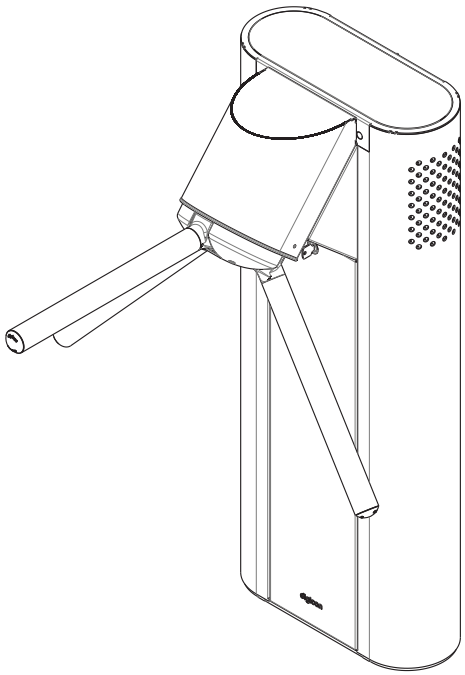
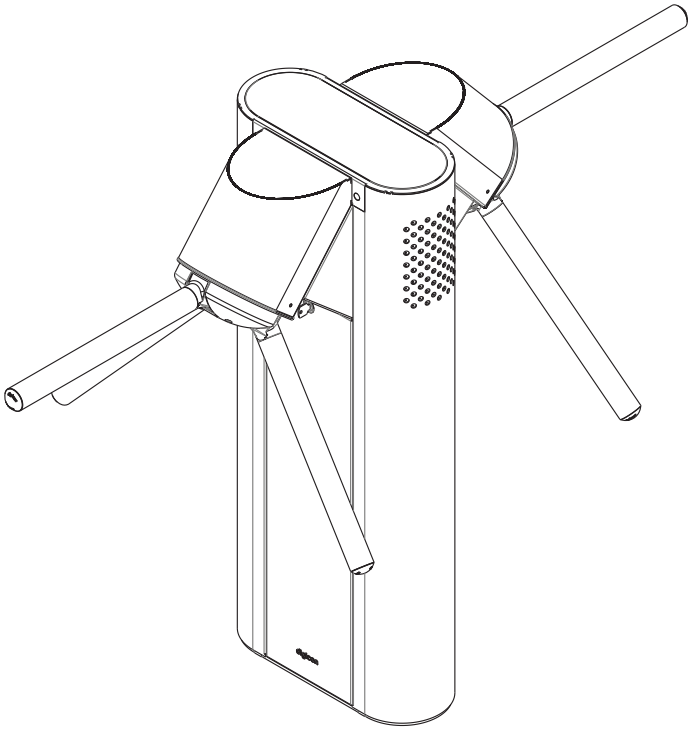
Product Manual

catrax GO uno duo





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 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.*

2. Orientations

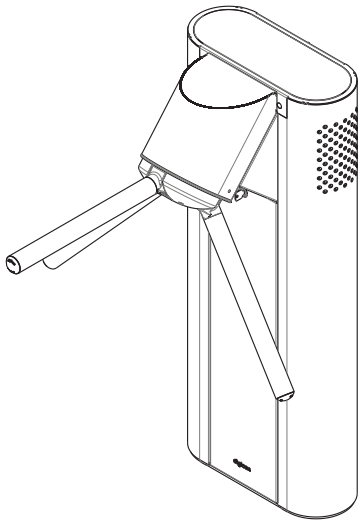
- Read the information and instructions of this manual carefully, before using the product. This ensures the correct use of the equipment and maximum use of its technical features as well as a prolonged service life.
- This product does not present sealing against the rain, that is, it is designed to be used indoors.
- Keep this manual for future consultations.
- Manufacturer reserves its right to alter its products at any moment to adapt them to more recent technical advancements.
- Manufacturer maintains its right to alter the information contained in this manual without previous notice.
- Manufacturer does not provide any contractual warranty concerning the information in this manual, and cannot be held responsible for errors it may contain and problems due to its use.

3. Introduction

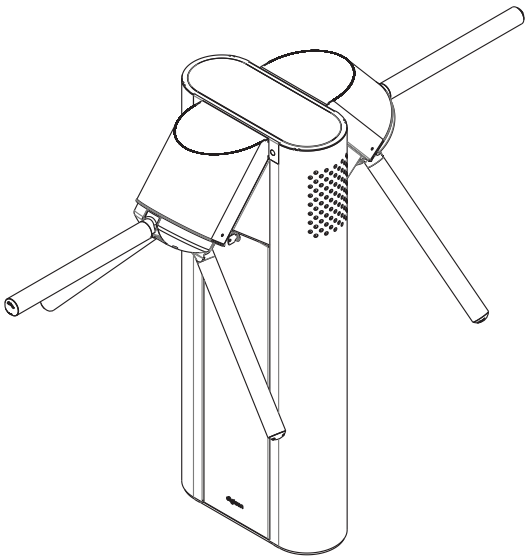
When innovation meets robustness and design meets reliability, you meet the best access controlling solution. Catrax is a new solution thought in all its details to bring innovation, quality, and design to the access control market. **Catrax Go** is the result of an intense process of research in global tendencies.

4. Features of Catrax Go

Catrax Go, an access controller in the model mini blockage (column type), presents three bidirectional, equidistant arms at 120 degrees with brushed stainless steel (AISI 304) finishing. There are two models introduced in this manual: **Catrax Go UNO** and **Catrax Go DUO**.

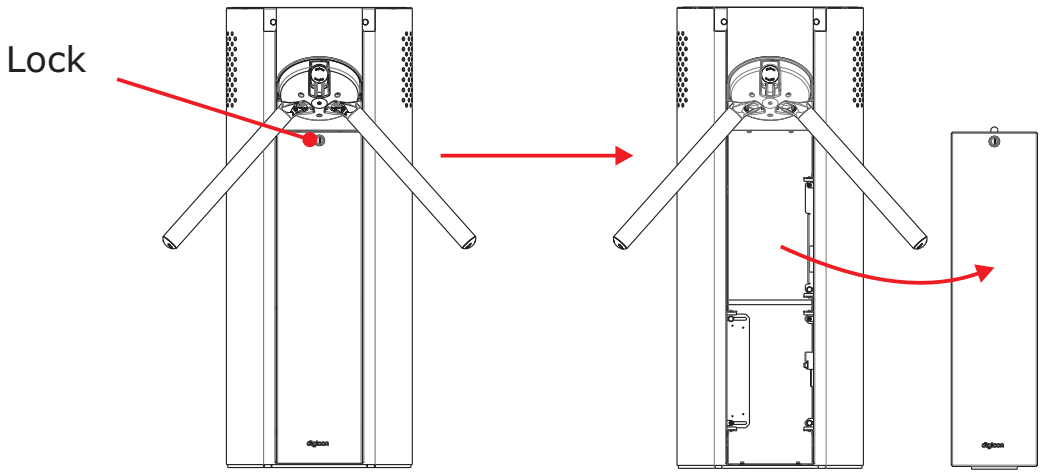


Catrax Go UNO



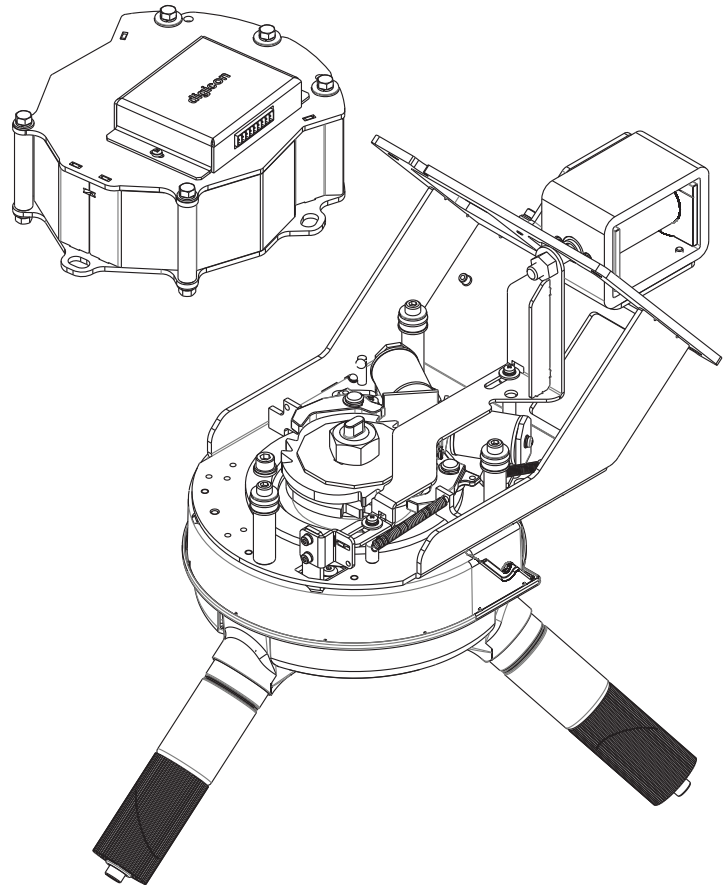
Catrax Go DUO

The column can present external finishing in brushed stainless steel (AISI 304) or SAE 1020 carbon steel with electrostatic painting in epoxy powder. It has reinforced structure, fully rounded corners, and non-exposed screws, offering space and comfort for any access control solution.
Aiming at facilitating assembly and maintenance, the column **Catrax Go** presents inner sliding drawers with standard holes for the attachment 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, whose removal and insertion are extremely easy.



