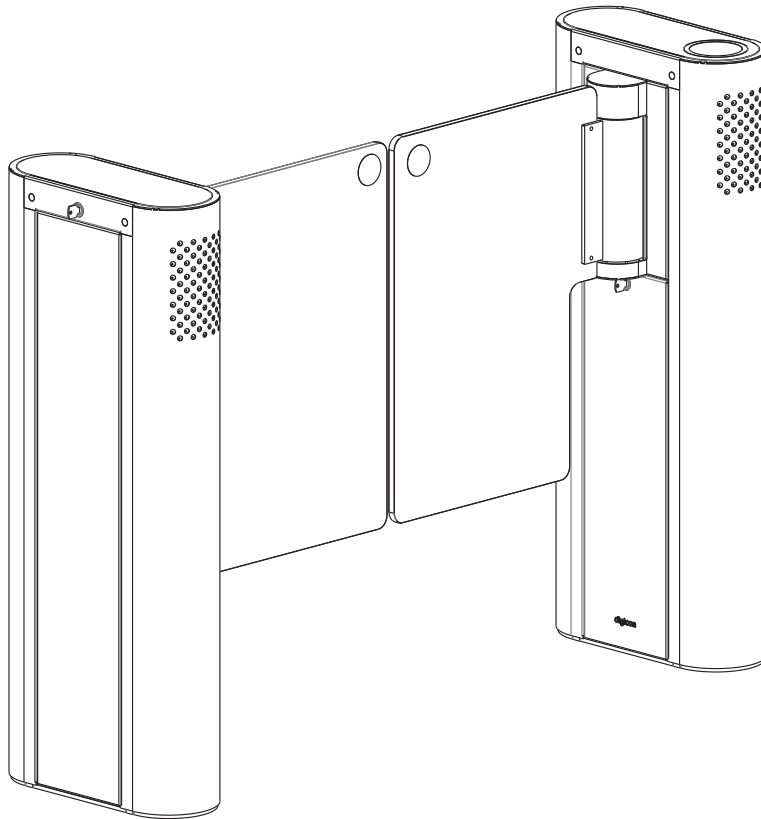


Product Manual

d' Tower



Contents

| | |
|--|----|
| 1. Important instructions | 05 |
| 2. Orientations | 06 |
| 3. Introduction | 06 |
| 4. Features of dTower | 07 |
| 4.1 dTower Pictograms | 08 |
| 5. Installing and Assembling | 09 |
| 5.1 Unboxing | 09 |
| 5.2 Pre-installation | 10 |
| 5.3 Fixing dTower to the ground | 11 |
| 5.4 Accessing dTower after assembly | 15 |
| 6. Electrical connection | 16 |
| 6.1 Interconnection | 16 |
| 6.2 Connection to power and data networks | 18 |
| 6.3 Connecting control signals | 19 |
| 5.4 Configuration of controller board | 24 |
| 7. Technical characteristics | 26 |
| 7.1 Dimensions | 26 |
| 7.2 Other information | 27 |
| 8. Cleaning | 28 |
| 8.1 Maintenance and preservation of doors | 28 |
| 8.2 Maintenance and preservation of dTower (glasses and stainless steel sheets) | 28 |
| 9. Warranty and technical assistance | 29 |

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 Turnstiles.us 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.
- Turnstiles.us reserves its right to alter its products at any moment to adapt them to more recent technical advancements.
- Turnstiles.us maintains its right to alter the information contained in this manual without previous notice.
- Turnstiles.us 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.
- The information contained in this manual is exclusive property of Turnstiles.us and is protected by copyright laws.
- This manual cannot be reproduced, photocopied or translated, in its entirety or in part, into any kind of medium, without Digicon's written consent.
- The equipment described here is customizable, that is, this manual describes all possible models and they may not reflect, necessarily, the model purchased by the customer.

3. Introduction

Gate line especially developed for access control solutions that operate in small spaces. Using the comfort and safety of swing gate doors, the **dTower** line offers maximum flexibility with minimum use of space.

4. Features of dTower

- Innovative design, according to the dGate and dFlow lines;
- Robust solution, with motorized system and control with proprietary technology;
- Reinforced structure for fixing it to the ground;
- Available in stainless steel and carbon steel painted in powdered epoxy;
- Available with doors in 12mm polymer – more resistant to impacts;
- Very fast door opening;
- Offers operational pictogram (top) – clear access;
- Offers orientation pictograms (front) for both directions;
- Offers sound signal (beep) to indicate access cleared or denied;
- Doors with bidirectional movement;
- Inputs for activation sensors that open or close the doors;
- Optional card collecting box;
- Allows installation of reader on the edges;
- Easy integration with access controllers available in the market.

4.1 dTower Pictograms

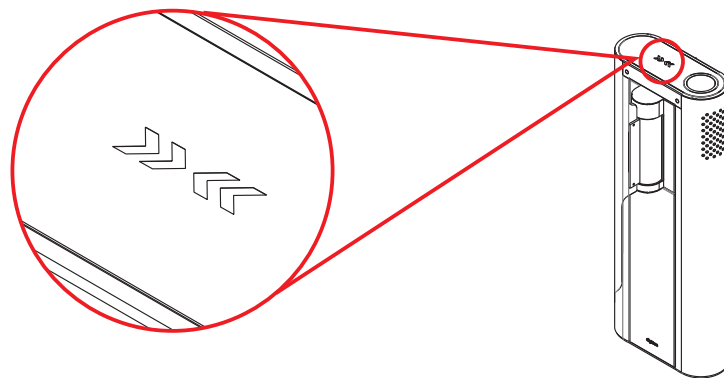
dTower has two pictograms: direction and orientation

A) Operational pictogram (top):

The operational pictogram is installed on the upper part of the equipment and is represented by a sequence of LED lights in several colors, depending on the operational flow direction and validation group, if it exists.

LED lights flashing red or flowing in the opposite direction represent passage not cleared.

LED lights flashing green indicating the direction of passage represent cleared passage.

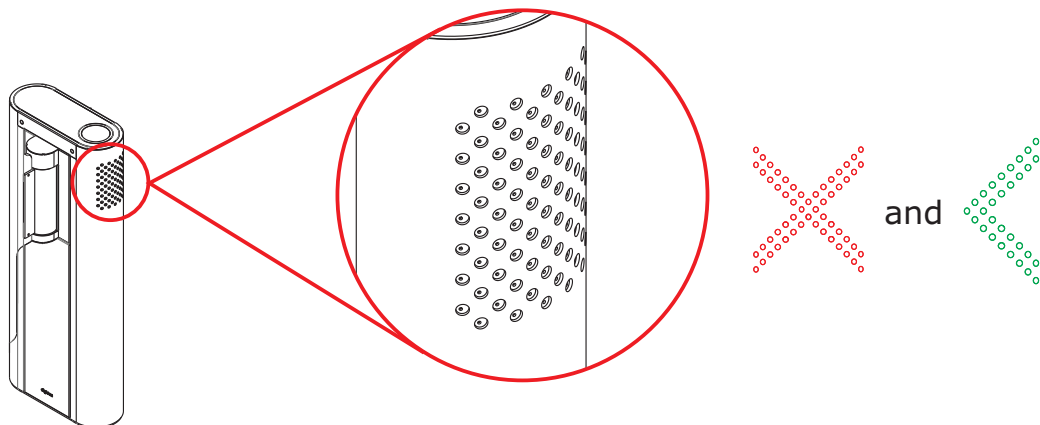


B) Orientation Pictogram (front)

The orientation pictogram is installed on the edges of the equipment and is represented by a green arrow > or red x.

The red pictogram informs the user that **dTower** is not operating in the indicated direction or that passage is not allowed, or even that it is busy.

