power) black wire
10	(+) solenoid of badge collector box
11	(-)solenoid of badge collector box
12	Sound signal (open collector – NPN)
CN3	POWER – POWER INPUT
1	Power input +12Vca
2	Power input GND
3	GND

CN4	BOX SENSOR
	1 LED Anode
	2 Box signal
	3 GND
	4 GND
CN5	ELECTROMAGNETS
	(+) Electromagnet 1
	(-) Electromagnet 1
	(+) Electromagnet 2
	(-) Electromagnet 2
CN6	OPTICAL SENSORS
	Sensor 1 signal
	LED 1 anode
	Sensor 2 signal
	GND
	LED 2 anode

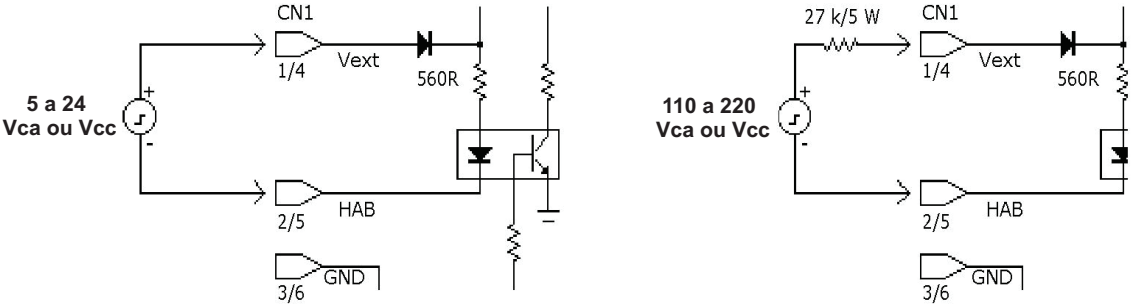
INFORMATION:
- The cables of the optical sensors (CN6) and the electromagnets (CN5) are provided alongside CATRAX Clip.
- The cable of the box sensor (CN4) is provided alongside the collecting box kit (optional)

6.4.1 Inputs

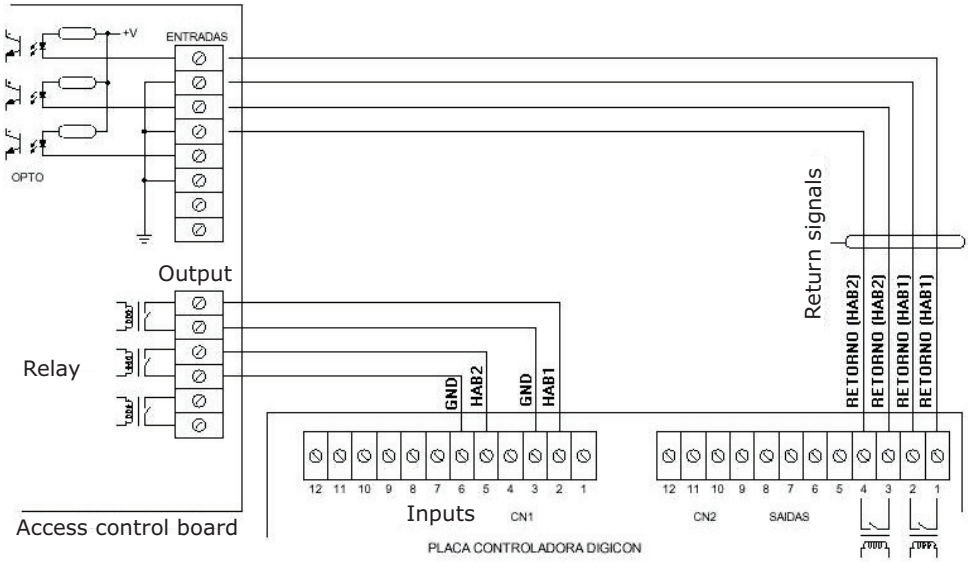
The input signals or passage clearance (HAB1 and HAB2) can be originated by a relay contact, pushbutton contact, tension from 5 to 24 Vca/cc, from 110 to 220 Vca/cc. To enable passage through relay contact or pushbutton, make the connection as shown below:



Enabling passage through tension pulse is shown in the image below. It is necessary to observe the polarity of the Vcc voltages and to use an external resistor for high voltages (110V and 220V).