4.1 Operation of Catrax Go

Catrax Go has bidirectional motorized rotation with two 24 Vcc electromagnets for activating the locks.
It also 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 turning of the arm of **Catrax Go**. After half of the turning is complete (60 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 Go** model and configuration, if the passage is forced without the enabling signal, an electromagnet will be activated to prevent turn. In addition, the equipment can emit a signal for a sound alarm and/or the exhibition of a red X 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 the operation mechanism of **Catrax Go:**



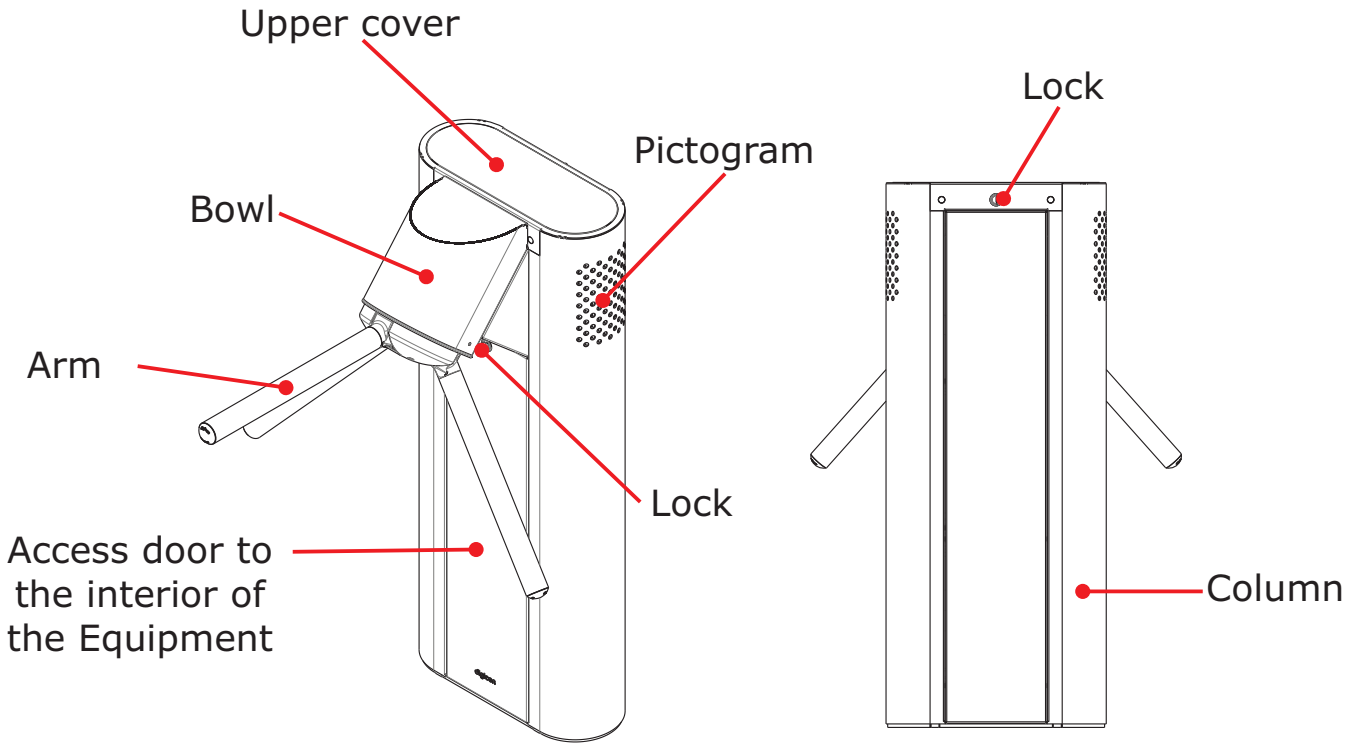
5. Installing and Assembling Catrax Go

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 Automatic Master:

ATTENTION: *Before discarding the package (plastic and cardboard), make sure all items from the checklist are accounted for.*

See below the parts that can form your **Catrax Go**:



ATTENTION: *In case of missing parts in your equipment, contact your commercial representative.*

5.2 Preparing for fixing

Before installing **Catrax Go**, check:

1. The place chosen for 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 for the arms after Catrax Go is assembled.
5. if the floor has conditions to receive anchor bolts (at least 4cm of FCK15 M.P.A. concrete or equivalent).

ATTENTION: *Once the installation of Catrax Go requires ground perforation, it is extremely important that the place for installation is chosen carefully.*

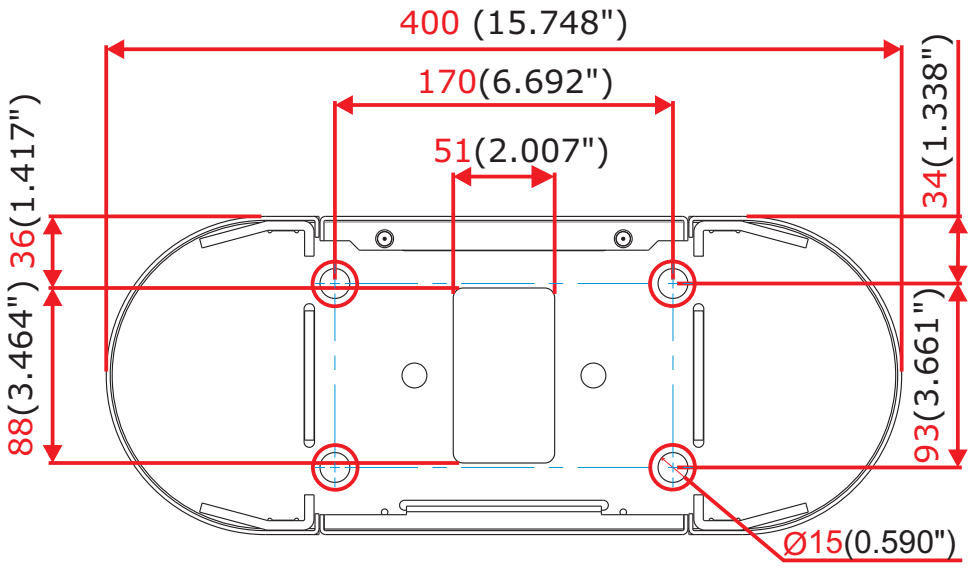
5.3 Fixing the column to the ground

The image below indicates the fixing points on the ground.

The surface must be firm and levelled.

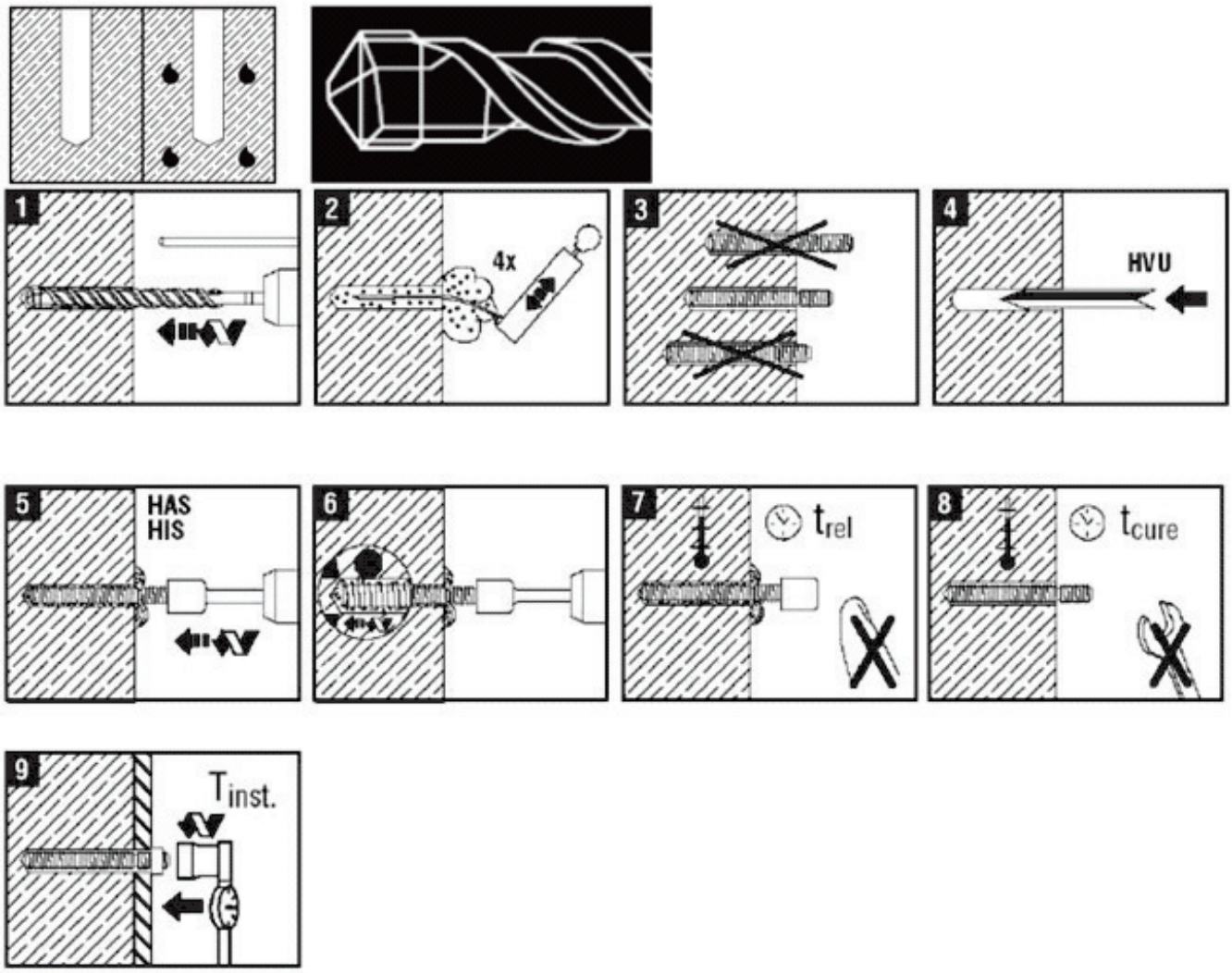
Fixing can be done through mechanical anchors, also known as parabolts, or chemical attachment.

◯ - Fixing points



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

With the fixing perforations ready, install the fixing threaded bars according to the drawing below. Digicon recommends using the chemical capsule anchor system by Hilti (www.hilti.com.br).