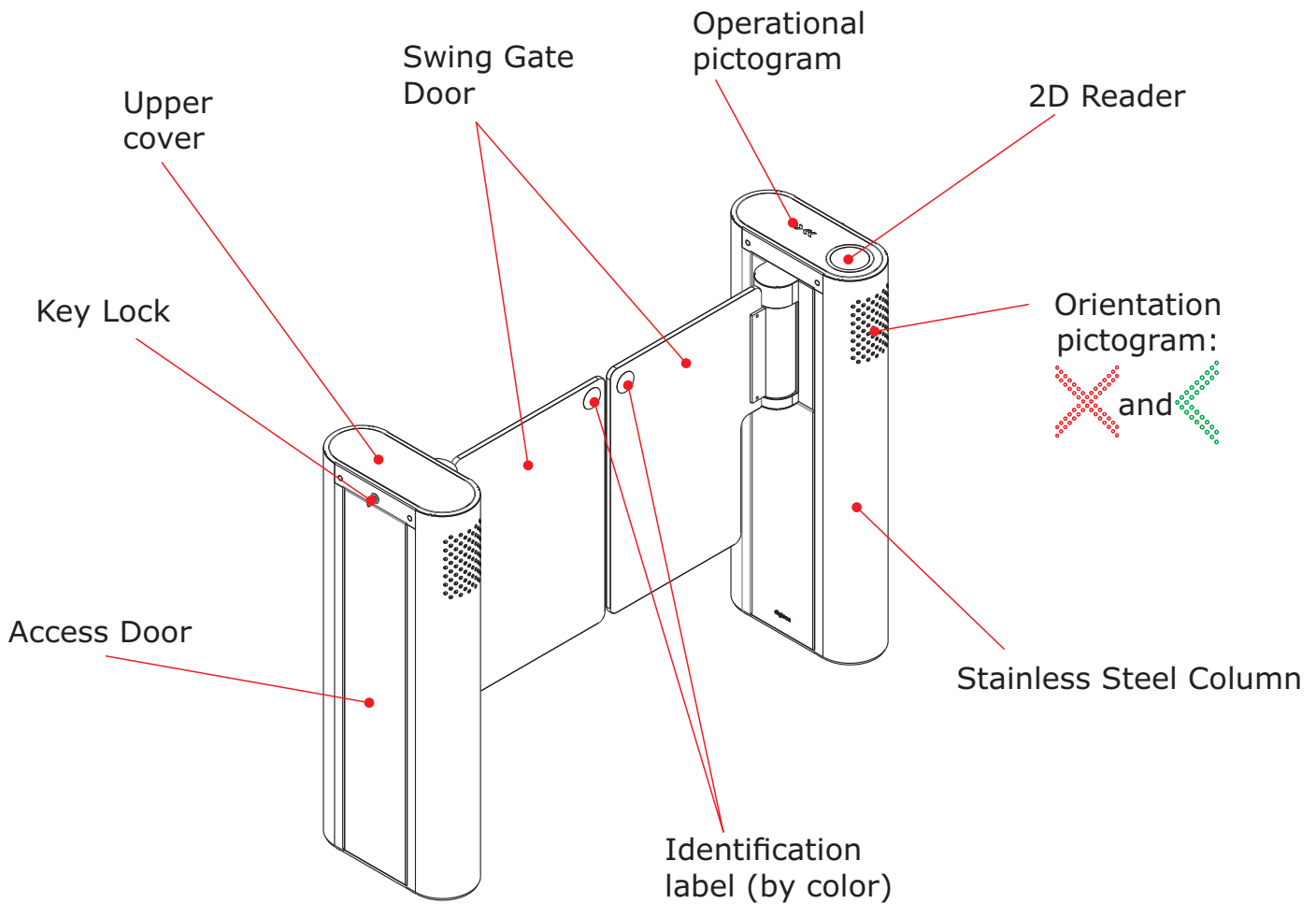
The green pictogram informs the user that **dTower** is free or controlled for passage in the indicated direction.



5. Installing and Assembling

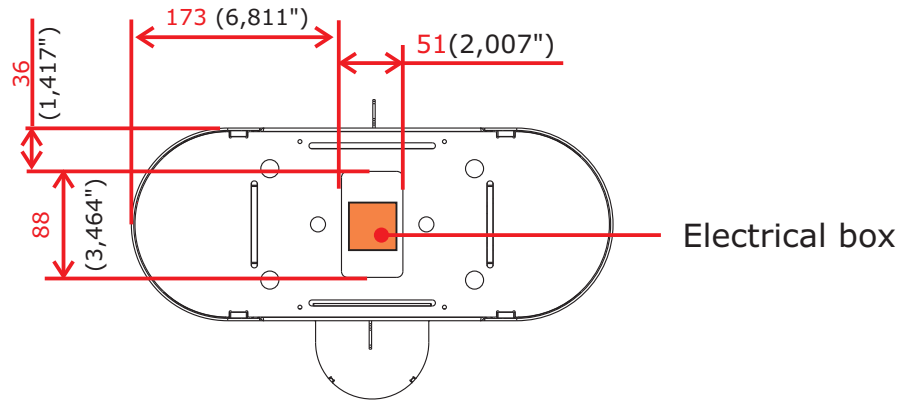
5.1 Unboxing

As the items inside the package can vary (since the equipment is customizable), it is important to perform a cautious visual inspection before installing and assembling the **dTower**. A checklist that works as a guide during inspection accompanies all Turnstiles.us packages. In case of missing pieces, immediately contact the Turnstiles.us representative responsible for the sale.



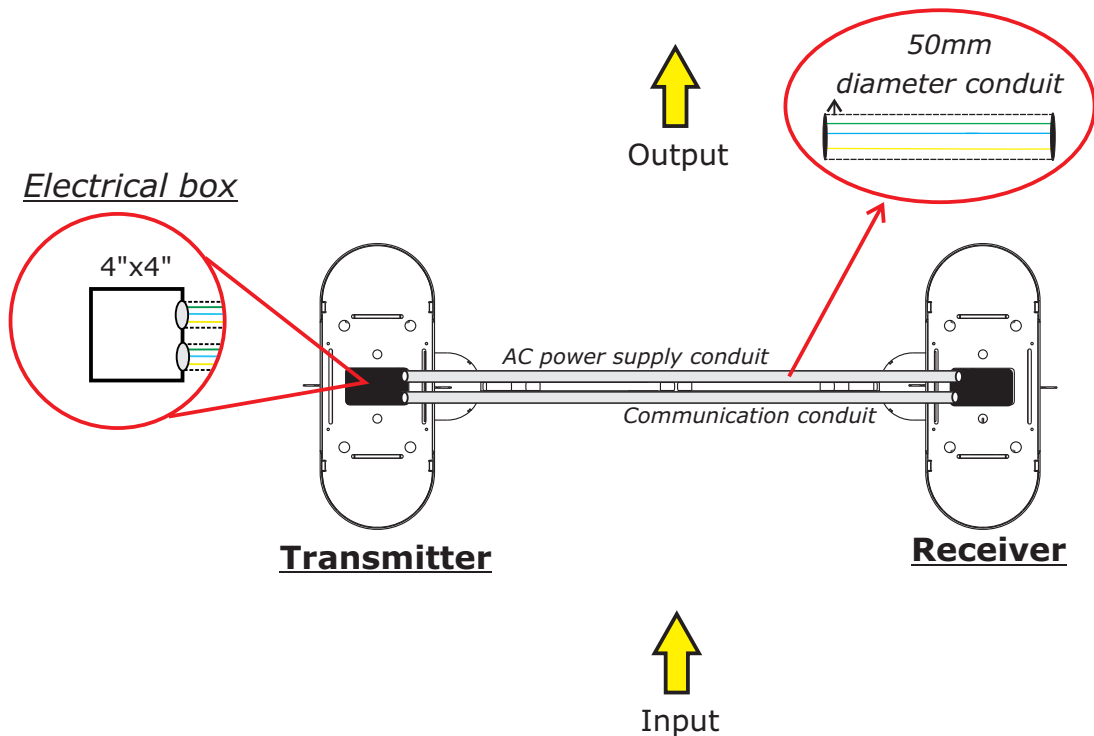
5.2 Pre-installation

Before starting **dTower** installation, the floor where the equipment will be fixed must be prepared. The electrical boxes must be installed before **dTower** fixation. The floor must be firm and with correct level, to ensure proper operation the equipment.



INFORMAÇÃO: Measures are given in millimeters and (inches).

The distance between the boxes depends the size of the doors. Doors should be adjusted with a small gap between them of approximately 30mm. This gap is important to protect users.