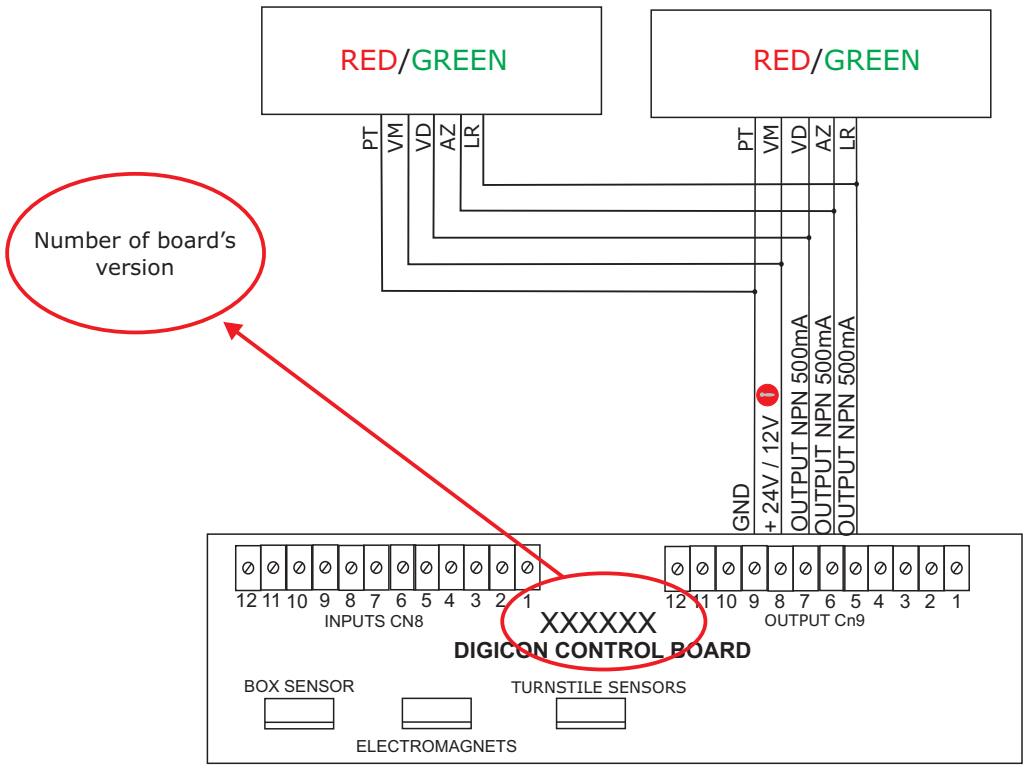


6.4.1.1 Connections scheme



6.4.1.2 *Pictogram*

NPN transistors (maximum 500 mA) activate pictogram's output. In the moment of activation, the GND is sent through the corresponding output.



6.4.2 Configuration of control board - Switch Ds1

The switch (or dipswitch) DS1 allows programming the following actions:
-passage direction
-Maximum time for passage
-NO inputs (relay or pushbutton contact normally open and without input voltage), enabling passage in face of these signals; or NC inputs (relay or pushbutton contact usually closed and with input voltage), enabling passage in the absence of these signals.
-enabling of a signal for a sound alarm if the access control remains at mid passage for more than 2 seconds.

To program DS1, put each pin in the desired position, according to the table below:

	01	02	03	04	05	06	07	08
Cleared in both directions	-	-	-	OFF	OFF	-	-	-
Blocked from left to right	-	-	-	ON	OFF	-	-	-
Blocked form right to left	-	-	-	OFF	ON	-	-	-
Blocked in both directions	-	-	-	ON	ON	-	-	-
NO inputs	-	ON	-	-	-	-	-	-
NC inputs	-	OFF	-	-	-	-	-	-
Enables return from the start	ON	-	-	-	-	-	-	-
Disables return from the start	OFF	-	-	-	-	-	-	-
Enables sound signal in mid-turn	-	-	-	-	-	ON	-	-
Disables sound signal in mid-turn	-	-	-	-	-	OFF	-	-
Wait until first turn	-	-	-	-	-	-	ON	ON
Wait for 5 seconds	-	-	-	-	-	-	OFF	ON
Wait for 10 seconds	-	-	-	-	-	-	ON	OFF
Wait for 15 seconds	-	-	-	-	-	-	OFF	OFF
Habilitation per border	-	-	OFF	-	-	-	-	-
Habilitation per level	-	-	ON	-	-	-	-	-

INFORMATION: - The control board can be mounted to the support that accompanies **CATRAX Clip**. The shadowed area indicates the factory configuration of Digicon's board.