Step-by-step:

1. Use the 12mm drill to drill the hole with depth of 90mm (Threaded bar M10);

2. Clean the hole with an air blower or a vacuum to remove any debris.

3. Place the threaded bar inside the hole and measure the depth. The bar has a mark that must be leveled with the ground;

4. Place the capsule HVU inside the hole;

5. Attach the threaded bar to the drill and screw it until it reaches the hole's bottom or until the mark of the threaded bar is leveled with the ground;

6. Apply the drill until the chemical material rises to the surface;

7. Do not touch the threaded bar until the chemical reaction is over (10min);

8. Cure time according to the table:

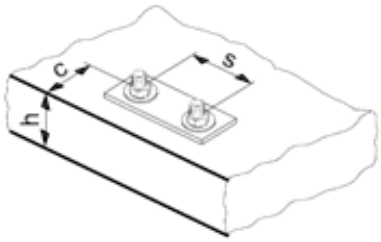
Cure time in general conditions

Data according to ETA 05/0255/0256/0257, edition 2010-03-01 / 2006-01-20	
Base material temperature	**Cure time necessary for the fixing to receive total load t_{cure}**
20°C to 40°C	20min
10°C to 19°C	30min
0°C to 9°C	1h
-5°C to -1°C	5h

9. Tightening torque and other information can be seen in the table below:

			Data according to the ETA-05/0255/0256/0257, edition 2010-03-01/2006-01-20							
Anchorage diameter			**M8**	**M10**	**M12**	**M16**	**M20**	**M24**	**M27**	**M30**
Nominal diameter of drill	d_0	[mm]	10	12	14	18	24	28	30	35
Effective depth of hole and anchorage	h_{ef}	[mm]	80	90	110	125	170	210	240	270
Diameter of hole on sheet	d_f	[mm]	9	12	14	18	22	26	30	33
Minimum space	S_{min}	[mm]	40	45	55	65	90	120	130	135
Minimal distance form edge	C_{min}	[mm]	40	45	55	65	90	120	130	135
Critical spacing for rupture by cracking	$S_{cr.sp}$		$2\ C_{cr.sp}$							
Critical distance from edge for rupture by cracking – Temperature range I										
Optimized for minimum thickness of base material	h_{min} [a)]	[mm]	140	160	210	210	340	370	480	540
	$C_{cr.sp}$	[mm]	160	180	220	250	340	420	480	540
Optimized for minimum spacing	h_{min} [a)]	[mm]	160	180	220	250	340	420	480	540
	$C_{cr.sp}$	[mm]	100	130	180	180	340	340	480	540
Critical distance from edge for rupture by cracking – Temperature range II										
Optimized for minimum thickness of base material	h_{min} [a)]	[mm]	110	120	170	170	220	300	340	380
	$C_{cr.sp}$	[mm]	130	150	220	250	340	420	480	540
Optimized for minimum spacing	h_{min} [a)]	[mm]	160	180	220	250	340	420	480	540
	$C_{cr.sp}$	[mm]	80	20	110	125	170	210	240	270
Critical distance from edge for rupture by cracking – Temperature range III										
	h_{min} [a)]	[mm]	110	120	140	170	220	270	300	340
	$C_{cr.sp}$	[mm]	80	90	110	125	170	210	240	270

Critical spacing for rupturing by cement cone	$S_{cr.N}$	$2\ C_{cr.N}$							
Critical distance from edge for rupture by cement cone	$C_{cr.N}$	$1{,}5\ h_{ef}$							
Tightening torque [b]	T_{max} [Nm]	10	20	40	80	150	200	270	300



Estimate resistances must be reduced to distances from edge and spacing smaller than critical values.

a) h: base material thickness ($h \geq h_{min}$);

b) This is the maximum tightening torque recommended to avoid rupture by cracking during installation for fixings with minimal distance from edge and/or spacing.

ATTENTION: *Optionally, Digicon can provide a steel template with exact measures of holes to attach Catrax Go*.

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.

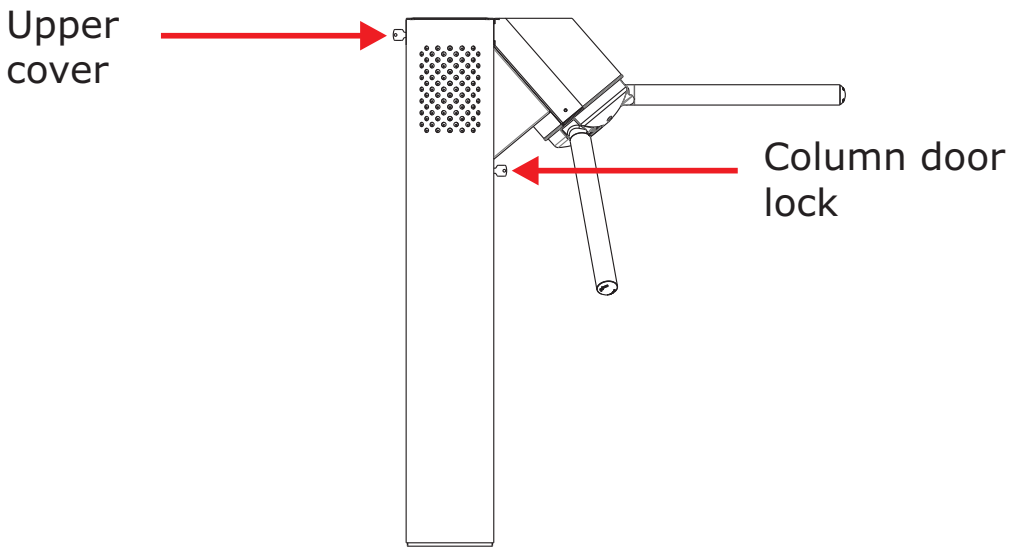
TIP: *we recommend anchor bolts by Tecnart, model AF38110, 3/8x4".*

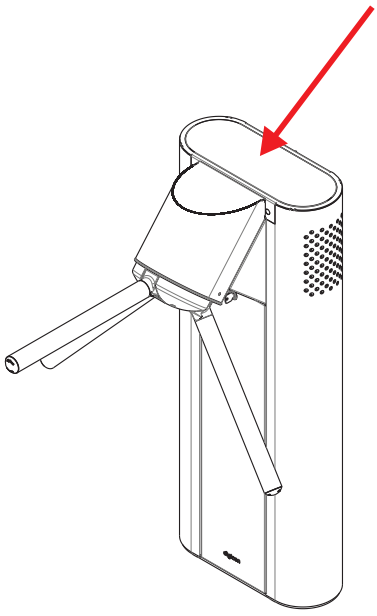
4. Position the column and fasten it to the floor with the four screws that accompany the bolts. Use a flex-head socket wrench with ¾'' or an articulated socket wrench.

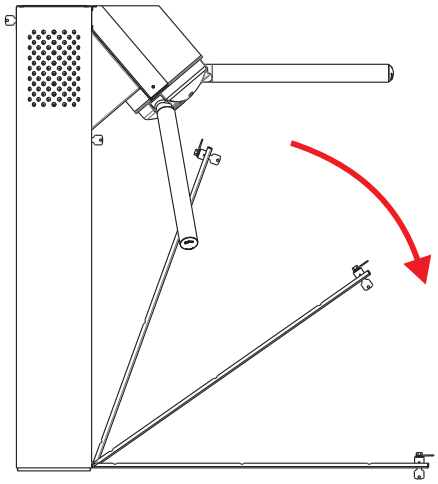
5.4 Accessing Catrax Go after assembly

After **Catrax Go** is installed and assembled, access to the interior of the equipment can be done with the key that accompanies the equipment, in 2 ways:

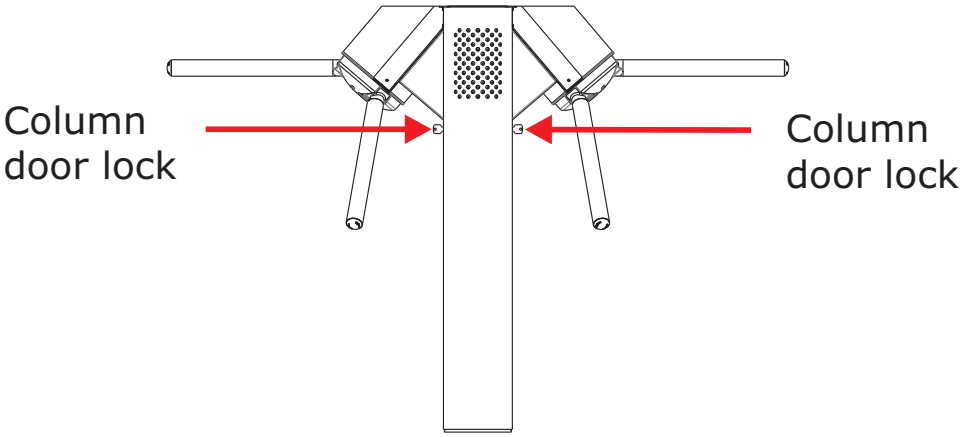
Catrax Go UNO

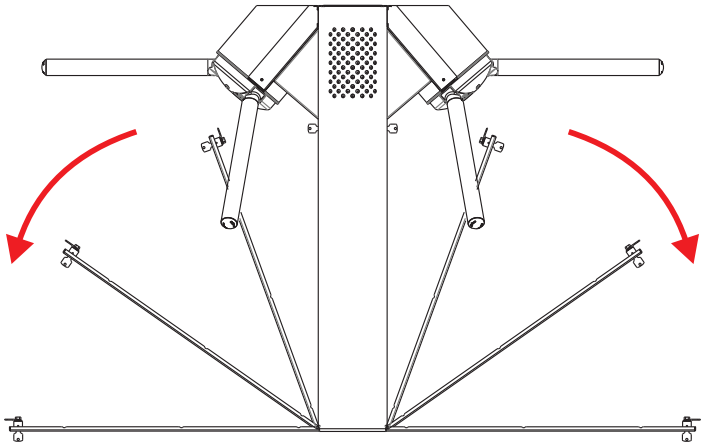


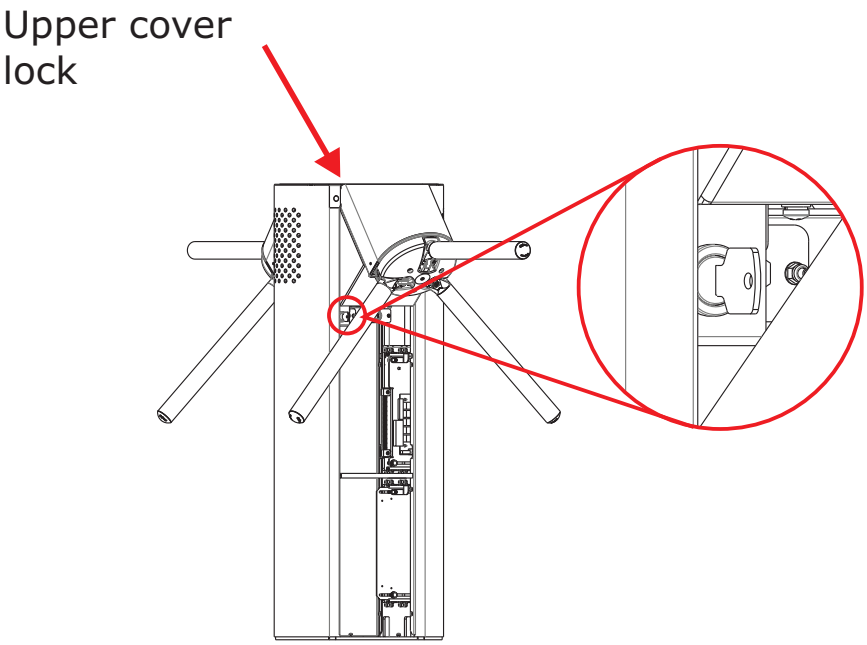




Catrax Go DUO





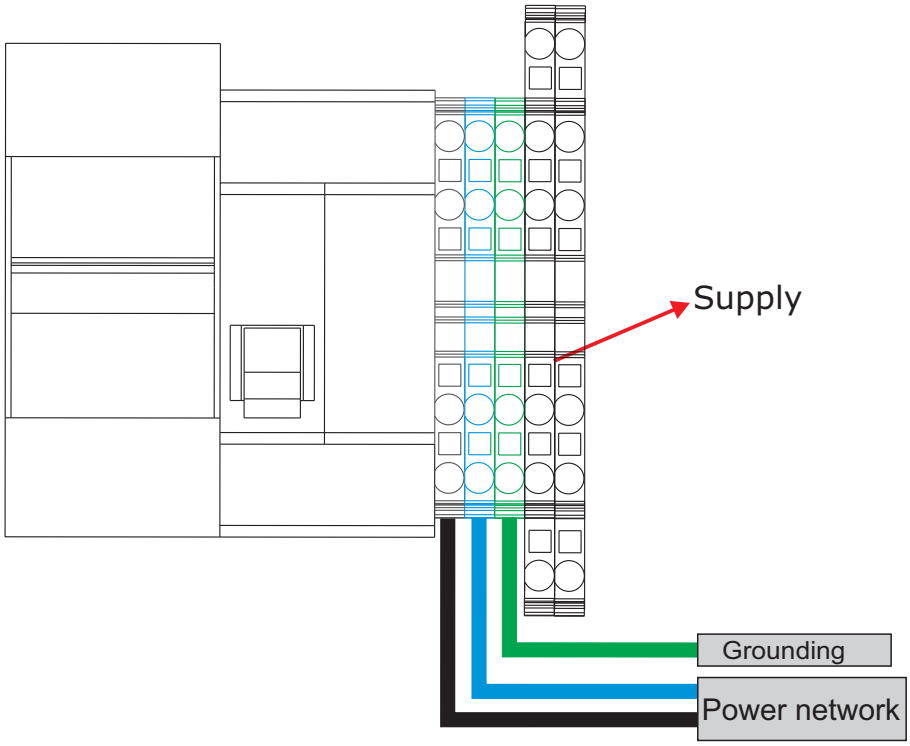


5.5 Connection to power and data networks

There two ways of supplying power to dTower:

1 With inner source: Power supply to the equipment must be 100 to 240Vca.
2 With outer source: Power supply must be 24Vcc (+/- 5%) by module.

We recommend using the norm NBR 5410 as reference for electrical installations of equipment pieces.
Power cables of power supply must be connected to the circuit breaker and the ground cable.



CAUTION: *Electrical connections must be performed by qualified professionals.*

TIP: *We recommend using good quality AC and grounding cables, with dimensions compatible with the distance until the switchboard. The data cable must be CAT5E. Recommended manufacturers: FURUKAWA and AMP.*

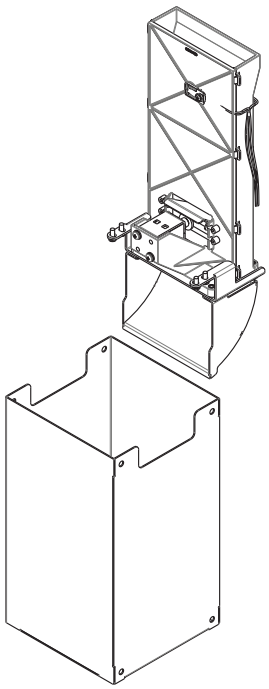
INFORMATION: *The circuit breakers mentioned above are optional items.*

6. Optional items

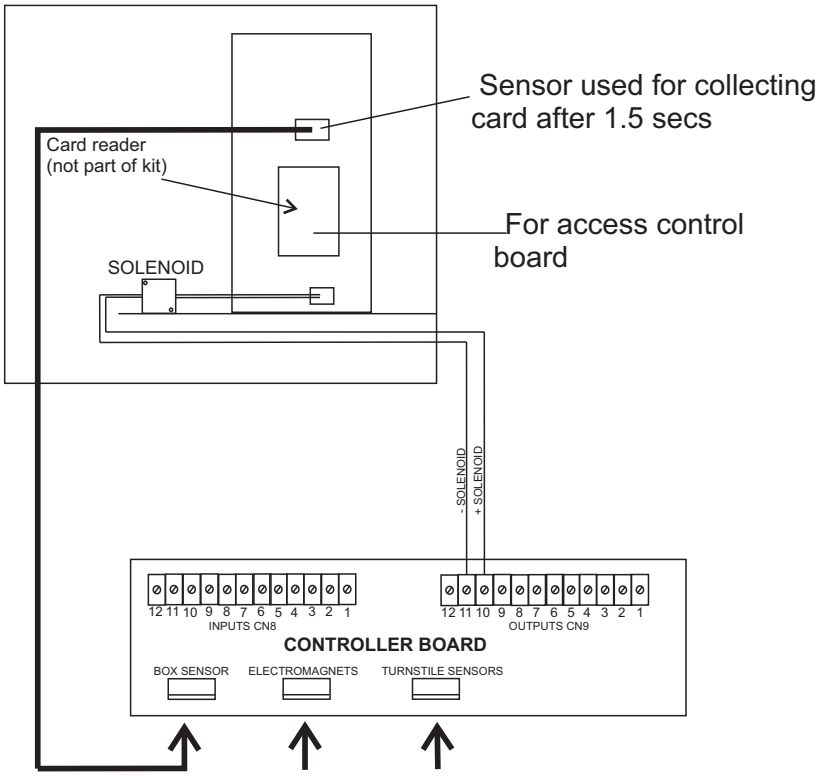
Catrax Go is compatible with most access controlling technologies in the market today; however, Digicon offers a range of optional items that allow enhancing and matching the equipment's performance to the client's needs. See the description of each of these items:

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. A retention device activated by a solenoid and a storage box compose the kit. The image below shows the items that accompany the collecting box kit and can be used as a guide for its assembly:



6.1.1 Connecting collecting kit to controller board



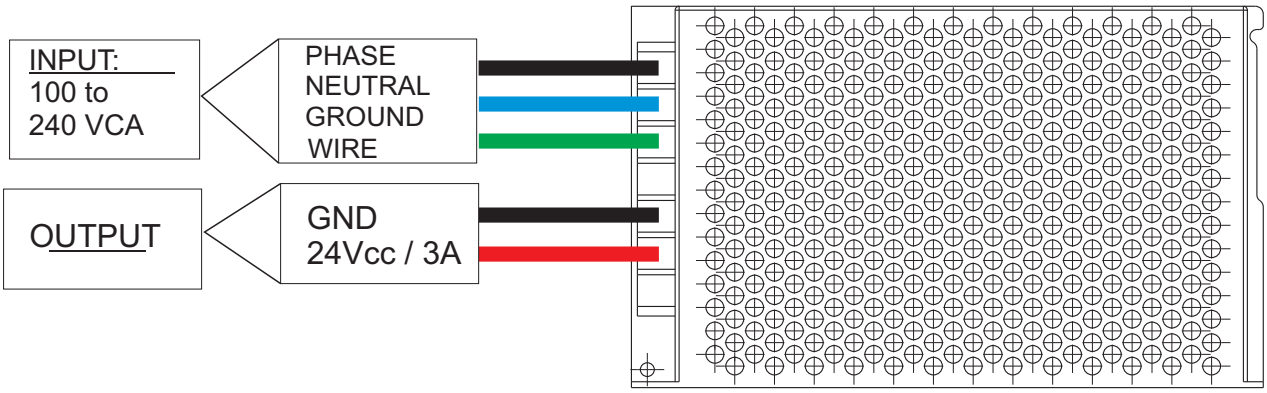
INFORMATION:

- 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.

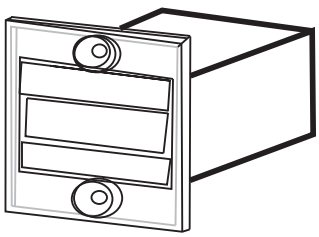
6.2 Power supply:

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.