5.3 Fixing dTower to the ground

The image below indicates the points for fixing the product to the ground.

The surface must be steady and leveled to ensure good performance for the passage-controlling sensor and to maintain the doors aligned.

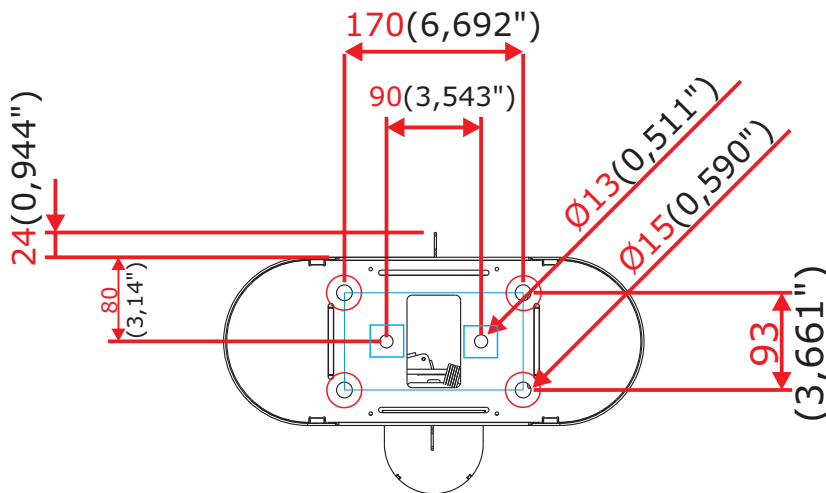
Fixing can be done through mechanical bolts, also known as parabolts, or through chemical anchorage.



TIP: To fasten the bolts, use a tool with long extensor.

○ - Fixing points

□ - Optional fixing points



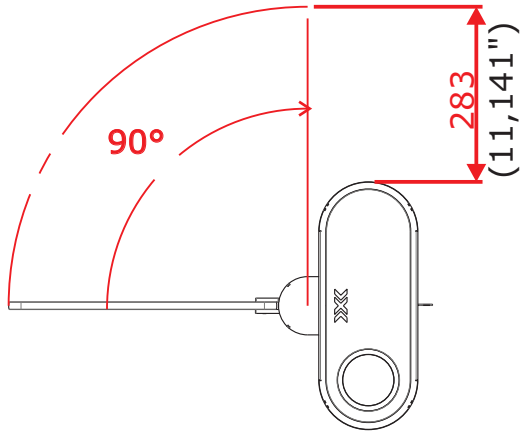
INFORMATION: Measures are given in millimeters and (inches).



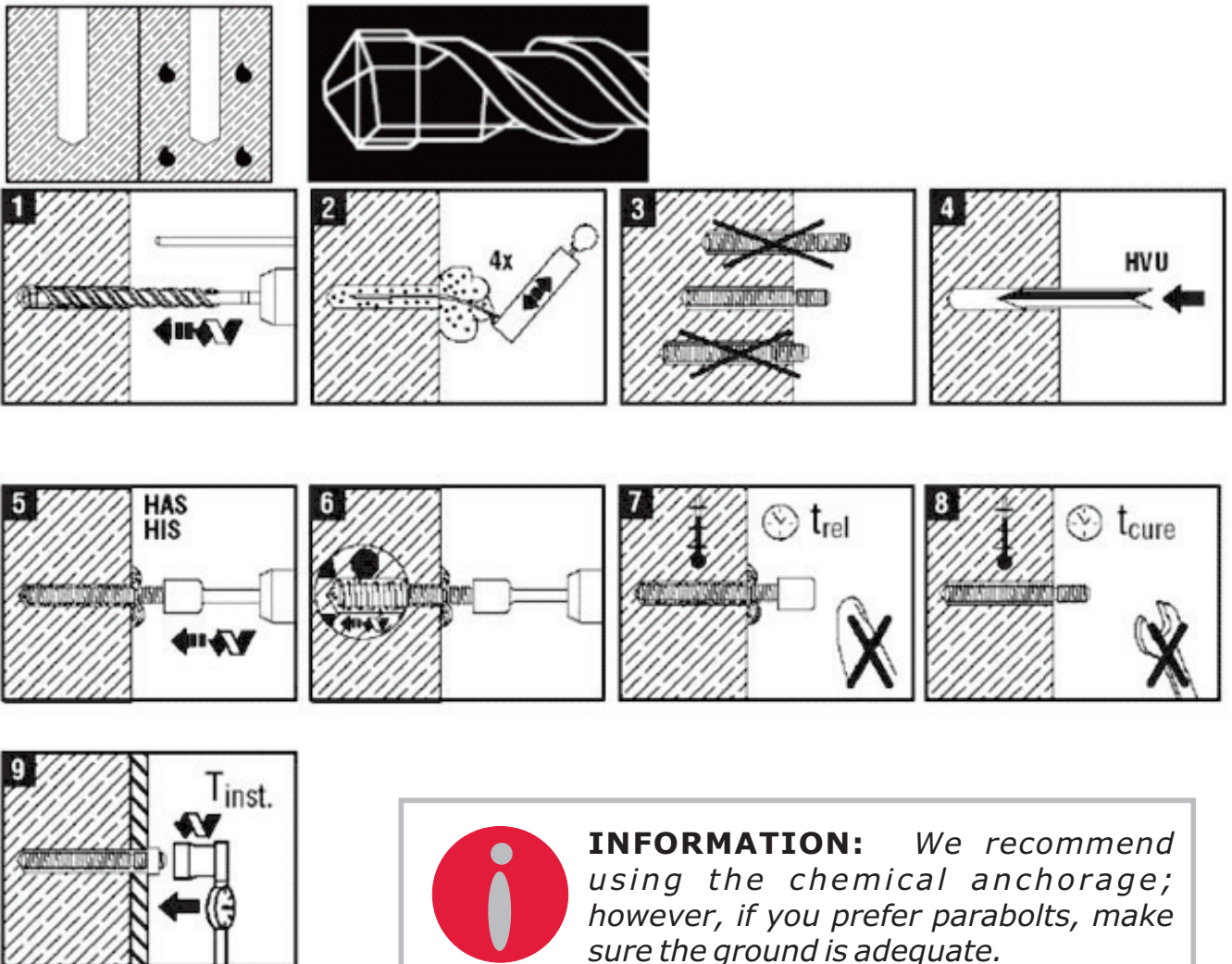
TIP: We recommend bolts by Tecart, model AF38110, 3/8x4".

It is very important to check, upon installation, the alignment of the doors in the closed position. The distance, from top to bottom, must be the same.

Passage free span:



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



INFORMATION: We recommend using the chemical anchorage; however, if you prefer parabolts, make sure the ground is adequate.

Step-by-Step:

1. Use the 12mm (0,47") 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:

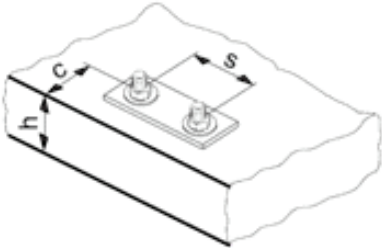
Cure time in general conditions

| 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:

Installation details

| | | 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 |
|  | | | | | | | | | |