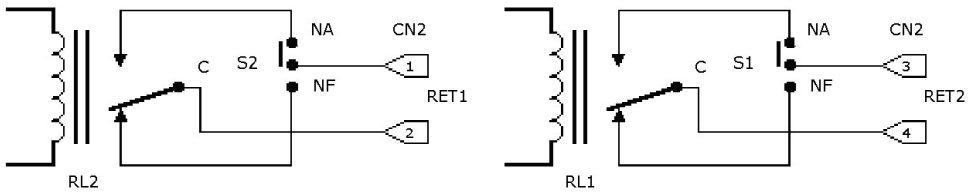
The control board also has inputs for optical controllers (Cn6), which monitor the **CATRAX Clip's** turning (there is no mechanical wear) and two opto-isolated inputs for liberating **CATRAX Clip** if necessary.

6.4.3 Outputs

CATRAX Clip presents outputs for return signals, electromagnets, pictogram, one collecting box, and sound alarm.

6.4.3.1.Return signals

Return signals indicate the moment and direction of passage and are originated at the relay – normally open contact (NO) or normally closed contact (NC). Connect the outputs according to the image below:



6.4.3.2 Eletroctromagnets

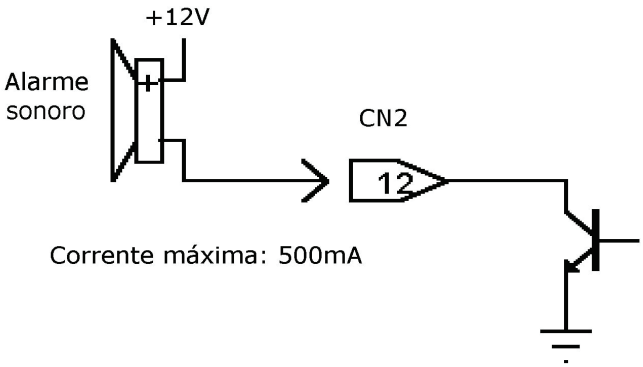
Electromagnets are activated for blocking the turnstile. Opposite to the traditional solenoids, electromagnets do not cause abrasion between the coil and the locking device, avoiding malfunctions. Moreover, the activation is done through a transistor, and not a relay, avoiding the electromagnet to be blown due to the "contact wielding" (there is no mechanical wear).

6.4.3.3 Sound alarm

The sound alarm output is activated by a NPN transistor (maximum 500 mA) every time that **CATRAX Clip**:

-receives a clearance signal (two short rings)
-is not cleared and is forced during 1 second (1-second rings)
-is stuck mid-turn for over 2 seconds (1-second rings)

Connect the outputs according to the following image:



6.4.4 Examples of some configurations

1 - Configuration of controller to receive a relay pulse (normally open contact), clear the turning and wait to turn for 10 seconds.

2 - - Configuration of controller to leave the clockwise direction always cleared and, when the HAB2 (anti-clockwise) clearance signal is received, clear passage for undetermined period.

3 - Configuration of controller to clear the turning while the relay has the contact closed and, as soon as the relay contact is open, remove clearance.

	1	2	3	4	5	6	7	8
Configuration	-	ON	OFF	ON	ON	-	ON	OFF

	1	2	3	4	5	6	7	8
Configuration	-	ON	OFF	OFF	ON	-	ON	ON

	1	2	3	4	5	6	7	8
Configuration	-	ON	ON	ON	ON	-	ON	ON

7.Maintenance

7.1 Preventive and corrective routine maintenance

Sphere base – Periodicity: every 700,000 cycles
The wear of the spheres' track must be checked

Corrective actions:
1. In case of excessive wear (chipping, perforations, fillings or grooves where the sphere turns) replace the part.
2. If the part presents no wear, clean it and grease it using bearing grease.