6.3 Electromechanical counter kit

The counter kit presents six digits, from no return to zero, and is located on the bowl's upper part of the turnstile.
The counter presents pulse input, making it possible to detect turnstile rotations in a given direction. The device is also capable of counting single pulses (as other counters available on the market).

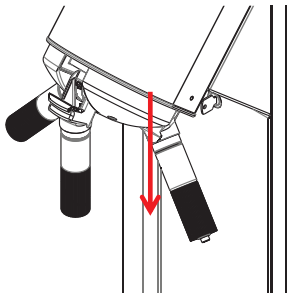


Technical characteristics:

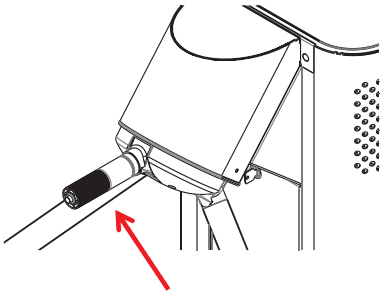
Power supply: 24 Vcc
Number of digits: 06 (no return to zero)
Digits size: 5 x 2 mm (height x width)

6.4 Assembling the arms

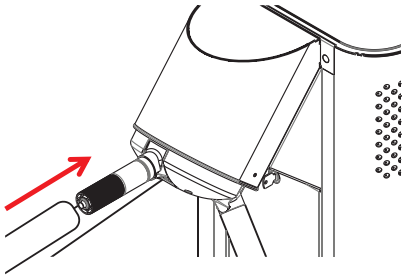
After positioning and aligning the turnstile in its operation place, it's time to assemble the arms. Make sure that you have all the necessary items and that the turnstile is turned off, once you will have to remove the bowl to screw in the arms.
The arms are provided disassembled. To assemble them, observe the following instructions.
The wrench used for assembling the arms is an Allen n.8 and the screws must be fastened to the maximum to ensure good fixation. All three arms must be fixed in the same upper central point.



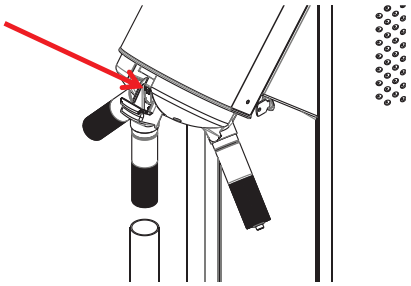
1st Let the mini arm drop



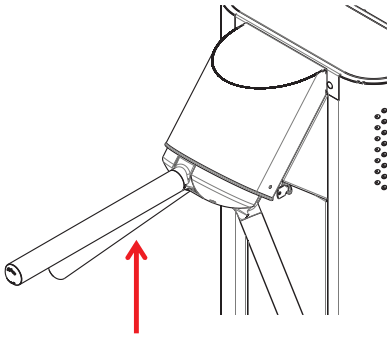
2nd Make sure the mini arm's plastic part is fitted into the steel part.



3rd Fit the stainless steel arm in the mini arm



4th Fixate the screw inside the mini arm using an Allen n.8 wrench



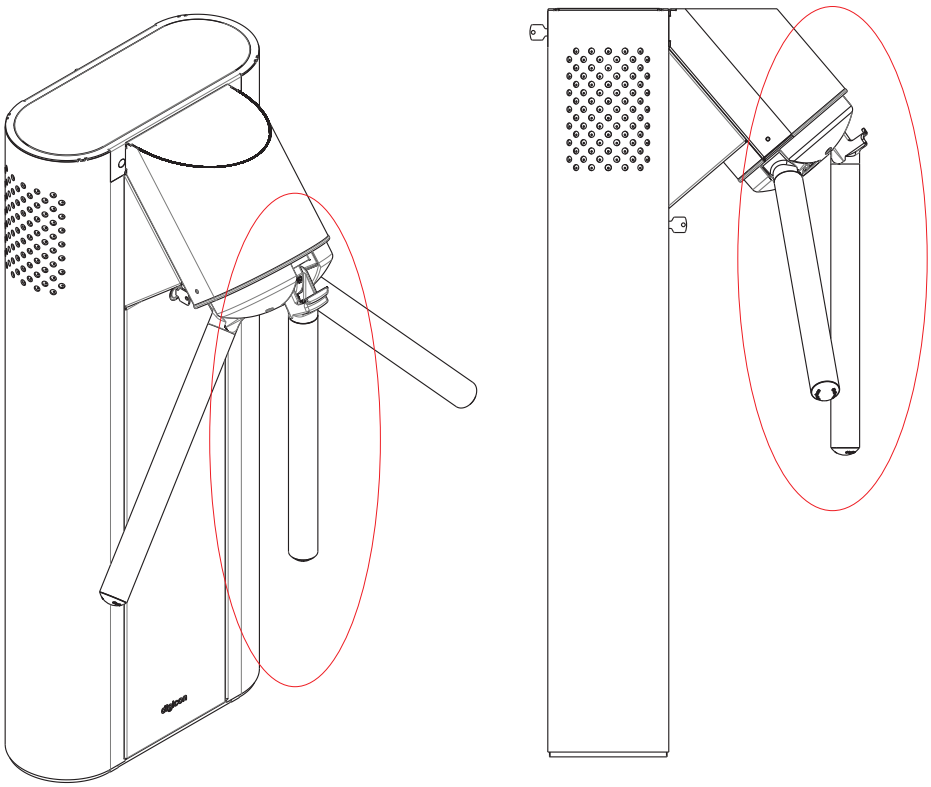
5th Put the arm back into its normal position

Repeat the operation on the three arms and make sure all arms are well fixed.

INFORMATION:
- The cover for accessing the screws is fitted into place, so pressure it to open or close it.
- To assemble the arms of CATRAX Automatic Master, use an Allen n. 8 wrench.

7. Anti-panic system

CATRAX Go has an electromechanical device for anti-panic system (also called drop-arm device). The mechanism is composed by a mechanical set activated by high-performance solenoid, maintaining the arm raised during normal operation. In case of power outage (when the installation has no no-break), or through a command sent via system, or the activation of an emergency button in the control room, the electromechanical device is deactivated, dropping the arm that prevents turn, clearing the entrance of any barrier. This device can be connected in series, allowing the clearance of all turnstiles at once from one single point.



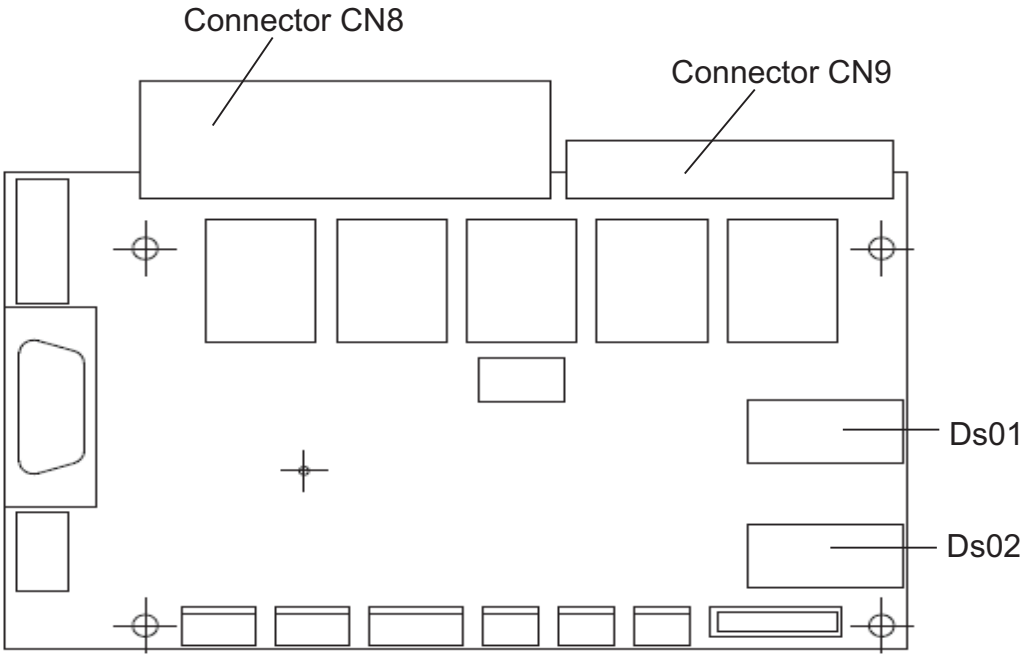
7.1 Maintenance test

The anti-panic system (drop-arm) was developed to facilitate the exit of people in emergencies. Thus, as a preventive measure, we recommend regular tests and inspections in this device (at least once a month). If the mechanism presents any defect, request maintenance to a technician or a qualified company.
Each inspection should carry out the following operational sequence for each of the three arms:

- set the arm on the horizontal position;
- turn the turnstile off;
- check if the arm drops (if the arm does not drop, contact the dealer);
- turn the turnstile on;
- raise the arm until it reaches its normal position (the arm must stay in horizontal position without external support; if it does not, contact the dealer);
- repeat the procedure three times for each arm.

8. Controller board

CATRAX Go'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 Go**'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 in **CATRAX Go**.