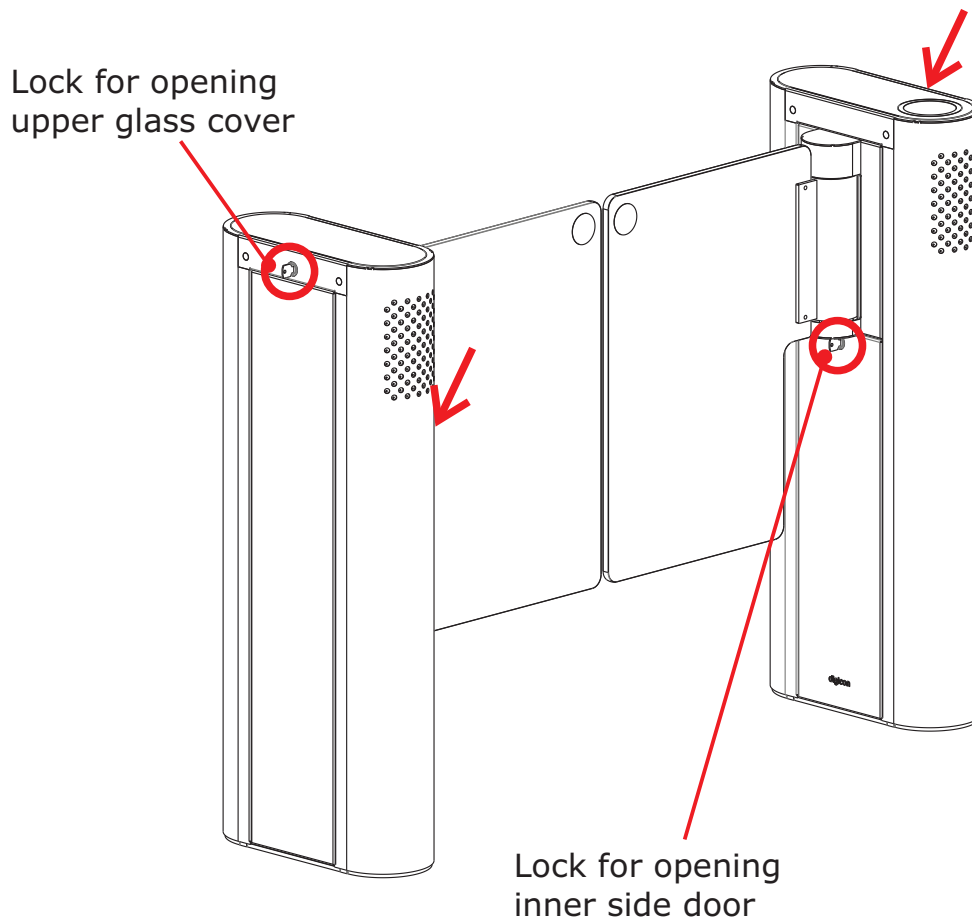
Estimate resistances must be reduced to distances from edge and spacing smaller than critical values.

- 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.

5.4 Accessing dTower after assembly

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

1. Via the upper glass cover: access the readers, pictograms and engine board;
2. Via the inner side door: access the Controller board, connection terminals and source.



6. Electrical connection

6.1 Interconnection

The interconnect cables are located inside of **dTower R** (Receiver - Turnstiles.us code 768.01.750) and must pass through conduits (ducts) as below:

Communication conduit (communication cables and DC cable):

- 037.12.250 - Interconnection cable 485;
- 037.12.251 - Pictogram interconnection cable (input);
- 037.12.252 – Pictogram interconnection cable (output);
- 037.12.587 - DC power cable;
- 037.12.690 - Pictograms cable (top side).

AC power supply conduit :

- 037.12.253 - AC Power cable.

These cables must be connected to **dTower T** (Transmitter - Turnstiles.us code 768.01.751) according the tables below:

Cable 037.12.250

| 768.01.750 dTower R | 768.01.751 dTower T |
|--------------------------------|--------------------------------|
| 9A | 8A |
| 9B | 8B |
| 9C | 8C |

Cable 037.12.251

| 768.01.750 dTower R | 768.01.751 dTower T |
|--------------------------------|--------------------------------|
| 2A | 2A |
| 2B | 2B |
| 2C | 2C |

Cable 037.12.252

| 768.01.750 dTower R | 768.01.751 dTower T |
|--------------------------------|--------------------------------|
| 3A | 3A |
| 3B | 3B |
| 3C | 3C |

Cable 037.12.587


| 768.01.750 dTower R | 768.01.751 dTower T |
|--------------------------------|--------------------------------|
| 6B | 6B |
| 6C | 6C |

Cable 037.12.690

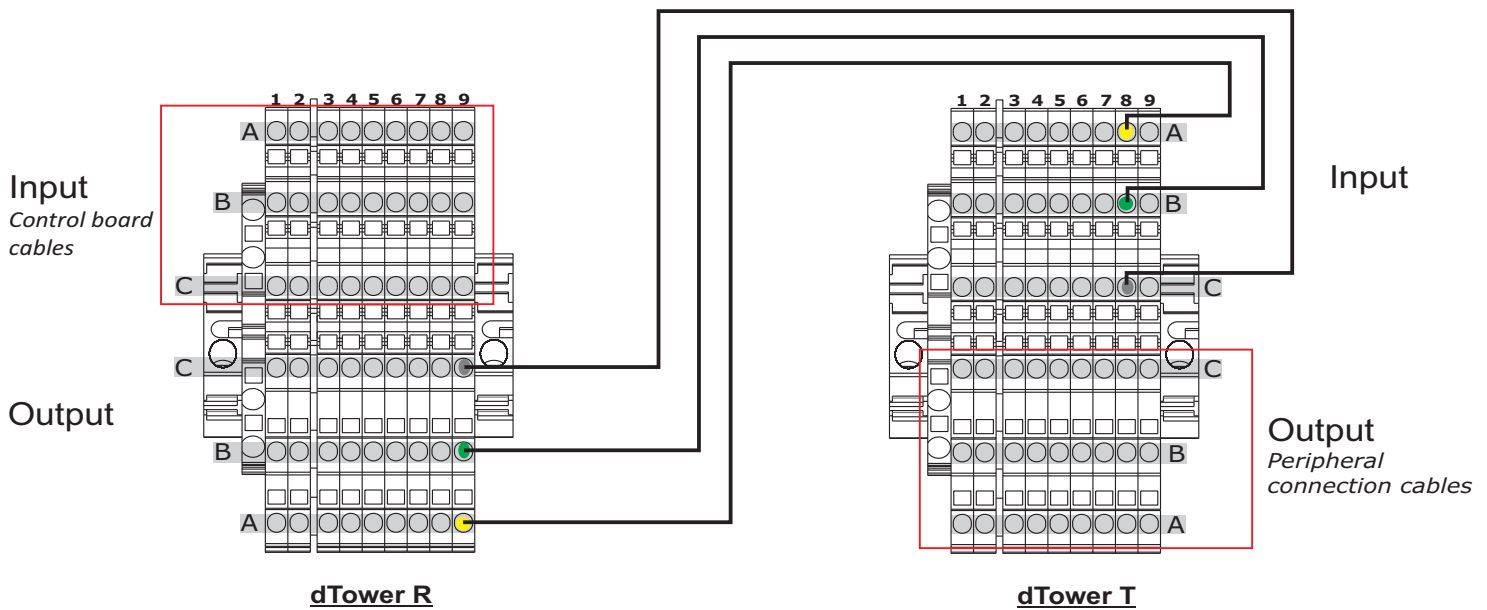
| 768.01.750 dTower R | 768.01.751 dTower T |
|------------------------|------------------------|
| 1A | 1A |
| 1B | 1B |
| 1C | 1C |
| 5A | 5A |


Cable 037.12.253

| 768.01.750 dTower R | 768.01.751 dTower T |
|------------------------|------------------------|
| F | F |
| N | N |
| T | T |

 **INFORMATION:** *On the cable itself there are identifications where each cable must be connected.*

Follow an example (drawing) of 037.12.250 cable connection:



 **TIP:** *Separate the power supply cables from the communication cables.*

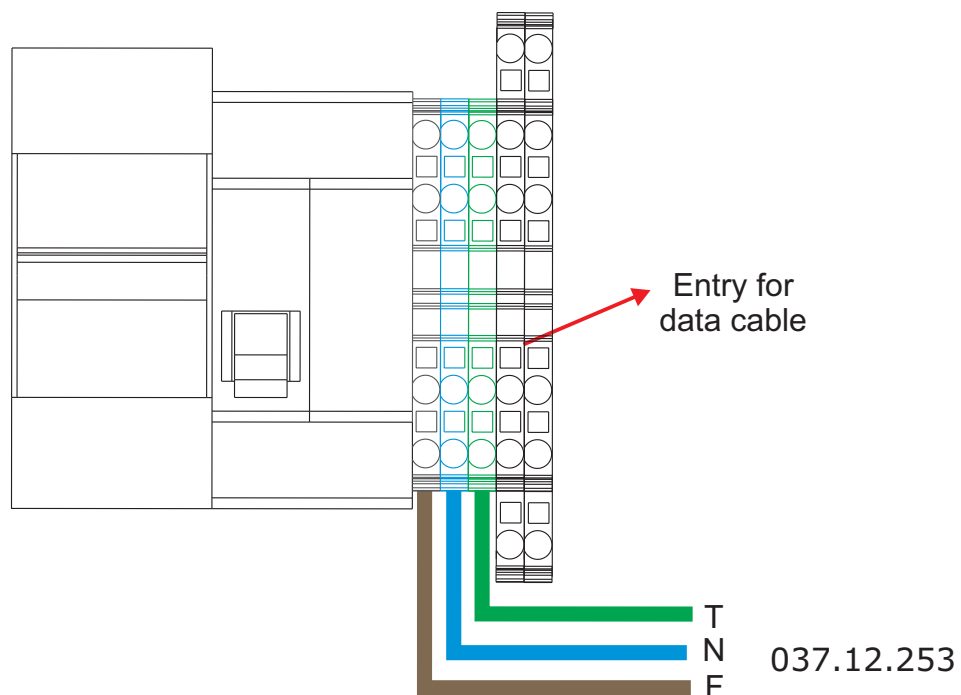
6.2 Connection to power and data networks

There are two ways of supplying power to **dTower**:

- 1° Internal power supply: Power supply to the equipment must be 100 to 240Vac.
- 2° External power supply: Power supply must be 24Vdc (+/- 5%) by module.

Turnstiles.us recommends using NBR 5410 standard as reference for electrical installations of equipment pieces.

Power cables of power supply must be connected to the circuit breaker and the ground cable in yellow/green terminal.



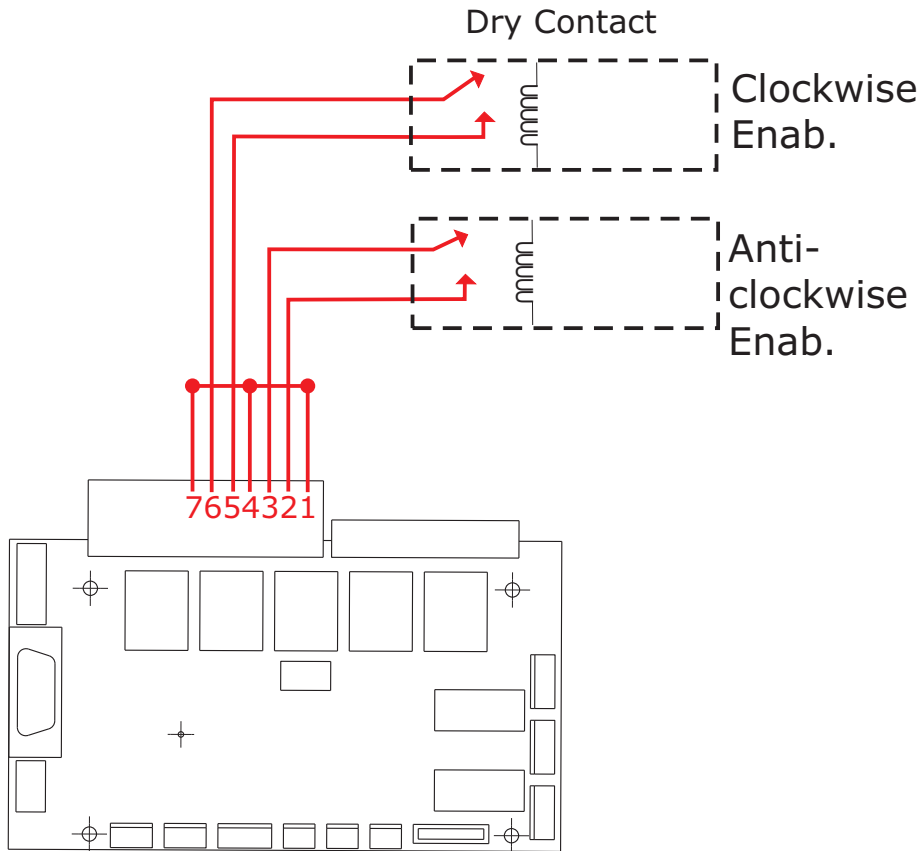
CAUTION: *Electrical connections must be performed by qualified professionals.*



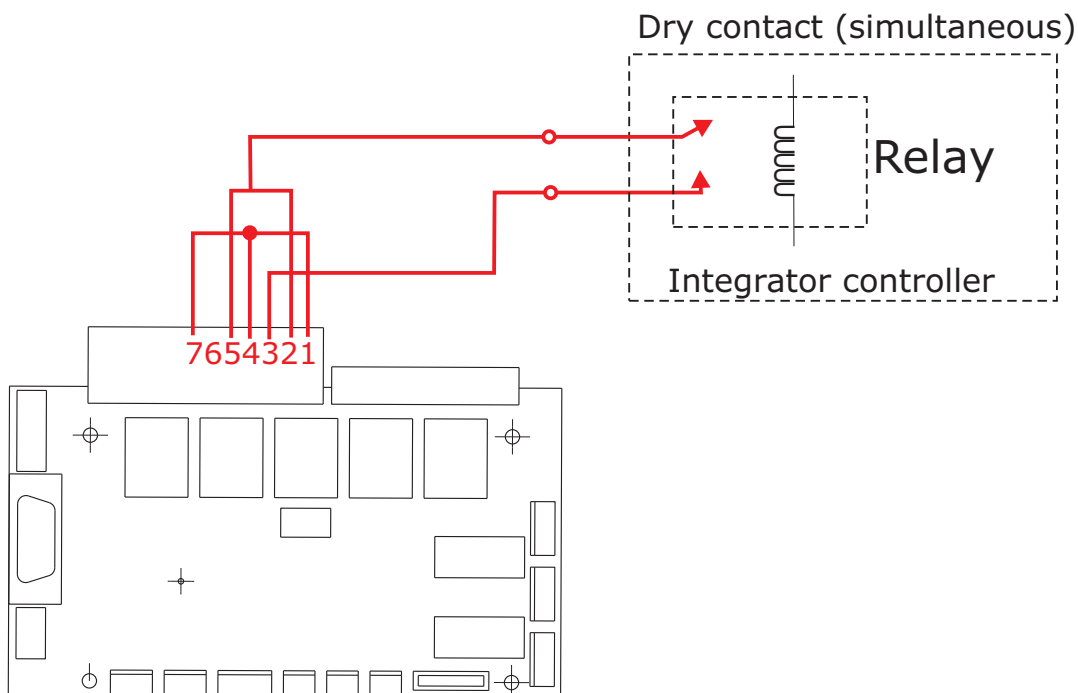
TIP: *We recommend using good quality AC and grounding cables, with dimensions compatible with the distance until the switchboard. The data cable must be CAT5E. Recommended manufacturers: FURUKAWA and AMP.*