Optical sensors – Periodicity: Once a year or more (depending on environmental conditions)

This routine maintenance requires the use of a multimeter. To check for the need of corrective actions, you must measure the CN11 with the controller turned on, according to the instructions:
-In the multimeter, select the Vcc measuring voltage of up to 20Vca. Then, place the black pointer on pin 4 and the red pointer on pin 1 of the CN11. Voltage should be lower than 0.8Vcc (non-obstructed sensors). With the pointers at the same position, force the equipment's arms to both directions (in one of the sides, the voltage should be higher than 4.5Vcc).
-Repeat the same operation, this time placing the black pointer on pin 4 and the red pointer on pin 3 of the CN11. The results should be the same obtained with pins 4 and 1.
-Check the sensors for signs of dust.

Corrective actions:
1. If measurements are not according the data above, replace the faulty sensor.
2. Clean the sensors using a clean brush.

TIP: If the environment presents excessive dust, execute this maintenance routine more often.

Electromagnet – Periodicity: ever 7000,000 cycles
This routine maintenance requires the use of a multimeter. To check for the need of corrective actions, disconnect the CN10 from the access control board and check the electromagnets' resistance. The value must be between 12.5 and 13.5 ohms between pins 1 and 2 and 3 and 4 of the electromagnet's connector. After measuring, connect CN10 to the board again.

Corrective actions:

1. if you spot an incorrect resistance, a short-circuit or open electromagnet, replace it.

2. if the electromagnet is not working, check the board or the voltage

3. if the electromagnet is moving, fasten the base screws.

Electromagnets adjustments (if necessary)
1. Force the lock against the sprocket and the equipment's arm until the lock is completely inside the first teeth (until the arm is locked)
2. then, release the fixing screws and press the electromagnet against the lock's frame, so that its area is completely against the electromagnet
3. refasten the screws

Set of locks – Periodicity: every 700,000 cycles
To check for the need of corrective actions, you must:
-check the lock's correct position
-check the wear of the lock's fitting in the sprocket

Corrective actions
1. if the lock's position is incorrect, check the retaining ring and the spring that tightens the set
2. if the lock's fitting to the sprocket is incorrect, replace the lock or the sprocket
3. if lock's end is worn, replace the lock

Sprocket set – Periodicity: every 700,000 cycles
To check for the need of corrective actions, you must:
-check the wear of the sprocket's teeth
-check the gap between the central axis, the sprocket, and the keyway

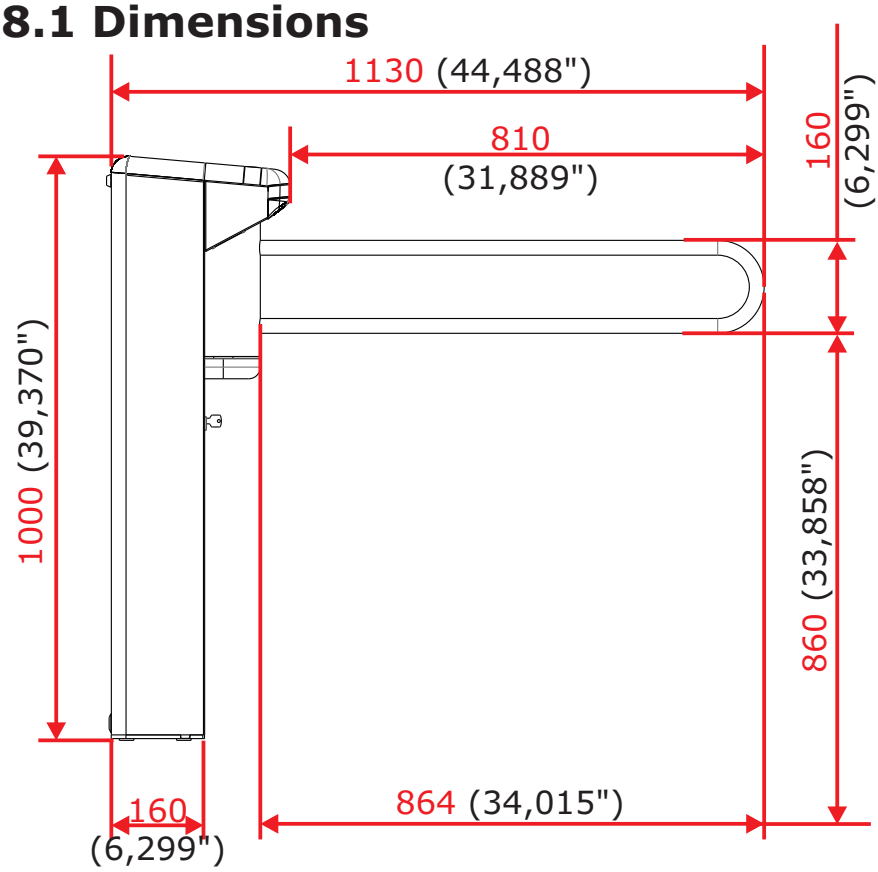
Corrective actions
1. if you observe wear on the parts' teeth, replace the parts
2. if you see a gap between the sprocket and the axis/keyway set, replace the sprocket or the keyway (to replace the sprocket, use a pulley puller)