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

Signal	Name/Description
CN1	**BOX SENSOR**
1	LED node
2	Box signal
3	GND
4	GND
CN2	**JTAG – inner use**
CN3	**SERIAL RS - 232**
2	TX
3	RX
5	GND
CN4	**ENGINE**
1	DATA +
2	DATA -
3	GND_485
4	(+) 24V_EXT
5	GND
CN5	**POWER – SUPPLY INPUT**
1	(+) 24Vcc
2	GND
3	(+) 24Vcc
CN6	**TURNSTILE SENSORS**
1	Sensor 1 signal
2	LED 1 anode
3	Sensor 2 signal
4	GND
5	LED 2 anode
CN7	**AUDIO**
1	SIGNAL
2	GND
CN8	**ENTRADAS**
1	(+) vext1 (enables passage through voltage)
2	HAB1 (enables turn through dry contact – from right to left)
3	GND
4	Vext2 (enables passage through voltage)
5	HAB2 (enables passage through dry contact – from left to right)
6	GND
7	(+) 24Vcc (available to auxiliary – maximum 500 mA)
8	Vext3 (enables passage through voltage)
9	BQC (activates anti-panic system)
10	GND
11	Output for yellow pictogram
12	NC
13	NO or NC contact (bob return)
14	C Contact (bob return)
15	NO or NC contact (BQC return)
16	Contact C (BQC return)

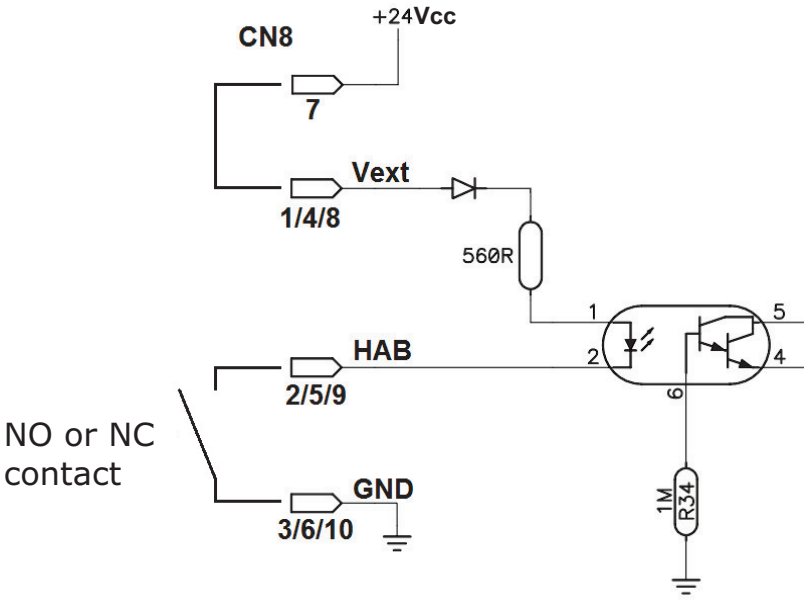
CN9		**OUTPUTS**
	1	NO or NC Contact (HAB1 return) 2
	2	Contact C (HAB1 return)
	3	NO or NC Contact (HAB2 return)
	4	Contact C (HAB2 return)
	5	Output for indicative X (open collector NPN – maximum 500 mA) orange wire
	6	Output for arrow > (open collector NPN – maximum 500 mA) blue wire
	7	Output for 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)
CN10		**SOL BQC**
	1	(+) 24Vca
	2	SIGNAL
CN14		**SENSOR BQC**
	1	(+) 24Vca
	2	SIGNAL
CN18		**ELECTROMAGNETS**
	1	(+) electromagnet 1
	2	(-) electromagnet 1
	3	(+) electromagnet 2
	4	(-) electromagnet 2

INFORMATION: - *The engine (CN4) and electromagnets (CN18) cables are provided alongside **CATRAX Go**.*

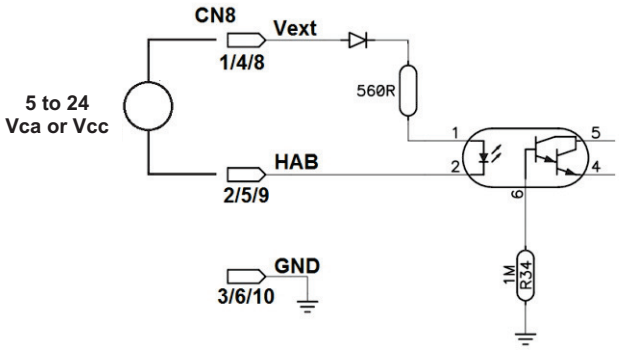
The following sections concern important aspects of CATRAX Master control board configuration and connections of **CATRAX Go**.

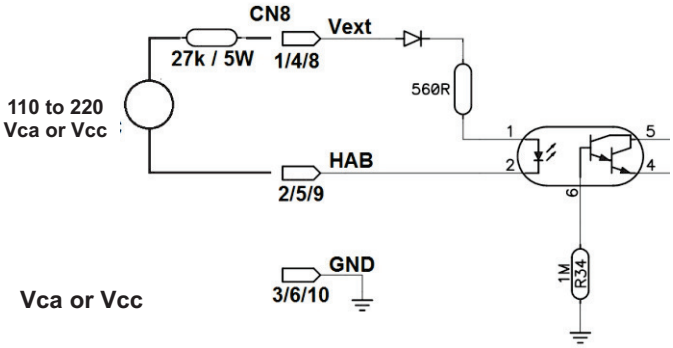
8.1 Inputs

The input signals or passage clearance (HAB1 and HAB2) or anti-panic (BQC) 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 CC voltages and to use an external resistor for high voltages (110V and 220Vca).



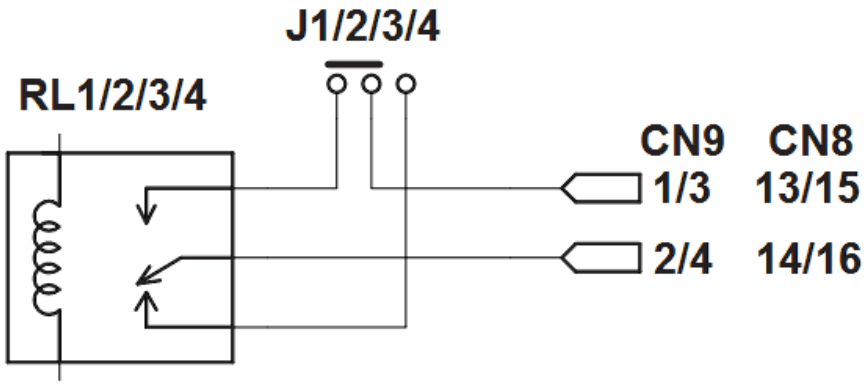


8.2 Outputs

CATRAX Go's board has outputs for return signals, electromagnets, pictogram, collecting box, and sound alarm.

8.2.1 Return Signals

The control board has 4 return signals, two to indicate the moment and the direction of passage, one to bob the turnstile, and one to indicate the anti-panic system's status. All signals are originated via relay – normally open contact (NO) or normally closed contact (NC). Connect the outputs according to the image below:



ATTENTION: *The relay contacts have maximum capacity of 1A @ 125 Vca.*

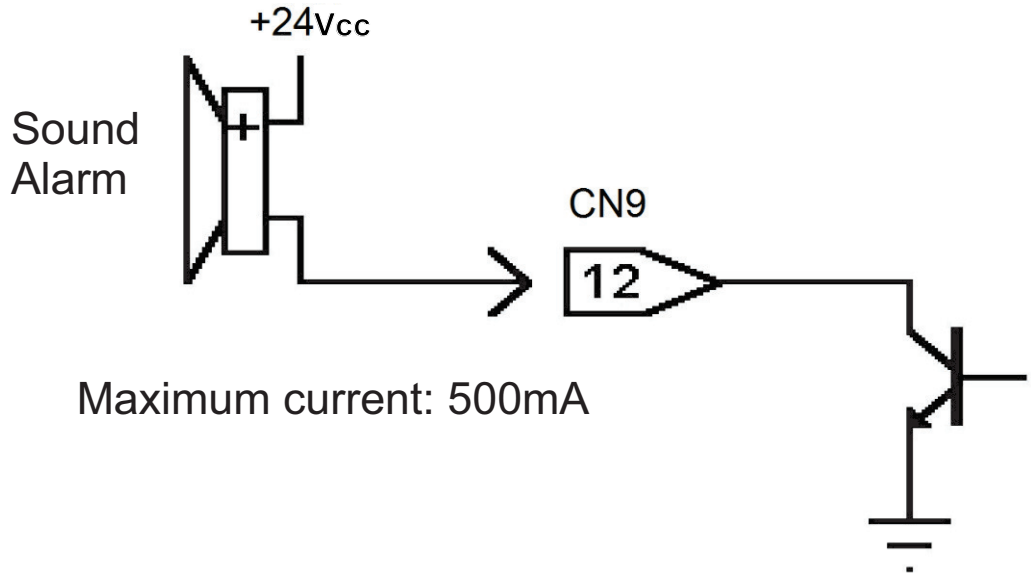
8.2.2 Electromagnets

Electromagnets are activated for blocking passage. 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).

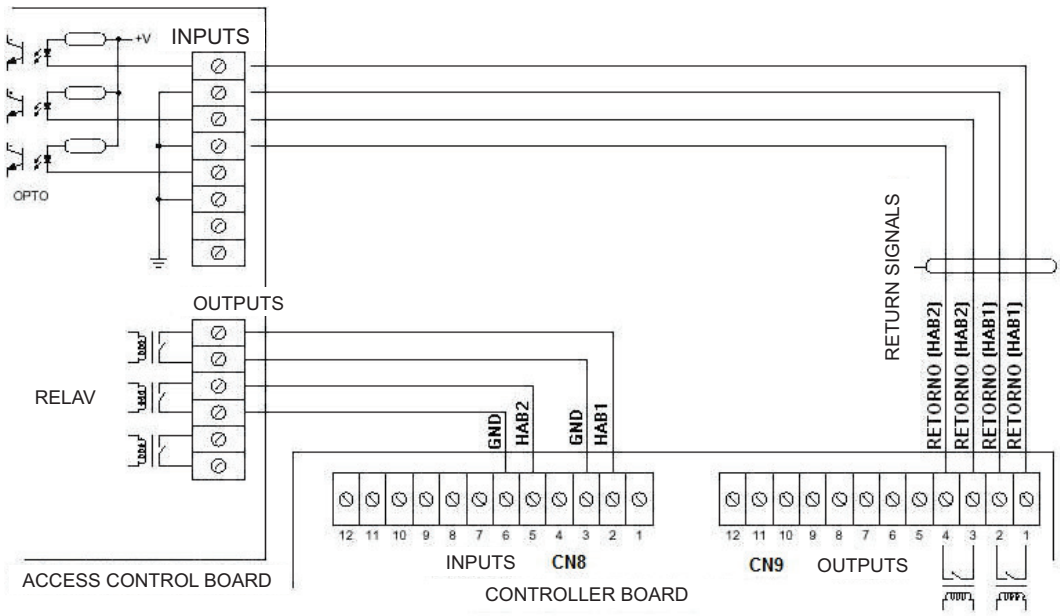
8.2.3 Sound alarm

A NPN transistor (maximum 500 mA) activates the sound alarm output every time that **CATRAX Go**:
-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:



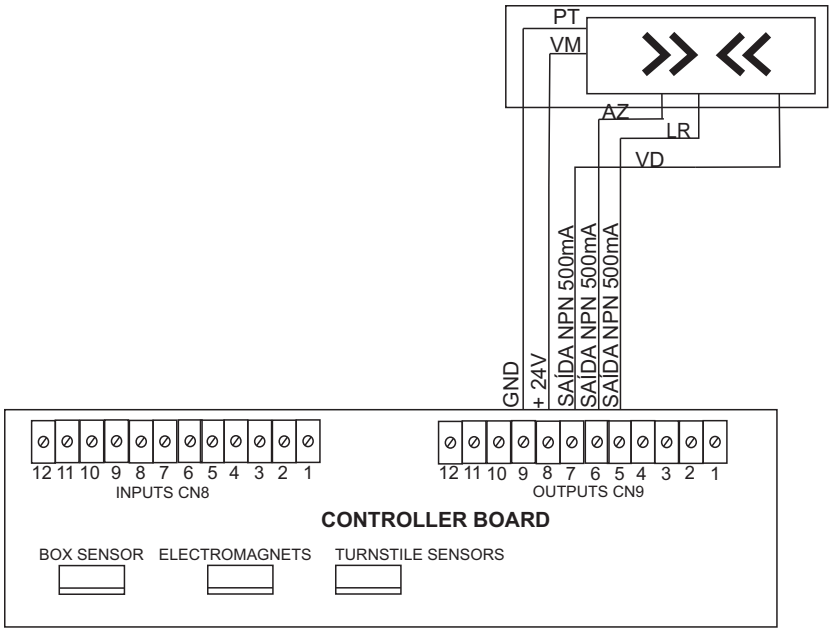
8.2.4 Connection scheme



8.2.5 Pictogram

The pictogram's outputs are activated by NPN transistors (maximum 500 mA) at the moment of activation, the GND is sent through a corresponding output.

8.2.5.1 Pictogram connections



8.3 Configuration of controller board – Switches DS1 and Ds2

The switch (or dipswitch) DS1 allows programming the following actions:
-passage direction
-Maximum time for turns
-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 turn for more than 5 seconds.

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

DIP SWITCH DS1								
SWITCH	1	2	3	4	5	6	7	8
Enables sound signal	ON							
Disables sound signal	OFF							
NO inputs		ON						
NC inputs		OFF						
Enabling per border			OFF					
Enabling per level			ON					
Blocked in both directions				ON	ON			
Blocked from right to left				OFF	ON			
Blocked from left to right				ON	OFF			
Cleared in both direction				OFF	OFF			
Enables sound signal halfway through turn						ON		
Disables sound signal halfway through turn						OFF		
Waits until first passage (no turn timeout)							ON	ON
05 seconds turnstile 120°							OFF	ON
10 seconds turnstile							ON	OFF
15 seconds turnstile							OFF	OFF

The switch (or dipswitch) DS2 allows programming the following actions:

- Invitation;
- turning speed;
- Passage counting;

To program DS2, put each pin in the desired position, according to the table below:

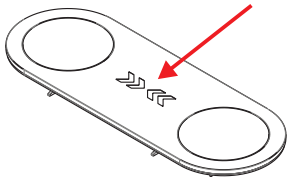
DIP SWITCH DS2							
SWITCH	1	2	3	4	5	6	7
Enables invitation	ON						
Disables invitation	OFF						
Nominal speed		ON					
Half nominal speed		OFF					
Enables clockwise counting			ON				
Disables clockwise counting			OFF				
Enables anti-clockwise counting				ON			
Disables anti-clockwise counting				OFF			
Enables bob return and disables collecting box					ON		
Enables collecting box return and disables bob return					OFF		
Retention time of card in the box for reading 1s						ON	
Retention time of card in the box for reading 2s						OFF	
Disk emulation for MCA							ON
Disables disk emulation							OFF

9. Pictograms

Catrax Go has two pictograms: direction and operation.

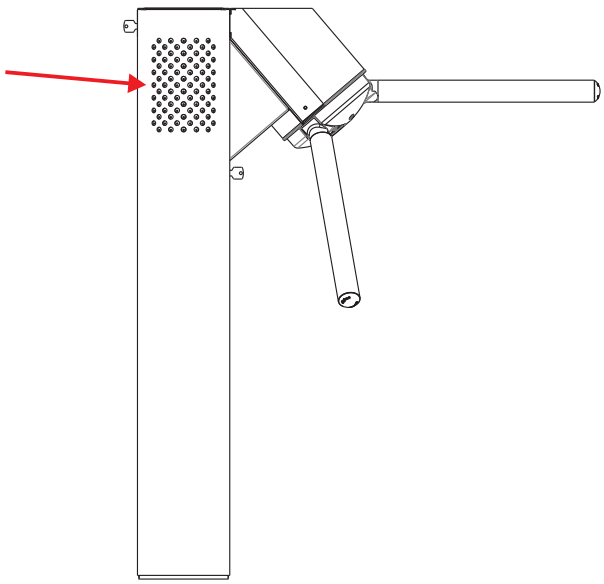
- **Operational pictogram (top):**

The operational pictogram is installed on the upper part of the equipment and is represented by red or green arrows.
LED lights flashing red, on both sides, represent passage not cleared.
LED lights flashing green indicating the direction of passage represent cleared passage.



- **Orientation pictogram (front):**

The orientation pictogram is installed on the edges of the equipment and is represented by a green arrow or a red arrow.
The red pictogram informs the user that **Catrax Go** is not operating in the indicated direction or that passage is not allowed.
The green pictogram informs the user that passage is free in the indicated direction.



10. Maintenance

10.1 Preventive and corrective routine maintenance:

ATTENTION: *Preventive and corrective maintenance must be performed by a professional trained/qualified by Digicon S.A.*

Electromagnets – Periodicity: ever 7000,000 cycles

This routine maintenance requires the use of a multimeter. To check for the need of corrective actions, disconnect the CN3 from the access control board and check the electromagnets' resistance. The value must be between 11 and 12.5 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.

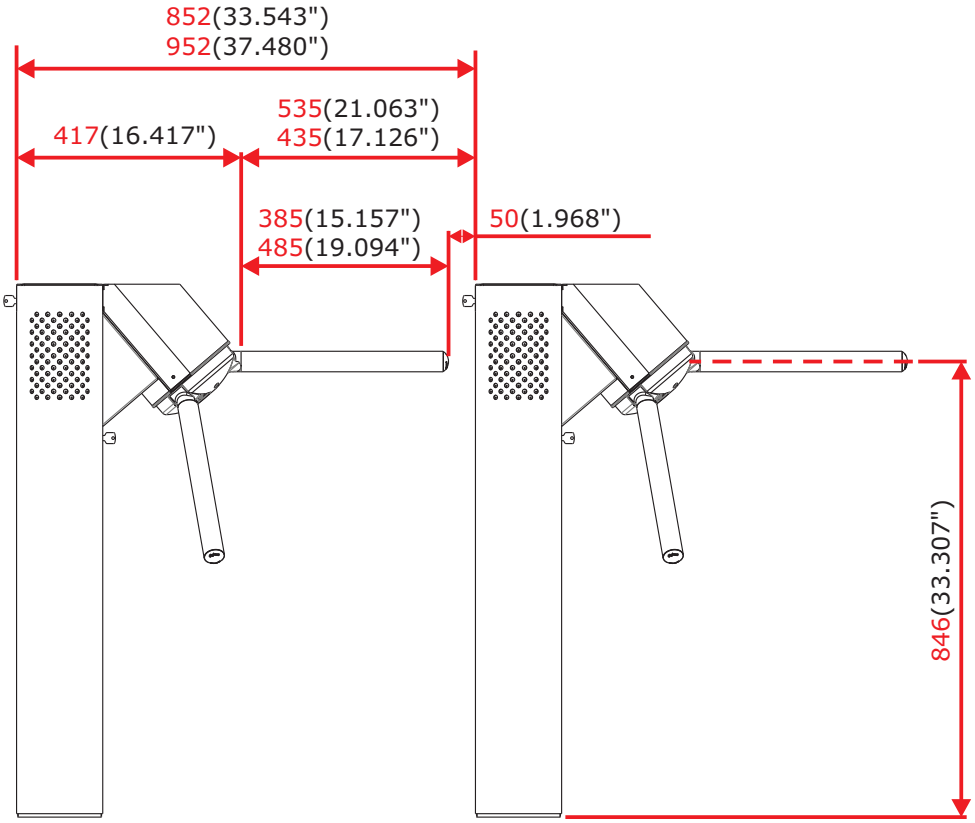
Corrective actions
1. if you observe wear on the parts' teeth, replace the parts.
2. if you see a gap between the sprocket and the axis/keyway set, replace the sprocket or the keyway (to replace the sprocket, use a pulley puller).