6.3 Connecting control signals

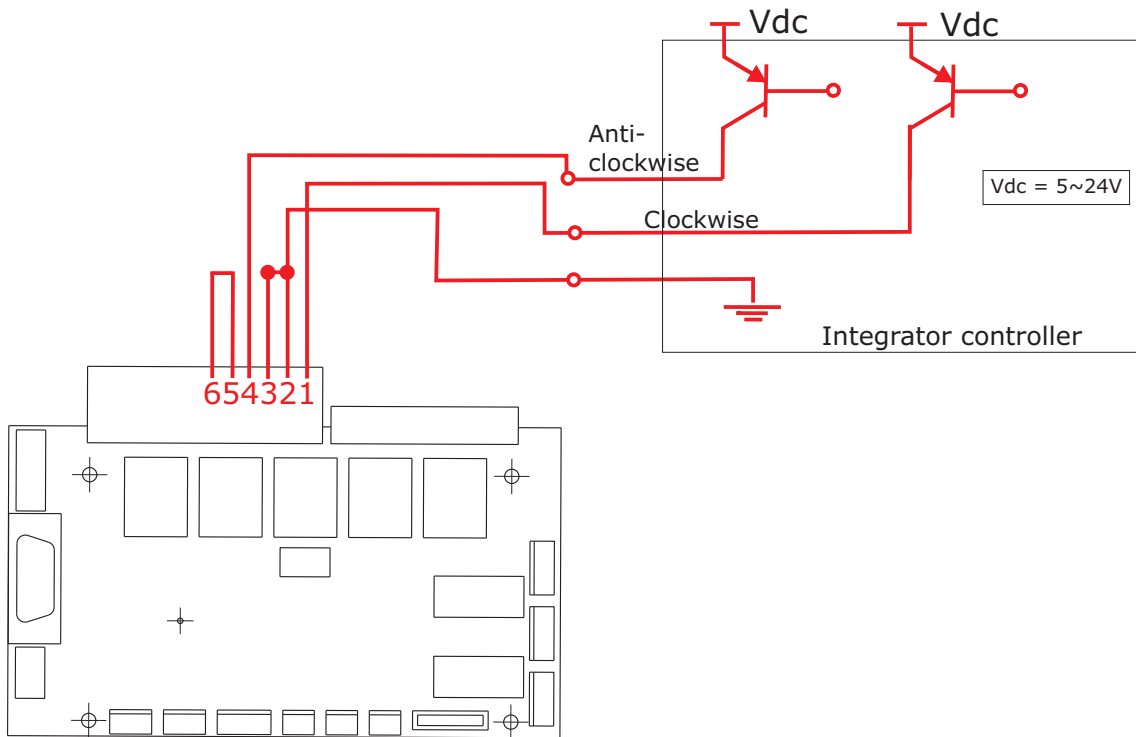
Enabling dry contact with 2 relays:



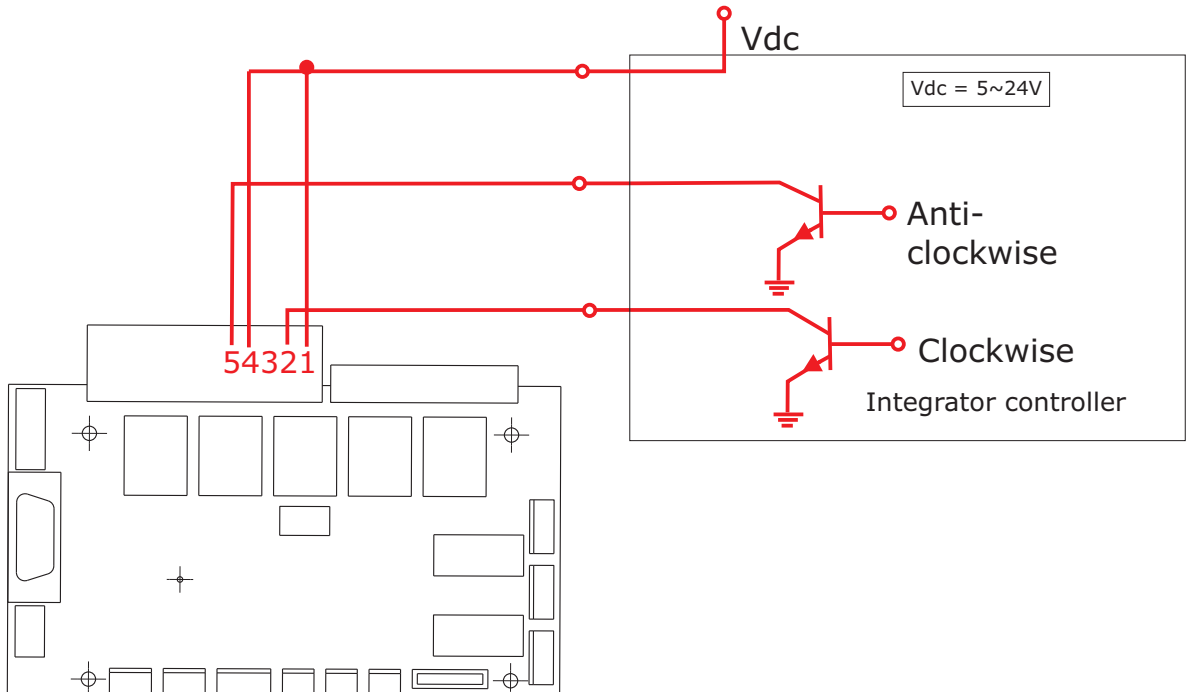
Enabling both directions with only 1 relay:



Enabling by solid state (positive, positive voltage):

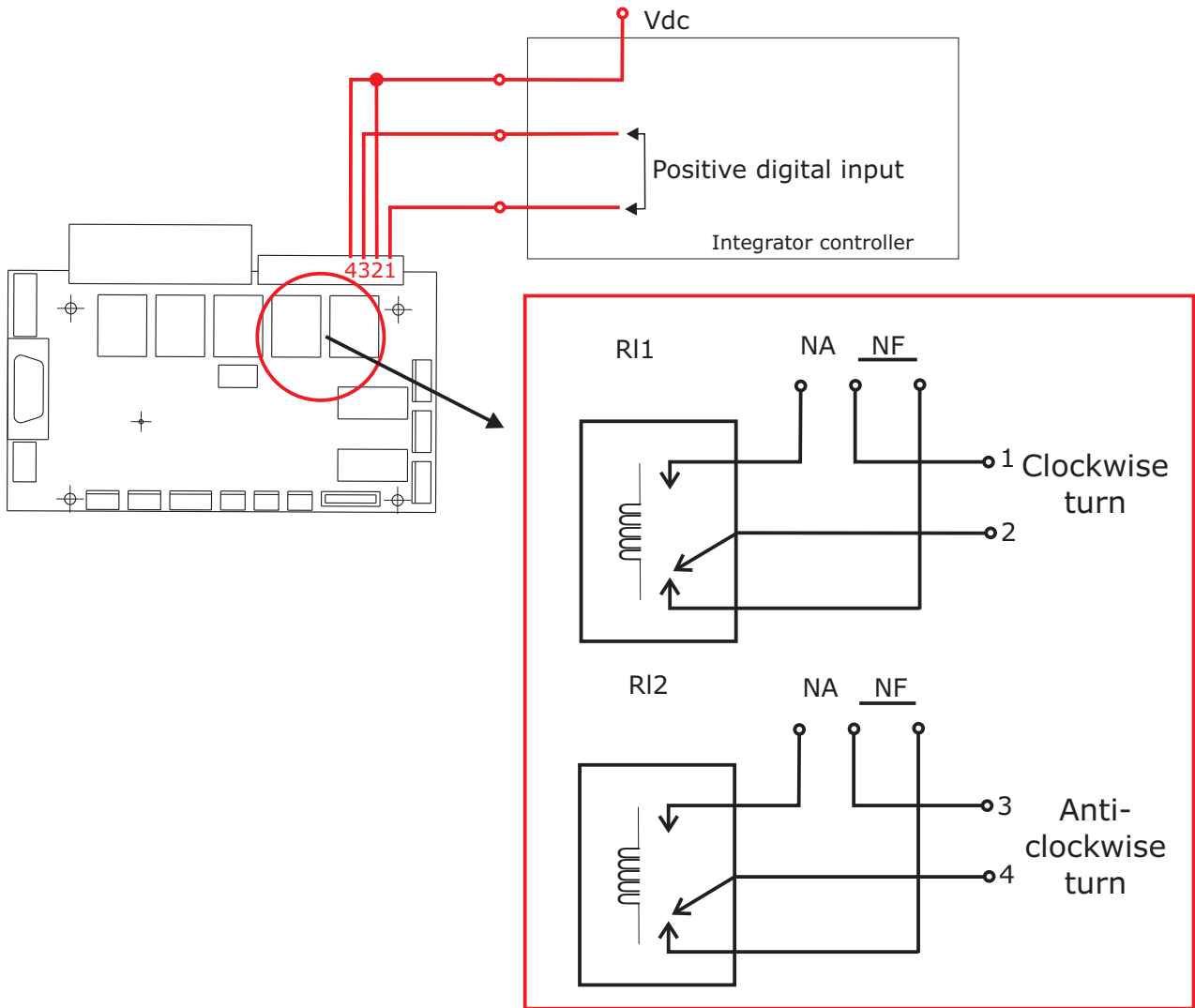


Enabling solid state (negative)



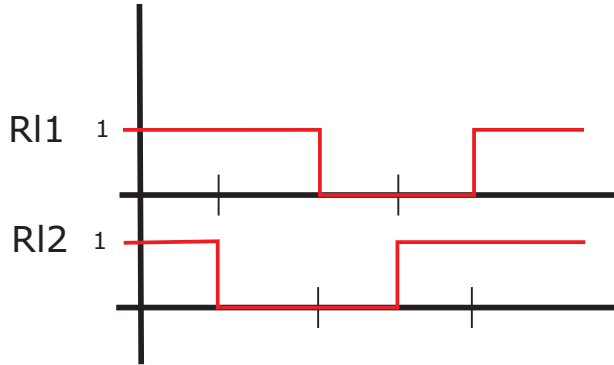
Confirming passage

Vdc - True logical level, configured in "disk emulation" DIP Ds2 n°7 in ON.