7.2 Solving problems

Defect	Possible causes	Action
Will not turn on	• The power supply cable is not connected properly. • The fuse of the power supply is blown.	• Check the cables and the fuse (fuse:3A).
Does not activate the electromagnet (turnstile cannot be locked)	• The cable is broken or the distance between the electromagnet and the locking device is maladjusted.	• Adjust the electromagnet or forward the equipament to the Technical Assistance.
The arm does not remain in the correct position	• There is wear, dirt, a broken spring or lack of lubrication in the sphere base.	• Request a replacement for the faulty part or forward the equipament to the Technical Assistance.
CATRAX Fit does not lock in the first tooth	• The distance between the electromagnet and the locking device is maladjusted.	• Adjust the electromagnet or forward the equipament to the Technical Assistance.

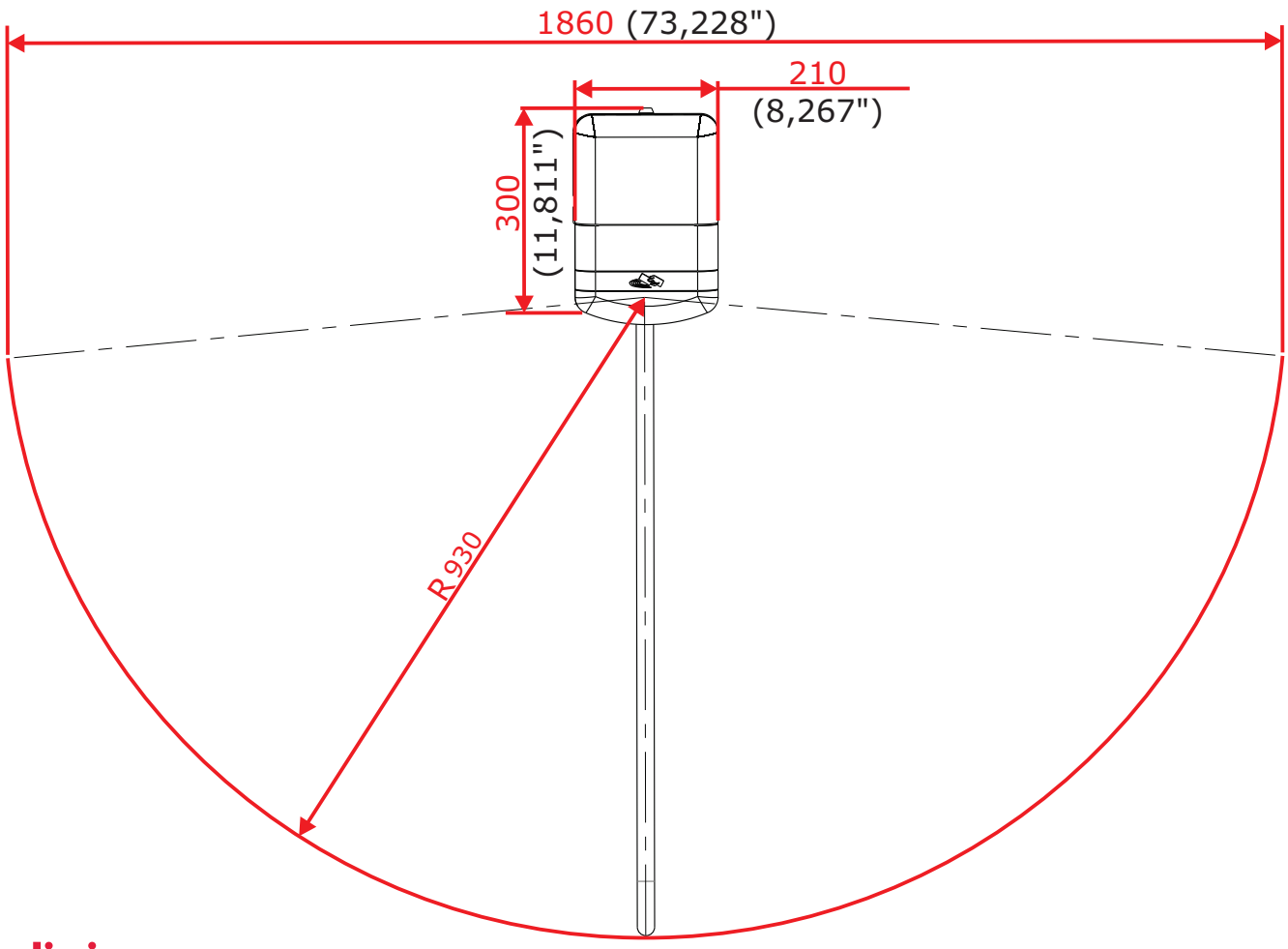
8. Technical characteristics

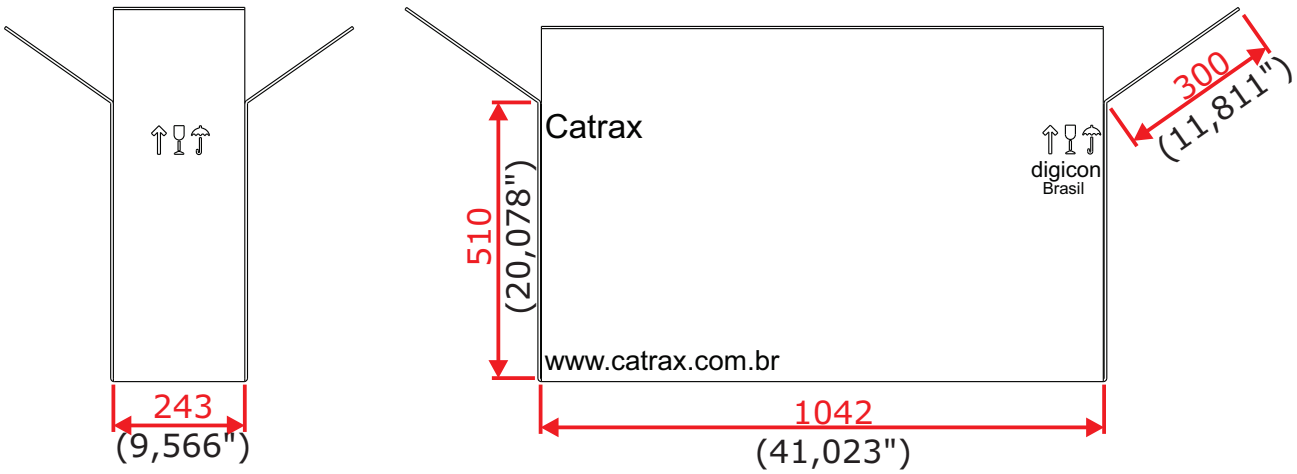
8.1 Dimensions



INFORMATION

- The arm's size (clip size) can be altered according to the client's order.
- *Measures in the images are given in millimeters (inches).*





***INFORMATION**: Measures in the images are given in millimeters (inches).*

8.2 Others information:

CATRAX Clip	
Gross weight:	Aproxim. 45 kg (package included)
Electromagnets power:	12Vcc / 2A
Power supply	Input: 100 Vca a 240 Vca Output: 12,0 Vca +/- 5% 3 A Dimensions: 35 x 51 x 105 mm Distance between holes: 43 x 98 mm Diameter of holes: 3,5 mm
Sensors power	5Vcc e 0,05 A
Operation temperature	De 0ºC à 50ºC
Power	7W (stand-by) 20W (peak/forcing the arm)

9. Cleaning

9.1 Maintenance and conservation of stainless steel:

Do not use chemicals, bleaches or cleaning products for household use;

Routine cleaning: The best products to conserve stainless steel are water, soap, mild and neutral detergents and ammonia-based removers diluted in lukewater and applied with a soft cloth or a nylon sponge. Then simply rinse with plenty of water, preferably lukewarm, and wipe dry with a soft cloth.