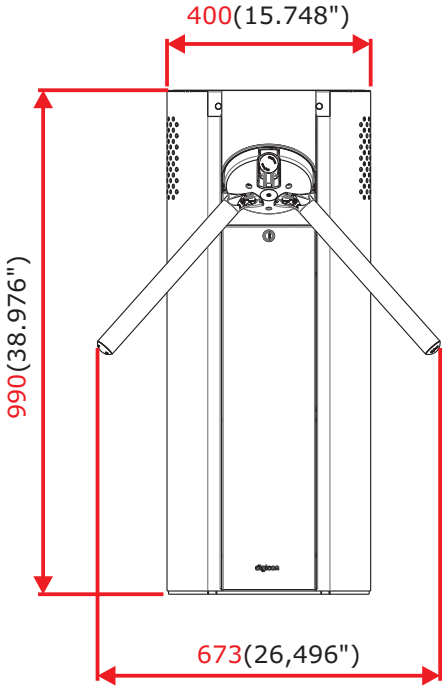
10.2 Problems and possible causes

Problem	Possible causes	Action
• **Catrax Go** WILL NOT TURN ON	• The power supply cable is not connected properly • The circuit breaker is turned off.	• Check the cables and the circuit breaker.
• **Catrax Go** DOES NOT ACTIVATE THE ELECTROMAGNET (TURNSTILE ALWAYS CLEARED)	• The cable is broken or the distance between the electromagnet and the locking device is maladjusted	• Adjust the electromagnet or forward the equipment 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 equipment to the Technical Assistance
• **Catrax Go** DOES NOT LOCK IN THE FIRST TOOTH	• The distance between the electromagnet and the locking device is maladjusted	• Adjust the electromagnet or forward the equipment to the Technical Assistance

11. Dimensions

Catrax Go UNO:



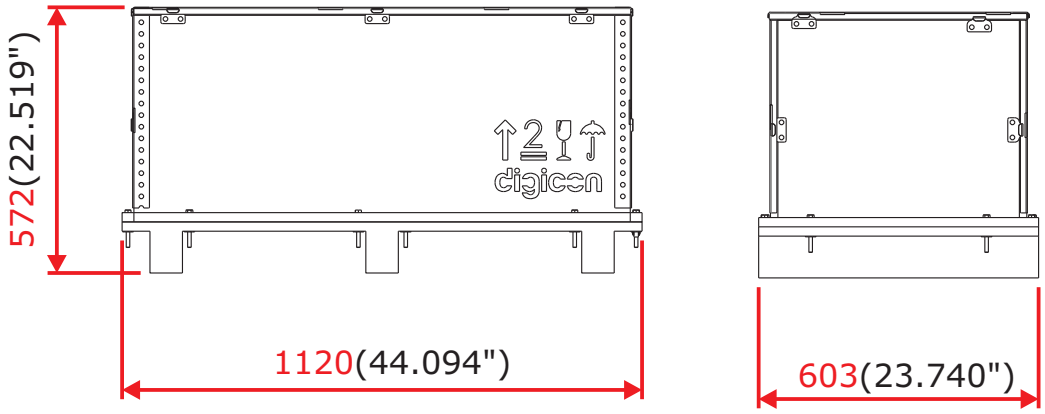


INFORMATION:

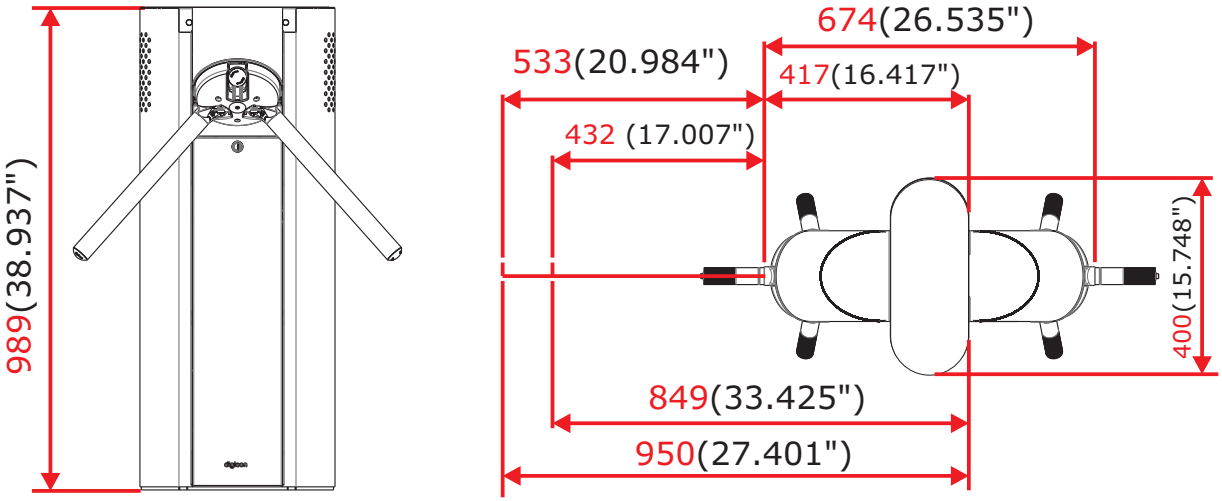
Measures in the images are given in millimeters (inches).

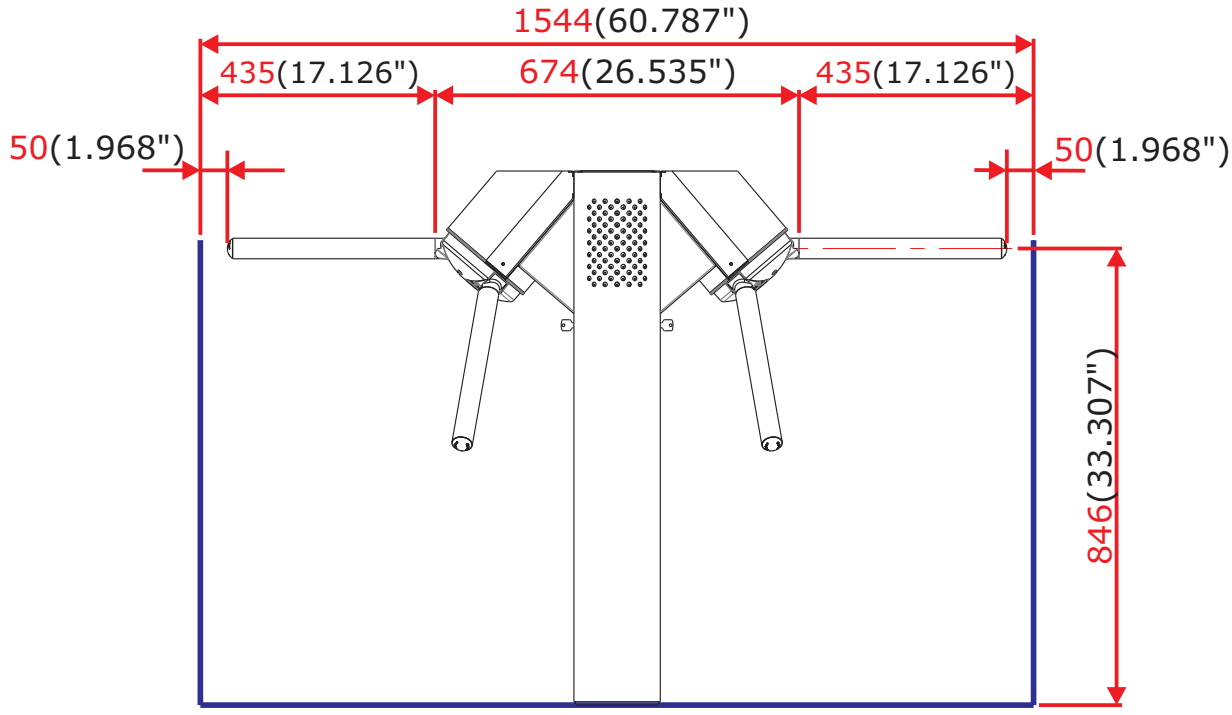
- *Catrax Go arm's size is adjustable, that it, it can vary according to the client's needs.*

Package Catrax Go UNO:

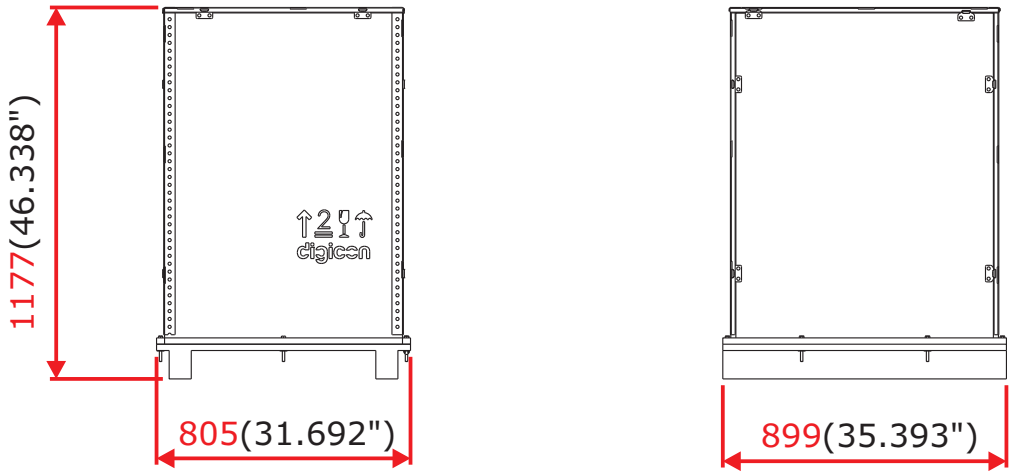


Catrax Go DUO:





Package Catrax Go DUO:



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

Other information	
Gross weight	Approx. 40 kg (package included)
Distance between arms	120 degrees
Electromagnets' power supply	24 Vcc / 2 A
Power supply	Input: 100 Vca to 240 Vca 60HZ Output: 24,0 Vcc +/- 5% 4,5 A
Operational temperature	From 0ºC to 50ºC
Power	Consumption during rotation is 36 W

12. Warranty and Technical Assistance

Digicon is responsible for the project, skilled labor, and quality of the materials used in the manufacturing of products, ensuring that the equipment and all parts are free of manufacturing defects or problems. Digicon commits itself to replace or repair, as they choose, any part or equipment presenting manufacturing defects without any costs to the buyer, in the factory in Gravataí or the branch office in São Paulo, 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 or the branch office in São Paulo.

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.