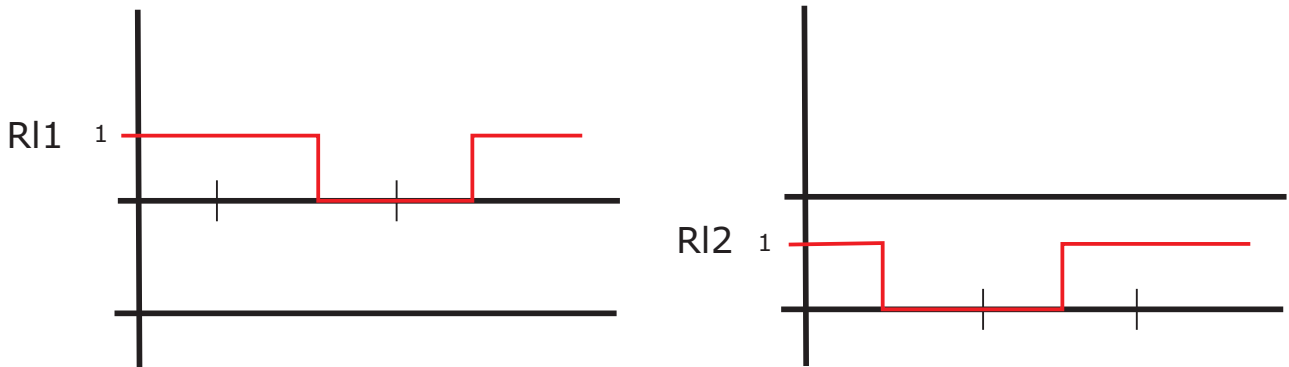


Confirming passage by disk emulation

- Firmware version 2.0.0 or superior

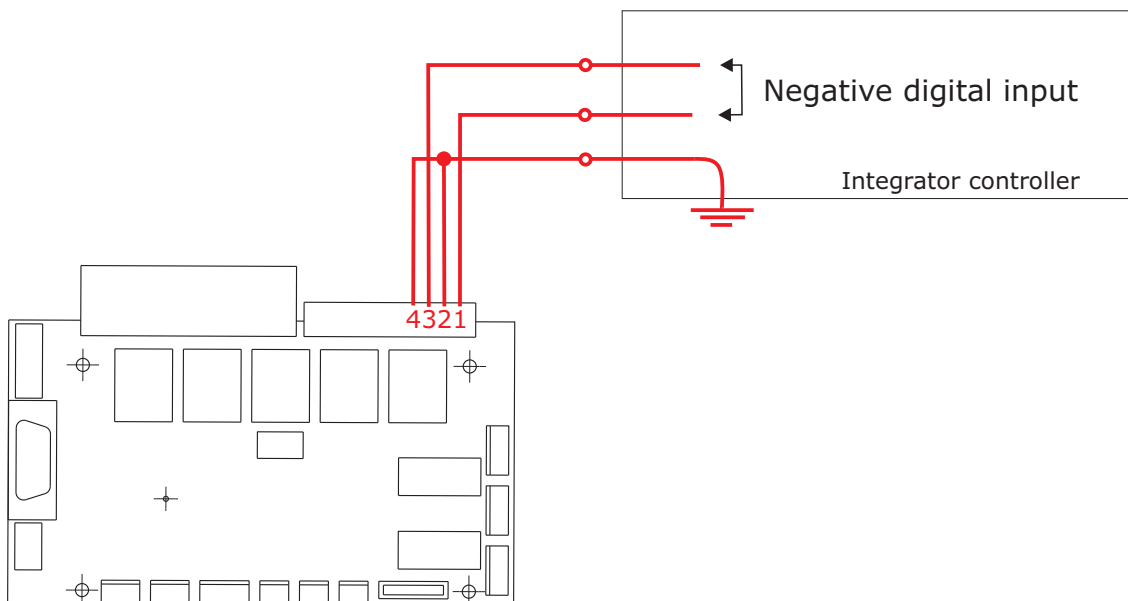


Confirming passage by pulse

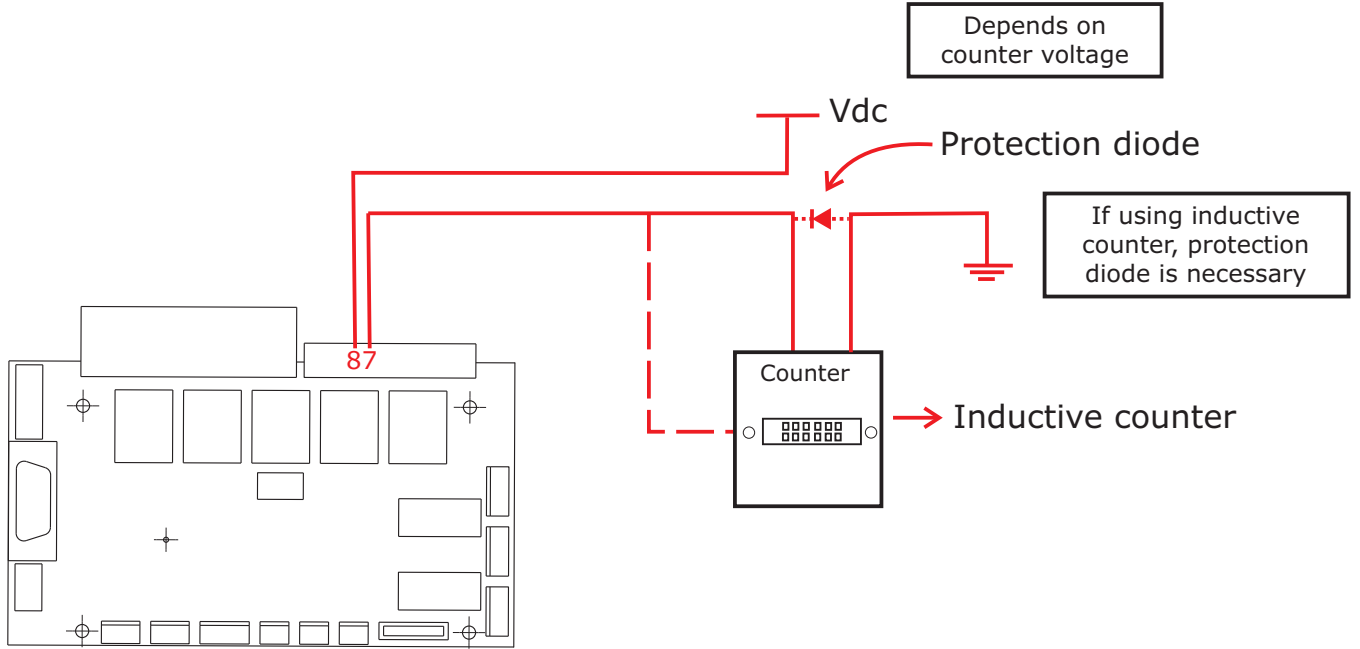


Confirmation of passage by pulse or “disk emulation” can be configured through the dipswitch Ds2 n°7; if it is on, it will emulate the disk; if it is off, pulse will be generated when passing.