Fat, Oils and Greases: Clean the thick deposits with a soft cloth or paper towel. Then apply a warm solution of detergent or ammonia. Then follow the routine cleaning procedures.

Fingerprint: Remove with a soft cloth or paper towel moistened with isopropyl alcohol (found in compounding pharmacies or organic solvent (ether, benzene).

Labels, tags or protective layer: Take off as much as you can. Apply lukewarm to the piece and wipe with a soft cloth. If the adhesive persists, dry and rub gently with alcohol or organic solvent. But be careful: never scrape the surface of stainless steel with thick blades, spatulas or abrasives.

Rust spots: With a cotton swab dipped in water and nitric acid at 10%, make topical applications, keeping the site moist for 20 to 30 minutes, repeating the operation if necessary.
More pronounced stains will require vigorous scrubbing of the stained surface with a paste made of fine household abrasive (abrasive cleaners), water, and nitric acid at 10% using a polishing tow.
The acid treatment should always be followed by an ammonia or sodium bicarbonate
solution rinse and routine cleaning.

Moderate dirt / light spots: When routine cleaning is not enough, apply a mixture made with gypsum or sodium bicarbonate, dissolving it with household alcohol, until it forms a paste. Use a soft cloth or nylon sleeve to pass this mixture onto the surface of the stainless steel. If you prefer, use a soft-bristled brush as well, taking care not to rub it, do it as smoothly as possible, using long, uniform strokes, towards the polished finish, if any. Avoid scrubbing with circular movements.
Then rinse with plenty of water, preferably lukewarm, and dry with a soft cloth.

Intense Dirt / Strong Stains: Make an application of warm or hot detergent, or a solution of an ammonia-based remover (household removers) and water. If this is not enough to soften burned foods or charred deposits, use more aggressive products, such as caustic soda removers used in household cleaning.

***TIP**: Even in the case of stubborn dirt, try cleaning with the milder method. Be patient and repeat the operation a reasonable number of times before resorting to more severe cleaning methods.*

10.Warranty and Technical Assistance

Digicon is responsible for the project, skilled labor, and quality of the materials used in the manufacturing of our products, ensuring that the equipment and all parts are free of manufacturing defects or problems. Digicon commits itself to replace or repair, as we choose, any part or equipment presenting manufacturing defects without any costs to the buyer, in our factory in Gravataí - RS or our branch office in Barueri - SP, in the conditions set below:

1.. The buyer is responsible for the costs of shipping (return service) of the product to the factory in Gravataí - RS or the branch office in Barueri - SP.

2. The warranty period is counted from the date of emission of the bill of sale and encompasses:
a) 12 (twelve) months for equipment, accessories, parts, and pieces, including the legal warranty period of 90 (ninety) days.

Legal warranty:
The customer has the period of 90 (ninety) days, from the date of emission of the bill of sale, to complain about apparent defects (easily observable in the product), such as the items that constitute the product's exterior and any other area accessible to the user, just like appearance parts and general accessories.

b) 90 (ninety) days for repairs or technical assistance

3. Warranty shall be granted to the buyer only in the face of the bill of sale (original or copy)

4. Warranty does not apply in the following cases or conditions:

a) defects and damages caused by accidents, negligence, or reasons of force majeure
b) defects and damages caused by inappropriate storage or lack of prolonged use
c) defects and damages caused by improper use of the equipment
d) defects and damages caused by improper operation or installation of the equipment
e) vandalism
f) natural impacts (lightning, flooding, etc.)
g) defects and damages caused by abnormal temperature conditions, voltage/frequency, or humidity out of the levels specified in the installation and operation manual, once proven
h) reconditioning, chrome plating, nickel plating, and painting

5. Warranty shall be automatically canceled for equipment that:
a) suffers modifications, adaptations, or any alterations performed by the client or by third parties without Digicon's written consent
b) goes through maintenance or repairs by people not authorized by Digicon
c) suffers alteration of serial number or violation of the identification label
d) is not paid for in the conditions, amounts, and deadlines described in the bill of sale

6.. Digicon is not responsible for eventual losses suffered by the down time of the equipment

7. The repair of a warranted product will be performed inside the Digicon facilities.

digicon

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