Confirming passage - Negative



Connecting electromechanical counter



6.4 Configuration of controller board

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 | |
| Enables sound signal | ON | | | | | | | |
| Disables sound signal | OFF | | | | | | | |
| NO inputs | | ON | | | | | | |
| NC inputs | | OFF | | | | | | |
| Enabling per border | | | OFF | | | | | |
| Enabling per level | | | ON | | | | | |
| SIGNAL FOR REMOTE CONTROL KEEP IN OFF | | | | OFF | OFF | | | |
| SIGNAL FOR REMOTE CONTROL KEEP IN OFF | | | | OFF | OFF | | | |
| SIGNAL FOR REMOTE CONTROL KEEP IN OFF | | | | OFF | OFF | | | |
| SIGNAL FOR REMOTE CONTROL KEEP IN OFF | | | | OFF | OFF | | | |
| RESERVED | | | | | | ON | | |
| RESERVED | | | | | | OFF | | |
| No timeout – awaits until valid passage | | | | | | | ON | ON |
| 05 seconds wait | | | | | | | OFF | ON |
| 10 seconds wait | | | | | | | ON | OFF |
| 15 seconds wait | | | | | | | OFF | OFF |

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

- Invitation mode;
- Rotational speed;
- Passing count.

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

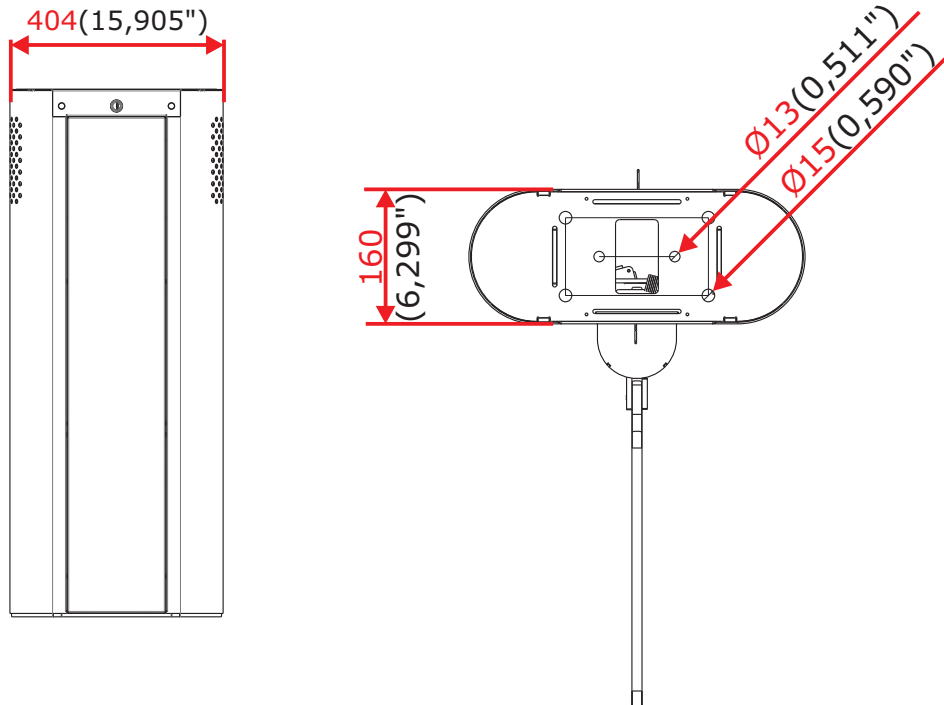
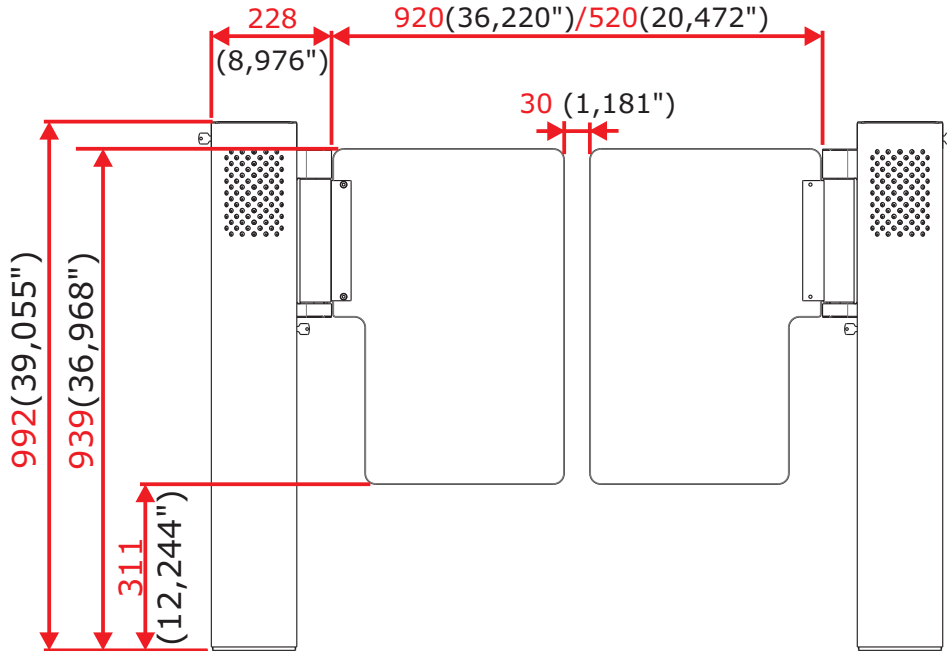
| DIP SWITCH DS2 | | | | | | | | |
|--|------------|------------|------------|------------|------------|------------|------------|------------|
| SWITCH | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| RESERVED | ON | | | | | | | |
| RESERVED | OFF | | | | | | | |
| RESERVED | | ON | | | | | | |
| RESERVED | | OFF | | | | | | |
| RESERVED | | | ON | | | | | |
| RESERVED | | | OFF | | | | | |
| RESERVED | | | | ON | | | | |
| RESERVED | | | | OFF | | | | |
| RESERVED | | | | | ON | | | |
| RESERVED | | | | | 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 Version FW >= 2.0.0.0 | | | | | | | ON | |
| Disables Disk Emulation Version FW >= 2.0.0.0 | | | | | | | OFF | |
| RESERVED | | | | | | | | ON |
| RESERVED | | | | | | | | OFF |



INFORMATION: The grey squares (in bold) in the tables above show the standard configuration, that is, factory settings.

7. Technical characteristics

7.1 Dimensions



INFORMATION: Measures are provided in millimeters and (inches).

7.2 Other information

| Technical Data | Characteristics |
|--|--|
| Power requirements | 100 - 240 Vac (Automatic selection) |
| USING EXTERNAL (power supply) | 24 Vdc/5A (+/-5%) (one power supply per module) |
| Frequency | 50 - 60 Hz |
| Average time for opening/closing door | 1 second |
| Operating Temperature | 0°C to + 50°C |
| Weight | 100 kg per packed module |
| Energy consumption | Initialization: 36W Standby: 32W In operation: 90W |

8. Cleaning

8.1 Maintenance and preservation of doors

- Finger marks: use a soft cloth dampened with water, soap or neutral detergent and lightly polish the surface with a soft and dry cloth.
- Spots that appear after dirty water dries: use a soft cloth dampened with distilled or ionized water, and then dry it thoroughly with a soft and dry cloth.
- Greases and oils: use a soft cloth dampened with isopropyl alcohol. Be careful not to spread the spot.
- Every six months, check the attachment of the doors to their supports.

8.2 Maintenance and preservation of dTower (glasses and stainless steel sheets)

- Clean the equipment monthly, at least. Adjust the frequency of cleaning according to the local conditions and use of the **dTower**.
- If cleaning is performed regularly, a dry cloth is enough to remove the dust.
- Do not use chemical products, bleaches, or household cleaning products.
- If there is a lot of accumulated dirt or there are spots originated from users, use isopropyl alcohol on a soft cloth.
- Brushed stainless steel and glasses are sensible to abrasion. Keep this in mind when cleaning the equipment.
- Be sure to clean the sheets adequately; soap or alcohol residues can leave spots on the equipment.

9. Warranty and Technical Assistance

Turnstiles.us 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. Turnstiles.us 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 or our 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 Turnstiles.us;
 - 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. Turnstiles.us 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 Turnstiles.us facilities.